Psychological Applications and Trends 2026

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FOREWORD

Dear Participants,

This book contains a compilation of papers presented at the International Psychological Applications Conference and Trends (InPACT) 2026, organized by the World Institute for Advanced Research and Science (WIARS), held in International Psychological Applications Conference and Trends (InPACT) 2026, held in Madeira Island, Portugal, from 18 to 20 of April 2026. This conference serves as a platform for scholars, researchers, practitioners, and students to come together and share their latest findings, ideas, and insights in the field of psychology.

Over the next few days, we will be exploring some of the most cutting-edge research and theories in psychology. We have a diverse range of topics and speakers lined up for you, covering themes and sub-themes. The conference proceedings and program include eight main broad-ranging categories that cover diversified interest areas:

- **CLINICAL PSYCHOLOGY**: Emotions and related psychological processes; Assessment; Psychotherapy and counseling; Addictive behaviors; Eating disorders; Personality disorders; Quality of life and mental health; Communication within relationships; Services of mental health; and Psychopathology.

- **EDUCATIONAL PSYCHOLOGY**: Language and cognitive processes; School environment and childhood disorders; Parenting and parenting related processes; Learning and technology; Psychology in schools; Intelligence and creativity; Motivation in classroom; Perspectives on teaching; Assessment and evaluation; and Individual differences in learning.

- **SOCIAL PSYCHOLOGY**: Cross-cultural dimensions of mental disorders; Employment issues and training; Organizational psychology; Psychology in politics and international issues; Social factors in adolescence and its development; Social anxiety and self-esteem; Immigration and social policy; Self-efficacy and identity development; Parenting and social support; Addiction and stigmatization; Psychological and social impact of virtual networks.

- **LEGAL PSYCHOLOGY**: Violence and trauma; Mass-media and aggression; Intra-familial violence; Juvenile delinquency; Aggressive behavior in childhood; Internet offending; Working with crime perpetrators; Forensic psychology; Violent risk assessment; Law enforcement and stress.

- **COGNITIVE AND EXPERIMENTAL PSYCHOLOGY**: Perception, memory, and attention; Decision making and problem-solving; Concept formation, reasoning, and judgment; Language processing; Learning skills and education; Cognitive Neuroscience; Computer analogies and information processing (Artificial Intelligence and computer simulations); Social and cultural factors in the cognitive approach; Experimental methods, research and statistics; Biopsychology.

- **ENVIRONMENTAL PSYCHOLOGY**: Environmental behaviour studies; Place attachment, Restorative environments; Pro-environmental behavior; Architectural psychology; Environment Psychology Theories and Methods; Environmental risk perception and management; Environmental impact assessment; Environmental consciousness; Interdisciplinary research.

- **HEALTH PSYCHOLOGY**: Biological, Physiological and Cognitive Models; Research methods and measurement; Individual differences and Habits; Illness-related and sick role beliefs; Acute and chronic illness; Dealing with Pain; Health Promotion and Intervention.

- **PSYCHOANALYSIS AND PSYCHOANALYTICAL PSYCHOTHERAPY**: Psychoanalysis and psychology; The unconscious; The Oedipus complex; Psychoanalysis of children; Pathological mourning; Addictive personalities; Borderline organizations; Narcissistic personalities; Anxiety and phobias; Psychosis; Neuropsychoanalysis.

InPACT 2026 received 472 submissions, from more than 43 different countries all over the world, reviewed by a double-blind process. Submissions were prepared to take the form of Oral Presentations, Posters and Virtual Presentations. 157 submissions (overall, 33% acceptance rate) were accepted for presentation at the conference.

As we all know, psychology is a vast and complex field that encompasses a wide range of topics, from the study of human behaviour to the workings of the brain. It is a field that has made enormous strides in recent years, and it continues to evolve at a rapid pace. At this conference, we hope to not only share the latest research and developments in psychology but also to foster a sense of community and collaboration among attendees. We believe that by working together, we can continue to advance the field of psychology and make important contributions to our understanding of the human mind and behaviour.

We would like to express our sincere gratitude to all of our speakers, sponsors, and attendees for making this conference possible. This book includes an extensive variety of contributors and presenters that are hereby sharing with us their different personal, academic, and cultural experiences.

The conference also includes:

- A Keynote presentation by Dr. Jaime Craig (Chair of the Association of Clinical Psychologists UK (ACP-UK)).
- A Special Talk by Prof. Clara Pracana (Full and Training Member of the Portuguese Association of Psychoanalysis and Psychoanalytic Psychotherapy, Portugal).

This volume is composed with the full content of the accepted submissions of the International Psychological Applications Conference and Trends (InPACT 2026). We hope that this book of proceedings will be a valuable resource for those in attendance, as well as for those who could not join us. Thank you for your participation, and we look forward to a productive and stimulating event!

Lasty, we would like to thank all the authors and participants, the members of the academic scientific committee, and, of course, the organizing and administration team for making and putting this conference together.

Looking forward to continuing our collaboration in the future,

Prof. Clara Pracana
Full and Training Member of the Portuguese Association of Psychoanalysis and Psychoanalytic Psychotherapy, Portugal
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Prof. Michael Wang
Emeritus Professor of Clinical Psychology, University of Leicester, United Kingdom
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KEYNOTE LECTURE

THE APPLICATION OF PSYCHOLOGY IN THE FAMILY COURTS – CONTROVERSIES, PSEUDOSCIENCE AND PSEUDO EXPERTS

Dr. Jaime Craig
Chair of the Association of Clinical Psychologists UK (ACP-UK)
United Kingdom

Abstract

For many years, psychological opinion has been pivotal in some of the most life changing decisions for children and their families in family courts worldwide. Nowhere has this been more evident, and the evidence more polarised and controversial than in cases which include allegations of 'parental alienation' / alienating behaviours. This paper will consider how in these cases psychology theories and the evidence from psychologist experts has been utilised to either promote or erode children's rights, to safeguard or silence victims.

Serious loopholes in the regulation of psychologists in the UK persist and this has allowed for the evidence from unregulated and unqualified psychologist 'experts' to be admitted in these cases and promote pseudoscience unfettered. Successive efforts to improve the rigour of psychologist expert evidence and its use in the family courts led to the development of joint Family Justice Council & British Psychological Society guidance for psychologist expert witnesses (Craig et al., 2023) and in December 2024 new family court guidance for how allegations of 'parental alienation'/alienating behaviours are responded to.

This presentation will chart the development of these guidelines and engagement with policy makers as an example of wider attempts to safeguard the public when accessing psychological advice and services.

The growing standing, influence and recognition of psychological science brings with it huge responsibility for how this power is wielded. Psychology is inherently impactful and as a discipline we need to take this seriously, call out its misuse and insist on rigour and accountability.

Keywords: *Pseudoscience, regulation, justice, ethical practice, accountability.*

Biography

Jaime is Chair of the Association of Clinical Psychologists UK (ACP-UK) and has many years of experience as an expert witness in the Family Courts in the UK. He is a qualified clinical psychologist and former Chair of the Children and Young People Faculty of the Division of Clinical Psychology of the British Psychological Society. He has led ACP-UK's campaign to expose and prevent the appointment of bogus psychological expert witnesses who claim expertise in the "diagnosis" of "parental alienation" leading to the scandalous removal of children from the custody of their mothers. This is an international problem being repeated in courts in many other countries outside the UK.

SPECIAL TALK

ANTONIO DAMÁSIO'S THEORIES VS. PSYCHO-ANALYTICAL THEORIES: BODY, AFFECT, AND SUBJECTIVITY IN CONTRAST WITH MATURANA AND VARELA

Prof. Dr. Clara Pracana
Portuguese Association of Psychoanalysis and Psychoanalytical Psychotherapy, Lisbon (Portugal)

Abstract

Over the past decades, psychological theory has increasingly moved away from purely cognitive models of mind toward frameworks that place the body, affect, and biological processes at the center of mental life. Among the most influential contributions to this shift are the neurobiological theories of António Damásio, the long-standing psychoanalytic tradition, and the biological epistemology of Humberto Maturana and Francisco Varela. Although these approaches share a rejection of disembodied cognition, they diverge significantly in their accounts of affect, subjectivity, and psychological suffering. This paper contrasts Damásio's theory of natural intelligence and consciousness with psychoanalytic models of the mind, and further situates both in relation to the autopoietic theory of cognition proposed by Maturana and Varela. The aim is not theoretical integration, but conceptual clarification: identifying what each framework explains, where its limits lie, and why psychoanalysis retains a distinct relevance for clinical psychology.

Keywords: *Neurobiology, Damásio, psychoanalysis, consciousness, autopoietic theory of cognition, Maturana & Varela.*

Biography

Clara Pracana is a psychoanalyst, psychotherapist, coach, author and lecturer. She was born in the Azores, Portugal. She has a Ph.D. in Applied Psychology and a Masters in Clinical Psychology and Psychopathology. She is a founding and full member of the Portuguese Association of Psycoanalysis and Psychoanalytical Psychotherapy, Portugal. She is a regular lecturer on psychoanalytical topics and has published several papers and four books. She is also a certified coach with the International Coaching Community (ICC). As a psychoanalyst, counselor, and coach, she has a private practice in Lisbon. Her research addresses anxiety, guilt and shame, depression, emotional intelligence, leadership, change, motivation, and group dynamics.

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PROCESS EVALUATION OF THE KID'S CLUB AND MOM'S EMPOWERMENT PROGRAMS ADAPTED FOR CANADIAN INDIGENOUS FAMILIES

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Abstract

Intimate partner violence (IPV) afflicting Indigenous women in Canada is a significant public health concern. It is estimated that approximately six of every ten Indigenous women experience some form of IPV, which also impacts their children. In spring 2024, a pilot intervention based on two existing evidence-based programs (Kid's Club and Mom's Empowerment Programs) adapted specifically for Indigenous women and their children who have experienced IPV was implemented. For ten weeks, five mothers and six children participated in two separate groups with two co-facilitators in each group to discuss a variety of important topics; Indigenous ways of knowing and being were integrated into these discussions, with some led by an Elder. The aim of this process evaluation was to investigate the perspectives of the mothers who participated in the pilot program, and the staff who delivered the program, using open-ended questions. Their responses were coded into three main themes, including 1) positive aspects of the program, 2) negative aspects of the program, and 3) unintended benefits and consequences. Examples of positive aspects for mothers included appreciation of the cultural teachings in the program, and feeling that their parenting skills improved, while positive aspects for staff included feeling proud and gratified by the learning demonstrated by mothers and children. Examples of negative aspects for mothers and staff included the length the program. The unintended benefits and consequences of the program were also discussed.

Keywords: *Process evaluation, intimate partner violence, Indigenous families, culturally safe intervention.*

1. Introduction

Intimate partner violence (IPV) against women and the exposure of children to IPV are serious societal concerns. Internationally, more than a quarter (27%) of women aged 15–49 years who have been in a relationship report that they have experienced some form of physical and/or sexual violence by their intimate partner (World Health Organization, 2021). In Canada, self-report data from 2018 showed that 44% of women and girls aged 15 or older who had been in some type of intimate relationship (approximately 6.2 million) had experienced some form of IPV (Statistics Canada, 2022a). Notably, Indigenous women in Canada are four times more likely to experience IPV than non-Indigenous women (Brownridge et al., 2017). These inequities need to be understood within a broad context of Canadian colonization and the intergenerational effects of the collective traumas experienced by previous generations of Indigenous families and communities. Most women from diverse cultural contexts and backgrounds who experience IPV have children; the negative impacts of IPV both for women and their children have been well documented. Women survivors of IPV are at elevated risk for a variety of physical and mental health problems (White et al., 2024) which may also impact their parenting (Sousa et al., 2022). Children exposed to IPV are five to seven times more likely to experience physical, psychological, emotional, social, behavioral, and cognitive problems, both in the short term and over the life course, compared to unexposed children (Vu et al., 2016). Effective interventions that reduce the suffering of mothers and their children in

the short term and break the cycle of violence in the long term are rare and urgently needed (Giesbrecht et al., 2022).

Unfortunately, there are very few culturally safe evidence-based programs designed to meet the needs of Indigenous mothers and their children affected by IPV in Canada. Although there are many excellent community-based programs created by and offered to Indigenous communities, these either do not target the specific needs of mothers *and* their children affected by IPV, or are not evidence-based. To date, one Canadian intervention has addressed the needs of female survivors of childhood sexual abuse rather than IPV (Heilbron and Guttman, 2000), and another intervention focused on mothers only (Giesbrecht et al., 2022). A report by the National Aboriginal Circle Against Family Violence concluded that "the general lack of Aboriginal culturally appropriate programming is a concern" as well as a dire need for more children's programming (NACAFV, 2006). Interventions implemented without the proper cultural contexts and adaptations can inadvertently exacerbate existing traumas and continue the histories of Canadian colonialism and health inequity among Indigenous populations. In light of this, we organized an interdisciplinary team consisting of Indigenous knowledge keepers, crisis shelter staff members, and researchers to address this issue.

The goal of this pilot study was to conduct a process evaluation of the pilot of an evidence-based culturally safe intervention designed specifically to meet the needs of Indigenous mothers and their children who have experienced IPV. The adaptation of the Kid's Club (KC) and Mom's Empowerment Programs (MEP) (Graham-Bermann et al., 2015), originally developed by team member Dr. Sandra Graham-Bermann, took place over several months prior to the pilot implementation in collaboration with crisis shelter staff members, Elders, and researchers.

2. Objectives

Our two main objectives were: 1) to investigate the perspectives of the mothers who participated in the pilot program, and 2) to investigate the perspectives of the staff who delivered the pilot program, using qualitative methods.

3. Methods

3.1. Recruitment

Mothers who self-reported a history of intimate partner violence and had at least one child co-residing with them were recruited through a women's crisis shelter in Calgary that offers day programming, counselling, and temporary shelter for women and their children who have experienced violence. Mothers received a $100 gift card for their participation in the post-pilot interview.

3.2. Qualitative methodology

Mothers were asked open-ended questions about positive and negative aspects of their experience during the pilot program in one-on-one interviews conducted during a two-week period following the conclusion of the 10-week pilot program. Staff members participated as a group in ten debriefing sessions that followed each weekly implementation of the program. Staff discussed their experiences, including both positive aspects and challenges of implementation.

All interviews and discussions were recorded and transcribed, then coded using thematic analysis. Thematic Analysis (TA) is a systematic process involving six steps that is used to create an analytical narrative of the data (Braun and Clarke, 2012). Coders first familiarized themselves with the data, then utilized an inductive approach to generate initial codes. In the present study, one coder carried out initial coding separately and independently; codes were clustered and collapsed into draft themes and subthemes (Braun and Clarke, 2006). Themes were then reviewed with a second coder to determine if further revisions were needed. Discrepancies in coding were resolved and the meanings of themes were further clarified through discussion between coders.

4. Results

4.1. Participants

Five mothers and six children participated in the pilot. Mothers were 30 years of age on average (SD=3.69) with an average of 2.5 children (range 1-4). Two had completed high school, one had not, and one had some post-secondary education. Four of the mothers self-identified as Indigenous (two as Blackfoot and two as Cree); one identified as non-Indigenous. None of the mothers were employed; all reported being single and having annual incomes below the low-income cut-off for a family (Statistics Canada, 2022b).

The six children consisted of four boys and two girls, ranging in age from six to twelve years of age (M=8.0, SD=2.28. There was one sibling pair (sisters).

Five staff members participated. They included two female staff members who co-facilitated MEP, and one female and one male staff member who co-facilitated the KC program. The crisis shelter program director also participated, as she often assisted with program logistics and delivery.

4.2. Thematic Coding

Three main themes were identified: 1) Positive aspects of the program, 2) Negative aspects of the program, and 3) Unintended benefits and consequences. Each of these themes is explained in detail below.

4.2.1. Positive aspects of the program: Maternal perspectives. Mothers identified several aspects of the program that they felt were positive. One mother felt the Indigenous cultural teachings that were integrated into the MEP program were important and beneficial "*It was really nice to be able to have a program that was built towards Indigenous mothers specifically, just because of the trauma that has happened in the past with residential schools and stuff and to be able to talk about it."* Another mother felt that her parenting skills improved as a result of her participation: "*It changed… my parenting and to just be able to be more patient with my kids*." Mothers also identified an improvement in family emotional expression, including themselves and their children: "*It was nice for my kids and I to be able to talk about our feelings*." Some mothers valued the process of sharing with other mothers during the group sessions and hearing other perspectives: "*It's nice to be able to talk about your feelings and kind of see other people's outlooks on things and what they're going through and how they may feel*." Lastly, other mothers reported that they felt they and their children had become more emotionally aware of their feelings: "*It made us more, I think, self-aware about how we're feeling*."

4.2.2. Positive aspects of the program: Staff perspectives. Staff members reported a variety of positive aspects of their experience delivering the program. Some reported feeling proud of the mothers who participated: "*I think they're all feeling really proud of themselves for how far they've come and what they've done. I was feeling that way too*." Another staff member identified the sense of connection felt among mothers and staff as a positive feature of the program: "*You felt the sense of community and connectedness; I feel very bittersweet that it's over now because I've really appreciated the community aspect of it*." Other staff expressed appreciation for the mothers' and children's enjoyment of the program: "*One of the moms was talking about how she's gonna have to tell her son that this is the last session, she didn't prepare him for that. Because she was like "we look forward to this every single week, he gets so excited*."" Some staff noted their appreciation of the Elder's contribution to the programming: "*It was really lovely having Elder X, she brings such a warm energy and is so engaging to the conversation. She really draws people in and she does it with humour and lightness even when it is a difficult conversation*." Some staff also noted improved family emotional awareness in the participants: "*Afterwards he (child participant) showed it (mask) to his mom and on the other side of the coloured mask you write words you hide, as in the feelings that you mask, and he was showing his mom all about it and talking about it, which I thought meant that it definitely was something he thought, and appreciated, and took to heart*."

4.2.3. Negative aspects of the program: Maternal perspectives. One mother reported that she would have preferred a program longer than ten weeks: "*One thing I didn't like is the length of it. Like if it were longer, you know, there would have been wouldn't have felt so rushed*." Another mother reported that the timing of the program was difficult for her: "*Sometimes the hours, I wasn't able to make it*."

4.2.4. Negative aspects of the program: Staff perspectives. One staff member expressed concern about how best to share Indigenous cultural teachings: "*I let them (mother participants) know ahead of time that I'm not going to lead it for them (smudging), cause it didn't feel right for me to do that but I left it open to them to do it*." Another staff member felt that the program sessions were not long enough at times: "*Yeah that's (amount of time) a big struggle for us. The developmental chart we were having very good discussions but we were running out of time. One hour for a group is not enough from my experience*."

4.2.5. Unintended benefits & consequences: Maternal perspectives. One mother expressed an interest in learning more about Indigenous teachings after the program had ended: "*I want to know more about the seven sacred teachings*."

4.2.6. Unintended benefits & consequences: Staff perspectives. A staff member expressed that the appreciation of Indigenous cultural teachings by a non-Indigenous mothers was an unintended benefit: "*One non-Indigenous mom was just wowed by it; just really wanted to learn more and asked if it was appropriate for her to smudge…yes, we shared that with her*." Others reported that some of the Indigenous mothers had developed an awareness of cultural teachings that were brand new to them: "*Some moms shared that they had never heard any of this before, it was very new to them and a lot of the information was a shock (residential schools)*."

5. Discussion

Our first main objective was to investigate the perspectives of the mothers who participated in the pilot program, in order to determine if they perceived this adapted program to be acceptable and culturally safe. The importance of the mother's perspectives cannot be overstated. Regardless of their desire to participate or benefit, if mothers did not perceive their experience to be positive, they may choose to stop attending, or their ability to benefit may be reduced. Overall, mothers reported a positive experience during the pilot program; in fact, some mothers noted that the Indigenous cultural teachings embedded into the MEP program were deeply important. An unintended benefit was that some mothers expressed a desire to learn more about these teachings after the program ended. These perspectives indicated that mothers were comfortable with the content and delivery of the program, including feeling culturally safe. While cultural safety can be defined in different ways, for our purposes it involves respect, shared meaning, and shared knowledge and experience; it also involves learning together with dignity and attention (Yeung, 2016). Our open-ended qualitative approach allowed mothers to share aspects of the program that they valued and enjoyed the most. Their reports of improved parenting, greater emotional awareness, and a better understanding of Indigenous ways of knowing and being indicated that the pilot program was well received.

Our second main objective was to investigate the perspectives of the staff who delivered the pilot program. Overall, staff also reported a positive experience, noting a sense of community with mothers, satisfaction with mothers' progress and enjoyment of the program, as well as appreciation of the Elder's contributions. It should also be noted that the successful implementation of this evidence-based culturally safe program addressed three of the 94 Calls to Action of the Truth and Reconciliation Commission which call for services that are responsive, sensitive, and culturally relevant to Indigenous peoples (Truth and Reconciliation Commission of Canada, 2015). An unintended benefit of the pilot program was that non-Indigenous mothers also appreciated learning about Indigenous culture. It is hoped that continued delivery of the program will not only better meet the needs of Indigenous mothers and children affected by IPV, but will also further reconciliation efforts by educating non-Indigenous mothers and their children who choose to participate.

6. Conclusions

In summary, the mothers and staff who participated in the pilot offering of the Kid's Club and Mom's Empowerment Programs, adapted in collaboration with Elders and staff for Indigenous mothers and children affected by IPV in Canada, deemed these programs to be acceptable, enjoyable, and culturally safe.

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‘I’M SO TIRED, I CAN’T GO ON!’ CHRONOTYPE AND ACADEMIC LIFE: THE ROLE OF SLEEP FOR HIGH SCHOOL AND UNIVERSITY STUDENTS

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Abstract

According to the literature during the developmental stages of adolescence and early adulthood crucial changes within brain systems lead to the shift in sleep patterns. Young people experience problems with falling asleep before late hours, and report difficulties getting up early mornings. At the same time the school and university schedules do not change in order to meet students’ biological needs corresponding to the sleep pattern mentioned above. It is therefore important to verify whether this mismatch between young people’s needs and the environmental expectations corresponds to their well-being in the area of stress levels and symptoms of burnout. It is also interesting to check whether intrapersonal factors such as resilience help young people to maintain high levels of well-being and protect them from burnout despite the adverse environmental conditions. The research was conducted with the main aim to assess the correspondence between resilience, stress and symptoms of academic burnout levels among high school and university students with different chronotypes. In the study participated 60 respondents aged 16-27 enrolled at different high schools or universities, who voluntarily and anonymously answered questions concerning their chronotype (Morningness-Eveningness Questionnaire), the levels of resilience (Resilience Measurement Scale), intensity of stress (Stress Feeling Questionnaire), and academic burnout symptoms (Student Burnout Inventory). Results obtained in the study prove that the duration of sleep of the research group is shorter than recommended 8-10 hours, and it is connected to higher indicators of stress and academic burnout. It was also discovered that morning chronotype and resilience served as protective factors lowering the levels of stress and academic burnout. Additionally, it was proved that high school students present higher than university student’s indicators of both stress levels and academic burnout symptoms. The results obtained in the study can serve as a starting point for the discussion on some institutional and organizational changes for the education system. Gathered data can also serve as a basis for preventive programs aimed at enhancement of sleep hygiene, and coping with stress strategies. It can also serve as an opening point for further studies on high school and university students’ well-being.

Keywords: *Chronotype, resilience, stress, school and academic burnout, adolescents and young adults.*

1. Introduction

An adequate sleep schedule and duration of sleep plays a crucial role in maintenance of well-being and somatic as well as psychosocial development of adolescents and young adults (Hirshkowitz et al., 2015). According to the National Sleep Foundation (2024) adolescents should sleep approximately 8-10 hours, while young adults should sleep for approximately 7-9 hours. School schedules and environmental requirements make it impossible for young people to follow such recommendations even though it has been proved that sleep deficits cause deterioration in well-being, cognitive functioning (Knutson et al., 2017), emotional and behavioral problems (Bebbe, 2011; Becker et al., 2018). Inefficient sleep schedule can be also perceived as a risk factor for depression, anxiety and school burnout (Poon et al., 2024; Roberts & Duong, 2014).

Research proves that an average Polish student spends approximately 33 hours per week fulfilling school duties (at school, during extra study hours, and doing their homework). While working so intensely, young people not only try to fulfill their duties but also meet all the external requirements and expectations of their teachers, parents, and peers, which in turn increases their stress, and decreases their quality of life and in turn deteriorates their sleep quality (Duda, 2017). Tight schedules, excessive pressure and maximum work overload are also observed in university students. Researchers underline the increasing problem of stress, academic burnout and drastic decrease in well-being, especially in students of highly demanding

studies and study majors (Molodynski et al., 2021) which also correspond with unhealthy sleep habits. It is therefore important to analyze the correspondence between the sleep schedules, chronotypes, and overall well-being of young people excessively engaged in school and university duties.

Research conducted until now proves that an average teenager or young adult experiences problems falling asleep before 11 P.M. while their optimal waking up time happens approximately at 8 A.M. or later (Adolescent Sleep Working Group et al., 2014). When an individual chronotype meets external needs of environments (e.g. school or university schedule) a person copes with academic demands better (Minges & Redeker, 2016; Yeo et al., 2021; Zerbini et al., 2017) otherwise they suffer cognitively and emotionally. Among protective factors preventing students from excessive stress or burnout there is a high level of resilience. It was discovered that there is a correlation between the chronotype and resilience level in students (Uslu, Özdemir, & Peşkirci, 2024) but since such a correspondence was not fully examined it is important to verify it further in future studies.

2. Objectives

The main aim of the presented study was to verify the correspondence between the time of the beginning of academic activities, sleep quality, chronotype, and resilience levels in high school students and university students.

3. Methods

3.1. Participants

In the study 60 volunteers (33 females and 27 males) participated. The mean age of the participants was *M*=20.8 (*SD*=2.9), the youngest participants were 16 years old, while the oldest were 27 years old. In the researched group there were 25 university students, 18 high school students, and 17 students of vocational high schools.

3.2. Materials

Circadian activity of respondents was assessed with Morningness-Eveningness Questionnaire - Self-Assessment (MEQ-SA) (Horne & Östberg, 1976). Resilience was measured with the Resilience Measurement Scale (Ogińska-Bulik & Juczyński, 2008). The levels of stress were assessed with Stress Feeling Questionnaire (Plopa & Makarowski, 2010). School burnout was measured with School Burnout Inventory (SBI) (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009). Overall functioning and activity were assessed with additional questions concerning the daily schedule, sleep duration, and overall subjective levels of tiredness throughout the day.

4. Results

According to the obtained data respondents do not have enough sleep, they feel moderately tired throughout the day. Their chronotype can be perceived as rather intermediate with a tendency to the evening type. At the same time, they present moderate levels of resilience, stress levels and moderate levels of burnout symptoms. Detailed information is given in Table 1 below.

Table 1. The general characteristics of analysed features.

	M	*SD*	Min	Max
Hours of sleep	6.94	0.89	5.0	8.9
Tiredness throughout the day (1-5)	3.10	0.82	1	4
Chronotype	55.48	10.41	31	86
Resilience	79.60	10.65	58	107
Stress	53.50	11.25	33.4	76.0
School burnout symptoms	26.81	3.88	17.6	35.1

In the next step the mean differences between abovementioned properties in the group of university students, high school students and vocational high school students were calculated. One way ANOVA showed statistically significant differences in the mean levels of stress $F_{(2.57)}$=4.82; p=.012 and school burnout $F_{(2.57)}$= 3.91; p=.025. According to Tukey's post-hoc analyses the mean level of stress experienced by high school students (*M*=57.2; *SD*=11.6) was significantly (p=.009) higher than the mean level of stress of university students (*M*=48.1; *SD*=10.8). Similarly, the mean level of school burnout symptoms

experienced by high school students (M=28.4; SD=4.0) was significantly (p=.021) higher than the mean level of academic burnout of university students (M=25.1; SD=3.5).

In the next step the regression analyses were conducted in order to identify the predictors of respondent's stress and academic burnout. The results are presented in Table 2.

Table 2. The predictors of stress and academic burnout.

Predictors of stress	*B*	*SE*	*β*	*t*	*p*
Hours of sleep	-0.58	0.41	-0.12	-1.42	0.162
Tiredness throughout the day	**3.62**	**1.14**	**0.34**	**3.17**	**0.003**
Chronotype	**-0.17**	**0.08**	**-0.19**	**-2.13**	**0.038**
Resilience	**-0.48**	**0.11**	**-0.42**	**-4.36**	**0.000**

$F_{(5,54)}$=9.54; p<.001; R^2=0.38

Predictors of academic burnout	*B*	*SE*	*β*	*t*	*p*
Stress	**0.18**	**0.05**	**0.47**	**3.92**	**0.000**
Resilience	**-0.11**	**0.04**	**-0.31**	**-2.54**	**0.015**
Tiredness throughout the day	0.72	0.51	0.15	1.41	0.164
Hours of sleep	-0.44	0.29	-0.13	-1.24	0.221
Chronotype	-0.09	0.06	-0.14	-1.48	0.145

$F_{(5,54)}$=10.27; p<.001; R^2=0.41

According to the results presented in Table 2, the regression model for stress explains 38% of the variance with three statistically significant predictors, i.e. resilience levels, tiredness throughout the day, and chronotype. The greater the tiredness, the stronger the experienced stress is, whereas the higher the resilience levels and closer to the morning type the chronotype, the less intensive the stress experienced by an individual is.

When it comes to the academic burnout, the proposed regression model explains 41% of the variance, with two statistically significant predictors, i.e. stress level and resilience level. The higher the stress levels, the greater the symptoms of academic burnout observed in respondents are, whereas for the resilience the relationship is reversed – the greater the resilience level, the less intensive are the symptoms of academic burnout experienced by individuals.

5. Discussion

The results obtained in the study described above are congruent with previous research proving that young people attending schools and universities do not get enough sleep (Becker et al., 2018; Crowley, Wolfson, Tarokh, & Carskadon, 2018). In agreement with previous studies was also the data showing the correspondence between tiredness throughout the day and elevated stress levels, which in the long-term perspective can lead to serious deterioration of mental health (Roberts & Duong, 2014; Bacaro, Carpentier, & Crocetti, 2023).

Worth noticing is the result proving that high school students suffer from both higher levels of stress and school burnout symptoms compared to university students. This result should be invested further in future studies in order to identify the causes of such a situation. It is possible that elevated levels of stress and school burnout correspond to less flexible timetables and curricula observed in high schools compared to universities (Duda, 2017; Gaweł, 2017; Martin, Gaudreault, Perron, & Laberge, 2016), but there could be other reasons for such an outcome to occur.

According to the obtained results it is important to underline the role of the chronotype in the intensity of stress experiences as well as in overall functioning of an individual. It can be expected that the morning chronotype serves as a protective factor in coping with everyday stressful situations while evening chronotype increases the risk of experiencing tension and difficulties with daily struggles (e.g., Enright & Refineitti, 2017; Rodríguez Ferrante, Goldin, Sigman, & Leone, 2022).

One of the most important results obtained in the study concerns the role of resilience – both in the prevention of stress and school burnout. The data obtained in the study described above is similar to previous results of cross-cultural studies conducted in this area (Awad, 2024; Ma, 2023; Ran et al., 2020; Song et al., 2021).

The results obtained in the described study are important, but at the same time they need to be carefully interpreted. First of all, the sample participating in the study was relatively small. Secondly, all the data was collected based only on self-descriptive measures in cross-sectional design. Thirdly, many variables corresponding to the development and maintenance of school and academic stress and burnout were not included in the study design. Therefore future, especially longitudinal, studies are needed.

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THE RELATIONSHIP BETWEEN ANXIETY AND SUBSTANCE USE: A QUANTITATIVE STUDY AMONG MALTESE EMERGING ADULTS AGED 18-30 YEARS

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Abstract

Emerging adulthood represents a critical developmental period marked by heightened emotional volatility and an increasing prevalence of anxiety. During this stage, ongoing identity exploration and life transitions can intensify psychological distress and increase vulnerability to substance use, making it a peak period for the onset of both anxiety and substance use disorders. This quantitative study investigated the occurrence and severity of anxiety and substance use among young Maltese adults, while examining sociodemographic influences. A cross-sectional design was used with a convenience sample of 375 individuals aged 18–30 years. Anxiety was measured using the Generalised Anxiety Disorder scale (GAD-7), originally developed as a screening tool for generalised anxiety disorder but now widely validated as a general measure of anxiety symptom severity. Substance use was measured using the EU Drug Agency (EUDA) standard General Population Survey items on lifetime, recent, and current use, while substance use severity was measured using the Drug Abuse Screening Test (DAST-10). Just over half of the participants (51.4%) had moderate to severe anxiety scores, with 18.9% falling within the severe GAD range. In terms of substance use, 40.8% said they had used substances in the last 12-months and 27.2% in the last 30 days, with cannabis, cocaine and ketamine reported as the most commonly used substances. Among those who used substances, 8.0% and 0.8% fell within the substantial use and severe use categories, respectively. Anxiety severity and substance use severity were positively correlated with regression linear analysis, accounting for 22.8% of the variance, indicating that substance use severity was significantly predicted by anxiety severity, male gender, age (25-27 years), and relationship status (casual dating). The findings highlight the importance of early, coordinated interventions that target co-occurring anxiety and substance use to reduce risk and support healthier adjustment in young adults.

Keywords: *Anxiety, substance use, severity, emerging adulthood, Malta.*

1. Introduction

Spanning roughly ages 18 to 30, Emerging Adulthood (EA) is characterised by identity exploration, instability, self-focus, feelings of being in-between, and a heightened sense of possibility (Arnett, 2007, 2014). While these features promote growth and autonomy, they can also increase vulnerability to psychological distress and engagement in risky behaviours. Consistent with this vulnerability, global evidence identifies EA as the developmental stage with the highest prevalence of both substance use and anxiety-related disorders (Andrews & Westling, 2016; Arnett, 2016).

Epidemiological data across Europe reflect these trends, with cannabis reported as the most used illicit substance among young adults, followed by cocaine, MDMA, amphetamines, methamphetamines and an expanding range of novel psychoactive substances (European Union Drugs Agency [EUDA], 2024). Locally, recent population survey data indicate changes in substance use among younger cohorts in Malta. Alcohol use remains highly prevalent among those aged 18-29, with lifetime use exceeding 90% among this age group, reflecting sustained normative consumption. Cannabis use has increased substantially, with lifetime prevalence among 18-24-year-olds rising from 4.9% in 2001 to 15.8% in 2023, and last-year use reaching 9.3%. Younger adults also show rising continuation rates, indicating more persistent use (Ministry for Social Policy and Children's Rights, 2025).

Substance use during EA follows heterogeneous trajectories, ranging from experimental and recreational patterns to problematic and compulsive use. Although many young people desist after initial experimentation, others escalate to heavier use (Clark, 2011). Anxiety disorders, which commonly emerge in adolescence and persist into EA, are significant predictors of both the initiation and escalation of

substance use (Swendsen et al., 2010). This association highlights the importance of situating research within EA, a developmental period in which psychosocial stressors, behavioural experimentation, and mental health trajectories dynamically intersect. Furthermore, the local context remains underexplored in this regard.

2. Design and objectives

Addressing this gap and adopting a quantitative cross-sectional design, the present study examined the relationship between anxiety and severity substance use among Maltese young adults aged 18-30 years. Specifically, the research questions were:

RQ1: What is the occurrence of anxiety, substance use, and severity of substance use?

RQ2: What is the relationship between anxiety and the severity of substance use?

RQ3: How do sociodemographic factors (age, gender, education, employment, and relationship status) contribute to this relationship?

3. Methods

Following ethical approval from the University of Malta Research Ethics Committee (UREC), participants were recruited through convenience and snowball sampling. Eligibility was restricted to Maltese nationals aged 18-30. Recruitment took place via social media platforms (Facebook, Instagram) and through formal permission to distribute the survey via institutional email lists at the University of Malta and the Malta College of Arts, Science, and Technology (MCAST). Participation was voluntary, and informed consent was obtained electronically prior to survey completion. A total of 375 responses were collected. Data were analysed using SPSS (Version 29.0).

3.1. Instrumentation

The online survey, available in English and Maltese (with translation verified through a back-translation process) consisted of three sections. The first section assessed anxiety using the Generalised Anxiety Disorder-7 (GAD-7) scale (Spitzer et al., 2006). This 7-item scale, scored from 0 to 21, categorises anxiety severity as minimal (0-4), mild (5-9), moderate (10-14), and severe (15-21). The second section measured drug abuse problems and the severity of drug-related consequences using the 10-item Drug Abuse Screening Test (DAST-10; Skinner, 1982, 2023). DAST scores range from 0 (no problems) to 10 (severe problems). Both the GAD-7 (α = .88) and DAST-10 (α = .85) demonstrated strong internal consistency in the Maltese sample. Since the DAST-10 does not capture alcohol use or use of specific drugs over specific time frames, the EU Drug Agency (EUDA) guidelines for drug and alcohol use among the general population were used to assess past 12-months and past 30-day use of the most commonly consumed substances: cannabis, cocaine, ketamine, ecstasy, and lysergic acid diethylamide (LSD) and binge drinking defined as consuming more than six alcoholic drinks on a single occasion within the past 30 days (EUDA, 2002; National Drugs and Addiction Unit [NDAU], 2024). The final section of the survey collected sociodemographic information, including age, gender, education, employment, and relationship status.

4. Results

The sample comprised 375 young adults (60.0% female) aged 18-30 years (M = 23.4, SD = 3.9) and predominantly Maltese (93.9%). Nearly half of participants were students (48.0%), while 42.4% were employed full-time. Educational attainment was generally high, with most participants having completed post-secondary (32.8%) or tertiary education (61.9%), and only a small proportion reporting secondary education as their highest level (5.3%). Regarding relationship status, most participants were single (40.8%) or in a committed relationship (35.7%), followed by those casually dating (17.6%) and those who were married (5.9%).

4.1. Prevalence of anxiety among the sample

GAD-7 scores among the sample ranged from 0 to 21, with a mean score of 9.85 (SD = 5.15) and a median of 10.00, indicating mild to moderate anxiety levels on average. According to GAD-7 severity categories, 15.5% of participants reported minimal anxiety, 33.1% mild anxiety, 32.5% moderate anxiety, and 18.9% severe anxiety.

4.1.1. Substance-type and patterns of use. From the total sample, 40.8% reported using at least one drug in the past 12 months. Of these, 38.7% reported using cannabis, followed by cocaine (12.5%), ketamine (9.3%), ecstasy (8.8%), and LSD (5.9%). No participants reported using heroin. In terms of substance use in the past 30 days, cannabis use was reported by 25.1%, followed by cocaine (5.9%), ketamine (3.7%), ecstasy (2.4%), and LSD (1.3%) Binge drinking in the last 30 days was reported by 34.6% of participants.

4.2. Prevalence of severity substance use among the sample

According to the DAST-10 scoring guidelines, participants were categorised into five different groups. 56.8% had no substance use, 12.3% were in the 'low' range (scores 1-2), indicating minimal use. Additionally, 22.1% scored within the 'intermediate' range (scores 3-5), suggesting possible clinical relevance. Notably, 8.0% of the sample scored in the 'substantial' (6-8) and 0.8% in the 'severe' (9-10) ranges, associated with a higher likelihood of substance-related difficulties that warrant further clinical evaluation.

4.3. The Relationship between anxiety and severity of substance use

A Pearson correlation coefficient revealed a positive relationship between GAD-7 and DAST-10 scores, r (373) = .17, p = .001, indicating that participants who scored higher in anxiety also scored higher in substance use. A Kruskal-Wallis H test was conducted to examine differences in GAD-7 scores across DAST-10 severity categories. The results indicated a statistically significant difference, H (4, N = 375) = 14.65, p = .005. This finding suggests that anxiety levels significantly varied depending on participants' substance use severity, with higher anxiety scores observed among those with greater substance use problems. A partial correlation test was conducted to examine the relationship between GAD-7 scores and DAST-10 scores while controlling for age, gender, nationality, educational attainment, occupational status, and relationship status. The analysis revealed a statistically significant positive partial correlation, r (347) = .191, $p < .001$, suggesting that higher anxiety was correlated with higher substance use scores, independently of demographic factors.

4.4. The role of sociodemographic characteristics

DAST-10 scores were further examined using a general linear model including age group, gender, nationality, education, occupational status, relationship status, and GAD-7 score. The model explained 22.8% of the variance in DAST-10 scores ($R^2 = .228$), and higher GAD-7 scores significantly predicted greater problematic substance use (B = 0.43, $p < .001$). Male gender was the strongest predictor (B = 1.05, $p < .001$). Age effects were also observed: participants aged 25-27 years reported higher DAST-10 scores than those age 28-30 years (B = 0.91, p = .013), whereas those aged 18 -19 years reported lower scores ($B = -1.28$, p = .015). Relationship status was significant, with participants who were casually dating (B = 2.05, $p < .001$) or single (B = 1.19, p = .042) scoring higher than married participants. Nationality, education, and occupational status were not significant predictors.

5. Discussion

This study highlights anxiety as a significant concern among Maltese emerging adults. Over half of participants (51.4%) reported moderate-to-severe anxiety based on GAD-7 categorisation, levels that typically warrant clinical attention (Dias Lopes et al., 2020; Spitzer et al., 2006). These findings align with international evidence showing heightened anxiety during emerging adulthood, a developmental period marked by instability, identity exploration, financial strain, academic pressures and uncertainty, characteristic of early emerging adulthood (Arnett, 2004; Ichsan et al., 2024).

Substance use was also prevalent among the sample, with 43.2% reporting non-medical drug use in the past year. Cannabis was the most commonly used substance, consistent with both international trends and Malta's recent cannabis decriminalisation (EUDA, 2024; Vassallo, 2021). Use of cocaine, ketamine, ecstasy, and LSD was reported less frequently but was more common among participants aged 25-27 years, suggesting escalation in substance use with age, as observed in European and Maltese research (Azzopardi et al., 2021; European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2023). DAST-10 scores indicated that while most participants reported no or low-risk substance use, a notable subgroup fell within the intermediate to severe range, signalling potential clinical relevance (Skinner, 1982; 2023). Binge drinking was reported by over one-third of participants. This is consistent with evidence that heavy episodic drinking is normative during emerging adulthood, particularly within social and relational contexts (Leventhal et al., 2016). Maltese findings further reflect a cultural context in which intoxication has become

increasingly normalised among young adults (Clark & Cuschieri, 2018; World Health Organisation [WHO], 2024).

In line with the second research question, a significant positive association was observed between anxiety and substance use. Higher GAD-7 scores were associated with higher DAST-10 scores, indicating that anxiety symptoms and problematic substance use tended to co-occur. This finding aligns with existing literature describing links between anxiety-related distress and substance use (Guillot et al., 2024; Khantzian, 1985; Lewis, 2016). Anxiety levels also increased across substance use severity categories, suggesting a potentially bidirectional relationship in which anxiety contributes to substance use, while substance use may exacerbate anxiety symptoms (Bahji, 2024). These findings emphasise the importance of addressing emotional distress in substance use prevention and intervention efforts.

Regarding sociodemographic factors, general linear modelling indicated that male gender, age 25-27 years, higher anxiety levels, and casual dating status significantly predicted more problematic substance use. Higher substance use among males is consistent with international evidence showing greater risk-taking and substance involvement in this group (Harmon et al., 2021). Elevated risk among older emerging adults may reflect greater autonomy, financial independence, and exposure to social environments where substance use is more accessible. Relationship status also emerged as relevant, with casually dating and single participants reporting higher substance use than married individuals, aligning with research suggesting that relational instability and transitions increase substance use risk during emerging adulthood (Fleming et al., 2010).

Several limitations in this study should be acknowledged. Self-reported data may be subject to recall and social desirability biases, and the cross-sectional design limits causal interpretation. Anxiety symptoms may also fluctuate over time and context. Despite these limitations, the findings provide valuable insight into the intersection of anxiety and substance use among Maltese emerging adults.

6. Conclusion

Overall, this study demonstrates that anxiety and substance use are closely intertwined during emerging adulthood. The presence of a subgroup with elevated anxiety and problematic substance use highlights the need for integrated, developmentally informed interventions. Early identification of anxiety, alongside targeted substance use prevention strategies, may reduce reliance on maladaptive coping and mitigate longer-term mental health risks. Future research should continue to examine these relationships within Malta's evolving social and cultural landscape.

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BURNOUT SYMPTOMS AND WORK-RELATED GOAL DIMENSIONS AMONG RESEARCHERS AND HELPING PROFESSIONALS

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Abstract

Although burnout syndrome has been extensively studied, only a limited number of studies have specifically examined which characteristics of work-related goal attainment are associated with burnout symptoms. Therefore, this online cross-sectional study investigated the associations between burnout symptoms and selected goal dimensions in two distinct occupational groups. Sample 1 consisted of 122 health professionals and social workers (86% female). Sample 2 included 154 researchers (53% female). Participants completed the Burnout Assessment Tool and measures assessing selected goal dimensions (goal attainability, goal self-efficacy, and goal motivation in Study 1; goal effort, goal commitment, goal self-efficacy, and goal motivation in Study 2). Correlation analyses showed that core burnout symptoms (exhaustion, mental distance, emotional impairment, and cognitive impairment) were significantly associated with decreases in goal self-efficacy, goal attainability, goal effort, goal commitment, and autonomous motivation, as well as with increases in controlled motivation. These findings highlight the importance of goal-related processes in the development of burnout and suggest that strengthening adaptive goal dimensions may play a key role in burnout prevention and in promoting healthy work environments.

Keywords: *Burnout symptoms, work goals, goal attainment, goal self-efficacy, goal motivation.*

1. Introduction

Burnout syndrome is an occupational phenomenon resulting from chronic workplace stress that has not been successfully managed (WHO, 2019). It includes symptoms of exhaustion, mental distance, cynicism, a sense of ineffectiveness and a lack of accomplishment (Maslach, Jackson, & Leiter, 1996; Maslach, Schaufeli, & Leiter, 2001; WHO, 2019). Schaufeli, de Witte and Desart (2020) distinguish between core burnout symptoms (exhaustion, mental distance, and emotional and cognitive impairment) and secondary burnout symptoms (psychological distress, psychosomatic complaints, and depressed mood). The development of burnout is primarily triggered by chronic exposure to high job demands and low job resources (Demerouti, 2024). Recent research (Bianchi et al., 2024), however, indicates that burnout extends beyond purely occupational determinants. The prevalence of burnout is especially high among helping professionals (Demerouti, 2024; Maslach & Leiter, 2017; Maslach et al., 2001) and researchers and university teachers (Liu, 2023; Sarkar, 2023).

Burnout symptoms are associated with serious consequences for individuals and organizations. The negative effects include health issues (both physical and psychological), decreased productivity and work motivation, job dissatisfaction, absenteeism, turnover or turnover intentions (Alzoubi et al., 2024; Li et al., 2024; Li & Yao, 2022; Ligibel et al., 2023; Maslach et al., 1996; Maslach et al., 2001; Quesada-Puga et al., 2024; Rotenstein, Brown, Sinsky, & Linzer, 2023; Salvagioni et al., 2017), potentially undermining the ability to engage in work-related goals and, eventually, disrupting their pursuit.

Research on goal pursuit has focused on the role of various goal dimensions (characteristics along which goals vary; Austin & Vancouver, 1996) in the process of goal attainment, such as perceived goal progress, self-efficacy, commitment, effort, attainability, importance, and motivation (Austin & Vancouver, 1996; Brandstätter, Herrmann, & Schüler, 2013; Hermann & Brandstätter, 2013; Klein, Cooper, Molloy, & Swanson, 2014; Milyavskaya, Nadolny, & Koestner, 2015; Monzani, et al., 2015; Pomaki, Karoly, & Maes, 2009; Sheldon & Elliot, 1999; Werner, Milyavskaya, Foxen-Craft, & Koestner, 2016). However, despite extensive research on burnout, limited evidence exists regarding which characteristics of work-related goal attainment (goal dimensions) are linked to burnout symptoms. To address this gap in the literature, the present cross-sectional study examined associations between burnout symptoms and selected goal dimensions among two at-risk occupational groups: researchers and helping professionals.

2. Method

2.1. Participants and procedure

The study included 276 employed adults from two independent samples, selected using purposive and snowball sampling methods. Sample 1 included 122 health professionals and social workers (86% female), aged 20–66 years (M = 43.7, SD = 9.83), with 1–40 years of professional experience (M = 15.8, SD = 10.3). Sample 2 consisted of 154 researchers (53% female), aged 25–76 years (M = 44.7, SD = 13.1), with 1–55 years of professional experience (M = 19.1, SD = 13.7).

This study was approved by the Ethical Committee of Pavol Jozef Safarik University in Kosice, Slovakia. The data were collected online, and the participants were recruited via e-mails and social networks. Their participation was voluntary and anonymous. Before completing the survey, the participants provided their informed consent.

2.2. Instruments

Burnout Assessment Tool (Schaufeli et al., 2020) was used to measure the frequency of burnout symptoms (1 = never, 5 = always). In Studies 1 and 2, the internal consistency estimates (McDonald's ω) of the BAT subscales were 0.87 and 0.86 (exhaustion), 0.81 and 0.84 (mental distance), 0.90 and 0.88 (cognitive impairment), 0.88 and 0.82 (emotional impairment), 0.79 and 0.81 (psychological distress), and 0.74 and 0.75 (psychosomatic complaints), respectively.

To measure goal self-efficacy (in Studies 1 and 2), three items adopted from the study by Pomaki et al. (2009) were used (e.g.: *„I have the necessary skills to attain this goal.";* 1 = strongly disagree, 7 = strongly agree). The internal consistency estimates (McDonald's ω) of the items were 0.88 (Study 1) and 0.77 (Study 2).

Goal motivation (in Studies 1 and 2) was measured with four items adopted from the study by Milyavskaya et al. (2015) (e.g.: *„You pursue this goal because somebody else wants you to, or because you'll get something from somebody if you do."* for controlled motivation; 1 = strongly disagree, 7 = strongly agree; *„You pursue this goal because you really believe that it is an important goal to have – you endorse it freely and value it wholeheartedly."* for autonomous motivation; 1 = strongly disagree, 7 = strongly agree). In Studies 1 and 2, the internal consistency estimates (McDonald's ω) were 0.66 and 0.54 (controlled motivation), and 0.89 and 0.89 (autonomous motivation), respectively.

Goal attainability (in Study 1) was measured by one item (*„I think chances are high that I'm going to attain this goal.";* 1 = strongly disagree, 7 = strongly agree) adopted from the study by Brandstätter et al. (2013).

Goal effort (in Study 2) was assessed with one item (*„I have tried really hard to achieve this goal.";* 1 = strongly disagree, 7 = strongly agree) adopted from the study by Werner et al. (2016).

Goal commitment (in Study 2) was measured with four items (e.g. *„I am committed to this goal.";* 1 = strongly disagree, 7 = strongly agree) based on KUT measure of commitment (Klein et al., 2014). Internal consistency estimate of the scale (McDonald's ω) was 0.78.

2.3. Statistical analyses

Data analysis was conducted using Jamovi 2.7.17 software. Spearman correlations were used to test the associations between burnout symptoms and work-related goal characteristics. A sample size calculator indicated that a minimum of 85 participants was required to detect small-to-moderate correlations (r = .30) with statistical power of .80 at p = .05.

3. Results

Correlation analyses revealed several significant associations between burnout symptoms and work-related goal characteristics (Tables 1 and 2). After Bonferroni corrections (p = 0.05/24 in Study 1; p = 0.05/30 in Study 2), correlations at $p \leq 0.002$ (Study 1) and $p \leq 0.001$ (Study 2) were considered significant.

Among health professionals and social workers (Study 1), most burnout symptoms were moderately and negatively associated with perceived goal self-efficacy and goal attainability. High levels of controlled motivation were correlated with mental distance and psychological distress, while autonomous motivation was negatively related to mental distance and emotional impairment (Table 1).

Table 1. Spearman correlations between burnout symptoms and goal characteristics in Sample 1.

	Goal characteristics			
	Self-efficacy	Attainability	Controlled motivation	Autonomous motivation
Exhaustion	**-.404*** **	**-.367*** **	.223*	-.220*
Mental distance	**-.444** **	**-.404*** **	**.248** **	**-.336*** **
Cognitive impairment	**-.417*** **	**-.336*** **	.200*	-.262**
Emotional impairment	**-.435*** **	**-.438*** **	.290**	**-.376*** **
Psychological distress	**-.360*** **	**-.320*** **	**.309*** **	-.176
Psychosomatic complaints	-.204*	-.206*	.162	-.109

*Note. * p < .05, ** p < .01, *** p < .001*

Among researchers (Study 2), the analyses revealed predominantly moderate negative associations between all burnout symptoms and perceived goal self-efficacy (Table 2). Decreases in goal effort and goal commitment were related to increased mental distance and cognitive impairment. High levels of controlled motivation and low levels of autonomous motivation were also associated with increased mental distance (Table 2).

Table 2. Spearman correlations between burnout symptoms and goal characteristics in Sample 2.

	Goal characteristics				
	Effort	Commitment	Self-efficacy	Controlled motivation	Autonomous motivation
Exhaustion	-.194*	-.177*	**-.403*** **	.234**	-.177*
Mental distance	**-.310*** **	**-.412*** **	**-.451*** **	**.315*** **	**-.344*** **
Cognitive impairment	**-.332*** **	**-.322*** **	**-.354*** **	.092	-.103
Emotional impairment	-.167*	-.179*	**-.349*** **	.116	-.063
Psychological distress	-.127	-.162*	**-.417*** **	.137	-.095
Psychosomatic complaints	-.049	-.251**	**-.274*** **	.162*	-.215**

*Note. * p < .05, ** p < .01, *** p < .001*

4. Discussion

The aim of the current study was to analyze relationships between burnout symptoms and goal dimensions among researchers and helping professionals. Examining burnout symptoms in these groups is particularly important, as these professions rely heavily on sustained cognitive and emotional engagement (Demerouti, 2024; Liu, 2023; Maslach & Leiter, 2017; Sarkar, 2023). Overall, research findings showed significant associations between work-related goal dimensions and burnout symptoms in both samples. This underscores the importance of processes underlying goal pursuit in occupational settings for burnout development.

Across both samples, goal self-efficacy emerged as the strongest correlate of burnout symptoms. Regardless of profession, low perceived competence in attaining work goals was associated with increased intensity of the core burnout symptoms (exhaustion, mental distance, emotional impairment, and cognitive impairment) and psychological distress. This finding can be explained within the framework of Social Cognitive Theory (Bandura, 2001), which highlights the importance of self-efficacy beliefs and outcome expectations in individuals' behavior. When self-efficacy beliefs are low, engagement in goal pursuit can decrease. In occupational settings, where individuals face work-related goals but feel less competent, this may increase perceived stress levels and contribute to burnout symptoms. Conversely, high goal self-efficacy can lead to greater engagement in work goals, which may also increase the risk of becoming overwhelmed and developing burnout symptoms.

Burnout symptoms were also related to decreases in goal attainability, effort, and commitment. More specifically, a low probability of successful goal achievement was associated with exhaustion, mental distance, emotional impairment, cognitive impairment, and psychological distress. Additionally, low effort

and commitment were linked to increased mental distance and cognitive impairment. These findings indicate that difficulties in goal attainment can facilitate the development of burnout symptoms. However, an explanation of the role of effort and commitment in the process is more complex when considering the role of engagement. Engaged individuals put a lot of effort into pursuing work goals and are involved and committed. From a long-term perspective, however, this can become demanding and stressful. As a result, burnout symptoms can start to develop, accompanied by a decrease in effort, involvement, and commitment.

The findings also point to the importance of motivation to achieve work-related goals in the development of burnout symptoms. The role of controlled and autonomous motivation (Ryan & Deci, 2000) seems to be especially relevant to mental distance. In both samples, mental distance was associated with increased controlled motivation and decreased autonomous motivation. Controlled motivation seems to be a risk factor for burnout, while autonomous motivation may have a protective role.

The current study extends existing knowledge on the role of goal dimensions in goal pursuit (Brandstätter et al., 2013; Klein et al., 2014; Milyavskaya et al., 2015; Monzani et al., 2015; Pomaki et al., 2009; Sheldon & Elliot, 1999; Werner et al., 2016) by examining their role in the development of burnout symptoms. Since correlation analyses do not allow causal interpretations, several explanations may be considered. First, high goal self-efficacy, attainability, effort, commitment, and autonomous motivation, together with low controlled motivation, may increase work involvement and engagement, which, in turn, may elevate stress levels and contribute to burnout symptoms. Second, low goal self-efficacy, attainability, effort, commitment, and autonomous motivation, together with high controlled motivation, may also increase stress and contribute to burnout symptoms. In this case, stress may arise from a perceived discrepancy between reduced work involvement and the need to continue pursuing work goals. Third, burnout symptoms may themselves lead to changes in goal dimensions, such as decreased perceived goal self-efficacy and attainability or reduced effort, commitment, and autonomous motivation.

The generalizability of the findings is limited for several reasons. First, the research samples were not representative, although the number of participants was sufficient for the analyses. Second, data were collected online, which prevented researchers from answering questions about survey items in real time. Consistent with this limitation, several respondents noted in email feedback that some questionnaire items were ambiguous. Third, responses may have been biased due to the use of self-report measures. Fourth, the internal consistency estimates of the items measuring controlled motivation fell below acceptable levels in both studies. Therefore, associations between controlled motivation and burnout symptoms should be interpreted with caution and require further investigation.

Despite these limitations, the study contributes by highlighting the importance of goal-related processes in the development of burnout symptoms among researchers and helping professionals. The findings suggest that adaptive goal dimensions may play an important role in burnout prevention and in promoting healthy work environments. Future research should examine the development of burnout symptoms in relation to goal dimensions more comprehensively, particularly by focusing on interactions between goal dimensions or including investigations of causal effects.

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RETROGRADE AMNESIAS WITHOUT SIGNIFICANT BRAIN DAMAGE IN YOUNG VERSUS OLD AGE

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Abstract

Retrograde amnesia is a severe, but rarely diagnosed disorder. Most retrograde amnesias primarily affect the episodic-autobiographical domain. This means that events or episodes that are emotionally connotated and that can be traced back with respect to the time, when they occurred, and with respect to the place, where the event happened. Retrograde amnesia usually occurs in the context of traumatic brain damage, in patients with epilepsy, or in patients with a condition of dementia. However, there are also disease conditions that lead to retrograde amnesia of a more transient nature. This holds true for two prominent disease conditions: *transient global amnesia* and *dissociative amnesia*. Transient global amnesia is considered to be a neurological condition, while dissociative amnesia is a psychiatric condition. Transient global amnesia usually occurs after stressful somatic or psychic incidents (e.g., sudden change in temperature, strenuous physical effort, emotional stress) and lasts only a few hours (up to a day). With more sophisticated imaging methods, brain damage may be found especially in the hippocampal region, but seems to be more transient in nature. Aside from memory problems, no other major behavioral symptoms are present. So, there is full consciousness and personal data are present. Dissociative amnesia, on the other hand, is characterized by a loss of personal data – the patient no longer remembers who he or she is. Furthermore, there may be an altered state of consciousness ("self-awareness"). The disease appears suddenly, usually because of overwhelming stress. The disease may last short-term or long-term. Long-term disease conditions seem to be accompanied by brain hypometabolism, especially in the right fronto-temporal cortex, as measured by fluoro-deoxy-d-glucose metabolism with positron-emission-tomography.
The two disease conditions consequently demonstrate that psychic or physical stress or trauma events may have a major impact on the brain, resulting in amnesia in the episodic-autobiographical domain. Both kinds of diseases are potentially reversible – transient global amnesia per definition always within a day, dissociative amnesia depending on circumstances, sometimes quickly, sometimes not at all.

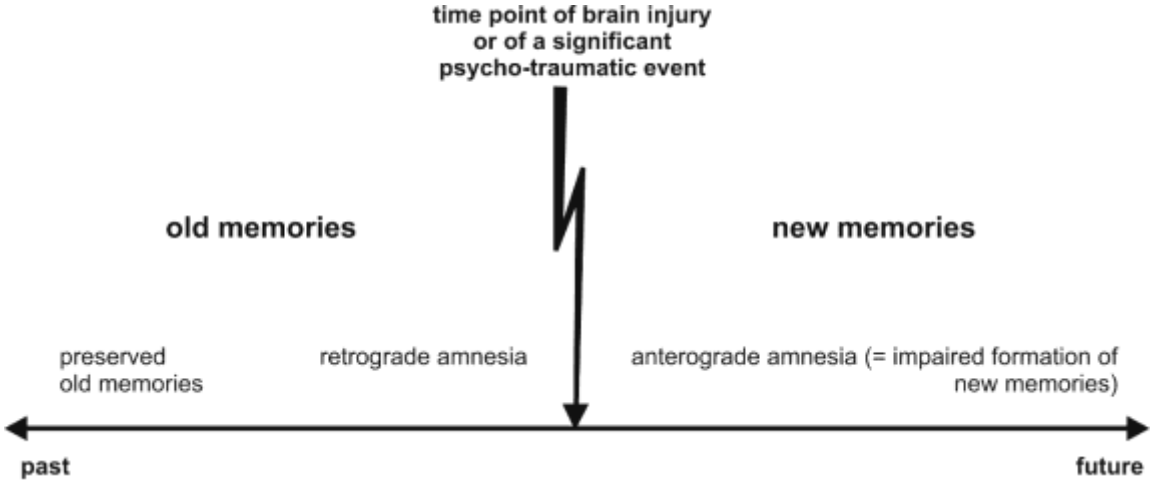
Keywords: *Transient global amnesia, dissociative amnesia, neurological disorders, psychiatric disorders.*

1. Introduction

Long-term memory may be disturbed in two time directions – anterogradely and retrogradely. Figure 1 illustrates this. In this Figure the flash symbol represents the time point of brain damage or of a major psychic traumatic event, leading to either anterograde or retrograde amnesia or to both. Retrograde amnesia frequently follows Ribot's Law. The psychologist Ribot (1882) had found that events dating back to childhood or youth have a higher likelihood of being preserved than those from the recent past. Several factors may contribute to this: Remote memories were encoded and stored in a young, barely loaded brain and were unique at the time of encoding, which means that there was little interference with concurring information (e.g., similar events). Furthermore, they were frequently more emotionally loaden than similar events, occurring later. Due to repeated recall over time (until the present) such early encoded events had a high chance of becoming deeply re-encoded and broadly embedded in respective neural networks.

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Figure 1. Relationships between anterograde and retrograde amnesia.



Anterograde memory disturbances are quite frequent after brain damage and can be long-lasting or even persistent (Markowitsch, 2008; Markowitsch & Staniloiu, 2012, 2022). They occur especially after bilateral brain damage which affects one or more structures of the limbic system (Markowitsch, 1999). Three long-term memory processing divisions of the limbic system have been established – the medial temporal lobe (with the hippocampus as core structure), the medial diencephalon, and the basal forebrain (Markowitsch & Staniloiu, 2012, 2022). Aside from direct, focal brain damage, diffuse brain damage, as in dementia, can lead to anterograde amnesia (Abbate et al., 2023; Caine et al., 2001). And psychiatric diseases may impair anterograde memory as well (Markowitsch & Staniloiu, 2012, 2022; Staniloiu & Markowitsch, 2014).

Retrograde memory disturbances have been much less described, both in neurology and psychiatry (Kopelman, 2008; Markowitsch & Staniloiu, 2022; Staniloiu & Markowitsch, 2014). Conditions of traumatic brain damage, epilepsy and dementia are most commonly associated with retrograde memory loss. There are, however, disease conditions that lead to retrograde amnesia of a more transient or variable nature. This holds true for the disease conditions: *transient global amnesia* (TGA) and *dissociative amnesia* (DA).

For nearly all disease conditions the memory impairments hold in principal for one memory system: episodic-autobiographical memory (Staniloiu et al., 2020a). That means, it refers to personal, usually emotionally loaden events and episodes. Fact retrieval may be affected in a few instances when the facts are emotionally connotated.

2. Transient global amnesia

TGA is a disease that was first described in the middle of the last century (Courjon & Guyotat, 1956; Fisher & Adams, 1964). Its characteristics, especially its epidemiology, remained an enigma over the next half century. Only in the present century, detailed data about its conditions became available (Bartsch & Deutschl, 2010; Bartsch & Butler, 2013; Sealy et al., 2022). Basically, TGA is characterized by severe anterograde and less severe retrograde amnesia, which occurs with a sudden onset and disappears after about a day – frequently after sleep. It affects mainly old(er) individuals. The anterograde amnesia leads to confusion, but basic knowledge about oneself is preserved (name, birthday, and the like). Patients repeatedly ask questions about the day's events (Sealy et al., 2022). Precipitating events or triggering factors can be found both in the somatic and the psychic domain. Bartsch and Deuschl (2010) tried a quantification (their Figure 1) which indicated that nearly one third of the affected cases were due to emotional stress, another about 30% to strenuous physical activity, about 10% each to temperature change and sexual intercourse, and the rest to acute pain or other factors. Related to the emotional stress conditions is the "broken heart syndrome" (or Takotsubo cardiomyopathy) and migraine headaches that have been associated with the onset of TGA (Sealy et al., 2022).

TGA was considered being a benign disease, as it lasts only a day or less and no overt brain damage was detected. More recent data, however, changed the picture. Bartsch and Deuschl (2010), and Bartsch et al. (2007) detected lesions in the CA1 sector of the hippocampal formation by using magnetic resonance imaging. A 6-month follow-up revealed, however, that these lesions were of transient character. Other studies showed apparently permanent lesions in hippocampal and further brain areas related to memory in

general (Wang et al., 2018) and to spatial memory and navigation in particular (Schöberl et al., 2019). Functionally, Hsieh et al. (2019) proposed a relation between TGA and the later development of dementia.

Finally, it should be mentioned that there is a tendency of recurrence of TGA which, of course, has implications for chronicity. Recurrence was first analyzed by Markowitsch (1983) (see his Figure 3). Recently, Sealy et al. (2022) reported a life time recurrence rate of up to 23.8%. The considerable recurrence rate is in line with a vascular origin of TGA, as suggested by Bartsch et al. (2007).

3. Dissociative amnesia

DA is an illness which, on first glance, differs considerably from TGA. The hallmark of DA is a temporary or long-lasting inability to recollect personal (autobiographical) memories, which is referred to as retrograde amnesia (see Figure 1). In very rare instances the reverse, namely severe anterograde amnesia may occur (Staniloiu & Markowitsch, 2014; Markowitsch & Staniloiu, 2016). Contrary to the situation in TGA, patients with DA usually are unable to name personal data (own name, birthday, etc.) and they seem to be unconcerned by this inability. This lack of concern was noted already in the early literature and was named *belle indifference* by Janet in 1907 (see also Reinhold & Markowitsch, 2009). DA can vary in duration from days to decades. Sometimes it may be limited to a certain time epoch (e.g., Markowitsch et al., 1997).

DA preponderantly is found in younger individuals; this may be attributable to the frequently found labile und uncertain personality of the affected individuals. The major trigger symptom of DA is stress (Staniloiu et al., 2020b). Staniloiu and Markowitsch (2014) proposed the "Two-hit hypothesis" which postulates an additive or synergistic interaction between psychological (and physical) incidents that then will lead to DA. This hypothesis furthermore should explain, why for the outsider even minor incidents might trigger an amnestic condition. Interactions between stress occurrence and molecular reactions in the brain were proposed as inducing such major and frequently long-lasting changes in personality (see e.g., the sequence depicted in Table 36.2 in Markowitsch & Staniloiu, 2016).

In our experience, DA is frequently long-lasting and changes the personality (Markowitsch & Staniloiu, 2013; Staniloiu & Markowitsch, 2012; Staniloiu et al., 2018, 2020b). The personality change appears obvious, as an individual with DA, covering the whole life, has no reference to his or her own past behavior. This means, that self-awareness is altered. One of our patients stated "My memory are the others" (Staniloiu et al., 2020b), meaning that the others tell him what he is and what he did in the past. Another patient with DA changed his job, lost his interest in cars (while prior to DA he was an avid car driver) and in his family, and changed his diet (Markowitsch et al., 1997).

As in TGA, there is evidence for brain changes in DA: Since the end of the 1990s we performed especially fluoro-deoxy-d-glucose imaging with positron emission tomography (in combination with magnetic resonance imaging). The most reliable result was a right-hemispheric hypometabolism in the fronto-temporal cortex (including the amygdala and at least portions of the hippocampal formation) (Brand et al., 2009; Staniloiu et al., 2011) (which is in conformity with related results of others, e.g., Tramoni et al., 2009). We therefore suggested that a synchronous activity of lateral prefrontal and anterior temporal regions of the right hemisphere brings the cognitive and emotional components of episodic-autobiographical memory together.

4. Similarities and differences between TGA and DA

There are several similarities between the two diseases: Above all, the sudden onset and the dominance of episodic-autobiographical memory loss. Furthermore, the vague neuronal correlates that until recently were considered to non-exist. Triger factors overlap in part – especially a stress-related onset is found for about a third of the TGA cases and for nearly all of the DA cases.

However, the differences predominate. These are seen in the age distribution which is on the younger side for DA and on the old side for TGA. Then with respect to the distribution of the memory problems which are principally on the anterograde side for TGA and on the retrograde side for DA. Furthermore, the duration of the memory problems is by definition limited to one day for TGA, while it is usually much longer for DA. With respect to retrograde amnesia, cases with DA are unable to retrieve data about the own person, while these data are preserved in patients with TGA. Self-awareness may be altered for individuals with DA, but not for those with TGA. The neuronal correlates may overlap with respect to the medial temporal lobe, but the mechanisms for their occurrence and maintenance may differ. There seems to be a difference in the development of possible brain and molecular factors, inducing the two disease conditions. Concomitant factors such as migraine and *belle indifference* differ between TGA and DA.

5. Conclusions

TGA and DA are two diseases in which memory problems stay in the center and are mandatory for a differential diagnosis. Though a few other factors overlap for the description of the two disease conditions, there exists a multitude of features which differs between TGA and DA.

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MOTHER–ADOLESCENT CONFLICT AND ADOLESCENT DEPRESSIVE SYMPTOMS: THE MODERATING ROLE OF ENVIRONMENTAL SENSITIVITY AND NEUROTICISM

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Abstract

Adolescent depressive symptoms are shaped by both parenting experiences and individual differences in personality and sensitivity. The present study examined whether mother–adolescent conflict predicts adolescent depressive symptoms above and beyond maternal warmth, involvement, and autonomy support, and whether adolescents' environmental sensitivity and neuroticism moderate this association. Participants were 241 adolescents (M age = 16.86 years; 59% female) who completed measures of perceived conflict with their mothers, maternal parenting behaviors, environmental sensitivity, neuroticism, and depressive symptoms. Regression analyses indicated that mother–adolescent conflict significantly predicted higher depressive symptoms even after controlling for adolescents' age, gender, personality characteristics, and mothers' parenting behaviors. Furthermore, this association was moderated by environmental sensitivity: highly sensitive adolescents reported greater depressive symptoms under conditions of high conflict, whereas less sensitive adolescents were relatively unaffected. In contrast, neuroticism did not moderate this link. These findings are consistent with a diathesis–stress model, suggesting that environmental sensitivity functions as a vulnerability factor that heightens the emotional impact of conflict with mothers. Results underscore the importance of considering both contextual stressors and individual susceptibility when examining risk for adolescent depression.

Keywords: *Depressive symptoms, environmental sensitivity, neuroticism, parenting behaviors.*

1. Introduction

As the prevalence of depressive symptoms in adolescence increases globally (Shorey, Ng, & Wong, 2021), exploring potential contextual and personal factors that may contribute to their development and upkeep is constantly important. Issues in the adolescent's immediate social environment could pose a risk to their mental health. Specifically, a lack of a harmonious relationship between teens and their parents characterized by conflict and disagreement has been related with higher rates of depressive symptoms in multiple studies (Wang & Tang, 2025). Although increased conflict is common and even normative for this developmental period (Laursen, Coy, & Collins, 1998), frequent fighting may reduce the perceived parental social support adolescents still rely on undermining healthy development. Besides the contexts they grow up in, adolescents differ in how they perceive and process those contexts. Some may be more vulnerable than others to effects of their environment. Namely, according to the diathesis-stress model (Monroe & Simons, 1991), certain individuals possess traits which make them more susceptible to external stressors than other individuals. Going along with this logic, inherently more vulnerable adolescents who are in conflictual environments may be more likely to experience depressive symptoms than adolescents who aren't as vulnerable. Vulnerabilities can come in many forms. Certain personality traits, physiology markers or genes could act as predispositions for depressive symptoms in stressful environments. For example, high neuroticism which is characterized by a tendency to experience negative affect, respond poorly to environmental stress and experience minor frustrations as overwhelming (Widiger & Oltmanns, 2017), has been found to moderate the link between some stressful situations and various outcomes such as internet gaming disorder (Li et al., 2022) and depressive symptoms (Hutchinson & Williams, 2007). On the other hand, in some research neuroticism did not moderate the relationship between negative life events and life satisfaction in adolescents (Jovanović, 2019). Another potential source of personal vulnerability might be levels of the adolescent's environmental sensitivity (Pluess, 2015). While the environmental sensitivity framework postulates that highly sensitive individuals are more affected by negative environments, it also assumes that the same highly sensitive individuals may benefit disproportionately

from supportive environments (Pluess & Belsky, 2013). It has been proposed that sensitive individuals may suffer more from mental health issues due to feeling more easily overstimulated by both external and internal factors (Brindle, Moulding, Bakker, & Nedeljkovic, 2015), and due to their deeper cognitive processing of stimuli (Lionetti et al., 2022). A recent meta-analysis revealed a relationship between sensitivity and mental health problems such as depression, anxiety, psychosomatic symptoms, OCD and others (Falkenstein, Sartori, Malanchini, Hadfield, & Pluess, 2025). This type of sensitivity is related to personality traits but distinct from them (Lionetti et al., 2019) so it is important to explore it's unique contribution to mental health outcomes in adolescence.

2. Objectives

Both mentioned possible frames of reference which we can view individual differences through serve as valuable lenses that we can apply when exploring the interaction between the parent-adolescent relationships and adolescent mental health outcomes. Therefore, the goal of this study was to examine the role of mother-adolescent conflict in predicting adolescent depressive symptoms and to explore the possible moderating role of neuroticism and environmental sensitivity in this relationship. We assume that mother-adolescent conflict will predict depressive symptoms above and beyond adolescents' age, gender, personality characteristics, and mothers' parenting behaviors. We also assume that neuroticism and environmental sensitivity could each serve as possible moderators in this relationship.

3. Methods

3.1. Participants and procedure

The current study was conducted with data from the pilot study within the TEEN-WELL project which is focused on measuring well-being indicators in various contexts in adolescence. Data collection took place in May of 2025. Participants completed online questionnaires which were administered in schools by their school psychologist. The final number of participants in the pilot study included 241 adolescents who were between 15 and 19 years of age (M = 16.86). There were 59% female participants.

3.2. Measures

All participants completed measures of depressive symptoms, environmental sensitivity, perceived parenting behavior as well as sociodemographic data (age, gender). Environmental sensitivity was measured with the extended Highly Sensitive Child Scale (Pluess et al., 2018) HCS-21 constructed by Weyn et al. (2021). The scale consists of 21 items (e.g. Loud noises make me feel uncomfortable) in which participants assessed how well each item describes them on a scale from 1 (not at all) to 7 (completely). Cronbach's alpha in the current study for this scale was .86. Depressive symptoms in the current study were measured with the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) which is a multipurpose instrument for evaluating the severity of depressive symptoms. On a scale from 0 (not at all) to 3 (almost every day) participants reported which symptoms experienced and their severity. In the current study, the last item (evaluates suicidality symptoms), was omitted from the questionnaire. Internal consistency of the questionnaire was .85. Positive maternal parenting behaviors were evaluated by a composite of participant's estimations of their mother's warmth, autonomy support and involvement. These evaluations were collected with the Perceptions of Parents Scales (POPS; Grolnick, Deci, & Ryan, 1997) in which participants estimate how accurately each statement is describes their parent on a scale from 1 (not true at all), to 7 (completely true). The scale consists of 21 items and the internal consistency for each of the subscales was 0.86 for involvement, 0.89 for warmth and 0.85 for autonomy. Subscale means were computed and summed to create a composite score, which was used in all analyses. Negative maternal parenting behaviors were evaluated by participant's estimations of conflict with their mother. Using items from Bülow, van Roekel, Boele, Denissen and Keijsers (2022) participants filled out 4 items in which they estimated how much they agree with each statement from 1 (completely disagree) to 5 (completely agree). Internal consistency of the scale in the current study was .85. Neuroticism was measured with the neuroticism subscale of the 15-item version International Personality Item Pool (Goldberg, 1999). On three items participants estimated how accurately each statement represents them from 1 (completely inaccurate) to 5 (completely accurate). Internal consistency was .65.

4. Results

Analyses were conducted in IBM SPSS and the PROCESS Macro extension by Hayes (2017). Descriptive statistics (M, SD, range) as well as skewness and kurtosis measures of all used variables are shown in Table 1.

Table 1. Descriptive statistics of variables use in the current study. (N=241).

	N	*Mean*	*SD*	*Range*	*Minimum*	*Maximum*	*Skewness*	*SE*	*Kurtosis*	*SE*
POPS	237	16.943	3.680	16.50	4.50	21.00	-1.245	0.158	0.968	0.315
Neuroticism	241	9.091	2.683	12	3	15	-0.193	0.157	-0.242	0.312
HCS-21	241	89.004	19.483	123.00	22.00	145.00	0.187	0.157	0.283	0.312
Conflict	239	2.051	0.911	4.00	1.00	5.00	0.658	0.157	-0.243	0.314
Depressive symptoms	241	0.961	0.666	2.88	0.00	2.88	0.518	0.157	-0.509	0.312

Table 2. Correlations of variables used in the study. (N=230).

	Depressive symptoms	Age	Sex	Neuroticism	POPS	HCS-21	Conflict
Depressive symptoms	1,000						
Age	-,046	1,000					
Sex	,397*	-,011	1,000				
Neuroticism	,492*	-,037	,350*	1,000			
POPS	-,346*	-,040	-,093	-,236*	1,000		
HCS-21	,471*	-,111	,319*	,503*	-,287*	1,000	
Conflict	,493*	-,075	,246*	,358*	-,710*	,286*	1,000

*Note. *p<.001*

Correlation analyses vary between -0.71 and .50. Depressive symptoms measured by the PHQ are moderately positively related to neuroticism, environmental sensitivity and maternal conflict, as well as gender. Environmental sensitivity (HCS-21) was positively related to neuroticism, depressive symptoms and gender as well as negatively correlated with maternal warmth, involvement and autonomy measured by POPS. POPS was strongly negatively related to maternal conflict, as well as moderately negatively correlated with depressive symptoms, environmental sensitivity and neuroticism. Hierarchical multiple linear regression in 4 steps was performed to examine the role of parental environment and personality in relation with depressive symptoms. The model explained 43% ($F(6, 223) = 28.13$, $p < .001$). of the variance in depressive symptoms. Age and sex alone explained 15.9% of the variance in depressive symptoms. Namely, sex was a significant predictor ($\beta = .396$, $p < .001$) while age was not ($\beta = -.042$, $p = .493$). Neuroticism ($\beta = .344$, $p < .001$) and POPS ($\beta = -.243$, $p < .001$) explained an additional 20% of the variance, while environmental sensitivity contributed to the model as well by explaining an additional 3% of the variance ($\beta = .209$, $p = .001$). On top of this, maternal conflict explained an additional 5% of the variance ($\beta = .322$, $p < .001$). In the final model, significant predictors of depressive symptoms were maternal conflict ($\beta = .322$, $p < .001$), environmental sensitivity ($\beta = .225$, $p < .001$), neuroticism ($\beta = .205$, $p = .001$) and sex ($\beta = .175$, $p = .002$).

Moderation analyses were performed using PROCESS macro (Hayes, 2017) to examine whether neuroticism and environmental sensitivity moderate the relationship between maternal conflict and depressive symptoms. In the neuroticism model, age, sex, POPS as well as environmental sensitivity were included as covariates. The interaction between maternal conflict and neuroticism was not significant (b = 0.0075, SE = 0.0138, t = 0.54, p = .588, 95% CI [−0.02, 0.03]). A second moderation analysis was conducted to examine the role of environmental sensitivity as a moderator. In this model, age, sex, POPS and neuroticism were included as covariates. Interaction between maternal conflict and environmental sensitivity was significant (b = 0.0046, SE = 0.0020, t = 2.33, p = .021, 95% CI [0.0007, 0.0085], $\Delta R^2 = .014$). The effect of maternal conflict on depressive symptoms was examined at low (16th percentile), medium (50th percentile), and high (84th percentile) levels of environmental sensitivity. As environmental sensitivity increases, the relationship between maternal conflict and depressive symptoms becomes stronger (Table 3).

Table 3. Effects of maternal conflict on depressive symptoms, at diffferent leveles of environmental sensitivity.

			95% Confidence Interval		
	Estimate	SE	Lower	Upper	p
16th percentile	0.135	0.070	-0.003	0.273	.0563
50th percentile	0.204	0.057	0.091	0.316	.0004
84th percentile	0.301	0.062	0.178	0.423	<.0001

5. Discussion & conclusion

The current study underpins the importance of considering individual differences in the relationship between parent-adolescent conflict and depressive symptoms in adolescence. Namely, conflict predicted depressive symptoms in adolescence when controlling for other predictors. This is in line with previous studies which clearly demonstrate the impact of adverse familial environments on adolescent mental health. Although in adolescence independence and autonomy become increasingly important, a supportive parental relationship is still of utmost importance for healthy development (Steinberg & Silk, 2002). Families represent key microsystems in adolescent development (Bronfenbrenner & Morris, 1998) which makes their influence immediate and undeniable. For example, emotional security theory assumes that teens are placed in a state of constant psychological vigilance when they are in conflict with their parents which prolongs emotional distress and could elevate the likelihood of depression (Cummings & Miller-Graff, 2015). Moreover, the current study found environmental sensitivity to be a significant moderator in the mentioned relationship. This finding supports the well-established diathesis-stress model which posits that certain vulnerabilities make individuals more likely to develop mental health issues when experiencing stressful situations. A possible explanation of the role of environmental sensitivity could be through the assumed deeper processing of stimuli sensitive individuals may possess. Depth of processing in sensitive adolescents could facilitate rumination (Lionetti et al., 2022) and make an already adverse environment seem more detrimental. Along with this, higher emotional reactivity and lower self-efficacy when trying to augment intense negative emotions (Brindle et al., 2015) could also serve as a venue for the development of depressive symptoms. On the other hand, neuroticism was not found to be a significant moderator. This is in line with some other research. For example, Boele et al. (2023) found no moderating effect of neuroticism between lower perceived parental support and depressive symptoms at the within family level, and Jovanović (2019) found no moderating effect between stressful events and adolescents' life satisfaction. It could be the case that conflict predicts depressive symptoms independently of personality traits.

This study underscores the importance of individual differences when considering adolescent mental health. It extends previous research not only by confirming the diathesis-stress model but by offering another frame of reference which we can view vulnerabilities through. Namely, focusing on the disproportional impact conflict has on sensitive children could help steer mental health interventions towards creating more individualized programs which target sensitive children differently. By distinguishing environmental sensitivity from neuroticism as separate vulnerability factors we gain a more precise understanding of the interplay between contexts and outcomes in adolescence. Along with that, considering that the current sample includes Croatian adolescents, future research could extend this finding across different contexts. This research was cross-sectional and used self-report measures, and reliability of neuroticism was low. Inferences about causal relationships are limited and future research could use longitudinal methods as well as limit socially desirable responding by relying on reports from multiple informants.

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THE TRAJECTORY FROM RECREATIONAL TO PROBLEMATIC USE: PERSPECTIVES OF INDIVIDUALS WITH A COCAINE USE DISORDER

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Abstract

The widespread use of cocaine, particularly in recreational settings, is a growing public health concern. The numbers of individuals presenting for treatment with cocaine-related problems have also increased. While public health data provides insight into prevalence and trends, it offers little understanding about subjective experience and substance use trajectories. This study aimed to explore how individuals in treatment with problematic use of cocaine perceive their transition from recreational to problematic use, with a focus on the biopsychosocial processes that shape this trajectory. Nine participants were recruited through purposive sampling from rehabilitation services across Malta. Semi-structured interviews were conducted, and Reflexive Thematic Analysis (RTA) was used to analyse and interpret recurrent themes across participants experiences. Findings revealed that cocaine use often began in socially sanctioned contexts, with initial use perceived as manageable or recreational. However, a gradual shift toward psychological and physical dependence and interpersonal deterioration was consistently described. The transition to problematic use was marked by accumulating vulnerabilities including trauma, emotional dysregulation, and comorbidity. For women, this was tied to male partners or significant male "others." Participants identified social reinforcement, denial, rationalisation and minimisation as key perpetuating factors. These findings highlight the importance of targeted psychosocial interventions that encourage earlier engagement, particularly targeted at capturing subgroups who exhibit the riskiest patterns of use accompanied by other biopsychosocial vulnerabilities. This study contributes to local and international addiction literature and emphasises the need for evidence-based policies that address the role of social norms in shaping disordered patterns of substance use.

Keywords: *Cocaine use disorder, substance use trajectories, reflexive thematic analysis, biopsychosocial factors, Malta.*

1. Introduction

Cocaine is the second most widely used illicit drug in Europe, with its availability, purity, and associated health and social harms all on the rise, alongside increasing treatment demand and record levels of trafficking and seizures (European Union Drug Agency [EUDA], 2025). Locally, cocaine has become the predominant substance in Malta's drug treatment landscape, with 41 % of those in treatment and 57% of first-time treatment entrants reporting it as their primary drug. This trend is paralleled by an increase in average purity, which reached approximately 57 % in 2023, and by cocaine's position as the most seized drug by volume (493 kg), suggesting widespread availability (National Focal Point for Drugs and Drug Addiction, 2025).

Drug use in Europe is deeply embedded within recreational settings, particularly in the night-time economy. Within these spaces, drugs like cocaine remain a primary focus for researchers and monitoring agencies (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2018). While many individuals who use cocaine occasionally consider themselves "recreational users" who maintain control over their consumption (Morein-Zamir et. al., 2015), there is an ongoing and urgent need to understand the "continuum of concern" that exists between recreational and problematic use (EMCDDA, 2018).

Problematic drug use refers to patterns of consumption that interfere with an individual's social and occupational functioning (McLellan, 2017). Around 20% of cocaine users will transition to meet the criteria for cocaine use disorder (CUD) at some point in their lifetime (Schwartz et al., 2022), defined as compulsive patterns, preoccupation, and continued use despite adverse consequences. These include behavioural and physiological indicators of clinically significant distress or impairment (American Psychiatric Association [APA], 2022). The transition from recreational to problematic use is not always linear and is often obscured by the social acceptability of certain drugs in specific cultural contexts

(McNally et al., 2023). Furthermore, those frequenting recreational settings are not a homogeneous group, and statistical typologies have identified "unselective" subgroups who exhibit the riskiest patterns of use, often combining substances in ways that increase their vulnerability (EMCDDA, 2018).

While quantitative surveys and epidemiological studies provide valuable prevalence and risk data, they offer limited insight into subjective experience and substance use trajectories (Schwartz et al., 2022). Addressing this gap, the current study aimed to better understand the fluid and dynamic nature of cocaine use pathways as perceived by individuals in treatment for CUD. By examining participants' perceptions of the trajectory from recreational to problematic use, this study seeks to inform the development of more targeted interventions.

2. Methodology

The current study acknowledges the dynamic interplay of protective, predisposing, precipitating, and perpetuating factors across cocaine use trajectories (Macneil et al., 2012) adopting a comprehensive, multi-level approach to understanding patterns of use over time. Drawing on the concept of the "addiction career" (Clark, 2011; Peele, 1985), the study conceptualizes addiction as a life-course trajectory encompassing onset, escalation, maintenance and desistance, shaped by both subjective experiences and objective contingencies existing along a non-linear continuum (Clark, 2011).

2.1. Research design

The research is situated within a critical realist ontology and an interpretivist epistemology (Bhaskar, 2016; Guba & Lincoln, 1994), recognising addiction as both a biologically grounded phenomenon and a subjectively lived multidimensional experience shaped by social context. Using Reflexive Thematic Analysis (RTA) (Braun & Clarke, 2019, 2021), the study prioritises participants narratives to address the central research question: how do individuals in treatment for a CUD perceive and experience their transition from recreational to problematic cocaine use?

2.2. Participant characteristics

Nine participants (2 females, 7 males) were purposively recruited from three drug treatment agencies in Malta and Gozo. All were aged 18+ and met DSM criteria for CUD (APA, 2022). Ages ranged from 23 to 46 years. First substance use occurred between 11 and 14 years, with cannabis most commonly used initially. Addiction careers spanned 11–28 years, and most participants reported less than one year of abstinence. (Table 1)

Table 1. Demographic and Drug Use Characteristics of Participants.

Pseudonym	Age	Age of Onset of Substance Use	Initial Substance Used	Length of Abstinence	Length of Addiction Career
Julian	46	19	Cannabis	36 months	24 years
Andrew	38	14	Cannabis	11 months	23 years
Paolo	27	11	Cannabis	9 months	15 years
Daniel	23	11	Cannabis	7 months	11 years
Mike	31	14	Cannabis	9 months	16 years
Ian	41	12	Cannabis	12 months	28 years
Carla	36	14	Heroin	6 months	21 years
Alexander	41	13	Cannabis	9 months	27 years
Nicola	27	13	Cannabis	9 months	13 years

2.3. Data collection, analysis and ethical considerations

Data was collected by means of face-to-face semi-structured interviews. Recorded transcripts were analysed following Braun and Clarke's six-phase framework (2019, 2021). Ethical approval was obtained from the Social Wellbeing Faculty Research Ethics Committee. Informed consent, confidentiality, and participant autonomy were prioritised, with support referrals available if distress arose.

3. Main findings

The main themes and sub-themes generated from the data analysis, together with a brief description and accompanying verbatim quotes, are presented in Table 2. Three overarching themes emerged from the analysis: Permission to Use; Caught in the Chase; and Running on Empty. These themes trace the trajectory from recreational to problematic use of cocaine as perceived by participants.

Table 2. Emergent Themes and Sub-Themes.

Main theme	Sub-theme	Description	Salient Quote
Permission to Use	A difficult past	Participants reported that cocaine helped them cope with the pain associated with childhood adversity.	"I had a difficult past and a lot of anger inside me" (Ian) "I felt like the black sheep of the family…never felt wanted, needed, respected, loved…" (Mike)
	A bridge to belonging	Cocaine was perceived as pervasive in their social sphere, easily accessible and subtly embedded within the cultural script of leisure and belonging.	"…everyone started doing cocaine" (Julian) "I used to feel like I was part of something" (Daniel) "With it I felt confident" (Andrew)
	Influential persons	Important persons in participants' lives modelled cocaine use.	"I used to see my dad [use drugs] and I always wanted to be like him" (Carla) "When I started dating him [my partner] I started using more" (Nicola)
Caught in the Chase	Deceptively benign	Early use was not perceived as problematic. The harm was only recognised retrospectively, with participants describing a gradual and cumulative path towards problematic use.	"I was too young to understand the consequences…it felt like part of growing up...it started as a weekend thing…before I knew it I was using daily" (Daniel) "In the beginning I didn't even realise" (Carla)
	It ain't that bad	Rationalisation, denial, minimising, comparing themselves to others whom they perceived had worse problems were all strategies deployed to prevent acknowledgement of the severity of the problem.	"I was in denial that I had a problem" (Andrew) "I would start making excuses [to use it] (Carla) "Others are worse than me" (Ian)
	Chasing that high	Participants described the visceral and transcendental responses that characterised the pleasurable experience. Subsequent "come-downs" intensified their need for another high.	"…you keep chasing that feeling just trying to get back up there" (Alexander) "Then you want more, trying to recreate that first hit" (Andrew) "I really liked the feeling" (Paolo)
Running on Empty	It takes your soul	Participants reported a gradual loss of control and erosion of identity, whereby the person they believed themselves to be became unrecognisable.	"It takes your soul away…you don't even know who you are anymore" (Daniel) "It…strips you off your values...I'd take it and cry" (Alexander) "You lose all trace of being human" (Carla)
	Shame as a constant companion	Participants reported feeling judged and even despised by others. This experience was fraught with a sense of shame and self-deprecation	"People start to despise you" (Julian) "I was disgusting...I was the fool" (Andrew)
	Re-ordering of priorities	Cocaine became the main priority, over and above everything and anyone	"Cocaine came first and before everything...even if you only have 20€ and you're dying of thirst you'd rather stay thirsty" (Ian) "…when I had my daughter and I'd get money meant for her I'd use it for coke" (Nicola)
	A total mess	Participants described the various physical, psychological and social difficulties that ensued from their cocaine use	"Coke messes with your head…it drives you mad" (Carla) "I started stabbing myself in the foot because I started seeing worms coming out of my skin" (Daniel) "I tried to hang myself…I was tired of living" (Nicola)

4. Discussion

Within the conceptualisation of the "addiction career" (Clark, 2011; Peele, 1985), participants' narratives exemplify an early onset trajectory characterized by initiation (early recreational use interacting with normalisation of cocaine and predisposing biopsychosocial vulnerabilities) escalation (compulsive engagement and prioritisation of cocaine over other life domains) and maintenance (stigma, loss of

autonomy and self-recognition). The findings highlight the interplay of individual, psychological, social, and neurobiological factors across the trajectory from recreational to problematic use. Since most recreational users do not progress to problematic patterns of use and never enter treatment, these factors may distinguish individuals who seek treatment from those who never do, or never have to (Heyman, 2009).

4.1. Initiation: Permission to use

Participants reported early onset of substance use. This finding aligns with broader epidemiological evidence showing that initiation during this developmental window is strongly associated with subsequent chronic and problematic use trajectories (Strashny, 2014). Secondly, participants also reported childhood adversity and exposure to significant others who modelled cocaine use, stating that cocaine helped them cope in various interpersonal and social situations. This is consistent with prior research emphasising the role of early psychosocial risk factors in shaping trajectories of substance use (Macneil et al., 2012). Risk further increases in the absence of healthy social involvement or strong coping skills (McLellan, 2017) and the presence of the normalisation of cocaine use, particularly in recreational settings (Cristiano, 2024). A gendered pattern of onset tied to women's significant male "others" also emerged from the narratives. This aligns with prior research indicating that women's drug use initiation is often shaped by male partnerships (Scicluna & Clark, 2019) and may contribute to the "telescoping" phenomenon (Piazza et. al., 1989).

4.2. Escalation: caught in the chase

Engagement with cocaine was initially perceived as normative by participants who deployed denial, rationalisation and minimisation as cognitive strategies to their behaviour. This finding evidences the subtle cognitive and social processes that delay recognition of harm (Hartson & Sherman, 2012). Participants' descriptions of intense, transcendental highs and the compulsion to re-engage following the aversive "come-down" correspond with neurobiological models of addiction, wherein dopaminergic reinforcement mechanisms interact with psychosocial factors to sustain and escalate use (Koob & Volkow, 2016).

4.3. Maintenance: Running on empty

The prioritisation of cocaine over other activities, perceived loss of self, experiences of shame and social judgement underpinned the transition from escalation to maintenance. SUDs are characterized by the progressive dismantling of relational trust and identity (Bufford & Lappan, 2024), the disruption of self-concept and social functioning (Aue et. al., 2023) and the re-ordering of priorities (Volkow & Blanco, 2023). Experiences of shame and stigma reinforce social exclusion, deter treatment engagement (Matthews, Dwyer, & Snoek, 2017) and may be especially acute for women (Clark & Vella, 2022).

5. Concluding note

The study draws attention to the multifactorial and multi-layered trajectory from recreational to problematic cocaine use, shaped by predisposing psychosocial vulnerabilities; cognitive strategies such as denial and minimisation; and social acceptance and accommodation of cocaine use into the fabric of society. Escalation is reinforced by neurobiological mechanisms and marked by identity erosion, impaired social functioning, and experiences of shame and social judgment. Gendered patterns in experiences were also identified. These factors highlight the centrality of self-concept disruption and stigma in sustaining addiction, considering also the dynamic role of gender differences. The findings also emphasise the need to acknowledge the widespread normalisation and cultural integration of cocaine use and its impact, particularly on vulnerable young people.

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THE RELATIONSHIP BETWEEN THE DURATION AND INTENSITY OF SELF-HARM AND THE OCCURRENCE OF ITS COMORBIDITIES

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Abstract

Self-harm represents a highly prevalent, multi-etiological psychopathological phenomenon associated with numerous psychiatric comorbidities, yet the extent to which it alleviates psychological distress remains unclear. This pilot study examined whether the intensity of self-harm increases with the number of comorbidities, whether these relationships differ by gender, and whether longer duration of self-harming behavior is associated with a reduction in psychological difficulties. A cross-sectional design was employed. Data on 135 individuals who engaged in self-harm (18 men, 115 women, 2 nonbinary excluded from subgroup analyses; M age = 18.57 years) were retrospectively reported by 135 mental health professionals via anonymized questionnaires. Intensity of self-harm (7-point scale), duration (months), and the number of DSM-5 comorbidities were assessed. Due to non-normal distributions, Spearman correlations and linear regression analyses were conducted ($\alpha = .05$). The number of comorbidities was positively associated with self-harm intensity ($\rho = .210$, $p = .008$), accounting for 4.3% of variance; this relationship was significant only among females. Duration of self-harm was positively associated with the number of comorbidities ($\rho = .340$, $p < .001$), explaining 5.5% of variance, again significant only in women. Although effect sizes were modest and the cross-sectional design precludes causal inference, the findings are consistent with functional and cyclical models of self-harm, suggesting that longer engagement is not associated with a reduction in psychological difficulties. Within the methodological limits of this pilot study, the results do not support the assumption that self-harm leads to sustained alleviation of psychological distress; rather, they indicate that any perceived relief may be short-term, while prolonged engagement may be associated with less favorable mental health outcomes, warranting further investigation.

Keywords: *Self-harm, comorbidity, duration of self-harm, intensity of self-harm, gender differences.*

1. Introduction

Self-harm is a psychopathological phenomenon that, due to its high prevalence and its risks to both the mental and physical health of individuals, has attracted increasing attention from professionals in the fields of psychology and psychiatry. Its lifetime prevalence currently ranges from 3% to 45% (Haregu, Chen, Arafat, Cherian, & Armstrong, 2023), depending on gender (male:female ratio = 1:2 – Moloney et al., 2024), country, age cohort, and data collection methodology, thereby substantially exceeding the prevalence of established mental disorders. A universally accepted definition of this phenomenon has not yet been definitively established (compare, for example, the concept of "Non-Suicidal Self-Injury" in the Diagnostic and Statistical Manual of Mental Disorders, 5th ed. (DSM-5) of the American Psychiatric Association (APA, 2013), and the concept of "Intentional self-harm" in the International Statistical Classification of Diseases and Related Health Problems, 11th ed. (ICD-11) of the World Health Organization (WHO, 2022)); however, common elements across numerous definitions include repeated behavior directed toward deliberate and intentional self-inflicted harm (with this motive being primary), typically accompanied by pain.

Intensive research on self-harm has highlighted its multi-etiological nature (Yan & Yue, 2023) and its association with multiple psychological difficulties. Among individuals who engage in self-harm, higher rates have been demonstrated for depression, bipolar disorder, alcohol abuse, anxiety disorders, eating disorders, schizophrenia, and substance abuse (Singhal, Ross, Seminog, Hawton, & Goldacre, 2014), as well as personality disorders and externalizing disorders (Nitkowski & Petermann, 2011). In the context of multiple psychological difficulties, self-harm serves several functions—emotion regulation (Houben et al.,

2016), coping with mental illness and trauma (Mughal et al., 2023), signaling distress (Laporte, Ozolins, Westling, Westrin, & Wallinius, 2021), preventing suicide (Kraus, Schmid, & In-Albon, 2020), reducing dissociation (Klonsky, 2007), or alleviating psychological pain (Ruan & Yan, 2025)—while individuals who self-harm report considerable relief and calmness following self-injury in these domains (Klonsky, 2009). These findings are theoretically grounded in the Seven-Function Model of Self-Harm (Klonsky, 2007), the Experiential Avoidance Model (Chapman, Gratz, & Brown, 2006), the Cognitive-Emotional Model (Hasking, Whitlock, Voon, & Rose, 2017), and the Benefits and Barriers Model (Hooley & Franklin, 2017), which further elucidate the mechanisms underlying the effects of self-harm.

On the other hand, experts agree that the harmfulness of self-harm is not only immediate (resulting directly from the act itself) but also long-term (see, e.g., Xie, Tang, Liu, Dong, & Zhang, 2025), and that it substantially outweighs the benefits reported by individuals who engage in self-harm. Moreover, the extent to which these reported benefits are objective and enduring remains questionable. Nevertheless, the perceived benefits for individuals who self-harm may represent a significant factor in the initiation, repetition, and maintenance of this behavior as a maladaptive coping strategy for managing psychological distress. Therefore, investigating these perceived benefits is crucial not only for understanding the mechanisms of self-harm but also for establishing appropriate intervention approaches.

2. Objective

Research examining the actual benefits of self-harm in alleviating psychological difficulties is understandably absent, primarily due to ethical concerns related to observing the effects of self-harm without therapeutic intervention. Partial support for the assumption of possible subjectively perceived benefits can be found in interviews with individuals who engage in self-harm (see, e.g., Carpenter, Hepp, & Trull, 2023), as well as indirectly in the observation that an increased prevalence of psychological difficulties and disorders is associated with a higher incidence of self-harm as a maladaptive coping strategy for managing psychological distress.

In this context, however, the question arises as to whether self-harm truly has the potential to alleviate psychological difficulties. As a first step toward conducting more systematic research, a pilot study was designed with the aim of exploring the relationship between the number of psychological problems (comorbidities) and the intensity of self-harm, as well as examining whether the number of comorbidities decreases with the duration of self-harming behavior. Given the impossibility of examining the developmental trajectory of the effects of self-harm over time, a cross-sectional study design was employed. Considering the higher prevalence of self-harm among women, these relationships were also examined with respect to gender.

In line with these objectives, the following research questions (RQs) were formulated:

RQ1: Does the intensity of self-harm increase with the number of comorbidities?

RQ2: Does the relationship between the number of comorbidities and the intensity of self-harm differ between men and women?

RQ3: Does the number of comorbidities decrease with the duration of self-harming behavior?

RQ4: Does the relationship between the duration of self-harming behavior and the number of comorbidities differ between men and women?

3. Method

A total of 137 professionals (recruited through convenience sampling) participated in the survey, including clinical psychologists (N = 32), psychiatrists (N = 15), counseling psychologists (N = 51), and school psychologists (N = 37), with a mean length of professional practice of 12.91 years. Two professionals were excluded from the analyses because they were not psychologists. The professionals were asked to provide information about one case of self-harm (for which they had obtained informed consent for the anonymous sharing of data). Through an anonymized online questionnaire, they reported the participant's age and gender, the duration of self-harming behavior in months, the intensity of self-harm (measured on a 7-point scale reflecting the frequency of self-harming acts), and the number of present comorbidities using a checklist of twenty diagnoses defined in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association (APA, 2013) (see Figure 1 for the full list).

Figure 1. List of monitored comorbidities (according to DSM-5) among individuals who engage in self-harm.

• Neurodevelopmental Disorders • Schizophrenia Spectrum and Other Psychotic Disorders • Bipolar and Related Disorders • Depressive Disorders • Anxiety Disorders • Obsessive-Compulsive and Related Disorders • Trauma-Related and Stressor-Related Disorders • Dissociative Disorders • Somatic Symptom and Related Disorders • Feeding and Eating Disorders • Elimination Disorders • Sleep-Wake Disorders • Sexual Dysfunctions • Gender Dysphoria • Disruptive, Impulse-Control, and Conduct Disorders • Substance-Related and Addictive Disorders • Neurocognitive Disorders • Personality Disorders • Paraphilic Disorders

The dataset of individuals who engaged in self-harm comprised 18 men (13.3%), 115 women (85.2%), and two nonbinary individuals (1.5%). The nonbinary participants were excluded from further analyses due to the insufficient sample size for establishing a third gender category. Participants ranged in age from 12 to 55 years (M = 18.57; SD = 6.975).

Statistical analyses were conducted using IBM SPSS program, version 29.0.2.0. Given that the Shapiro–Wilk test did not indicate a normal distribution of the observed variables (in all cases $p < .001$), nonparametric Spearman correlation coefficients were calculated, followed by linear regression analyses. The level of statistical significance for all procedures was set at $\alpha = .05$ (95%).

The study was voluntary and anonymous. Patient data were provided following informed consent, and the research procedure was approved by the Slovak Research and Development Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (no. APVV-23-0181). It was also approved by the Ethics Committee of the Faculty of Arts, University of Ss. Cyril and Methodius in Trnava (registration no. UCM-FF-EK 6/2023). As the information was provided retrospectively by professionals, patients were not directly exposed to the sensitive topic of the research.

4. Results

Spearman correlation analysis demonstrated a positive (Spearman's rho = 0.210) and statistically significant (Sig. (1-tailed) = 0.008) association between the number of comorbidities and the intensity of self-harm. Linear regression analysis further indicated a weak but statistically significant predictive effect of the number of comorbidities on the intensity of self-harm ($\beta = 0.207$; $t = 2.399$; $p = 0.018$). The variable "number of comorbidities" accounted for only 4.3% of the variance in self-harm intensity ($R^2 = 0.043$). Correlation analyses performed separately for women and men (Table 1) showed that the relationship between the number of comorbidities and the intensity of self-harm was statistically significant only among females. However, the findings for males must be interpreted with caution due to the very small number of respondents (N = 18) in the male subsample.

Table 1. Spearman correlation between the number of comorbidities and the intensity of self-harm in men and women.

			Intensity of self-harm	
			Males	Females
Spearman's rho	Number of comorbidities	Correlation Coefficient	.199	.201*
		Sig. (1-tailed)	.215	.017
		N	18	112

Note: * $p \leq 0.05$

Spearman correlation analysis revealed a positive (Spearman's rho = 0.340) and statistically significant (Sig. (1-tailed) < .001) association between the duration of self-harming behavior and the number of comorbidities. This suggests that a longer duration of self-harming behavior is associated not with a reduction, but rather with an increase in the number of psychological difficulties.

Table 2. Spearman correlation between the duration of self-harm and the number of comorbidities in men and women.

			Number of comorbidities	
			Males	Females
Spearman's rho	Duration of self-harm	Correlation Coefficient	.044	.380**
		Sig. (1-tailed)	.431	< .001
		N	18	104

Note: ** $p \leq 0.01$

Linear regression analysis identified a weak but statistically significant predictive relationship between the duration of self-harm and the number of comorbidities ($\beta = 0.234$; $t = 2.636$; $p = 0.010$). However, the duration of self-harm accounted for only 5.5% of the total variance in the number of comorbidities ($R^2 = 0.055$). The correlational relationship between the duration of self-harm and the number of comorbidities was found to be significant among women but not among men (Table 2).

5. Discussion

Spearman's correlation and subsequent linear regression analyses indicated that with an increasing number of comorbidities, the intensity of self-injurious behavior also increases. This finding is consistent with evidence regarding the multiple functions of self-injury (Coppersmith, Bentley, Kleiman, & Nock, 2021), suggesting that in the presence of psychological distress, individuals may engage in self-injury as a maladaptive strategy for coping with emotional burden (Houben et al., 2016), preventing suicide (Kraus et al., 2020), suppressing psychological pain through the infliction of physical pain (Ruan & Yan, 2025), controlling aversive affective arousal, or alleviating feelings of sadness or anxiety (Hack & Martin, 2018). Elevated psychological burden may therefore contribute to more frequent engagement in self-injurious behavior. However, it is important to note that the number of comorbidities accounted for only a small proportion of the variance (4.3%) in the occurrence of self-injury, indicating that a substantial part of its etiology is attributable to other variables. An important finding is that the statistically significant correlation was observed exclusively among female participants. It is possible that the regulatory function of self-injury is utilized predominantly by females, who exhibit significantly higher rates of difficulties in emotion regulation than males (Delhom, Melendez, & Satorres, 2021). In this context, the most vulnerable population comprises gender and sexual minorities (Camp, Blundell, Smith, & Rimes, 2025); however, this group was represented in our study by an insufficient number of participants ($N = 2$), precluding a meaningful analysis of relationships within this subgroup. Nevertheless, this observation highlights an important direction for future research. Similarly, the absence of correlations between the number of comorbidities and the intensity of self-injury among male participants warrants verification in a larger research sample.

Analyses examining the association between the duration of self-injurious behavior and the number of comorbidities demonstrated that the number of psychological difficulties does not decrease with longer duration of self-injury; on the contrary, it increases significantly. This suggests that the belief held by individuals who self-injure—that this maladaptive strategy effectively alleviates psychological distress—is misguided, as it ultimately contributes to a deterioration in mental health. The subjectively perceived relief may be only short-term; in the longer term, the strategy appears ineffective and may substantially exacerbate the individual's condition. These findings are consistent with the cyclical hypothesis of self-injury (Sutton, 2007), which posits that emotional suffering and psychological difficulties lead to intense distress, a perceived loss of control, and urges to self-harm. Although self-injury may provide temporary relief and a reduction in tension, subsequent feelings of shame and guilt, combined with unresolved underlying problems, reactivate the original emotions, thereby closing and perpetuating the cycle. Naturally, these findings must be interpreted within the study's limitations, as the design was not longitudinal and the predictive effect of the duration of self-injury on the occurrence of comorbidities was relatively small (5.5% of the variance). Nevertheless, the results represent an important finding that should be communicated to individuals who engage in self-injury in order to highlight the risks and consequences of this behavior not only for physical health but also for mental well-being. Furthermore, it would be appropriate to explore these relationships in larger male and non-binary populations.

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CONSTRUCTION AND VALIDATION OF THE MOTIVATIONS TO PURSUE A CAREER IN PSYCHOTHERAPY SCALE (MPCPS)

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Abstract

This paper describes the construction, piloting and validation of a questionnaire aimed at assessing motivations to become psychotherapists. A previous study using the Repertory Grid Technique (RGT) which taps into tacit knowledge and unconscious motivations, found that besides altruistic motives to pursue the profession, psychotherapists may also be driven by "darker" motives. These include a need for power, financial gain and self-affirmation. The results of this study also point to the existence of traits which could potentially interfere with the outcome of psychotherapy, such as unethical attitudes and behaviours, an inflated sense of self, and difficulties with empathy. Understanding these factors is crucial, as they influence therapeutic relationships, the effectiveness of interventions, and therapists' own well-being. This study reports the final stage of a three-phase study, consisting of the administration of this scale to a sample of 211 psychotherapists in order to conduct quantitative piloting and confirm the factor structure of the scale using Exploratory and Confirmatory Factor Analysis. Following further studies linking this validated scale to outcome variables, the finalised instrument could be used as a screening tool when prospective psychotherapists are being selected for entry into professional programmes. It could also prove useful in informing the personal psychotherapy and supervision of existing psychotherapists. Additionally, the questionnaire prompts reflection and self-awareness, which remain fundamental as motivations evolve throughout a psychotherapist's career.

Keywords: *Questionnaire development, motivations, psychotherapists, career choice.*

1. Introduction and background

Psychotherapists play a vital role in mental health care, offering support and treatment to individuals grappling with psychological difficulties. Several studies of psychotherapy outcome measures have found similar results: they concluded that although therapy is more effective than no treatment, there is no evidence that one therapeutic approach is superior to another (e.g Depreeuw et al., 2017; Wampold, 2007). Thus, once studies concur that it is the therapist's personhood that renders therapy effective, research into personal characteristics and motivations of therapists is essential (McBeath, 2019). The current study describes the validation of the Motivations to Pursue a Career in Psychotherapy (MPCPS) scale, based on two previous studies conducted by the authors (Darmanin Kissaun & Catania, 2024; Catania & Darmanin Kissaun, 2025).

Although one of the most commonly reported conscious motivations for entering the psychotherapy profession is the drive to help others, there is a body of knowledge that evidences that the choice of career as a helping professional is determined by multiple factors that are complex, intertwined, only partially conscious, and often not well-understood until late in the psychotherapist's career (Maroda, 2005; Norcross & Farber, 2005; Sussman, 2007). Understanding these factors is critical, as they may influence therapeutic relationships, the effectiveness of interventions, and therapists' own well-being (Craciun, 2015; McBeath, 2019). However, existing questionnaires have been mostly limited to other specific professions, or tend to focus on motivations driving career choice in general. Craciun (2015) conducted a preliminary qualitative study by administering an open-ended interview guide on personal drivers and experience of becoming a psychologist, drawing on Sussman's (2007) list of questions regarding psychotherapists' unconscious motivations. Eskin & Abdollahpour Ranjbar (2026) examined how personality traits, psychological distress, and motivational dimensions influence Turkish students' intentions to pursue graduate studies in clinical psychology. McBeath (2019) conducted a survey amongst 540 psychotherapists to assess their motivation to pursue the profession. However, none of these studies resulted in a validated questionnaire based on data collected from psychotherapists.

2. Methodology

The design and qualitative piloting of the questionnaire resulted in 87 items divided into eight subscales (Catania & Darmanin Kissaun, 2025). Following discussion with subject matter experts, four items were discarded as they were very similar to other items, and a further item was removed from the Ethical Attitudes and Behaviour Scale and reclassified as a single item subscale. Thus, the questionnaire at this point comprised 83 items across nine subscales.

2.1. Tools

The finalised questionnaire comprised three sections. The first section collected demographic data. The next section was the preliminary MPCPS scale described above. Each of the items on this scale was scored on a six-point Likert-type scale (Rattray & Jones, 2007), ranging from "strongly disagree" to "strongly agree". Sample items from this section include "I always knew that I wanted to study psychotherapy" (subscale – Vocational Choice), "I find practicing psychotherapy meaningful" (Experience as Therapist), and "I believe that clients should not be touched in any circumstance" (Ethical Attitudes and Behaviour). Items from the same scale were not kept consecutive in the final questionnaire, so as to limit the possibility of context and priming effects, and to reduce bias in factorial structure (Şahin, 2021). A few items were designed to be reverse-scored, as this has been shown to control for acquiescence bias (Zhang et al., 2016) and reduce response sets (Setiawati et al., 2022).

The final section included the 13-item short version of the Crowne and Marlowe Social Desirability Scale (1960) which has been shown by Reynolds (1982) to be a psychometrically valid alternative. This scale consists of 13 items scored either true or false. The final questionnaire was prepared on google forms, to facilitate distribution.

2.2. Procedure

Since the potential population (counsellors, psychotherapists, psychologists and psychiatrists who practice psychotherapy) is quite small, given the size of the island, significant efforts were made to ensure as large a sample size as possible. The questionnaire was distributed to the members of the three main professional organisations. A google search for companies offering psychotherapy services in Malta was carried out, and the questionnaire was sent to all of these through their contact information. The questionnaire was shared on social media, as well as with authors' colleagues, who were asked to disseminate to other colleagues. Data were collected between the 20th January and the 18th February 2026, resulting in 212 completed questionnaires. One of the questionnaires was excluded from further analysis as the respondent did not practice psychotherapy, resulting in a final sample size of 211.

2.3. Data analysis

Data were first checked for any missing values. There were only very few items of missing data – not more than three items for any one variable – and these were spread out randomly throughout the data, indicating that the items in question were skipped in error, rather than intentionally, corresponding to the Missing Completely at Random (MCAR) classification by Rubin (1976). It was therefore decided to retain the data from all participants, and the mean for the particular variable was inputted in place of the missing data in each case (Newman, 2014; Tabachnick & Fidell, 2007). Relevant items were then reverse scored. Cronbach's α for each scale was then calculated and items with low item-total correlations removed where necessary to achieve better scores. Exploratory Factor Analysis was then conducted on the remaining items and, after removing a few more items, a good fit for the original eight-factor model was achieved. Finally, Confirmatory Factor Analysis elicited the path co-efficients and the co-variance between factors.

3. Results and analysis

3.1. Descriptive statistics

84.9% of the sample identified as female, and 15.1% as male. This is roughly similar to the F:M ratio in the profession, so the sample can be considered representative with regard to gender composition. Participant ages ranged from 26 to 82 (M=42.75, SD=11.39) capturing data from professionals at all stages of their careers. The types of warrant held varied (vide Table 1), with the vast majority of participants holding warrants in psychotherapy.

Table 1. Warrants held by participants.

Warrant type	No. of Participants	Percentage of Participants
Psychotherapy	106	50.0%
Counselling	38	17.9%
Clinical psychology	30	14.2%
Counselling psychology	30	14.2%
Academic/research psychology	11	5.2%
Educational/ child and adolescent psychology	11	5.2%
Health psychology	8	3.8%
Neuropsychology	6	2.8%
Working towards a psychology warrant	14	6.6%
Others	13	6.2%

Note: *numbers add up to more than 211 as a number of participants held more than one warrant.*

3.2. Cronbach's α calculations

Cronbach's α for each of the eight scales including multiple items were calculated, resulting in scores ranging from .228 to .607. Since none of these scores were within the acceptable Cronbach's α score of at least .7 (Hinkin, 1998; Magee et al., 2013), items with low item-total correlations were removed from each scale. This resulted in six scales having acceptable Cronbach's α scores, with only two scales not reaching the acceptable threshold. Full results of this process are shown in table 2 below. By this stage, the number of items in the scale had been reduced to 53.

3.3. Exploratory factor analysis

The Kaiser-Meyer-Olkin **(**KMO) measure of sampling adequacy (0.709) exceeds the 0.5 threshold value. Moreover, the *p*-value (approx. 0) of the Bartlett's test of sphericity is smaller than the 0.05 level of significance. Thus, the data has factorial validity, which implies that there exist latent structures in the data. This 8-factor model explains 46.337% of the total variation in the data. The Varimax rotated component matrix exhibits the factor loadings of this 8-factor model; however, some of the items have factor loadings smaller than 0.3 indicating that these items are not loading heavily on their respective factor. To improve the factorial validity of this 8-factor model, further items were removed from the model. These include items 2, 4, 5, 23, 24, 29, 32, 33, 44, 58, 66, 70.

The new KMO measure of sampling adequacy for the questionnaire with the deleted items (0.708) exceeds the 0.5 threshold value. Moreover, the *p*-value (approx. 0) of the Bartlett's test of sphericity is smaller than the 0.05 level of significance. Thus, the data still confirms factorial validity. The 8-factor model with deleted items explains an improved 50.995% of the total variation in the data. The Varimax rotated component matrix exhibits the factor loadings of this 8-factor model and all these factor loadings exceed 0.3. The final scale consists of 41 items.

Table 2. Deleted items following Cronbach's α scores and EFA.

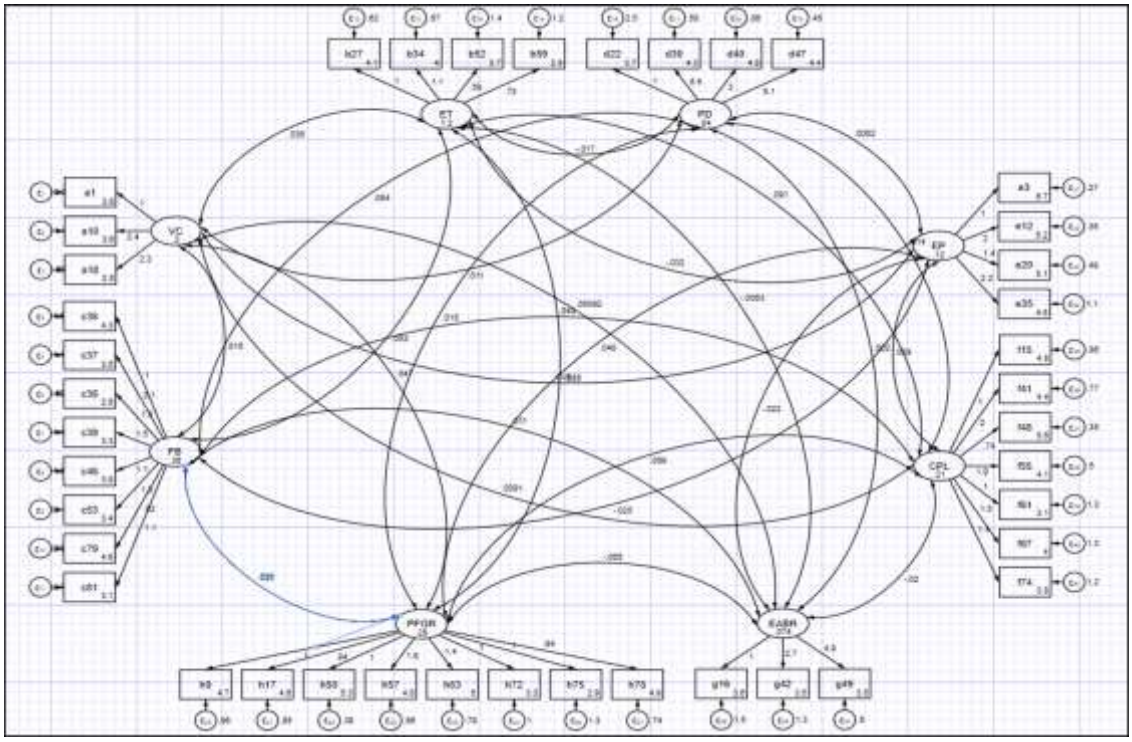
Scale	Original no. of items	Original α	Items deleted following Cronbach's α	Final α	Items removed after EFA	Final no. of items
Vocational Choice	9	.228	26/51/64	.470	33/44/58	3
Experience as Therapist	9	.584	11/19/45/65	.726*	2	3
Experience as Patient	5	.355	28	.683*	n/a	4
Family Background	14	.606	13/21/73/76	.759*	4/29	8
Personal Development	10	.590	14/54/60	.708*	5/66/70	4
Current Personal Life	14	.607	615/71/77/82/83	.722*	23	7
Congruence and Authenticity	1	n/a	n/a	n/a	n/a	1
Ethical Attitudes and Behaviour	9	.281	7/31/56/62/68	.483	24	3
Power, Financial Gain, Recognition	12	.565	25/43/69	.752*	32	8

Note: *final Cronbach's Alpha scores marked with an asterisk (*) are equal to or above the acceptable level of .7*

3.4. Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) was subsequently carried out on the data. Figure 1 illustrates the path coefficients and the covariance between factors. For example, item 30, "I had positive relationships with persons of other genders during childhood", has a high impact on the factor Personal Development (PD).

Figure 1. Path coefficients and covariance factors in the final model.



The significant co-variances between different factors are summarised in table 3 below. Negative coefficients imply negative correlations between the factors, and vice versa.

Table 3. Significant Co-variances between different factors in the scale.

Factors	Coefficient	*p* value	95% conf. interval
VC, PFGR	.047	.042	.002 .093
FB, CPL	.049	.044	.001 .097
ET, PFGR	-.085	.049	-.170 -.000
ET, CPL	.091	.049	.000 .181
PFGR, EABR	-.065	.036	-.126 -.004
PFGR, EP	.048	.011	.011 .085
PFGR, CPL	.069	.009	.017 .121
EABR, EP	-.022	.040	-.044 -.001
EP, CPL	.029	.042	.001 .057

The following fit indices were used to assess goodness of fit of the CFA model. The SRMR value (0.075) is smaller than the 0.08 threshold value; the CFI and TLI values (0.910 and 0.893) exceed the 0.85 threshold value; and the RMSEA value (0.05) is smaller than the 0.08 threshold value. The chi-squared yields a *p*-value (approx. 0) which is smaller than the 0.05 level of significance, which implies that the hypothesis of a perfect fit should be rejected. However, the chi-squared test is very sensitive to sample size and should be interpreted with caution. These results confirm the validity of the 8-factor model.

4. Conclusion

The results of this study have implications for the selection, training, supervision and continuing professional development of psychotherapists. The finalised instrument could be used as a screening tool when prospective psychotherapists are being selected for entry into professional programmes. It could also prove useful in informing the personal psychotherapy and supervision of existing psychotherapists. Additionally, the questionnaire prompts reflection and self-awareness, which remain fundamental as motivations evolve throughout a psychotherapist's career.

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TWO-EYED SEEING IN ACTION: A MIXED-METHODS EVALUATION OF WRAPAROUND TO PROMOTE RESILIENCE AND WELL-BEING AMONG INDIGENOUS YOUTH IN CANADA

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Abstract

Indigenous youth in Canada experience disproportionate health and social inequities linked to the intergenerational impacts of colonialism, systemic racism, and service fragmentation. Wraparound – a holistic, youth-driven, team-based service model – has shown promise in supporting young people with complex needs; however, few evaluations embed Indigenous worldviews or center youth voices in defining outcomes of success. We worked in collaboration with service providers, youth with lived experience, and an Indigenous Elder to develop a culturally grounded mixed methods evaluation of an adaptation of Wraparound for Canadian Indigenous youth involved with multiple systems that was grounded in in the Two-Eyed Seeing framework, the Five Rs of Indigenous research, and the Medicine Wheel. This presentation reports the results of this realist-informed evaluation that integrated both quantitative and qualitative approaches and involved six Indigenous youth (ages 16–21) living in Winnipeg, Manitoba, Canada. Quantitative measures included pre- and post-program indicators of wellbeing, such as school engagement, housing stability, self-harm behaviour, and system involvement. Qualitative methods included post-program storytelling interviews, photovoice projects, and a talking circle. These activities created safe spaces for youth to narrate their healing journeys, articulate culturally meaningful definitions of wellness, and engage in collective reflection. Findings demonstrated significant improvements across several objective indicators, including better menta health support, greater school attendance, increased housing stability, and reduced involvement with child welfare and justice systems. Youth narratives and photovoice projects further highlighted enhanced self-confidence, stronger identity, and increased connection to culture, family, and community. Youth stories revealed that access to cultural practices – such as smudging, medicine picking, and teachings from Elders – was experienced as central to promoting healing and resilience. Together, these findings point to Wraparound's effectiveness when adapted in ways that honour Indigenous values of relationality, balance, and collective strength. This evaluation contributes to growing evidence that embedding Indigenous knowledge systems in programming not only produces better outcomes but also affirms youth agency and promotes systemic change. Methodologically, the study demonstrates the feasibility and value of integrating Western and Indigenous methods in applied psychology research. The evaluation findings support Wraparound as a culturally safe, strengths-based, and transformative intervention for Indigenous youth navigating multiple systems. By centering Indigenous youth voices and integrating multiple ways of knowing, this work provides critical insights for psychologists, other service providers, and policymakers seeking to reduce inequities and foster resilience.

Keywords: *Indigenous youth, wraparound intervention, two-eyed seeing, resilience and well-being, decolonizing evaluation.*

1. Introduction

Indigenous youth in Canada continue to experience profound and disproportionate health and social inequities rooted in the intergenerational impacts of colonialism, systemic racism, and structural exclusion. These inequities manifest across mental, emotional, physical, and spiritual domains and are compounded by overrepresentation in child welfare and justice systems (Fraser et al., 2021). Mainstream services often fail to address the cultural, relational, and contextual factors necessary for supporting Indigenous youth well-being, highlighting the need for culturally grounded, community-driven program models and evaluations.

Wraparound, an individualized, strengths-based, team-oriented model of care, aligns closely with Indigenous worldviews by emphasizing relational accountability, holistic support, and youth self-determination (Bruns et al., 2010). While research supports Wraparound's effectiveness for youth with complex needs, few evaluations embed Indigenous epistemologies or meaningfully involve Indigenous youth and Elders in defining success. To address this gap, we co-developed and implemented a mixed-methods, realist-informed evaluation of Wraparound for Indigenous youth delivered through NorWest Co-op Community Health in Winnipeg, Manitoba, Canada. The evaluation was guided by Two-Eyed Seeing, the Five Rs of Indigenous research, and the Medicine Wheel – frameworks that honour Indigenous knowledge systems and support ethical, relational, and decolonizing approaches to applied psychological research (Bartlett et al., 2012; Kovach, 2009; McGregor et al., 2018; Lavallée, 2009).

This paper provides an expanded summary of that evaluation, integrating quantitative and qualitative findings and emphasizing the methodological innovations introduced through Indigenous–Western knowledge integration.

2. Methodology

2.1. Study design

The evaluation design was intentionally strength-based and trauma-informed, ensuring that all methods supported youth readiness, emotional safety, and opportunities for empowerment rather than burdening participants with intrusive or deficit-oriented measures. To uphold these principles, all methodological decisions – including what to measure, when to collect data, and which qualitative activities were appropriate – were co-developed with a Community Advisory Committee (CAC)**.** The CAC was composed of two Wraparound service providers, the Indigenous Elder on the Intervention and Outreach Team, and three Indigenous youth who had previously completed the program, and it functioned as a governance body that guided ethical considerations, cultural protocols, data collection sequencing, and the overall design of a respectful, relational, and culturally grounded evaluation.

A realist-informed mixed-methods longitudinal design was used to examine not only *whether* outcomes improved for youth but also *how*, *why*, and *under what conditions* the program facilitated change. Realist principles were well-suited to Indigenous contexts because they focus on mechanisms within specific sociocultural environments rather than assuming universal cause–effect patterns (Jagosh et al., 2015). To ensure cultural appropriateness, the evaluation was co-created through a three-month consultation process involving an Indigenous Elder, Indigenous youth with lived experience in Wraparound, and program staff.

Guided by Two-Eyed Seeing (Bartlett et al., 2012), the evaluation integrated Indigenous and Western knowledge systems in non-hierarchical ways. The Five Rs of Indigenous research – respect, relevance, reciprocity, responsibility, and refusal – ensured the evaluation upheld relational accountability and community-defined priorities (McGregor et al., 2018). The Medicine Wheel informed the qualitative framework by offering a holistic structure to explore changes across spiritual, emotional, mental, and physical well-being (Lavallée, 2009).

2.2. Participants and setting

Six Indigenous youth (ages 16–21) who completed Wraparound at NorWest Co-op Community Health participated in the evaluation. Youth were living in inner-city neighbourhoods in Winnipeg, Manitoba, Canada, and had extensive involvement across systems, including child welfare, justice, mental health, housing instability, and school disengagement. Their perspectives were essential to shaping the evaluation, consistent with Indigenous research ethics emphasizing youth voice and agency.

2.3. Quantitative data collection

Consistent with Two-Eyed Seeing, quantitative indicators were selected collaboratively with the CAC to ensure relevance and cultural alignment. At program entry and completion, evaluators collected objective indicators of well-being, including school attendance and academic engagement, access to mental health supports, housing stability, self-harm and safety concerns, and involvement with child welfare and justice systems. Because many youths entered the program in crisis, only non-intrusive, ethically appropriate measures were used at intake.

2.4. Qualitative data collection

2.4.1. Storytelling interviews. Storytelling – central to many Indigenous knowledge systems – provided a narrative, relational method for youth to share their experiences on their own terms (Kovach, 2009; Datta,

2017). Interviews were structured using the Medicine Wheel as a holistic guide, allowing youth to reflect on changes across interconnected domains of wellness.

2.4.2. Photovoice. Photovoice enabled youth to visually express their healing, identity, relationships, and cultural connections (Benjoe et al., 2016; Goodman et al., 2019). Images later served as prompts during reflective conversations, deepening understanding of youth-defined mechanisms of change.

2.4.3. Talking circle. A talking circle facilitated by a registered social worker with training in Indigenous practices created a culturally safe space for collective meaning-making, grounded in Indigenous protocols of respect, listening, and shared responsibility (Lavallée, 2009). This method supported youth in articulating relational and spiritual dimensions of wellness often overlooked in Western evaluation approaches.

3. Data analysis

3.1. Quantitative data analysis

Quantitative analyses focused on detecting pre–post changes across 11 binary indicators of youth well-being, including housing stability, school enrollment, employment, involvement with child welfare and justice systems, access to health and social supports, and self-harm behaviour. Because the sample was small (N = 6) and each indicator represented paired nominal data, we used the exact McNemar test (McNemar, 1947) to evaluate whether the number of youths improving in each domain (No→Yes) exceeded the number showing declines (Yes→No). This non-parametric approach is recommended for small samples and provides an appropriate test of marginal homogeneity in pre–post binary outcomes. For each indicator, 2×2 contingency tables were constructed to identify discordant pairs, and exact binomial probabilities were computed to determine statistical significance. Quantitative results were interpreted cautiously considering the small sample size while attending to patterns of clinically and contextually meaningful improvement.

3.2. Qualitative thematic analysis

Qualitative data, including storytelling interviews, photovoice narratives, and talking circle transcripts, were analyzed using a thematic analysis grounded in a framework approach (Gale et al., 2013). This method was selected because it supports systematic, transparent analysis while accommodating Indigenous epistemologies and the study's decolonizing aims. Analysis proceeded through familiarization, open coding, and the development of a codebook integrating both inductive insights and deductive categories derived from the Medicine Wheel and evaluation objectives. Codes were organized into a matrix to compare themes across participants and data sources, supporting the identification of patterns within and across mental, emotional, physical, and spiritual domains of wellness. Guided by the principles of Two-Eyed Seeing and the Five Rs of Indigenous research, interpretation privileged youth voice, cultural meaning-making, and relational context.

4. Findings

4.1. Quantitative outcomes

Across the 11 indicators examined, youth demonstrated substantial improvements from pre- to post-Wraparound participation (see Table 1 for details). Housing stability improved from 50% to 100%, with half of the sample transitioning from unstable to stable housing; although this shift did not reach statistical significance, it reflected a meaningful positive trend (exact McNemar p = .125). School enrollment increased markedly from 16.7% to 100%, representing a statistically significant improvement (exact McNemar p = .031). Similarly, the proportion of youth living independently rose from 0% to 83.3%, a significant change indicating increased autonomy and life skills (exact McNemar p = .031).

Employment showed a meaningful increase from 0% to 66.7%, although this pre–post change approached but did not reach statistical significance (exact McNemar p = .0625). High school completion increased slightly from 0% to 16.7%, but this change was not statistically significant given limited movement in the sample (p = .50). Involvement with child welfare services remained unchanged, reflecting the structural complexity of child welfare involvement among Indigenous youth.

Several indicators showed particularly strong gains. Youth incarceration decreased from 66.7% to 0%, a substantial improvement that approached statistical significance (exact McNemar p = .0625). Access to primary care rose significantly from 16.7% to 100% (exact McNemar p = .031), representing an important shift in preventive and ongoing health support. Engagement in substance use support programs increased from 0% to 83.3% (exact McNemar p = .031), and access to mental health support increased from 0% to 100%, representing the most robust change (exact McNemar p = .016).

Table 1. Pre–Post Changes in Objective Indicators of Youth Well-Being and Exact McNemar Test Results.

Indicator	Pre-Yes (n)	Post-Yes (n)	Discordant Pairs*	Exact McNemar p	Interpretation
Housing stability	3	6	3 / 0	.125	Positive trend
School enrollment	1	6	5 / 0	**.031**	Significant improvement
High school diploma	0	1	1 / 0	.500	Positive trend
Employment	0	4	4 / 0	.063	Positive trend
Involvement with CFS	6	6	0 / 0	—	No change
Independent living	0	5	5 / 0	**.031**	Significant improvement
Incarceration	4	0	0 / 4	.063	Positive trend
Connected to primary care	1	6	5 / 0	**.031**	Significant improvement
Substance use support	0	5	5 / 0	**.031**	Significant improvement
Mental health support	0	6	6 / 0	**.016**	Significant improvement
Self-harm behaviour	3	1	0 / 2	.250	Positive trend

Note. Results of the exact McNemar test. *No→Yes / Yes→No. CFS = child welfare services.

4.2. Qualitative themes

4.2.1. Cultural identity, belonging and community connection. Youth emphasized that cultural practices, such as smudging, medicine picking, ceremonies, and teachings from Elders, played central roles in their healing. These experiences strengthened identity, belonging, and connection to land and community.

4.2.2. Relational accountability and trust. Youth described trusting relationships with staff, Elders, and peers as essential mechanisms of change. Wraparound's non-hierarchical and collaborative nature supported youth empowerment and emotional safety.

4.2.3. Holistic well-being across medicine wheel domains. Improvements were described not only in emotional well-being but also in spiritual grounding, mental clarity, and physical stability. Youth articulated integrated definitions of well-being rarely captured in traditional evaluative frameworks.

4.2.4. Autonomy, confidence and future orientation. Youth reported increased confidence, self-determination, and hope for the future. The combination of cultural grounding and relational support helped youth develop internal and external resources for resilience.

5. Discussion

5.1. Integrating indigenous and western knowledge

This evaluation demonstrates that Indigenous frameworks can be meaningfully woven into applied psychology research. Two-Eyed Seeing allowed for the integration of Western measures of well-being with Indigenous ways of knowing, generating findings that were both rigorous and culturally resonant. Rather than privileging one knowledge system, this approach allowed mechanisms of change, such as relational connection, cultural identity, and ceremony, to emerge authentically.

5.2. Methodological innovation

This evaluation introduced important methodological innovations by integrating Indigenous and Western approaches through a Two-Eyed Seeing framework. Rather than relying solely on conventional outcome measurement, the realist-informed design examined how relational, cultural, and contextual factors contributed to change, aligning closely with Indigenous understandings of wellness. Storytelling interviews, photovoice, and the talking circle offered culturally grounded, trauma-informed, and strength-based methods that enabled youth to share their experiences safely and meaningfully. Quantitative indicators were selected collaboratively with the CAC, ensuring cultural relevance and adherence to

OCAP® principles (First Nations Information Governance Centre, 2014). Together, these choices demonstrate how decolonizing methodological approaches can enhance both the rigor and cultural resonance of mixed-methods evaluations involving Indigenous youth.

5.3. Implications for practice and policy

Taken together, the evaluation findings demonstrate that Wraparound participation was associated with meaningful improvements across several domains of well-being – including education, housing, physical and mental health access, and reduced justice involvement – despite the small sample size limiting statistical power. The significant increases in school engagement, independent living skills, primary care connection, substance use support, and mental health support underscore the effectiveness of a culturally grounded Wraparound model in promoting stability, safety, and holistic wellness among Indigenous youth.

Findings underscore the importance of culturally grounded services that centre relationships, identity, cultural continuity, and holistic definitions of wellness. Wraparound programs serving Indigenous youth may benefit from embedding Elders, land-based practices, cultural teachings, and youth-led decision-making into service delivery. For policymakers, these outcomes highlight the need to support Indigenous-led evaluation approaches and allocate resources to community-driven mental health supports that move beyond deficit-based Western frameworks.

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PSYCHOLOGISTS' EXPERIENCES AND PERCEPTIONS OF ONLINE PSYCHOTHERAPY IN SAUDI ARABIA: A QUALITATIVE STUDY

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Abstract

Since the COVID-19 pandemic, the use of online psychotherapy has increased worldwide, including in Saudi Arabia, where over 22 applications and free Ministry of Health online services are available for the public. This study aimed to explore psychologists' perceptions of and experiences with online psychotherapy in Saudi Arabia. Semi-structured interviews were conducted with seven licensed psychologists (three men and four women), all of whom provided psychological services both face-to-face and online via mobile applications. Their experience ranged from 5 to 11 years, with therapeutic orientations including cognitive-behavioral (n=4), psychodynamic (n=2), and integrative (n=1). Ten open-ended questions addressed their clinical practice, client characteristics, therapeutic alliance, therapeutic process, effectiveness, and difficulties. The data were analyzed using Interpretative Phenomenological Analysis (IPA). The findings revealed that all participants considered online therapy helpful, particularly for clients in rural areas, those who fear stigma, and those unable to attend face-to-face sessions, such as clients diagnosed with mild or severe depression. Furthermore, participants noted that online help-seeking was common among women suffering from issues in romantic relationships outside of marriage. Regarding practice and effectiveness, differences emerged by orientation: psychologists with psychodynamic training preferred in-person therapy, citing challenges in building therapeutic alliances online. Additionally, none of the participants had received formal training in online therapy; instead, they relied on self-directed learning, which sometimes led to confusion, especially in the absence of verbal and nonverbal cues and gaze behavior. In conclusion: Online therapy can provide support without fostering shame regarding mental health or sensitive issues that may be difficult to discuss in person in Saudi Arabia. The findings also highlight the need to develop training courses and skill-enhancement interventions for psychotherapists to ensure effective online practice

Keywords: *Engagement, digital infrastructure, stigma, training programs, accessibility.*

1. Introduction

Whilst telepsychology emerged in the 1990s (Ball et al., 1993), the COVID-19 pandemic quickened its worldwide adoption. Companies implemented the video conferencing and telemedicine approach, and COVID-19 conditions provoked more psychological stress and the lack of traditional support options due to work-from-home policies and lockdown (Pierce et al., 2021). Significant growth in the popularity of mHealth apps also allowed users to maintain their health and well-being (Philippe et al., 2022). The Saudi Ministry of Health (MOH) endorses the existence of an ecosystem of more than 22 special applications and online integrated services, including the 22-Seha Virtual Hospital and the Labayh app, which have become the new generation of the so-called telepsychology in the country (Alharbi et al., 2021).

Increased accessibility, greater flexibility, and the convenience of mental health care have been singled out as distinctive advantages of mHealth apps (Philippe et al., 2022). However, there have also been questions regarding the possibility of maintaining therapeutic alliance and process quality when using digital tools for interaction mediation and the decrease in physical indicators (Aafjes-van Doorn et al., 2024). Therefore, taking a contextual approach to clinical examination of the way digitally mediated psychotherapy is practiced is essential.

This was qualitative research that sought to examine the perceptions and experiences of Saudi psychologists when providing online psychotherapy within the Saudi context. It focused on perceived variations between online and face-to-face therapy in terms of the client factors, treatment dynamics, and establishment of a therapeutic relationship. The research questions also included whether these perceptions depended on therapeutic orientation and the major barriers and training requirements that could facilitate safe and effective online practice.

2. Methods

2.1. Study approach and design

The study utilised Interpretative Phenomenological Analysis (IPA) to capture the lived experiences and clinical observations of practitioners using digital platforms. A semi-structured interview design was explored to encourage dynamic yet complex exploration of perspectives.

2.2. Population and sampling

The targeted population was a sample of licensed psychotherapists. Using purposive and snowball sampling, seven psychotherapists were recruited, which aligns with IPA's focus on depth of interpretation rather than statistical representativeness (Ahmad and Wilkins, 2025; Raifman et al., 2022). (See Table 1. for full demographic details of participants).

Table 1. Sociodemographic and Professional Characteristics of Participants.

	Gender	Age	Years of profession	Years of experiences with online therapy	Therapeutic orientation
Particpant1	Female	28	5	3	CBT
Particpant2	Female	28	5	3	CBT
Particpant3	Male	55	11	4	Integrative
Particpant4	Female	37	8	4	CBT
Particpant5	Male	40	10	3	Psychodynamic
Particpant6	Male	39	9	5	CBT
Particpant7	Female	38	8	5	Psychodynamic

Source: Authors' fieldwork data (semi-structured interviews), 2025–2026.

2.3. Research instrument and procedure

The semi-structured interview schedule with ten open-ended questions was used to collect data, on (a) the initial encounter with online psychotherapy; (b) strategies and environmental factors utilised to maximise the quality of the session (e.g., lighting, eye contact) ; (c) perceived differences between online and face-to-face counseling (e.g., disinhibition and distraction); (d) suitable clients; (e) creating a therapeutic alliance digitally. The respondents were provided with a participant information sheet and consent form and informed that the audio recording of the interviews would be done using an iPhone application. No compensation was provided. Five in-person and two online interviews of 45-60 minutes were conducted.

2.4. Data analysis and rigour

To safeguard methodological rigour, the IPA framework of analysis published by Smith, Flowers & Larkin, (2009) was followed. Verbatim transcription, in-depth reading and insightful coding of emergent themes was utilised. Confidentiality and anonymity were observed, data was stored safely, and only the researcher could have access to the data.

3. Findings

The results are rendered in the form of three interconnected top-level themes, which have subordinate ones that are based on the descriptions of participants. Table 2 displays the thematic structure:

Table 2. Findings: superordinate themes with subordinate themes.

Superordinate themes	**Uncertainties and Core Challenges**	**Client Profiles and Perceptions**	**Practice Effectiveness**
Subordinate themes	*- The Invisible Client* *- The Training Gap*	*- Demographic Trends* *- Therapeutic Skepticism* *- Privacy Concerns*	*- The Digital Alliance* *- Clinical Outcomes*

3.1. Uncertainties and core challenges

Participants reported initial doubt when they had switched to online psychotherapy, especially in terms of sensory information or the lack of any formal training. Nonetheless, some mentioned they have since developed adaptive strategies that have reinforced their professional confidence.

3.1.1. The invisible client. One of the key challenges was the perceived invisibility of clients during primarily audio based online sessions. Clinicians highlighted the omission of facial expressions, body language, and gaze behavior in affecting their clinical effectiveness.ne participant noted:

> "*As almost all my clients use audio only… I missed body language and facial expressions, which make it difficult to discern from the voice alone*." (P2)

In response, participants created an office-like ambiance and employed better attentive listening via headphone usage and increased focused questioning One participant explained:

> "*I adjusted my home office to be like my clinic… I also have found myself repeating my talk a bit more… to ensure that the client does not miss what we discussed*." (P6)

3.1.2. The training gap. Other subjects noted lack of formal training in online psychotherapy as something that brought about professional uncertainty, especially in negotiating silence and lack of interpersonal cues. Some of the clinicians therefore indicated utilising self-directed learning to acquire the ability to to read affect with the use of tone, pacing, and silence. One participant stated:

> "*None of my clients accepted to open the camera… I had to learn on my own to 'listen' to feelings through a person's voice and silence, which was not easy at all*." (P1)

The respondents further discussed that institutional advice was seen as having more emphasis on ethics and confidentiality over useful clinical advice on online work:

> "*The guideline… focuses more on ethics… but there is no instruction on how to deal with the disembodied environment*." (P6)

3.2. Client profiles and perceptions

The results are shown in three overlapping areas, each showing how clients' traits and views come together to affect how they use online psychotherapy.

3.2.1. Demographic trends.

P 'The participants identified those receiving the online therapy. as mainly young females from large and small towns, mostly aged 18 to 30. Conversely, male clients were more likely to seek 'emergency' care rather than lifelong. One clinician summarised:

> "*8 out of 10 users are female… , most men use online therapy like an 'emergency'..., rather than a long-term plan.*" (P7)

Respondents also explained that some young women needed online support due to distress from sensitive relational events, some of which they feared judgement by others:

> "*They feel the only way to talk about it is without judgment online*." (P3)

3.2.2. Therapeutic skepticism. Clients in smaller towns were oftenreported by the clinicians to express a lack of knowledge about psychological treatment, as well as the factors caused by stigma and family beliefs. P2 described,

> "*Clients from small towns often think that therapy will not work; sometimes I receive questions about how talk will cure me*." (P2)

One of the other participants explained how family messages determined expectations:

> "*You are just spending your money; no one will fix your problems*.'" (P4)

3.2.3. Privacy concerns. Privacy was one of the critical issues in the accounts. Respondents indicated that their clients raised the possibility of recording the session or being overheard by their family. One participant stated:

> "*There is a deep fear of being recorded. Many clients… ask not to write a report in their file*." (P2)

Another clinician noted:

> "*Some clients say I may end the call at any time if any of my family members come in*." (P5)

3.3. Practice effectiveness

The theme touched on the participants' perceptions of whether and how online psychotherapy can result in efficient therapeutic processes and outcomes.

3.3.1. The digital alliance. The majority of them reported it was possible to create a therapeutic alliance online but also mentioned it as relying on the engagement of the clients and lack of interpersonal cues. On the contrary, psychodynamically oriented clinicians voiced more reservations and in-person preference:

> "*For me, from my experience, I would not see online therapy as effective, and I would accept online sessions only if I had 5 or more sessions with the client in person. It is hard to build an alliance in online therapy*." (P5)

Another respondent saw this issue connected to the perceived relational needs of the psychodynamic practice:

> "*In the psychodynamic approach… I feel the connection is weak… It's like a wall between us*." (P7)

3.3.2. Clinical outcomes. Online sessions were reported by the participants to be clinically helpful in enhancing access to psychological support, especially in settings where the stigma can inhibit the seeking of in-person help:

> "*We might not reach 'excellent' outcomes every time, but reaching the clients is what matters. In a society where stigma around mental health or even seeking psychological help is high, any connection is a success*." (P4)

Practitioners emphasised online therapy as a possible well-suited intervention for those experiencing social phobia and depressive presentations, due to the home often promoting disclosure:

> "*From my experience, online sessions are a perfect fit for social phobia as a first step for therapy. It is much easier for them to open up in their own environment. Additionally, most of the techniques, e.g., mindfulness exercises, can be conducted remotely*." (P3)

4. Discussion

The results suggest that Saudi psychologists went through significant clinical disorientation due to transferring to online psychotherapy, especially as most sessions were audio-based, restricting the application of clinical judgment (Pierce et al., 2021; Lin et al., 2024). As such, decreased interpersonal signaling possibly may limit the degree of process and the perceived quality of the session (Aafjes-van Doorn et al., 2024; Philippe et al., 2022). Practitioners in turn reported adaptive interventions, which were in line with published therapist responses and skill re-calibration during teletherapy sessions (Lin et al., 2024; Perle et al., 2025). The lack of training seemed to necessitate self-driven learning, the tendencies of which conform to the demands of competency-based guidance and practical resources of practice(Perle et al., 2025; Alharbi et al., 2021). In the Saudi ecosystem, the fast-growing digital health infrastructure, increases the shifts in urgency in translating the latter into context-specific training and supervision frameworks (Philippe et al., 2022; Albesher et al., 2025).

Demographically, the prevalence of young women seeking assistance with anxiety and depression reflects how stigma and shame mediated by the culture are still a potent impediment to treatment, resulting in clients seeking confidentiality (Alattar et al., 2021; Zuberi et al., 2021). This supports regional estimates that suggest mental disorders' prevalence is high in the Eastern Mediterranean Region, which is why accessible routes to clinical services should be scaled (Zuberi et al., 2021). Simultaneously, fears of privacy and surveillance, are both a stressor to therapy due to both the logistical constraints and because disclosure, decisions are often influenced by anxiety (Aldaweesh et al., 2024; Albesher et al., 2025). As a result,perceived confidentiality and platform conditions may have a direct effect on user trust and participation, which has a direct impact on therapeutic contracting and documentation practices (Albesher et al., 2025; Perle et al., 2025). All the findings together prove a consistent conclusion that online psychotherapy serves as a necessary gateway to Saudi practice, but to maximise its benefits, systematic training, privacy-preserving processes, and culturally sensitive approaches to engagement are necessary (Aafjes-van Doorn et al., 2024; Perle et al., 2025).

5. Conclusion, practical implications and future directions

This paper demonstrates that successful acclimatisation to digital modes are essential to effective teletherapy and mental health care services. Policymakers must focus on enhancing the digital infrastructure, developing the overall privacy protection, and providing targeted education to lessen the stigma and achieve the improved use of telepsychology services whilst also ensuring robust continuous training for clinicians. Further studies are needed to explore the long-term outcomes of digital interventions, and evaluate the portability of solutions of teletherapy in a wide range of populations so that mental health outcomes are guaranteed to improve in the long term

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THE RELATIONSHIP BETWEEN YOUNG PEOPLE'S LIFE VALUES IN RUSSIA AND THEIR ATTACHMENT STYLES TO PARENTS AND ROMANTIC PARTNERS

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Abstract

The contemporary world, characterized by dramatic events, exacerbates the problem of life values, particularly among the younger generation. Values instilled during early childhood determine an individual's attitude toward the world, others, and oneself; subsequent life circumstances facilitate a reevaluation of these values. Depending on their perception of the importance and achievability of various values, individuals develop their interactions with others. The concept of attachment also reflects perceptions of the significance and approachability of fundamental human needs – security and affiliation. We believe that examining the young people's values in relation to their attachment styles will help clarify the mechanisms underlying the development of their value systems and the strategies used to achieve them. The study involved 124 people aged 18 to 35 years, all of whom had been in romantic relationships lasting more than one year at the time of the study. The main research methods: «The Values Importance – Approachability Ratio…» by E. Fantalova, ECR by K. Brennan et al., MIMARA by K. Brennan & F. Shaver, and the Attachment to Parents Scale of IPPA by G. Armsden & M. Greenberg. Findings revealed that the majority of young people in contemporary Russia lack harmony in their value sphere, 70% demonstrated a high or moderate discrepancy between their evaluations of the importance and achievability of different life values. The most highly prioritized values among young people are love, a happy family life, and health. However, value conflicts are observed in the domains of family and health: while individuals aspire to build happy family relationships and maintain psychological and physical health, they currently consider these goals difficult to achieve. Values are more closely associated with adult attachment styles than with parental attachment. Secure attachment correlates with the realization of core values such as cognition, family and love. For individuals with anxious attachment, material values tend to be more important, whereas those with avoidant attachment, prioritize self-confidence and assign less significance to love. Disintegration within the value sphere is strongly associated with attachment. Regression analysis indicate that while values are reliable predictors, they are not the primary determinants of overall adult attachment style. Anxious attachment is largely determined by relationships with parents, particularly the mother, whereas avoidant attachment is shaped by romantic relationships and values, as well as — to a lesser extent — relationships with the father. These findings provide insights that can refine approaches to psychotherapeutic work with different attachment disorders in couples.

Keywords: *Life values, value conflict, attachment style, parental attachment, romantic attachment.*

1. Introduction

The contemporary world, characterized by constant and often dramatic events, exacerbates issues related to fundamental life values and meanings, particularly for the younger generation. The values instilled during early childhood under parental influence largely determine an individual's attitude towards the world, others, and themselves. Rapidly changing socio-economic conditions lead to a reevaluation of personal life values (Davletshina, 2024). In recent years, against the backdrop of increasing global social instability, there has been a sharp confrontation between different worldview systems; the struggle over values has acquired a particularly dramatic character and has become a matter of identity survival. There is a noted deterioration in the social well-being of youth, associated with negative socio-economic and sociocultural trends, which intensifies the potential for value conflicts (Reutov et al., 2023).

In early age, the perceived attainability of significant values becomes increasingly important for an individual. What a person considers more accessible, based on past experiences, tends to become more prioritized, while inaccessible values often lead to the development of protective strategies that hinder interpersonal interactions. A substantial disparity between the importance and accessibility of values can result in internal conflicts (Fantalova, 2012).

The concept of attachment also reflects perceptions of the significance and accessibility of the most essential needs and life values — safety and belonging. These perceptions exist as an internal working model — a system of relations to oneself and others, which influences trust towards the world, leaves a profound impact on personality development, and shapes the person's strategies for interaction with the world (Bowlby, 1999).

K. Horney emphasized that a lack of security in interpersonal relationships, especially with parents, leads to basic anxiety, which manifest in various coping strategies and modes of dealing with the world: moving towards people, away from people, or against people (Horney, 2013).

We hypothesize that studying the value orientations of young people in relation to their attachment styles will elucidate the mechanisms underlying the formation of their value systems and their strategies for achieving personal goals.

2. Design

The study involved 124 participants (41 men and 87 women) aged 18 to 35 years (M = 21.3). All participants had been in romantic relationships lasting more than one year (M = 3 years) at the time of the study. The respondents did not live with their partners and did not have children. All participants were university students. 45% of the respondents lived with their parents and received partial support from them; the remaining participants lived separately and were financially independent, often combining university studies with work (46%).

More than half of the respondents (61%) had previous experience of stable romantic relationships, which were rated as positive by 37% and negative by 59% participants. Among the respondents, 56% reported that their parents were married, while the others experienced parental divorce. Within the latter group, 38% experienced the divorce before they turned 7 years old, and all of them continued to live with their mothers. Among the respondents with divorced parents, 41% described their relationship with their father as formal and distant, while only 29% characterized it as close and trusting.

Main **research methods**: "The Values Importance – Approachability Ratio in Various Spheres of Life" by E. Fantalova; "Experiences in Close Relationships" (ECR) by K. Brennan et al., adapted by N. Sabelnikova & D. Kashirsky; "Multi-Item Measure of Adult Romantic Attachment" (MIMARA) by K. Brennan & F. Shaver, adapted by T. Kryukova & O. Ekimchik; "The Attachment to Parents Scale" (IPPA) by G. Armsden & M. Greenberg, adapted by N. Sabelnikova et al.. For statistical analysis, Spearman's rank correlation coefficient, the Mann–Whitney U test, and linear regression analysis were employed.

3. Results

3.1. General characteristics of young people's values and their attachments

Findings revealed that the majority of young people in contemporary Russia lack harmony in their value system: 70% demonstrated a high or moderate discrepancy between their evaluations of the importance and achievability of various life values. The most highly prioritized values among young people are love, a happy family life, and health. However, conflicts of values are observed in the domains of family and health: while individuals aspire to build happy family relationships and maintain psychological and physical health, they currently consider these goals difficult to achieve.

The attachment styles of young Russians are, on average, quite secure, both with their parents and partners. Relationships with parents are generally open and trusting, although attachment to mothers tends to be stronger than attachment to fathers. Relationships with fathers are more likely to be estranged. In romantic relationships, young people highly value their connections and trust their partners, seeking emotional intimacy while also prioritizing their autonomy within the relationship.

3.2. The relationship between the values of young people and their attachment styles

Young person's values are more closely associated with their adult attachment styles than with their parental attachment. The secure adult attachment characteristics are positively associated with such values as the beauty of nature and art, cognition, love, a happy family life, and self-confidence, while the insecure attachment variables are negatively associated with most of these values and are positively associated with a feeling of inaccessibility of important life values and with internal value conflicts.

Interestingly, that insecure adult attachment styles are differently related to specific values. For individuals with anxious attachment, material values tend to be more important, whereas those with avoidant attachment, prioritize self-confidence and assign less significance to love.

Among the indicators of parental attachment, only attachment to the father shows an inverse relationship with the importance of material well-being. Overall, relationships with parents are linked to internal value conflicts and vacuums experienced by young people. Paternal figures tend to play positive roles in assessing practical aspects of life, such as intellectual and physical development and social activity. Meanwhile, maternal figures play ambivalent roles in young people's emotional well-being and self-expression. Specifically, good communication with the mother is positively associated with the fulfillment of values related to self-confidence and creativity, whereas trust in the mother is inversely associated with frustrations related to self-confidence.

For further analysis, we identified within the sample two groups exhibiting more pronounced levels of secure (n=55) and insecure (n=45) romantic attachment. A comparative analysis of value orientations was conducted between these two groups. Regarding the importance attributed to values, a single significant difference was observed: young individuals with secure attachment rated the value of cognition as significantly more important (p=0,009) than those with insecure attachment. More differences were found in perceptions of the accessibility of values. Specifically, individuals with secure attachment more frequently perceive values of love (p=0,009) and family life (p=0,001) as accessible, whereas those with insecure attachment more often rate values of beauty (p=0,01) and creativity (p=0,006) as more accessible. In terms of internal conflict manifestations across most values, higher levels were characteristic of the insecure attachment group compared to the secure group (the difference in overall value conflict level: p=0,04).

Thus, we confirmed that attachment partially compensates for unmet values. Insecure adult attachment is generally associated with a shift of focus towards values related to beauty and creativity, which may serve as a compensatory mechanism for underlying value disintegration. However, this does not eliminate the profound frustration arising from unmet needs for intimacy. Disintegration within the value sphere is strongly associated with general and romantic insecure attachment.

A comparative analysis of parental attachment patterns revealed no significant differences concerning paternal attachment but indicated that individuals with secure attachment showed significantly higher overall attachment to the mother (p=0,004), greater trust in her (p=0,001) and lower levels of alienation from her (p=0,005). So, the data suggest that secure attachment to the mother potentially plays a more crucial role in romantic attachment styles than attachment to the father.

3.3. Life values and attachment to parents as predictors of adult attachment in young people

We constructed regression models for general adult attachment and romantic attachment. Since the methods used do not allow for the derivation of a general indicator of attachment security, models were constructed for different manifestations of attachment insecurity. The resulting coefficients of determination are as follows: for the avoidance of intimacy model, $R^2 = 0,811$; for the anxiety about relationships model, $R^2 = 0,822$; and for the model of insecure romantic attachment, $R^2 = 0,820$.

Based on these findings, we conclude that value orientations can be considered sufficiently reliable predictors of overall adult attachment style. Specifically, the significance of values related to love and cognition serves as a predictor of high levels of anxiety about relationships and low levels of avoidance of intimacy. The importance attributed to work and friendship also predicts low anxiety levels. Perceived frustration of values associated with active life correlates with higher levels of avoidance, whereas frustration of the value of happy family life correlates with lower levels. Perceptions of accessibility regarding material well-being, self-confidence, professional achievement, and cognition, among others, predict lower levels of anxiety, as does the overall level of value disintegrity.

Furthermore, synthesizing the data on the contribution of parental and romantic attachment variables to the variability in avoidance and anxiety indicators reveals that anxious attachment is more strongly determined by relational experiences with parents, whereas avoidant attachment is more strongly influenced by experiences in romantic relationships. Specifically, insecure relationships with the father more significantly predict avoidance of intimacy, while relationships with the mother are more associated with anxiety about relationships.

4. Discussion

First, it should be noted that this study reflects the situation of relatively well-adjusted young people residing in contemporary Russia. It is important to remember that both life values and attachment styles are not static and not absolutely culturally universal. Life values dynamically reflect the cultural and historical context of personality development. Nations differ significantly in the priorities they assign to

universal basic values. Culture shapes the environment that makes certain personal values more accessible or socially acceptable, while an individual's personal values can substantially diverge from the dominant values of their culture, thereby creating additional tension within the motivational and value sphere of the individual (Schwartz, 2004, 2008). Cultural norms also influence emotional expression, levels of intimacy and care between individuals, and thus shape different attachment patterns. Individual romantic attachment profiles in different nations correlate with sociocultural indicators in ways that are more adaptive in certain social situation (Schmitt et al., 2004). Along with some universal models of parental behavior, certain cultural-specific patterns, providing children with a sense of secure attachment exist in any culture (Chebotareva, 2019). Therefore, caution should be exercised when generalizing the results of this study to other cultures.

It is necessary to compare the results obtained in this study with the data from studies on other cultures. For example, our data are consistent with research by Australian authors indicating a relationship between anxious attachment and materialism (Norris et al., 2012), which demonstrates that individuals with an anxious attachment pattern tend to exhibit increased materialism and hoarding behaviors as an attempt to compensate for a lack of emotional closeness. Furthermore, financial concerns in such individuals often exacerbate anxiety and worry within their relationships. Additionally, a European study by Weidmann et al. (2024) notes that individuals with anxious attachment patterns are more sensitive to their health and tend to experience difficulties in creative activities. But still, would be appropriate to conduct cross-cultural researches examining the relationships between individuals' attachment styles and their value orientations.

Secondly, the respondents in our sample were generally engaged in relatively stable and healthy relationships. Consequently, further research is necessary to examine the association between life values and attachment styles among individuals involved in destructive romantic relationships, whether as perpetrators or victims of psychological abuse within the relationship.

Thirdly, additional studies are required to explore differences in the functions of attachment to the father and the mother. Although our research did not identify significant correlations between attachment variables and parental married status or divorce circumstances, this issue warrants more in-depth investigation. It is possible that the observed differences in correlations between attachment to the father and mother with life values and adult attachment strategies are partially explained by the fact that a considerable proportion of the respondents' fathers were either absent from or minimally involved in the respondents' lives. Another limitation of our study is the gender asymmetry of the sample, which could have impacted the data on the role of attachment to the father and mother. It is important to further explore the role of parental attachment taking into account the gender ratio of the child and parent.

5. Conclusions

Life values of young people are associated with their parental and adult attachment. In general, secure attachment is associated with a harmonious value structure, where significant values are aligned with the opportunities for their realization. Insecure attachment is associated with value imbalances.

Secure attachment correlates with the realization of core values such as cognition, family and love. Insecure attachment characteristics are associated with internal value conflicts and with a shift of focus towards values related to beauty and creativity, which may serve as a compensatory mechanism for underlying value disintegration.

Life values are more closely associated with adult attachment styles than with parental attachment. The attachment to the mother potentially plays a more crucial role in romantic attachment styles than attachment to the father.

Life values are reliable predictors of adult attachment style, but they are not the primary determinants of it. Anxious attachment is largely determined by relationships with parents, particularly the mother, whereas avoidant attachment is shaped by romantic relationships, as well as— to a lesser extent— by relationships with the father.

These findings provide insights that can refine approaches to psychotherapeutic work with different attachment disorders in couples. The study data can be applied in individual and couples' psychotherapy. Specifically, when working with individuals experiencing value conflicts, it is advisable to consider their relational experiences with parents and other close figures. It is recommended that couples therapists assess not only attachment styles but also young adults' value orientations and the degree of congruence of values within the pair. Strategies for correcting maladaptive patterns of behavior in romantic relationships may be tailored according to attachment style. For example, anxious patterns can be addressed through processing childhood and parent-related experiences, whereas avoidant patterns may be targeted through work on current and past romantic relationships. Additionally, it is important to recognize that strategies for building romantic relationships may serve as attempts to compensate for frustrated life values and underlying value conflicts.

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MOTIVATION AND WELL-BEING OF EARLY CAREER RESEARCHERS IN CROATIA: PRELIMINARY FINDINGS

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Abstract

Early career researchers (ECRs) often work under conditions of high pressure and job insecurity. In such environments, not only the level but also the quality of motivation for work can play a crucial role in sustaining work engagement, productivity, and work-related well-being. Drawing on the self-determination theory, the present study examines how different types of work motivation are associated with work engagement and burnout among Croatian ECRs. The study represents findings from the first wave of the longitudinal *Well-Being and Mental Health of Early Career Researchers in Croatia* (ECR-WELL) project, conducted between March and June 2025. The sample included 531 doctoral candidates and postdoctoral researchers working in with Croatian universities and research institutes. Participants completed an online questionnaire assessing their work motivation (Multidimensional Work Motivation Scale), well-being and emotional experiences at work (such as measures of work engagement and burnout), as well as sociodemographic variables. The analyses included confirmatory factor analysis of the MAWS, followed by structural equation modelling to test associations between different types of work motivation and well-being, while controlling for age and gender. The results showed support for the hypothesized six-factor structure of work motivation and showed that intrinsic motivation was the strongest positive predictor of work engagement and a robust protective factor against burnout, whereas amotivation was consistently associated with lower engagement and higher burnout. Identified regulation was positively related to engagement but showed no significant association with burnout. In contrast, controlled forms of motivation (introjected and external regulation) were not uniquely associated with either engagement or burnout when all motivational regulations were considered simultaneously. Overall, the model explained a substantial proportion of variance in work engagement and a meaningful proportion of variance in burnout. These findings suggest that, despite challenging structural conditions, many Croatian ECRs remain engaged when their work is experienced as intrinsically meaningful. The results show the importance of academic environments that support autonomy, competence, and meaningful engagement. By following this cohort longitudinally, the ECR-WELL project will be able to examine how motivational orientations evolve over time and how they predict future trajectories of well-being, engagement, and retention in academia.

Keywords: *Early career researchers, motivation, well-being, engagement, burnout.*

1. Introduction

The early stages of a scientific career are often associated with curiosity, enthusiasm, and a strong desire to contribute to the existing (de Lourdes Machado-Taylor et al., 2016). However, early career researchers (ECRs, doctoral candidates and postdoctoral researchers) also often experience intense professional demands, heavy workloads, and strong publication pressure (Boone et al., 2022; Zhang et al., 2022; Kismihók et al., 2022), as well as fixed-term contracts, blurred work–life boundaries, and limited control over career trajectories (Levecque et al., 2017; Hazell et al., 2020; Nicholls et al., 2022; Van der Weijden, & Teelken, 2023). These structural conditions place ECRs at elevated risk for impaired well-being, including reduced work engagement and increased burnout (Jackman et al., 2021; Boone et al., 2022; Di Giacomo et al., 2024).

Thus, understanding the associations between ECRs' motivational processes and their work engagement and burnout is important for identifying psychological resources and risk factors that support sustainable academic careers. In this context, the self-determination theory (SDT) provides a well-established framework for examining the quality of motivation in relation to well-being (van den Broeck, et al, 2021; Gagné et al., 2015; Gagné et al., 2022). SDT distinguishes between autonomous forms of motivation—such as intrinsic motivation and identified regulation—and controlled forms of motivation, including introjected and external regulation, as well as amotivation (van den Broeck, et al, 2021). Across occupational contexts, autonomous motivation has been consistently linked to higher engagement, vitality, and psychological well-being, whereas amotivation is associated with exhaustion, disengagement, and poorer mental health outcomes (Sinniah et al., 2022; Gagné et al., 2025; van den Broeck, et al, 2021). Although SDT has been widely applied in organizational and work psychology research, empirical evidence on motivational quality and well-being among ECRs remains somewhat limited. Academic work represents a particularly relevant context for examining motivational processes, as it often combines high intrinsic interest with strong external pressures related to evaluation, publication, and funding (Signoret et al., 2019; Van der Weijden & Teelken, 2023). Moreover, relatively few studies have simultaneously modelled multiple types of motivation while accounting for their interrelations when predicting both positive and negative indicators of well-being, such as engagement and burnout.

Hence, the present study aims to gain more insights into these matters by examining how different types of work motivation relate to work engagement and burnout among ECRs. First, the study validates the multidimensional structure of work motivation and then tests the unique associations of autonomous, controlled, and amotivated forms of motivation with engagement and burnout, while controlling for age and gender. By focusing on motivational quality rather than motivation strength alone, this study aims to clarify which forms of motivation function as key psychological resources and which represent risk factors in the early stages of academic careers.

2. Method

2.1. Participants

A total of 531 early career researchers working in Croatian academic institutions (i.e., universities and research institutes) participated in the first wave of data collection. In this sample, 182 (35.8%) participants indicated male gender, 326 (64.2%) female, and 23 (4.3%) did not report their gender. Participants' age ranged from 24 to 55 years (M = 31.58, SD = 5.50).

Most participants were doctoral candidates employed as research assistants (N=387; 73.2%), and 142 participants (26.8%) were postdoctoral researchers. On average, participants reported M = 4.06 years of experience working in science (SD = 3.72). Large majority of the participants (95.1%) had fixed-term work contracts, whereas only 4.9% held permanent positions.

ECRs in the sample worked in various major scientific fields, with most participants being employed within the Social (25.5%) and Technical Sciences (23.0%), followed by Natural Sciences (16.6%), Humanities (13.0%), Biomedical and Health Sciences (9.2%), Biotechnical Sciences (9.1%). The least participants reported working within Interdisciplinary Sciences (3.2%), and Arts (0.4%). Most participants were employed in Zagreb (64.7%), reported working mostly at public universities, primarily at the University of Zagreb (38.2%).

2.2. Procedure

Data was collected as a part of a larger project "Well-being and Mental Health of Early Career Researchers in Croatia: A Longitudinal Study", a four-year research project funded by the Croatian Science Foundation (grant number: IP-2022-10-3567). The Ethics Committee of the Institute of Social Sciences Ivo Pilar provided Ethics approval for the study. Data for the first wave of the ECR-WELL project's longitudinal study were collected between March 17 and June 24, 2025, using an online self-report questionnaire administered via LimeSurvey. We distributed the invitation to join the study on early career researchers' (ECRs, i.e., doctoral candidates and postdoctoral researchers) well-being and mental health through different channels, mostly using institutional mailing information publicly presented on websites of universities and research institutes in Croatia. The questionnaire included detailed informed consent and, after that, measures of well-being, mental health, and work conditions and experiences, as well as questions on sociodemographic and employment characteristics.

2.3. Measures

Work motivation. ECRs' reported their motivation for work using the Croatian translation of the Motivation at Work Scale (MAWS; Gagne´ et al., 2010). This scale includes 12 items that reflect four types of motivation as conceptualized by Deci and Ryan (1985), that range from most to least autonomous (i.e., intrinsic, identified regulation, introjected, external regulation, amotivation). Participants report for each statement to what degree they correspond to one of the reasons for which they are putting effort into their job, using a 7-point scale ranging from 1 (''does not correspond at all'') to 7 (''corresponds very strongly'').

Work Engagement. The Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2002) assesses vigor, dedication, and absorption. Respondents rated items such as "My job inspires me" on a 7-point scale. In line with previous findings, the UWES demonstrated high reliability (Cronbach α= .92).

Burnout. We used the exhaustion subscale of the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2001) consisting of 8-items assessing feelings of emptiness, a strong need for rest, and a state of physical exhaustion, on a 1 to 7 Likert type response scale. Example item is "After my work, I usually feel worn out and weary". The exhaustion scale showed high reliability within our sample (Cronbach α= .85).

3. Results & discussion

3.1. Confirmatory factor analysis

A confirmatory factor analysis (CFA) was conducted to examine the factorial validity of the six-factor structure of the MAWS, comprising intrinsic motivation, identified regulation, introjected regulation, external regulation–social, external regulation–material, and amotivation. The model specified each item to load on its theoretically proposed latent factor, with latent factors allowed to correlate. The initial CFA showed suboptimal model fit. Inspection of modification indices indicated a theoretically plausible residual covariance between two introjected regulation items, which share highly similar content and wording. Allowing this single correlated residual resulted in a substantial improvement in model fit. The final model demonstrated acceptable to good fit to the data, $\chi^2(136) = 483.96$, $p < .001$, CFI = .94, TLI = .93, RMSEA = .07, 90% CI [.06, .08], and SRMR = .07. All items loaded significantly on their intended factors ($p < .001$). Standardized factor loadings were generally strong for intrinsic motivation, identified regulation, and amotivation, and moderate to strong for external and introjected regulation factors. The pattern of correlations among latent factors was consistent with self-determination theory. Intrinsic motivation and identified regulation were strongly positively correlated, whereas amotivation was negatively associated with more autonomous forms of motivation and largely unrelated to external regulation. Adjacent forms of regulation along the motivational continuum showed stronger associations than more distant forms, supporting the theoretical ordering proposed by self-determination theory. Overall, the results provide support for the six-factor structure of the MAWS in the present sample.

3.2. ECR's motivation and well-being associations: Structural equation modelling

A structural equation model (SEM) was estimated to examine associations between different types of work motivation and well-being indicators (work engagement and burnout), while controlling for age and gender. The model incorporated the six-factor measurement model of the MAWS, with one theoretically justified correlated residual between two introjected regulation items. Work engagement and burnout were included as observed outcome variables. The model showed good overall fit to the data, $\chi^2(200) = 573.90$, $p < .001$, CFI = .93, TLI = .91, RMSEA = .06, 90% CI [.06, .07], SRMR = .07, indicating that the proposed model adequately represented the observed covariance structure. Results showed that the intrinsic motivation was the strongest positive predictor of work engagement ($\beta = .52$, $p < .001$). Identified regulation was also positively associated with engagement, with a smaller effect size ($\beta = .16$, $p = .004$). In contrast, amotivation was negatively related to engagement ($\beta = -.26$, $p < .001$). Introjected regulation and both forms of external regulation were not significantly associated with engagement when all motivational regulations were included simultaneously in the model. Regarding burnout, intrinsic motivation was negatively associated with burnout ($\beta = -.34$, $p < .001$), indicating a protective effect, whereas amotivation was positively associated with burnout ($\beta = .25$, $p < .001$). Identified, introjected, and external forms of motivation were not significantly related to burnout. Overall, the model explained a substantial proportion of variance in work engagement ($R^2 = .69$) and a meaningful proportion of variance in burnout ($R^2 = .24$).

4. Discussion

Building upon the SDT, the present study examined how different types of work motivation are associated with work engagement and burnout among early career researchers (ECRs). The findings demonstrate a clear and theoretically coherent motivational pattern, highlighting autonomous motivation, and intrinsic motivation in particular, as an essential resource, while identifying amotivation as a key risk factor for ECR well-being.

Intrinsic motivation was the strongest predictor of work engagement and simultaneously a robust protective factor against burnout. This dual role is consistent with SDT, which emphasizes that engaging in work out of genuine interest and enjoyment supports sustained energy, persistence, and psychological well-being, particularly in demanding and uncertain contexts such as academia (Gagné et al., 2015; Gagné et al., 2022; van den Broeck et al., 2021). Given the high workload and performance pressure characteristic of early academic careers, intrinsic motivation may be especially important for maintaining engagement without going towards exhaustion (Levecque et al., 2017; Nicholls et al., 2022). Identified regulation was positively associated with work engagement but not with burnout. This suggests that perceiving academic work as personally meaningful or aligned with long-term goals may foster involvement and dedication yet may not be sufficient to buffer against exhaustion when structural demands accumulate. This finding aligns with previous work showing that autonomous-but-instrumental motivation can support performance and engagement, while offering limited protection against chronic strain (Signoret et al., 2019; Van der Weijden & Teelken, 2023; van den Broeck et al, 2021).

In contrast, amotivation consistently predicted lower engagement and higher burnout. Amotivation reflects a lack of perceived purpose, competence, or agency at work and has been repeatedly linked to poorer mental health outcomes (van den Broeck et al, 2021). Among ECRs, elevated amotivation may signal deeper contextual problems, such as prolonged job insecurity, unclear career prospects, or misalignment between personal values and academic work (Kismihók et al., 2022; Jackman et al., 2021). The strong associations observed here suggest that amotivation may function as a warning indicator of deteriorating ECRs' well-being. Introjected regulation and both forms of external regulation were not uniquely associated with either engagement or burnout once all motivational types were considered simultaneously. This finding supports SDT-based research indicating that controlled forms of motivation tend to have weaker and more inconsistent relationships with well-being, particularly when autonomous motivation is accounted for (Gagné et al., 2015; Sinniah et al., 2022). From a practical perspective, this implies that increasing external incentives or performance pressure alone is unlikely to improve ECR well-being unless accompanied by conditions that support autonomy and intrinsic motivation.

5. Conclusions

Overall, these findings underscore that ECR well-being is shaped less by how motivated individuals are, and more by why they are motivated. Institutional efforts to support early career researchers should therefore prioritize work environments that foster autonomy, competence, and meaningful engagement, while addressing sources of amotivation through improved mentoring, career clarity, and perceived control over work and career trajectories.

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RESILIENCE TRAINING FOR PEOPLE WITH MULTIPLE SCLEROSIS (MS): THE READY FOR MS PROGRAM

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Abstract

This presentation provides a narrative review of a novel acceptance and commitment therapy (ACT) resilience training group program for people with multiple sclerosis (PwMS) called READY for MS. The intervention targets the six ACT psychological flexibility (PF) skill sets: acceptance, mindfulness, defusion, self-as-context, values and committed action. READY for MS has 7 modules plus a booster. Quantitative and qualitative data from 8 studies (n = 628) evaluating the intervention impacts on psychosocial outcomes for PwMS will be summarised. These studies include 4 randomised control trials (n = 384), one effectiveness trial (n = 137) and 3 feasibility studies (n = 137). Studies have evaluated in-person group, self-directed digital and video conferencing delivery formats across different cultures (Australia, UK, Greece, Italy, Germany) and settings (e.g., hospitals, community clinical care centres). Qualitative and statistical results show significant improvements in quality of life (QoL), mental health and PF in PwMS who undertake READY for MS. Evaluations of the effects on healthcare professionals of training in READY for MS show significant improvements in resilience, wellbeing, and PF in trainees. Mediation analyses show that PF, the theoretical putative change mechanism, mediates the post-intervention improvements in mental health and QoL for PwMS and healthcare trainees. Overall, research evidence supports the efficacy and effectiveness of the READY for MS program in promoting mental health, QoL and PF in PwMS, with potentially similar benefits for healthcare professionals trained in the intervention. Evidence supports the theoretical integrity of the intervention and its efficacy across different delivery formats. The efficacy of READY for MS across cultures supports its applicability internationally. Evidence also suggests that the program can be effectively delivered to other chronic illness groups without significant changes to intervention content (e.g., cancer, heart disease).

Keywords: *Resilience, quality of life, mental health, acceptance and commitment therapy, chronic illness*

1. Introduction

The READY for MS program was derived from its parent intervention called READY. Therefore, the term 'READY' refers to the parent program and the term 'READY for MS' refers to the modified version of READY for PwMS. READY is based on Acceptance and commitment therapy (ACT), a modern variant of cognitive behavior therapy. Psychological flexibility (PF), the framework underpinning ACT, is the cornerstone of psychological health and is associated with resilience. The ACT PF framework postulates that six core processes enhance PF: (1) acceptance, (2) defusion, (3) mindfulness, (4) self-as-context, (5) values, (6) committed action. Evidence indicates that these skill-sets foster resilience (Pakenham et al., 2024). In READY these skill-sets target five research identified key resilience protective factors: (1) positive emotions; (2) cognitive flexibility, (3) life meaning, (4) social support, and (5) active coping (Burton, Pakenham & Brown, 2010). Informed by this theoretical and empirical research, we created a READY resilience model metaphorically described as a shield, which is composed of five life domains (thinking, feeling, doing, relations, being). Within each life domain, a key resilience protective factor is targeted. These protective factors reflect one or more of the PF processes.

1.1. The standard READY program

The original standard READY program has 11 modules: (1) introduction to the READY model, (2) physical activity, (3) mindfulness, (4) defusion, (5) self-as-context, (6) acceptance, (7) mid-review, (8) values, (9) social connectedness, (10) relaxation and pleasant activities, and (11) final review. Program strategies include psychoeducation, experiential exercises, self-reflection, self-monitoring, and home practice assignments. Modules are delivered weekly in 2.5-hour group sessions with 8-20 participants.

Participants receive a workbook that has two components: (1) written module content and (2) the READY Personal Plan which is comprised of in-session and home practice exercises. The Personal Plan constitutes a personalized resource to help participants apply program information and strategies. Participants also receive an audio file of guided meditations and relaxation exercises. A facilitator manual provides program instructions and session content.

READY has been effectively applied to workplace settings (Burton et al., 2010), colorectal cancer survivors (Hawkes et al., 2013; Hawkes et al., 2014), people with diabetes (Ryan et al., 2018), people with congenital heart disease (Steele, 2016), and PwMS. Regarding the latter, it is the READY for MS version of the READY program that is the focus of this presentation.

2. READY for MS

The READY program was modified to reduce participation demands given the high prevalence of MS fatigue and disability. The 11 modules were reduced to seven and a booster session was introduced 5 weeks after the 7th module. The participant handbook and facilitator manual were revised accordingly.

Eight published studies have evaluated READY for MS. The design characteristics of these studies are summarized in Table 1. Four studies are randomised control trials, and of these, two used an active control (relaxation). Most participants in each study were female which reflects the fact that MS more commonly occurs in females than males. The mean age varied from 39 to 49 years which aligns with the onset of MS typically occurring in young adulthood. Most participants reported a relapse remitting course of MS which is more common than primary or secondary progressive courses. Five studies used group delivery. Three studies developed and evaluated self-directed online versions of READY for MS. Six studies incorporated follow-up assessments beyond the post-intervention assessment.

Table 2 summarises the outcomes evaluated across the eight studies and indicates outcomes that significantly improved at post-intervention and follow-up. Direct quantitative comparisons of intervention effects across studies are not possible given the marked variations in study designs, intervention delivery modes, and cultural contexts. All but one of the studies evaluated resilience. Resilience improved in only two studies. These improvements were identified at follow-up, indicating delayed intervention effects for resilience. This is possibly due to resilience building benefits only emerging after sufficient time has elapsed for practicing the complex array of PF skills. For the seven studies that measured distress, one or more of the distress dimensions (anxiety, depression, stress) significantly improved. Intervention effects on QoL were evidenced in four studies. The beneficial intervention effects were also evident on other outcomes including self-efficacy, employment stability, and wellbeing.

Given that READY for MS is informed by the ACT PF framework it is important to demonstrate that the intervention increases the six PF processes which the intervention targets. One or more of the PF processes significantly improved in six of the eight studies. Additionally, one or more of the PF processes mediated the improvements in adjustment or QoL outcomes that significantly improved in studies that undertook mediation analyses. Furthermore, one study showed that the PF processes mediate the link between resilience and QoL and distress in PwMS, which supports the role of PF processes as resilience building skills. Together these findings support the theoretical integrity of the READY for MS program.

All studies used a mixed methods approach, collecting both quantitative and qualitative data. Qualitative data were collected via open-ended survey questions and or structured interviews. Qualitative results across all studies identified themes that reflected the positive intervention effects on various life domains including managing MS, coping with distress, enhancing QoL, being more resilient, and increasing self-awareness. All studies collected participant satisfaction ratings regarding READY for MS. Mean ratings for all studies were above the middle anchor on the Likert satisfaction rating scales.

2.1. Impacts of READY for MS Training on healthcare professionals

Two studies have evaluated the impacts on trainees who receive training in the delivery of the READY for MS program (Pakenham, Scott, & Messmer Uccelli, 2018; Giovannetti et al., 2022c). Findings from these studies show that this training has positive impacts personally and professionally. Notably, trainees improved over the course of training in resilience, positive affect, wellbeing, and PF.

3. Conclusions

Quantitative and qualitative data collected from evaluations of the READY for MS program converge on the positive impacts of the intervention across a wide range of psychosocial outcomes for PwMS and healthcare professionals who engage with the program. The fact that both PwMS and healthcare professionals have benefited from the program, underscores the trans-diagnostic processes underpinning the intervention. Evidence suggests the program can be flexibly applied across a range of contexts including cultures. Preliminary data suggest effective program delivery via group face-to-face, group video conferencing, and digital modes. Importantly, findings support the program's theoretical integrity.

Table 1. READY for MS Studies: Design Characteristics.

Study Country	N [intervention: control]	% Female	Mean Age (SD) Years	MS Course		MS Duration Mean (SD) Years	Delivery Mode	Control Group	Follow-up
				Relapse remit %	Progressive %				
Pakenham et al, 2018 Australia	37	73.0	49.30 (11.27)	78.4	21.6	9.42 (8.49)	In-person group	NA	3 months
Giovannetti et al 2020 Italy	39 [20:19]	59.0	45.7 (9.10)	81.0	19.0	12.20 (10.7)	In-person group	Relax	3 months 6 months
Giovannetti et al 2022a Italy	137	75.1	45.10 (10.50)	81.0	19.0	11.20 (8.8)	In-person group	NA	3 months
Giovannetti et al 2026; 2022b Italy	197 [105:92]	66.9	45.03 (10.55)	84.3	15.7	12.98 (10.15)	In-person group	Relax	3 months 6 months
Pakenham & Landi 2023 Australia	56 [31:25]	85.5	48.48 (13.08)	91.9	9.0	48.48 (13.08)	Online	Waitlist	3 months
Wicks et al United Kingdom	92 [45:47]	85.2	45.67 -	85.9	14.1	-	Online	Usual care	6 months
Poettgen & Pakenham, 2026 Germany	19	79.0	39.01 -	89.5	10.5	8.68	Online	NA	NA
Theodorou et al Greece	51	62.9	41.84 -	-	-	-	Group video conferencing	NA	NA

Table 2. READY for MS Studies: Outcomes.

Study Country	Outcomes Assessed		Improvement Post-intervention		Improvement Follow up	
	Adjustment QoL	**ACT Processes**	**Adjustment QoL**	**ACT Processes**	**Adjustment QoL**	**ACT Processes**
Pakenham et al, 2018 Australia	Resilience QoL Anxiety Depression Stress	Mindfulness Defusion Acceptance Values	QoL physical QoL mental Depression Stress	Defusion Values Acceptance	Resilience	Mindfulness Defusion
Giovannetti et al, 2020 Italy	Resilience QoL Anxiety Depression Stress	Psych Flex Mindfulness Acceptance Values Defusion				
Giovannetti et al, 2022a Italy	Resilience Anxiety Stress QoL	Psych Flex Acceptance Defusion Values	Resilience Anxiety Stress QoL	Psych Flex Acceptance Defusion Values	Resilience	
Giovannetti et al, 2026; 2022b Italy	Resilience Anxiety Depression Affect Well-being QoL	Psych Flex	QoL Defusion		QoL Depression Anxiety Well-being	Psych Flex Self-as-context Defusion Values
Pakenham & Landi 2023 Australia	Resilience QoL Anxiety Depression Stress	Psych Flex	Anxiety Stress			
Wicks et al, 2022 United Kingdom	Work instability Self-efficacy Anxiety Depression MS impact QoL	Psych Flex	Work instability Self-efficacy Anxiety MS impact	Psych Flex	Work instability Self-efficacy Anxiety MS impact	Psych Flex
Poettgen, & Pakenham, 2026 Germany	Resilience QoL	Psych Flex/Inflex	Resilience QoL	Psych Flex/Inflex	NA	NA
Theodorou et al, 2022 Greece	Resilience Anxiety Depression Stress QoL	Psych Flex Experiential avoidance	Anxiety Depression Stress	Acceptance Cognitive fusion	NA	NA

Note. NA = not applicable. Psych Flex = Psychological Flexibility. Psych Flex/Inflex = Psychological Flexibility/Inflexibility. QoL = quality of life

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HOW TO MEASURE RETROGRADE AMNESIA

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Abstract

Retrograde amnesia principally is divided into autobiographical and semantic retrograde amnesia. Autobiographical retrograde amnesia refers to personal events and episodes of the past which are usually emotionally connotated, can be remembered with respect to the time, when they occurred, and to the place, where they happened. Semantic retrograde amnesia refers to knowing of facts that had been learned in the past. Semantic facts usually cannot be traced back in time and place: One just knows that the Eiffel tower is in Paris. Retrograde amnesia is found in patients with neurological and psychiatric diseases. Neurological patients with retrograde amnesia frequently have traumatic brain injury, are intoxicated, have epileptic attacks, or suffer from a process of dementia. Psychiatric patients with retrograde amnesia may have endured psychic shock condition, or may suffer from conditions of depression. Other psychiatric disease conditions with major retrograde amnesia in the autobiographical domain are found in patients with dissociative conditions, in particular dissociative amnesia and dissociative identity disorder. The great majority of all patients shows deficits only in the episodic-autobiographical domain of retrograde memory. Reliable and valid measurements of retrograde memory are – compared to measuring anterograde memory – particularly difficult, as all individuals have a unique repertoire of retrograde memories, especially, of course, in the episodic-autobiographical domain. Therefore, instruments, using a score system that allows a gradation between individuals, were developed only lately. At present, however, a number of test instruments exists (Markowitsch et al., 2023). These will be analyzed and compared with respect to their qualities, cultural aptness, and psychometric properties.

Keywords: *Episodic-autobiographical memory, semantic memory, neurology, psychiatry.*

1. Introduction

Memory is divided into anterograde and retrograde memory. Anterograde memory refers to newly encoded information which then is further processed in the brain and stored for later retrieval (Markowitsch, 2008; Markowitsch & Staniloiu, 2022). Retrograde memory means the remembering of already stored information.

While there is a hugh variety of tests, measuring anterograde memory (e.g., the 4th edition of the Wechsler Memory Scale, or the Rey-Osterrieth Figure; Ryan et al., 2025; Kent, 2026; Lezak et al., 2012), there was, until recently, only little material available for testing retrograde memory. This was due to the fact that in patients with memory impairment, the deficits are mainly seen in the episodic-autobiographical domain, but not in semantic memory (Markowitsch, 2003, 2008, 2013; Markowitsch & Staniloiu, 2012; Fujiwara & Markowitsch, 2005; Tulving & Markowitsch, 1998). Semantic memory, or memory for facts, usually is preserved in both neurological and psychiatric patients, that is, these patients know what is a table or a tree. On the other hand, memory for episodes or events of the past (e.g., the party after finishing high school, or my first sexual engagement) are impaired in patients with retrograde amnesia. As such events are highly individual, they are difficult to measure and to quantify.

2. Disease conditions associated with retrograde amnesia in particular

It is everyday knowledge that after a severe blow to the head individuals may become unconscious for a short time and may lose access to their immediate past. Similarly, in an accident situation (e.g., with a car), people may thereafter have difficulties in remembering the crash situation. These, however, are very short-lasting amnesic situations. Even the possible memory loss after intoxication is usually of short duration and will not be considered for formal test assessment (but see, e.g., Dominici et al., 2015).

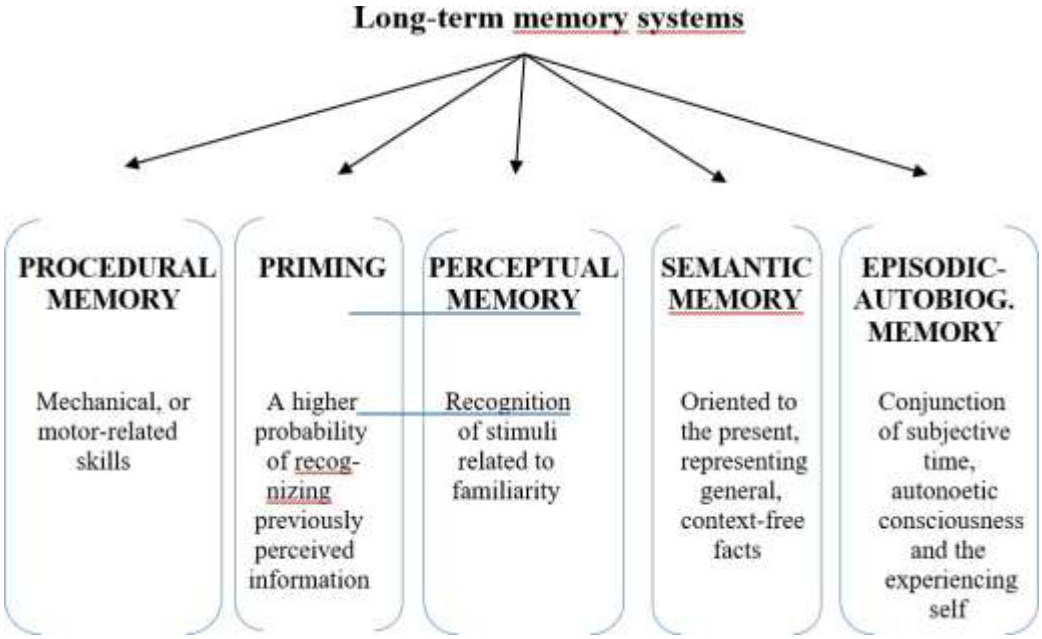
Neurological disease conditions which are particularly relevant with respect to retrograde amnesia are traumatic brain injury (TBI), closed head injuries, epilepsy, and dementia (Lah et al., 2006; Jus & Jus, 1962; Mayes et al., 2003; Meeter et al., 2006; Beatty et al., 1988). However, patients with sometimes even more complete retrograde amnesia (covering the whole life time) are found in the psychiatric domain, namely in patients with dissociative amnesia (Markowitsch & Staniloiu, 2013, 2016; Staniloiu & Markowitsch, 2014). In these patients, even self-awareness (consciousness of the own person) may be altered, as their retrograde amnesia covers all their past life (Markowitsch & Staniloiu, 2011; Staniloiu et al., 2020; Staniloiu & Markowitsch, 2012).

For these patient groups, assessment of retrograde amnesia, especially in the episodic-autobiographical domain, is essential. Furthermore, especially as some of the patients with dissociative conditions have a forensic background and may malinger (Jenkins et al., 2009; Staniloiu et al., 2018; Rubenzer, 2023), the application of tests of malingering is necessary for a differential diagnosis of true retrograde amnesia (Jelicic, 2018; Jelicic et al., 2004).

3. Assessment of retrograde amnesia

Neuropsychological assessment of a patient always should be integrative and holistic, that means that basically tests should cover intelligence, attention and concentration, executive functions, affect and mood, and explicit and implicit memory functions, including anterograde and retrograde memory. This is necessary in order to relate features to each other. For example, it is unlikely that a healthy, non-brain damaged and non-depressed individual has high intelligence, but low memory capacities.

Figure 1. Summary of the five long-term memory systems (episodic-autobiog. = episodic-autobiographical).



As mentioned above, if there are memory problems, these should be primarily in the episodic-autobiographical domain (see Figure 2 in Markowitsch & Staniloiu, 2025, or the Figure in Markowitsch & Pritzel, 2014, or Figure 1 in Markowitsch & Staniloiu, 2022, or Figure 11.1 in Markowitsch et al., 2023). The other memory systems – semantic, perceptual, procedural, and priming memory – should be tested, if there is suspicion for impairment. Figure 1 summarizes definitions of the five long-term memory systems.

We found, for example, in a patient with dissociative (functional) amnesia that he could not understand any Latin, though he had studied it in university prior to his amnesia (Markowitsch & Staniloiu, 2025; Staniloiu et al., 2020). Our explanation of this failure was that he disliked studying Latin (his father had forced him to choose it) and that there was a link between his car accident (while driving to his university) and his subsequent dissociative amnesia. So, these semantic facts had a strong emotional connotation for him.

3.1. Tests of retrograde (episodic-autobiographical) amnesia

3.1.1. Autobiographical memory interview. The most widely used test of retrograde episodic-autobiographical memory is the 'Autobiographical Memory Interview' (AMI; Kopelman et al., 1990). Individuals are requested to produce as detailed and as emotionally laden episodes as possible. For each decade two episodes are requested; for the childhood and youth periods two episodes per half decade. The episodes – and this holds for other tests of retrograde episodic-autobiographical memory as well – should fulfill the following criteria: emotional colorization, specific location and time, and a feeling of belonging to oneself ("autonoetic consciousness"; see Figure 1).

3.1.2. Galton-crovitz technique. Older than the AMI is the 'Galton-Crovitz Technique', forwarded by Crovitz and Schiffman in 1974. This procedure is based on presenting a word (e.g., "ship"). Individuals are asked to recall an episode, in which the presented word plays a role. This is repeated for a number of words, in the paper of Crovitz and Schiffman for 20 words altogether which were presented in a list. Subjects were also asked to date the episode as accurately as possible.

3.1.3. Standardized enquiry. From the same time as the AMI stems the 'Standardized Enquiry', published by Borrini et al. (1989). It consists of three sets of questions, centering on the life periods (a) childhood and adolescence (until age 15), and (b) early (16-40 years) and (c) late (41 years to 2 years prior to present age) adulthood. Questions to (a) were 'primary school', 'childhood home', 'family members', 'family illness' and 'play'. Questions to (b) were 'ceremonies', 'getting about' (e.g., by bike), 'children, military service', 'wedding, trips' and 'work'. And for (c) 'moving house', 'work changes', 'medical events, doctors', 'retirement' and 'leisure'. Norms were based on 157 healthy individuals of age 55 and over.

3.1.4. Autobiographical Interview. A much simpler test was created by Levine and co-workers (2002) – the 'Autobiographical Interview'. It asks for autobiographical memories from two time periods: 'recent' (last 6 months) and 'remote' (5 to 15 years ago), with five memories per time period.

3.1.5. I am memory task. The 'I Am Memory Task' (IAM Task) was proposed by Rathbone et al. (2009) as a test for retrograde autobiographical memory. The authors write: "In this task the participant is asked to generate four selves (e.g., 'I am a singer') …,, and then generate eight memories associated with each self. After autobiographical retrieval, participants go back and date all the memories and provide an age at which each self became a defining part of their identity – an age of self emergence." (p. 411).

3.1.6. Test episodique de mémoire du passé autobiographique. In the same year as Rathbone et al., Piolino et al. (2009) published a retrograde autobiographical memory test in French, the 'Test Episodique de Mémoire du Passé Autobiographique' (TEMPau). This test is closely related to Tulving's (2002) definition of episodic memory. Participants are first instructed to recall personal events from five different time periods which occurred only once, at a particular place and date, and lasted several minutes or hours, but never more than a day. Then the Remember/Know procedure (Tulving, 1985), which allows a differentiation between episodic and semantic memory retrieval, that is between items of autonoetic consciousness and item of noetic consciousness, is applied. At the end, a procedure is used to check whether the Remember responses contain idiosyncratic perspectives, emotions and thoughts of the person doing the remembering.

3.1.7. Survey of autobiographical memory. Finally, Palombo et al. (2013) constructed a rather long test for testing retrograde autobiographical memory, which they named 'Survey of Autobiographical Memory' (SAM). It is a self-report inventory on naturalistic episodic-autobiographical (42 questions), semantic
(24 questions) and spatial (20 questions) and prospective memory (16 questions). ('Prospective memory' refers to the remembering of events happening in the future.) Participants had to rate the extent to which each question applied to their memory.

3.1.8. Tests of malingering. To rule out malingering, tests of assessing malingering should be applied. There are both verbal and nonverbal tests available. The most common are the 'Test of Memory Malingering' (Tombaugh, 1996), the 'Word Memory Test' (Green, 2003), and the 'Amsterdam Short-Term Memory Test' (Schagen et al., 1997).

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WEIGHING THOUGHTS AND BEHAVIORS IN EATING PATHOLOGY: A CANONICAL CORRELATION BETWEEN THE EDE-Q AND EPSI SUBSCALES

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Abstract

Nearly one-third of Canadians reported having thoughts and behaviours that are associated with eating disorders (Mental Health Research Canada, 2025). Although the best population level assessment of the prevalence of eating disorders are wide-scale national studies, Raffoul et al. (2025) critiqued national census procedures in Canada for their inconsistency and lack of appropriate assessment of eating disorders, leading to large gaps in understanding prevalence in Canada. Researchers interested in attitudes, thoughts and behaviours associated with disordered eating typically use the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) and the Eating Pathology Symptoms Inventory (EPSI; Forbush et al., 2013), which are established reliable and valid measures used to assess eating disorder pathology. Although these scales vary in their uses, the EDE-Q has been used as an indicator of the presence and severity of an eating disorder (Levinson et al., 2023; Velkoff et al., 2023). The EPSI focuses on different aspects of disordered eating and may be a better indicator of eating disorder symptoms and behaviours associated with different aspects of disordered eating. Further, the EPSI is more general and suitable for more diverse populations, including male samples (Levinson et al., 2023). Although both scales have strong convergent validity (Coniglio et al., 2018; Forbush et al., 2013), a more in-depth examination of the subscale relationships has yet to be done. Thus, the purpose of this study was to examine the linear relationships between the EDE-Q (Fairburn & Beglin, 1994) and EPSI (Forbush et al., 2013) using canonical correlation analyses. The EPSI subscales (Body Dissatisfaction, Cognitive Restraint, Binge Eating, Excessive Exercise, Purging, Restraint, Negative Attitudes Towards Obesity, and Muscle Building) were entered as the dependent variables and the EDE-Q subscales (Restriction, Eating Concern, Shape Concern, and Weight Concern) were entered as covariates to determine how disordered eating cognitions and concerns related to eating disorder symptoms. In total, 646 cases were used in this analysis, and the relationship between the sets of variables was statistically significant (p<.001) The first function accounted for approximately 79.3% of the explained variance and was associated with greater shape, weight, and eating concerns, and restrictions. The first dependent function was associated with greater body dissatisfaction, cognitive restriction, and binge-eating. Taken together, the first function indicated that greater concern over appearance was predictive of more compensatory behaviors. These results indicate that both scales represent general eating disorder pathology and is supported by the Transdiagnostic Cognitive Behavioural Model of Eating Disorders (Fairburn et al., 2004).

Keywords: *Disordered eating, canonical correlation, body dissatisfaction, scale assessment.*

1. Introduction

Disordered eating is a prevalent issue in Canada affecting one-third of the population (Mental Health Research Canada, 2025). At present, there are minimal tools used to assess eating disorder prevalence nation-wide beyond self-identification tools. As a result, these inconsistencies could impact understanding the true prevalence of eating disorders in Canada (Raffoul et al., 2025). The reliance on a formal diagnosis, rather than the use of validated and reliable measures to assess risk and prevalence could lead to policymakers underestimating the need for care access, resulting in fewer program opportunities to help identify and treat those who are at risk of developing an eating disorder.

There are several validated and reliable self-report measures to assess disordered eating behaviours. Researchers interested in attitudes, thoughts and behaviours associated with disordered eating typically use the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) and the Eating Pathology Symptoms Inventory (EPSI; Forbush et al., 2013). Both scales have been used to

distinguish patients with eating disorders from non-eating disorder controls and among various eating disorder diagnoses (Forbush et al., 2013; Velkoff et al., 2023). The EDE-Q is a commonly used tool for diagnosis, screening, and to assess eating disorder severity in treatment and research settings (Ayala et al., 2022; Mond et al., 2004). A cut-off of 2.8 in the EDE-Q was established by Velkoff et al. (2023) to indicate the likelihood of clinically elevated *symptoms*. Comparatively, the EPSI (Forbush et al., 2013) was designed to minimize gender and weight-related bias (Forbush et al., 2013; Levinson et al., 2023). The EPSI has been used to assess cognitions, attitudes, and behaviours associated with eating disorders and includes subscales to indicate a broader range of symptoms of associated with disordered eating *behaviours*. For example, although the EDE-Q (Fairburn & Beglin, 1994) has a restriction subscale, the EPSI (Forbush et al., 2013) sub-divides restriction into two subscales: cognitive restraint (i.e., the mental effort to restrict food intake) and physical restraint (i.e., limiting food intake).

During development, the EDE-Q (Fairburn & Beglin, 1994) was used to establish for convergent validity for the EPSI (Forbush et al., 2013; Birgegård et al., 2024). EPSI scales that represented more traditional eating disorder pathology had moderate to strong correlations with the EDE-Q (Birgegård et al., 2024), with weaker associations between other subscales such as Muscle Building. Birgegård et al. (2024) suggested that the EPSI subscales may be best used in non-clinical samples, particularly those with negative body image. Further, the EPSI accounts for gendered manifestations of eating disorder behaviours such as men exhibiting more Muscle Building and women reporting higher on the Excessive Exercise subscale (Birgegård et al., 2024). Concerns have been raised about the EDE-Q's ability to assess disordered eating in males as it is seemingly biased to eating disorder presentation in women (Schaefer et al., 2018).

1.1. Purpose of the current study

To gain a better understanding of each scale's utility in clinical and research settings, researchers need a better understanding of how these scales relate to one another beyond providing convergent validity. To date no one has comprehensively examined the relationships between the EDE-Q (Fairburn & Beglin, 1994) and the EPSI (Forbush et al., 2013) at a subscale level. Thus, our purpose was to examine the linear relationships between the EDE-Q (Fairburn & Beglin, 1994) and EPSI (Forbush et al., 2013) using canonical correlation analyses.

2. Methods

2.1. Participants and procedure

This research was reviewed by the Research and Ethics Board at the University of New Brunswick, Canada (2024-205). Participants were recruited from undergraduate psychology courses and were offered 1.5 bonus points for their participation. Prior to completing the online questionnaire package, all participants provided informed consent. A demographics questionnaire was always completed first, followed by the questionnaires, presented in randomized order. After completion, participants were presented with debriefing information that explained the full purpose of the study. In total 653 people participated in this study. Participants reported a mean age of 21 years (SD = 5.81). The sample was predominantly women (n = 497; 76%) and men (n = 146; 23.3%), with few participants who identified as another gender (n = 10). Based off Velkoff et al.'s (2023) cut-off for the EDE-Q, one-third of participants reported a clinical level of disordered eating behaviours (n = 206; Men: n = 27; Women: n = 178).

2.2. Measures

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is a 28-item self-report questionnaire based on a pre-existing set of interview questions. It assesses eating disorder behaviours and attitudes using a 7-point Likert scale from 0 (no days) to 6 (every day). It is comprised of an overall score (α = .95) as well as the following subscales: Restraint (α = .87), Eating Concern (α = .82), Shape Concern (α = .92), and Weight Concern (α = .86), all of which demonstrate high internal consistency. Scores were calculated using the mean with higher scores indicate more severe eating disorder pathology. An overall score greater than 2.8 suggests the presence of a clinically significant condition (Velkoff et al., 2023). **The Eating Pathology Symptoms Inventory** (EPSI; Forbush et al., 2013) is a 45-item self-report questionnaire. It assesses eating disorder behaviours and attitudes using a 5-point Likert scale from 0 (rarely) to 4 (very often). It is comprised of eight subscales each demonstrating high internal consistency: Body Dissatisfaction (α = .87), Binge Eating (α = .87), Cognitive Restraint (α = .80), Purging (α = .86), Restricting (α = .85), Excessive Exercise (α = .88), Negative Attitudes Toward Obesity (α = .90), and Muscle Building (α = .81). A global score was also created for the EPSI by the authors using all items and demonstrated high internal reliability (α = .93). Scores were calculated using means, higher scores indicated greater eating disorder pathology.

3. Results

A canonical correlation analysis was used to explore the relationships between sets of eating disorder symptoms as measured by the EDE-Q and EPSI subscales, for the total sample and for men and women The dependent variables were EPSI: Body Dissatisfaction, EPSI: Binge, EPSI: Cognitive Restraint, EPSI: Purge, EPSI: Restrict, EPSI: Excessive Exercise, EPSI: Negative Attitudes Towards Obesity, and EPSI: Muscle Building. The predictor variables were EDE-Q: Restraint, EDE-Q: Eating Concern, EDE-Q: Weight Concern, and EDE-Q: Shape Concern.

In total, 646 cases were used in the analysis, 10 were removed due to missing data. The relationship between the sets of variables was statistically significant overall, Wilks' $\lambda = .17$, $R_c^2 = .83$, $F(32, 2339.67) = 45.20$, $p < .001$, for men, Wilks' $\lambda = .16$, $R_c^2 = .84$, $F(32, 481.01) = 9.59$, $p < .001$, and for women Wilks' $\lambda = .15$, $R_c^2 = .85$, $F(32, 1779.12) = 37.12$, $p < .001$. All four functions were extracted. Eigenvalues, percentages of variance explained, and the squared canonical correlations for each function (see Table 1). For the total sample, the first function accounted for approximately 79% of the explained variance, and the second function added somewhat more than 16% to that. The dimension reduction analysis indicated that all four functions were statistically significant, but only the first two, which cumulatively accounted for more than 95% of the explained variance, were interpreted. Based on the Cramer−Nicewander (1979) index, approximately 29% of the variance of the dependent variables was explained by the predictor variables. Comparatively, the first predictive function accounted for a greater amount of variance for women than men. Men and women varied on the strength of some of the structure coefficients for the predictor and dependent variables of functions one and two (Tables 2 and 3).

Table 1. Eigenvalues, Cumulative Percentage of Explained Variance, and Squared Canonical Correlations for Each Canonical Function.

	Function	Eigenvalue	Percent of Variance Explained	Squared Canonical Correlation
Total	1	2.46	79.26	.71
	2	0.52	16.89	.34
	3	0.10	3.29	.09
	4	0.02	0.57	.02
Men	1	1.98	69.36	.66
	2	0.46	16.30	.32
	3	0.39	13.73	.28
	4	0.02	0.61	.02
Women	1	2.81	80.80	.74
	2	0.57	16.27	.36
	3	0.80	2.28	.07
	4	0.02	0.65	.02

The first predictor function was associated with higher levels of restraint, shape concern, weight concern, and eating concern (Table 2); the first dependent function was associated with greater body dissatisfaction, cognitive restraint, and binge-eating (Table 3). Taken together, the first function appears to indicate that concerns around appearance and eating behaviours are predictive of controlling thoughts around food, increased binge-eating episodes and greater body dissatisfaction. Interestingly, the strength of the relationship for EDE-Q: Restraint was greater for women than men (Table 2).

Table 2. Structure Coefficients for the First Two Predictor Canonical Variables.

	Total		Men		Women	
Predictor Variable	Function 1	Function 2	Function 1	Function 2	Function 1	Function 2
EDE-Q: Restraint	.73	-.63	.50	-.78	.79	-.56
EDE-Q: Eating Concern	.82	-.27	.66	-.21	.85	-.19
EDE-Q: Shape Concern	.98	.12	.97	-.06	.97	.20
EDE-Q: Weight Concern	.96	.01	.93	-.29	.94	.11

The second predictor function was associated with lower levels of restriction (Table 2). The second dependent function was associated with lower levels of cognitive restraint (Table 3). This second function indicates that lower levels of thoughts of restriction and restrictive behaviours are predictive of lower levels of cognitive restraint around food. The association for body dissatisfaction in the second dependent function was stronger for women than men (Table 3).

Table 3. Structure Coefficients for the First Two Dependent Canonical Variables.

	Total		Men		Women	
Dependent Variable	**Function 1**	**Function 2**	**Function 1**	**Function 2**	**Function 1**	**Function 2**
EPSI:Body Dissatisfaction	.96	.23	.97	-.04	.94	.33
EPSI: Binge	.50	.06	.58	.19	.53	.11
EPSI: Cognitive Restraint	.70	-.61	.60	-.68	.74	-.55
EPSI: Purge	.43	-.40	.35	-.32	.48	-.32
EPSI: Restrict	.38	-.34	.33	-.14	.38	-.37
EPSI: Excessive Exercise	.44	-.34	.32	-.34	.53	-.26
EPSI: Negative Attitudes Towards Obesity	.24	-.17	.37	-.09	.30	-.14
EPSI: Muscle Building	.21	-.10	.32	.01	.30	-.03

4. Discussion

The purpose of this study was to examine the linear relationships between the EDE-Q subscales (Fairburn & Beglin, 1994) and the EPSI subscales (Forbush et al., 2013) using canonical correlation. Results indicate a substantial multivariate association between clinical presentation of eating disorder symptoms (EDE-Q; Fairburn & Beglin, 1994) and cognitions and behaviours associated with eating (Forbush et al., 2013), suggesting these measures capture overlapping but partially distinct constructs. In particular, the first function revealed that concerns about weight, shape, appearance, and food intake leads to more compensatory thought processes and behaviours, and greater body dissatisfaction. The second function noted that lower levels of restriction led to less restrictive thoughts around food. Gender differences indicated could be due to how eating disorder symptoms manifest in men versus women. Women typically engage in more restrictive behaviours such as fasting compared to men (Capuano et al., 2025).

Fairburn et al.'s (2003) Transdiagnostic Cognitive Behavioural Model of Eating Disorders contextualizes the findings of Function 1. People with eating disorders tend to judge themselves based shape, weight, eating, and their ability to control them, leading to an over-evaluation of control over the appearance of one's body. In turn, people with eating disorders address these concerns through restrictive thought patterns and behaviours. Fairburn et al. (2003), and Nikčević et al. (2017) argued that binge-eating occurs due to a breakdown in self-regulation processes; although, the cause for the disruption to self-regulation is debated (i.e., either due to broken rules around consumption as proposed by Fairburn et al., 2003, or exhaustion from the cognitive restriction proposed by Nikčević et al., 2017). Further research also supports the link between restriction and binge-eating episodes. A scoping review by Casari et al. (2025) noted that 53 out of 76 articles presented a relationship between restriction and binge-eating episodes, with negative emotions being one of the common agitators.

The findings from Function 2 indicate that lower rates of behavioural restriction predict lower cognitive restraint. Westenhoefer (1991) suggested that dietary restraint exists on a continuum and is not a single entity, the results of the current study support this conclusion about restraint. These factors could be associated with what Westenhoefer (1991) described as flexible control, with no rigid rules, nor strong monitoring of behaviour and thoughts. Flexible control is described as independent of pathology. Herman and Polivy's (1975) Restraint Theory suggests cognitive and behavioural domains to restraint where greater cognitive restriction predicts increased binge-eating. Function 2 might represent a more general model of restraint capturing both the cognitive and behavioural aspects as noted by Herman and Polivy (1975) and the multidimensional approach suggested by Westenhoefer (1991).

4.1. Conclusion

The current study identified two distinct functions linking the EDE-Q (Fairburn & Beglin, 1994) and the EPSI (Forbush et al., 2013) subscales. Function 1 captured core eating disorder pathology, with overvaluation of appearance and eating leading to greater cognitive restraint, binge-eating, and lower body satisfaction, consistent with Fairburn et al.'s (2003) transdiagnostic model. Function 2 reflected a general dietary control continuum, where lower behavioural restriction was linked to lower cognitive restraint, indicating a non-pathological variation in flexible dietary control consistent with Westenhoefer's (1991) approach to dietary restriction. These findings suggest that while there is distinction between the two scales, they can both reliably capture aspects associated with eating disorders, reinforcing their validity. Further, cognitive and behavioural constraint could be considered an important tool in delineating pathological versus adaptive and/or healthy restraint. Future research should investigate the role of restraint in people with eating disorders versus the general population.

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TOWARDS AN INTEGRATIVE CONCEPTUAL MODEL OF GOOD MENTAL HEALTH IN PEOPLE WITH INTELLECTUAL DISABILITIES

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Abstract

People with intellectual disabilities (ID) are characterised by limitations in intellectual functioning and adaptive behaviour. They are also disproportionately affected by health inequalities. Despite strong normative frameworks, such as the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD), and international commitments to health equity, people with ID are frequently excluded from mainstream health promotion and prevention initiatives and conceptual frameworks of mental health. Consequently, conceptualisations of good mental health for people with ID remain underdeveloped from a theoretical perspective. While recent research increasingly calls for participatory and inclusive approaches, there is still limited integration of lived experience, professional knowledge, and theoretical perspectives into coherent conceptual frameworks. The present contribution addresses this gap by offering an integrative synthesis across multiple empirical studies to advance conceptual and theoretical understanding of good mental health in people with ID. We conducted a secondary synthesis across four complementary studies: a systematic review of the literature (including 37 studies); participatory focus groups with adults with ID (n=20); qualitative interviews with mental health experts (n=12); and an inclusive Delphi study to develop cross-stakeholder consensus (n=60). Findings were comparatively analysed and interpreted in relation to established theoretical approaches. Across data sources, good mental health emerged as a multidimensional and relational construct extending beyond the absence of psychopathology. People with ID emphasised autonomy, belonging, emotional safety, meaningful participation, and respectful relationships. Experts similarly highlighted relational and contextual dimensions but placed greater emphasis on functioning, adaptation, and service-related outcomes. Importantly, the systematic review identified no explicit conceptualisations of good mental health for people with ID; although wellbeing was frequently referenced, good mental health was not defined as a distinct construct, nor were lived-experience perspectives incorporated. Based on this synthesis, we propose a multidimensional conceptual model of good mental health for people with ID foregrounding psychological, relational, environmental, and capability-related dimensions. This model bridges lived experience and professional knowledge and can inform future theory development, inclusive research practices, assessment frameworks, and the design of mental health promotion and support services aligned with the priorities and rights of people with ID.

Keywords: *Intellectual disability, learning disability, mental health, participatory research, wellbeing.*

1. Introduction

People with intellectual disabilities (ID) experience substantial health and mental health inequalities, including higher prevalence of physical and mental health problems, and reduced access to appropriate care and prevention services (Platt et al., 2019; Zeilinger et al., 2025). These disparities persist despite international policy frameworks such as the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD), which emphasises the right to the highest attainable standard of health and equitable access to healthcare and public health programmes (United Nations, 2006). Addressing these inequalities requires not only improved services but also clearer conceptualisation of what constitutes good mental health in this population.

Historically, research on mental health in people with ID has focused primarily on psychiatric disorders and behavioural problems. As a result, "mental health" is often equated with the absence of psychopathology rather than encompassing positive dimensions of functioning (Atanasova et al., 2019). Although positive constructs such as wellbeing and quality of life are increasingly studied (Albaum et al., 2021), explicit conceptualisations of good mental health tailored to people with ID remain underdeveloped.

Contemporary mental health frameworks conceptualise mental health as more than the absence of disorder and as including positive psychological functioning (Galderisi et al., 2015). The dual-continua model further distinguishes mental health and mental illness as related but distinct dimensions (Keyes, 2005). Closely related constructs such as wellbeing (Seligman & Csikszentmihalyi, 2000) and quality of life (Schalock, 2004) overlap conceptually but operate at different analytical levels. However, these distinctions are often blurred in ID research, limiting conceptual clarity. Although some research has been conducted in the field of intellectual disability on related constructs such as quality of life and wellbeing, none of this has targeted good mental health directly (Albaum et al., 2021).

Conceptual precision is particularly important because outcomes for people with disabilities emerge through interactions between individual characteristics and social environments rather than impairments alone (Mckenzie, 2013). Despite growing attention to wellbeing and participation, there remains no coherent, empirically grounded model defining good mental health for people with ID that integrates lived experience, professional perspectives, and theoretical frameworks. This gap limits the development of appropriate assessment tools, promotion strategies, and inclusive services.

To address this gap, the present paper develops a conceptual model of good mental health in people with ID through an integrative synthesis of multiple empirical studies conducted within a broader research programme. By combining evidence from a systematic review, participatory research with adults with ID, expert interviews, and an inclusive Delphi process, the study seeks to refine the conceptualisation of good mental health and provide a framework to inform future theory development, research, and mental health promotion in this population.

2. Methods

2.1. Study design

This paper presents an integrative conceptual synthesis of four complementary empirical studies examining good mental health in people with ID. Findings from the studies included were comparatively examined to derive higher-order conceptual dimensions of good mental health. Integration occurred at the conceptual level. Reported themes, categories, and consensus statements were systematically compared to identify convergences, divergences, and overarching patterns across stakeholder perspectives. All primary studies received ethical approval from the relevant institutional review boards. The present synthesis is based exclusively on previously published findings and did not involve new data collection.

2.2. Empirical basis

The synthesis draws on four studies, conducted between 2024 and 2025 that explored good mental health in people with ID from complementary perspectives. First, a systematic review (Komenda-Schned et al., 2024) examined conceptualisations of good mental health in the scientific literature. The review included 28 studies and revealed substantial conceptual heterogeneity and identified a lack of explicit definitions of good mental health tailored to people with ID. Second, a participatory focus group study (Komenda-Schned, Landskron, Moritz, Braunstein, Hochmeister, Riegler, Saugspier, Hillenkamp, et al., 2025) involving 20 adults with ID explored lived-experience perspectives. Third, semi-structured interviews with 12 mental health professionals working in the field of ID examined professional perspectives on good mental health (Komenda-Schned, Moritz, Landskron, Herscovici, Schomburg, Lehner, Lueger-Schuster, Salvador-Carulla, et al., 2025). Fourth, a Delphi study with an inclusive approach and an iterative rating process involved 60 participants, including adults with ID and mental health professionals (Komenda-Schned, Landskron, Moritz, Braunstein, Hochmeister, Riegler, Saugspier, Lueger-Schuster, et al., 2025).

2.3. Conceptual integration

The synthesis followed a structured interpretive process. Conceptual elements related to good mental health were extracted from each study and comparatively mapped to identify recurring themes, differences between stakeholder perspectives, and overarching patterns. These elements were then abstracted into higher-order conceptual dimensions. The interpretation was informed by relevant theoretical perspectives, including social-ecological, capability-oriented, and rights-based approaches to disability. No primary data were re-analysed.

3. Results

3.1. Conceptual landscape and theoretical gaps in the literature

The synthesis revealed that good mental health in people with ID is rarely conceptualised as a distinct theoretical construct in the existing literature. Instead, mental health is commonly framed in terms of symptom reduction, behavioural stability, or broadly defined wellbeing, often drawing on general population frameworks without systematic adaptation to the specific social and structural conditions experienced by people with ID. As a result, conceptual boundaries remain blurred and good mental health is frequently conflated with the absence of disorder or with general wellbeing. These findings indicate a structural gap: the absence of a clearly articulated, rights-sensitive, and multidimensional conceptualisation grounded in both empirical evidence and lived experience.

3.2. Cross-stakeholder conceptual patterns

The comparative analysis of findings across participatory data, expert perspectives, and consensus processes revealed recurring conceptual patterns. Across stakeholder groups, good mental health was consistently associated with:

- autonomy and supported self-determination,
- belonging and relational embeddedness,
- emotional safety and recognition,
- meaningful participation, and
- access to supportive and accessible environments.

Although the emphasis differed between groups, with professionals placing greater emphasis on stability, coping and system responsiveness, there was substantial convergence regarding the multidimensional and context-dependent nature of the construct. Notably, lived-experience perspectives shifted the conceptual centre of gravity towards dignity, agency, and relational security, whereas professional accounts emphasised functional support and structural provision. The synthesis shows that these perspectives complement each other rather than competing with each other.

3.3. Integrated conceptual model

Through iterative abstraction and theoretical integration, cross-study findings were condensed into four higher-order dimensions contributing to good mental health in people with ID. (1) The psychological dimension encompasses emotional regulation, positive emotional experiences, and coping within contextual constraints. (2) The relational dimension encompasses belonging, social recognition, supportive relationships and interpersonal respect. (3) The environmental/structural dimension encompasses accessibility, safety, non-discrimination and responsive support infrastructures. (4) The capability-based dimension encompasses real opportunities for self-determination, participation and agency in everyday life.

The model conceptualises good mental health as emerging from the interaction of these dimensions within specific social and structural contexts. The focus shifts from individual-level attributes to relational and capability-enhancing conditions. The synthesised evidence suggests that good mental health in people with ID can be characterised as a positive construct, constituted through relationships, influenced by structural factors, and grounded in autonomy and dignity.

4. Discussion

This study advances the conceptual understanding of good mental health in people with ID by proposing a multidimensional framework that conceptualises mental health as a relational and contextually embedded phenomenon rather than merely the absence of disorder. The findings suggest that good mental health in people with ID cannot be adequately understood through symptom-oriented or purely individualistic perspectives. Instead, the proposed model highlights the interaction between psychological experiences, relational contexts, environmental conditions, and opportunities for self-determination. This perspective aligns with broader developments in contemporary mental health theory, which increasingly conceptualise mental health as a positive and multidimensional construct (Galderisi et al., 2015).

Within ID research, however, such perspectives have remained comparatively underdeveloped, as the literature has largely focused on psychiatric disorders, behavioural problems, and service provision (Atanasova et al., 2019). The present model conceptualises mental health as emerging through interactions between individuals and their social environments. In this sense, good mental health is understood not only as a psychological state but also as a relational and structurally embedded phenomenon, supporting an interactive model of disability (Mckenzie, 2013).

4.1. Practical implications

The proposed model has implications for research, services, and policy aimed at promoting mental health in people with ID. For research and assessment, the findings highlight the importance of multidimensional approaches that extend beyond symptom-oriented measures and include relational and contextual factors such as belonging, supportive relationships, social recognition, and perceived safety. Multi-informant approaches may be particularly valuable given the diversity of communication abilities and support needs within this population.

For practice and policy, the findings indicate that promoting good mental health requires more than the treatment of mental illness. Supportive environments that foster autonomy, meaningful participation, and respectful relationships appear central. Integrating the mental health of people with ID into public mental health strategies and ensuring the accessibility of health promotion programmes are therefore important steps toward reducing mental health inequalities.

4.2. Strengths and limitations

A major strength of this study is the integration of multiple empirical approaches – including a systematic review, participatory focus groups with adults with ID, expert interviews, and an inclusive Delphi process – which enabled the combination of lived experience and professional perspectives within a shared framework. The participatory design further strengthens the study, as the involvement of people with ID ensured that their experiences and priorities shaped the conceptualisation of good mental health.

However, several limitations should be noted. As a secondary conceptual synthesis, the study relies on existing empirical work and requires further validation. The underlying studies were conducted in specific contexts and samples, limiting generalisability. Future research should test the applicability of the proposed dimensions across settings and operationalise the model for measurement and intervention purposes.

5. Conclusion

This study contributes to advancing the conceptual understanding of good mental health in people with ID by proposing a multidimensional model that integrates psychological, relational, environmental, and capability-related dimensions. By synthesizing findings from multiple empirical studies and incorporating both lived-experience and professional perspectives, the model provides a structured conceptual framework for mental health in this population.

The findings highlight that good mental health in people with ID emerges not only from individual psychological functioning but also from supportive relationships, inclusive environments, and opportunities for participation and self-determination, underscoring the importance of relational and structural conditions for future research, measurement development, and mental health promotion. Strengthening conceptual clarity in this area is an important step toward developing more inclusive mental health research and policies that better reflect the experiences, rights, and needs of people with ID. Ultimately, advancing such perspectives may help shift the field from deficit-oriented understandings toward a more inclusive conception of mental health that recognises the relational, structural, and capability-based conditions that enable people with ID to live well.

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INTOLERANCE OF UNCERTAINTY AS A PERSONAL VULNERABILITY FACTOR IN WORK ENGAGEMENT AND BURNOUT

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Abstract

Personal resources are among the most effective predictors of work engagement and serve as important protective factors against job demands and burnout. In contrast, higher intolerance of uncertainty (IU) is associated with negative self-evaluations and reduced self-efficacy, which may limit individuals' ability to effectively mobilize these personal resources. Based on this background, the present study examined whether baseline intolerance of uncertainty predicts initial levels and longitudinal changes in work engagement and burnout. The sample consisted of 353 employed participants (mean age = 47.17 years; 64.3% women) who completed all three waves of data collection. Measurements were conducted approximately four months apart (T1: October 2024; T2: January 2025; T3: May 2025). Work engagement was assessed using the Utrecht Work Engagement Scale (UWES), burnout using the Burnout Assessment Tool (BAT), and intolerance of uncertainty using the Intolerance of Uncertainty Scale (IUS). Latent growth curve models (LGCMs) were estimated separately for work engagement and burnout using robust maximum likelihood estimation. Linear intercept and slope factors were specified, and baseline IU was included as a predictor of both initial levels and change over time. Results showed that higher baseline IU was associated with lower initial levels of work engagement, indicating that individuals who perceive uncertainty as threatening tend to report lower engagement overall. However, IU did not significantly predict changes in engagement over time. For burnout, higher baseline IU was associated with higher initial burnout levels, reflecting an opposite pattern compared to engagement. Moreover, IU showed a small but negative association with the burnout slope, suggesting slightly less favorable burnout trajectories among individuals higher in IU. Across both models, average linear change was modest and individual differences in change were limited. Overall, intolerance of uncertainty appears to function primarily as a baseline vulnerability factor for employee well-being rather than as a strong driver of longitudinal change. These findings highlight IU as a relevant individual difference linked to sustained levels of work engagement and burnout, with potential implications for interventions aimed at supporting employee well-being in uncertain work contexts.

Keywords: *Intolerance of uncertainty, burnout, engagement.*

1. Introduction

According to the Job Demands–Resources (JD-R) model, job demands and job resources can initiate two primary processes. In the health-impairment process, frequent or severe job demands require sustained effort that progressively drains employees' physical, emotional, and cognitive resources, potentially resulting in exhaustion and health problems (Bakker et al., 2023). Burnout, as defined by Schaufeli et al. (2020), represents a work-related state of exhaustion that occurs among employees and is characterized by extreme tiredness, a reduced ability to regulate cognitive and emotional processes, and mental distancing from work.

The motivational process describes how job resources satisfy basic psychological needs and foster employee work engagement. The experience of work engagement subsequently leads to creativity and improved performance (Bakker et al., 2023). In this context, work engagement is understood as a positive work-related state reflected in feeling energetic, connected to one's work, and capable of performing work duties effectively (Schaufeli et al., 2006; Soane et al., 2012).

Intolerance of uncertainty refers to an individual's tendency to perceive possible future negative situations as threatening, regardless of the likelihood that they will actually occur. This tendency relates primarily to future situations and stimuli rather than to events occurring in the present moment (Carleton et al., 2007; Birrell et al., 2011). Its core components include a desire for predictability (prospective anxiety) and behavioural paralysis when confronted with uncertainty (inhibitory anxiety) (Berenbaum et al., 2008; Birrell et al., 2011).

Several theoretical considerations support a potential link between intolerance of uncertainty, work engagement, and burnout. Regarding engagement, personal resources have been shown to be among the most effective predictors of engagement (Mazzetti & Guglielmi, 2023; Contreras et al., 2020; Kim & Hyun, 2017). However, the availability of such resources may be limited in individuals with high intolerance of uncertainty. Personal resources such as optimism and self-efficacy may be lower for individuals who perceive uncertain situations as threatening (Muchová & Nosáľová, 2025; Sevari, 2021; Uzun & Karataş, 2020). Similarly, personal resources also play a crucial protective role in relation to burnout (Contreras et al., 2020). In addition, previous research has documented associations between intolerance of uncertainty and burnout, although this evidence primarily concerns academic burnout (Javed et al., 2025; Qiang et al., 2024).

The present study therefore aimed to examine whether intolerance of uncertainty predicts initial levels of burnout and work engagement, as well as longitudinal changes in these constructs. We expected intolerance of uncertainty to be negatively associated with both the initial levels and changes in work engagement and positively associated with burnout.

2. Methods

2.1. Sample and procedure

The final sample included 353 employed participants (mean age = 47.17 years; 64.3% women) who completed all three waves of data collection. Data were collected at three time points approximately four months apart (T1: October 2024; T2: January 2025; T3: May 2025).

2.2. Measures

Work engagement was assessed using the 9-item Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006).

Burnout was measured using the short 12-item version of the Burnout Assessment Tool (BAT; Schaufeli et al., 2020), which focuses on the core symptoms of burnout.

Intolerance of uncertainty was assessed using the 12-item Intolerance of Uncertainty Scale (IUS-12; Carleton et al., 2007).

2.3. Analyses

Latent growth curve models (LGCMs) were estimated separately for work engagement and burnout using robust maximum likelihood estimation. Linear intercept and slope factors were specified to model initial levels and change over time. Intolerance of uncertainty measured at the first wave was included as a predictor of both the intercept and slope factors. Work engagement and burnout were assessed at all three time points.

3. Results

As shown in Table 1, a latent growth curve model was estimated to examine whether baseline intolerance of uncertainty predicts initial levels and change in work engagement. The model showed acceptable fit to the data ($\chi^2(2) = 25.68$, $p < .001$, CFI = .97, TLI = .91, RMSEA = .18, SRMR = .03). Higher intolerance of uncertainty was associated with lower initial levels of work engagement ($b = -0.28$, SE = 0.09, $\beta = -.19$, $p = .001$). However, intolerance of uncertainty did not significantly predict changes in engagement over time ($b = -0.03$, SE = 0.03, $\beta = -.14$, $p = .281$). The mean slope was positive and significant, indicating a small increase in work engagement across the three waves.

Table 1. Latent Growth Curve Model Predicting Work Engagement from Intolerance of Uncertainty.

Parameter	b	SE	β	p
Intercept (mean)	4.28	0.29		< .001
Slope (mean)	0.22	0.09		.013
IUS (T1) → Intercept	−0.28	0.089	−0.19	.001
IUS (T1) → Slope	−0.03	0.029	−0.14	.281

Model fit: $\chi^2(2) = 25.68$, $p < .001$; CFI = .97; TLI = .91; RMSEA = .18; SRMR = .03.

As shown in Table 2, a second latent growth curve model was estimated to examine whether baseline intolerance of uncertainty predicts initial levels and change in burnout. The model demonstrated good fit to the data ($\chi^2(2) = 6.42$, $p = .040$, CFI = .99, TLI = .98, RMSEA = .08, SRMR = .02). Higher intolerance of uncertainty was associated with higher initial levels of burnout ($b = 0.46$, SE = 0.05, $\beta = .53$, $p < .001$). Intolerance of uncertainty also showed a small negative association with the burnout slope ($b = -0.04$, SE = 0.02, $\beta = -.28$, $p = .038$), indicating slightly less favourable burnout trajectories among individuals with higher intolerance of uncertainty. The average slope was not significant, suggesting no overall linear change in burnout across the three waves.

Table 2. Latent Growth Curve Model Predicting Burnout from Intolerance of Uncertainty.

Parameter	b	SE	β	p
Intercept (mean)	0.99	0.14		< .001
Slope (mean)	0.10	0.07		.126
IUS (T1) → Intercept	0.46	0.05	.53	< .001
IUS (T1) → Slope	−0.04	0.02	−.28	.038

Model fit: $\chi^2(2) = 6.42$, $p = .040$; CFI = .99; TLI = .98; RMSEA = .08; SRMR = .02.

4. Discussion

The present study examined whether intolerance of uncertainty predicts initial levels and longitudinal changes in work engagement and burnout. Consistent with expectations, higher baseline intolerance of uncertainty was associated with lower initial levels of work engagement and higher initial levels of burnout. These findings align with previous research indicating that personal resources are among the strongest predictors of engagement and serve as protective factors against burnout (Contreras et al., 2020; Mazzetti & Guglielmi, 2023; Kim & Hyun, 2017). Individuals with higher intolerance of uncertainty may perceive uncertain situations as more threatening, which may be associated with lower levels of optimism or self-efficacy and consequently lower engagement (Muchová & Nosáľová, 2025; Sevari, 2021; Uzun & Karataş, 2020).

However, intolerance of uncertainty did not significantly predict changes in engagement over time, and overall change in engagement was modest. Similarly, although intolerance of uncertainty showed a small association with change in burnout, average burnout levels did not change significantly across the study period. These findings suggest that intolerance of uncertainty may function primarily as a baseline vulnerability factor rather than as a strong driver of longitudinal change in employee well-being.

One possible explanation for the limited changes observed over time is the relative stability of both engagement and burnout in working populations. Previous research has shown that burnout profiles may remain structurally stable over time, with different configurations of burnout characteristics reflecting distinct developmental pathways (Boersma & Lindblom, 2009). Within the JD-R framework, both engagement and burnout are influenced not only by personal resources but also by relatively stable job characteristics such as organizational culture, leadership, and workload (Bakker et al., 2023). If work environments remain stable, large longitudinal changes in these outcomes may be unlikely.

Overall, the results highlight intolerance of uncertainty as an individual difference primarily associated with baseline levels of work engagement and burnout rather than with substantial longitudinal change. However, these findings should be interpreted with caution given the relatively limited changes observed over time and the less-than-ideal fit of the engagement model, particularly the elevated RMSEA value. Future research could further clarify these dynamics by examining contexts in which job demands and resources change more substantially, such as during job transitions or organizational restructuring. Such designs may provide a stronger test of whether intolerance of uncertainty interacts with changing work environments to influence trajectories of employee well-being.

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FAITH AS A WAY TO FIND MEANING IN PREGNANCY LOSS: REPORT FROM THE INTERVIEWS WITH COUPLES AFTER MISCARRIAGE

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Abstract

Child loss is one of the greatest losses reported (Sanders, 2013). A particularly specific form of child loss is loss during pregnancy. Among these types of losses, miscarriage is one of the most controversial. For some people it represents a profound loss; for others it is perceived as biology doing its work. This makes it an especially interesting topic, considering that nearly 20% of all pregnancies end in miscarriage. In his book Finding Meaning: The Sixth Stage of Grief (2022), David Kessler expands on Elisabeth Kübler-Ross's (2021) concept of the stages of mourning. He demonstrates that it is quite common for people to move beyond Acceptance. In presented research four couples after the experience of miscarriage were interviewed. The semi-structured interviews were conducted with both partners simultaneously. The Interpretative Phenomenological Analysis (IPA) qualitative method was used to interpret the data as it is particularly well suited to sensitive topics of this kind (Piętkiewicz & Smith, 2012). The couples who believed in God were recruited by the snowball method. God was described as the one who gave the child and had the right to take the child back; as a source of consolation and hope; and as a force that is not entirely understandable. In this article it will be discussed that for couples interviewed, the faith may represent the deeper sense and meaning described by Kessler. The conclusions from the interviews will be used to show how these findings may be particularly useful for therapists working with couples after miscarriage.

Keywords: *Miscarriage, interview, couple, faith, meaning.*

1. Introduction

Talking about loss and grief is difficult. The interviews conducted in this research were the opportunity not only to listen to two perspectives but also to witness a special kind of meeting between the two people who suffered the loss differently. Although the conversations focused primarily on the personal experience of loss and how it affected the relationship between man and woman, faith in God emerged in every meeting by couples themselves. Faith was reported by both partners, although the ways in which it was expressed differed. Many people feel a need to search for meaning and make sense of their experiences, particularly the most difficult ones. In this study there was an impression as if the meaning was held by two people simultaneously and that it was found in faith.

1.1. Child loss

The loss of a child is, in the vast majority of cases, a boundary situation in the sense described by Karl Jaspers (Szałek, 2006). It pushes a person to the edge and forces them to confront something for which no preparation was possible and which exceeds their existing personal resources. The loss of a child during the prenatal period is a particular type of child loss (Sanders, 2001) that evokes a wide range of emotions. Miscarriage, in turn, is a very specific form of prenatal child loss. Extremely common (statistics vary between countries, but it is estimated that 15–25% of all pregnancies end this way) (WHO), miscarriage is experienced very differently depending on the circumstances and the characteristics of the individuals affected. It is especially painful when the pregnancy is desired and experienced as something positive (Gerber-Epstein, Leichtentritt & Banyamini, 2008), when both partners were expecting and preparing for the arrival of a child. The development of modern diagnostics and medicine means that the awareness of "being pregnant" activates all the associated psychological processes even when a miscarriage occurs at 6, 8, or 10 weeks of pregnancy. Piontelli (2013) claims that advances in modern medical technology can, in some cases, make the experience of loss even more difficult. From the perspective of a value system grounded in the Catholic faith, life begins at conception—therefore, it can be expected that believing

couples who lose a pregnancy, even at an early stage, will perceive this experience as the loss of a child (Dziedzic, 2022).

1.2. Terminology

There are at least a few ways to describe a loss of a child during pregnancy. The definitions may differ according to the health system regulations of a given country (especially regarding the period of pregnancy in which the loss occurs.) In Polish terminology there are two basic kinds: (1) miscarriage- death of an embryo or fetus before the 22 week of gestation, (2) Stillbirth - defined as death of a fetus before it is entirely outside of the mother's system (Bręborowicz, 2012).

1.3. Epidemiology

According to the World Health Organization (WHO), between 10% and 15% of all pregnancies in which a woman was aware of being pregnant end in miscarriage worldwide. Each year in Poland more than 40 000 women experience miscarriage (which means around 10% of pregnancies.) 80% of miscarriages occur before the 14th week of gestation, 20% (around 8000) happen later in the pregnancy. 2000 families experience the birth of a stillborn (GUS).

1.4. Psychology connected with loss

The loss of a loved one is one of the most traumatic experiences a person can face. Not without reason, it ranks at the top of the list of stressful life events in the classic Holmes and Rahe scale (1967). The loss of a child, however, is a very specific type of loss that may be associated with even more serious consequences (e.g., a much higher incidence of complicated grief) (Sanders, 2001). But what happens when that child did not exist socially even to the extent of a gradually growing pregnant belly? What if the presence of that child is expressed only by two lines on a pregnancy test and perhaps a blurry image of a tiny gestational sac in the uterus? Miscarriage especially early miscarriage occurring in the first trimester (and therefore the most common) is precisely such a specific kind of loss. It is difficult to define clearly, experienced very differently depending on an individual's beliefs and values, and full of ambivalence. Additionally, it is a type of loss that is often explained in terms of the rules of the world, biological processes, and the laws of nature forces that are, after all, difficult to argue with (Frost, Bradley, Levitas, Smith & Garcia, 2007). And yet, there is substantial evidence that miscarriage can be experienced on a psychological level in a way similar to other losses of loved ones. It seems that even the moment of seeing two lines on a pregnancy test is associated with a range of thoughts, feelings, hopes, and plans in both partners (Raphael-Leff, 2018). All of these processes are suddenly (and usually unexpectedly) interrupted at the moment of miscarriage. For those who experience miscarriage, what often proves most painful is the intense sense of loss (DeFrain, Millspaugh & Xie, 1996).

1.5. The differences between men and women

Women and men differ in how they experience miscarriage. Women are much more likely to experience intense emotions, particularly sadness and anger. They are often self-focused and feel a strong need to occupy themselves, to keep their hands busy. Many of them respond to the experience of miscarriage and hospitalization with an acute stress reaction, and in some cases (especially following negative hospital experiences), PTSD may develop (Neugebauer, Kline, O'Connor, Shrout, Johnson, Skodol, Wicks & Susser, 1992). The loss of a child can also lead to suicidal thoughts or even attempts (McCarthy, 2002). Men tend to experience miscarriage somewhat differently. For them, it is also associated primarily with a profound sense of loss, but more specifically, it is often the loss of future hopes (Frost et al.., 2007). They often organize support, communicate with medical staff, handle formalities and administrative matters, seek information, and transport their partner from place to place. They are also more focused on their partner and her way of coping than on themselves and their own emotions. Many report feeling that "someone has to stay strong" (Murphy, 1998).

1.6. Finding meaning

"The will to meaning is the most fundamental motivating force in human beings." These words of the Austrian psychiatrist Viktor Frankl (2009) illustrate why the drive to find meaning can be so powerful, even in the most abstract and difficult circumstances. One such unimaginable situation is the loss of a loved one. David Kessler (2022), a close collaborator of Elisabeth Kübler-Ross (2021), continued the line of thinking about the stages people go through in grief and concluded that many of them do not end their journey at the stage of acceptance. In his book *The Sixth Stage of Grief*, he presents numerous examples supporting the idea that people are capable of doing a great deal in order to find meaning in the death of a loved one. The author notes that "meaning allows us to move beyond mere pain" and recounts stories of individuals who establish foundations, organize events, find meaning in their work, advocate for legal

changes, or create television programs addressing important issues. One of the ways of finding meaning that he mentions repeatedly is through reference to faith and one's relationship with God. He emphasizes, however, that this can take very different forms- from a crisis of faith and arguments with God to a strengthening of faith or even a profound conversion.

2. Method

2.1. IPA

Interpretative Phenomenological Analysis (IPA) (Smith, Flowers, Larkin, 2009) is a qualitative method used in psychology. IPA is a method frequently used in health psychology, as it is well suited to many contexts of individual experience related to suffering or illness. The key goal is acquiring a rich and detailed first person narrative of the experiences and phenomena the study focuses on (Piętkiewicz, Smith, 2012.) An important assumption of the method is the researcher's attentiveness to identifying the individual meaning of the participants' experiences.

2.2. Subjects

The participants in the study were four married couples. All couples had experienced a miscarriage within the two years preceding the interview. Two of the couples had also experienced a previous miscarriage. One of the women was pregnant again following the miscarriage, and all of the remaining couples also had living children. All marriages consisted of individuals who believed in God and practiced within the Catholic Church. Participants were recruited using the snowball sampling method within a community of religious mothers.

2.3. Procedure

The interviews were based on a semi-structured format, allowing for flexibility in following important themes introduced by the participants. In two cases, the interviews were conducted in the participants' homes at a table, and in two cases via the Zoom platform on a computer (the interviews took place around the time of the pandemic, and planned in-person meetings could not be held). The interviews focused primarily on the individual experiences of both spouses, as well as on the impact of the loss on the couple's relationship. An additional question concerning faith was included if such a theme was introduced by one of the partners. The interviews lasted between 40 and 60 minutes and were audio-recorded. Both spouses were encouraged to provide their own personal responses to the questions included in the interview guide.

3. Results

3.1. Greater ambivalence among women and greater clarity among men

Women more frequently describe feelings of rebellion against God, raise questions about why they experienced the loss, and refer to a sense of confusion and periods of being overwhelmed by intense emotions. Men, on the one hand, appear to focus on their partners and tend to limit their own immersion in difficult emotions (which is consistent with the research findings cited above). On the other hand, they seem to be more closely aligned with established religious beliefs and a more structured, logical interpretation of events. They demonstrate greater clarity regarding the role of God in what has occurred and appear to find comfort in such interpretations more readily. Interestingly, women who have experienced miscarriage more than once seem, following a subsequent loss, to adopt an approach somewhat more similar to that of men. Interestingly, grounding interpretations in faith among men does not preclude consideration of medical, biological, or statistical explanations associated with miscarriage.

"(...) during my first miscarriage, it took me a very long time to recover (...) At that time, I went through about three months of very intense struggle; I experienced a crisis of faith. Here [after the second miscarriage], however, I felt a kind of acceptance — that it was okay that it had happened. I felt sadness (...), but overall I did not experience the same level of pain or a sense that everything was collapsing (...). It was easier for me to come to terms with it." M., mother

3.2. The influence of men's faith on women's experience and interpretation of loss

An interesting phenomenon observed in the interviews was the significant influence of the male partner's experience of faith on his partner. Listening to these accounts created the impression that the man's faith-related reflections became, at a certain point, a source of support and a kind of compass for his partner. They seemed to offer something she could hold on to. Ultimately, this form of exchange appeared to bring partners closer together and to strengthen their relationship.

"I think the context of faith is crucial here. (...) I was also struggling with questions about God (...), because I knew that God is good, that God gave Hania life out of love… and I was grappling with the question: 'So why did He take it away?' And (...) I began to talk about this with Joachim. I remember being deeply moved when he said to me: 'You know, from our perspective, we have lost Hania. But from God's perspective, she is in the happiest place (...). We are, in a way, broken because we are going through this, but she is alive (...).' This was also something we gained very strongly. Our marriage (...) this loss brought us much closer. I had been carrying this question (...) struggling with it on my own, but when I opened up to Joachim, I found an answer." A. mother

3.3. God as One who…

In the face of prenatal loss, even at an early stage, couples draw on a shared system of values and the spiritual dimension of this experience. At different paces and sometimes using different language, both partners come to interpret the event in relation to God and their relationship with Him. God is experienced as One who: (1) determines life and death; (2) can give but can also take away; (3) brings forth good even from the most difficult events and circumstances; (4) sees more and further than human beings; and (5) offers a place for the deceased loved one that is better and free from suffering, in contrast to this world. The following excerpts from male participants illustrate this type of thinking:

"(...) the question of how faith helps—I'd specify that it depends on the kind of faith. It actually took me quite a long time to arrive at the way of thinking (...) that everything we have—like it says in the psalms, that the whole world belongs to God—and that everything material we receive is entrusted to us; it is not really ours. (...) We are all children of God, and this child, too, is entrusted to our care. God does not materialize here on earth to take care of the child Himself, but gives the child to us. So, of course, we are directly connected—flesh of our flesh—but ultimately we will return the child. Even for someone who does not believe, this usually ends with the child growing into adulthood, doesn't it?" M., father

"It was an approach in which faith provided a greater sense of peace—if this happened, then it was meant to happen, and it is good that it happened; it is the best possible outcome for the child in this situation. Perhaps the child was meant to live for nine weeks or six weeks and was needed to come into existence. Its presence—and also its passing—brings a great deal of good into our lives. The second time, faith brought a sense of hope and a strong feeling of meaning in all of this—that there is a larger plan, even if we cannot see it now. We can only see the road up to the first turn, not what lies at the end." N., father

"There is a kind of trust in God… Because if, for example, I did not believe in God and thought that I was the master of my own fate, I would probably conclude that this makes no sense (...) that the child simply died—why? But since I believe in God, I think I do not have a right to the child; the child is a gift from God. And if I see the child as a gift from God, then I cannot be angry or regret not receiving something that was never mine. I simply concluded that, somehow, this was God's will—and that is all." L. father

3.4. Divergence

Another theme emerging from the interviews lies at the intersection of the marital relationship and the emotional–spiritual dimension of miscarriage. At times, women reported a sense of "divergence" or "being out of sync" with their husbands in how the loss was experienced and in their ability to go through it together. This referred to differences in emotional processing, occasional avoidance of shared conversations, and limited mutual sharing of experiences. For one participant in particular, it was difficult to accept what she perceived as a lack of sadness and difficult emotions in her husband, or perhaps an overreliance on logic and a rapid move toward interpretations emphasizing meaning and value in the experience.

"[After the first loss] I did not feel that my husband was a source of support for me; rather, I felt misunderstood... (MHS: Mhm.) ...very much so, because I felt a kind of resentment toward him—that he was not grieving as much as I was (...) And that, for him, it was not as significant a loss as it was for me—it was an enormous loss for me. There is also the matter of faith, as I relate to it somewhat differently than he does (...) when it comes to faith. So I do not involve God in this—I see this world as imperfect, as it is. There is death and, well, I do not know, it remains a mystery to me." E. mother

4. Discussion

The results of this qualitative study, along with the spiritual reflections and interpretations expressed by participants, can be related to the assumptions formulated by David Kessler (SOURCE), namely that for many individuals, comfort in grief is found through the discovery of meaning within their

system of values and faith. Thoughts related to a higher power may provide a sense of solace and facilitate a deeper understanding of the circumstances surrounding a difficult experience. They may also foster hope and allow individuals to integrate the loss into their existing value system, for example through prayer and by addressing their deceased child within it.

"We are still, in a way, searching, right? We pray through her intercession. We believe that we have, well, a little saint in heaven, so in a sense we have someone of our own there. [laughter]"

A limitation of this study was the relatively homogeneous sample, consisting exclusively of believers affiliated with a single church. It is possible that a larger, quantitative study conducted on a more diverse sample—including both believers and non-believers—would allow for a broader examination of meaning-making processes through various strategies and mechanisms. It would also be valuable to deepen the analysis of the interplay between spiritual and emotional experiences, both at the individual level and within the partner relationship. These two domains appear to interact in multiple ways.

Nevertheless, the findings of the present study may provide useful guidance for practitioners, particularly therapists working with couples following miscarriage. In light of research indicating an increased risk of relationship dissolution after such experiences (Serano & Lima, 2006), it seems particularly important to encourage couples to engage in shared dialogue about their loss. All couples participating in this study expressed appreciation for having had the opportunity to discuss their experience in this format. Additionally, jointly exploring the meaning of this difficult event within a therapeutic context may prove especially valuable.

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EMOTION REGULATION NETWORKS IN YOUTH WITH CHRONIC ILLNESSES: A NETWORK ANALYSIS

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Abstract

Chronic illnesses in youth affect not only physical health but also emotion regulation and psychological well-being. This study examined differences in emotion regulation networks between young individuals with chronic conditions and healthy peers. Data from 460 participants aged 8–25 years (160 with chronic illness, 300 healthy) were analyzed using Gaussian Graphical Models. Networks included cognitive emotion regulation strategies and symptoms of depression, anxiety, and stress. Results showed that the chronic illness group exhibited a more densely interconnected network, with maladaptive strategies strongly linked to depressive and anxiety symptoms. Adaptive strategies displayed lower centrality, suggesting limited regulatory influence. In contrast, the healthy network was less dense and more balanced, with adaptive strategies more central and weaker associations between maladaptive cognition and negative affect. Stress emerged as a key node in both groups, while irrational thinking acted as a bridging node in the chronic illness network. These findings highlight the role of maladaptive cognition in emotion regulation difficulties among youth with chronic illness and suggest potential targets for psychological interventions.

Keywords: *Emotion regulation, chronic illness, network analysis, youth.*

1. Introduction

Chronic illness in childhood and young adulthood imposes substantial psychological and social challenges alongside physical symptoms. Affected individuals often experience increased levels of anxiety, depression, and difficulties in emotion regulation (Katon, 2011; Pinquart, 2020), driven by factors such as chronic pain, disrupted routines, and family stress ((Mastorci et al., 2025).

Emotion regulation (ER) is a key developmental process linked to mental health outcomes (Silvers, 2022). Disruptions in ER are associated with heightened vulnerability to internalizing disorders, particularly during adolescence, a critical developmental period for emotional and neural maturation (Chaplin et al., 2021; Pozzi et al., 2021). However, traditional approaches often treat ER strategies as independent variables, overlooking their dynamic interactions.

Network analysis offers a framework for conceptualizing ER as a system of interconnected components, allowing the examination of how cognitive strategies and affective symptoms co-occur (Armstrong et al., 2016; Ruan et al., 2023). Comparing networks between youth with chronic illness and healthy peers may reveal distinct patterns underlying psychological vulnerability.

This study aimed to compare (1) overall network density, (2) associations between maladaptive strategies and affective symptoms, and (3) the centrality of adaptive strategies across groups.

Hypotheses:

H1: Higher network density in the chronic illness group.

H2: Stronger links between maladaptive strategies and anxiety/depression in the chronic group.

H3: Lower centrality of adaptive strategies in the chronic group.

2. Method

2.1. Participants

The sample included 460 participants aged 8–25 years (160 with chronic illness, 300 healthy). Chronic conditions included diabetes, asthma, and autoimmune diseases. Groups were age-matched.

2.2. Measures

Emotion regulation strategies were assessed using the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2001). Affective symptoms were measured using the CASI and DASS-Y (Szabó & Lovibond, 2022).

2.3. Procedure

Data were collected online and in person. All participants provided informed consent (or parental consent for minors).

2.4. Data analysis

Gaussian Graphical Models were estimated using EBICglasso in R. Networks were computed separately for each group. Group differences were assessed using the Network Comparison Test. Centrality analyses focused on node strength. Stability was evaluated using bootstrap procedures.

3. Results

The chronic illness network was more densely connected than the healthy network, supporting H1. Depression and anxiety formed the strongest association in both groups, but connections between maladaptive strategies (e.g., rumination, catastrophizing, self-blame) and affective symptoms were stronger in the chronic group, supporting H2.

Centrality analyses showed that stress was the most central node in both networks. In the chronic illness group, maladaptive strategies such as rumination and self-blame exhibited high centrality, while adaptive strategies showed reduced influence, supporting H3.

Irrational thinking emerged as a key bridging node in the chronic illness network, linking cognitive strategies and emotional symptoms. In contrast, the healthy network displayed a more balanced structure, with weaker and more flexible connections.

Bootstrap analyses confirmed the stability of the strongest edges, particularly in the chronic illness network.

4. Discussion

This study examined emotion regulation as a network of interacting cognitive and affective components in youth with chronic illness compared to healthy peers. The findings indicate that chronic illness is associated with a more densely interconnected and less flexible emotional-cognitive system.

Maladaptive strategies were strongly linked to depressive and anxiety symptoms, suggesting mutually reinforcing processes that may sustain psychological distress, in line with previous research on cognitive emotion regulation (Garnefski et al., 2001) and network models of psychopathology (Ruan et al., 2023).

Stress emerged as a central node across groups, highlighting its importance as a transdiagnostic factor (Katon, 2011). Additionally, irrational thinking functioned as a bridge in the chronic illness network, suggesting a potential target for interventions, consistent with evidence on cognitive mechanisms underlying emotional disorders (Silvers, 2022).

These findings have clinical implications, indicating that interventions should focus on reducing maladaptive cognitive strategies while strengthening adaptive regulation skills.

Limitations include the cross-sectional design and smaller clinical sample. Future longitudinal research is needed to clarify causal dynamics.

5. Conclusion

Youth with chronic illness exhibit a densely interconnected emotion regulation network characterized by strong links between maladaptive cognition and negative affect. Network analysis provides a useful framework for identifying key intervention targets and understanding psychological vulnerability in this population.

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PSYCHOMETRIC EVALUATION OF THE CAREER DECISION AGENCY SCALE (CDAS) IN CROATIAN HIGH SCHOOL STUDENTS

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Abstract

This two-study research examined the psychometric properties of the newly developed Career Decision Agency Scale (CDAS), designed to assess adolescents' active role in career decision-making. Drawing on the concept of agency, the CDAS captures both proactive engagement and avoidant tendencies across four theoretically proposed dimensions: Readiness (preparedness for decisions), Confidence (belief in decision-making ability), Disengagement (tendency to withdraw), and Autonomy (self-directedness in the process). The scale was administered in the first study to Croatian high school seniors (N = 424) and in the second study to first-year students from secondary vocational schools in Croatia (N ≈ 1290). The CDAS consists of 16 items, four per subscale, rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). In Study 1, exploratory factor analysis using principal axis factoring with Oblimin rotation did not confirm the originally proposed four-factor structure. Instead, a three-factor solution emerged, explaining approximately 60% of the total variance. The first factor combined Readiness and Confidence, reflecting their conceptual and empirical overlap; the second represented Disengagement; and the third corresponded to Autonomy. Moderate intercorrelations among factors suggested related but conceptually distinct components. The three-factor structure was confirmed in Study 2 via confirmatory factor analysis, with good model fit indices (CFI = .910, NFI = .902, RMSEA = .075). Internal consistency was satisfactory for all subscales and the total scale in both studies. Reliability was highest for the combined Readiness–Confidence scale, followed by Disengagement and Autonomy. The total scale demonstrated good internal consistency (Cronbach's $\alpha > .800$), supporting the use of a composite score as an overall indicator of career decision-making agency. Construct validity was examined through correlations with the Autonomous Career Motivation Scale (Babarović, Šverko, & Krpanec, 2024) in Study 1 and the Career Adapt-Abilities Scale (CAAS; Savickas, 2009) in Study 2. CDAS results moderately correlated with the autonomy continuum, while correlations with CAAS were low to moderate, with the strongest associations observed between conceptually related subscales, supporting both construct validity and divergence. Overall, the findings indicate that the CDAS is a reliable and valid instrument for assessing adolescents' career decision-making agency. Its structure is best interpreted through three dimensions—Readiness –Confidence, Disengagement, and Autonomy—with the option of a total score to capture overall agency. The CDAS provides a valuable tool for evaluating adolescents' engagement in career decision-making, particularly in vocational education contexts.

Keywords: *Career decision-making, agency, adolescents, psychometric validation, vocational education.*

1. Introduction

The present research aimed to develop and validate a new instrument—the Career Decision Agency Scale (CDAS)—designed to assess adolescents' active role in career decision-making. Career decisions made during adolescence have important implications for educational attainment, occupational pathways, and psychosocial well-being (Blustein, 2011; Super, 1990). This is particularly salient for students in vocational education, who are often required to make consequential career choices before full exploration and self-understanding have matured. Although contemporary career theories emphasize personal agency as central to career development, existing measures do not adequately capture adolescents' agency within the career decision-making process itself. The CDAS was developed to address this gap by providing a developmentally sensitive, theory-driven measure of how adolescents engage with, regulate, and, at times, disengage from career decision-making.

The concept of agency refers to individuals' capacity to intentionally shape their life course through self-directed action, self-regulation, and goal pursuit (Bandura, 2006; Hitlin & Elder, 2007). In career development, agency denotes not only the capability to make choices but also the motivation and

behavior involved in initiating, sustaining, and assuming responsibility for career decisions. It extends beyond cognitive choice among alternatives to encompass motivational commitment, preparedness to act, autonomy in directing decisions, and regulation of avoidant tendencies. For adolescents navigating complex educational and vocational transitions, agency captures how decisions are approached rather than merely what choices are made. This distinction is critical because adolescents may differ substantially in their readiness to decide, confidence in their ability to make decisions, willingness to act autonomously, and tendency to avoid or postpone career decisions. Conceptualizing these differences in terms of agency allows for a more integrative understanding of both proactive engagement and disengagement, reflecting real-world decision behaviors.

Contemporary career development theories provide strong support for an agentic perspective. Career Construction Theory posits that individuals actively construct their vocational lives through meaning-making and intentional choices that reflect evolving identity and life themes (Savickas, 2005, 2013). Career decisions are therefore expressions of self-authorship, requiring engagement, adaptability, and responsibility. Similarly, Social Cognitive Career Theory (SCCT) emphasizes agency through self-efficacy beliefs, outcome expectations, and goal-directed behavior (Lent, Brown, & Hackett, 1994). Individuals are not passive recipients of environmental affordances; they actively regulate career behaviors through self-reflection and intentional action. Developmental models such as Super's Life-Span, Life-Space Theory further support this perspective, highlighting readiness and the implementation of self-concept in career choice as indicators of active engagement (Super, 1980, 1990). Gottfredson's Theory of Circumscription and Compromise describes how individuals actively narrow career options and adjust aspirations in response to perceived constraints, a process involving both engagement and adaptive withdrawal (Gottfredson, 2002). Taken together, these frameworks converge on the view that career decision-making is a dynamic, agentic process encompassing preparedness, confidence, autonomy, and management of avoidance tendencies.

Existing instruments address aspects of this process, but none provide a comprehensive, multidimensional assessment of agency in adolescent career decision-making. The Career Adapt-Abilities Scale (CAAS) measures psychosocial resources—Concern, Control, Curiosity, and Confidence—that support career development across transitions (Savickas & Porfeli, 2012). While these adaptability resources are essential for coping with career tasks, they do not directly assess the act of making career decisions or the behavioral engagement involved. Adaptability reflects potential readiness to cope, whereas agency reflects enacted decision behavior. Measures of career decision-making self-efficacy, such as the Career Decision-Making Self-Efficacy Scale (CDMSE; Betz, Klein, & Taylor, 1996), capture confidence in performing career decision tasks but do not encompass readiness to engage, autonomy in directing decisions, or tendencies to disengage. Similarly, the Career Decision-Making Difficulties Questionnaire (CDDQ; Gati, Krausz, & Osipow, 1996) identifies barriers that hinder decision-making, including lack of information or inconsistent preferences, but adopts a deficit-oriented perspective that does not capture proactive engagement or self-direction. In contrast, the CDAS is designed to measure adolescents' actual engagement and regulation in career decisions, integrating both proactive and avoidant dimensions to capture the full spectrum of agency.

The CDAS operationalizes career decision-making agency through four theoretically derived dimensions. Readiness reflects adolescents' preparedness and openness to engage in decisions, Confidence denotes belief in one's ability to make decisions, Autonomy captures self-directedness and ownership of the decision process, and Disengagement assesses tendencies to avoid, postpone, or withdraw from decision-making. Disengagement is conceptualized not simply as the absence of agency but as an active orientation toward withdrawal, which is especially relevant during adolescence when uncertainty and environmental pressures are high. By combining engagement and disengagement dimensions, the CDAS provides a nuanced profile of adolescents' decision behaviors, highlighting both adaptive and avoidant patterns.

The present research reports two studies with Croatian adolescents—general secondary school seniors and first-year vocational students—examining the CDAS's factor structure, internal consistency, and construct validity. The scale provides a theoretically grounded, developmentally sensitive tool for assessing adolescents' career decision-making agency, particularly in contexts where active participation in career planning is critical.

2. Method/Study 1

2.1. Participants and procedure

The first study included 424 Croatian high school seniors (approx. 17–19 years; 34% boys). Students completed self-administered questionnaires during school hours. Participation was voluntary, and ethical approval and informed consent were obtained.

2.2. Measures

The Career Decision Agency Scale (CDAS) consists of 16 items (Table 1) rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), measuring four dimensions: Readiness, Confidence, Autonomy, and Disengagement. Construct validity was assessed via correlations with the Autonomous Career Motivation Scale (Babarović, Šverko, & Krpanec, 2024).

3. Results/study 1

An exploratory factor analysis (EFA) using principal axis factoring with Direct Oblimin rotation was conducted to examine the dimensionality of the CDAS. The originally proposed four-factor structure was not supported by Scree plot (Figure 1) and Kaiser-Guttman criterion. Instead, a three-factor solution emerged, explaining approximately 61% of the total variance. The first factor combined Readiness and Confidence, reflecting conceptual and empirical overlap. The second factor corresponded to Disengagement, and the third factor represented Autonomy. Intercorrelations among factors were moderate, indicating related but distinct components. Internal consistency was satisfactory for all subscales, with the highest reliability observed for the combined Readiness–Confidence factor (α = .899). The total scale also demonstrated good internal consistency (α = .848), supporting its use as an overall indicator of career decision-making agency. Construct validity was examined via correlations with the autonomy continuum measured by ACMS (Babarović, Šverko, & Krpanec, 2024), which yielded expected and moderate associations with the agency dimensions, supporting convergent validity.

Figure 1. Scree plot – EFA principal components eigenvalues of CDAS.

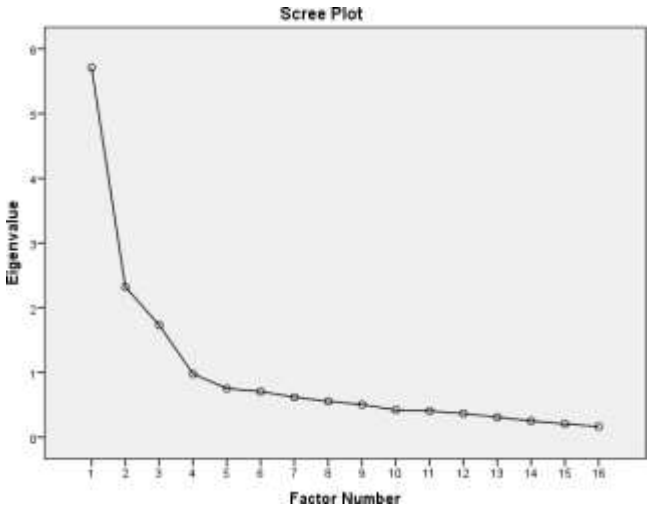


Table 1. EFA of CDAS – Structure matrix after Principal Axes Factoring and Direct Oblimin rotation.

Item	Principal Axes		
	1	2	3
1. I know my interests, desires, traits, and abilities well; I know what I want to do and what I am good at.	**.792**	-.232	-.355
2. I have sufficient information about occupations; I know what work tasks look like, how to get educated, and where one can find employment.	**.656**	-.078	-.417
3. At this moment, it is easy for me to decide about my career.	**.869**	-.158	-.312
4. I feel ready to make a decision about my career.	**.856**	-.148	-.367
5. I am confident about which occupation and job would suit me best.	**.839**	-.146	-.347
6. I have firmly decided what kind of job I would like to do in the future.	.173	-.111	-.062
7. My decision about my future career is firm and clearly defined.	**.869**	-.243	-.282
8. I clearly feel which occupation is best for me.	**.862**	-.197	-.336
9. I am currently not thinking about my future career.	-.194	**.606**	.011
10. I am not in a hurry to decide about my future career because there is still time for that.	-.193	**.821**	-.004
11. When one of my friends thinks a lot about their career, I think they are overdoing it.	-.023	**.524**	-.051
12. Choosing a career is not important to me at the moment because things change.	-.262	**.660**	.028
13. I will make my decision about my future career independently.	.294	.070	**-.728**

14. I will listen to others' advice about my career; I cannot make that decision on my own.	-.214	-.003	**.592**
15. Everyone should choose their own occupation and take responsibility for their future.	.295	-.072	**-.756**
16. No one knows better than I do which occupation would suit me best.	.282	.040	**-.576**
Rotation Sums of Squared Loadings	5.221	2.001	2.636

4. Method/Study 2

4.1. Participants and procedure

The second study included 1,290 first-year students from Croatian vocational schools (approx. 17–19 years, 49% boys). The procedure mirrored Study 1, with voluntary participation, supervision, and ethical approval.

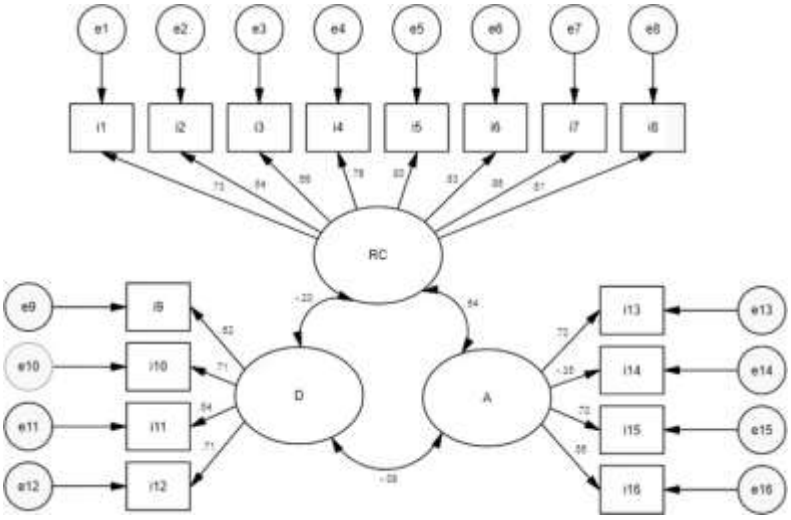
4.2. Measures

The CDAS was administered alongside the Career Adapt-Abilities Scale (CAAS; Savickas, 2009; Croatian version - Šverko & Babarović, 2019) to examine construct validity.

5. Results/study 2

A confirmatory factor analysis (CFA) was conducted to test the three-factor structure identified in Study 1 (Figure 2). The model demonstrated good fit to the data (CFI = .910, NFI = .902, RMSEA = .075). Subscale reliabilities were satisfactory, with Cronbach's alpha highest for the combined Readiness–Confidence scale, followed by Disengagement and Autonomy. The total scale showed good internal consistency (α = .846). Construct validity was further supported through correlations with the Career Adapt-Abilities Scale (CAAS; Savickas, 2009). Correlations were low to moderate overall, with the strongest associations observed between conceptually related subscales, supporting both convergent and discriminant validity. These results indicate that the CDAS reliably measures adolescents' career decision-making agency, with three distinct but related dimensions and an interpretable total score for overall agency.

Figure 2. CFA structure of CDAS with standardized regression and correlation coefficients.



Note: RC - Readiness–Confidence; D – Disengagement; A – Autonomy; i1 to i16 – CDAS scale items – corresponds to table 1.

6. Discussion

The present research developed and validated the Career Decision Agency Scale (CDAS), a multidimensional measure of adolescents' engagement and regulation in career decision-making. Across two studies, the CDAS demonstrated satisfactory reliability, construct validity, and a stable three-factor structure comprising Readiness–Confidence, Disengagement, and Autonomy. Study 1's exploratory factor analysis revealed the conceptual overlap of readiness and confidence, suggesting that preparedness to engage and belief in one's decision-making ability are closely linked in late adolescence, while Study 2 confirmed this structure with good model fit across different adolescent populations, including vocational students.

The CDAS provides a theoretically grounded and developmentally sensitive tool that captures both proactive engagement and avoidant tendencies in career decision-making, extending beyond existing instruments such as the Career Adapt-Abilities Scale (Savickas & Porfeli, 2012), the Career Decision-Making Self-Efficacy Scale (Betz et al., 1996), and the Career Decision-Making Difficulties Questionnaire (Gati et al., 1996). By integrating motivational, behavioral, and self-regulatory aspects of agency, the CDAS allows for a nuanced assessment of how adolescents navigate career choices, assume responsibility, and regulate withdrawal or avoidance. Correlations with the Autonomous Career Motivation Scale and CAAS subscales supported the scale's construct validity, demonstrating meaningful yet distinct associations with related constructs.

These findings indicate that career decision-making in adolescence can be meaningfully conceptualized as an agentic process encompassing readiness, confidence, autonomy, and disengagement. Practically, the CDAS offers career counselors, educators, and researchers a useful tool for identifying engagement patterns and avoidance tendencies, particularly in vocational education contexts where students are required to make early and consequential career choices. Overall, the CDAS fills a conceptual and practical gap in career assessment, bridging adaptability, decision-making difficulties, and self-efficacy, while its brevity and multidimensionality make it well suited for both research and applied settings.

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"HOW GROUP CARE SETTINGS CAN FAIL IN CHILD AND YOUTH WELFARE": INDIVIDUALIZED PEDAGOGICAL INTERVENTIONS FOR KIDS AT HIGH RISK

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Abstract

A critical view on current conditions in working with challenging children and adolescents in child and youth welfare. On basis of an internal study of a care facility in Vienna, Aks Noah, which evaluated data of 89 minors, it shows risk factors in early childhood which leads into problem behavioral patterns in out of home care, which is challenging care takers and the environment. Instead of viewing these young people merely as symptom-bearers of their histories and placing them in a problem-oriented focus as "unreachable" and "system crashers", it is time to establish alternative flexible forms of care, with psychological and trauma-oriented case analysis, as "state of the art" for and with kids at high risk.

Keywords: *Individual care, kids at high risk, child and youth welfare, social psychology, young delinquents.*

1. Introduction and terminology

In 2023, 1.21% of all minors in Vienna, Austria have been placed in out-of-home care within the framework of full residential support, corresponding to 4.145 children and adolescents. These placements primarily occurred in foster families and residential facilities within the child and youth welfare.[2] Although most children in child welfare systems can be supported through foster care or community-based interventions, a small but significant subgroup gets media attention, demonstrating behavioral patterns and support needs that exceed the capacities of standard care arrangements, challenging not only care systems but also law, justice, public and psychiatry. These minors are frequently labelled as "system crashers" (German: *Systemsprenger*) (vgl. Baumann 2014). International research rarely uses this terminology but describes similar populations as high-risk youth, unreachable, kids with multiple and complex needs, or youth experiencing placement instability. Across different welfare systems, this group typically represents a small proportion of children in care but accounts for a disproportionate share of placement breakdowns, service transitions, and intensive interventions (Konijn et al., 2019).

The terminology of system-crasher-kids has been subject to increasing critical reflection within academic and professional debates. Rather than focusing exclusively on the behavioural characteristics and failure of the children themselves, an alternative perspective highlights the structural limitations of existing welfare systems (vgl. Kieslinger et al., 2023). From this viewpoint, the phenomenon of so-called "system crashers" may also be interpreted as an indicator of institutional constraints, rigid service structures, and insufficiently flexible support arrangements within child and youth welfare systems. (vgl. Sinclair et al., 2007). Alongside the public institutions, a considerable number of private organizations operate as contractual partners within the child and youth welfare system, to take care on those special kids. One such provider is *"AKs Noah"*[3] based in Vienna (Austria), which currently supports approximately 95 minors across different group care settings and individual residential care. Many of the young people show complex psychosocial needs and multiple risk factors out of their system, described as "kids at high risk", requiring highly individualized forms of support.

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[2] Statistik Austria 2023 https://www.statistik.at/statistiken/bevoelkerung-und-soziales/sozialleistungen/kinder-und-jugendhilfe
[3] AKs Noah Verein für Sozialpädagogik und Jugendtherapien https://noah.at

2. Study AKs Noah[4]

In an internal study from the social-pedagogical institution for child and youth welfare *AKs Noah,* child related factors have been evaluated. The basis data is from 89 kids aged 10-18 and has been explored as a questionnaire filled out by the educators who are responsible for the children and are familiar with the case facts, including previous files and reports. The data collected can be compared with results from other studies in other countries on kids at high risk in the child and youth welfare systems (Bronsard et al., 2016; Clark et al., 2020; Harder et al., 2021; Varnish et al.; 2025).

2.1. Family system

The selected data are facts from the system of origin and indicates that the affected families are living under significant cumulative stress, characterized by multiple risk factors. A key issue is the high number of suspected but not formally diagnosed problems, suggesting substantial hidden needs and under-detection.

1. Stressful family circumstances
    - Incarceration: 28.1% of families affected
    - Parents with refugee/flight experiences: 25.8%
    - Homelessness: 21.3%
    - Physical impairment of a parent: 18%
    - Death of a close caregiver: 23.6%
2. Adverse family environment
    - Domestic violence: 38.2%
    - Violence against the child: 39.3%
    - Neglect: 37.1%
    - Sexual abuse on the kid through family members: 7.9%
    - Siblings with increased care needs: 22.5%
3. Health risks
    - Mental illness of one of the parents: 15,7%
    - Addiction of illegal substances: 21.3%
    - Alcohol Addiction: 13.5%
    - Substance use during pregnancy: 7.9%

2.2. Child related risk factors

Behavioral abnormalities associated with conduct disorder, antisocial behavior, and high-risk tendencies manifest in various forms and leads to dangerous behavior inside the care system and the environment. The selected data shows that psychological aggression (insults, humiliation) is the dominant form of problematic behavior, followed by physical violence, bullying, and delinquency, suggesting a highly challenging care environment with complex support needs.

1. Educational risk factors:
    - 55% of children have no primary school certificate, indicating major educational disadvantage.
    - 51% show irregular or refused school attendance (30% refusing, 21% attending only sometimes).
    - Participation in training or employment is inconsistent, with 31% refusing engagement.
2. Health risk factors:
    - 69% of clinical diagnosis (n=64) show a post traumatic disorder or trauma related comorbidity.
    - 60% of 13-18-year-old (n=54) do drugs regularly, tobacco not included
    - 30% do high risk mixed consume of different kinds of mostly chemical substances
3. Behavioral risk Factors:
    - Insults and humiliation toward caregivers (37.1%) and peers (31.5%)
    - 16.9 % use Bullying as behavioral pattern
    - Physical assaults towards caregivers (12.4%) and peers (16.9%)
    - 20.2% show repeated property damage
    - 19.1% are integrated in a violence-prone peer group
    - 15.7 % have committed strong bodily harm

[4] https://noah.at/forschung

2.3. Conclusion

With regard to the collected data the "phenomenon" of kids at risk can be interpreted through several psychological and systemic theoretical frameworks. Attachment theory suggests that early experiences of insecure or disorganized attachment may impair emotional regulation and interpersonal trust (Bowlby, 1988; Ainsworth, 1978). Furthermore, developmental trauma research highlights the long-term impact of chronic stress and adverse childhood experiences on behavioral regulation and social functioning (van der Kolk, 2014). From a broader socio-ecological perspective, Bronfenbrenner's ecological systems theory emphasizes the interaction between individual development and institutional environments, suggesting that repeated placement disruptions may also reflect structural limitations within child welfare systems.

The Research on minors in the facility AKs Noah, with highly complex support needs, identifies several common patterns similar to actual studies.

- Early childhood histories of trauma and neglect, domestic violence and multi-problem families. That can lead to attachment disorders, behavioral dysregulation, violence and self-regulation problems. (Hoeve et al., 2012)
- Followed by out of home care with frequent placement cancellations and overburdening of support systems. (Baumann, 2014)
- Ending in minors who break up with school and socialize on the streets, showing resistance against child welfare and mental health service, taking drugs, being young delinquents below the age of criminal responsibility. (O´Hare, 2023)

It is clearly evident that some kids in out of home environments need special care, which is often not possible within group settings and common practices of social-pedagogical care. It needs an understanding of case study, psychological knowledge about multiple traumatized behavior, development theories and individual strong bonding care, within the realities of life from those kids. Children with many placement changes show higher internalizing and externalizing behavior problems. The longer they are in a care setting which is a mismatch, the more they strengthen multi-problem behavioral patterns. (vgl. Newton et al. 2000).

3. A critical view

The "wrap-around" child care starting in the 1980ies until now many research and studies (Brykman 2025; Bronsard et al., 2016; Clark et al. 2020) showed that child welfare placement disruptions are associated with elevated physical and mental health problems. International research consistently demonstrates that children and adolescents with complex psychosocial needs and behavioral disorders often require highly individualized care environments. (Whittaker et al., 2016). The international consensus on individual residential care, highlights the importance of structured, relationship-based environments, designed specifically for children and youth with severe behavioral and emotional challenges (vgl. James et al., 2022). By knowing that, the child and youth welfare system and other connected care systems like psychology, therapy, psychiatry… in this field has not changed enough.

Children with such challenging behavior, emotional disturbances and attachment disorders can`t respond to rotating teams of 7-12 professionals working in shifts. Every day someone else - to which one should adept, with daily separation experiences. They can`t handle the permanent high level of expectations and regulations. Those kids more and more display behaviors that is a risk to themselves and others. Violence, impulsive outbursts, antisocial behavior etc... As long as they are young, they are often placed from one care setting to the next. When they grew up and get more intensive, group care is no longer possibly, because of high risk for care takers and other kids in the group. The structural irresponsibility of help systems meets the helplessness of the responsible caregivers.

An early intervention is a key factor in addressing high-risk behavioral patterns in children, as difficulties such as aggression, impulsivity, use of drugs and emotional dysregulation often intensify if left unsupported. The reality is that in the child and youth welfare the correct interventions often start to late, even when the risk factors are shown long before.

When those kids refuse going to school, refuse appointments, refuse coming home, are verbally abusive, using drugs and the behaviour is "out of control", the usual setting can`t care anymore. This is when individualized one to one care settings often starts. Far too late and mostly financed for a short time as the "prognosis is poor" related to the goal of a socially compliant integrated citizen. These interventions are frequently discontinued after 6-12 month, even when there is positive progress. The systems measure the care success by short-term indicators, like school attendance or the absence of delinquent behavior. Psychologically, a change in behavior can hardly occur in such a short time. And we have labour law guidelines which do not allow the social pedagogues to work like it is necessary with those clients. Care facilities are forced to the 24hours shifts and not allowed to live with them constantly 1 person for some

weeks. Instead of 1-2 stable care takers we need for this setting 6-8 people making those shifts. Which is exactly what is not useful referred to theory and caused problems before, and makes it to a very expensive care for one child.

Additionally, we have no legal recourse in Austria under the age of 14. They can come and go like they want, being delinquent and unstoppable as police and care takers are not allowed to hold them in the facility or police station. They often connect with older criminals who use the kids for their interests. Sometimes it is just waiting that those kids are over age of 14 and can be imprisoned. Although we see how vulnerable these children are, we can`t force them to go abroad with care takers for a "Time Out", even though it would be better than being on the street and later in jail.

4. Individual pedagogic with kids at high risk

To establish individual pedagogical measure with and for kids at high risk as state of the art, it needs the understanding of psychological facts of attachment and trauma theory within a biopsychosocial case analysis as basis for care takers working in a highly individualized setting. The matching of the care takers with the one to be cared is a sensitive and powerful process. Through continuous and flexible interaction, educators can establish a stable and slowly trusting relationship that promotes emotional security and engagement. This relational stability enables the early identification of behavioral triggers and the timely implementation of preventive strategies. Immediate feedback and consistent reinforcement of prosocial behavior further support the development of self-regulation and adaptive coping skills. Stable caregiving relationships with care takers who are not afraid and don't judge with consistent reachable support are therefore critical components of effective interventions.

Meaningful progress often becomes visible when professionals are allowed to work intensively and consistently with a child in different settings, at different places of residence, both in and abroad. Such interventions typically involve a small number of carefully selected caregivers who establish stable relationships with the young person. This means 1–2 consistent caregivers, people who can offer long-term relationships, who are emotionally resilient, who can confront when necessary, and who are willing to step into the child's world with courage and care. Through continuous interaction of the same care takers and outreach support on their hotspots and risky realities of life out on the streets, trust can gradually develop, allowing children with deeply rooted mistrust of adults to experience reliability, emotional security, and a sense of belonging. Within such settings, children may begin to accept boundaries, engage in structured routines, develop basic cooperative behaviors and accept taking care on them. They want to belong and they want to feel safety they never had. What it needs is trustable, supportive relationships, where resilience can grow and things can change. (vgl. "Circle of Courage", Brendtro et al. 2012)

Individualized pedagogical one-to-one interventions can represent a crucial opportunity for children and adolescents displaying severe behavioral problems and high-risk life trajectories.

Particularly for children between the ages of 12 and 14 who display severe behavioral challenges but remain below the age of criminal responsibility, flexible and relationship-centered interventions are essential to give them support and unconditional supply no matter when they appear or how their behavior is. Individualized pedagogical case work therefore represents not a universal solution, but a significant opportunity to reach young "boundary pushing" kids, who are often considered "unreachable" within standard institutional systems.

No child is born evil, and every child has the right to security and care.

It needs earlier support and stable financial possibilities. It needs the employment law support for the care takers to work professional in a one-to-one care and to get suitable trainings and specialized psycho-emotional support. At least there must be a deep understanding how to reach those kids and work with them with the goal of positive development.

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EMOTIONALLY RESPONSIVE VIRTUAL PATIENTS FOR PSYCHOTHERAPY TRAINING A PROOF-OF-CONCEPT USING FINE-TUNED LARGE LANGUAGE MODELS

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Abstract

Traditional soft-skills training in psychology and mental healthcare depends strongly on role-play with peers or actors. While valuable, it is resource-intensive, offers limited scenario diversity, and cannot fully capture the complexity of real patients. Consequently, students have insufficient exposure to realistic patient interactions. Virtual patients provide a scalable and flexible alternative, but existing systems often fail to produce consistent, realistic clinical interactions. As part of the TherAvatars project, this explorative study investigates the potential of large language models (LLMs) to generate interactive patient dialogues by fine-tuning open-source generative LLMs on therapist–patient conversations. We further examine retrieval-augmented generation (RAG) as a mechanism to enhance contextual grounding across dialogue turns. Model performance was evaluated using both expert assessments by psychology professionals and NLP-based similarity metrics. Our initial findings suggest that fine-tuned open-source LLMs have the potential to simulate virtual patients capable of supporting psychotherapy training, but substantial challenges remain in achieving robust dialogue structure, consistency, and long-term conversational coherence for autonomous clinical training scenarios.

Keywords: *Artificial Intelligence, psychotherapy training, LLM fine-tuning, evaluation.*

1. Introduction

Virtual patients have increasingly been explored in healthcare education as a means to provide safe, repeatable, and scalable experiential learning. Students can practice challenging clinical scenarios without risking patient safety, while benefiting from personalised learning paths (Kenny et al., 2007; Prescott et al., 2024; Tanana et al., 2019; Khan et al., 2023). However, many existing systems still rely on scripted dialogue and rigid turn-taking, resulting in limited emotional expressiveness and insufficient variation in communication style or personality (Combs & Combs, 2019). These limitations reduce their usefulness in psychotherapy training, where nuanced affective behaviour and interpersonal responsiveness are essential.

Recent advances in transformer-based large language models (LLMs) (Vaswani et al., 2017) offer new opportunities to enhance these simulations. When fine-tuned on domain-specific dialogues, generative LLMs can yield context-sensitive and emotionally congruent interactive patient behaviour (Yang et al., 2023). Fine-tuning on task-specific data aligns model outputs with desired conversational behaviours while preserving general language capabilities, making LLMs particularly suitable for interactive, role-consistent dialogue generation. Such models may complement traditional training modalities (lectures, case studies, role-play) by offering scalable, individualized practice opportunities for training diagnostic reasoning and therapeutic communication.

This study is part of the Theravatars exploratory research project, which aims to develop a prototype interactive virtual patient leveraging advanced language models. Earlier work within this project focused on semi-automatic sentiment corpus generation (Desot et al., 2025). Building on this foundation, the present study focuses on fine-tuning LLMs to simulate interactive patient behaviour in psychotherapy conversations. Unlike commercial APIs (e.g., ChatGPT), we use open-source LLMs that can be run locally, enabling full control over model behaviour and fine-tuning, flexible integration of custom datasets, reproducible experiments, and enhanced privacy for sensitive clinical data. Our proof-of-concept focuses on depression, a highly prevalent disorder with well-defined diagnostic criteria, making it suitable for modelling psychologically consistent virtual patient behaviour.

In this paper, we describe the fine-tuning and evaluation of three open-source LLM configurations that differ in architectural complexity and contextual grounding: a lightweight model (TinyLlama), a larger

transformer-based model (DeepSeek), and a retrieval-augmented generation (RAG) variant of TinyLlama. All models were fine-tuned on psychotherapy dialogues to generate patient responses. Model outputs were evaluated using human expert ratings, complemented by lexical and embedding-based NLP similarity metrics that compare generated responses to original patient utterances on a turn-by-turn basis.

2. Related work

Advances in NLP have expanded the potential for emotionally responsive virtual systems capable of addressing the limitations of traditional scripted virtual patients. Early virtual patient systems relied on rule-based question-answering and template matching (Epstein et al., 2013), but the transition to deep learning and transformer-based models (Vaswani et al., 2017) has enabled potentially richer contextual understanding and more robust emotion detection. Recent studies demonstrate that large language models can infer and express emotional states within virtual agents (Yang et al., 2023; Ng et al., 2023) and can identify linguistic markers associated with anxiety and depression for detecting a range of affective states (Tao et al., 2023; Ray, 2023). These insights support emerging efforts to automatically evaluate student–patient interactions through machine learning-based dialogue analysis.

Within the domain of healthcare, recent work has applied LLMs to clinical reasoning and mental health support (Omiye et al., 2024), yet these systems primarily emulate therapist-like behaviour rather than modelling the diverse, emotionally dynamic responses of patients. In contrast, our focus is explicitly on modelling patient-side dialogue behaviour, including affective variability, role consistency, and longitudinal coherence in psychotherapy sessions. As a result, a gap remains in creating virtual patients capable of psychologically consistent and adaptive emotional behaviour at the dialogue level, highlighting the need for methods that integrate emotion detection, corpus generation, and LLM-driven dialogue generation. Desot et al. (2025) explored zero-shot and semi-supervised techniques for generating affective training data in psychotherapy contexts and demonstrated that LLMs can automatically label emotional states in therapeutic dialogue. Combining zero-shot inference with human validation reduces annotation cost while maintaining reliability, enabling downstream fine-tuning for emotion-aware dialogues.

3. Data

The DAIC-WOZ (Distress Analysis Interview Corpus – Wizard of Oz) served in our research as the primary dataset, a publicly available multimodal dataset of 189 clinical interview sessions conducted by a virtual interviewer (Ellie) via a Wizard-of-Oz protocol. With synchronized audio, video, and transcripts, it provides natural interactions mimicking real clinical encounters, making it well suited for LLM-based virtual patient simulations (DeVault et al., 2014; Gratch et al., 2014). While previous research on DAIC-WOZ primarily focused on session-level depression assessment (e.g., PHQ-8 regression, binary classification, or multimodal fusion) often summarizing the session into a single score or set of features, our study operates at the utterance level, generating dialogue turn by turn, capturing moment-to-moment emotional and contextual changes.

4. Method: LLM fine-tuning and evaluation

Fine-tuning adapts a pre-trained generative LLM to a specific task by continuing training on a smaller, domain-specific dataset (Wang & Chen, 2023). This will guide the model to generate more accurate, helpful, and context-sensitive outputs for the intended application. However, these LLMs may still hallucinate, contradict themselves, or vary responses depending on context. For our experiments we used two open-source pretrained generative chat models:

- **TinyLlama (2024)**: A lightweight model designed for fast inference and low computational cost. Fine-tuning is performed using supervised learning with LoRA (Low-Rank Adaptation) adapters, which efficiently update only a low-rank decomposition of the model's weights rather than the full parameter set, significantly reducing memory and compute requirements. The model captures basic turn-taking and responses efficiently, but has limited capacity for complex reasoning or long-term context tracking.
- **DeepSeek (2025):** A Mixture-of-Experts (MoE) model using instruction-following and chain-of-thought reasoning capabilities. In MoE architectures, only a subset of specialized expert networks is activated for each input, allowing the model to scale capacity and reasoning ability without proportionally increasing computational cost. This higher effective capacity enables more nuanced emotional reasoning, consistent patient persona maintenance, and improved long-context coherence across multi-turn dialogues. Fine-tuning involved high-level behavioral prompts instructing the model to respond as a depressed veteran, combining role tracking with emotional

guidance.This architecture enables greater contextual fidelity and role consistency compared to smaller models.

In addition, we used a technique called Retrieval-Augmented Generation (RAG) (Gao et al., 2023) in combination with the fine-tuned TinyLlama model. At runtime, relevant prior dialogue utterances are retrieved dynamically and appended to the prompt as contextual evidence. This improves response relevance, reduces hallucination, and supports session-level continuity without increasing model size. RAG was applied only to TinyLlama and not to DeepSeek's MoE architecture, because its limited parameter capacity and context window make it more prone to context loss in multi-turn dialogue. Limiting RAG to TinyLlama allows us to isolate the effect of retrieval and assess whether it elevates a lightweight model toward the performance of larger architectures.

Modern LLM evaluation frameworks distinguish between closed-ended tasks, with clearly defined correct outputs, and open-ended dialogue generation, where valid responses are diverse and subjective. NLP metrics for open-ended tasks therefore primarily capture surface similarity. Our evaluation uses both syntactic and semantic NLP metrics and also human expert evaluation. Syntactic metrics include BLEU (Papineni et al., 2002) and ROUGE (Lin, 2004) to quantify n-gram overlap between generated virtual patient responses and reference patient utterances in the held-out test set. For semantic evaluation we used BERTScore (Zhang et al., 2020), which compares contextual embeddings from a pretrained BERT transformer model with the model output and reference text, and reports precision, recall, and F1 to capture meaning similarity beyond surface tokens. Because NLP metrics often correlate weakly with human judgments in open-ended clinical dialogue, we treat syntactic and semantic metrics as complementary indicators rather than definitive measures of model quality. While BLEU, ROUGE, and BERTScore quantify surface-level or embedding-based similarity to reference responses, they do not directly assess clinical plausibility, or role coherence. Consequently, human expert evaluation serves as the primary basis for comparative assessment in this study.

Consistent with recent recommendations (Awasthi et al., 2025), we explicitly distinguish between turn-level and session-level assessment to capture both local and global conversational quality. Turn-level evaluation focuses on the appropriateness of individual responses to immediate prompts, while session-level evaluation reflects longitudinal properties such as coherence, role consistency, and information retention across multi-turn clinical interactions.

5. Experiments and results

Section 5.1 outlines model fine-tuning and evaluation setup of the experiments, with the results presented in Section 5.2.

5.1. Data preparation, fine-tuning and model performance rating

To prepare DAIC-WOZ corpus for model fine-tuning, all session transcripts were extracted and merged into a single text corpus, composed of two-column prompt–response format suitable for LLM fine-tuning. Each turn in the dialogue of the therapist serves as the prompt, and the corresponding patient reply the response, allowing the models to learn turn-by-turn behavioural patterns characteristic of psychotherapy dialogue. This dataset was split 80/20: training (174) and test (15) sessions.

TinyLlama and DeepSeek were trained for 120 epochs with LoRA adapters using the AdamW optimizer, gradient clipping, and a linear learning-rate scheduler with warm-up on a CUDA-enabled GPU in mixed-precision (fp16). Input prompts were tokenized and truncated to the models' maximum context window (2048 tokens). During inference, PyTorch-based generation employed sampling with temperature 0.7 and top-p of 0.9. For RAG, SentenceTransformer embeddings were used with cosine similarity to select relevant context using content from a random selected holdout test session.

Evaluation of both models was conducted on the DAIC-WOZ hold-out testset via two steps: a manual rating by psychology professionals on the output and using NLP metrics to automatically rate similarity of output versus refence output in the testdata. Human evaluators followed a two-level rating protocol: (1) turn-level assessment, and (2) session-level assessment. At the turn level, evaluators stepped through each session chronologically; for every therapist prompt, the three models generated a response accompanied by a predicted emotion from the classifier of Desot et al. (2025), which assigns one of six basic emotions (anger, disgust, fear, happiness, neutral, sadness). Emotion accuracy was rated categorically (correct/incorrect/unknown), whereas response relevance was rated with discrete scores from 0 to 5, with higher values indicating stronger topical alignment. In total 2055 turns were evaluated by the human evaluators. At the session level, evaluators provided overall ratings per model using discrete scores from 0 to 5 to assess quality on coherence, completeness, role adherence, and knowledge retention. All annotations by the evaluators were collected via a custom web-based tool.

5.2. Results

In Table 1, human evaluator scores are shown on the left and NLP similarity metrics on the right. Based on the results we see that RAG produces the highest proportion of highly relevant responses (score 4 or 5) and highest average relevance score, followed by DeepSeek and TinyLlama, highlighting the effectiveness of retrieval augmentation. RAG also demonstrates clear positive semantic alignment with the reference utterances, as confirmed by BERTScores F_1 and cosine similarity, whereas TinyLlama and DeepSeek show lower overlap, though DeepSeek performs slightly better than TinyLlama according to SBERT-cosine similarity. BLEU and ROUGE scores remained low for TinyLlama and DeepSeek, reflecting the high lexical variability inherent in open-ended dialogue generation. RAG substantially improved BLEU and ROUGE scores, indicating stronger verbatim alignment with reference turns; however, higher lexical overlap alone does not imply superior conversational or clinical quality. Overall, retrieval augmentation produced more contextually grounded, patient-like responses, while the non-RAG models generated paraphrastic but still semantically coherent outputs.

Table 1. Turn-level analysis of human ratings and NLP metrics.

	Turn level scores (0 to 5)							
	Human evaluator ratings		***NLP metrics***					
Model	**Relevance (prop. score ≥ 4)**	**Avg.**	**BLEU**	**Rouge-1**	**Rouge-2**	**Rouge-L**	**Bert F_1**	**SBERTCosine**
TinyLlama	0.48	3.04	0.00	0.11	0.02	0.10	0.22	0.23
DeepSeek	0.64	3.70	0.01	0.13	0.02	0.11	0.07	0.27
RAG	0.76	4.13	0.23	0.35	0.21	0.33	0.19	0.45

In Table 2 we show the average rating scores for the session quality assessment categories. TinyLlama shows the lowest average scores overall. These quantitative trends align with the qualitative observations from the evaluators, who noted that TinyLlama frequently tends to produce irrelevant, repetitive, or nonsensical answers and struggles to maintain context, making it the least reliable model. DeepSeek generally keeps the conversation on track and tracks context well, though it can occasionally repeat answers or provide minimal responses. RAG is consistently strong, maintaining relevance and coherence with fewer reported issues, aligning with its higher quantitative scores.

Table 2. Session-level average scores per model.

	Session level scores (0 to 5)			
Model	**Coherence**	**Role Adherence**	**Completeness**	**Knowledge Retention**
TinyLlama	2.62	2.73	2.54	2.42
DeepSeek	2.85	3.04	2.92	2.65
RAG	3.17	2.96	3.17	2.96

6. Conclusion and discussion

Our findings demonstrate that fine-tuned open-source LLMs can generate locally plausible responses in psychotherapy-style dialogue, supporting their potential use as experimental virtual patients for early-stage training. RAG improves contextual relevance, enabling lightweight models to approach performance of larger architectures, while DeepSeek shows stronger role consistency and emotional fidelity than TinyLlama. At the same time, the results reveal clear limitations. Across models, sustained dialogue structure, long-term consistency, memory management, and reliable dialogue state tracking remain unresolved. Human evaluators observed repetition, loss of focus, and generic behaviour, indicating that current LLM-based systems cannot yet support realistic, fully autonomous clinical interactions. Overall, this prototype demonstrates promising potential, but significant methodological and architectural advances are required before LLM-driven virtual patients can reliably approximate the complexity of real clinical dialogue. To address these limitations, future work will integrate the models into a 3D multimodal digital human interface via PEX (Platform for Empathic eXperiences, n.d.), incorporating multimodal cues (e.g., prosody, facial expressions), and case-based mental health profiles and multi-annotator datasets. We hypothesize that this multimodal integration will improve virtual patient dialogue interactions by enabling more accurate modelling of affective states and conversational intent.

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BEHAVIOURAL DIFFICULTIES AND THEIR IMPACT ON COGNITIVE, EMOTIONAL AND LEARNING ABILITIES

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Abstract

Behavioural difficulties during childhood and adolescence, particularly externalising symptoms such as aggression, impulsivity, and oppositional behaviour, can negatively affect academic achievement, emotional well-being, and social functioning. These difficulties are frequently associated with deficits in executive functions (EFs), including inhibitory control, working memory, and cognitive flexibility, as well as maladaptive academic emotions and reduced school engagement. Despite their relevance, few studies have examined these associations longitudinally using multi-informant designs. The present study investigated relationships between externalising behavioural difficulties, EFs, academic emotions, and school well-being in Italian students from 4th grade of primary to 8th grade of middle school (~700 participants; 53% female), at two time points. Students completed self-report questionnaires on behavioural difficulties, learning difficulties, academic emotions, and school well-being, alongside tasks assessing inhibitory control, working memory, and cognitive flexibility. Teachers and parents provided parallel evaluations of students' school well-being, and parents also completed evaluations of students' executive functioning. Correlations revealed that behavioural difficulties were significantly associated with lower school satisfaction, reduced self-efficacy, poorer teacher relationships, and higher negative academic emotions. T-tests confirmed that students with higher behavioural difficulties reported lower concentration, whereas no significant differences emerged for cognitive flexibility. GLM analyses of the BRIEF subscales indicated significant effects of behavioural difficulties on student-reported EFs, with parent-reported EFs confirming similar patterns. Regression analyses further showed that behavioural difficulties at T1 negatively predicted school satisfaction and self-efficacy at T2. These findings underscore the critical role of executive functioning and emotional regulation in explaining the impact of behavioural difficulties on school experiences. Results support early, targeted interventions aimed at enhancing executive functions and fostering adaptive academic emotions to improve students' learning, engagement, and well-being, particularly for students with behavioural difficulties.

Keywords: *Behavioural difficulties, executive functions, academic emotions, school well-being, longitudinal study.*

1. Introduction

Behavioural difficulties, especially externalising problems such as hyperactivity, aggression, and oppositional behaviour, represent a significant challenge for children's development and educational adjustment. These difficulties are linked to compromised academic performance, reduced emotional regulation skills, and lower social adaptation (Duncan & Magnuson, 2011). Their persistence may result in long-term disengagement from school and poorer learning trajectories.

From a cognitive perspective, externalizing symptoms are often associated with deficits in executive functions (EFs), including inhibition, working memory, and cognitive flexibility, that support intentional behaviour, self-regulation, and goal-directed action (Castro et al., 2020). Difficulties in these domains frequently contribute to impulsivity, emotional dysregulation, and trouble maintaining concentration during academic activities (Duncan & Magnuson, 2011).

Emotional processes play a crucial role in mediating the impact of behavioural difficulties on learning. According to Pekrun's (2006) Control-Value Theory of Achievement Emotions, students' emotions in school, such as anxiety, anger, and hopelessness, are key determinants of their engagement and motivation. Children with behavioural difficulties often experience heightened negative academic emotions

and reduced school satisfaction (Tobia, Gabriele, & Marzocchi, 2011). These emotional experiences may reinforce maladaptive behaviours and further impair learning. Developmental models suggest that cognitive and emotional systems interact dynamically to shape learning and adaptation (Blair & Raver, 2015). Executive functioning facilitates emotional regulation, supporting sustained attention, adaptive responses to challenges, and positive engagement. However, research employing longitudinal and multi-informant designs remains limited, especially within European school contexts.

2. Objectives

The study examined whether behavioural difficulties are associated with lower self-regulated learning abilities (concentration, flexibility), poorer executive functioning as measured by both rating scales and performance tasks, and lower school well-being and more negative academic emotions. Hypotheses were: (H1a) higher behavioural difficulties relate to lower concentration and flexibility; (H1b) behavioural difficulties associate with impaired EF and learning outcomes; (H2) behavioural difficulties at T1 predict lower school well-being and more negative emotions at T2.

3. Methods

3.1. Pilot study

A pilot study (N = 56) tested feasibility of administration and clarity of instruments; procedural refinements were made to streamline online questionnaire flow and schedule individual cognitive assessments in school settings.

3.2. Participants and sampling

Participants were recruited from several Italian primary and lower secondary schools; at T1 the sample comprised 653 students (47.3% female; mean age ≈ 11.94 years) and at T2, after 5/6 months, 343 students. A subsample (~30%) completed individual performance tasks. Schools participated via voluntary response; parental informed consent and institutional ethical approval were obtained.

3.3. Instruments

All students completed an online battery of questionnaires followed by sociodemographic questions and an anonymous personal code, while a subsample also participated in individual and group-based cognitive tasks. Behavioural difficulties were assessed with a single 5-point item, a method supported by evidence showing that self-reports reliably capture externalizing behaviours (Kormos & Gifford, 2014). Executive functions were measured through the BRIEF-2 (Gioia, Isquith, Guy, & Kenworthy, 2015), administered to students in the subsample, and their parents. The student form evaluates executive domains: the Behavioural Regulation Index (BRI), Emotional Regulation Index (ERI), Cognitive Regulation Index (CRI), and Global Executive Composite (GEC) indices (α=.91), while the parent form includes additional scales such as Initiate and Organization of Materials (α=.92).

Study strategies and self-regulation processes were assessed through the flexibility and concentration subscales of the AMOS 8–15 battery, a 14-item tool exploring students' study approaches (Cornoldi, De Beni, Zamperlin, & Meneghetti, 2005). Students' perceived learning difficulties were captured through six items addressing reading, comprehension, memory, writing, mathematics, and foreign languages, combined into a reliable scale (α=.77). School well-being was evaluated using the QBS 8–18 (Marzocchi & Tobia, 2011), a 27-item self-report including subscales such as Satisfaction/Recognition, Teacher and Peer Relationships, Emotional Attitude, and Self-Efficacy (α=.62–.81; total α=.82). Academic emotions were assessed via the AEAL (Raccanello, Brondino, Crescentini, Castelli, & Calvo, 2022), which measures positive and negative emotions through 10 adjectives rated on a 5-point scale (α=.66–.82).

Students in the subsample also completed standardised cognitive tasks: cognitive flexibility was measured with the Dimensional Change Card Sort (Zelazo, 2006); working memory with the Letter-Number Sequencing task of the WISC-IV (Wechsler, 1991; Orsini, Pezzuti, & Picone, 2012); inhibitory control with the child-friendly Flanker task using cartoon fish (Rueda et al., 2004); and planning with the Tower of London task (Phillips, 1999). Learning abilities were further assessed through standardised reading and writing tests from the DDE-2 battery (Sartori, Job, & Tressoldi, 2007), rapid calculation tasks from the BDE-2 (Biancardi & Nicoletti, 2015), and a descriptive writing task from the BVSCO-3 (Cornoldi, De Beni, Zamperlin, & Meneghetti, 2005).

3.4. Statistical analysis

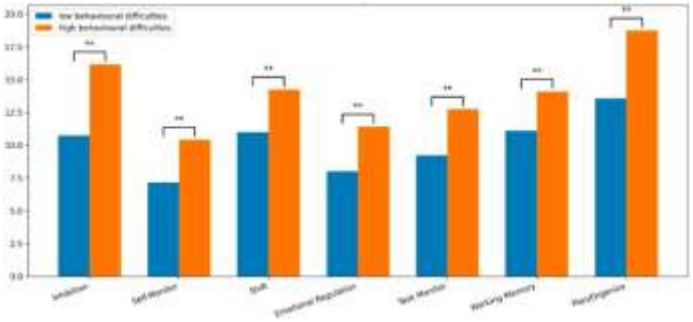
Analyses used SPSS and Mplus: descriptive statistics, Pearson correlations, independent samples t-tests, GLMs and multivariate regression and path models predicting T2 outcomes from T1 variables while

controlling for baseline scores. Psychometric checks (Cronbach's alpha) ensured acceptable reliability; models' fit was evaluated with RMSEA, CFI and TLI.

4. Results

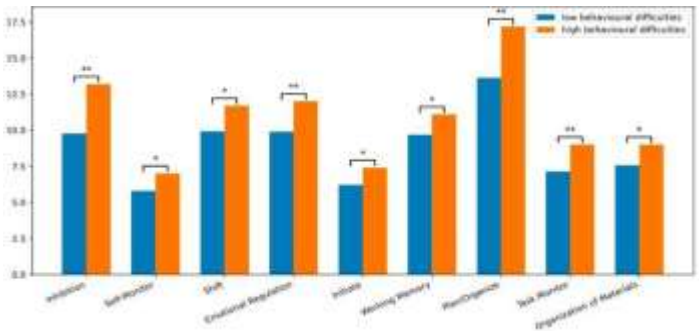
Analyses revealed that students with higher behavioural difficulties reported significant impairments in everyday executive functioning, particularly in inhibition, self-monitoring, working memory, and planning abilities. GLM analyses of BRIEF-2 student scores showed significant group differences, with the strongest effects for inhibition, followed by self-monitoring, planning and organization, and emotional regulation. Smaller yet significant effects were observed for cognitive flexibility and working memory (Figure 1).

*Figure 1. Brief-Student Subscale Scores by Behavioural Difficulties (GLM) - Note: * = p < .05; ** = p <.01.*



BRIEF-2 parent scores mirrored these findings, indicating that parents also perceived greater executive functioning difficulties in children with elevated behavioural problems, especially in inhibition, emotional regulation, planning, and task monitoring (Figure 2). Behavioural difficulties were moderately negatively correlated with school satisfaction, self-efficacy, and teacher relationships, and positively correlated with negative academic emotions such as anger, hopelessness, and boredom. Comparisons between students with low versus moderate-to-high behavioural difficulties indicated that those with elevated difficulties reported lower concentration and greater perceived learning difficulties in reading and writing, whereas rapid calculation performance did not differ. Performance-based cognitive tasks did not consistently distinguish behavioural groups, whereas BRIEF-2 ratings showed robust associations across inhibition, self-monitoring, planning/organization, and emotional regulation.

*Figure 2. Brief-Parents Subscale Scores by Behavioural Difficulties (GLM) - Note: * = p < .05; ** = p <.01.*



As illustrated in Figure 3, behavioural difficulties negatively predicted students' satisfaction (β= −.23) and self-efficacy (β= −.19), suggesting that higher behavioural issues are associated with lower levels of school well-being. In contrast, the total score of self-reported learning difficulties positively predicted all dimensions of well-being, except for Emotional Regulation. Pearson correlation analyses revealed significant associations between behavioural difficulties reported at T1 and several academic emotions measured at T2. Significant negative correlations were found with the emotions of pride (r= −.30, *p<.001*) and enjoyment (r= −.17, *p=.04*), while significant positive correlations were observed with feelings of anger (r=.41, *p<.001*), hopelessness (r=.21, *p=.01*), and boredom (r=.26, *p=.002*). These findings suggest that students perceived as exhibiting greater behavioural difficulties tend to report lower levels of positive self-related emotions and higher levels of negative school-related ones. Self-reported learning difficulties at T1 followed a similar pattern, showing significant negative correlations with feelings of enjoyment (r= −.23, *p=.006*) and pride (r= −.21, *p=.01*), and significant positive correlations with shame (r=.27, *p=.002*) and boredom (r=.22, *p=.01*).

Figure 3. Standardized Regression Model of Behavioural Difficulties and Learning on QBS Outcomes.

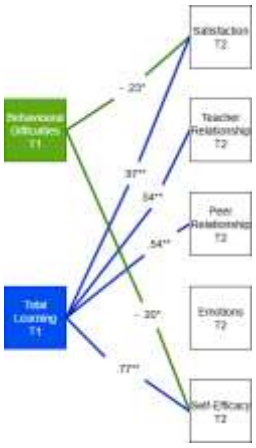
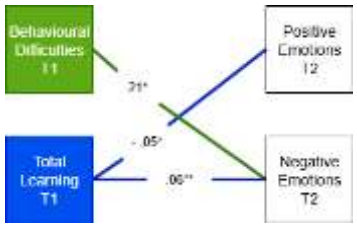


Figure 4. Standardized Regression Model of Behavioural Difficulties and Learning on AEAL Outcomes.



A regression analysis was conducted using behavioural difficulties and self-reported learning difficulties at T1 as predictors of academic emotions at T2, grouped into Positive and Negative Emotions. Model fit indices (RMSEA=0.00; CFI=1.00; TLI=1.00) indicated an excellent fit, suggesting that the proposed model closely reproduces the observed data. Figure 4 shows that behavioural difficulties significantly predict negative emotions, whereas perceived learning difficulties significantly predicted both lower levels of positive emotions and higher levels of negative emotions. These results suggest that both behavioural and learning challenges contribute to students' emotional experiences at school, with learning difficulties impacting both poles of the emotional spectrum.

5. Discussion

The present study examined the interplay between behavioural difficulties and multiple domains of students' functioning in school using a longitudinal, multi-informant design. Drawing on prior evidence that behavioural regulation influences learning, engagement, and adjustment (Romero-López, Quesada-Conde, Bernardo, & Justicia-Arráez, 2017), the study addressed three objectives: (H1a) whether higher behavioural difficulties were associated with reduced concentration and flexibility; (H1b) whether behavioural difficulties related to impairments in learning outcomes and executive functioning as reported by students and parents; and (H2) whether T1 behavioural difficulties predicted school well-being and academic emotions at T2.

Findings showed that externalising behavioural difficulties had widespread effects on everyday executive functioning, emotional experiences, and school well-being. A discrepancy emerged between rating-based and performance-based EF measures, consistent with the distinction between typical (ecological) and maximal (test) performance: rating scales such as the BRIEF-2 reflect sustained, real-world regulatory demands not captured by brief, structured tasks (Toplak, West, & Stanovich, 2013). As a result, students may perform adequately under optimal conditions while continuing to struggle with self-regulation in daily classroom contexts. The strong concentration gap aligned with models identifying inhibitory control and working memory as central to classroom behaviour (Romero-López et al., 2017). Inhibitory control supports the suppression of impulsive behaviours and adherence to school norms, while working memory enables following instructions and maintaining task goals. When these skills are impaired, students show higher distractibility and difficulties sustaining attention (Romero-López et al., 2017). Conversely, cognitive flexibility, assessed via self-report, did not correlate with behavioural difficulties, likely because flexibility is less salient in everyday context (Hohl & Dolcos, 2024).

Consistent with learning-task results, behavioural difficulty levels were not differentiated by performance-based measures of inhibition, switching, planning, or working memory. In contrast, BRIEF-2 ratings showed strong differences across EF domains. Parental ratings confirmed students' reports, especially for inhibition, self-monitoring, planning/organisation, and emotional regulation, domains commonly associated with externalising behaviours. This pattern reflects the ecological nature of rating-based EF measures (Hendrickson & McCrimmon, 2019) and the limited ecological validity of performance tasks (Toplak et al., 2013). Overall, results support integrated school-based interventions combining behavioural supports, teacher coaching, scaffolded routines, EF-training programmes, and emotional-regulation approaches. Because rating-based EF measures partly mediated the link between

behavioural difficulties and school well-being, strengthening students' daily regulatory skills may enhance competence, emotional experiences, and overall satisfaction. Limitations include reliance on self-reports for some constructs, short interval between T1 and T2, and voluntary school participation, which may limit generalisability. Future research should use systematic classroom observations, longer follow-up periods, and randomised controlled studies.

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PSYCHOLOGICAL CAPITAL AS A PROTECTIVE FACTOR FOR UNIVERSITY STUDENTS' MENTAL WELL-BEING: THE ROLE OF DEPRESSION AND LONELINESS

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Abstract

Background: Given that the demanding university transition often leads to elevated distress and loneliness, impacting student well-being, this study addresses the current research gap by hypothesizing that Psychological Capital (PsyCap) enhances well-being specifically through its buffering effects against these negative emotional states. *Aims:* This study examined the relationships between PsyCap, depression, loneliness, and well-being, accounting for sociodemographic factors (gender, age). A further aim was to investigate whether depression and loneliness mediate the relationship between PsyCap and well-being. *Methods:* The research sample consisted of 213 university students (mean age = 23, 89.2% female). The data were analyzed using hierarchical regression and parallel mediation analysis in JASP and SPSS software. *Results:* The results showed that PsyCap is positively related to well-being, whereas depression and loneliness were negatively related to this construct. Moreover, the mediation analysis revealed that depression and loneliness partially mediated the relationship between PsyCap and mental well-being. *Conclusions:* Overall, these findings support the notion of psychological capital as a protective factor associated with higher well-being, both directly and indirectly through reduced negative emotional states. Strengthening PsyCap among students could therefore represent a promising direction for interventions aimed at enhancing mental health and academic functioning in the university context.

Keywords: *Psychological capital, mental well-being, university students, depression, loneliness.*

1. Introduction

The university period represents a challenging transition (Gale & Parker, 2012) marked by academic, social, and emotional demands. Student well-being extends beyond the absence of illness and includes psychological, social, and cognitive functioning necessary for a fulfilling life (Ben-Arieh, 2006). However, many students experience increased distress, loneliness, and mental health difficulties, highlighting the need to identify protective factors that support well-being (OECD, 2018; Uzman & Telef, 2015). One of the personal resources for navigating these challenges is Psychological Capital (PsyCap) defined by Luthans, Youssef, and Avolio (2007) as a positive psychological state comprising self-efficacy, optimism, hope, and resilience. Research shows that PsyCap is positively related to well-being (Avey, Luthans, Smith, & Palmer, 2010), negatively to stress (Kaur & Sandhu, 2016; Kaur & Amin, 2017) and activates inner positive strength to withstand external challenges (Yang & Yang, 2022). In contrast, depression and loneliness represent major barriers to university students' mental health. Depression is strongly linked to student lower levels of well-being (Othman, Ahmad, Morr, & Ritvo, 2019; Holm-Hadulla et al., 2021), while loneliness, intensified during the transition to university, is negatively associated with well-being and stress management (Bhagchandani, 2017; Stoliker & Lafreniere, 2015). Although the relationship between PsyCap and well-being is well established, the mechanisms underlying this link remain unclear. Therefore, it is hypothesized that PsyCap enhances well-being by buffering against depression and loneliness.

2. Objectives

The aim of this study was: 1) to analyze the relationships between PsyCap, depression, loneliness, and mental well-being, while accounting for sociodemographic factors (gender, age), and 2) to examine whether depression and loneliness mediate the relationship between PsyCap and mental well-being.

3. Methods

3.1. Sample and procedure

A research sample consisted of 213 university students (89.2% of women). The mean age was 23.04 years (minimum = 17, maximum = 53). In terms of education degree, 98 students (46%) were studying at the bachelor's degree level, 95 (44.6%) were studying at the master's or engineering level, 13 (6.1%) students were studying at the joint (bachelor's and master's degree), and 7 (3.3%) were studying at the doctoral level. Students were from the universities in Slovak republic, with the highest percentage (44.6%) studying at the Pavol Jozef Šafárik University in Košice (east of the Slovak republic).

The study utilized a quantitative cross-sectional design to collect data on mental well-being, PsyCap, depression, and loneliness from a sample of university students. University students were selected based on availability and fill in an online questionnaire via social networks from May to June 2024 and from September to October 2024.

3.2. Measures

Warwick-Edinburgh Mental Well-being Scale (Tennant et al., 2014) consists of 14 items representing hedonic and eudaimonic aspects of well-being (e.g. "I've been feeling useful"). A confirmatory factor analysis conducted by Liptáková (2025) confirmed one-factor model [$\chi 2$ (74; N = 226) = 159.528; TLI = 0.909; CFI = 0.927; RMSEA = 0.072; SRMR = 0.050; KMO = 0.892)]. Cronbach's alpha value indicated good internal consistency ($\alpha = 0.876$). *Compound PsyCap Scale* (Kačmár, Kušnírová, Dudášová, Vaculík, & Procházka, 2022) is the Slovak version of the PsyCap measurement and consists of 12 items (e.g. "Right now, I see myself as being pretty successful"). Cronbach's alpha value indicated good internal consistency for the overall questionnaire ($\alpha = 0.899$). *Depression Scale* (Van de Velde, Bracke, & Levecque, 2010) consists of 8 items and measures depressive symptoms (e.g. "How much of the time during the past week were you happy?"). A confirmatory factor analysis also showed adequate fit indices [$\chi 2$ (20; N = 226) = 68.600; TLI = 0.911; CFI = 0.937; RMSEA = 0.104; SRMR = 0.077; KMO = 0.879] (Liptáková, 2025), with a good internal consistency ($\alpha = 0.862$). *UCLA Loneliness Scale* (Steptoe, Shankar, Demakakos & Wardle, 2013) is a 3-items measurement for loneliness (e.g. "How often do you feel isolated from others?"). In the present research, Cronbach's alpha value indicated good internal consistency for the overall questionnaire ($\alpha = 0.807$).

3.3. Data analysis

Data analysis included Spearman's rho correlation, descriptive statistics, hierarchical linear regression using SPSS software, and parallel mediation analysis using JASP software.

4. Results

4.1. Descriptive statistics

As can be seen from *Table 1*, age showed a small positive correlation with mental well-being (*rho* = .165, $p < .05$) and PsyCap (*rho* = .186, $p < .01$), and a weak negative correlation with loneliness (*rho* = -.174, $p < .05$). Mental well-being was strongly and positively associated with PsyCap (*rho* = .679, $p < .001$) and negatively associated with depression (*rho* = -.426, $p < .001$) and loneliness (*rho* = -.507, $p < .001$). PsyCap was also negatively correlated with depression (*rho* = -.311, $p < .001$) and loneliness (*rho* = -.433, $p < .001$). Finally, depression was positively associated with loneliness (*rho* = .448, $p < .001$), indicating that higher levels of depressive symptoms were related to greater feelings of loneliness. The mean values, standard deviations, minimum, and maximum values are also presented in *Table 1*.

Table 1. Descriptive Statistics.

	1.	2.	3.	4.	5.
1. Age	-				
2. Mental Well-being	0.165*	-			
3. PsyCap	0.186**	0.679***	-		
4. Depression	-0.128	-0.426***	-0.311***	-	
5. Loneliness	-0.174*	-0.507***	-0.433***	0.448***	-
Mean	23.04	47.11	51.22	12.55	6.06
SD	4.79	8.10	8.29	3.35	2.09
Minimum	17	26	29	6	3
Maximum	53	70	72	23	9

*Notes: Spearman's rho values are interpreted, *p < 0.05, **p < 0.01, ***p < 0.001*

4.2. Hierarchical lineal regression

Table 2 summarizes the results of the hierarchical multiple regression analysis. In Step 1, sociodemographic variables (gender, age) were entered and accounted for 2.2% (R^2 = 0.022) of variance in mental well-being. Within this step, age showed a marginal positive association with mental well-being, whereas gender was not significantly related to this variable. In Step 2, psychological capital (PsyCap), depression, and loneliness, were added to the model, explained 56.8% (R^2 = 0.568, F (5, 209) = 53.668, p < .001) of variance in mental well-being. In the final model, PsyCap was strongly and positively associated with mental well-being, while depression and loneliness were negatively associated with this construct.

Table 2. Summary of Hierarchical Multiple Regression Analysis.

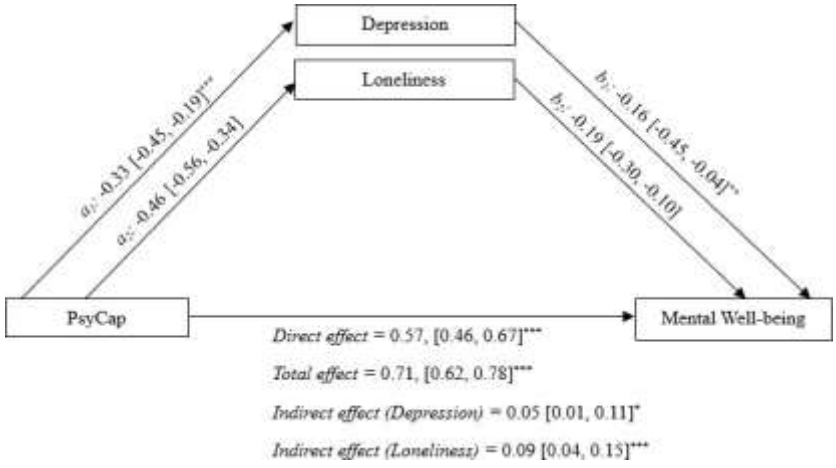
		Mental Well-being			
		B	*SE*	*β*	*p*
Step 1	Gender	1.609	1.755	0.063	0.360
	Age	0.227	0.115	0.136	**0.050**
Step 2	Gender	0.560	1.178	0.022	0.635
	Age	0	0.079	0	0.995
	PsyCap	0.546	0.051	0.560	**< 0.001**
	Depression	-0.373	0.124	-0.156	**< 0.01**
	Loneliness	-0.786	0.215	-0.204	**< 0.001**

Notes: all the VIF values < 1.50; R^2 = 0.022 for Step 1, ΔR^2 = 0.558 for Step 2 (p < .001)

4.3. Parallel mediation analysis

To further specify and clarify the relationships among the study variables, parallel mediation analysis was conducted. A significant total effect of PsyCap on mental well-being was found (*SE* = 0.042, *CI* [0.617, 0.783], p < 0.001). When depression and loneliness were included in the model, the direct association between PsyCap and mental well-being remained significant (*SE* = 0.052, *CI* [0.461, 0.667], p < 0.001). The results of parallel mediation analysis are presented in Figure 1, indicating significant indirect associations via depression (*SE* = 0.023, *CI* [0.013, 0.106], p = 0.027) and loneliness (*SE* = 0.026, *CI* [0.044, 0.147], p < 0.001). Taken together, these findings are consistent with partial mediation, suggesting that depression and loneliness partially account for the association between PsyCap and mental well-being among university students.

Figure 1. Parallel Mediation Model of Mental Well-being, Mediated by Depression and Loneliness.



5. Discussion and conclusions

The study examined relationships between psychological capital (PsyCap), depression, loneliness, and mental well-being in university students, supporting PsyCap as a key protective factor that is related to well-being both directly and indirectly through negative emotional states.

Consistent with previous research (Avey et al., 2010; Selvaraj & Bhat, 2018) the results revealed a strong positive relationship between PsyCap and mental well-being. This supports the conceptualization of PsyCap as a positive psychological state of development that mobilizes internal resources such as hope, optimism, self-efficacy and resilience, enabling individuals to cope more effectively with academic and psychosocial demands (Luthans et al., 2007). In line with prior research evidence, depression and loneliness were significantly negatively associated with well-being. These findings corroborate earlier studies indicating that depressive symptoms and perceived social isolation substantially undermine psychological functioning and quality of life among students (Bhagchandani, 2017; Holm-Hadulla et al., 2021). The positive association between depression and loneliness observed in this study supports the view that these constructs are closely intertwined during university years. Importantly, regression analysis demonstrated that when PsyCap, depression, and loneliness were included in the model, sociodemographic variable (age) was no longer associated with well-being, suggesting that internal psychological resources may be more important for students' well-being than demographic characteristics. This highlights the importance of focusing on modifiable psychological factors when designing interventions. A key contribution of this study is clarifying the mechanisms linking PsyCap to mental well-being. The parallel mediation analysis showed that depression and loneliness partially mediated the relationship between PsyCap and well-being, indicating that PsyCap enhances well-being both directly and indirectly by reducing depressive symptoms and loneliness. These findings align with the conservation of resources theory (Hobfoll, 2011), which posits that individuals with greater psychological resources are better protected against stress-related losses, as well as with previous empirical work highlighting the buffering role of PsyCap in the context of psychological distress (Riolli, Savicki, & Richards, 2012).

From an applied perspective, the results suggest that strengthening psychological capital may represent a promising avenue for preventive and supportive interventions in higher education settings. Programs aimed at enhancing hope, optimism, resilience, and self-efficacy could help students mitigate the negative effects of loneliness and depression, particularly in increasingly digitalized and socially fragmented academic environments (Przybylski, Murayama, DeHaan, & Gladwell, 2013).

Several limitations of the present study should be noted. The cross-sectional design limits causal interpretations, and self-reported measures may have introduced response biases. Additionally, the sample characteristics may restrict generalizability. Future research should use longitudinal or experimental designs, multi-method approaches, and more diverse samples to better clarify the mechanisms linking psychological capital to mental well-being.

In conclusion, this study highlights psychological capital as a protective factor for university students' mental well-being. PsyCap appears to support positive functioning both directly and indirectly by reducing depression and loneliness, underscoring the importance of fostering positive psychological resources within university mental health promotion strategies.

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TOWARDS A CONFIRMATIVE EVALUATION OF TRAINING TRANSFER: TRANSLATION, CULTURAL ADAPTATION AND VALIDATION

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Abstract

Training transfer evaluations have gained in interest. Indeed, evaluating to which extent training knowledge and skills are applied is valuable. It establishes training effectiveness and return on investment (Phillips, 2012), identifies barriers to application (Burke and Hutchins, 2007) and supports improvement of training designs (Salas et al., 2012).
Two evaluation approaches are commonly accepted. First, the objective-based that focuses on the application of the skills after training (e.g. Kirkpatrick, 1976). Although shown to be effective (Kirkpatrick & Kirkpatrick, 2006), this approach relies on self-reported data which can be biased in terms of social desirability, recall and objectivity (Holton, 1996; Arthur et al., 2003; Alliger et al., 1997).
Second, the system-based approach that analyses the predictors of training transfer (i.e. Holton et al., 2005). Literature suggests that the predictors are effective in divers contexts (Bates et al., 2012) but critics claim that this approach lacks to analyse training transfer itself (Holton et al., 2005).
Thus, Zinovieff (2008) theorized a confirmative approach that combines the before-mentioned to a questionnaire that focuses on systems and objectives. A first attempt by Gonzáles et al. (2022) relying on scales proposed by Kirkpatrick (1976) and Holton et al. (2005) has been validated in Spanish. The analysis shows motivation to transfer as a weak predictor of training transfer. This is inconsistent with current findings and thus further research is needed.
The aim of our paper is to include a validated motivation to transfer scale by Gegenfurtner and Quesada (2022) and to culturally adapt and validate the scales in French in order to propose a confirmative evaluation.
The scales have been culturally adapted and translated according to Corbière & Fraccaroli (2020). Data collection takes place at firefighters' training department with 590 participants planned. The study follows a longitudinal repeated measure design, so participation is requested at the end of the training and one week after for the system-based evaluation and four months after that for motivation to transfer and objective-based evaluation. The analyses includes descriptive statistics and exploratory factor analysis.
Data collection will be launched beginning of November 2025. We will present the preliminary results of the survey. The latter is expected to provide information on whether the evaluation is valid or if adjustments are needed.
The study is intended to contribute a confirmative training transfer evaluation and may reveal efficient factors for this approach. Results should contribute to training effectiveness.

Keywords: *Confirmative evaluation, training, transfer.*

1. Introduction

The Universal Declaration of Human Rights states that education and more precisely "*professional education shall be made generally available"* (United Nations, 1948, art. 26.1). Therefore adult trainings have multiplied and the interest for training transfer has risen. The latter is defined as "t*he effective and continuous application by trainees to their work of the knowledge and skills acquired during training*" (Broad and Newsroom, 1992, p. 5).

Indeed, this is the final purpose of every training (Wear, 2020). However, training effectiveness is compromised in terms of training transfer (Ahmadi and Keshavarzi, 2013). According to research by Saks and Belcourt (2006) only one participant out of three transfers training content one year after. Therefore, researchers have turned to training transfer evaluations.

Doubtlessly, evaluating to which extent training knowledge and skills are applied is valuable. It establishes training effectiveness and return on investment (Phillips, 2012), identifies barriers to application (Burke and Hutchins, 2007) and supports improvement of training designs (Salas et al., 2012).

Two major types of training transfer evaluations have evolved simultaneously, namely objective-based and system-based. First, the objective-based evaluation of training transfer focuses on the training objectives and especially on *behavior* as defined by Kirkpatrick (1976). The latter is the extend to which knowledge and skills are applied on the job.

According to Kirkpatrick & Kirkpatrick (2016) such *behavior* is dependent of *critical behaviors*. These are basic actions that are necessary to achieve organizational objectives. In order to reinforce those *critical behaviors*, Kirkpatrick & Kirkpatrick (2016) suggest that management insists on feedback systems (*required drivers)* to encourage, monitor and reinforce their (correct) application. In fact, organisations that have introduced required drivers are believed to have identified a more reliable training transfer behavior unlike organizations that introduced training alone (Brinkerhoff, 2006).

Critical behavior is also believed to rely on *on-the-job learning* since it creates a sense of responsibility for participants and superiors to transfer the training. Research by Swanson (2005) confirms this influence of context on *critical behavior* and training transfer. This approach has been supported by a considerable number of authors and applied in diverse contexts (e.g. Hamblin, 1974; Brinkenhoff, 1987; Phillips, 1996; Grohmann & Kauffeld, 2013). Nevertheless, research has revealed some shortcomings of this approach. Mainly, authors such as Guerci et al. (2010) claim that the training transfer process is complex and that a focus on results only sets important variables aside.

Therefore, some authors have turned to the system-based approach of training transfer evaluation. This approach concentrates on the predictors of training transfer rather than the behavior itself. Seminal contributions in this field have been made by Baldwin & Ford (1988) who introduced *training inputs.*

The latter depends on three cornerstone, more precisely, *trainee characteristics* such as their personality, their abilities and their motivation; *training design* with variables including training content and information sequencing; and finally the *work environment* that relies on variables like organizational support and opportunities to transfer.

A large body of data concerning training inputs has been reported and indicates a significant predictive effect of training transfer (Kirwan & Birchall, 2006; Monnot, 2012; Bezrukova et al., 2016). Consequently, training inputs are believed to play an important role as foundation of training transfer evaluation and has hence be widely applied.

To assess it, Holton et al. (2000) proposed the Learning Transfer System Inventory - a collection of 16 variables that have been shown to predict transfer. Among others, these include transfert motivation, transfer design and transfer effort - performance expectations which are the most reliable predictors (Hutchins et al., 2013).

Despite a large body of data underlying the strength of the LTSI predictors, some authors claim that this kind of evaluation does not allow an exact analysis of how to improve training transfer, nor does it assess transfer itself to control results (Holton et al., 2000; Holton et al., 2005; Pineda-Herrero et al., 2012).

One of the major topics to be investigated was thus to develop a training transfer evaluation that combines the strengths of both approaches by minimizing shortcomings. In this context, Zinovieff (2008) theorized a *confirmative* approach that aims to understand behavior, accomplishment and results by focusing on continuing competences. Accordingly, three aspects for data collection are recommended:

A first one aiming to understand participant's need for training. A second concerning their objectives to transfer training and finally, an assessment of their training transfer behavior (Zinovieff, 2008).

Indeed, this suggests to combine the objective-based approach with the system-based approach to evaluate training transfer. A rare attempt of such an evaluation has been made by González-Ortiz-de-Zárate et al. (2020). Two questionnaires have been developed based on the works of Kirkpatrick (1976) and Holton et al. (2005).

On the one hand, the effectiveness questionnaire (CdE) that is based on the objective-based approach and thus questions key performance indicators, return on investment and return on expectations. On the other hand, the Factors Predicting Transfer (FPT) questionnaire is composed of predicting variables of training transfer. Based on the system-based approach and especially on the LTSI (Holton et al., 2000), González-Ortiz-de-Zárate et al. (2020) reduced the factors to four main variables:

First, *motivation to transfer* defined as the extend to which participants are ready to transfer and to which they perceive training transfer as a catalyst of professional development. Second, *satisfaction with the training* which is the degree to which participants appreciated the training and to which they feel a progression of skills, knowledge. Third, *content relevance* that represents the extent to which participants perceive the content to be relevant for their job. And finally, *accountability* as the degree to which superiors are interested and drive training transfer on the job.

Both questionnaires and their joint application have been validated in Spanish (González-Ortiz-de-Zárate et al., 2020). Although the literature pertaining to the CdE confirms it's

reliability, the FPT questionnaire seems to present shortcomings. In fact, the analysis shows motivation to transfer as a weak predictor of training transfer. This is inconsistent with current findings (e.g. Van den Bossche et al., 2010; Gegenfurtner et al., 2009).

As a matter of fact, most authors suggest that motivation to transfer is a trainee characteristic. Alternatively, some authors have insisted that it may act as a mediator of training transfer predictors and training transfer (Kontoghiorghes, 2004; Pugh & Bergin, 2006; Gegenfurtner et al. 2009). First findings support this hypothesis (e.g. Suleiman et al., 2018; Wirdani & Wulansari, 2019) and underline the importance of trainees perception of training transfer as being internal, this is to say self-determined or external (Gegenfurtner et al., 2009). Deci & Ryan (2002) concluded that the more participants are self-determined, in other words to what extent they sense a freedom of choice, the more they are committed to the action. In contrast, the less participants are self-determined, the less they are committed.

Recent work by Gegenfurtner & Quesada-Pallarès (2022) validated the Transfer Motivation Questionnaire (TMQ) from a self-determination theory perspective. The TMQ is composed of four scales, two relative to intrinsic motivation to transfer and two relative to extrinsic motivation to transfer. Unlike previous questionnaires, the TMQ includes scales for *integrated regulation* and *identified regulation* (internal motivation) to transfer. Indeed, previous questionnaires did not manage to validate those scales. Consequently, they could yet not be evaluated directly which may explain the inconsistency of González-Ortiz-de-Zárate et al. (2020) results on motivation to transfer.

The aim of our paper is thus to propose a questionnaire that tends towards a confirmative approach of training transfer. Based on the work of González-Ortiz-de-Zárate et al. (2022), our objective is to improve the motivation to transfer scale by including the TMQ (Gegenfurtner & Quesada-Pallarès, 2022) and to culturally adapt and valid the questionnaires in France.

2. Methods

2.1. Participants

Participants (N = 590 planned) are to be recruited from the local firefighters' training department. The last-mentioned signed a research agreement with the University of Lille. All participants complete workplace trainings during data collection. Participants are excluded if they do not complete the questionnaire and if they are absent from work over the data collection period.

Participation was facultative and no external incentives were provided. All participants gave their consent for participation before data collection.

2.2. Materials

The study uses three questionnaires, namely the FPT, the TMQ and the CdE (González-Ortiz-de-Zárate et al., 2022; Gegenfurtner & Quesada-Pallarès, 2022). The scales have been culturally adapted and translated according to Corbière & Fraccaroli (2020). This is to say that translations followed their 5 step methodology:

First, two French translators translate the questionnaire from the original language to French. Following, a meeting between the research team with the two translators allows to identify possible differences and to find a consensus on the translation. Then, this translation is given to two professional translators whose mother language is the original language of the questionnaire, in our case Spanish and German. After, the research team meets with those two translators to identify some last differences before including the two first translators to the meeting. The objective of this step is to agree on the final version of the questionnaire. Once all translators agree, the questionnaire can be pretested on a sample group in order to test comprehension.

2.3. Procédure

At the end of training, the instructors present the collaboration between the firefighters' training department and Lille University and share the information letter with trainees. Instructors will also send the letter per email to trainees.They have then the opportunity to participate via a Limesurvey link. Before participation, they are requested to read the information letter and to consent for participation.

The study follows a longitudinal repeated measure design. Thus, participants are encouraged to take part in four data collections. The first concerns the FPT and is administered right after training (T1) and one week after that (T2). The MTQ and the CdE are administered four months after training (T3) and one week after that (T4).

During T1 participants have the opportunity to share their contact information if they would like to pursue their participation at the following steps of the study. They are then recontacted per email with the information letter and the following Limesuvey links.

This procedure was approved by the ethics committee of the University of Lille n° 2025-155.

2.4. Data analysis

Descriptive analysis and internal consistency analysis (McDonald's omega) are planned. Moreover, we will proceed to an exploratory factor analysis. To decide whether to maintain or to exclude a factor, we will rely on Kaiser's Eigenvalue, the Scree Plot and Parallel Analysis.

To underpin the exploratory factor analysis, we will analyse the Kaiser-Meyer-Olkin, as well as Bartlett's test.

Concerning the supposed mediating position of motivation to transfer, we will apply the process of Bootstraps.

All analysis will be executed on the SPSS program (or equivalent as Jamovi).

3. Discussion

Our paper is intended to contribute a confirmative training transfer evaluation in French. We aim to identify the variables that are efficient for this approach and to adapt their use for optimal results. Furthermore, we hope to point out leads that may allow to identify and include variables that have been neglected. We especially aim to recognize the impact of motivation to transfer in order to set it's place in the confirmative approach of training transfer.

On a larger scale, this paper should provide evidence for the efficiency of the confirmative approach of training transfer evaluation. Hence, providing further steps towards more efficient training.

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PERCEIVED AND ACTUAL DETECTABILITY OF AI-GENERATED STUDENT WORK ACROSS THREE COHORTS

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Abstract

The everyday use of generative artificial intelligence by students has made it increasingly difficult to know who actually authored an academic homework assignment. This paper presents findings from a three-year, three-cohort mixed-methods research program conducted between 2023 and 2025, examining both perceived and actual ability to distinguish between student-authored and AI-generated academic assignments. The first research wave (2023), previously published, examined university teachers' (N = 12) ability to identify AI-generated versus student-authored assignments across multiple course types. Results showed detection accuracy only slightly above chance level (M = 53.75%), accompanied by moderately high confidence in judgments. One year later, a second wave (2024) replicated the procedure with a convenience sample of educational psychologists (N = 16), yielding comparable results: detection accuracy remained low (M = 52.31%), while confidence remained moderately high. The third research wave (2025) focused on first-year university students (N = 27) from two study programs (business informatics and cyber communication). A mixed-methods design combined an anonymous questionnaire with four focus groups. Quantitative findings indicate that students assessed teachers' detection accuracy with striking precision (M = 52.73%), closely matching actual performance observed in the two previous waves. At the same time, students estimated their own ability to produce AI-assisted assignments that would remain undetected at a substantially higher level (M = 71%). Focus-group discussions further revealed that, despite this confidence, students themselves struggled to reliably identify AI-generated work when presented with concrete examples. Participants agreed that AI can be a valuable tool to support learning, but not a substitute for producing entire assignments. Students emphasize the need to develop their own writing, research, and critical thinking skills to ensure the quality of their learning. Because students may struggle to resist the temptation of taking the easier path, institutions need to offer clear guidance and support that promotes responsible and learning-oriented uses of AI. Taken together, the findings reveal a growing asymmetry in higher education: students appear to have developed high confidence in their ability to produce AI-assisted work that remains undetectable, along with an experience-based sense that teachers generally struggle to identify such work—an impression that closely reflects teachers' actual detection performance. Although students are aware of its possible negative consequences, many still report continued and intended use of AI tools. These findings raise urgent questions for assessment design, clearer institutional guidance, and the sustainability of current approaches to academic integrity.

Keywords: *Academic integrity, AI detectability, higher education, mixed-methods research.*

1. Introduction

Students' independent work in the form of essays, projects, research tasks, reflections on readings, and similar take-home assignments is an essential part of higher education. Within the European Credit Transfer and Accumulation System (ECTS), credits are based on overall student workload and imply that students engage in independent work outside the classroom in order to achieve intended learning outcomes. Through written take-home assignments, students develop writing competence and an academic style; strengthen critical thinking, information literacy, and research skills; and foster metacognition and reflectivity, self-regulation and time management, and—no less importantly—ethical conduct and academic integrity. Because these tasks are completed outside direct supervision, they also depend on trust and transparent authorship, which makes them vulnerable to different forms of misconduct. At the same time, it is not new that some students attempt to reduce effort by using shortcuts. Research on cheating in higher education shows that academic misconduct is shaped by both individual and contextual factors, and that it requires systematic prevention rather than punishment alone (Chiang, Zhu, & Yu, 2022; Miles, Campbell, & Ruxton, 2022; Tight, 2024; Waltzer & Dahl, 2023).

However, with the rapid development of artificial intelligence (AI), particularly ChatGPT, some forms of cheating have become easier and faster to carry out, and challenges to academic integrity are becoming increasingly significant (Cotton, Cotton, & Shipway, 2024). It quickly became apparent that AI could generate and write many types of assignments within minutes, while educators often have difficulty distinguishing students' work from text produced by ChatGPT (Busch & Hausvik, 2023; Fleckenstein et al., 2024; Miljkovic Krečar, Kolega, & Jurčec, 2024; Tyler, Coble, Gagnon, & Howard, 2025; Waltzer, Cox, & Heyman 2023). Fleckenstein et al. (2024), for example, report that current AI can produce essays that are difficult for teachers to detect, while teachers may still feel confident in their judgments. In this context, relying on "AI-like style" cues becomes problematic, because such cues are inconsistent and can also penalize honest students, including non-native speakers. In addition, reviews of AI-generated text detection tools indicate that detectors are often not reliable enough to serve as stand-alone evidence of misconduct and may be biased in real-world settings (Gotoman, Luna, Sangria, Santiago, & Barbuco, 2025).

These developments have triggered an ongoing debate in higher education: should AI use be banned, or should it be integrated into learning outcomes? Some authors argue that integration is a more realistic and educationally useful approach than blanket prohibition, provided that students are guided to use AI critically and transparently (Yu, 2023). Against this background, the present paper examines both actual and perceived detectability of AI-generated student work. We build on a three-wave research program (2023–2025) that uses comparable materials and procedures across different cohorts. The multi-year design is particularly informative because it captures whether—and how quickly—students and teachers adapt to rapidly diffusing AI tools and to emerging institutional norms, rather than treating detectability as a static, one-time phenomenon. Understanding the gap between perceived and actual detectability matters because it may shape student decisions, teacher practices, and the long-term sustainability of take-home assessment formats. If students believe that detection is weak, this can encourage risky behavior and undermine fairness; conversely, if teachers believe they can "recognize AI" but in fact cannot, then assessments of learning outcomes rest on incorrect assumptions. By combining performance data with perceptions and norms, we aim to move the discussion from "Can we detect AI writing?" toward "How should higher education respond when detection is weak—without sacrificing learning outcomes or fairness?"

2. Method

2.1. Wave 1 (2023): University teachers (in-house workshop)

Results from wave 1 have been published (Miljković Krečar, et al., 2024); therefore, only a brief description of the procedure is provided here to enable comparison with wave 2.

Based on homework prompts from teachers' courses and examples of student submissions produced before November 2022, eight task types (undergraduate and graduate level courses) were selected and compiled into 25 short texts, combining authentic student submissions with AI-generated responses (approximately 50–66% AI per task type). Most AI texts were generated with GPT-3.5 using the original teacher prompts; selected more complex tasks were generated with GPT-4. All texts were formatted uniformly. The study was conducted as an in-person classroom workshop. Teachers received folders containing texts from one task type and, for each text, indicated: (1) whether it was student-authored or AI-generated, (2) their confidence level (1–5), and (3) cues used for the decision. Folders were rotated among participants, and responses were collected in a way that minimized mutual influence. The activity lasted approximately 45 minutes, and 5–9 evaluations per paper were obtained. Prior to the task, teachers rated their expected ability to recognize AI-generated work (1–5; M = 3.0).

2.2. Wave 2 (2024): Educational psychologists (conference workshop)

Wave 2 was conducted in November 2024 as part of a workshop at an annual psychology conference, with a convenience sample of psychologists (N = 16; all female) employed in educational institutions.

To fit the workshop time constraints, five of the original eight course types were selected (6 authentic student texts plus 9 AI-generated texts). Task selection was guided by two criteria: (a) tasks that proved difficult to detect in wave 1 (to test whether they remained resistant), and (b) tasks whose content domain could be reasonably evaluated by non-specialists. The procedure mirrored wave 1: participants classified each text as student vs. AI, reported confidence on the same scale, and provided brief written cues. Prior to judging, participants rated their expected effectiveness in the task (1–5 scale; M = 2.69)

2.3. Wave 3 (2025): University students

The third research wave was conducted in December 2025 with first-year university students at VERN' University (N = 27) enrolled in two undergraduate programs (Business Informatics; Cyber Communication). The study used a mixed-methods design combining (a) an anonymous student questionnaire and (b) four focus groups.

2.3.1. Questionnaire (quantitative component). The anonymous questionnaire assessed: (1) frequency and modes of using generative AI tools for homework, (2) prior negative experiences (e.g., suspected plagiarism), (3) perceived clarity of institutional and secondary-school guidance regarding acceptable AI use, (4) students' estimates of teachers' ability to detect AI-assisted work (0–100%), (5) perceived teacher accuracy in detection (categorical item), and (6) students' estimates of their own ability to produce AI-assisted work that would remain undetected (0–100%). Open-ended questions captured perceived teacher detection strategies, future intentions, and perceived sanctions.

2.3.2. Focus groups (qualitative component). Four focus groups (approximately 6–7 students per group, intentionally mixed across programs) followed a semi-structured protocol. Students first attempted to classify a set of short assignments as student-authored vs. AI-generated, explained their criteria, and then discussed acceptable vs. unacceptable AI use across assignment types (essay/reflection, research tasks, technical/computational tasks), including proposals for "fair and reasonable" institutional rules. Questionnaire data were analyzed descriptively (frequencies, means, and standard deviations). Focus-group data will be reported as a thematic analysis focusing on (a) perceived detection cues and (b) students' normative boundaries of AI use by assignment type. Participation was voluntary and confidential, and all students provided informed consent prior to the focus-group discussion. They could withdraw at any time without any consequences.

3. Results

3.1. Professors' detection accuracy and confidence

Across both evaluator cohorts, the ability to distinguish student-authored from AI-generated homework remained close to chance level. In wave 1, overall detection accuracy was M = 53.75%, with moderately high confidence (M = 3.76) and in wave 2, overall accuracy across five selected task types was M = 52.31%, with comparable confidence (M = 3.51; Table 1).

When restricting wave 1 results to the same five task types used in wave 2, teachers' accuracy decreased to M = 49.40% while confidence remained high (M = 3.81), indicating weak calibration (high confidence despite near-chance performance).

A further practical concern is the asymmetry between correctly identifying AI-generated texts and avoiding false accusations. In wave 2, accuracy for classifying AI-generated texts fell slightly below chance (AI texts: M = 48.82%), while accuracy for classifying genuine student texts was higher (student texts: M = 57%), implying a non-trivial risk of both missed AI cases and erroneous "AI" labeling of authentic student work depending on task characteristics and cues used.

Table 1. Detection accuracy and confidence across three waves.

Wave (year)	Sample (N)	Task (short)	Objective & Perceived accuracy (%)	Confidence in accuracy / undetectability (M /%)
Wave 1 (2023)	Teachers (12)	Classify texts (student vs. AI) across 8 task types	AI-text: 47.94 student-text: 63.75 TOTAL: 53.75	3.76
Wave 2 (2024)	Educational psychologists (16)	Same classification task; 5 selected task types	AI-text: 48.82 student-text: 57 TOTAL: 52.31	3.51
Wave 3 (2025)	Students (27)	Questionnaire + Focus groups	Perceived teachers accuracy: 52,7	Confidence in self undetectability: 71%

In both workshop cohorts, evaluators relied mainly on surface linguistic cues—style, vocabulary level, and perceived naturalness of phrasing—when classifying texts as student-authored vs. AI-generated. Teachers in wave 1 often associated "student" authorship with personal voice and typical student errors, whereas "AI" was linked to overly polished structure and "too professional" language; wave 2 comments showed a similar pattern and frequently noted uncertainty.

3.2. Students' perceptions

Students most frequently described AI use as "help" in the form of clarifying tasks, generating directions/structure, and saving time; a smaller portion explicitly mentioned using AI to generate direct solutions. Most students reported having used AI for homework at least occasionally: 55.6% reported using

them very often (15/27), 33.3% a few times (9/27), and 11.1% never (3/27). Across the sample, students estimated teachers' ability to detect AI-assisted work at approximately chance level (M ≈ 52%, Median = 50%). In contrast, students estimated their own ability to produce AI-assisted work that would remain undetected substantially higher (M = 71.22, SD = 21.29; Median = 70). This pattern indicates a pronounced asymmetry between perceived teacher detectability and students' perceived "undetectable performance" capability. When asked how accurate teachers are in detecting AI use, the modal response was that teachers are only partially accurate (15/27), followed by "mostly accurate if they try" (8/27), while a minority believed detection is not accurate (4/27). As teacher detection strategies, students most often referenced automated detectors/software and oral follow-up checks. Suggested sanctions most often involved grade penalties (e.g., failing the assignment), resubmission requirements, and warnings; a minority mentioned disciplinary exclusion.

The focus-group analysis highlights what students themselves see as most relevant in the context of AI. Students emphasized that AI-supported text is hard to distinguish from human writing: *"If a student makes an effort, it is impossible to recognize whether it is their work or AI. Only if they literally copy the text without additional technical editing and without checking the data, then it is easy to see. Or if the professor knows the student well, then they can recognize whether it is the student's work or not."* Still, participants described several cues they associate with AI output, especially related to voice and coherence. They contrasted human writing with AI by stating that *"students write with a more emotional tone,*" while AI was described as polished but emotionally flat: "*There are no emotions, as if it were a script."* Regarding surface features of writing quality, students associated human work with more visible mistakes and less consistent formatting, while AI was seen as "*too neat*".

Students also drew relatively clear boundaries of acceptable AI use across task types. They described AI as acceptable for generating ideas, supporting structure, improving language, and early exploration, but emphasized that students must write and think independently. For computational tasks, students generally agreed that AI can support calculations, but interpretation must remain the student's responsibility, and outputs should be verified. Views were mixed regarding programming. Some participants warned that AI-generated code can be difficult to understand and debug: *"In many cases, the code AI writes will either be a bit more advanced, or the student will need a very long time to navigate it because they did not write it themselves; but when they wrote it themselves, they immediately know where an error is and can fix it quickly."* For issues of major social importance— "*especially ethical topics such as abortion*"—participants felt that relying on AI is not appropriate because it lacks depth and quality; in their view, students must develop and articulate such arguments themselves. Finally, some students questioned the importance of writing skills today: *"Today it is more important to know how to communicate and present well; writing is not that important—this is the past now"*, while others emphasized time pressure: *"AI saves time, and time is the most important thing today ".* Participants also expressed a strong preference for keeping creativity tasks for humans: *"No matter how much AI advances and produces excellent work, it will never surpass a human."* In terms of academic integrity, students argued that the core issue is not whether AI was used, but whether the student contributed and understands the topic. They suggested introducing a course on advanced and responsible AI use, so they can benefit from available tools while simultaneously developing their own competencies: *"There are already various tutorials on how to use it to an extent we cannot even imagine."* Students are aware that AI-related competencies will be increasingly demanded in the labour market, and they expect universities to teach them more advanced ways of using AI for different purposes—not only to write seminar papers: *"Let's be realistic—by the time we enter the labour market, AI will already replace us in part."*

Overall, participants questioned their own self-discipline and predicted that more than 70% would *"take the path of least resistance"* if there were no consequences, while still stressing that they do not want to obtain a degree without genuinely learning. They preferred assessment designs that make learning visible and reduce unsupervised take-home writing—such as in-class drafting of seminar papers, more practical and project-based tasks, and closer supervision through progress monitoring and timely feedback.

4. Conclusion

Our findings strongly suggest that teachers' ability to detect AI-assisted writing has not improved since generative AI became widely accessible. Across two measurement points one year apart, evaluators classified student versus AI-generated homework at near-chance levels while reporting moderate confidence in their judgments. This aligns with a growing body of evidence showing that educators struggle to reliably distinguish AI from student writing (e.g., Fleckenstein et al., 2024, Miljković Krečar & Pavlin-Bernardić, 2026), particularly when judging AI-generated texts (Tyler, Coble, Gagnon, & Howard, 2025).

One year later, students appear to have learned this "weak point" of the system: they estimated teacher detectability at a similarly moderate level while expressing high confidence in their own ability to

produce undetected AI-assisted work. In other words, the system has not become better at "seeing" AI in text, whereas students have become better at working around that expectation. This is why a forensic mindset—policing "AI-like" style—offers little practical value. Institutional policies and procedures, especially assessment practices, should assume low detectability and respond by strengthening the link between submitted work and learning. Concretely, this means designing assignments where the process is visible (staged drafts or checkpoints), where students can be asked to account for their choices (short oral follow-ups or brief reflections tied to course content, including—where appropriate—transparent descriptions of how AI was used), and where tasks are sufficiently contextualized that generic AI output is less useful without genuine engagement. Alongside task design, policy can help by being specific rather than moralizing: define what counts as acceptable assistance for a given task, how disclosure should look, and how grading criteria treat AI-supported work. This shifts the emphasis from "catching" to making expectations workable while protecting fairness—an approach more consistent with institutional integrity values (Fishman, 2014; Cotton, Cotton, & Shipway, 2024) than an arms race focused on chasing unreliable stylistic 'tells' that can be easily adjusted by prompting and revision.

Limitations should also be stated openly: samples were small and convenience-based, and the wave 1 and wave 3 cohorts came from a single institution. Because both AI models and student practices change quickly, the next step is replication with larger samples and longitudinal tracking of detectability, norms, and classroom adaptations over time.

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COHEN-EMERIQUE'S CULTURAL SHOCK METHOD AS A RESEARCH TRAINING APPROACH FOR DEVELOPING CULTURAL COMPETENCE IN EUROPEAN CONTEXTS

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Abstract

Deardorff (2006) defines intercultural competence as the "ability to communicate effectively and appropriately in intercultural situations based on one's intercultural knowledge, skills, and attitudes." Over the past two decades, intercultural competence has been a central element in the Council of Europe's vision concerning diversity, where it is understood as a competence addressed to all citizens, and not only to those with a migratory background (Council of Europe, 2008, 2013, 2018). This has led to the development of a wide range of training tools across different disciplines within the social sciences. The paper broadens this perspective by presenting the cultural shock method, introduced by social psychologist Cohen-Emerique (2011, 2017) in the field of social work, which builds on the critical incident technique (Flanagan, 1954). To address the difficulties practitioners encounter when integrating theoretical knowledge into everyday professional practice, the scholar emphasized the importance of perceiving and recognizing differences through a participatory approach rooted in the lived experiences of trainees. The method conceptualizes experiences of emotional and/or cognitive disorientation—so-called cultural shocks—as opportunities to decenter from implicit representations, stereotypes, and prejudices. Only after this initial stage does the process move toward questioning the interlocutor's frame of reference, understood as that of a real, embodied person rather than an expression of national culture, and finally toward negotiation aimed at concrete solutions rather than ideological stances. The paper presents key findings from the application of the method in research-training programmes conducted over the past two years with social workers, cultural mediators and healthcare professionals in Genoa, highlighting its potential for fostering intercultural competence. These findings align with empirical studies that point to a growing and widespread need for support in the development of reflexive capacities, in order to construct professional pathways within relational dynamics that are specific to each setting (Martorana, Rania & Lagomarsino, 2021).

Keywords: *Social psychology, research-training, intercultural competence, cultural shock method.*

1. Introduction

1.1. Intercultural competence

Intercultural competence serves as a pivotal element of interculturalism—the diversity management paradigm that, since the 2000s, has progressively superseded multiculturalist philosophy in the policy documents and public strategies of the two primary European supranational institutions: the Council of Europe and the European Union. However, the concept of intercultural competence dates back to the 1960s. Over time, the development of definitions and models has been so prolific that it has prompted contemporary scholars to undertake a process of systematization. In this regard, a central role is played by Deardorff (2006), who provides the following synthesis: intercultural competence is the ability to communicate and interact effectively and appropriately in intercultural settings, based on specific attitudes, knowledge, and skills. Parallel to this, Spitzberg and Changnon (2009) distinguish five categories of models according to the specific dimension of the construct they foreground. While these collective works have clarified the meaning of intercultural competence, the core issue now shifts to its development, which is unanimously understood as a non-automatic process.

1.2. Developing intercultural competence

Just as with efforts to define and conceptualize cultural competence, the literature on its modes of acquisition includes contributions from several disciplinary fields, such as pedagogy (Abdallah-Pretceille, 1996; Portera, 2013), psychology (Byram, 1997, 2008; Deardorff, 2019), and sociology (Sclavi, 2003;

Dervin, 2016; Contini, 2023). In all cases, there is evidence of a gradual shift from predominantly theoretical approaches—centered on the transmission of content—toward experiential approaches, in which *savoir*, and above all *savoir-être* and *savoir-faire*, cannot be meaningfully integrated without personal engagement (Martorana, Rania & Lagomarsino, 2021). Furthermore, given the need to train those who educate younger generations (Porcher, 1981), scholars increasingly emphasize the importance of designing instruments also for adult learners. It is in this context that Margalit Cohen-Emerique's contribution should be understood. Specifically, her cultural shock method emerged from a long-term action research project she conducted with social workers in immigration services in France and Belgium during the late 1990s.

The cultural shock method builds on Flanagan's (1954) critical incident technique in its analysis of the practitioner's frame of reference when reconstructing a critical episode, with particular attention to the emotions experienced, the behaviors enacted, and the interpretations developed. It moves beyond this framework, however, by formulating hypotheses about the interlocutor's internalized cultural framework and by proposing solutions oriented toward win-win negotiation, aimed at ensuring mutual respect for the identities and fundamental needs of all those involved. More precisely, the author defines three stages. (I) Decentering: the deliberate effort to step back from oneself and examine one's own assumptions as if from an external standpoint, in order to become aware of one's own values, beliefs, and taboos. The verbalization of feelings elicited by the shock represents a fundamental step, as it constitutes a gateway to "sensitive zones"—the individual's deepest convictions and denials that safeguard their unity and coherence. (II) Discovering the Other's frame of reference: entering into the interlocutor's way of making sense of the situation without this necessarily implying agreement, by adopting an attitude of openness and attentive listening grounded in genuine interest. In the case of interlocutors with a migratory background, attention must be paid to the acculturation processes that each individual develops uniquely, according to their own subjectivity and in relation to the host society. (III) Negotiation: the stage in which parties move toward one another to co-construct a shared micro-culture or a common "toolbox" for practical solutions. It begins by recognizing the interlocutor as an essential and equal partner, even amidst structural asymmetries, and entails distinguishing between negotiable and non-negotiable elements. Finally, it requires acknowledging the provisional nature of any agreement, framing it as a continual, cyclic, and open-ended process.

To support and structure the analysis of cultural shocks, Cohen-Emerique (2015) developed a set of guiding questions*:

1. Who are the actors involved? What are their respective identities (age, gender, profession, etc.) and what kinds of relationships exist between their respective social groups?
2. What is the physical, social, and psychological context of the scene?
3. How did the shock manifest itself (emotions, thoughts)?
4. What assumptions, values, norms, beliefs, and prejudices characterize the person who experienced the shock?
5. Based on the analysis in point 4, what image of the interlocutor emerges (negative, positive, etc.)?
6. What assumptions, values, norms, beliefs, and prejudices characterize the person or group that prompted the narrator's shock reaction?
7. Does this critical incident point to a broader issue—whether related to professional practice or, more generally, to respect for differences in intercultural contexts?

Ultimately, although the author does not rule out the possibility that a cultural shock can be analyzed individually under the guidance of a trainer, she recommends working through the incident in a small group, preferably composed of colleagues, who can stimulate further reflection by rephrasing or posing additional questions, thereby deepening engagement with all three dimensions.

2. The study

2.1. Design and objectives

As previously noted, the cultural shock method was developed within training programs for social workers working with recently arrived migrants. However, Cohen-Emerique herself stresses that the tool can also be applied in professional contexts marked by forms of cultural diversity that do not necessarily relate to—nor are they confined to—geographically remote origins. Building on these considerations, our research group implemented the method in three distinct training contexts: a group of cultural mediators who, by definition, interact with users who have recently arrived in Italy; a group of social workers assisting minors, among whom many are children of migrants who have been living in the country for one or more generations; healthcare service professionals who, similarly to social workers, engage with a heterogeneous population.

* Translated by the authors.

The objective was twofold. On the one hand, we sought to use the cultural shock method to identify the issues that most frequently or most intensely give rise to tensions between the cultural frameworks of professionals and those of service users. On the other hand, with the intent of extending the method to other professional groups—such as teachers, educators, and social workers in services for older adults—we aim to assess its effectiveness in fostering the development of intercultural competence among participants.

2.2. Methods

2.2.1. Data collection procedures. The training sessions were conducted over a two-year period, with durations ranging from 10 to 24 hours, scheduled across two or three days. Although the differing durations allowed for variations in the number of preliminary exercises and the time allocated for discussion, the overall structure remained consistent in both content and delivery, with the cultural shock method serving as the central framework.

After an initial theoretical introduction to the tool, participants worked on a critical incident drawn from Cohen-Emerique's empirical material to familiarize themselves with the method before applying it to their own cases. Then they were asked to submit a written account of an experience of cultural shock, following this prompt: "Describe a cultural shock you experienced firsthand, preferably in a professional context, or alternatively in your personal life. Summarize the situation in a few sentences, making sure to include key elements such as when and where it occurred, the thoughts you had, the emotions you experienced, and any actions you took." The accounts were subsequently analyzed in small groups using the guiding question grid.

At the end of the training, participants belonging to the group of social workers and healthcare professionals completed a questionnaire designed to assess the perceived effectiveness of the program. The questionnaire consisted of seven items rated on a five-point Likert scale (1 = "not at all"; 5 = "very much") and was administered anonymously and synchronously via the Wooclap platform.

2.2.2. Data analysis procedures. Consistent with the study's aims and research instruments, two distinct analytical approaches were adopted. The qualitative data—consisting of the written accounts of cultural shock and the materials produced during small-group work—were examined through thematic analysis. An inductive strategy guided the process: recursive readings of the texts allowed recurring semantic patterns, shared meanings, and thematic affinities to emerge, gradually leading to the development of a category system articulated at both macro and micro levels. The quantitative data, drawn from the questionnaire on perceived training effectiveness, were analyzed by calculating means and standard deviations for each item.

In both cases, the professional sectors were analyzed separately in order to identify potential context-specific features related to the different work settings, while acknowledging the varying sample sizes of the three groups.

2.3. Findings

2.3.1. Thematic Content of Cultural Shocks. Table 1 presents the macro- and micro-categories identified through the thematic analysis for each professional group, along with their respective frequencies.

Table 1. Qualitative findings.

	Thematic Macro-categories	Thematic Micro-categories
Social Workers (n.27)	Secularity, Religion, and Magical Beliefs (n.3)	Interpretations of Health and Illness (n.1) Care Practices: The Medical-Scientific System vs. Traditional Knowledge (n.2)
	The Individual and the Collective (n.1)	The Extended Family and the Duties of Individual Members (n.1)
	The Masculine and the Feminine (n.6)	Gender Relationships within the Couple and the Family (n.3) Gender and Professional Identities (n.3)
	Childhood and Minor Age (n.9)	Child-rearing practices (n.3) Parental Responsibility vs. Other Reference Adults (n.1) Child Status: central versus peripheral (n.3) Child Autonomy (n.1) Sexuality (n.1)
	Domestic Life (n.3)	Home Care and Household Management (n.2) Hospitality (n.1)

	Institutions and Authority (n.5)	Professional-Service User Distance (n.5)
Cultural Mediators	Childhood and Minor Age (n.1)	Child Status: central versus peripheral (n.1)
	Boundaries Between Age Groups (n.1)	Elderhood (n.1)
	Politeness Norms (n.1)	Hospitality (n.1)
	Stereotypes and Prejudices (n.1)	Relating to Ethnic Groups (n.1)
	Communication (n.1)	Written versus Oral Accounts (n.1)
Healthcare Professionals (n.26)	Cleanliness (n.4)	Cleanliness vs. Hygiene (n.3) Cleanliness vs Purity (n.1)
	Secularity, Religion, and Magical Beliefs (n. 1)	Medical-Scientific System vs. Religious Prescriptions and Symbolic Needs (n.1)
	The Masculine and the Feminine (n.4)	Gender Relationships within the Couple and the Family (n.4)
	Institutions and Authority (n.4)	Professional-User Distance (n.4)
	Stereotypes and Prejudices (n.7)	On Migrants (n.1) On Social Class (n.1) On Living Conditions (n.1) On Religious Groups (n.2) On Ethnic Groups (n.2)
	Family (n.2)	Family Solidarity (n.1) The Couple Relationship and the Meaning of Marriage (n.1)
	Communication (n.2)	The Imaginable and the Sayable (n.1) Verbal and non-verbal (n.1)
	Body (n.2)	Sexuality (n.1) Bodily modesty (n.1)

2.3.2. Perceived Effectiveness of the Cultural Shock Method. Table 2 reports the descriptive statistics for the variables examined across the groups of social workers and healthcare professionals.

Table 2. Quantitative findings.

Items	Social Workers M (DS)	Healthcare Professionals M (DS)
Overall Satisfaction with the Training Received	4.42 (0.56)	3.90 (0.82)
Proposed Teaching Methodology	4.56 (0.56)	3.97 (0.63)
Acquisition of New Relational Competencies	4.00 (0.66)	3.83 (0.71)
Acquisition of New Strategies for Situational Analysis from an Intercultural Perspective	4.06 (0.69)	3.70 (0.92)
Reflection on Specific Aspects of One's Professional Practice	4.32 (0.64)	3.70 (0.92)
Development of Greater Intercultural Sensitivity for Professional Use	4.03 (0.68)	3.63 (1.10)
Acquisition of Professional Skills Relevant to the Professional Role	3.90 (0.61)	3.17 (1.12)

3. Discussion

Beyond some cross-cutting themes, the main convergence across the cultural shocks collected in the three training contexts concerns the dynamics of their genesis. On the one hand, a shock occurs when one's own frame of reference is implicitly treated as universal—that is, when alternative approaches have not been envisaged. The encounter with the Other then challenges categories previously taken for granted, exposing their situated nature. This is particularly evident in perceptions of authority, specifically regarding expectations of the appropriate distance between the professional and the service user. On the other hand, a shock results from anticipating difference in a rigidly typified form: disorientation reflects the interlocutor's failure to conform to behaviors expected of them as a member of a given group. For this reason, stereotypes lie at the core of many of the critical incidents. At the same time, distinct thematic patterns emerge across professional domains. Among social workers, conceptions of childhood are central, structured around the child's status, parental responsibility, and educational practices—consistent with the professional mandate of this role. For cultural mediators, cultural shocks cluster primarily around communication, reflecting the complexity of a position located at the intersection of different linguistic and expressive registers. Among healthcare professionals, shocks frequently concern the gap between the biomedical notion of hygiene and culturally grounded understandings of order and cleanliness, tensions between scientific knowledge and magico-religious interpretations of illness and its treatment, as well as differing relationships to the body.

The quantitative findings point to an overall positive evaluation of the training. Social workers report high mean scores across all dimensions with limited variability, suggesting a broadly shared perception of the transferability of learning. Healthcare professionals also express a favorable assessment, albeit with slightly lower mean scores and greater dispersion in their responses, indicating a less homogeneous view of the training's impact on their operational needs.

4. Conclusion

The paper examines Cohen-Emerique's cultural shock method as a tool for fostering intercultural competence among adults working in multicultural environments. A key strength lies in its application across three distinct training contexts, highlighting both the method's flexibility and its relevance to diverse professional mandates. Qualitative findings indicate that cultural shock episodes serve as powerful catalysts for uncovering implicit assumptions, dilemmas, and tensions that shape professional practice, thereby promoting processes of decentering, active listening, and negotiation. Quantitative results likewise point to an overall positive evaluation of the training, supporting its perceived effectiveness and transferability to workplace settings. Overall, these findings endorse a conception of intercultural competence as a relational and situated process rather than a static body of knowledge. At the same time, the findings must be interpreted with caution, as they focus on the short term. It would therefore be necessary to conduct longitudinal studies to assess the actual persistence of these perceptions and, more importantly, to compare such self-reported data with observed behavioral changes in daily professional practice.

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UNPRODUCTIVE WORK HOURS AND RELATED FACTORS IN SOUTH KOREA: STATE OF IDLE TIME UNRELATED TO WORK

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Abstract

South Korea continues to display some of the longest annual working hours among OECD countries, yet its labor productivity remains substantially below the OECD average (OECD, 2021a; OECD, 2021b). Prior studies suggest that cultural norms surrounding overwork, presenteeism, and hierarchical relations exacerbate inefficiencies (Kim, McLean, & Park, 2018; Lee & McCann, 2011; Kim et al., 2018). This study investigates deliberate idle time—non–work-related activities undertaken during paid work hours—as a measurable component of unproductive work hours in Korean organizations. Using a stratified national survey (N = 1,200), the study examines demographic, organizational, and health-related antecedents of idle time. Results indicate that approximately 24% of working hours are spent in deliberate idle time. Age, job status, organizational size, sector, and health show statistically significant associations with idle-time share, whereas gender effects are modest. The findings highlight the embeddedness of idle time within South Korea's institutional, cultural, and managerial systems and point toward implications for HR practices, organizational culture, and public policy.

Keywords: *South Korean work culture, idle time, unproductive work hours, demographic and organizational factors.*

1. Introduction

Despite sustained economic development, South Korea has long been characterized by **extended working hours coupled with relatively low productivity**. South Korean employees work an average of 1,908 hours annually, substantially above the OECD average of 1,687 hours, while hourly productivity remains at roughly 65% of the OECD benchmark (OECD, 2021a; OECD, 2021b). Earlier research has shown that longer hours do not necessarily yield higher output and may instead diminish performance due to fatigue and work intensification (Lee & McCann, 2011; Kim et al., 2018).

One explanation for this paradox is the prevalence of **unproductive work hours**, driven by cultural norms that prioritize physical presence over performance. Practices such as **"nunchi," "presenteeism,"** and **pseudowork**—symbolic activities that simulate work without generating value—are entrenched in organizational routines (Kim et al., 2018; Nørmark & Jensen, 2021). This cultural configuration is reinforced by hierarchical norms and **"kkondae"** behavior, which discourage initiative and perpetuate inefficient, conformity-based practices (Lee, 2010; Oh & Park, 2015).

Idle time, defined as involuntary or deliberate downtime during which no in-role task can be performed (Brodsky & Amabile, 2018; Schubert, Zescheke, & Zacher, 2023), represents a measurable form of unproductive work. Previous studies have documented substantial productivity losses due to idle time—estimated at USD 100 billion annually in the United States (Brodsky & Amabile, 2018)—and its connection to both organizational inefficiencies and individual behavior. Yet empirical evidence on idle time in Korean workplaces remains scarce.

This study focuses on **deliberate idle time**, which is more isolatable from productive work than pseudowork in the Korean context. Given the relationship between working hours, well-being, and major societal issues such as low birth rates and work–life imbalance (Durand, 2018; Clarke, 2019; Scaffeta, 2019), understanding the patterns of idle time has become increasingly important. Drawing on social cognitive theory (Lu & Chou, 2017) and organizational cultural frameworks, this study aims to identify key antecedents of idle time, including demographic characteristics, organizational factors, and health conditions.

2. Literature review

2.1. Unproductive work hours, pseudowork and idle time

National surveys from the Philippines and Singapore document temporal patterns of decreased productivity during mid- to late-day periods (Balita, 2022). Nørmark and Jensen (2021) characterizes pseudowork as activities resembling legitimate work but lacking substantive contribution to organizational goals—often manifested through excessive reporting or formalistic meetings.

Idle time constitutes a more strictly defined form of unproductive work. Brodsky and Amabile (2018) describe it as "involuntary downtime during which in-role tasks cannot be done." Schubert et al. (2023) categorize idle time into breaks, interruptions, and deliberate disengagement. Though some idle time is necessary, chronic or systemic idle time signals inefficiencies in work allocation, managerial oversight, and organizational design.

2.2. Korean institutional and cultural context

South Korea's employment and cultural environment produces conditions conducive to idle time among certain groups, particularly senior employees.

Employment protection legislation (EPL) grants strong security to regular workers, making dismissal costly and prompting reliance on voluntary retirement rather than performance-based adjustment (Ko & Weaver, 2023; Tam & Xu, 2024). This creates structural space for **low-effort insiders** to remain in place.

Hierarchical and high power-distance relationships reinforce seniority-based authority, with limited accountability for senior staff and restricted voice for younger workers (Jang et al., 2025; OECD, 2019). Normative modeling suggests that visible under-engagement by high-status actors may demotivate subordinates.

The **post-IMF psychological contract shift** created generational distrust toward employers, leading younger workers to favor self-protective behavior and to limit discretionary effort (Kim & Finch, 2002; Moon & Kim, 2023). Equity theory and social learning processes explain how observed senior idle time may prompt "work-to-rule" responses among juniors (Koay et al., 2022; Subramanian et al., 2022).

2.3. Antecedents of idle time

Research identifies multiple correlates of idle time:

Personality traits, including conscientiousness and proactive personality, predict lower idle time (Hambrick & McCord, 2010; Bakker, Tims, & Derks, 2012).

Demographic factors, including gender and age, may influence idle-time prevalence (Schubert et al., 2023).

Health conditions, including physical and cognitive strain, can contribute to disengagement (White, Dash, & Thomas, 1998).

From an organizational perspective:

Small organizations often lack HR systems and clear role definitions, increasing idle time (Katz & Kahn, 1978; Eurofound, 2020).

Higher managerial positions may face attention overload, contributing to cyberloafing and related behaviors (Mercado, Giordano, & Dilchert, 2017; Davenport & Beck, 2001).

Confucian-influenced hierarchies reinforce conformity and unnecessary routines, further institutionalizing idle behaviors (Lee, 2010; Oh & Park, 2015; Sun, 2020).

These considerations support the study's hypotheses (H1–H5) regarding demographic, organizational, and health predictors of idle time.

2.4. Hypotheses

H1. There is a significant gender difference in the proportion of idle time.
H2. There is a significant age-group difference in the proportion of idle time.
H3. There is a significant organizational status difference in the proportion of idle time.
H4. The size of organization is associated with the proportion of idle time.
H5. The number of hospital visits is associated with the proportion of idle time.

3. Methods

A structured online survey was administered using stratified quota sampling by gender and industry. The sample included **1,200 adults** employed at least 15 hours per week in one of six major

industries: Manufacturing, Wholesale and Retail Trade, Health and Social Welfare, Accommodation and Food Services, Construction, and Educational Services.

Respondents self-reported demographic characteristics, organizational variables (job rank, organization size, industry), work conditions (daily working hours, daily idle time), and health indicators (number of hospital visits). Idle time was operationalized as weekly idle hours divided by total weekly working hours.

Data were collected between September and October 2023; 602 men and 598 women participated. Analyses included descriptive statistics, one-way ANOVA, and hierarchical regression models testing the study's hypotheses.

4. Results

4.1. Descriptive findings

Weekly idle time averaged **10.63 hours**, representing **24.2%** of total working hours. Approximately two-thirds (65.8%) reported ≥10 hours of weekly idle time. Idle time was slightly higher for women in absolute hours but marginally higher for men as a share of working hours.

By age, idle-time share was highest among workers in their 20s (27.3%) and lowest for those in their 50s (22.7%).

4.2. Hypotheses tests

The hierarchical regression models ($R^2 = .018 \rightarrow .032$) revealed several significant predictors:

H1 (Gender): Partial support. Men reported lower idle-time shares ($p < .05$ in Models 1–2; marginal in Model 3).

H2 (Age): Supported. Age negatively predicted idle time ($p = .001$). Post hoc tests showed workers in their 20s had significantly higher idle-time proportions than those in their 50s.

H3 (Organizational status): Supported. Public-sector employees ($p < .05$) and executives/owners ($p < .05$) had higher idle-time shares; managers did not differ from staff.

H4 (Organization size): Supported. Larger organizations were associated with lower idle-time proportions ($p < .05$).

H5 (Health): Supported. More hospital visits predicted higher idle-time shares ($p < .05$).

Overall, findings indicate that idle time accumulates disproportionately among younger workers, senior organizational actors, public-sector employees, and workers in smaller firms or experiencing more health issues.

5. Conclusions

This study provides the first large-scale empirical assessment of deliberate idle time in Korean workplaces. Measuring only intentional disengagement—not pseudowork or external interruptions—the study finds that **nearly one-quarter of paid working hours are spent on non-role activities**. This pattern aligns with research showing that longer working hours do not guarantee higher productivity (Lee & McCann, 2011; Kim et al., 2018) and resonates with analyses of Korean cultural norms—including nunchi, hierarchy, and presenteeism—that contribute to overwork without efficiency gains (Kim et al., 2018; Lee, 2010; Oh & Park, 2015).

The significant antecedents identified—gender, age, organizational status, organizational size, and health—demonstrate that idle time is not solely an individual behavioral issue but also a systemic and cultural one.

5.1. Implications for policy and practice

Target high-impact organizational loci. Public-sector organizations should streamline workflows and strengthen outcome-based performance systems. SMEs should invest in fundamental HR infrastructure—clear job descriptions, task allocation, and workload tracking—to reduce ambiguity (Eurofound, 2020).

Support younger workers. Younger cohorts displayed the highest idle-time proportions, likely reflecting cultural pressures, attention depletion, and unclear role expectations. Shorter feedback loops, structured onboarding, and early role clarification can mitigate these tendencies.

Integrate health into work design. Given the association between hospital visits and idle time, organizations should incorporate health supports such as fatigue management and flexible scheduling (White et al., 1998).

Shift from presenteeism to performance culture. Productivity should be assessed through outcomes, not time-at-desk, to disrupt cultural incentives that sustain inefficient work habits.

These reforms hold implications beyond productivity, potentially easing work–life imbalance and contributing to broader societal concerns such as low birth rates (Durand, 2018; Clarke, 2019).

5.2. Limitations and future research

This study examines only deliberate idle time and relies on self-report measures, limiting causal inference. Future research should incorporate objective behavioral data, longitudinal designs, and intervention studies. Cross-national comparative frameworks may help clarify how cultural legacies, institutional configurations, and labor-market structures shape idle time and productivity across different societies.

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FOMO, CLICKTIVISM AND POLITICAL ENGAGEMENT – THE CASE OF GEORGIA

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Abstract

In today's digital era, social media has become a central arena for political discourse and activism. Platforms now serve as critical tools for shaping narratives, connecting politicians, activists, and citizens, and mobilizing collective action. In Georgia, for instance, Meta groups have been used to coordinate resistance campaigns and protests against government decisions; X functions as a space for real-time political commentary; while Instagram and TikTok are increasingly leveraged for campaign movements, particularly targeting younger audiences. On one hand, these platforms enhance political participation by enabling rapid communication and the spread of messages to wide audiences. On the other hand, they raise concerns about "clicktivism"—forms of online activism that may substitute for meaningful political involvement (Christensen, H. S. (2011)—and the risk of fostering political apathy, including disengagement from public events and elections (Zhelnina, A. (2020). An additional psychological factor that may shape this dynamic is the fear of missing out (FOMO). Research by Przybylski et al. (2013) shows that FOMO is associated with higher levels of behavioral engagement with social media. This suggests that political activity online may not always stem from deliberate civic motivation but rather from an anxiety-driven desire to remain included in digital conversations. This study seeks to examine the mediating role of FOMO and clicktivism in the relationship between social media use and political engagement in Georgia. By focusing on this context, the research will provide the systematic attempt to explore how digital habits, psychological drivers, and forms of online participation intersect to shape political engagement. The first step is to provide a sound framework.

Keywords: *Clicktivism, FOMO, political engagement, political psychology, social media.*

1. Introduction

Political engagement encompasses actions designed to influence the choice of governing actors, including citizens' voluntary activities of knowing and influencing political choices at various levels of the political system (Huntington & Nelson, 1976; Kaase & Marsh, 1979; Riley et al., 2010). Political participation and influence are the main key words here: to fully define political engagement mere exhibit of interests in politics is not enough. More recently, modern scientific literature has raised the additional question while testing different forms and levels of political engagement. More specifically: whether online political activities, which take just a keyboard and a mouse click, can be considered as politically legitimate and meaningful civic actions or not (Harlow & Guo, 2014). Some authors refer to online political engagement as clicktivism, arguing that such online activities do not translate to offline actions and do not result in substantial social or political changes in real life (e.g., Christensen, 2011; Hindman, 2009; Shulman, 2004). Recent meta-analyses of FOMO and social media use (Fioravanti et al., 2021; Tandon et al., 2021) and more specifically, Przybylski et al. (2013) showing that "FOMO is associated with higher levels of behavioral engagement with social media" (p. 1847) give ground to suggest that people with high FOMO levels are more likely to participate in various political activities and events online. According to Przybylski et al. (2013), FOMO is "a pervasive apprehension that others might be having rewarding experiences from which one is absent" (p. 1841). This leads to the desire to always be in touch with what other people are doing. This feeling, in return, drives excessive use of social media to stay connected with other people to be informed about and participate in different social (and/or political) activities (Przybylski et al., 2013). Although some political scientists (e.g., Kakabadze, 2025) have noticed that in Georgia "many citizens, particularly youth and middle-class groups, express their concerns through participatory politics such as street demonstrations or online platforms; however, deeper forms of engagement—like voting,

joining political parties, or advocating through institutional channels—remain low", still such studies lack more fundamental and consistent analysis of political behavior. "FOMO, clicktivism and political engagement – the case of Georgia" has all potential to fill up this gap.

2. Research framework & methodology

To explore the interplay between individual thoughts and behaviors and social influences, the pilot study rests on three key social psychological theories, which form the framework through which the findings are being analyzed.

Cognitive Dissonance Theory (Festinger, 1957): Explains how individuals feel discomfort when holding conflicting beliefs, attitudes, or behaviors and are motivated to reduce this dissonance.

Social Comparison Theory (Festinger, 1954): Describes how people evaluate their own abilities and opinions by comparing themselves to others.

Social Identity Theory (Tajfel, 1978): Focuses on the part of a person's self-concept that derives from their membership in a social group.

More on the political psychology side, to better explore group dynamics and how the social and political factors shape behavior, the pilot study keeps in mind:

Attribution Theory (Kelley, 1967): Deals with how people explain the causes of their own and others' behaviors.

Construal-Level Theory (Liberman & Trope, 1998): Explains how people think about objects and events in the past, present, and future.

Regulatory Focus Theory (Higgins, 1997): Differentiates between two motivational orientations - (i) a promotion focus on gains and (ii) a prevention focus on losses.

Further, to explore how digital habits, psychological drivers, and forms of online participation intersect to shape political engagement, the study chose and adapted 5 different scales of (i) political alienation (consists of 3 subscales); (ii) FOMO; (iii) Online and (iv) Offline political engagement and (v) Helping attitudes.

Helping Attitudes Scale (Nickell, G. (1998) is a measure of respondents' beliefs, feelings, and behaviors associated with helping.

Scales of online and offline political engagement are adapted based on WVS (www.worldvaluessurvey.org) and scientific literature connected with clicktivism.

This pilot study employs the Milbrath Hierarchy of Political Participation (1965) extended to the digital realm by George and Leidner (2019), which structures online action into three tiers: Digital Spectator, Transitional, and Gladiatorial Activities. The study's primary focus is the low-cost, low-effort end of the spectrum: Digital Spectator Activities. This category encompasses actions signaling political support, notably Clicktivism.

Clicktivism is defined as a "low-risk, low-cost activity via social media", characterized by its noncommittal and easily replicated nature, examples of which include liking posts, following causes, changing profile pictures, and signing online petitions. E-petitions are included here as they enable citizens to overcome the marginal costs associated with traditional participation. The pilot study also measures Assertion, a higher-effort activity within the Spectator which involves creating and disseminating original content (text or multimedia) concerning political issues. Conversely, the pilot study explicitly excludes the Digital Gladiatorial Activities tier. This highest level of activism—which includes Hacktivism and Exposure (leaks)—involves direct action, high resource commitment, and substantial personal risk. These high-risk activities were deliberately excluded from the study instrument for security and ethical reasons. This methodology ensures the focus remains exclusively on low-to-medium threshold online participation.

The Fear of Missing Out Scale (Przybylski, et al., 2013) was developed in the context of advancing an empirically based understanding of the fear of missing out phenomenon via everyday experiences.

Political alienation rests on feelings of estrangement from the political system and a lack of engagement therein. Political alienation (Schwartz,D, 2007) could result from not identifying with any particular political party or message, and could result in revolution, reforming behavior, or abstention from the political process. This study utilizes 3 expressions of political alienation: political powerlessness; political normlessness and political isolation.

The pilot study is guided by a central research question: Does activity on social networks reduce political alienation, or conversely, does it reinforce it? This question probes the core of the clicktivism debate. It explores whether engagement on platforms like Facebook serves as a remedy for political apathy by providing accessible avenues for participation, or whether it acts as a mechanism that perpetuates feelings of powerlessness by substituting low-impact digital actions for more demanding, high-impact forms of civic engagement. Answering this question can be crucial for understanding the future of civic society in an increasingly digitized world.

3. Procedure and demographics

A quantitative, cross-sectional research design was employed for the pilot study. The final sample comprised N=144 respondents.

Today, the central question in Georgia's political arena addresses the condition of the educated, employed population: why do they express anxiety on social networks yet fail to openly align themselves with any tangible cause—whether it concerns questions regarding education reform or the halting of the country's EU integration path?

The demographic profile of the sample is distinctive and responds to this important context for the findings. The sample is predominantly composed of:

Gender: Women (>60%).

Age: Individuals in the 35-54 age group.

Education: Highly educated individuals, with a majority holding a Master's degree.

Employment: Primarily employed in the private sector.

Location: Mainly located in the capital city, Tbilisi.

Data was collected using a multi-component, anonymous, self-administered questionnaire. The instrument incorporated five standardized scales to measure the core constructs:

Online Activity: A hierarchical scale measuring various forms of digital participation, from low-effort clicktivism to high-effort assertion ($\alpha = .916$).

Offline Activity: A scale measuring engagement in traditional forms of civic action (e.g., voting, demonstrations, petitions) ($\alpha = .787$).

FOMO (Fear of Missing Out): A 10-item scale measuring social anxiety related to being out of touch with events and social updates ($\alpha = .812$).

HAS (Prosocial Behavior): An 18-item scale measuring altruistic attitudes and the motivation to help others ($\alpha = .756$).

Political Alienation: A standardized scale, based on Dean's (1956) conceptualization, measuring feelings of powerlessness, normlessness, and social isolation ($\alpha = .778$).

The research instruments demonstrated high internal reliability, with Cronbach's Alpha scores exceeding the standard threshold of 0.7 for all major scales. The "Online Activity" scale was particularly robust, showing an exceptionally high level of internal consistency ($\alpha = .916$).

The collected data were analyzed using a combination of statistical methods within the SPSS software package:

Descriptive Statistics: Frequencies and Crosstabulations were used to generate a detailed portrait of the sample's civic behaviors and attitudes.

Correlational Analysis: To test the relationships between variables, Spearman's rank correlation coefficient (rho) was employed, suitable for ordinal data and non-linear relationships.

Associational Analysis: Chi-Square tests and Linear-by-Linear Association tests were used to examine the statistical significance of associations between categorical variables.

Factor Analysis: To connect variables and test concepts.

4. Hypothesis testing and key findings

The pilot study tested six primary hypotheses. The results are as follows:

H1: Clicktivism and Alienation (Supported) – Online activity does not reduce the sense of powerlessness. The Linear-by-Linear Association test revealed a statistically significant relationship ($p=.017$), indicating that as clicktivism increases, the sense of powerlessness also tends to increase. This might suggest that symbolic online actions are ineffective in overcoming alienation and may even be a symptom of it.

H2: Substitution Principle (Refuted) – Online activity does not replace offline activity but complements it. The Chi-Square test showed a highly significant positive association ($p < .001$) between online activities (e.g., "liking" a post) and readiness for offline engagement (e.g., attending a demonstration). This might suggest that active citizens appear to utilize all available means of participation.

H3: FOMO as a Driver of Engagement (Supported) – FoMO appears to be a primary psychological catalyst for activism. This might suggest that the anxiety associated with missing out drives both online and offline engagement, rather than causing apathy and alienation.

H5 & H6: The Paradox of Helping Others (Refuted) – An extremely high prosocial disposition does not protect respondents from political alienation (H6 refuted) or reduce their reliance on low-effort clicktivism (H5 refuted). On the contrary, high prosociality is positively correlated with higher levels of anxiety (**H4 confirmed**), a finding that likely points to the phenomenon of "compassion fatigue."

This might suggest that altruistic and political motivations may be separate, and sometimes conflicting, constructs in this context.

The statistical analysis (N=144), utilizing Spearman's rank correlation coefficient (ρ) and Factor Analysis, might be suggesting to probe into three major paradoxes regarding the effectiveness and psychological cost of digital participation.

1. **H1 Paradox: The Vicious Cycle of Clicktivism and Powerlessness (Confirmed)** – The primary finding might be pointing to a problematic relationship: low-effort engagement does not alleviate political alienation but is associated with its increase. While 50.69% of respondents exhibit High Clicktivism, 65.52% report High Powerlessness. The Linear-by-Linear Association (p=.017) confirms a positive trend between the frequency of symbolic online activity and feelings of powerlessness. Spearman's analysis highlights the vicious cycle: "Wasting Time" (passive behavior) shows a strong negative correlation with "Feeling Inner Peace" ($\rho=-.622^{**}, p<.001$) and a positive correlation with "Anxiety" ($\rho=.229^{**}, p=.006$) and "Feeling Uncertain" ($\rho=.370^{**}$). This reinforces the idea that symbolic action might be failing to mitigate alienation, instead reinforcing a self-perpetuating cycle of anxiety and ineffectual participation.

2. **H2 Paradox: Complementarity and the Hierarchical Barrier (Substitution Rejected) –** The pilot study rejected the substitution theory, reinforcing the idea that online engagement complements offline action, yet Factor Analysis (explaining 64.91% of total variance) revealed a critical structural barrier. Active citizens adopt a hybrid approach. Linear-by-Linear Association confirms strong links between Clicktivism and Demonstrations (p<.001) and Online vs. Physical Petitions (p<.001). Furthermore, high-effort Assertion significantly links to Demonstrations (p=.04). Despite these links, a deep gap exists. While Online Petitions are popular (46.53%), high-effort Assertion (original content creation) is critically low at 13.89%. This four-fold difference might be marking a high psychological barrier preventing the transition from "Digital Spectator" to "Creator". This is supported by the strong negative correlation between "Wasting Time" and "Enjoying Help" ($\rho=-.585^{**}, p<.001$), indicating that passive users might be struggling to cross the threshold into active, meaningful engagement.

3. **H6 Paradox: Altruistic Burnout (Rejected)** - While 96.55% of the sample reports extremely high prosocial motivation, H6 (that altruism reduces alienation) is rejected. The data might be indicating what we call "Compassion Fatigue". "Satisfaction with Helping" correlates positively with "Worrying about the Future" ($\rho=.224^{**}, p=.007$), and "Helping with Money" correlates with personal financial stress ("Returning Money", $\rho=.505^{**}$). However: the strong negative association between "Wasting Time" and "Feeling Great" ($\rho=-.585^{**}$) implies that highly motivated individuals, when facing systemic obstacles, experience frustration and emotional depletion rather than empowerment.

4. **The Role of FOMO (H3 Confirmed)** - FoMO seems to be a critical catalyst, characterizing 75.86% of respondents. While it drives activity (linked to "Checking," $\rho=.315^{**}$), it functions primarily as anxiety management and fails to solve the underlying feeling of isolation, a basis for what we call a "Competent but Anxious Observer."

5. Limitations of the study

The primary constraint of the pilot study lies in Sample Representativeness. The study employed a non-probabilistic, convenience sampling method (N=144), resulting in a sample heavily skewed toward highly educated women (>60%) in the middle-age cohort, overwhelmingly residing in Tbilisi. Consequently, the findings reflect the attitudes of a specific, competent urban stratum and cannot be generalized to the broader Georgian population.

Furthermore, reliance on self-reported, anonymous questionnaires introduces social desirability bias. This bias is evident in the HAS scale, where 96.55% of respondents reported extremely high altruistic attitudes, potentially inflating favorable attitudes rather than reflecting genuine behavioral commitment, thus influencing the finding of "Altruistic Burnout."

6. Discussion

This pilot study (N=144) set a stage to further investigate what might be defined as the critical paradox of Georgia's digital democracy, revealing that while social media mobilizes the educated urban class through mechanisms like FoMO, it fails to translate into effective political power. The central finding confirms a "vicious cycle" where widespread engagement in low-effort Clicktivism (50.69%) does not mitigate alienation; instead, empirical data shows a significant positive association (p=.017) between passive online activity and the feeling of powerlessness.

Another tendency worth further examining might be the subtle finding that the digital participation might be further constrained by a severe hierarchical barrier. While the "Competent but Anxious Spectator"

might be dominating the landscape, the transition to high-effort engagement could be stalled, evidenced by the critically low rate of Assertion (13.89%). High prosocial motivation, rather than empowering citizens, currently seems to correlate with anxiety and emotional burnout.

However, at this stage these findings must be viewed as a foundational first step only. Given the sample's skew toward highly educated women in Tbilisi, the results offer a deep dive into a specific influential stratum rather than a generalized national picture. Consequently, future research phases are set to expand this framework to include broader demographics—particularly men, rural residents, and Gen Z—and (preferably) utilize longitudinal designs to establish causality. We believe deepening this inquiry is essential for developing strategies that can eventually transform the digital anxiety of the electorate into meaningful, high-impact political engagement.

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THE HIDDEN TOLLS OF NEW PUBLIC MANAGEMENT IN FRANCE: REFORM PERCEPTIONS, EMOTIONAL EXHAUSTION AND TURNOVER

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Abstract

Since the 1990s, and in line with most Western public administrations, the French civil service has experienced the gradual introduction of New Public Management (NPM) (Bezes, 2012). This reform agenda aimed to promote the adoption of private-sector management practices within public organizations. By the early 2000s, a variety of counter-models emerged, seeking to address the shortcomings of NPM (Klenk & Reiter, 2019), but they generally represent a continuity rather than a clear distinction from it (Christensen & Fan, 2018; Reiter & Klenk, 2019). Accordingly, reforms stemming from these paradigms have been associated with a continuous and accelerated transformation process, sometimes described as a structural crisis, profoundly affecting both public organizations and their civil servants (Guenoun & Matyjasik, 2019; Mouele, 2023; Rossano, 2018). Indeed, reforms inspired by NPM have fostered the development of new professional demands, notably an increased workload, and have contribute to the emergence of a climate of psychological strain (Abord de Chatillon & Desmarais, 2012; Diefenbach, 2009; Rivière et al., 2019), with significant consequences for employees' psychological health (Abord de Chatillon & Desmarais, 2012; Kirkpatrick et al., 2005). These health impacts have, in turn, been consistently linked to professional disengagement and turnover (e.g., Ducharme et al., 2007; Kim, 2015) which are critical issues for the French civil service. Indeed, in the context of a broader crisis of workforce attractiveness, retention and employee commitment have become major strategic priorities as attested to by several official administrative reports. This study examines the extent to which perceptions of NPM-related changes lead French civil servants to consider leaving their organizations, with emotional exhaustion as a mediating mechanism. Data were collected from a sample of 1851 civil servants across the three branches of the civil service (i.e., state, territorial, and hospital). The analysis relies on a mediation model to test the indirect influence of reform perceptions on turnover intentions via emotional exhaustion. The results confirm the presence of significant indirect effects, whereby perceptions of managerial reforms heighten emotional exhaustion, subsequently increasing the intention to leave the organization. These findings emphasize the importance of considering the psychological repercussions of public-sector transformations, which can paradoxically undermine retention goals. They highlight the need to rethink human resource and change management strategies to safeguard employees' psychological well-being while reducing turnover in the public sector.

Keywords: *French civil service, New Public Management, emotional exhaustion, turnover intention.*

1. Background

In a context of a widespread decline in attractiveness affecting all three branches of the French civil service (Prouet et al., 2024), the French public administration is increasingly confronted with a major challenge: retaining its workforce. In recent years, numerous public bodies have highlighted in various institutional reports the extent of this issue and its strategic implications for the continuity of public services. Turnover constitutes a critical organizational concern, as it leads to substantial losses in knowledge and expertise, disrupts work group dynamics, and may ultimately undermine overall organizational functioning and effectiveness (Heavey et al., 2013). These effects are added to substantial direct and indirect costs (Bae, 2022), which place considerable pressure on already constrained public budgets.

These retention challenges emerge within a broader context of profound transformation of the public sector over recent decades. Beginning in the late 1990s, NPM gradually diffused throughout the French civil service (Bezes, 2012). NPM refers to a managerial paradigm aiming to align public-sector governance with private-sector management practices (Emery & Martin, 2008). According to Abord de Chatillon & Desmarais (2012), NPM primarily rests on three pillars: 1) managerialism, oriented toward

performance enhancement and cost reduction, 2) accountability, manifested through increased reliance on management by objectives, evaluation systems and reporting tools, and 3) contractualization, which embeds public organizations within broader networks of stakeholders. Although alternative models subsequently emerged, they largely represent continuations rather than breaks with the principles of NPM (Christensen & Fan, 2018; Reiter & Klenk, 2019).

A growing body of research shows that the successive reforms inspired by these paradigms have had substantial effects on public organizations and their workforce (Guenoun & Matyjasik, 2019). These transformations have been associated with an intensification of job demands, including increased workload as well as the development of a climate of emotional abuse (Abord de Chatillon & Desmarais, 2012; Dussuet et al., 2017; Rivière et al., 2019). Such new working conditions constitute well-established risk factors for employees' health, notably contributing to emotional exhaustion, the central component of burnout, defined as a state of intense fatigue accompanied by reduced energy and the perception that one's emotional resources are depleted (Arens & Morin, 2016). Emotional exhaustion is, in turn, a robust predictor of turnover intentions, including in public-sector contexts (*e.g.*, Lee & Youm, 2024). It may reflect a form of psychological withdrawal, leading employees to consider leaving as a coping strategy in the face of work environments perceived as excessively demanding.

In this context, the present study examines the extent to which perceptions of NPM-related changes influence turnover intentions among French civil servants and assesses whether emotional exhaustion constitutes the mediating mechanism through which these perceptions translate into intentions to leave the organization.

2. Methods

2.1. Participants

The sample consisted of 1,851 French public-sector employees, including 690 from the local civil service (37.26%), 595 from the national civil service (32.13%), and 566 from the hospital civil service (30.58%). Women represented 55.15% (n = 1,044) of the sample compared to 13.89% (n = 263) for men, while 30.90% (n = 586) of respondents selected "non-binary/other" or did not provide a response. The mean age was 45.63 years (SD = 10.09), and average organizational tenure was 14.41 years (SD = 10.91). In addition, 25.88% (n = 490) of participants held managerial responsibilities, whereas 74.12% (n = 1,403) were non-managers. Employees belonged to category A (34.39%; n = 651), category B (37.30%; n = 706), or category C (21.82%; n = 413), while 5.71% (n = 108) reported not knowing their employment category (these categories correspond to specific employment grades used in the French public sector).

2.2. Measures

Perceptions of NPM-related changes were assessed using the scale developed by Abord de Chatillon & Desmarais (2012). This instrument consisted of three dimensions: (1) an emphasis on costs (2 items; *e.g.*, "The resources available to carry out my work were increasingly limited"), (2) increased accountability (2 items; *e.g.*, "I was required to provide increasingly precise and frequent accounts of my activities"), and (3) consideration of stakeholders (2 items; *e.g.*, "We worked on a daily basis with an ever-growing number of interlocutors"). Emotional exhaustion was measured using five items from the *Maslach Burnout Inventory–General Survey* (Maslach et al., 1997*; e.g.*, "I felt emotionally drained after a day of work"). Finally, intention to leave the organization was measured using an adaptation of the item employed by Lafrenière-Carrier et al. (2018) (*i.e.*, "I intended to leave my organization as soon as possible"). All items were rated on a 7-point Likert scale ranging from 1 (totally disagree) to 7 (totally agree).

2.3. Procedure

The questionnaire was administered online in a self-completed format over a period of approximately two months in early 2024. Several organizations across the three branches of the civil service were contacted and invited to distribute the questionnaire to their employees. Participants were informed that their participation was voluntary and that their responses would remain anonymous.

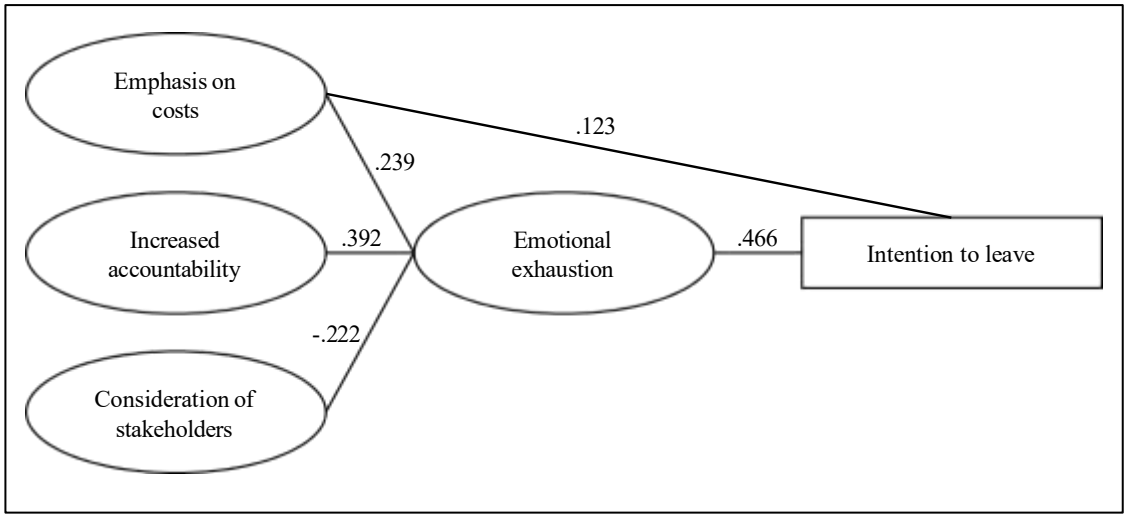
3. Analysis and results

For this study, we used Mplus 8.10 (Muthén & Muthén, 2023) with the robust maximum likelihood estimator. We first tested a measurement model using confirmatory factor analysis (CFA) that included the multi-item constructs (i.e., perceptions of NPM-related changes and emotional exhaustion) as well as the observed score of intention to leave the organization, which was allowed to correlate with the factors

representing perceptions of NPM-related changes and emotional exhaustion. This measurement model was then converted into a predictive structural equation model (SEM) in which the first-order factors of perceptions of NPM-related changes were specified as antecedents, emotional exhaustion as a mediator, and intention to leave as the outcome. Direct and indirect effects (i.e., through emotional exhaustion) of perceptions of an emphasis on costs, increased accountability, and consideration of stakeholders on intention to leave were tested using bias-corrected bootstrap confidence intervals with 10,000 bootstrap samples (CI; Cheung & Lau, 2008).

Model fit indices for both the CFA ($SB\chi^2(49) = 492.00$, $p < .001$, CFI = .93, TLI = .91, RMSEA = .07, SRMR = .044) and the SEM ($SB\chi^2(45) = 556.09$, $p < .001$, CFI = .94, TLI = .91, RMSEA = .078, SRMR = .038) indicated acceptable fit. The resulting model is presented in Figure 1. The analyses showed that perceptions of an emphasis on costs and increased accountability directly and positively predicted emotional exhaustion ($\beta = .239$, $p < .001$; $\beta = .392$, $p < .001$, respectively). In contrast, perceptions of consideration of stakeholders significantly and negatively predicted emotional exhaustion ($\beta = –.222$, $p = .007$). Moreover, perception of an emphasis on costs directly, significantly, and positively predicted intention to leave ($\beta = .123$, $p = .014$), whereas the the effect was not significant for increased accountability and consideration of stakeholders ($\beta = .021$, $p = .791$; $\beta = -.129$, $p = .065$). Finally, the indirect effects of perceptions of NPM-related changes on intention to leave through emotional exhaustion were significant for emphasis on costs ($\beta = .111$, 95% CI [.057, .168]), increased accountability ($\beta = .183$, 95% CI [.104, .279]), and consideration of stakeholders ($\beta = -.104$, 95% CI [.-186, -.035]).

Figure 1. Significant standardized mediation paths from NPM- related changes perceptions to turnover intentions through emotional exhaustion.



4. Discussion, limitations and future research directions

The objective of this study was to examine the extent to which perceptions of NPM-related changes influence turnover intentions among French civil servants and to assess whether emotional exhaustion mediates the relationship between these perceptions and intentions to leave the organization. The results of the structural equation modeling highlighted the central role of emotional exhaustion in this process. Specifically, perceptions of an emphasis on costs and increased accountability positively predicted emotional exhaustion, which in turn was associated with higher turnover intentions. Interestingly, perceptions of consideration of stakeholders negatively predicted emotional exhaustion, suggesting that not all dimensions of NPM reforms are uniformly detrimental to employee well-being. This finding implies that certain reform practices, when perceived as supportive or inclusive, may act as resources that buffer against stress and mitigate the risk of burnout. These findings can be interpreted through the lens of the Job Demands-Resources (JD-R) model (Bakker et al., 2007) which offers a pertinent framework by positing that high job demands (*e.g.*, increased accountability, focus on cost efficiency) may deplete personal resources, leading to strain and burnout, whereas job resources (*e.g.*, social interactions, stakeholder consideration, autonomy) can mitigate these effects.

While these results provide important insights, several limitations must be acknowledged. First, the study employed a cross-sectional design, which limits causal inference and precludes examination of temporal trajectories. As the organizational reform process remains ongoing, future research could employ longitudinal designs to assess how employees perceive and respond to forthcoming changes over the long term, and to examine the evolving relationships among reform perceptions, emotional exhaustion, and turnover intentions over time. Second, the mediation model tested was relatively simple. Future research could explore sequential mediation, building on the work of Abord de Chatillon & Desmarais (2012), who directly accounted for perceived constraints and proposed that higher perceptions of NPM-related changes are first associated with increased perceived job demands, which in turn contribute to burnout. Third, turnover intentions were operationalized as a single construct, without distinguishing between different forms of withdrawal, such as remaining in the same organization, moving to another public organization, retiring, or leaving the public sector entirely (Jeon & Robertson, 2013). Making such distinctions would refine our understanding of the drivers of retention and attrition within the civil service in the context of ongoing public-sector reforms. Another avenue for further investigation concerns the operationalization of NPM perceptions. In this study, we focused on three dimensions (*i.e.*, emphasis on costs, increased accountability, consideration of stakeholders) based on Abord de Chatillon & Desmarais' (2012) framework. However, other principles of NPM highlighted in the literature (Bezes & Musselin, 2015), such as performance culture or the separation of strategic and operational functions, may also influence employee NPM-related changes perceptions. Expanding the model to include these dimensions could provide a more comprehensive understanding of how complex managerial reforms are experienced by civil servants.

In conclusion, this study underscores the psychological mechanisms linking NPM-related changes perceptions to turnover intentions in the French civil service, identifies emotional exhaustion as a key mediator, and highlights the importance of considering both the detrimental and protective aspects of NPM-inspired changes.

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THE ROLE OF FUTURE-DIRECTED UNCERTAINTY FOR WORK MOTIVATION AND VOLITION AMONG YOUNG ADULTS

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Abstract

This exploratory qualitative study examines the motivational and volitional processes underlying goal-directed behaviors of young adults under conditions of uncertainty. Using the Rubicon Model and Expectancy-Value Theory as the primary frameworks, and drawing on PSI Theory as a complementary perspective, in-depth data was collected from four participants using uncertainty-based scenarios and open-ended questions. The findings emphasize that the subjective value attributed to the goal plays an important role in sustaining motivational commitment, while volitional strategies and social support facilitate the continuation of the action. Despite the limited number of participants, the study offers theory-based and application-oriented insights into motivation and volition processes under uncertainty. The findings expand motivation models by framing uncertainty not only as a risk factor but as an active factor shaping motivational and volitional dynamics, and offer practical implications for supporting goal-directed behaviors among young adults in the workplace.

Keywords: *Uncertainty, motivation, volition, Rubicon Model, goal-directed behavior.*

1. Introduction

The motivation and commitment of the younger generation play a critical role in companies' future workforce and productivity. Uncertainty has a significant impact on individuals' decision-making, goal planning, implementation, and maintenance. In the literature, Touré-Tillery & Fishbach (2011) and Şenol & Akdağ (2018) show that uncertainty has a negative effect on motivation, Anselme (2010) and Shen, Fishbach & Hsee (2015) emphasize that uncertainty can be transformed into a positive force through individuals' self-regulation mechanisms. Nevertheless, how uncertainty works in young adults, particularly in volitional processes, and at what point it strengthens or weakens motivational-volitional processes has not been sufficiently studied. On this basis, the aim of the study is to qualitatively reveal young individuals' decision-making, goal-setting, and self-regulation patterns in an uncertain environment. For this purpose, this study was designed as an exploratory qualitative research with a small group of participants (N = 4).

2. Design

This study is structured within the framework of Expectancy-Value Theory (Heckhausen & Heckhausen, 2018) and the Rubicon Model (Heckhausen & Gollwitzer, 1987). Kuhl's (2001) Personality Systems Interaction (PSI) Theory, which offers a useful perspective for interpreting how individual differences affect motivational and volitional processes, is used as supporting evidence. Within this framework, the Rubicon Model distinguishes between the pre-action period, where individuals evaluate options under uncertainty, and the implementation stages, where they engage in action and sustain goal-directed behavior. This distinction provides a strong theoretical basis for understanding how uncertainty affects motivational and volitional processes. Expectancy-Value Theory explains how expectancy of success and the subjective value assigned to a goal affect individuals' decision-making processes and the processes of translating these decisions into action and sustaining that action. It also sheds light on the interpretation of volitional and motivational strategies that emerge in qualitative responses. Although personality variables are not directly measured in the qualitative phase, PSI Theory provides a complementary conceptual framework for understanding individual differences in self-regulation and volitional control processes. Taken together, these theoretical perspectives shape the creation of uncertainty-based open-ended scenarios used in the qualitative phase and the interpretation of the responses obtained.

3. Objectives

Objective 1: To qualitatively examine how young adults experience and navigate the phases of the Rubicon Model during decision-making, action initiation, and action maintenance under conditions of uncertainty.

Objective 2: To qualitatively investigate the effect of success expectancy and the subjective value assigned to the goal on decision-making, action initiation, and action maintenance under conditions of uncertainty within the Expectancy-Value Theory framework.

4. Methods

A qualitative research design was used to examine individuals' motivational and volitional processes in depth under conditions of uncertainty. This section describes the participants, materials, procedures, and data analysis.

4.1. Participants

The qualitative study was conducted with four young adults aged 18 to 30. The small sample size was purposefully chosen to enable an in-depth, exploratory examination of each participant's motivational and volitional processes under conditions of uncertainty. Although the sample is limited, these findings provide valuable insights for understanding the observed patterns discussed in the Discussion section. Participants volunteered to take part in the study. All participants responded to the same uncertainty-based scenarios and open-ended questions.

4.2. Materials

The data were collected using uncertainty-based scenarios designed to reveal participants' decision-making, action initiation, maintenance, and volitional strategies under uncertain conditions, encompassing the motivational and volitional phases of the Rubicon Model (pre-decisional, pre-actional, actional, post-actional) and the core components of Expectancy-Value Theory (expectation of success and subjective goal value). The scenarios include both work and everyday life situations; however, greater emphasis has been placed on the work context to ensure consistency with the abstract and conclusion. The open-ended questions probe individuals' feelings, thoughts, and planned actions. Participants' cultural backgrounds, vocational-educational statuses, and individual competence levels were not taken as variables; the questions were designed to be general and context-independent, focusing on participants' processes of decision-making and action under uncertainty.

4.3. Procedure

Interviews were conducted individually, and after each participant was read the scenario, they were asked to answer open-ended questions. Each interview lasted approximately 1.5-2 hours. The purpose of the study was explained to all participants, and participation was voluntary.

4.4. Data analysis

The data analysis was conducted within the framework of qualitative content analysis. Both deductive and inductive categorization were used in the analysis process. In the deductive analysis phase, the responses were coded according to predefined theoretical categories based on Expectancy-Value Theory and the Rubicon Model. Within this framework, each response was evaluated in terms of success expectation, subjective value, perceived uncertainty, volitional control processes, and which Rubicon phase it corresponded to. In the inductive analysis phase, the responses were analyzed according to recurring patterns of meaning, and the cognitive, motivational, and emotional strategies contained in the responses were identified, and categories corresponding to these strategies were created. This two-stage analytical approach enabled the systematic testing of the theoretical framework and facilitated the observation of the contextual and subjective dimensions of participants' experiences under uncertainty.

5. Discussion

In this study, the motivational and volitional processes underlying goal-directed behavior under conditions of uncertainty were examined in different Rubicon Model phases. In the discussion section below, the findings are interpreted in light of theoretical frameworks, emphasizing how value, expectation, and volitional strategies shape motivation and volition.

Pre-decisional Phase: At this phase, participants typically focus on decision-making, cost-benefit analysis, perception of uncertainty and risk assessment, social support and influence, and values. Findings indicate that the sense of value outweighs expectations, particularly under conditions of uncertainty. This pattern is consistent with previous research highlighting internally focused job values among young adults (Dwivedula, 2025; Loughlin & Barling, 2001). However, findings of this study extend these studies by showing that subjective value can compensate for fluctuating expectations before crossing the Rubicon. Nevertheless, in one case, high perceived risk prevented action despite the opportunity being recognized, demonstrating that crossing the Rubicon is not inevitable when perceived risk exceeds subjective value. Based on the overall results, these findings contribute to the literature by confirming the central role of subjective value in the decision-making process. Furthermore, they demonstrate that even when expectations are unstable in situations of uncertainty, high subjective value can stabilize motivational commitment and delay crossing the Rubicon, though it cannot necessarily prevent it.

Pre-actional Phase: In this phase, individuals generally engage in planning in order to reduce uncertainty. Factors such as social support and influence, having a backup plan, and clarity of information indicate that intention is sensitive to situational conditions. In other words, the findings show that crossing the Rubicon is not a single moment, but rather a process of preparation for action that emerges under uncertainty depending on the circumstances. These results are consistent with the findings of Sun (2006), which suggest that when risk-threat perception is combined with opportunity perception, motivation can be enhanced. Extending this perspective, the present findings suggest that individuals' perception of uncertainty, combined with opportunity perception such as social support, may facilitate motivational engagement and support the continuation of goal-oriented planning in the pre-actional phase.

Actional Phase: In this phase, despite uncertainty and drops in motivation, the goal is generally not abandoned. Self-regulation, problem-focused coping, social support, work- or education-related support, reframing the value of the goal, and providing flexibility are observed as the most frequently used volitional control strategies. However, maintaining goal-directed action does not always result in a smooth transition. Individuals evaluate the action contextually. The conflict between pleasure and responsibility leads to adjusting the action according to these values or, depending on the sense of obligation, may result in the action being performed involuntarily. However, ultimately, these conditions did not prevent adherence to the action. Furthermore, it has been observed both that social support (e.g., family and friends) and work- or education-related support in the actional phase plays a very important role in maintaining individuals' motivation and commitment to the goal. From the perspective of PSI theory, emotional regulation and social support can be understood as mechanisms that support the sustainability of action. This is consistent with previous research findings that uncertainty can be transformed into a motivating force through self-regulation processes (Anselme, 2010; Shen et al., 2015).

Post-actional Phase: Evaluations at this phase show that they are not a one-dimensional assessment of success or failure, but rather that individuals evaluate the outcome in terms of maintaining psychological balance, learning lessons, and reorganizing their motivational frameworks for future goals. In evaluations of success, the outcome is assessed not only within the "I succeeded" framework, but also within the "Was it worth it?" framework. This questioning in the evaluation is consistent with the work by Seo, Bartunek & Barrett (2010), which shows that individuals may not be satisfied even if they achieve their goals due to the mismatch between their expectations and the results they obtain. In the case of failure, the initial emotional responses are sadness, regret, and self-criticism. However, these emotional responses do not cause individuals to completely abandon their goals. Individuals reframe the experience with thoughts such as "I did my best" or "I learned a lesson from this." Ultimately, these findings contribute to PSI theory by showing how post-action evaluations under uncertainty facilitate personal growth through meaning-making and internalization rather than abandoning the goal.

Table 1. Key Findings: Phases of the Rubicon Model.

Rubicon Phase	Key Findings	Example Quotes
Pre-decisional Phase	Value > Expectation	"I would take this task because it can improve me."
Pre-actional Phase	Planning, back-up plan, social support	"I wouldn't be in panic. I would make a backup plan."
Actional Phase	Volitional strategies, social support	"I would deal with uncertainty, difficulties with support of my family."
Post-actional Phase	Reflection, reframe, learning	"If I were unsuccessful, I would be disappointed but I would know that I had tried and would try to find another solution."

6. Conclusion

Overall, this study makes three important contributions. First, it shows that subjective value supports motivational commitment prior to action by compensating for fluctuating expectations under uncertainty. Second, it redefines crossing the Rubicon as a context-sensitive process rather than a single moment. Third, it demonstrates how volitional and self-regulatory processes sustain goal-directed action despite motivational fluctuations. These findings expand existing motivation models by integrating uncertainty not merely as a risk factor but as an active component of motivational and volitional processes. Furthermore, it supports the applicability of motivation and volition theories in real work contexts and provides important insights for practical interventions that can be implemented to increase goal commitment among young adults. Organizations can increase the motivation and goal commitment of young employees in uncertain environments by emphasizing the value of goals and providing social support mechanisms.

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SETTING THE TONE AT THE TOP – POWER AND PERIL OF POLITICAL LEADERSHIP IN SOCIO-PSYCHOLOGICAL PERSPECTIVE

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Abstract

Political leadership is analyzed as a complex interplay of individual characteristics, social psychological mechanisms, and institutional frameworks. It becomes apparent that power does not result solely from formal position, but also from the perception of objectives and the reaction of the public. Leadership is understood as a behavioral concept that encompasses activities that influence and coordinate the actions of others. The importance of emotional competencies and authentic behavior is emphasized, as is the role of power distribution and institutional structures. Historically, the understanding of political leadership has evolved from personalistic approaches to processual and interactionist models that integrate normative and biological factors. Social psychological aspects such as authoritarianism, peer pressure, and diffusion of responsibility shape leadership processes and influence the quality of political decisions. Influence processes and communication are closely linked to cultural and institutional contexts and require bidirectional interaction. Ethical responsibility and self-reflection are essential for sustainable political leadership, especially in crisis situations that require flexible role understandings and integrative strategies. Finally, it is emphasized that political leadership is always caught between individual agency and systemic constraints and requires a continuous balance between efficiency, legitimacy, and moral integrity.

Keywords: *Political leadership, social identity theory, emotional contagion, legitimacy, governance.*

1. Introduction

A significant part of leadership research considers political leadership to be a behavioral concept. Today's understanding of leadership in this context emphasizes that it involves activities that directly influence and coordinate the actions of others (Helms, 2014, p. 3). This view differs from older models, which focused more on structural factors. The emphasis on behavior opens up space for analysis of how social psychological mechanisms (e.g., peer pressure and diffusion of responsibility) shape the dynamics of these leadership processes.

Political leadership aims to shape the decision-making process and thus to exert a lasting influence on public affairs (Helms, 2014, p. 5). This embedding makes it clear that isolated psychological considerations remain insufficient if they do not take the socio-historical framework into account. Emotional competencies also play a significant role: if they are lacking in leaders, creative processes and coordination within teams become more difficult. Without awareness of the emotional level, genuine exchange between leaders and followers in the sense of collective problem solving can hardly take place. This insight underlies more recent concepts such as "authentic leadership", whose positive effect has been empirically confirmed (Lewkowicz & West-Leuer, 2016, p. 41). Emotionally sensitive behavior thus appears not merely as an additional characteristic, but as an integral part of effective political authority. Parallel to this, the concept of power distribution is at the center of some approaches: weaker leaders are more inclined to resort to harsh measures rather than persuasion. Targeted delegation of decision-making authority, on the other hand, can increase satisfaction at different levels of an organization.

It should also not be forgotten that politics always remains a "human business". Psychological factors such as sympathy or antipathy toward certain schools of thought, as well as the subtle tension between visible and actual power, have a considerable impact on the scope for action (Maizière, 2009, p. 3). This suggests that political leadership should be viewed less mechanistically and analyzed more in terms of its network of relationships between advisors, decision-makers, and the public. In a similar vein, it is emphasized that successful political leadership is often based on a clearly formulated personal core framework consisting of priority messages to internal employees and external audiences (Merton, 1969, p. 6). Such clearly defined lines of communication have been shown to serve as a reference system guiding

action for internal teamwork and external consulting situations (Bowman, 2023, p. 6), which underscores the functional value of an explicit self-image. In the context of professional politics, it is emphasized that this personal core framework is by no means static; it develops from repeated reflection on core messages to employees, media representatives, and voter groups, as well as from a conscious distribution of tasks within the team (Courpasson, 2017, p. 372).

2. Conceptual and historical foundations of political leadership

The historical development of political leadership concepts has been strongly influenced by the social, cultural, and scientific trends of their respective eras. In the 19th century, a view dominated that was significantly influenced by thinkers such as Thomas Carlyle and Francis Galton. This early phase is often described as the "great man" approach, which assumed that leaders possess innate abilities and personality traits that propel them into leadership roles based on their supposed individual talent and regardless of context (Nahavandi, 2015, p. 56). In the early 20th century, the introduction of systematic testing procedures to measure individual characteristics (e.g., intelligence) led to a new interest in the supposedly measurable prerequisites for leadership (Nahavandi, 2015, p. 56). Here, psychological research was combined with organizational needs for efficient selection procedures for management personnel. Since the 1970s, leadership has no longer been seen as a one-sided process, but as a dynamic interaction between the motivations of both parties (leadership and followers) under certain historical circumstances.

Political leadership concepts arise within the sphere of influence of individual characteristics, normative ideas, and institutional structures. While early models were strongly personalistic (Nahavandi, 2015, p. 56), modern approaches have supplemented this view with procedural and interactionist components, while also integrating biological and cultural factors (Pederzini, 2019, p. 26). In addition, recent studies on the learnability of leadership reveal a tension between genetic disposition and the targeted teaching of practical skills (Fliegauf, 2009, p. 7). The fact that such discussions partly draw on older lines of research – such as "trait theories" like the "five-factor model" – also shows their continuing relevance despite criticism of their limited explanatory power for situation-dependent behavior (U.S. Army War College Press & U.S. Strategic Studies Institute, 2014, p. 8).

In current leadership research discourse, authentic behavior and emotional sensitivity are often called for in order to generate trust and ensure social cohesion (Lewkowicz & West-Leuer, 2016, p. 129). Authenticity distinguishes sustainable leadership relationships from purely instrumental power relationships. This aspect comes to the fore especially when negative social-psychological mechanisms such as excessive authoritarianism or excessive peer pressure threaten to inhibit constructive processes. It should be noted that modern political leadership is partly moving away from classic terminology and is increasingly being described using the concept of "steering". This is understood as a process oriented toward the common good within a hierarchical framework of conditions and combines persuasion techniques with institutional regulations (Kevenhörster & Laag, 2024, p. 54). In this context, it is interesting to note the empirical evidence that for a long time, research simplistically assumed that "leaders lead" and "followers follow", while more recent approaches emphasize a more complex interplay between the two roles (Riggio, 2017, p. 277). This shifts the focus to dynamic interaction patterns in which leadership is not understood as a one-sided top-down process, but as a multi-layered relationship between actors with mutual influence. Leadership is always a process of intentional influence within a social system with the goal of collective action control.

3. Socio-psychological foundations and mechanisms of political leadership

Modern successful political communication requires bidirectionality: listening and seriously engaging with arguments lends depth and credibility to leadership interactions (Koenig, 2009, p. 7). In addition, nonverbal signals such as voice or body language significantly influence the perception of a leader. These elements indicate that leadership is not solely rational and structural in nature, but always has a sensory and symbolic effect as well.

The role of emotional communication is particularly revealing. Positive emotional signals – such as evoking shared hope or confidence – often have a stabilizing effect on the relationship between leaders and followers. The theory of emotional contagion postulates that such signals can be picked up and amplified by group members. However, this pattern is not universal: under certain conditions, opposite effects occur, for example when excessive optimism is perceived as dishonest. Negative communication, on the other hand, can weaken cohesion, even though it may mobilize people in the short term. Communication strategies often suffer from the fact that decisions are first made in isolation and only then "sold" (Fackelmann, 2009, p. 297). A process-oriented approach, on the other hand, involves relevant actors in decision-making discussions from the outset. This creates channels for feedback before political

measures are decided upon. This increases credibility, reduces resistance, and at the same time shapes a culture of internal communication. However, such participation also requires clear and concise communication of information on the part of the manager.

Media presence also influences the perception of political actors' personal characteristics. In the past, this was attributed almost exclusively to the routines of traditional media (Korte, Florack & Kamps, 2022, p. 155). Today, digital platforms enable direct communicative interactions between political decision-makers and citizens – both during election campaigns and during periods of government. As a result, personal branding is less dependent on traditional news channels and more strongly influenced by individual online communication.

4. Integrative challenges and practical implications of political leadership

The responsibility of political leadership begins where formal power is translated into everyday decision-making processes. This responsibility includes not only compliance with legal norms, but above all consistent adherence to ethical principles, even if short-term political advantages may seem tempting through their disregard. A key problem here is the decline in individual ethical sensitivity, which in certain political contexts is considered to be the cause of poor decisions and poor quality of government. This is particularly acute in fragile states, where institutional structures are already weakened and the personal integrity of leaders plays a decisive role in stability and legitimacy.

Based on her experiences in post-conflict Liberia, Ellen Johnson-Sirleaf has emphasized that a solid ethical foundation is essential for building sustainable leadership skills (Rufyikiri & Geneva Centre for Security Policy, 2020, p. 11). Her comment suggests that ethics should not be considered an optional extra in leadership behavior, but rather its foundation. From this perspective, there is a need for comprehensive educational programs on leadership ethics that embed value orientation in the training of future political decision-makers.

When leaders disregard justice or the common good, those they lead perceive greater inequality, which in the context of organizations promotes deviant behaviors such as cynicism and refusal to work. Such dynamics undermine the creativity and self-esteem of members and weaken the overall structure of an organization, even to the point of rendering the state incapable of action. From a social psychological perspective, this ethical dimension is closely linked to mechanisms such as “abusive supervision” – forms of abusive leadership in which power is used to harm subordinates.

Constellations without effective control and disempowerment procedures for top positions are particularly risky. If there are no external corrective mechanisms – such as independent control bodies or formalized feedback processes – undesirable developments can continue almost unchecked. Institutional instruments such as term limits or transparent dismissal procedures play an important role here in limiting the abuse of power and demanding accountability.

Ethics in political leadership is also strongly linked to self-reflection. Discrepancies between personal and organizational values can create serious conflicts. The ability to control personal preferences in favor of a binding code of conduct is crucial for living integrity. Without this self-discipline, it remains difficult to credibly convey moral standards or demand them from subordinates.

Another area of tension is that even formally democratic systems are not immune to authoritarian temptations. Where ethical self-examination is lacking, power can become subjectively distorted over time – through constant approval from those around you or through the isolating effect of hierarchical structures (confirmation bias). The risk lies in one-sided decisions being made without careful consideration, with advice or opposing opinions being ignored. Without consciously opening up decision-making processes, dysfunctions such as poor information flow or resistance at the grassroots level can arise.

Ethical responsibility also means carefully examining one's own values in relation to society. Moral ideals can act like dogmas. They must therefore be continuously questioned to prevent them from mutating into repressive instruments. Particularly in the case of political decisions, it is also important to always bear in mind that they inevitably affect the interests of others and can therefore only be justified if these interests have been given due consideration. This requires a conscientious examination of all relevant circumstances (Herrmann & Neißer, p. 84). A pressing challenge is therefore to put the principle of serious accountability into practice, for example through transparency in decision-making processes, precise communication of moral standards, and the establishment of complaint and appeal procedures against questionable leadership actions (Nahavandi, 2015, p. 86; Connelley & Tripodi, 2012, p. 82). The interplay of personal integrity and effective control mechanisms ultimately forms the framework for responsible political leadership. If one of these two pillars is missing – whether due to institutional weakness or individual negligence – the entire edifice of responsible exercise of power stands on shaky ground. Responsible politicians must therefore be prepared to critically question their own scope for action and actively create or strengthen structures that promote rather than hinder ethical behavior.

5. Conclusion

The analysis shows that political leadership cannot be understood as a one-dimensional process, but rather as a complex interplay of individual characteristics, social-psychological mechanisms, and institutional framework conditions. The power of political actors is derived from formal authority, informal influence, and the norms of the system in which they operate (Korte, Florack & Kamps, 2022, p. 45). These dimensions overlap, creating a multi-layered field of possible courses of action ranging from integrative to repressive strategies. From a social psychological perspective, it becomes clear how authoritarianism structures leadership processes, shaping not only the behavior of leaders themselves, but also influencing the reactions of their followers (Zmerli & Feldman, 2022, p. 15). Authoritarian patterns have a stabilizing effect on short-term control, but in the long term they carry the risk of systemic isolation from criticism and an impoverishment of innovative ideas. A key finding is that group mechanisms such as peer pressure or diffusion of responsibility are deeply embedded in political decision-making processes. These mechanisms can help to implement decisions more quickly and coherently (Gast, 2009, p. 222), but at the same time reduce the likelihood of dissenting opinions and critical debate. This creates a tension between efficiency and the deliberative quality of political measures (Fackelmann, 2009, p. 297; Helmold, 2022, p. 43).

The development of communication cultures within political organizations is essential for enabling transparency and feedback. The personal integrity of leaders is closely linked to the legitimacy of their decisions. A lack of self-reflection or commitment to values not only leads to individual mistakes, but also undermines the institutional foundation and has a negative impact on public approval, especially in contexts with weak democratic controls or high resource inequality. This highlights the need for continuous ethical self-examination and external control mechanisms to prevent abuse of power.

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REDUCING CHILDREN'S RACIAL BIAS: THE EFFICACY OF INDIVIDUATED INTERPERSONAL SYNCHRONY

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Abstract

Despite the development of numerous interventions to reduce racial bias, only a handful have received empirical validation and are viable for large-scale implementation. This study combined two evidence-based approaches, synchronous movement with out-group members (to reduce explicit bias) and individuation training (to reduce implicit bias), into an integrated intervention called *Individuated Interpersonal Synchrony* (IIS). We examined whether a brief (~15-minute), video-based IIS could reduce both explicit and implicit racial bias in young children and compared the effectiveness of one-on-one versus small-group intervention formats. A sample of 136 children (53 girls) aged 5–6 years was assigned to one of three conditions based on their pretest D-scores to ensure baseline equivalence: (a) own-race one-on-one IIS (control), (b) other-race one-on-one IIS, or (c) other-race small-group IIS. The intervention involved synchronized movements with racially distinct partners, who were individually identified by learning their names via video. Results revealed no significant changes in implicit racial bias across conditions, suggesting that implicit bias may be less sensitive to brief, single-session interventions. In contrast, explicit racial bias decreased significantly in both other-race conditions (Cohen's d = 0.70–0.83), with no change in the control condition. This study indicates that a brief, video-based IIS intervention can successfully reduce explicit racial bias in early childhood, a critical period for attitude formation. The comparable effectiveness of the small-group intervention format demonstrates its potential for practical, large-scale implementation in school settings.

Keywords: *Racial bias, individuation, interpersonal synchrony, early childhood, school-based intervention.*

1. Introduction

Racial bias remains a persistent concern in child development and is associated with a range of adverse psychological and educational outcomes. Research has shown that experiences of racial bias are linked to higher levels of loneliness (Benner & Wang, 2017) and lower self-esteem (Metzner et al., 2022), as well as reduced classroom engagement and weaker school belonging (Benner & Wang, 2017; Del Toro et al., 2024). Developmental studies further indicate that both explicit and implicit racial biases emerge early in childhood, often before the age of six (Qian et al., 2016), and frequently before extensive direct contact with members of other racial groups. Early childhood, therefore, represents a critical period for intervention, during which social attitudes are still forming and may be particularly amenable to change. Nevertheless, despite growing interest in prejudice-reduction interventions, relatively few approaches have demonstrated both empirical support and practical feasibility for large-scale implementation in educational settings (Grapin et al., 2019; Paluck et al., 2020; Hsieh et al., 2021).

Intergroup contact has been one of the most extensively examined strategies for reducing racial bias (Pettigrew & Tropp, 2008; Lemmer & Wagner, 2015). However, effective implementation of direct intergroup contact typically requires sustained interaction and institutional support, which can be difficult to ensure in many school contexts, particularly in communities with limited racial diversity (Dixon et al., 2020; White et al., 2020). Consequently, more flexible and scalable forms of indirect contact have received increasing attention (Brown & Paterson, 2016). In parallel, cross-racial synchronous movement has emerged as a promising intervention, with evidence showing that moving in synchrony with others enhances social bonding, interpersonal closeness, and positive attitude toward out-group members (Tunçgenç & Cohen, 2016a; Atherton et al., 2019). However, existing findings suggest that the effects of synchronous movement are primarily observed at the level of explicit attitudes, with relatively limited impact on implicit racial bias (Qian et al., 2020).

In contrast, perceptual individuation training has been consistently shown to reduce implicit racial bias in young children. By encouraging attention to individual-level differences among out-group members, perceptual individuation reduces category-based processing and limits the generalization of negative associations to the out-group as a whole (Qian et al., 2017; Qian et al., 2019). Despite its effectiveness at the implicit level, perceptual individuation typically involves minimal social interaction and has shown weaker or less consistent effects on explicit attitudes. Taken together, these findings suggest that different intervention approaches may operate through distinct psychological mechanisms and preferentially influence different components of racial bias.

Building on this complementary evidence, the present study integrates synchronous movement and perceptual individuation into a unified intervention we call *Individuated Interpersonal Synchrony* (IIS). Synchronous movement may promote social connection and positive affect toward out-group members, thereby influencing explicit bias. In contrast, perceptual individuation may operate at a perceptual-to-social level to reduce implicit bias. To enhance feasibility and scalability, IIS was implemented in a brief, video-based format suitable for classroom use and delivered within a single session. Children's racial bias was assessed before and after the intervention, and the effects of one-on-one versus small-group IIS formats were further compared.

2. Objectives

The present study examines whether a brief, video-based IIS intervention influences racial bias in Chinese children toward Black people and whether a small-group delivery format is comparable to a one-on-one format. Specifically, we hypothesize that: (a) one-on-one IIS with other-race members will significantly reduce children's implicit and explicit racial biases; (b) one-on-one IIS with own-race members will not significantly reduce children's implicit and explicit racial biases; and (c) other-race small-group IIS will significantly reduce children's implicit and explicit racial biases, with changes that do not differ significantly from those observed in the other-race one-on-one condition.

3. Methods

3.1. Participants and design

A total of 136 Han Chinese children (53 girls; M_{age} = 5.80 years, SD = 0.50) from a racially homogeneous city in China participated. The study used a 3 (Condition: own-race one-on-one IIS, other-race one-on-one IIS, other-race small-group IIS) × 2 (Time: pretest, posttest) mixed design, with Condition as a between-subjects factor and Time as a within-subjects factor. To minimize baseline differences in implicit racial bias, children were block-assigned to conditions based on pretest IRBT D-scores such that mean D-scores have no statistically significant difference across conditions.

3.2. Procedure and experimental conditions

Each child participated for two weeks. Pretest measures of explicit and implicit racial bias were measured in the first week. In the second week, children completed the IIS intervention, followed immediately by the posttest on the same day using identical instruments and instructions. Children were assigned to one of three experimental conditions. In the own-race one-on-one IIS (control) condition, children viewed videos featuring Chinese instructors (race-matched to participants) and completed the IIS intervention individually with an experimenter. In the other race, the one-on-one IIS (individual) condition, children viewed videos featuring Black female instructors (race-mismatched) and completed the intervention individually. In the other race small group IIS (group) condition, children viewed the same other race videos as in the individual condition but completed the intervention simultaneously with 3-5 peers, led by one experimenter.

3.3. IIS intervention

The IIS intervention lasted approximately 15 minutes and consisted of a brief practice phase followed by a formal training phase. During practice, children learned four target movements with the experimenter (tapping the head, shoulders, thumbs up, and little finger, each paired with clapping). During training, children synchronized their movements with four video clips (50 s each) presented in random order, each featuring a clearly identified instructor. After each clip, children were asked to recall the instructor's name and demonstrate the corresponding movement. Progression to the next clip required correct recall; incorrect responses received immediate corrective feedback. Task structure, timing, and prompts were identical across conditions, with only the racial identity of the instructors and the delivery format varying.

3.4. Measures

3.4.1. Implicit racial bias. Implicit anti-Black bias was assessed using the child-friendly Implicit Racial Bias Test (IRBT; Qian et al., 2016). Scores were computed as D-scores, with higher values indicating stronger implicit anti-Black bias. A score of zero represents no bias toward either group.

3.4.2 Explicit racial bias. Explicit anti-Black bias was measured with a forced-choice task (Qian et al., 2016). The values for each scenario were summed and then divided by 4 to produce an explicit bias score that ranged from 0 to 1. Higher scores reflect stronger explicit anti-Black bias.

4. Results

4.1. Training effects on implicit racial bias

To examine the effects of the IIS intervention on children's implicit anti-Black bias, we conducted a 3 (Condition: own-race one-on-one IIS, other-race one-on-one IIS, other-race small-group IIS) × 2 (Time: pretest, posttest) mixed-design ANOVA, with Condition as a between-subjects factor and Time as a within-subject factor. The analysis revealed no significant Condition × Time interaction, $F(2, 133) = 0.13$, $p = .877$, partial $\eta^2 = 0.002$, indicating that changes in implicit racial bias did not differ across conditions. In addition, there was no significant main effect of condition, $F(2, 133) = 0.05$, $p = .949$, partial $\eta^2 = 0.001$. The main effect of the time was also not significant, $F(1, 133) = 3.52$, $p = .063$, partial $\eta^2 = 0.026$. Because the interaction was not significant, follow-up simple-effects analyses were not conducted.

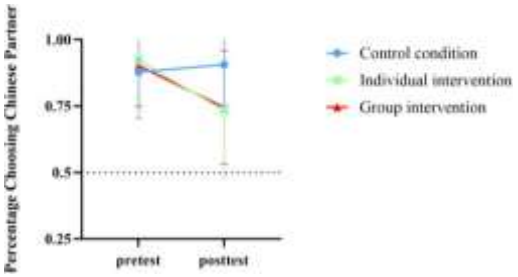
4.2. Training effects on explicit racial bias

We also conducted a 3 (Condition) × 2 (Time) mixed-design ANOVA to examine changes in explicit anti-Black bias. This analysis revealed a significant Condition × Time interaction, $F(2, 133) = 16.15$, $p < 0.001$, partial $\eta^2 = 0.195$, indicating that changes in explicit bias differed across intervention conditions. To decompose this interaction, simple effects analyses were conducted within each condition. In the other-race one-on-one IIS condition, explicit anti-Black bias decreased significantly from pretest ($M = 0.92$, $SD = 0.14$) to posttest ($M = 0.73$, $SD = 0.25$), $t(44) = 5.58$, $p < .001$, Cohen's $d = 0.83$, 95% $CI = [0.12, 0.26]$. Similarly, in the other-race small-group IIS condition, explicit anti-Black bias showed a significant reduction from pretest ($M = 0.90$, $SD = 0.15$) to posttest ($M = 0.76$, $SD = 0.21$), $t(45) = 4.73$, $p < .001$, Cohen's $d = 0.70$, 95% $CI = [0.09, 0.23]$. In contrast, in the own-race one-on-one IIS (control condition), explicit anti-Black bias did not change significantly from pretest to posttest, $t(44) = -1.70$, $p = .096$, Cohen's $d = -0.25$, 95% $CI = [-0.06, 0.01]$ (see Figure 1).

To compare the effectiveness of other-race one-on-one IIS versus other-race small-group IIS at the posttest, we conducted a one-way ANOVA on posttest explicit anti-Black bias among three groups (other-race one-on-one IIS, other-race small-group IIS, and control). This analysis showed a significant group effect, $F(2, 133) = 9.45$, $p < .001$ (partial $\eta^2 = 0.125$). Bonferroni-corrected post hoc comparisons indicated that both the other-race one-on-one IIS and other-race small-group IIS conditions had significantly lower explicit anti-Black bias than the control group in the posttest ($ps < .01$). However, the other-race one-on-one IIS and other-race small-group IIS did not differ significantly from each other ($p > .05$).

Taken together, these results indicate that IIS with other-race instructors effectively reduced children's explicit racial bias and that the small-group format yielded reductions comparable in magnitude to the one-on-one format.

Figure 1. Explicit bias scores at pretest and posttest.



Note: Scores above 0.5 indicate an own-race preference, and scores below 0.5 indicate an other-race preference. Individual intervention = other-race one-on-one IIS; group intervention = other-race small-group IIS; control condition = own-race one-on-one IIS.

5. Discussion & conclusions

The present study examined whether a brief, video-based *Individuated Interpersonal Synchrony* (IIS) intervention could reduce racial bias in young children and whether a small-group delivery format is as effective as a one-on-one format. The results showed that IIS with other-race instructors effectively reduced explicit anti-Black bias, whereas no changes were observed in implicit bias, and that small-group IIS was comparably effective to one-on-one delivery.

Consistent with prior research, children who engaged in synchronous movement with other-race instructors showed positive attitudes toward out-group members (Tunçgenç & Cohen, 2016b). Synchronous movement increases social affiliation, such as perceived similarity and interpersonal closeness in children, which may help explain reductions in explicit bias toward out-group members (Rabinowitch & Knafo-Noam, 2015). In addition, synchrony has been shown to increase attention to others' mental states (Basile et al., 2022), which may further foster positive social emotions, including closeness (Baimel et al., 2018) and compassion (Valdesolo & DeSteno, 2011).

In contrast, we did not find the reduction in implicit racial bias across conditions. A possible explanation for this is that, compared with the intervention used by Qian et al. (2022), the present IIS intervention required more fine-grained motor coordination. Therefore, it potentially increases cognitive demands and shifts attentional resources toward movement execution rather than social category processing. Another possible explanation for this is that implicit attitudes tend to be more stable and automatic compared to explicit racial bias and may therefore require more sustained interventions. Previous studies showing reductions in implicit bias through individuation typically rely on more intensive and repeated training with multiple other-race faces (Lebrecht et al., 2009; Xiao et al., 2015).

Importantly, the small-group IIS condition produced reductions in explicit bias comparable to those observed in the one-on-one condition, underscoring the feasibility of implementing IIS in classroom contexts. Several limitations for consideration. The intervention was brief and assessed only immediate posttest effects; future work should employ repeated or longitudinal designs to evaluate whether IIS can produce more durable changes, particularly in implicit bias. Participants were limited to 5-6-year-olds due to task demands requiring reliable execution of coordinated movements, and future studies should adapt IIS to developmentally appropriate synchronous activities to test its applicability in younger children within racially homogeneous contexts. Overall, these findings suggest that IIS represents a promising and feasible approach for reducing explicit racial bias in early childhood under brief, classroom-relevant conditions, while also highlighting important directions for further refinement and evaluation.

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THE INFLUENCE OF THREAT NARRATIVES ON ATTITUDES TOWARD IMMIGRATION: THE ROLE OF OPEN-MINDEDNESS AND INTELLECTUAL HUMILITY

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Abstract

Public attitudes toward immigration are significantly influenced by perceptions of threat posed by immigrant groups. The present study examined how different narratives about immigrant groups influence attitudes toward immigration and whether individual differences in open-mindedness and intellectual humility are associated with these attitudes. A stratified sample of 374 participants from Georgia was randomly assigned to one of four experimental conditions describing a fictitious immigrant group: economic competition, social threat, disadvantaged group, or neutral control. The participants evaluated the group and expressed their attitudes toward its potential immigration to Georgia. In addition, measures of open-mindedness and intellectual humility were administered. The results of a one-way analysis of variance revealed significant differences in attitudes across conditions, $F(3, 370) = 19.59$, $p < .001$, $\eta^2p = .14$. Participants exposed to economic competition and cultural threat narratives exhibited a markedly stronger opposition to immigration than those in the control or disadvantaged conditions. The results of the correlational analyses indicated that open-mindedness was negatively associated with opposition to immigration in several experimental conditions. However, intellectual humility was not significantly related to immigration attitudes. The findings underscore the significance of threat framing in influencing public responses to immigration and posit that open-minded cognitive dispositions may serve as a mitigating factor against exclusionary reactions. The implications of these findings for intergroup relations and public discourse about immigration are discussed.

Keywords: *Prejudice, immigration attitudes, intellectual humility, open-mindedness, intergroup threat.*

1. Introduction

In the contemporary era, marked by the advent of the twenty-first century, migration has emerged as a matter of profound political and social significance across a multitude of societies. Public attitudes toward immigration have been demonstrated to exert a substantial influence on the development of immigration policies, the nature of political discourse, and the dynamics of intergroup relations within receiving societies. While some individuals regard immigration as a catalyst for cultural diversity and economic development, others perceive it as a potential threat to economic stability, cultural identity, or social cohesion (Hainmueller & Hopkins, 2014). One of the most influential frameworks explaining prejudice toward immigrants is Integrated Threat Theory (ITT) (Stephan & Stephan, 2000; Stephan et al., 2009). According to this theory, prejudice emanates primarily from perceived threats to the ingroup posed by outgroups. These threats can manifest in a variety of forms. Threats of a realistic nature encompass concerns regarding the competition for material resources, including but not limited to employment opportunities, residential accommodations, social welfare programs, and political authority. The economic explanations of anti-immigrant attitudes are closely related to Group Conflict Theory, which suggests that intergroup hostility increases when groups compete for scarce resources (Blalock, 1967; Esses et al., 2001). Within the domain of immigration, such competition may encompass employment prospects, remuneration, or access to social services. Research across multiple countries has demonstrated that individuals who perceive immigrants as competitors in the labor market tend to express stronger opposition to immigration (Gorodzeisky & Semyonov, 2020). The manner in which immigrant groups are depicted in media and political discourse can exert a substantial influence on the public's perception of them (Esses et al., 2017). In contrast, *symbolic threats* are perceived challenges to the cultural values, norms, and identity of the host society. A substantial corpus of empirical studies has demonstrated that both realistic and symbolic threats serve as robust predictors of adverse attitudes toward immigrants (Meuleman et al., 2009). Symbolic threat

has been identified as a significant predictor of anti-immigrant attitudes in numerous studies (Stephan et al., 2009). The perception of immigrants as threatening outgroups can also be understood through the lens of Social Identity Theory (Tajfel & Turner, 1979). *Open-mindedness* is defined as the willingness to consider alternative perspectives and to revise beliefs in light of new evidence (Stanovich & West, 1997). Individuals who exhibit a high degree of open-mindedness tend to demonstrate a greater tolerance for diversity and a lower propensity for rigid ideological thinking. *Intellectual humility* refers to recognizing the limits of one's knowledge and being open to the possibility that one's beliefs may be incorrect (Leary et al., 2017). Individuals high in intellectual humility are more willing to engage with opposing viewpoints and less likely to exhibit dogmatic thinking. Another important factor influencing attitudes toward immigrants is the social context in which individuals encounter immigrants. Intergroup contact theory suggests that direct interactions with immigrants may reduce prejudice under appropriate conditions (Allport, 1954; Pettigrew & Tropp, 2006). Cross-national research also suggests that immigrants' political participation and integration into host societies may positively influence majority attitudes toward immigration (Green & Sarrasin, 2018). These findings underscore the pivotal role of social context in shaping immigration attitudes.

2. The present study

The present study examines how different descriptions of immigrant groups influence attitudes toward their potential immigration to Georgia. The present study investigates whether portrayals of immigrants as economic competitors, culturally different groups, or disadvantaged populations result in varying levels of acceptance or opposition. Furthermore, the study investigates the association between individual differences in open-mindedness and intellectual humility and attitudes toward immigration within these narrative contexts.

2.1. Method

The study employed a between-subjects experimental design to examine how different narratives describing an immigrant group influence attitudes toward immigration. The present study employed the research procedure developed by Duckitt and Sibley (2009), encompassing four experimental conditions that varied in the nature of information provided regarding the immigrant group. Participants were randomly assigned to one of four experimental conditions, each involving a fictitious immigrant group described using different narrative frames. The independent variable was the type of narrative description (economic competition, social threat, disadvantaged group, or neutral control), while the dependent variable was attitude toward immigration of the described group.

In addition to the experimental manipulation, the study examined the relationship between immigration attitudes and two individual difference variables: open-mindedness and intellectual humility. The participants completed the survey individually. Following the provision of informed consent, each participant was randomly assigned to one of four experimental conditions. The subjects were provided with a concise portrayal of a hypothetical immigrant group that was anticipated to potentially settle in Georgia. The participants were explicitly informed that the immigrant group described in the scenario was a hypothetical construct, not a real-world group, and that the description had been created solely for the purposes of the research. The participants were instructed to imagine that the information presented in the description represented a realistic situation and to evaluate the group accordingly. Following a thorough review of the aforementioned description, the participants proceeded to complete a series of questionnaire items. These items were designed to evaluate the immigrant group and to ascertain their attitudes regarding the potential immigration of the group to Georgia. Subsequently, the participants completed additional scales measuring open-mindedness and intellectual humility, along with demographic questions.

2.2. Measures

Intellectual Humility: The assessment of intellectual humility was conducted using the Comprehensive Intellectual Humility Scale, a tool developed by Elizabeth J. Krumrei-Mancuso and Shane V. Rouse (2016). The CIHS is a 22-item multidimensional self-report measure designed to assess dispositional intellectual humility as an epistemic orientation toward one's own knowledge and beliefs. The scale encompasses four theoretically derived subscales: The concept of intellectual autonomy encompasses a range of attributes, including independence of intellect and ego, openness to revision of one's viewpoint, respect for others' perspectives, and a lack of intellectual overconfidence. Participants are instructed to indicate their degree of agreement with each statement using a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Negatively worded items are reverse-scored prior to analysis. Subscale scores are calculated by averaging the corresponding items, and a total intellectual humility score can be computed by averaging across all items, with higher scores indicating greater intellectual humility.

In the original validation study, the scale demonstrated adequate to good internal consistency across subscales (α = .73–.84) and evidence of construct, convergent, and discriminant validity.

Actively Open-Minded Thinking: The disposition toward actively open-minded thinking was measured using the Actively Open-Minded Thinking Scale, which was developed by Annika M. Svedholm-Häkkinen and Marjaana Lindeman (2018). The AOT-17 is a 17-item self-report scale designed to measure individuals' willingness to consider alternative viewpoints, evaluate evidence that contradicts their beliefs, and revise opinions when warranted. The instrument is a condensed version of earlier measures of open-mindedness that were introduced by Keith E. Stanovich and Richard F. West. Participants indicate their agreement with each item on a Likert-type response scale, with several items reverse-scored prior to analysis. Item responses are then averaged to compute a composite score, with higher values reflecting a stronger disposition toward actively open-minded thinking. According to the extant research, the AOT-17 demonstrates adequate psychometric properties, exhibiting robust correlations with the original, more extensive AOT scale and theoretically congruent associations with reflective reasoning and epistemic attitudes.

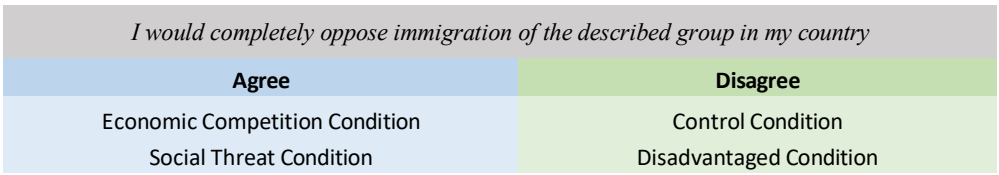
2.3. Participants

A stratified sample of adult residents of Georgia participated in the study. The final sample consisted of 374 participants aged 18 to 70 years. The gender distribution of the sample was 66.5% female and 33.5% male. A concerted effort was made to ensure a diverse array of participants, with the objective of encompassing individuals across a broad spectrum of demographic strata, including age and educational background. Approximately 18% of the participants reported having lived abroad for a minimum of six months, indicating a certain degree of direct exposure to intercultural environments. Participation in the study was voluntary, and respondents were informed that the research concerned attitudes toward social groups and public opinion. The participants were assured that their responses would be kept anonymous.

2.4. Results

2.4.1. Effects of experimental manipulation. A one-way analysis of variance (ANOVA) was conducted to examine the presence of any variation in attitudes toward immigration across the various experimental conditions. A one-way analysis of variance revealed a significant effect of experimental condition on opposition to immigration, $F(3, 370) = 19.59$, $p < .001$, $\eta^2p = .14$, indicating a large effect of the manipulation. Participants in both the control condition and the disadvantaged condition exhibited a slight tendency to disagree with the statement that they would oppose immigration of the described group. Conversely, participants in the economic competition and social threat conditions exhibited a moderate degree of agreement with the statement denoting opposition to immigration.

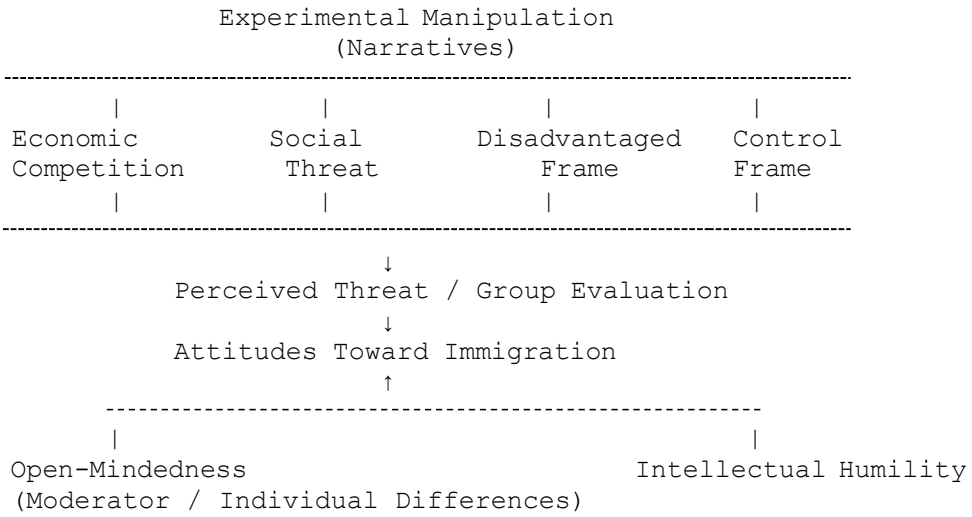
Figure 1.



These findings suggest that narratives emphasizing economic or cultural threats significantly increase resistance toward immigrant groups.

2.4.2. Correlations with open-mindedness and intellectual humility. The following essay will explore the notion of opposition to immigration. The statement "I would completely oppose immigration of the described group in my country" demonstrated a negative correlation with open-mindedness in two conditions: the control condition ($\rho = -.448$, $p < .002$) and the social threat condition ($\rho = -.542$, $p < .001$). This finding suggests that individuals who exhibit higher levels of open-mindedness are less inclined to oppose immigration. No statistically significant correlations were identified in the remaining conditions. The following position is endorsed with regard to the subject of immigration: The statement "I would be completely in favor of immigration of the described group in my country" demonstrated a negative correlation with open-mindedness in the social threat condition ($\rho = -.486$, $p < .001$) and a positive correlation with open-mindedness in the disadvantaged condition ($\rho = .300$, $p < .05$).

2.4.3. Conceptual model of the study. The conceptual model of the study was originally designed with the consideration of open-mindedness and intellectual humility as moderators in the relationship between experimental conditions and attitudes toward immigrant groups.



Interpretation:

- **Narrative framing → influences perceived threat**
- **Perceived threat → influences immigration attitudes**
- **Open-mindedness and intellectual humility → moderate interpretation of narratives**

3. Interpretation of findings

The findings of the present study demonstrate that narratives depicting immigrant groups have a substantial impact on attitudes toward immigration. Participants exposed to descriptions emphasizing economic competition or cultural differences expressed significantly greater opposition to immigration compared to participants who read neutral descriptions or narratives portraying the group as disadvantaged. These findings are consistent with the Integrated Threat Theory, which posits that perceived realistic and symbolic threats are central drivers of prejudice toward outgroups (Stephan & Stephan, 2000). The findings also support Group Conflict Theory, which suggests that perceived competition for scarce resources increases intergroup hostility (Esses et al., 2001). A notable finding of the study was that individuals from disadvantaged backgrounds exhibited significantly lower levels of opposition to immigration. This suggests that portraying immigrants as vulnerable or economically marginalized may reduce perceptions of threat and instead evoke sympathetic responses. These findings align with the extant research indicating that humanitarian narratives about migrants can increase support for immigration policies (Esses et al., 2017). A salient implication of the study pertains to the potency of narrative framing in influencing public attitudes toward immigration. The findings suggest a negative correlation between open-mindedness and opposition to immigration, particularly in contexts involving social threat. Individuals who exhibit higher levels of open-mindedness may be less susceptible to threat-based narratives concerning immigrants. Individuals who are characterized by an openness to new ideas and perspectives tend to exhibit a greater capacity for flexible cognitive processing. Consequently, they may be more predisposed to challenge stereotypical or oversimplified narratives concerning outgroups. Consequently, they may exhibit a reluctance to engage in automatic defensive responses that are typically elicited by threat-related information. From a psychological vantage point, open-mindedness functions as a protective factor against prejudice, enabling individuals to evaluate social information more critically and maintain an openness toward cultural diversity. Another noteworthy result pertains to the relationship between intellectual humility and pro-immigration attitudes. The Independence of Intellect and Ego dimension, as defined by Mark Leary et al. (2017), reflects an individual's capacity to disassociate their sense of self-worth from their beliefs and opinions. Individuals with elevated scores on this dimension are more likely to revise their beliefs when confronted with new evidence, as their sense of self is less firmly rooted in the defense of specific viewpoints. Upon initial observation, the negative correlation between this facet of intellectual humility and robust endorsement of immigration might appear to defy rational expectation. However, this pattern may be indicative of a diminished propensity toward extreme attitudinal positions among individuals who exhibit higher levels of intellectual humility. In contrast to individuals who explicitly advocate for

immigration, those who embody intellectual humility may adopt a more nuanced or cautious stance, recognizing the intricacies and the limitations of their own understanding. This interpretation aligns with the broader literature on intellectual humility, which posits that individuals who embody intellectual humility are less inclined to articulate unwavering conviction regarding contentious social or political matters (Leary et al., 2017). Conversely, they may favor evaluations that are more balanced, taking into account uncertainty or conditional support.

Taken together, these findings suggest that different cognitive dispositions influence immigration attitudes through distinct mechanisms. A propensity for open-mindedness, marked by a reduction in dogmatic tendencies, has been observed to diminish vehement opposition to immigration. This phenomenon is theorized to emerge from the promotion of cognitive flexibility and an increased tolerance for diverse viewpoints. Conversely, intellectual humility—defined as the independence of intellect and ego—has been shown to reduce the likelihood of adopting strongly polarized positions, whether positive or negative.

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STRENGTHENING EVIDENCE IN PUBLIC POLICY EVALUATION: ETHICAL AND METHODOLOGICAL CHALLENGES IN SOCIAL IMPACT MEASUREMENT AND THE ROLE OF PSYCHOLOGY

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Abstract

Over the past decade, increasing demands from national and European funding bodies for reliable and scientifically grounded evidence have reinforced the importance of Social Impact Measurement (SIM) in the evaluation of public policies. Within this context, SINCLab – Social Inclusion Laboratory has conducted several SIM studies applied to socio-educational innovation policies implemented at both local and regional levels in Portugal. This paper discusses the ethical, operational, and methodological challenges associated with the use of control groups in SIM studies conducted in real public policy contexts. While quasi-experimental designs are often considered the most appropriate approach for establishing causal inference in policy evaluation, the nature of socio-educational programmes, their universal implementation, and ethical constraints frequently limit the feasibility of control groups. Drawing on the evaluation of programmes such as the Integrated and Innovative Plan to Combat School Failure (PIICIE) and the Action Plan for Disadvantaged Communities (PACD), the paper discusses methodological alternatives that allow for robust impact inference. Ultimately, the paper argues that strengthening the methodological rigor of social impact measurement is essential for ensuring that socio-educational public policies are both scientifically grounded and capable of producing meaningful societal outcomes.

Keywords: *Social impact measurement, public policy evaluation, quasi-experimental designs, evidence-based policy, socio-educational inclusion.*

1. The problem

Over the last decade, SINCLab – Social Inclusion Laboratory has conducted an extensive programme of Social Impact Measurement (SIM) studies applied to projects promoted by Public Policy (PP) actors at both local and regional levels (Municipalities, Intermunicipal Communities, and the Porto Metropolitan Area), particularly within the framework of national socio-educational innovation policies.

Increasing demands from national and European funding bodies for reliable, independent, and scientifically grounded evidence regarding the outcomes and impacts of public policies have reinforced the importance of adopting evaluation methodologies capable of establishing empirically robust relationships between implemented interventions and observable changes in target populations.

Within this context arises the central issue addressed in this paper: how can researchers deal with the ethical, operational, and methodological challenges associated with the use of control groups in SIM studies conducted in real public policy settings?

Although the SIM models developed by SINCLab favour quasi-experimental designs—whenever possible using Control Groups (CG)—the nature of socio-educational policies, the population coverage of these programmes, and the ethical principles inherent to working with children and young people often make the establishment of such groups unfeasible. It therefore becomes necessary to discuss when it is possible, appropriate, or even desirable to dispense with CGs and to identify methodological alternatives capable of ensuring the scientific robustness of the evidence produced.

2. The conceptual approach

To frame the rationale underlying this discussion, the Conceptual Model of Social Impact and the Social Impact Measurement (SIM) Model proposed to two public policy actors were presented: the Tâmega e Sousa Intermunicipal Community (regional level) and the Municipality of Porto (local level). The work developed with these partners aimed to conduct Social Impact Measurement, in the first case, of the Integrated and Innovative Plan to Combat School Failure (PIICIE) implemented across the eleven municipalities of the intermunicipal community, and, in the second case, of an Action Plan for Disadvantaged Communities (PACD). Together, these programmes involved several tens of thousands of direct beneficiaries, mostly children and young people.

In simplified terms, and as part of promoting a culture of Evidence-Based Practices and Policies, a Conceptual Model of Social Impact of the public policy under analysis was defined in collaboration with these partners. As illustrated in the upper section of Figure 1, programmes such as PIICIE or PACD can be understood as public policy instruments through which it is possible to "control" or mitigate the effects of factors widely identified in the literature and public statistics as moderators of educational success and socio-educational inclusion (e.g., sociodemographic characteristics, territorial contexts, living conditions, and environmental contexts).

Although these moderating factors are addressed by a wide range of public policies, within socio-educational and school contexts the most appropriate policy "tool" to address them consists in promoting other factors that operate as mediators between the processes triggered by these moderators and the negative outcomes they may generate for educational success and socio-educational integration.

Increasingly, these factors—although not always explicitly labelled as *mediators*—are clearly identified in the strategic frameworks, objectives, and targets of public policies (for example, psychosocial competences, cognitions, attitudes, beliefs, expectations, motivation, and emotions). In other words, public policies in the domain discussed here increasingly focus on the promotion or activation of processes that positively contribute to educational success and socio-educational inclusion, as these processes may potentially mitigate or buffer the effects of the moderating factors mentioned above.

This strategic orientation becomes even more explicit within the broader framework of public policies designed to promote development, inclusion, and social cohesion. As illustrated by the examples presented in Figure 1, the vast majority of these policies advocate the promotion of mediating factors that are inherently psychological in nature and operate at multiple levels (e.g., intrapersonal, interpersonal, group, intra-group or inter-group processes).

If the central mechanisms targeted by these policies are indeed of this nature, it becomes evident that the social impact measurement of such public policies necessarily requires psychological knowledge and research, conducted by professionals with the appropriate expertise.

In the lower section of Figure 1, the Social Impact Measurement Model proposed to the two public entities mentioned above is illustrated. From a scientific perspective, three key assumptions can be highlighted:

(1) the actions promoted by a public policy are not, in themselves, direct generators of the intended social impact;

(2) rather, they function as instruments through which factors identified as positive correlates of the intended impact are promoted; and

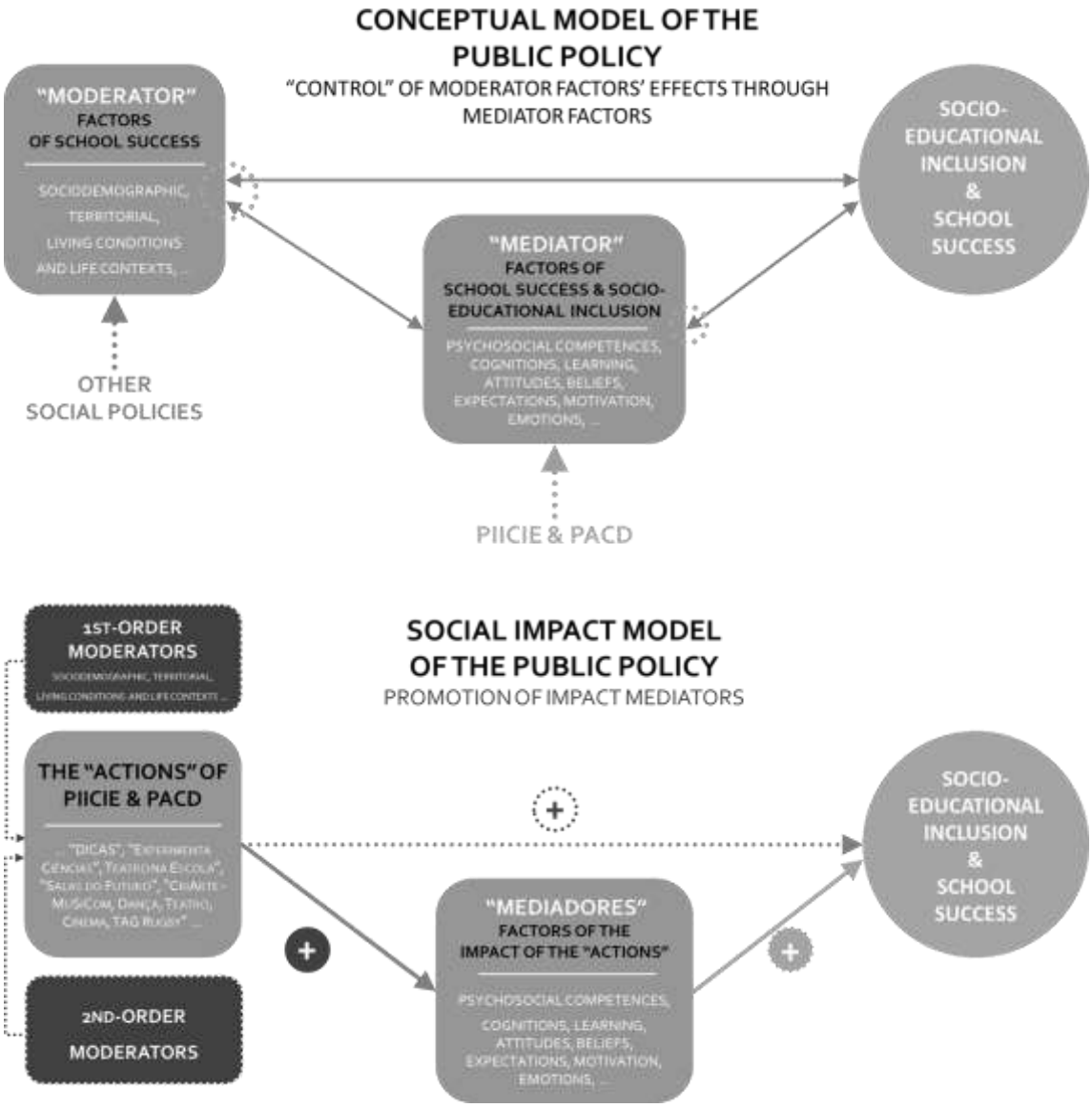
(3) from both a conceptual and statistical standpoint, it is precisely these mediating factors that can be considered Impact Mediators.

Therefore, the conceptual logic underlying this model assumes that public policy actions influence mediating psychosocial processes, which in turn contribute to socio-educational outcomes, while structural contextual factors operate as moderators of these relationships. As represented in Figure 1, the expected impact of public policies is thus produced through a mediated pathway between policy actions and outcomes, conditioned by contextual moderators.

In summary, if a public policy aims to promote these mediating factors, then the impact of that policy should be measured precisely at the level of those mediators.

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Figure 1. Conceptual Model and Social Impact Measurement Model of a Socio-Educational Public Policy.



Note. The figure illustrates the conceptual relationship between moderators, mediators, and socio-educational outcomes within public policy interventions.

3. The methodologies and their results

3.1. "Discussing Methodology" to promote a culture and literacy of evidence-based public policies

The primacy of evidence has long been an established orientation among international organisations (United Nations Development Programme, 2009; UNEG Impact Evaluation Task Force, 2013; UNICEF Office of Research, 2014). However, only since the second half of the European 2020 policy framework has it gained stronger prominence within the context of national public policies (European Commission – GECES Sub-group on Impact Measurement, 2014). In practice, this orientation has increasingly evolved into a directive, particularly influencing local and regional public authorities.

Nevertheless, this "new culture" is rarely accompanied by an adequate level of scientific literacy among the actors involved. Put colloquially, it would be fair to say that the maxim "render unto Caesar what is Caesar's" has not yet translated into practices grounded in the scientific principle that each methodology has its own merits and consequences.

For instance, both in discourse and in practice it is common to find the terms "impact inference" or even "impact attribution" being used without employing the methodologies that legitimately allow such claims — namely experimental or quasi-experimental approaches.

Within the partnership established with the two institutional actors mentioned above, and with other partners in additional projects, SINCLab (co)defined that the continuation, dissemination, or scaling-up of the socio-educational policies under analysis should be supported by evidence derived from methodologies that, based on well-established scientific principles, allow the testing of impact attribution, or, when this is not feasible, allow the testing of impact inference.

3.2. The Control Group "dilemma"

In the majority of projects in which SINCLab conducts applied research on the social impact measurement of public policies, the SIM models implemented rely on quasi-experimental approaches, most commonly pre- vs. post-test designs with Control Groups (CG). Whenever possible, Solomon designs are also employed, as they represent a more robust variant in terms of the external validity of the impact evidence collected.

However, as noted earlier, for ethical reasons (and many others beyond those previously mentioned) it is often impossible for SIM models to include control groups. Although the absence of CGs is frequently due to ethical and deontological imperatives associated with safeguarding the well-being of individuals, it is equally common for this to result from the fact that the public policy under evaluation is implemented universally across the target population.

In such cases, subject-wise randomisation — necessary to implement a randomised controlled trial (RCT) or similar model — becomes extremely difficult to sustain. When randomisation is feasible, a group-wise variant tends to be more appropriate, as it better reflects the collective implementation contexts typical of most public policies.

That said, we argue that the methodological and conceptual solution that best mitigates the constraints associated with the impossibility of including control groups is the introduction of factors within SIM models that can assume the statistical (and conceptual) status of moderators.

Although such models do not allow strict impact attribution, they nonetheless provide a scientifically robust basis for impact inference when such effects occur.

In summary, we argue that the evaluation of public policies should rely on quasi-experimental methodological approaches capable of producing evidence that demonstrates (or not) the existence of specific effects or impacts, because these effects occur only as a function of a clearly identified moderator, or because their magnitude varies depending on that moderator.

Put schematically: if a given intervention, action, project, programme, or public policy does not produce impact, then the moderator identified as associated with it will also fail to show an effect — for instance, a change between pre- and post-test measures. Statistically speaking, no interaction effect will be observed.

4. Conclusions: Solutions for maintaining standards of "evidence-based evaluation"

The issues discussed throughout this paper can be succinctly summarised by posing the following question: why "lower the standards" in the evaluation of public policies if sound methodological solutions exist to address the constraints of such research contexts?

Indeed, although it is well established that very significant differences exist between basic research and applied research, it is equally well established that the foundational principles of the scientific process constitute their common ground (Oskamp and Schultz, 1998; Steg at al., 2017). Consequently, those engaged in applied research on the evaluation of public policies should assume the responsibility of promoting the scientific literacy of public policy actors, so that these actors incorporate into their practices the commitment to grounding public policies in primarily scientific evidence, both in their design and in the measurement of their impact.

For example, within the so-called ecosystem of Social Innovation public policies, a wide range of methodologies have been employed that lack empirical and scientific grounding, and which nevertheless continue to be accepted as legitimate sources of evidence regarding their impact.

4.1. The "excuse" of costs and complexity

In the field of public policy evaluation it is common to encounter arguments based on the "excuse" that randomised controlled trials (RCTs) and quasi-experimental designs are expensive, but above all that they are so complex that stakeholders may not be able to incorporate them into their practices — or even understand them. However, there is no empirical evidence to support such claims.

To address the ethical, methodological, and logistical challenges that the real-world context of public policy evaluation inevitably entails, SINCLab argues that it is necessary to rely on methodological solutions grounded in sound scientific practices, such as classic or retrospective pre- vs. post-test designs, Solomon designs, time-series analysis, Stepped-Wedge models, or accelerated longitudinal designs.

If gold standards exist, then it is on these that the evaluation of public policies — particularly the evaluation of their impact — should be grounded. Moreover, if these policies explicitly define their central focus as the promotion of an increasingly broad range of psychosocial factors and processes**,** then psychology and its professionals (both researchers and practitioners) must also occupy a central role**,** both in their development and in their evaluation.

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CAREER RESOURCES FOR CONTEMPORARY WORLD OF WORK

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Abstract

The dynamic, rapidly changing, and unstable contemporary world of work places high demands on career construction. As individuals now hold primary responsibility for their own growth, career planning, and engagement in the career-construction process, personal strengths—understood as broad resources that underpin modern careers—are becoming increasingly important. In addition to general career preparedness, being well informed about career opportunities is essential. Equally crucial are strong social ties, an optimistic outlook on one's future career, and the ability to manage career demands without allowing them to spill over into private life. To capture these aspects, we applied the Career Futures Inventory (CFI; Rottinghaus et al., 2012) to a nationally representative sample of 1,500 young Croatian employees aged 19 to 35. Our data indicate adequate reliability and validity of the CFI. The five dimensions—career agency, negative career outlook, occupational awareness, support, and work–life balance—were clearly confirmed, with only a minor deviation from the model observed for one item. All scales demonstrated good reliability (alphas ranging from .84 to .92). Job satisfaction and subjective job performance showed weak to moderate positive associations with all career-resource dimensions, except for negative career outlook, which was negatively correlated with both outcomes. Overall, the findings confirm the validity of the Career Futures Inventory and underscore the importance of career resources for effective career construction in the contemporary world of work.

Keywords: *Contemporary world of work, career construction, career resources, Career Futures Inventory.*

1. Introduction

Today's world of work places high demands on individuals' personal strengths in career management, and the importance of career agency has been strongly emphasized in contemporary career literature. Various conceptual approaches address different aspects of personal strengths in career development. Among the most prominent are career adaptability, defined as personal resources for coping with imminent change (Savickas, 1997); career self-management and active participation in the career construction process (Hirschi & Koen, 2021); and career orientations reflecting self-directed and autonomous career attitudes, such as protean and boundaryless careers (Briscoe & Hall, 2006). All of these approaches have demonstrated clear associations with positive career outcomes.

An additional and integrative perspective on personal strengths in career construction is provided by Rottinghaus's conceptualization of career resources (Rottinghaus et al., 2012). This framework combines personal competencies, psychological resources, and career-related behaviors as key contributors to the development of a meaningful career. Rottinghaus and colleagues proposed that a sense of personal agency—reflecting perceived competence and control in actively shaping one's career—together with adequate knowledge of the world of work, positive expectations regarding future career development, strong social support, and the ability to balance professional and personal domains, plays an important role in career development. These five dimensions are assessed by the Career Futures Inventory–Revised (CFI-R), namely career agency, negative career outlook, occupational awareness, support, and work–life balance. The CFI-R has demonstrated solid psychometric validity across several studies (Park et al., 2018; Rottinghaus et al., 2012).

From our perspective, career resources are particularly relevant for young workers who are entering the labor market and actively developing their professional paths. Viewed through the lens of Super's developmental career theory (Super, 1980), these individuals are typically in the Establishment stage. During this stage, young adults enter the world of work or consolidate their occupational position, evaluate and confirm their career choices, and actively construct their professional identity. To develop a meaningful career and achieve a sense of satisfaction and competence, young adults require adequate career resources. A strong sense of personal capability and control supports proactive career construction, while a positive outlook on future career prospects serves as both a protective and facilitating factor. Knowledge of career opportunities and labor market conditions enhances occupational attainment, supported by social resources that provide encouragement and a secure basis for exploration. Additionally, the ability to maintain balance between work and private life is increasingly important for sustaining well-being in contemporary careers.

Accordingly, Rottinghaus's career resources can be conceptualized as crucial psychological capacities for successful occupational attainment in early adulthood. We propose that young workers in the Establishment stage are more likely to experience higher job satisfaction and greater confidence in their job performance when their career construction is supported by stronger career resources. To address these assumptions, the present study first examines the structural validity of the CFI-R in a nationally representative sample of 1,500 Croatian young employees aged 19 to 35. We then investigate whether career resources, as measured by the CFI-R, show the expected associations with work-related outcomes, specifically job satisfaction and perceived job performance.

2. Method

2.1. Participants and procedure

The study sample consisted of 1,500 young workers from Croatia, aged between 19 and 35 years, with a mainly equal gender distribution. The sample was nationally representative with respect to age, gender, level of education, geographical and administrative region, and level of urbanization of place of residence. Participants completed self-administered questionnaires as part of a panel study. Participation was voluntary, and informed consent was obtained from all participants. The study was approved by the Ethics Committee of the Ivo Pilar Institute.

2.2. Measures

The Career Futures Inventory–Revised (CFI-R; Rottinghaus et al., 2012) consists of 28 items rated on a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree) and measures five dimensions: career agency, negative career outlook, occupational awareness, support, and work–life balance. Psychometric evaluations have supported its five-factor structure and demonstrated meaningful associations with career readiness and psychosocial resources (Park et al., 2018; Rottinghaus et al., 2012).

Job satisfaction was assessed using a four-item Likert-type unidimensional scale measuring overall satisfaction with one's job, whereas *perceived job performance* was measured using a seven-item composite scale capturing subjective aspects of job performance. Both instruments have demonstrated adequate psychometric properties in both work and academic settings (e.g., Šverko & Babarović, 2019).

3. Results

The empirical data partially confirmed the expected factor structure of the CFI-R, with small departures observed for negatively worded items. We tested a model comprising five intercorrelated factors, as previously proposed by Park et al. (2018). The confirmatory factor analysis largely supported the five-factor solution. Specifically, the model demonstrated a fairly good fit to the data (*CFI* = .903, *NFI* = .891, *RMSEA* = .068). However, inspection of the factor loadings revealed one notable deviation from the proposed structure. Item CFI20 ("*I do not understand job market trends*"), which was expected to show a strong negative correlation with other items reflecting a good understanding of labor market and employment trends, instead exhibited a lack of association with these items and consequently a weak negative loading on the *Occupational Awareness* latent factor (see Table 1).

Table 1. Standardized Regression Weights obtained through CFA.

Career Agency	
1. I can perform a successful job search.	.66
2. I can adapt to change in the world of work.	.70
3. I understand my work-related interests.	.77
4. I am aware of priorities in my life.	.73
5. I can establish a plan for my future career.	.74
6. I am aware of my strengths.	.77
7. I am in control of my career.	.67
8. I will successfully manage my present career transition process.	.75
9. I understand my work-related values.	.76
10. I can overcome potential barriers that may exist in my career.	.75
Negative Career Outlook	
11. I doubt my career will turn out well in the future.	.79
12. It is unlikely that good things will happen in my career.	.80
13. I lack the energy to pursue my career goals.	.88
14. Thinking about my career frustrates me.	.77
Occupational Awareness	
15. I am good at understanding job market trends.	.74
16. I keep up with trends in at least one occupation or industry of interest to me.	.80
17. I keep current with job market trends.	.86
18. I keep current with changes in technology.	.75
19. I understand how economic trends affect career opportunities available to me.	.73
20. I do not understand job market trends.	-.10
Social Support	
21. My family is there to help me through career challenges.	.58
22. I receive all the encouragement I need from others to meet my career goals.	.82
23. Others in my life are very supportive of my career.	.87
24. Friends are available to offer support in my career transition.	.76
Work-Life Balance	
25. I am good at balancing multiple life roles such as worker, family member, or friend.	.78
26. I am very strategic when it comes to balancing my work and personal lives.	.81
27. Balancing work and family responsibilities is manageable.	.78
28. I can easily manage my needs and those of other important people in my life.	.76

Correlations among the five latent variables were predominantly positive and moderate, with the exception of the *Negative Career Outlook* latent variable, which exhibited weak negative correlations (see Table 2). This pattern differs from previous findings, as *Negative Career Outlook* has been shown to display moderate negative associations with the other CFI-R latent variables (Park et al., 2018).

Table 2. Correlations among CFI Latent Variables obtained through CFA.

	CA	NCO	OA	SS
Career Agency (CA)				
Negative Career Outlook (NCO)	-.27			
Occupational Awareness (OA)	.64	-.04		
Social Support (SS)	.56	-.10	.47	
Work-Life Balance (WLB)	.64	-.22	.44	.60

Based on the factor loadings obtained from the CFA, item CFI20 was excluded from the total score of the *Occupational Awareness* scale. Table 3 presents the descriptive statistics, reliability coefficients, and the number of items for the five CFI scales. Overall, the observed findings largely replicate those reported by Rottinghaus et al. (2012), who found Cronbach's alpha coefficients ranging from .78 to .90 and from .75 to .88 across two samples. Similarly, the descriptive statistics in our sample are largely comparable to theirs, although a somewhat more negative career outlook was observed in our participants. Rottinghaus et

al. (2012) reported means of $M = 2.34$ ($Sd = 1.12$) and $M = 2.06$ ($Sd = 0.85$), which may reflect differences in sample composition (workers vs. students), as well as Croatia-specific contextual factors or broader, potentially global, increases in job insecurity in recent years.

Table 3. Reliability, Descriptive Statistic, and Correlations to Job Satisfaction and Subjective Job Performance for CFI Scales.

	M	*Sd*	α	*k*	Job Satisfaction	Subjective Job Performance
Career Agency (CA)	4.00	.63	.90	10	.30**	.35**
Negative Career Outlook (NCO)	2.79	1.09	.89	4	-.17**	-.30**
Occupational Awareness (OA)	3.68	.76	.88	5	.21**	.20**
Social Support (SS)	3.70	.78	.84	4	.32**	.26**
Work-Life Balance (WLB)	3.85	.71	.86	4	.36**	.35**

Finally, the correlations with job satisfaction and subjective job performance are small to moderate but conceptually meaningful, as presented in Table 3. Overall, the associations are low, with the strongest relationships observed for *Career Agency* and *Work–Life Balance* in relation to both job satisfaction and subjective job performance. These findings underscore the importance of career resources in the development of a meaningful career, one in which individuals experience satisfaction and perceive themselves as competent.

4. Discussion

The present research provides additional evidence for the psychometric validity of the Career Futures Inventory–Revised and highlights the importance of career resources in the process of career construction. Although our findings regarding the scale structure show a small departure from the original results (Rottinghaus et al., 2012; Park et al., 2018), these differences appear to be primarily related to the misinterpretation of negatively worded items. This issue emerged both at the item level and at the scale level, as reported in the Results section. The observed discrepancies are likely attributable to the use of a panel sample, in which participants were recruited from a large pool of panelists who may be less intrinsically interested in career psychology topics than psychology students (enrolled in introductory or career development courses) or clients of a university career center. Nevertheless, our findings indicate satisfactory reliability coefficients, which may have been partially enhanced by method variance. Therefore, for future research in the Croatian context, it would be important to replicate the study using different samples.

Overall, our results underscore the importance of career resources for individual career planning and career achievement. Young workers with higher levels of career resources also report greater job satisfaction and better subjective job performance. Although the correlations observed in our sample are generally lower than those reported in previous studies (Rottinghaus et al., 2012), their conceptual significance supports the broader notion that career resources play an important role in career development. Importantly, job satisfaction and subjective job performance represent career outcomes rather than indicators of career readiness, general coping, or optimism, as employed in Rottinghaus's earlier work. As such, these constructs are more distal from the core concept of career resources, which likely explains the somewhat lower correlations observed.

Future research should further examine the role of career resources within a more comprehensive framework of career development constructs. As proposed within our WORKMOBIL project, which focuses on career decision-making related to employment abroad, career resources can be conceptualized as both protective and facilitating factors. Feeling confident and in control of one's career, as well as being well informed about occupational opportunities and labor market conditions, enables more intentional and realistic career decision-making, including decisions related to cross-border career mobility. Social resources further support international career development by providing encouragement, information, and access to opportunities. Moreover, maintaining a balance between career demands and private life is essential for sustaining engagement and well-being, while a positive career outlook allows individuals to approach their future careers with greater confidence and fewer fear of failure. These resources are particularly critical for constructing careers abroad, as young workers in international contexts face more complex and less predictable career conditions, along with increased ambiguity and heightened adjustment demands.

Finally, in addition to career-related attitudes such as protean and boundaryless career orientations (Briscoe & Hall, 2006), career resources may represent additional motivational foundation for career self-management. As suggested by Hirschi and Koen (2021), self-directed careers are shaped by a range of personal and environmental factors, among which career resources can be viewed as a particularly important and integrative component.

Acknowledgments

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HOW TO MEASURE COMPASSIONATE LEADERSHIP EFFECTIVENESS

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Abstract

Compassionate leadership has emerged as a strategical issue in promoting well-being, and retention within healthcare organizations (Trzeciak & Mazzarelli, 2019; West et al., 2017; Paakkanen et al., 2021). Despite its growing relevance, the measurement of compassionate leadership effectiveness remains a complex and relatively unexplored area. This study aims to identify the key indicators and variables that can be used to assess the effectiveness of compassionate leadership. To achieve this objective, a comprehensive review of existing measurement tools and frameworks related to compassionate leadership has been conducted. We referred to the two prominent models by West et al. (2017), developed in UK (King's Fund), and Schuck et al. (2019), developed in USA. We examined how these models operationalize compassionate leadership and which dimensions are most frequently assessed. Beyond the review of most recent research on this topic, we explored which organizational and individual indicators are most likely to be influenced by compassionate leadership. Our findings suggest that Psychological Well-being and Burnout are key mediators in the relationship between Compassionate Leadership and two critical outcomes: Job Satisfaction and Intention to Leave. Compassionate leadership directly affects Compassion at Work (Lilius et al., 2008), as a climate dimension measured on team level. And it indirectly enhances Job Satisfaction and reduces Turnover Intentions by positively affecting employee's well-being. We also consider the potential role played by Supportive Learning Environment (Garvin et al., 2008) as moderator between well-being and intention to leave. For each selected indicator, we identified a set of validated measurement tools and conduced a pre-test with a sample of Italian healthcare professionals. The aim was to assess the reliability of these instruments using Cronbach's Alpha. The results confirmed the internal consistency of the selected scales, supporting their use in future empirical studies on compassionate leadership effectiveness. This study contributes to the ongoing discourse on leadership in healthcare by offering a structured approach to measuring compassionate leadership effectiveness. It highlights the importance of integrating compassion into leadership assessment tools and encourages further empirical research to validate the proposed indicators. Ultimately, understanding how to measure compassionate leadership can support the development of more humane and effective healthcare organizations.

Keywords: *Compassionate leadership, compassion at work, job satisfaction, healthcare organization, research design.*

1. Introduction

Interest in person-centred leadership has grown, reflecting the central role of compassion in healthcare. In a system under increasing pressure, compassionate leadership has become a strategic priority (Trzeciak et al., 2017). For this reason, the Veneto Region adopted this model and launched the CompAct project to strengthen the healthcare system by promoting leadership practices that support caregivers.

2. State of the art

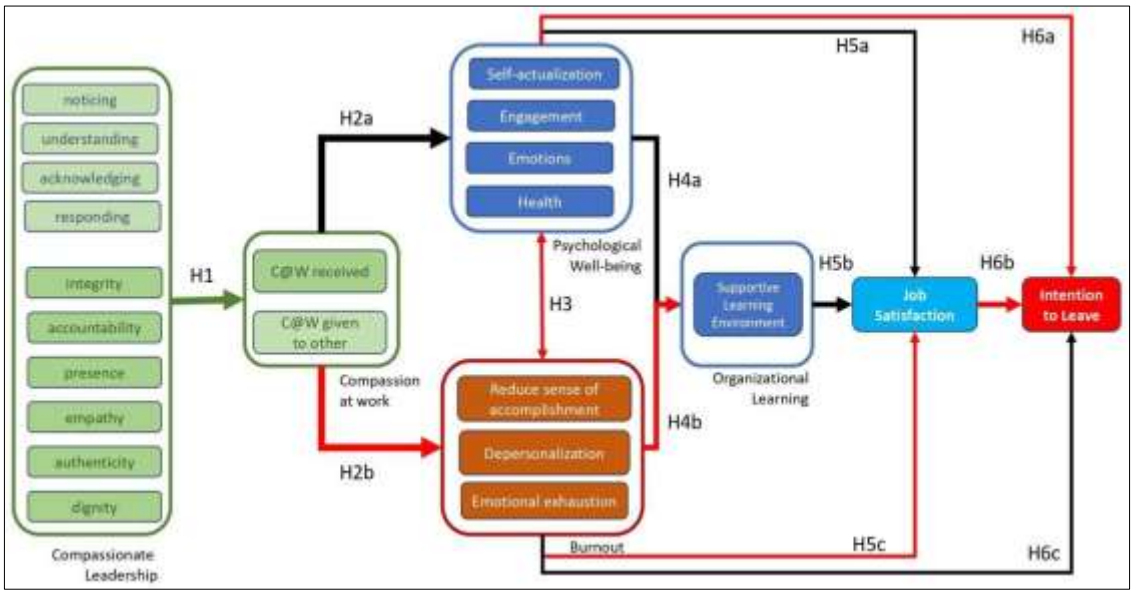
As defined by Goetz et al. (2010) and Dutton et al. (2014), compassion is characterised by a profound awareness of one's own and others' suffering, coupled with a dedication to alleviating and preventing it. From this perspective, compassionate leadership can be defined as "a leadership model that

promotes and sustains compassion at work" (Cervai & Blasutig, 2025, p. 104), a relational resource that can foster a culture of competent and sensitive responses to pain (Kanov et al., 2004; Lilius et al., 2011; Dutton et al., 2014) and fosters a sense of collective responsibility among workers (Buonomo et al., 2022a). The literature on compassionate leadership identifies two main theoretical models. One model describes compassionate leadership as a process of four interconnected stages: attention, understanding, empathy, and helping (West, 2021). The other model identifies six core themes: integrity, accountability, presence, empathy, authenticity, and dignity (Shuck et al., 2019). Although the two models differ, both view compassionate leadership as the ability to recognise, interpret, and respond to others' suffering in a competent and humane way. In this perspective, compassion functions as an organisational climate variable (Lilius et al., 2008), shaping how employees perceive relationships and support at work and reflected in outcomes such as psychological well-being, lower burnout, organisational learning, job satisfaction, and reduced intention to leave.

Empirical evidence confirms the conceptual links between compassionate leadership and important organisational outcomes. Psychological well-being, which is sensitive to the quality of relationships with leaders, is positively associated with compassionate leadership ($r = 0.34$; Shuck et al., 2019). In contrast, burnout exhibits an inverse relationship: higher levels are associated with a lower perception of compassionate leadership ($r = -0.36$; Wang et al., 2024) and a significant decline in psychological well-being ($\beta = -0.531$, $p < 0.001$; Buonomo et al., 2022b). Compassion at work helps mitigate the effects of burnout by partially mediating the relationship with well-being ($\beta = -0.089$, $p< 0.001$; Buonomo et al., 2022b). Organisational learning also seems to benefit from compassionate environments, as indicated by the robust correlation between compassion and collective learning ability ($r = 0.652$; Guinot et al., 2020). Job satisfaction shows positive associations with perceived compassion, with correlations ranging from moderate ($r = 0.26$; Basu, 2024) to very high ($r = 0.79$; Elínborgardóttir, 2024). Finally, the intention to leave, particularly critical in healthcare settings (Jimenez-Caceres et al., 2025), is negatively associated with compassionate leadership ($r = -0.37$; Shuck et al., 2019), highlighting its potential protective role in employee's retention.

Drawing on recent evidence and conceptual models developed by West et al. (2017) and Shuck et al. (2019), the CompAct project will empirically test a series of interconnected hypotheses that describe the influence of compassionate leadership on individual and organisational outcomes. The framework supposes that compassionate leadership, which is measured through the two models by Shuck and West, fosters a climate of compassion at work (H1), which is understood as a team-level variable (Lilius et al., 2008). This climate of compassion, both received and expressed, is expected to enhance psychological well-being (H2a) and to reduce burnout (H2b). Well-being and burnout are assumed to be inversely associated (H3) and to jointly influence the quality of the organisational learning environment (H4a–H4b), which contributes to job satisfaction (H5b). Job satisfaction is then hypothesised to reduce the intention to leave the organisation (H6b).

Figure 1. The research hypotheses in CompAct project.



3. Aims and objectives

Situated within the wider CompAct project, the objective of this paper is to verify the intercultural adaptation of the questionnaires chosen to measure the variables of the longitudinal study (Figure 1). Most of the tools have not yet been validated in Italian, so it was necessary to translate them and to assess their internal reliability before beginning data collection.

4. Preliminary quantitative research project: pre-test

The following section presents the pre-test phase, describing in detail the instruments used, the composition of the sample, the procedure for data collection and the results.

4.1. Measures

The study includes instruments selected for their alignment with the research objectives and the healthcare context. Where validated Italian versions were unavailable, the questionnaires were adapted using standard procedures (Beaton et al., 2000) and, where necessary, several items were developed specifically for this study.

To measure Compassionate Leadership, two instruments have been selected. The first one, Compassion at Work – Leadership Behaviors Inventory (CAW-LBI; Pansini, Buonomo, & Benevene, in press) is available in Italian and Spanish. The 9 original items assess "noticing", "acknowledging", and "responding" dimensions, while 3 additional items have been enhanced to deepen the "understanding" dimension. The final questionnaire includes 12 items rated on a 5-point Likert scale. The second one, Compassionate Leadership Behaviors Inventory (CLBI; Shuck et al., 2019), originally available only in English, was adapted into Italian through a cross-cultural adaptation process (Beaton et al., 2000). The questionnaire consists of 24 items, organized into 6 dimensions — integrity, accountability, presence, empathy, authenticity, and dignity — and rated on a 5-point Likert scale.

Compassion at work was graded using the Compassion at Work Scale (C@W; Lilius et al., 2008). The original English version includes 3 items measuring received compassion. For the CompAct project, the scale was translated and adapted to the Italian context and extended with 3 additional items relating to compassion given to others, defined as the availability to provide emotional and practical support to colleagues in difficulty. All items were rated on a 5-point Likert scale.

For measuring well-being, the PERMA-Profiler has been selected (Butler & Kern, 2016). 14 items from the Italian validated version (Giangrasso, 2021) were included to cover engagement, negative emotions, accomplishment, perceived health, loneliness and general happiness. All items were rated on a 1–10 Likert scale.

To assess burnout, the Italian validated Maslach Burnout Inventory – MBI (Sirigatti & Stefanile, 1993) is available, it includes 22 items on a 7-point frequency scale.

The Supportive Learning Environment subscale (SLEs) of the Learning Organization Survey (LOS-27; Singer et al., 2012) has been chosen to measure the Organizational learning dimension. The scale has been developed from the model by Garvin et al. (2008) and later refined by Bostwick et al. (2025) for the healthcare context. The subscale consists of 7 items, rated on a 7-point Likert scale, and was adapted to the Italian context.

To monitor job satisfaction (JS) and intention to leave (ITL), we decided to maintain the items included in the organizational climate assessment periodically managed at National Level (Belle et al., 2023). Job satisfaction is measured through 2 items rated on a 5-point Likert scale, complemented by a single-item assessing overall perceived satisfaction on a continuous scale from 0 (minimum) to 100 (maximum) (Cortese & Quaglino, 2006). Intention to leave is measured using 5 items rated on a 5-point Likert scale.

4.2. Sample

The sample (N = 50) consisted of healthcare professionals working in the Veneto Region who completed the main set of questionnaires in July 2025. They could choose between an online format and a paper-based format (11 opted for the online format and 39 for the paper-based format).

Regarding the SLEs sub-scale, the sample (N = 57) had a different composition and timing: physicians and nurses were specifically selected for their ability to provide more accurate assessments of organisational learning dynamics, data were collected two months later after the first survey due to organizational reasons.

4.3. Analysis and results

To assess the internal reliability of the questionnaires described in Section 4.1, the collected data were initially organised in Microsoft Excel ® and then cleaned. Missing values were coded as 'NA', enabling R (version 4.5.2) to automatically exclude them from the Cronbach's α calculation (Cronbach, 1951). In addition to the reliability indexes, the confidence intervals associated with each α value were estimated. Both Cronbach's α and the corresponding confidence intervals are shown in table 1.

Table 1. Estimation of Cronbach's alpha with a confidence interval.

Measures	Cronbach's alpha	Confidence interval
CAW – LBI	0.96	0.93 - 0.98
CLBI	0.97	0.95 - 0.98
C@W	0.83	0.72 - 0.91
PERMA	0.85	0.76 - 0.92

Measures	Cronbach's alpha	Confidence interval
SLEs	0.89	0.84 - 0.93
MBI	0.82	0.68 - 0.91
JS	0.87	0.79 - 0.94
ITL	0.92	0.87 - 0.96

Moreover, about the Compassion at Work scale (C@W; Lilius et al., 2008), internal reliability was also estimated by separating the component of compassion received from that of compassion given to others. The Cronbach's α for compassion received was 0.68 (confidence interval: 0.38–0.86), whereas the α for compassion enacted toward others was 0.75 (confidence interval: 0.61–0.91).

5. Conclusion and limits

The analyses indicate good internal reliability across all scales. While ITL, CAW-LBI and CLBI show excellent α values, C@W, PERMA, LOS, MBI and JS still report solid coefficients. Therefore, the pre-test confirmed the robustness of the instruments selected for the CompAct project, providing a reliable methodological basis for future Italian validation and the large-scale administration planned for 2026.

This work contributes to broader research on compassionate leadership, highlighting its potential as a model that can integrate well-being and performance within the healthcare context. The main limitations concern the healthcare-exclusive sample and the preliminary nature of the analyses, which require further testing on larger samples, longitudinal studies and cross-sector comparisons.

Despite these limitations, the findings support the use of the instruments and reinforce the view of compassionate leadership as a strategic lever for organisational sustainability.

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POWER, PURPOSE AND PERSONALITY: DARK TRAITS AND MOTIVATIONAL PATHWAYS TO CAREER ASPIRATION

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Abstract

Background. Personality traits are recognized as influential factors in shaping academic and professional interests and aspirations (Schneider et al., 2017). Recent research has focused on the role of the "darker" side of personality in shaping professional goals. The Dark Tetrad traits include narcissism (entitlement), Machiavellianism (manipulation), psychopathy (callousness), and everyday sadism (cruelty; Paleczek et al., 2018), which are associated with the desire for power, status, and social dominance (Vedel & Thomsen, 2017). Further, these traits are associated with distinct motivational styles (Góis et al., 2020), which could affect career choice. *Rationale.* Our primary objective was to determine if the Dark Tetrad traits and motivational styles were significant predictors of career aspirations. *Methods.* In total, 229 participants completed an online questionnaire package that included a demographics questionnaire; the Short Dark Tetrad (SD4; Paulhus et al., 2021); the Work Extrinsic and Intrinsic Motivation Scale (WEIMS; Tremblay et al., 2009) to assess intrinsic (enjoyment), extrinsic (control), integrated (alignment), introjected (obligation), identified (value), and amotivation (disengagement) motivation styles; and the Career Aspiration Scale- Revised (CAS-R; Gregor & O'Brien) to assess career aspirations, with subscales assessing achievement, education, and leadership aspirations. *Results.* Three hierarchical multiple regressions were conducted to examine if SD-4 traits and WEIMS motivation styles predicted CAS-R subscales. Across models, age and gender were entered in Block 1 as control variables, Block 2 included SD4 traits, and WEIMS subscales were entered in Block 3. In the first regression predicting CAS-R Achievement, SD4 accounted for a significant increase in explained variance, $\Delta R^2 = .230$, $p < .01$, with Machiavellianism and narcissism contributing to the model. Further, Block 3 was statistically significant, $\Delta R^2 = .049$, $p < .01$, WEIMS extrinsic motivation contributing to the model. The second regression predicting educational aspiration, was also statistically significant; Block 2 was significant, $\Delta R^2 = .110$, $p < .01$, with narcissism contributing to the model. Block 3 was also significant, $\Delta R^2 = .055$, $p < .05$, with introjected motivation contributing to the model. Finally, the model predicting leadership aspiration was statistically significant, with Block 2 contributing to the model, $\Delta R^2 = .244$, $p < .01$; narcissism emerged as the significant predictor. Block 3 WEIMS did not contribute to this model. *Conclusion and Impact.* These results highlight the significant influence that the Dark Tetrad traits, specifically Machiavellianism and narcissism, and specific motivational pathways have on career aspirations. This research has the potential to inform career guidance, educational programming, and academic and workplace interventions to support individuals and organizations.

Keywords: *Dark Tetrad, motivational styles, career aspirations.*

1. Introduction

Motivation research suggests that individuals are more likely to become interested in, choose to pursue, and perform better in activities and occupations in which they hold strong self-efficacy beliefs and highly positive outcome expectations that are aligned with their professional and academic goals and aspirations (Lent & Brown, 2002). To better understand the "nature" of motivation, that is, the "why" of motivation, we employed theoretical frameworks from the Self-Determination Theory (SDT), which distinguishes between different types of extrinsic and intrinsic motivational styles that exist on a continuum related to the underlying reasons that an individual completes different tasks (Ryan & Deci, 2002). Amotivation involves either passive actions or a lack of intention to act. External regulation involves acting only to obtain a reward, introjected regulation involves acting to support self-worth (e.g., self-esteem, guilt), identified regulation refers to doing an activity because one identifies with its value or meaning, integrated regulation occurs when the value of an activity becomes part of the individuals sense of self, and

lastly, intrinsic regulation involves completing an activity because it is inherently interesting and/or satisfying (Trembley et al., 2009).

The Dark Tetrad. Researchers have begun to focus on the role of the "darker" side of personality in shaping professional and academic goals and aspirations. The "darker" side of personality includes personality traits that are considered socially aversive, potentially leading to harmful behaviours and interpersonal difficulties (Dhormare, 2023). Buckels et al. (2013) coined the term 'Dark Tetrad' to refer to the combination of four malevolent personality traits: sub-clinical narcissism, defined by high grandiosity, self-love, inflated self-views, and a preoccupation with oneself and one's needs (Paleczek et al., 2018); Machiavellianism, characterized by manipulativeness, selfishness, and a lack of empathy and morality (Boddy et al., 2010); sub-clinical psychopathy, defined by impulsive and antisocial tendencies, accompanied by low levels of fear, empathy, and remorse (Vedel & Thomsen, 2017); and everyday sadism, characterized by the tendency to derive pleasure from the physical, emotional, and psychological pain and suffering of others (Góis et al., 2020). The Dark Tetrad overlap, and primarily present as amoral and antisocial behaviours, such as emotional coldness, aggression, self-centredness, and a lack of empathy and remorse (Međedović & Petrović, 2015). Researchers have acknowledged possible gender differences, consistently indicating higher levels of Dark Tetrad traits in men compared to women (Dhormare, 2023). Therefore, when investigating the Dark Tetrad traits, it is essential to acknowledge this gender difference.

The Dark Tetrad, Motivations, and Aspirations. Motivational styles and personality traits are influential in shaping academic and professional interests and aspirations, such that personality traits significantly affect one's motivational behaviours (Schneider et al., 2017). Furthermore, research has indicated that the Dark Tetrad traits are associated with distinctive motivational styles and aspirations (Vedel & Thomsen, 2017). For example, individuals with high expressions of narcissism and Machiavellianism traits exhibit high work-related ambition and motivation (Góis et al., 2020). Dark Tetrad traits are accompanied by a strong desire for power, status, achievement, and social dominance (Vedel & Thomsen, 2017), as well as high motivation to achieve acceptance, recognition, and control. Individuals with high levels of these traits are often found in upper-level, management, and leadership positions (Boddy et al., 2010).

The Current Study. Our primary objective of this current study is to determine if the Dark Tetrad traits and motivational styles are significant predictors of achievement, education, and leadership aspirations. Our second objective focused on gender differences in Dark Tetrad traits, motivation styles, and career aspirations.

2. Method

2.1. Participants

A total of 229 participants were recruited; 62 undergraduate students from the University of New Brunswick were recruited through SONA; an online research recruitment portal, and 167 community participants were recruited via social media postings (*e.g.,* Facebook, Twitter, Instagram, Reddit).

2.2. Materials

A *demographics questionnaire* was administered to collect participants' age, gender, nationality, relationship status, income, and level of education. ***The Short Dark Tetrad*** (SD4; Paulhus et al., 2021) is a brief self-report measure assessing the four Dark Tetrad traits of personality (*i.e., Machiavellianism, narcissism, psychopathy, and sadism)*. The scale consists of 28 items, with four subscales including Machiavellianism, narcissism, psychopathy, and sadism. Participant rate items on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). *The* ***Career Aspiration Scale- Revised*** (CAS-R; Gregor & O'Brien, 2016) is a 24-item self-report measure that assesses participants career aspirations. Participant responses are scored on a five-point Likert scale ranging from 0 (*not true at all for me*) to 4 (*very true of me*). Career aspirations are assessed through use of three dimensions: Achievement aspiration, leadership aspiration, and educational aspiration. ***The Work Extrinsic and Intrinsic Motivation Scale*** (WEIMS; Tremblay et al., 2009) is an 18-item self-report measure assessing work motivation through use of six domains: Intrinsic, extrinsic, integrated, identified, introjected, and amotivation. Responses are scored on a seven-point Likert scale ranging from 1 (*does not correspond at all*) to 7 (*corresponds exactly*).

2.3. Procedure

Prior to data collection, this research was reviewed by the Research Ethics Board at the University of New Brunswick (REB 2025-225). Participants accessed the online survey via Qualtrics. Before completing the questionnaire package, all participants were presented with an informed consent form. If consent was provided, participants completed the demographics questionnaire, followed by the three questionnaires presented in random order. The survey took approximately 30 minutes to complete.

After completion a debriefing form was presented, and community participants were given the option to be entered in a draw for one of three $20 Amazon gift cards and university students recruited through SONA were offered one bonus mark towards the final grade in one of their psychology courses.

3. Results

Overall, men reported higher achievement and leadership aspirations than women (see Table 1). Similarly, consistent with past research focused on Dark Tetrad traits, men reported higher Machiavellianism, narcissism, psychopathy, and sadism than women. Lastly, regarding motivational styles, compared to women, men reported higher integrated motivation and introjected motivation. Women reported higher amotivation than men.

Table 1. Gender differences between career aspirations, Dark Tetrad traits, and motivational styles.

	Women		Men				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
Career Aspirations							
Achievement	3.13	.649	3.49	.799	3.63	<.001	.510
Education	3.64	.937	3.74	.938	.751	.454	.106
Leadership	2.60	.958	3.14	.830	4.44*	<.001	.593
Dark Tetrad							
Machiavellianism	3.06	.746	3.61	.729	5.35	<.001	.741
Narcissism	2.77	.892	3.42	.890	5.21	<.001	.722
Psychopathy	1.62	.703	2.67	1.10	7.64*	<.001	1.24
Sadism	1.90	.845	3.10	1.14	8.19*	<.001	1.26
Motivation Styles							
Intrinsic	4.78	1.48	4.69	1.50	1.03	.151	.142
Integrated	3.94	1.08	4.37	1.21	2.85	.002	.390
Identified	3.42	1.21	4.31	1.21	5.37	<.001	.737
Introjected	4.77	1.17	5.25	1.24	2.91	.002	.400
External	4.52	1.55	4.76	1.54	1.12	.133	.153
Amotivation	3.92	1.20	2.56	1.55	1.67*	.049	.252

Note: * equal variances was not assumed.

Three hierarchical multiple regressions were conducted to examine if SD-4 traits and WEIMS motivation styles predicted CAS-R subscales. Across all models, age and gender were entered in Block 1, Block 2 included SD4 traits, and WEIMS subscales were entered in Block 3.

The first regression model predicting achievement aspiration was statistically significant. Overall, the model was statistically significant, $F(2, 217) = 14.02$, $p < .001$, and accounted for 43.9% of the variability (see Table 2). Block 1 was statistically significant, and both age, $t(223) = 4.966$, $p < .01$ and gender, $t(223) = 4.095$, $p < .01$ contributed significantly to the model. The addition of SD4 traits accounted for a significant increase in explained variance, $\Delta R^2 = .230$, $p < .01$. In this block, Machiavellianism, $t(223) = 2.066$, $p < .05$, and narcissism, $t(223) = 6.538$, $p < .01$ emerged as significant positive predictors, suggesting that higher levels of these traits were associated with higher achievement aspirations. Similarly, in Block 3, the addition of WEIMS motivational styles exhibited a further significant increase in explained variance, $\Delta R^2 = .049$, $p < .01$, with external regulation emerging as a significant negative predictor $t(217) = -2.310$, $p < .05$, indicating that, after controlling for demographic variables and SD4 traits, lower levels of extrinsic motivation were associated with higher levels of achievement aspirations.

The second regression model predicting educational aspiration was also statistically significant. Overall, the model was statistically significant, $F(2, 217) = 5.593$, $p < .001$, and accounted for 23.8% of the variability (see Table 2). Block 1 was statistically significant, with age, $t(223) = 4.031$, $p < .01$ contributing significantly to the model. The addition of SD4 traits accounted for a significant increase in explained variance, $\Delta R^2 = .110$, $p < .01$. In this block, narcissism emerged as a significant positive predictor $t(223) = 3.275$, $p < .01$, suggesting that higher levels of narcissism were associated with higher educational aspirations. Similarly, in Block 3, the addition of WEIMS motivational styles contributed to a further significant improvement in the model, $\Delta R^2 = .055$, $p < .05$, with introjected regulation emerging as a significant positive predictor $t(217) = 2.623$, $p < .01$), indicating that, after controlling for demographic variables and SD4 traits, higher levels of introjected motivation were associated with higher levels of educational aspirations.

The third regression model predicting leadership aspiration was also statistically significant. Overall, the model was statistically significant, $F(2, 217) = 12.392$, $p < .001$, and accounted for 40.9% of the variability (see Table 2). The addition of SD4 traits accounted for a significant increase in explained variance, $\Delta R^2 = .244$, $p < .01$. In this block, narcissism emerged as a significant positive predictor $t(223) = 7.551$, $p < .01$, suggesting that higher levels of narcissism were associated with higher leadership aspirations. Surprisingly, unlike the previous models, the addition of WEIMS motivational styles did not significantly improve the model, $\Delta R^2 = .012$, $p = .627$, indicating that, beyond demographics and SD4 traits, motivational styles did not explain the additional variance in leadership aspirations.

*Table 2. Hierarchical regression model predicting achievement aspirations (significant predictors are **bolded**).*

		Achievement Aspirations		**Education Aspirations**		**Leadership Aspirations**	
	ΔR^2	**Standardized β**	***p***	**Standardized β**	***p***	**Standardized β**	***p***
Step 1	**.16**						
Age		**-.304**	**<.001**	**-.259**	**<.001**	**-.272**	**<.001**
Gender		**.401**	**<.001**	.066	.303	**.272**	**<.001**
Step 2	**.23**						
Machiavellianism		**.133**	**.040**	-.009	.905	.080	.211
Narcissism		**.440**	**<.001**	**.370**	**<.001**	**.505**	**<.001**
Psychopathy		.020	.816	.003	.973	-.066	.444
Sadism		-.047	.591	-.174	.085	-.007	.940
Step 3	**.049**						
Intrinsic		.019	.806	-.100	.263	.033	.673
Integrated		.037	.626	.046	.610	.103	.189
Identified		.164	.066	-.084	.416	.038	.679
Introjected		.078	.349	**.255**	**.009**	-.056	.515
External		**-.198**	**.022**	.042	.673	-.034	.697
Amotivation		.151	.067	.055	.571	.025	.767

4. Discussion

The current study sought to investigate the gender differences between the Dark Tetrad traits, motivational styles, and career aspirations. Significant gender differences were observed, with men reporting significantly higher Dark Tetrad traits, as well as achievement and leadership aspirations. Furthermore, we assessed whether Dark Tetrad traits and motivational styles are significant predictors of achievement, education, and leadership aspirations. To test this, three hierarchical multiple regressions were conducted for each aspiration domain. Across models, the Dark Tetrad traits demonstrated significant influence across all three aspiration domains, with narcissism consistently emerging as a significant positive predictor and Machiavellianism significantly contributing to achievement aspirations, suggesting that higher levels of Dark Tetrad traits, specifically narcissism and Machiavellianism, were associated with higher achievement, education, and leadership aspirations. Moreover, after controlling for demographics and Dark Tetrad traits, motivational styles were shown to be significant contributors of achievement and education aspirations, but not for leadership aspirations. Furthermore, 'external regulation' emerged as a significant negative predictor for achievement aspirations, indicating that individuals who rely more on external rewards for motivation tend to report lower achievement aspirations. Regarding educational aspirations, 'introjected regulation' emerged as a significant positive predictor, suggesting that feelings of self-worth (e.g., self-esteem, guilt) significantly influence education aspirations.

5. Conclusion

Supporting previous research, these findings indicate a significant gender difference in career aspirations, motivational styles, and Dark Tetrad traits. Moreover, this study further demonstrates the significant influence that the Dark Tetrad traits, specifically narcissism and Machiavellianism, and specific motivational pathways have on achievement, education, and leadership aspirations. Thus, this research has the potential to inform career guidance, educational programming, and academic and workplace interventions to better support individuals and organizations. A limitation of this study is that it was conducted online, potentially contributing to biased or inaccurate participant responses.

Overall, this study highlights the importance for future research to acknowledge and incorporate gender, the Dark Tetrad traits, and motivational styles, when examining professional and academic aspirations.

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WHEN PROTECTION BECOMES WEAPONIZATION: PREVAILING FALSE ACCUSATIONS UNDER SOUTH KOREA'S WORKPLACE BULLYING LAW

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Abstract

This study synthesizes survey evidence and qualitative observations to examine the dynamics, impacts, and policy implications of false workplace bullying reports in South Korea. Using a 2023 quota-sampled workforce survey aligned to the Economically Active Population Survey and qualitative case material, we compare victim demographics and organisational positions, document consequences for accused workers and witnesses, and analyse the evolving tactics and demands of alleged false reporters. Descriptive statistics from the 2023 Employee Work Environment Survey capture age and rank distributions and multi-response outcomes among workers who report being falsely accused or threatened with false reports; qualitative patterns are derived from researcher case intake and reanalysis of the 2023 survey. In 2023, 64.7% of those accused who perceived the report as false were in their 20s–30s, and 59.1% were rank-and-file workers, indicating concentration among relatively young, lower-status employees. Reported impacts on accused workers include decreased trust in colleagues (78.1%), decreased organisational trust (48.1%), reduced concentration/productivity (42.3%), psychological stress disorders (50.0%), increased turnover intent (34.6%), and somatic stress symptoms (23.1%). In the 2023 quota sample, 3.3% had ever reported bullying; with ~19% classified as victims, roughly 1 in 6 victims report. Experiences of being falsely accused (1.4%) and threats of false reporting (1.6%) were non-trivial; threats were about three times more commonly reported by women. Workers categorise false reports as fabrication, distortion, or exaggeration. Behavioural features among alleged false reporters include resigning before/after filing (≈59%), highly emotive/overstated language (45.5%), distortion (40.9%), complete fabrication (34.1%), external-first filing or threats (22.7%), and frequent demands for public or written apologies (31.8% / 13.6%) and monetary or career benefits. Findings support the hypothesis that false reporting targets organizationally vulnerable groups and imposes significant psychosocial and organisational costs. Policy implications include clearer behavioural criteria for bullying and harassment, early education on evidence-keeping and due process, independent monitoring of employer handling, strengthened ethical standards for HR/industrial-relations professionals, and proportionate sanctions for serial false reporting.

Keywords: *South Korea, workplace bullying, false accusations, organisational psychology, the weak attacking the vulnerable.*

1. Introduction

Workplace bullying—repeated exposure to negative acts at work in situations where the target has difficulty defending themselves—is recognised as a major occupational health and organisational problem (Einarsen, Hoel, Zapf, & Cooper, 2011). Meta-analysis suggests that, depending on measurement method, roughly 10–15% of workers worldwide report being bullied over a six- to twelve-month period (Nielsen, Matthiesen, & Einarsen, 2011; Nielsen, Glasø, & Einarsen, 2017). Exposure is associated with elevated risks of anxiety, depression, psychosomatic complaints and sleep problems, as well as reduced job satisfaction, absenteeism, and turnover intentions (Nielsen & Einarsen, 2012; Nielsen et al., 2017). Against this backdrop, many jurisdictions have embedded anti-bullying provisions in labour, occupational safety, and anti-discrimination law (Seo, 2023).

South Korea is part of this global trend. Amendments to the Labour Standards Act and related statutes in 2019 introduced an explicit prohibition of "workplace harassment," requiring employers to investigate complaints and take remedial measures (Park, 2021). Early legal commentary highlights both the symbolic importance of this reform and substantial implementation challenges, including limited coverage of non-standard workers, vague employer obligations, and weak sanctions (Park, 2021).

The rapid institutionalisation of complaint mechanisms has also generated new concerns. Internationally, scholars examining bullying complaint processes note a paradox: while bullying is widely under-reported, complaint systems can be used strategically, including through vexatious or bad-faith complaints that aim to undermine an accused party rather than resolve mistreatment (Thompson & Catley, 2021). The European Framework Agreement on Violence and Harassment explicitly cautions against "vexatious, false and malicious complaints" while stressing the need to protect genuine complainants (Thompson & Catley, 2021).

In South Korea, false or exaggerated allegations of workplace bullying have begun to attract scholarly and policy attention. A qualitative study at KRIVET analyses seven cases of "false/exaggerated" bullying claims and argues that such cases tend to cluster around the introduction of anti-bullying legislation and periods of labour-market instability (Seo, 2022). Organisational responses often involve scapegoating individuals rather than addressing systemic issues, amplifying harm (Seo, 2022). Survey data on Korean employees' work environments indicate that, alongside substantial bullying victimisation, a non-trivial minority of workers report having been subjected to, or threatened with, false bullying complaints (Seo & Kim, 2023).

Despite these developments, empirical research on false, exaggerated, or distorted bullying complaints remains extremely limited, both globally and in South Korea. Most workplace-bullying scholarship focuses on genuine victimisation, risk factors, and protective organisational practices; misuse of complaint procedures has received only conceptual or incidental treatment (Thompson & Catley, 2021; Einarsen, Hoel, Zapf, & Cooper, 2020). This gap is problematic because false complaints can themselves constitute a form of workplace harm and may undermine the legitimacy of anti-bullying regimes.

This paper addresses this gap by examining behavioural patterns and evolving tactics among individuals who make false workplace-bullying reports ("false reporters") in the South Korean context. Drawing on a 2023 quota-sampled workforce survey and qualitative case materials, it describes patterns of targeting, demands and tactics, and situates these within the broader legal and organisational landscape of workplace harassment regulation in South Korea.

2. Literature review

Legal and policy initiatives addressing workplace bullying have proliferated over the past two decades. Comparative work shows a general movement towards recognising bullying as a distinct legal problem and imposing duties on employers to prevent and respond to it, via specific bullying statutes or broader dignity-at-work frameworks (Einarsen et al., 2020). In South Korea, Article 76-2 of the Labour Standards Act, alongside provisions in the Occupational Safety and Health Act and the Industrial Accident Compensation Insurance Act, defines and prohibits "workplace harassment" and recognises psychological harm as a work-related risk (Park, 2021). Park (2021) emphasises advances in recognising workers' dignity but notes deficiencies in coverage, victim support duties, sanctions, and procedural safeguards and burden-of-proof rules for both complainants and accused parties. Korean legal scholarship focuses mainly on defining harassment, interpreting elements such as "beyond socially acceptable scope", and aligning domestic law with international instruments such as ILO Convention No. 190 (Park, 2021), with little explicit discussion of false or vexatious complaints.

A recurrent finding in bullying research is that formal complaints represent only a small visible portion of the problem. In the UK National Health Service, Carter et al. (2013) documented high bullying prevalence but multiple barriers to reporting, including fear of retaliation, pessimism about outcomes, and concerns about being labelled a trouble-maker (Thompson & Catley, 2021). Similar patterns of under-reporting and "quiescent silence" appear in studies of sexual harassment and whistleblowing (Thompson & Catley, 2021). Organisational responses vary widely, from denial and minimisation to proactive approaches centred on psychological safety, ethical infrastructure and due process (Einarsen et al., 2020). Clear policies, trusted reporting channels, and fair investigative procedures are crucial but often absent or inconsistently applied (Seo, 2024). Complaint systems themselves can become arenas of conflict when poorly designed or implemented (Catley et al., 2017; Seo, 2024).

Compared with the extensive literature on genuine bullying, false, exaggerated or distorted bullying complaints are strikingly under-researched. In related areas such as sexual assault, reviews suggest that false reports constitute a small minority but are widely overestimated in public discourse (Huntington, Berkowitz, & Orchowski, 2022). Discussions of harassment law and organisational policy parallel this tension, warning against both dismissal of genuine complaints and tolerance of "vexatious, false and malicious" ones (Thompson & Catley, 2021). Within bullying studies, Thompson and Catley (2021) note that complaint processes can be misused to undermine others through vexatious complaints but provide illustrative rather than systematic evidence. Legal commentaries on dignity-at-work

frameworks acknowledge malicious use of procedures but treat it as peripheral relative to under-enforcement of protections for genuine targets (Einarsen et al., 2020).

In Korea, the main empirical contribution is the KRIVET qualitative study "Qualitative Research into False/Exaggerated Claim Cases of Workplace Bullying," which examines seven cases of false or exaggerated claims and argues that such cases cluster around new legislation and labour-market instability and are often mishandled through scapegoating (Seo, 2022; 2024). Other Korean research focuses on victimisation, legal interpretation and prevention (Park, 2021; Nerobkova, Kim, Park, & Shin, 2022). Seo and Kim (2023) extend this work with survey evidence showing non-trivial prevalence of perceived false accusations and threats. Together, these studies point to serious bullying, significant under-reporting, and emerging false-report patterns, but provide only fragmentary insight into their dynamics.

3. Methodology

This study uses secondary quantitative analysis of 2023 survey data alongside qualitative case synthesis. It draws on the 2023 Employee Work Environment Survey (n = 1,200), which employed gender- and industry-based quota sampling aligned with the Economically Active Population Survey (Seo & Kim, 2023), supplemented by qualitative case material from Seo's research and advisory work (Seo, 2022; 2024). The aim is descriptive rather than inferential, focusing on patterns rather than causal effects.

In the 2023 survey, respondents were classified as bullying victims or non-victims using criteria defined in the original study (~19% victims) and reported whether they had ever filed internal or external bullying complaints (3.3%), been the target of a complaint they regarded as false (1.4%), or been threatened with such a complaint (1.6%) (Seo & Kim, 2023). Sociodemographic and positional variables (age, gender, hierarchical level) were used to describe distributions; false-report victimisation was highest among workers in their twenties and thirties, and threats were about three times more frequent among women than men (Seo & Kim, 2023). The survey also identified a subset of "false reporters," defined as complainants whose allegations were judged through organisational investigations and contextual evidence to be wholly fabricated, substantially distorted, or grossly exaggerated; for this group, Seo and Kim (2023) report employment status at complaint, primary demands, and behavioural characteristics.

Qualitative material, derived from case intake records and practitioner reports, was used to identify recurring "tactics" (Seo, 2022; 2024). Because the underlying case corpus, sampling frame, and coding procedures are not fully specified, these qualitative elements are treated as illustrative rather than generalisable. Analyses are strictly descriptive: proportions and patterns from the 2023 survey are reported as in the source (Seo & Kim, 2023).

4. Results

In the 2023 workforce survey, approximately 19% of employees are classified as workplace-bullying victims, while only 3.3% report ever having filed a bullying complaint, implying that roughly one in six victims uses formal channels (Seo & Kim, 2023). Within the same sample, 1.4% report having been the target of a bullying complaint they consider false and 1.6% report threats of false reporting (Seo & Kim, 2023). Threats are about three times more commonly reported by women; false-report victimisation is concentrated among workers in their twenties and thirties and disproportionately reported by middle managers, suggesting that relatively young and structurally exposed employees are key targets.

Among accused workers who perceive the accusations as false, 64.7% are in their 20s–30s, and 59.1% are rank-and-file rather than managerial staff, indicating concentration among younger and lower-status workers. Reported consequences among accused workers include decreased trust in colleagues (78.1%), decreased organisational trust (48.1%), reduced concentration and productivity (42.3%), psychological stress disorders (50.0%), increased turnover intent (34.6%), and somatic stress symptoms (23.1%).

For the subset of identified false reporters, employment status around the time of complaint shows that 18.2% resigned before filing ("resigned first, then reported"), 40.9% resigned immediately after filing, 36.4% remained employed, and 4.5% did not respond (Seo & Kim, 2023). Nearly three-fifths (59.1%) thus resign either before or immediately after lodging complaints, suggesting an orientation toward exit-linked strategies rather than ongoing protection.

Demand profiles of false reporters are marked by high salience of apologies and instrumental benefits. The most frequent demand is a public apology (31.8%), followed by monetary compensation for alleged harm (18.2%), upward adjustment of performance evaluations (18.2%), recognition of work achievements to which the complainant did not actually contribute (18.2%), access to unemployment

benefits despite voluntary resignation (15.9%), written apologies (13.6%), payment for allegedly unused annual leave that had in fact been taken (6.8%), promotion (6.8%), and paid leave (4.5%) (Seo & Kim, 2023). Qualitative accounts indicate that apologies are sometimes pursued both for immediate symbolic "victory" and for later use as quasi-admissions in civil or criminal proceedings (Seo, 2022; 2024).

Behavioural features of complaints classified as false include exaggerated and emotional expressions (45.5%), distorted reporting (40.9%), completely fabricated events (34.1%), reporting of routine organisational practices as bullying (22.7%), initial use or explicit threat of external reporting channels (22.7%), claims of harm grossly disproportionate to reported behaviours (22.7%), repeated reporting of similar behaviours (13.6%), reporting of non-perpetrators such as bystanders or interveners (9.1%), and complaints filed strategically around audits, evaluations or personnel decisions (4.5%) (Seo & Kim, 2023). Workers categorise false reports into fabrication, distortion, and exaggeration, mirroring these patterns.

Qualitative material further identifies evolving tactics: organised or group false reporting; delayed and post-resignation complaints; pre-emptive complaints by anticipated perpetrators; management-initiated false reporting used to facilitate restructuring or retaliate against whistle-blowers; union-initiated complaints targeting entire approval chains; third-party orchestration using "proxy" complainants; legal leveraging of apologies obtained under pressure; serial and "universal" complaining against almost every actor involved; and repeated involvement of particular labour-relations or HR experts in suspected false-report cases (Seo, 2022; 2024). These patterns suggest increasing sophistication and institutionalisation of false reporting in the wake of the 2019 legal reforms, although their prevalence cannot be quantified with the available data.

5. Discussion and implications

This study used 2023 survey data and qualitative cases to show that South Korea's workplace bullying regime operates under a dual pressure: substantial, under-reported bullying on the one hand, and a non-trivial level of perceived false or vexatious reporting on the other (Nielsen, Matthiesen, & Einarsen, 2011; Nielsen & Einarsen, 2012; Nielsen, Glasø, & Einarsen, 2017; Seo & Kim, 2023). In line with international work, only a minority of victims formally report bullying (Carter et al., 2013, cited in Thompson & Catley, 2021), yet 1.4% of Korean workers report having been falsely accused and 1.6% report threats of false reporting, with clear concentration among younger, lower-status workers and, for threats, women (Seo & Kim, 2023). Qualitative evidence indicates that some complaints judged false are characterised by resignation-linked timing, apology-centred and material demands, and patterns of exaggeration, distortion or fabrication, sometimes embedded in coordinated or strategically timed campaigns (Seo, 2022, 2024).

The findings suggest that bullying scholarship needs to treat complaint processes as part of the phenomenon rather than a separate administrative layer. Formal procedures can be used to extend or reshape bullying dynamics, including via vexatious or strategic complaints (Thompson & Catley, 2021; Catley et al., 2017; Seo, 2022, 2024). This points towards a broader notion of procedural or institutionalised aggression, in which harm is mediated through organisational and legal mechanisms, not only through everyday negative acts (Einarsen, Hoel, Zapf, & Cooper, 2011, 2020; Nielsen et al., 2012, 2017). The Korean case further underscores that the design of the legal framework—strong duties to "act" combined with relatively weak due-process guidance—shapes both genuine reporting and misuse (Park, 2021; Seo, 2023).

At system level, the results support the following. Clearer behavioural criteria for bullying and harassment, aligned with international definitions (repetition, power imbalance, severity), to improve signal-to-noise in complaints without raising barriers for genuine victims (Einarsen et al., 2011, 2020; Nielsen et al., 2012, 2017; Park, 2021; Seo, 2023).

Balanced procedural safeguards, including explicit evidentiary standards (especially for delayed and post-resignation claims), opportunities for response, and transparent reasoning in contested cases, consistent with work on ethical infrastructure and fair handling (Einarsen et al., 2020; Catley et al., 2017; Seo, 2024).

Independent monitoring of employer responses, given the risk that pressure for "quick settlements" (e.g., pushed apologies or resignations) can incentivise false reporting and later litigation (Seo, 2022, 2024).

For organisations and practitioners, priorities include training HR and line managers in both bullying dynamics and false-report risk (Thompson & Catley, 2021; Einarsen et al., 2020; Seo, 2024), careful use of apologies, and explicit ethical standards for HR/IR professionals who operate at the interface between law and organisational practice (Huntington, Berkowitz, & Orchowski, 2022; Seo, 2022, 2024). Trade unions and worker representatives similarly need internal guidance to support genuine victims while avoiding the instrumentalisation of bullying procedures in broader industrial conflict (Einarsen et al., 2020; Park, 2021; Nerobkova, Kim, Park, & Shin, 2022; Seo, 2022, 2024).

The analysis is constrained by reliance on aggregated cross-sectional proportions and self-reports of "false" accusations (Seo & Kim, 2023), and on practitioner case material without a fully specified sampling frame (Seo, 2022, 2024). It cannot estimate the true proportion of false complaints among all bullying allegations, a question that is methodologically and politically sensitive, as demonstrated in adjacent areas such as sexual assault (Huntington et al., 2022). Future work should use survey micro-data and administrative records, longitudinal designs, and comparative organisational case studies to model predictors and outcomes of both genuine and vexatious complaints, and to examine how different legal designs condition these dynamics (Einarsen et al., 2020; Park, 2021; Seo, 2023, 2024).

Overall, the Korean evidence confirms that workplace bullying remains prevalent, harmful, and under-reported, while also documenting patterned, non-negligible false reporting that disproportionately affects younger and structurally vulnerable workers (Einarsen et al., 2011, 2020; Nielsen et al., 2011, 2017; Nielsen & Einarsen, 2012; Seo & Kim, 2023; Seo, 2022, 2024). The central challenge is therefore not to choose between protecting victims and deterring misuse, but to design complaint systems that do both: robustly protect genuine targets of bullying while safeguarding the rights and dignity of the accused and minimising opportunities for strategic weaponization of protection mechanisms (Thompson & Catley, 2021; Einarsen et al., 2020; Park, 2021; Seo, 2023, 2024).

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CONVERSATIONAL AGENTS AS TOOLS AND BEINGS: HOW PEOPLE ANTHROPOMORPHIZE CHATBOTS

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Abstract

A key challenge in research on text-based chatbots concerns the tendency to anthropomorphize them: chatbots can mimic certain human qualities, and users in turn often ascribe human traits to them. The perception of humanness plays a crucial role in human-chatbot interactions because it strongly shapes how users experience the conversation. At the same time, users may make potentially harmful decisions and experience negative psychological impacts when they "collaborate" with a chatbot they believe possesses human-like abilities: projecting human qualities onto an artificial agent can foster the misleading perception that the agent truly "understands" them and "feels for" them, which may lead to overreliance and overtrust. In this article, I examine how people ascribe humanness to both Large Language Model (LLM)-based chatbots and pre-LLM chatbots. Building on a literature review on human-chatbot interaction and empirical findings, I explain how people tend to anthropomorphize conversational agents, conceptualizing conversations with them as interactions with entities whose humanness is continuously ascribed and denied by human users, who may attribute or withdraw specific human-like traits, like emotions, intelligence, and agency.

Keywords: *Anthropomorphization, HCI, humanness, human-computer interaction, conversational agents.*

1. Introduction

A central challenge in research on text-based chatbots lies in users' tendency to anthropomorphize them. Although chatbots merely simulate selected human-like characteristics, users frequently attribute human qualities to them (Rapp et al., 2024). Perceived humanness is a pivotal factor in human–chatbot interaction, as it profoundly shapes users' conversational experiences (Rapp et al., 2021). At the same time, believing that a chatbot possesses human-like capacities can expose users to potential risks: when people "collaborate" with an artificial agent they perceive as human-like, they may make harmful decisions or experience negative psychological consequences (Rapp et al., 2023, 2025a). Attributing human traits to a chatbot can create the illusion that the system genuinely understands or empathizes with the user, which in turn may foster excessive trust and reliance.

This article builds on years of empirical research on interactions with conversational agents, adopting a Human-Computer Interaction (HCI) lens (Rapp, 2024). During these years, I investigated how users attribute humanness to both pre-LLM chatbots (Rapp et al., 2023, 2024) and LLM-based chatbots (Di Lodovico et al., 2025; Rapp et al., 2025a). Drawing on a review of the literature on human–chatbot interaction and this empirical research, I frame interactions with artificial agents as engagements with entities whose perceived nature dynamically shifts between that of a "tool" and that of a "being."

2. Background

2.1. Conversational agents and human-like features

Empirical studies on humanness have advanced our understanding of the design elements that can influence or enhance users' perceptions of conversational agents as human-like, as well as how individuals respond to and engage with systems deliberately equipped with human-like characteristics. Conversational agents are, in fact, created to involve users in interactions resembling those with humans (Nißen et al., 2022), frequently displaying social cues (Feine et al., 2019) and reproducing human modes of communication (Mazzei et al., 2022). From this perspective, humanness plays a central role in making sense of interactions with conversational agents.

Prior research emphasizes how design choices can evoke perceptions of humanness and produce both beneficial and detrimental outcomes for the conversational experience. Perceived humanness, for example, may facilitate the emergence of intersubjectivity, intimacy, and perceived closeness (Følstad et al., 2018; Skjuve et al., 2022), foster trust in the chatbot (Shin, 2022), and encourage altruistic actions (Shi et al., 2020). However, it can also elicit unsettling or eerie reactions (Ciechanowski et al., 2017; Liu & Sundar, 2018; Skjuve et al., 2019; Ta et al., 2020). Relatively simple features, such as assigning a name to the agent (Araujo, 2018), enhancing its conversational competence (Schuetzler et al., 2020) and response coherence (Go & Sundar, 2019), or enabling it to take initiative (Morrissey & Kirakowski, 2013), are often sufficient to heighten perceptions of humanness.

The diffusion of Large Language Models (LLMs), which are deep learning systems designed to comprehend and produce natural language, has further expanded the conversational agents' capacity to display human-like traits, given their ability to mimic human dialogues. LLMs have demonstrated remarkable abilities in generating fluent, high-quality text that closely resembles human-written content (Fang et al., 2023). Chatbots built on LLMs, such as ChatGPT and Copilot, offer intuitive interfaces that enable users to interact easily with these models and are increasingly being adopted by millions of people (Reuters, 2024). In this context, it has been observed that people may anthropomorphize an agent to varying degrees of humanness (Rapp et al., 2025a, 2025b).

2.2. Anthropomorphization and conversational agents

At its essence, humanness concerns the question "What does it mean to be human?", that is, the set of attributes that characterize human beings (Haslam & Loughnan, 2014), and it represents a key topic in human-agent interaction research. Notably, humanness can also be ascribed to non-human entities through a process commonly referred to as anthropomorphism (Festerling & Siraj, 2022). Research in HCI has largely relied either on broad theories of humanness originating in disciplines such as psychology, or on technology-oriented theoretical frameworks, to investigate humanness in conversational agents.

With respect to general theories, Haslam (2006, 2015) introduced a model of dehumanization distinguishing two senses of humanness. One is "human uniqueness," which encompasses traits considered uniquely human, such as moral sensibility and rationality. The other is "human nature," which refers to characteristics such as emotional responsiveness, agency, and interpersonal warmth that are viewed as central or typical of humans in a non-comparative sense and highlight continuity with other living beings. From this standpoint, entities may even be considered infrahuman or superhuman, lacking some human attributes (e.g., competence or warmth) while possessing others (e.g., friendliness or rationality) (Li et al., 2014). This framework has informed research in human–agent interaction (Ghafurian et al., 2019; Lee et al., 2019), showing that agents can be anthropomorphized either along the human uniqueness dimension, by being perceived as intelligent or intentional, or along the human nature dimension, by being seen as warm and emotional (Zlotowski et al., 2014).

Turning to technology-centered approaches, the uncanny valley theory posits that cues in non-human agents that promote the attribution of human-like mental capacities can elicit feelings of eeriness, due to conflicts in mental categorization and perceived threats to human distinctiveness (Stein & Ohler, 2017). When humanness becomes overly pronounced, it may generate aversion rather than attraction (Mori et al., 2012). This theory has been extensively applied in chatbot research (Ciechanowski et al., 2017; Liu & Sundar, 2018; Skjuve et al., 2019; Ta et al., 2020).

However, the most common theories employed to investigate the users' ascriptions of humanness to conversational agents might not fully capture the peculiarities that this kind of interaction entails. The uncanny valley framework, for example, accounts only for specific aspects of humanness, particularly the negative reactions that may arise when people interact with highly human-like conversational agents. Likewise, research has pointed out that the theory of dehumanization may not be fully adequate to explain humanness in conversational agents (Zlotowski et al., 2014).

3. How humanness is ascribed to conversational agents

My empirical research on user interaction with both pre-LLM and LLM-based conversational agents highlights that people tend to ascribe or withdraw specific human-like aspects to or from conversational agents, depending on users' specific goals and needs, the context in which they expect to interact, and the cues that the agent exhibits (Rapp et al., 2024).

Users do not perceive chatbot humanness as a binary, all-or-nothing property. Instead, perceived humanness varies along a continuum, ranging from low to high degrees. Moreover, different forms of humanness may be attributed depending on the context, or "script", within which users believe the interaction is taking place (e.g., submitting a complaint to a company). In addition, users' expectations

regarding the chatbot's humanness do not encompass the full spectrum of human characteristics, but rather focus on specific, modular human abilities (Rapp et al., 2024).

Perceived humanness is also dynamic, as it may shift over the course of an interaction as the conversation unfolds. For example, if the chatbot starts manifesting human-like qualities in the ongoing conversation and the user shifts their goal from executing a merely instrumental task to seeking emotional support, and the agent is able to fulfil this need, the degree of humanness ascribed to the agent may increase (Rapp et al., 2024).

In the research I conducted on LLMs, I found that these ascriptions and subtractions of humanness may also occur in response to an emotional need. For example, in a study conducted with qualitative researchers within the MidLLMan project, such as anthropologists, psychologists and sociologists, I have found that these researchers tend to withdraw human-like features from an LLM, when it is perceived as a threat to their identity as scientists. LLMs could potentially perform the qualitative analysis of data as or better than they do, and this possibility endangers their work as researchers. To cope with this anxiety, the researchers may devalue the models, considering them less-than-human entities, denying several fundamental human qualities, like creativity and emotions.

Likewise, when users do not understand the output that a model provides (e.g., an LLM's hallucination), they may tend to increase or decrease its perceived level of humanness to manage unfamiliarity and uncertainty (Rapp, 2025a, 2025b): (super and infra)humanization may thus become a strategy for dealing with the sense of uncanniness evoked by technologies that are perceived as completely diverse from humans, enabling individuals to trace the unknown back to the known (Di Lodovico et al., 2025). However, relying on anthropomorphism to make sense of what is difficult to explain can also bring latent fears about Artificial Intelligence (AI) to the surface, particularly concerns related to a potential loss of control over the technology (Rapp, 2025a). This aligns with prior research on people's apprehensions toward AI, which has highlighted that people may experience anxiety about AI's agency (Rapp, 2019, 2020), fearing that AI systems could assume excessive or even absolute control over the functions they are designed to carry out.

In sum, humanness in human-agent interaction is not an on/off state. Rather, it is modulated by people who interact with them depending on multiple factors, like their needs and objectives, the context of the interaction, and the conversational cues that the agent displays. In this sense, conversational agents may be interpreted as either "tools" or "beings". These interpretations are not fixed, but fluid and situational: the same system may be treated as a mere instrumental artifact in one moment and as a quasi-social entity in another. This oscillation underscores the need to conceptualize conversational agents not as inherently humanlike or non-human, but as entities whose perceived status emerges through interaction.

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WHAT DOES IT MEAN LEADERSHIP IN ITALIAN HEALTHCARE: A RESEARCH ACTION

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Abstract

This research is part of a wider project called CompAct (Compassionate Leadership: an Italian model) funded by the Veneto Region (Italy) as part of its strategic initiatives to improve healthcare workforce retention, explores the meaning and practice of leadership within the Italian healthcare system. The present study involved healthcare managers (physicians and nurses) from two public hospitals, focusing on three key departments: Emergency, Internal Medicine, and Primary Care. This phase of the project aimed to investigate how healthcare leaders interpret their roles and responsibilities, particularly in supporting their teams. Through a series of participatory meetings following the Participatory Action Research approach (Kemmis et al., 2014), participants were encouraged to reflect on their leadership experiences, challenges, and strategies. The qualitative data collected revealed a shared understanding of leadership as a relational and supportive function, rather than a purely managerial or directive one. One of the most significant findings was the emphasis placed on the concept of compassion as a central dimension of effective leadership, involving the capability of noticing, understanding, empathizing, helping (Dutton et al., 2006). However, the way the support is enacted varies considerably depending on the department and professional role. In Emergency departments, leadership is often expressed by a close synergy between the two leaders (physician and nurse) supporting each other to manage the whole team. In Internal Medicine, two different approaches between physician and nurse arose: physicians focus more their leadership on clinical supervision, and managing complex patient care pathways; nurse leaders are more oriented to create mutual trust and collaboration, as a family. In Primary Care, leadership takes on a more distributed and delegative form, emphasizing the need to understand situation where they cannot be physically present. Overall, the research underscores the need for healthcare organizations to recognize and invest in leadership development as a key factor in workforce retention. By fostering a culture of support and compassion (West, 2021), healthcare leaders can contribute significantly to psychological well-being, job satisfaction, and retention. These results represent a first step toward understanding and enhancing leadership practices in Italian healthcare, offering insights that can inform future policies and training programs aimed at strengthening the healthcare workforce.

Keywords: *Action-research, physicians and nurses, healthcare leadership, compassionate leadership.*

1. Introduction

The present study is part of the CompAct project (Compassionate Leadership: an Italian model), funded by the Veneto Region (Italy) to support strategic initiatives aimed at improving healthcare workforce retention. Healthcare systems are facing persistent workforce pressures characterised by staff shortages, high turnover, and declining retention. In this context, leadership has gained increasing relevance as a key resource shaping staff wellbeing and professionals' willingness to remain within organisations. The paper explores how leadership is understood and enacted within the Italian public healthcare system, focusing on leaders' interpretations of their roles and responsibilities in relation to supporting professional teams. The empirical focus is on physician and nurse leaders working in Emergency, Internal Medicine, and Primary Care, selected as settings characterised by complexity and professional interdependence.

2. State of the art

Over the past decade, leadership in healthcare is increasingly seen as embedded in everyday organisational practices rather than tied to formal authority, reflecting the relational dynamics of complex healthcare systems (Carroll, Levy, & Richmond, 2008; Denis, Langley, & Sergi, 2012). Within this view, compassionate leadership addresses the human and emotional dimensions of organisational life and responds to the limits of performance-driven, control-oriented models in contexts of high workload, staff shortages, and moral distress (de Zulueta, 2015; West, 2021). Grounded in Compassion at Work (CAW), compassion is conceptualised as a socially embedded, processual phenomenon—recognising suffering, acting to alleviate it, and generating individual and organisational outcomes—distinct from empathy as perspective-taking (Dutton et al., 2006; Dutton et al., 2014; Strauss et al., 2016). Compassionate leadership fosters a climate characterised by listening, empathy, support, and collaboration (Cervai & Blasutig, 2025), which contributes to relational trust, psychological safety, and positive organisational climates with implications for both well-being and effectiveness (Shuck et al., 2019). This processual understanding is particularly relevant in healthcare, where exposure to suffering is structural and often constrained by regulatory and performance pressures. Leadership shapes organisational climates that enable or inhibit compassionate responses, and compassion is increasingly described as a collective capability sustained through practices, structures, and routines (Vogus & McClelland, 2016; West, 2021). Within this framework, West's model identifies four interrelated practices—attending, understanding, empathising, and acting—which are relational, mutually reinforcing, and enacted in everyday work, shifting the focus from individual competence to context-dependent organisational practice (West et al., 2017; West, 2021). Systematic reviews show that healthcare professionals experience compassionate leadership through leaders' presence, psychologically safe communication, individualised consideration, and comprehensive support (Östergård et al., 2023; Ramachandran et al., 2024). At the same time, the literature highlights the emotional demands associated with compassionate leadership and the risk of compassion fatigue when organisational support is insufficient (Papadopoulos et al., 2020). Despite growing international attention, empirical studies within the Italian public healthcare context remain limited, indicating the need for context-sensitive investigation of how compassionate leadership is interpreted and enacted.

3. Aim and objectives

This study seeks to:

1. examine how healthcare leaders make sense of their leadership roles within public healthcare organizations, focusing on the meanings they attribute to leadership in their daily work;
2. investigate how leadership practices are enacted in concrete organizational situations, taking into account relational dynamics, professional interactions, and contextual constraints;
3. identify recurring themes and patterns in leaders' accounts of leadership experiences across different organizational settings (Emergency, Internal Medicine, and Primary Care).

By addressing these objectives, the study aims to develop an empirically grounded understanding of leadership as it is interpreted and practiced by healthcare leaders, contributing to a reflective analysis of leadership in Italian healthcare organizations within the broader framework of the CompAct project.

4. Research design

The study adopts a Participatory Action Research (PAR) design. Drawing on critical participatory traditions (Kemmis et al., 2014; Kemmis, McTaggart & Nixon, 2014), inquiry is framed as a joint process with practitioners aimed at developing context-sensitive understandings of leadership practice.

4.1. Context and participants

The study was conducted within the Italian public healthcare system. In line with a practice-based perspective, the organizational context is treated not as a neutral backdrop, but as a constitutive element shaping how leadership roles and responsibilities are interpreted and enacted in everyday work (Nicolini, 2012). The empirical work took place in two public hospitals located in the Veneto Region. The study does not aim to produce generalizable claims, but to develop context-sensitive insights grounded in the analysis of leadership practices as they unfold in specific healthcare settings. Participants were healthcare professionals holding formal leadership roles within the selected hospitals. The study involved both physicians and nurses with managerial or coordination responsibilities at the unit or service level. Participants varied in age, gender, professional background, and length of professional experience; all

participants were university graduates, employed within the Public Health Service, and held Italian nationality. Their presence was voluntary and based on informed consent. Consistent with the PAR orientation, participants were included because of their direct involvement in leadership practices.

4.2. Organizational settings

The research focused on three organizational settings: Emergency Departments, Internal Medicine units, and Primary Care services. These settings were selected to reflect distinct organizational configurations within the healthcare system while sharing common challenges related to coordination, responsibility, and relational work. Emergency Departments are characterized by time pressure, uncertainty, and rapid decision-making; Internal Medicine units involve longer-term patient management and complex interprofessional coordination; Primary Care services are positioned between hospital-based and community-based systems and operate mainly in domiciliary and territorial contexts. Together, these settings provided differentiated yet comparable contexts for examining how leadership practices are interpreted and enacted across healthcare organizations.

4.3. Participatory action research approach

In this phase, PAR was carried out through two participatory meetings. Each meeting lasted three hours and involved a group of eight participants (Meeting 1: N = 8; Meeting 2: N = 8). Each group belonged to a different hospital and included physician and nurse leaders from Emergency, Internal Medicine, and Primary Care. Participants were invited to discuss concrete situations from their everyday work as leaders. Qualitative data were gathered through an open-ended stimulus question. Data consisted of fieldnotes and observational memos produced by a team of researchers during the participatory meetings: four researchers were primarily observing interactional dynamics, while two researchers facilitated the sessions. More specifically, notes were first drafted and analyzed individually by each researcher involved. Subsequently, interpretations were discussed within the broader research team, which also included additional members not directly involved in the participatory meetings, enabling further critical scrutiny and refinement of emerging patterns. Findings were subsequently examined in depth, with a focus on patterns emerging across hospital departments. This approach supported the co-construction of analytically grounded insights into leadership as a situated and relational practice, which inform the analyses presented in the following section.

5. Leadership as a relational and supportive function: meanings and variations

Across the participatory meetings, given the question "*In your experience, what does it mean to be a leader and in which moments does leadership materialize?*" participants' accounts varied considerably from one another, but one theme emerged as a common denominator: leadership was consistently described as being linked to the relational aspects of their job, grounded in everyday interactions with subordinates, rather than the exercise of formal authority or managerial tasks. Participants emphasized leadership as something enacted continuously throughout their everyday work, through presence, reliability, openness to confrontation and the capability of accompanying professionals through difficult situations. Within this perspective, leadership was primarily framed as a form of support, closely associated with leaders' availability and proximity to their teams. Being a leader for them meant knowing what happens in the unit, understanding the personal and professional struggles of staff members, and acting as a reference in moments of uncertainty. Leadership was thus portrayed less as a positional role and more as a way of inhabiting everyday work relationships. Within this relational understanding, compassion emerged as a key -though largely implicit- dimension of leadership practice. The activities described closely align with the core aspects of Compassionate Leadership, as identified in literature: *noticing*, *understanding*, *empathizing*, and *helping* (Dutton et al., 2006). Noticing took the form of attentiveness to signals of distress, fatigue, or overload among staff, as well as recognition of individual efforts that might otherwise remain invisible. Understanding involved interpreting those signs and identifying discomfort through an attentive listening dialogue, a process that requires connection and empathy, and that can place a considerable emotional strain on leaders themselves. Helping represented the subsequent step, operationalized through concrete actions such as providing support in conflictual situations, mediating between staff and upper management, ensuring a fair workload distribution, exploring new solutions to organizational challenges, or simply by being present and offering assistance in critical moments. Although compassion was rarely named explicitly by participants, it was clearly embedded in the many accounts of what leadership meant to them, not as an abstract value, but more as an orientation that shapes how leaders respond to the needs of their team. This was unsurprising, given that "*caring for the health and well-being of others is intrinsically compassionate behavior"* (West, 2021, p. 5). Across all settings, participants highlighted how they frequently act as intermediaries, translating top-down decisions into practices that are manageable for the staff.

Compassionate leadership therefore involved sustaining this mediating function over time, remaining available and credible even in situations of uncertainty, scarce resources, and reduced autonomy. These dynamics further reinforce the understanding of leadership as a context-related practice.

What emerged as relevant in this study was the way in which supportive and compassionate practices varied across departments and professional roles.

In Emergency departments - contexts shaped by constant time pressure, unpredictability, high patient inflow, and frequent staff turnover - leadership was described as a highly demanding and consuming function. Leadership here was strongly characterized by proximity and by the mutual support between physician and nurse leaders, who emphasized the need to operate as a coordinated and cohesive professional pair. This close synergy was described as a key factor in sustaining the effective functioning of the team, in an environment that requires continuous and reciprocal adaptations. In this setting, support was enacted through the capacity to filter organizational demands and excessive information, absorb external pressures, and provide a form of safeguards, particularly in relation to the legal and medical risks associated with emergency care. Compassionate leadership was expressed through the recognition of high levels of commitment by staff members, provision of concrete legal and bureaucratic support, and the willingness to remain available for confrontation after difficult or unpopular decisions Leaders stressed the latter as a fundamental practice: being present and explaining the rationale behind such decisions helps immensely the staff when it comes to process frustration and resistance. Compassion, in this sense, was closely linked to themes of reassurance and protection, by offering professionals the sense that they were not alone in critical situations and that their burden would be shared.

In Internal Medicine, leadership took on more differentiated forms depending on professional role, while remaining firmly grounded in relational support. Physician leaders tended to emphasize clinical authority and experience as a prerequisite for their legitimacy, framing leadership as the ability to always guide the team through complex clinical cases and care pathways. Maintaining high levels of clinical competence was perceived as essential for preserving trust within their workgroups. In this sense, compassion is manifested by being trustworthy, offering guidance in difficult decisions and sustained commitment to patient care as a priority. Nurse leaders, in contrast, described their leadership styles primarily in relational and emotional terms. For them being a leader was associated with the act of listening to others, being emotionally available and the continuous effort to build a strong and cohesive group. Several participants used familial metaphors to describe their units, going so far, in one instance, to describe their leadership style using maternal metaphors, and highlighting trust, fairness, and mutual support as fundamental resources needed for building resilience in a very unstable workplace. Paying attention to, and confronting their collaborator's problems emerged not only in relation to the professional field, but particular care was put into noticing personal and private situations as a factor of distress. Compassion emerged predominantly in this setting, and was closely associated with the values given to dialogue and active listening, as well as with care to individual needs and situations.

In Primary Care, leadership was shaped by geographical and organizational fragmentation, with professionals operating across wide territories and small service units. Limited opportunities for face-to-face interactions required leadership to assume a distributed and delegative form, with heavy reliance on trust, autonomy and professional responsibility. Leaders emphasized the necessity of identifying reliable reference-figures within teams that can offer guidance to their co-workers, as well as calibrating levels of autonomy according to years of experience and competence. Compassionate leadership involved remaining available despite distance, developing alternative relational strategies -like frequent phone-based communications and recognizing different needs and levels of autonomy and adapting support accordingly. Delegation emerged as a structural necessity, and this requires strong trust and confidence among team members, in a way that reinforces the relational dimension, even in a context marked by the risk of professional isolation.

6. Limits and conclusions

Beyond highlighting leadership as a predominantly relational dimension of everyday organisational practices, this study points to compassion as an implicit, and already present, orientation embedded in how leadership is enacted within healthcare contexts. A core contribution of the study lies in showing how compassion is contextually shaped across different organisational settings, even within the same healthcare organisation. Rather than assuming compassionate leadership as a universal model, future research should examine how it is enacted through specific behaviours and relational strategies aimed at supporting co-workers. Contextual constraints, professional cultures, and institutional logics play a central role in shaping what compassion means and the forms it can realistically take, and, thus, should not be overlooked. Findings suggest that leadership-development initiatives in healthcare should support leaders in reflecting on and adapting compassionate practices in ways that are coherent with their specific settings,

as the CompAct Project aims to investigate in future steps of research. Creating and sustaining structured spaces for shared reflection and peer dialogue may represent a key lever for maintaining a compassionate organisational climate over time.

Limitations to the study include the restricted number of settings, participants and the singular regional context analyzed, which constrain transferability. The participatory and reflective process may have shaped accounts through collective sense-making; this is treated as an intrinsic feature of PAR rather than a methodological flaw. Importantly, this phase does not assess outcomes (e.g., retention or well-being) and does not establish causal relationships. Despite these limits, the study provides a grounded basis for subsequent phases of the project and suggests that leadership initiatives should prioritise structured spaces for collective reflection on practices and their adaptation to local organisational conditions.

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WHAT PREDICTS TEACHERS' LIFE SATISFACTION? DATA FROM 30 EUROPEAN COUNTRIES

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Abstract

Research shows that teachers' life satisfaction is directly related to the quality of their work, student achievement, and job satisfaction (is associated with work quality and job-related outcomes). In addition, national context, including cultural factors, may play an important role in shaping individuals' life satisfaction. Although life satisfaction is a well-established psychological construct, its determinants remain insufficiently researched in a cross-national perspective. This study examined cross-national differences in teachers' life satisfaction using data from the European Social Survey (ESS) Round 11, including 2,229 teachers from 30 European countries. Data from the European Social Survey (ESS) Round 11, covering 30 European countries (n = 2229 teachers), were used for the analysis. Life satisfaction was measured by asking participants to rate "All things considered, how satisfied are you with your life as a whole nowadays?" on a scale from 0 (extremely dissatisfied) to 10 (extremely satisfied). Multi-level modeling revealed significant differences in teachers' life satisfaction between countries. The model fits the data well (AIC = 8898.70, BIC = 8966.76, Pseudo-R^2 for fixed effects = .47, Pseudo-R^2 total = .52). Country-level differences accounted for 15% of the total variance in life satisfaction (ICC = 0.15), indicating that national context plays a meaningful role, although most variation occurs at the individual level. Mixed-effects linear regression analysis showed that self-transcendence values, happiness, positive affect, lower negative affect, and gender significantly predicted teachers' life satisfaction ($p < .001$). When individual predictors were included in the regression model, the results showed that approximately 10 % of the variance in life satisfaction is attributable to between-country differences (ICC = 0.10). This explanatory decrease of country differences essentially indicates that life satisfaction is a more personal-level phenomenon and individual factors are more predictive of life satisfaction than country characteristics. Overall, the findings indicate that teachers' life satisfaction is primarily shaped by individual-level characteristics, while national context still plays a secondary but relevant role. This highlights valuable insights for practical implications and further research on teachers' well-being.

Keywords: *Teachers, life satisfaction, European Social Survey.*

1. Introduction

Teaching is widely recognized as an especially demanding profession characterized by high cognitive, social, and emotional demands (Luque-Reca et al., 2022). Consequently, most existing research has focused on risk factors and harmful outcomes, such as teachers' stress and burnout (Dilekçi et al., 2025; Ghasemi, 2025; Reinke et al., 2025), as well as the increasing impact of job demands on teachers' mental health (Morris et al., 2025). However, there is a lack of research addressing the positive aspects of teachers' professional lives and ways to enhance them (Luque-Reca et al., 2022). Therefore, although studies have been conducted in many countries, teachers' overall life satisfaction remains an insufficiently explored topic. Moreover, research findings indicate that teachers report lower life satisfaction compared to the general population (Office for Standards in Education, 2019).

Life satisfaction is a central cognitive-evaluative component of subjective well-being (Luque-Reca et al., 2022). It is conceptualized as a reflective judgment individual's make about their life as a whole, based on a comparison between current life conditions and self-defined standards (Vittersø, 2025). Teachers' life satisfaction is the major dimension of well-being and has been associated with not only with teachers' level outcome, such as motivation (e.g., Kaya et al., 2024), their job satisfaction (e.g., Aydintan & Koç, 2016; Demirel, 2014; Erdamar & Demirel, 2016), quality of their work (Ilgan et al., 2015), but also with students-level outcomes, including academic achievement (e.g., Hoque et al., 2023) or developmental

indicators (Braun et al., 2020). These findings indicate that teachers' life satisfaction is not only a personal outcome but also a factor potentially linked to educational functioning. Importantly, life satisfaction is shaped by both individual characteristics and broader contextual conditions. Personal characteristics (e.g., values, affect, happiness) and demographic factors (e.g., gender, age) operate within broader socio-cultural environments that influence both evaluative standards and available life opportunities (Kushlev et al., 2019; Zalewska & Zwierzchowska, 2022; Lomas et al., 2025). National context, including cultural factors, also may play an important role in shaping individuals' life satisfaction (Lomas et al., 2025).

Cross-national research has consistently documented meaningful differences in life satisfaction across countries, highlighting the role of cultural and societal contexts in shaping well-being. For example, Krys and colleagues (2022) study highlights the potential utility and importance of distinguishing between positive and negative emotion expression, and both individual and societal perspectives in well-being research. The authors concluded that individual pathways to happiness may not necessarily promote the happiness of others (i.e., negative emotions predicted higher life satisfaction for the expresser but lower life satisfaction for society).

Despite extensive research on subjective well-being, comparatively limited attention has been devoted to examining how individual and country-level factors jointly contribute to teachers' life satisfaction within a multilevel framework. In particular, it remains unclear how much of the variance in teachers' life satisfaction can be attributed to national context versus individual characteristics across European countries. Therefore, the present study aims to investigate (a) the extent of between-country differences in teachers' life satisfaction and (b) key individual-level predictors of life satisfaction using multilevel modeling based on data from 30 European countries.

2. Methods

2.1. Sample and data collection

The data from the last Round 11 of the European Social Survey (ESS) in 2023-2024 were used (ESS ERIC, 2025) in order to evaluate factors, that predict teachers' life satisfaction, The European Social Survey is an academically-driven multi-country survey and is one of the biggest surveys conducted in Europe. In the 11th Round, the survey covered multiple European countries and employed the most rigorous methodologies and the survey was based on strict probability sampling principles (Stelmokienė et al., 2024). Sampling and its key principles of implementation in the ESS are guided by the requirements outlined in the official ESS webpage (https://www.europeansocialsurvey.org/methodology/sampling). The present study focused on respondents who identified their occupation as teachers. The final analytical sample consisted of 2229 teachers from 30 European countries.

2.2. Measures

The respondents of the survey were asked how satisfied in life in general they were by asking "All things considered, how satisfied are you with your life as a whole nowadays?" and evaluated their satisfaction from 0 to 10 points in Likert scale, where "0" meant "Extremely dissatisfied" and "10" – "Extremely satisfied". The authors of this article selected the following variables as predictors of teachers' life satisfaction: values (self-transcendence, self-enhancement, openness, conservation), happiness, negative affect, positive affect, gender and age. The Human Values Scale (21-item) developed by Shalom H. Schwartz was used to measure values. Negative affect was measured by asking: "During the past week, how often did you…" feel depressed, feel that everything you did was an effort, sleep restlessly, feel lonely, feel sad, or feel unable to get going (6 items, $\alpha = .77$), and positive affect: "During the past week, how often did you…" feel happy and enjoy life (2 items, $\alpha = .77$). Finally, happiness in ESS was measured using self-reported single-item question on a 0–10 scale, by asking: "Taking things together, how happy would you say you are?".

Although single-item measures receive criticism (Raudenská, 2023), the single-item life satisfaction and happiness indicators used in the ESS are considered as methodologically valid, as studies show their high construct and criterion validity and strong correlation with multi-item scales. For example, it has been empirically proven that the single-item measurement of life satisfaction is valid compared to the multi-item Satisfaction with Life Scale – SWLS (Cheung & Lucas, 2014). Besides, from a theoretical perspective, life satisfaction is defined as a global cognitive evaluation of life (Vittersø, 2025), so it can be measured with a clearly formulated, general single question. Also, the construct of happiness is universally applicable across cultures and the single-item measurement of happiness showed sufficient cross-national comparability (Raudenská, 2023). That is an important empirical evidence of cross-cultural measurement properties. Thus, ESS used single-item measurement for life satisfaction and happiness has been validated in prior research, particularly across diverse cultural settings.

3. Results

Multi-level modeling revealed significant differences in teachers' life satisfaction between countries and the significance of individual level factors. First, Mixed effects linear regression with random intercept at the country level was used (Table 1). These differences explain 15% of the variance (ICC – 0.15). Model fits the data well (AIC = 10404.70, BIC = 10421.82, Pseudo-R^2 (fixed effects) = 0.00, Pseudo-R^2 (total) = 0.15). Country-level differences accounted for 15% of the total variance in life satisfaction (ICC = 0.15), indicating that national context plays a meaningful role.

Table 1. Mixed effects linear regression results (30 countries).

Variable	B	SE	T	df	p
Fixed effects					
Intercept	7.42	0.14	54.69	32.35	**<.001**
Random effects					
Intercept variance (country)	0.65				
Residual variance	1.55				
ICC	0.15				

Note: B – unstandardized regression coefficient; SE – standard error; t – t statistic; ICC – intraclass correlation coefficient. The intercept is allowed to vary randomly across countries.

In Model 2, individual-level predictors included: values (self-transcendence, self-enhancement, openness; conservation), happiness, negative affect, positive affect, gender and age. Mixed-effects linear regression showed that self-transcendence values, happiness, positive affect, lower negative affect, and gender predict how satisfied with life as a whole the teachers are ($p < .001$). The results are presented in Table 2. Model fits the data well (AIC = 8898.70, BIC = 8966.76, Pseudo-R^2 for fixed effects = 0.47, Pseudo-R^2 total = 0.52).

Table 2. Mixed effects linear regression predicting teachers' life satisfaction from individual-level factors.

Predictors	***How satisfied with life as a whole***			***How satisfied with life as a whole***		
	Estimates	CI	p	Estimates	CI	p
Intercept	7.42	7.15 – 7.69	**<0.001**	2.26	1.58 – 2.93	**<0.001**
Self-transcendence				-0.15	-0.26 – -0.04	**0.007**
Self-enhancement				0.02	-0.05 – 0.10	0.547
Openness				0.02	-0.07 – 0.10	0.706
Conservation				0.00	-0.08 – 0.09	0.967
Happiness				0.64	0.60 – 0.69	**<0.001**
Negative affect				-0.34	-0.49 – -0.19	**<0.001**
Positive affect				0.15	0.05 – 0.25	**0.004**
Gender (1 = male)				0.18	0.05 – 0.31	**0.005**
Age				0.00	-0.00 – 0.01	0.147
Random effects						
σ^2	2.40			1.43		
τ_{00}	0.42 $_{country}$			0.16 $_{country}$		
ICC	0.15			0.10		
N	30 $_{country}$			30 $_{country}$		
Observations	2229			2147		
Marginal R2 / Conditional R2	0.000 / 0.150			0.472 / 0.525		

Generally, the results indicate that life satisfaction is primarily an individual-level phenomenon, as the between-country variance decreased substantially after including individual-level predictors. Specifically, the country-level variance was reduced from 0.42 to 0.16, suggesting that individual-level factors are more predictive of life satisfaction than country characteristics. After accounting for individual-level predictors, approximately 10% of the remaining variance in life satisfaction was attributable to between-country differences (ICC = .10).

4. Discussion and conclusions

The main findings indicate that teachers' life satisfaction is mostly shaped by individual-level characteristics, while national context accounts for a smaller, yet significant share of the total variance. These results are consistent with previous research emphasizing the dominant role of personal factors in shaping teachers' well-being (Tong, 2025).

One possible explanation is that individual factors are more important than the national context because the individual-level characteristics are related with teacher's emotional state and subjective assessment of life. In turn, the national context in different countries (e.g., teachers' prestige in society, salary, social guarantees) creates the framework within which individual factors operate. Although this study did not analyze the interaction between these two domains, it can be interpreted that individual factors may be more important in countries where contextual support is weaker. On the other hand, supportive national context can help to mitigate unfavorable individual characteristics. This could be a direction for further research.

This study, like other studies, has its limitations. First, the impact of the national context may seem weaker due to the selected indicators, and other factors could reveal a stronger effect. Second, the study is not longitudinal, so causal relationships are only hypothetical. Finally, a single-question scale is sufficient for measuring selected variables, but further research on teachers' well-being could consider using other instruments. Besides, individual-level measures can reflect contextual norms, for example, although values are an individual-level measure, they reflect societal factors.

Based on the findings of this study that life satisfaction is largely an individual-level phenomenon, practical recommendations specifically emphasize individual-level interventions that can be implemented in educational institutions and teacher education. Therefore, it is recommended that educational institutions implement interventions that focus on positive aspects: enhancing subjective happiness, increasing positive affect, and reducing negative affect (e.g., stress, burnout). Since self-transcendence values (caring for others, meaningfulness, contribution to society) significantly predict life satisfaction, school leaders could systematically recognize the "soft" contribution of teachers (not only academic results) and encourage reflection on the meaning of a teacher's work. In addition, teacher training programs could include modules on teachers' values and professional identity. Since the results of this study revealed that female gender is more associated with life satisfaction, which may indicate that male teachers are less likely to seek emotional support, it is recommended that institutions develop gender-sensitive well-being strategies (e.g., recognizing different well-being needs).

In conclusion, the findings suggest that efforts to enhance teachers' life satisfaction should primarily focus on individual-level interventions aimed at promoting self-transcendence values, addressing gender-specific needs, and in general, strengthening teachers' psychological well-being.

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SHADOW DRAMA: REFRAMING AND INTEGRATING THE SHADOW FOR IDENTITY TRANSFORMATION THROUGH CREATIVE ART-BASED PSYCHODRAMA

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Abstract

Disowned or marginalized aspects of experience may shape emotional responses, self-evaluation, and identity outside conscious awareness. This participatory action research study aimed to develop and examine Shadow Drama, a structured experiential exercise integrating drawing, mask-based dialogue, role enactment, and symbolic representation. The exercise was iteratively refined across three action–reflection cycles and implemented as a single dedicated session, introduced when disowned aspects became salient within a broader one-to-one intervention program (12 sessions, approximately 90 minutes each). Six participants contributed to protocol development across four phases, with in-depth qualitative analysis focused on Phase 4, representing the fully developed version of the exercise. Data included session transcripts, participant feedback forms, and researcher reflexive and analytic memos. Inductive reflexive thematic analysis identified three recurring processes: reinterpretation of previously rejected traits, identification of unmet emotional and somatic needs, and symbolic integration of latent strengths. Results were associated with increased expressions of self-compassion, emotion regulation, identity coherence, and greater confidence in participants' capacity for self-directed growth.

Keywords: *Shadow work, identity transformation, art-based practice, embodied enactment, shadow drama.*

1. Introduction

Disowned or marginalized aspects of experience are commonly described in depth and integrative psychologies as parts of the self that are excluded from conscious identity due to emotional, relational, or cultural constraints (Jung, 1959/1951). When such aspects remain unacknowledged, they may continue to influence emotional experience, self-evaluation, and relational patterns outside of conscious awareness (McLaughlin, 2018). Contemporary integrative and parts-based approaches emphasize that bringing these aspects into awareness can support psychological wholeness, emotional integration, and access to previously restricted internal resources (Schwartz, 2013). Moreover, Psychodrama and related action-based approaches provide established methods for working with internal roles and self-states through enactment, role-taking, and embodied dialogue (Moreno, 1946/1983). These methods emphasize experiential engagement with internal parts of the self and have been shown to support emotional expression, perspective-shifting, and integration through action rather than verbal reflection alone (Blatner, 2000). Art-based expressive methods also, utilize sensory-motor activities and visual media to create non-verbal pathways that bypass analytical language, allowing individuals to access implicit memories and emotional material stored in the brain's perceptual networks. These methods facilitate the transformation of internal imagery into symbolic forms, making previously unconscious emotional states accessible for conscious observation and cognitive integration (Lusebrink & Hinz, 2004).

Within person-centered traditions, emotional processing, empathic attunement, and authentic self-expression are central change mechanisms (Elliott et al., 2013; Rogers, 1957). However, they rely primarily on reflective dialogue, with limited use of structured, action-based methods for engaging disowned aspects of experience. In response to this gap, this action research study aims to develop and examine a structured experiential exercise for shadow work, integrating art-based methods, role enactment, and symbolic representation within a person-centered, non-psychoanalytic framework. In contrast to depth-oriented shadow work, which often involves dream analysis and archetypal interpretation (Jung, 1959/1951), this study adopts a non-interpretive, experiential approach grounded in embodied expression and personal meaning-making. Methods such as art-based expression, role enactment, and symbolic representation—when used non-directive—align with person-centered values and facilitate emotional and somatic access by bypassing habitual cognitive patterns (Rogers, 1957; Blatner, 2000; Lusebrink & Hinz, 2004).

2. Research method

This study employed a participatory action research (PAR) approach to develop and refine a structured, person-centered Shadow work. It was embedded within a 12-session art- and play-based program grounded in the Intentional Meta-Being Coaching framework (Fazel, 2025)*.

The PAR design supported iterative cycles of action, reflection, and adaptation within a practitioner-led context, with participants contributing to refinement of the Shadow Drama method (Kidd & Kral, 2005).

Participants in the broader program included approximately 20 international students at the University of Debrecen, Hungary. From this group, six individuals were purposefully selected to participate in a single Shadow Drama session based on the emergence of salient themes such as avoidance, self-criticism, or distress related to disowned aspects of identity. The sample included three women, two men, and one transgender participant, aged 20–40. These individuals were distributed across developmental phases (Phases 1–3: n = 1 each; Phase 4: n = 3), with Phase 4 representing the finalized Shadow Drama protocol. Each participant completed twelve individual sessions of approximately 90 minutes, with Shadow Drama implemented as one dedicated session within this sequence. Ethical approval was obtained (EPKEB 2025-051 [2023-165]), informed consent was secured, and reflexive documentation was used to monitor researcher positionality. Sessions were facilitated by the first author, a female practitioner–researcher aged 51, with over a decade of experience in coaching psychology and person-centered practice. Her background supported the ethical navigation of power dynamics and the creation of psychologically safe environment.

Data sources included Participant's post-session feedback forms, interview excerpts, and researcher reflexive and analytic memos. The use of multiple qualitative sources supported triangulation and enhanced interpretive depth in practitioner research (Creswell & Poth, 2016, p. 185). Inductive reflexive thematic analysis was conducted across action–reflection cycles to examine processes of externalizing, dialoguing with, and integrating Shadow elements (Braun & Clarke, 2019). Given the dual role of the first author as practitioner–researcher, a second researcher independently reviewed the data and participated in collaborative reflexive discussions to support critical interpretation and support reflexive challenge. Ongoing memo-writing supported reflexivity and analytic rigor (Berger, 2015). In-depth analysis and illustrative quotations are drawn primarily from Phase 4, reflecting the fully developed form of the Shadow Drama protocol.

2.1. Person-centered shadow work process

Shadow work implemented in a single session following rapport-building, when a disowned aspect was limiting progress. As Zweig and Abrams (2020/1991) state, *"we must confront the shadow, acknowledge it as part of the self, and find a way to bring it into our lives and our identity in a transformed manner"* (p. xvi). This process, we named Shadow Drama, involved four steps: (1) **Acknowledge**: drawing the Shadow on paper to externalize a disowned, unwanted, or avoided aspect of the self; (2) **Engage**: using the drawing as a symbolic mask, with the practitioner enacting the Shadow within a structured experiential dialogue; (3) **Integrate**: drawing a transformed representation of the Shadow on a wooden figure; and (4) **Embrace**: assigning a name to the wooden figure to affirm the reframed Shadow as part of the self.

3. Results

As Phases 1–3 involved partial and evolving versions of the intervention, these stages are presented in summary form to document method development. In-depth thematic analysis is therefore focused on Phase 4, which represents the fully developed Shadow Drama protocol.

Iterative Development of the Shadow Drama. Across three early developmental phases, progressive refinements to the Shadow-focused intervention were implemented and evaluated. In Phase 1 (n = 1), drawing on a wooden figure along with discussion about Shadow's purpose, perceived benefits, and protective functions facilitated recognition of an internalised critical voice and partial self-acceptance; however, increased internal pressure and persistent procrastination indicated limited behavioural consolidation. In Phase 2 (n = 1), paper-based drawing followed by the same discussion elicited emotional activation, but clear Shadow transformation or integration was not observed, and subsequent changes could not be confidently attributed to the exercise the Participant said "*I can't talk to a piece of paper,*" that inspired me to use the drawing as a mask. In Phase 3 (n = 1), the inclusion of mask-based dialogue and wooden figure work enabled direct confrontation and symbolic reframing of core fear with strong emotional impact; In this phase the participant in the end mentioned "*I want to name it as red chick*" and held it close

* IMBC is a person-cantered coaching framework aimed at supporting intrapersonal, interpersonal, and transpersonal transformation.

to his chest, as if attempting to embrace it. The act appeared to mark a moment of symbolic integration, suggesting that the process was becoming more internally meaningful and emotionally embodied.

3.1. Shadow drama outcomes (phase 4)

Inductive reflexive thematic analysis across interview responses, feedback forms, symbolic drawings, wooden figure work, and researcher memos in Phase 4 identified three recurring themes:

Reinterpreting Previously Rejected Traits. All participants initially described their Shadow aspects using negative or morally loaded language, framing them as weaknesses, failures, or emotions that were difficult to show or accept. Participant 4 (P4) initially labeled her Shadow as *"stupid"* and described feeling *"hopeless"* and experiencing a *"dreadful feeling"* related to perceived mistakes; during mask-based dialogue, she reframed this aspect as childlike and lacking knowledge, stating, *"It's like a child… they don't know better… I can't get mad at myself when I was three years old,"* and her feedback indicated that the process helped her *"change my perspective on the situation."* Participant 5 (P5) reinterpreted her *"shameless anger,"* initially experienced as a source of *"struggle and fear,"* as an *"insightful and creative"* force, leading to the creation of the *"Naughty girl"* that integrated devil-like anger with a *"smiley face"*; Researcher memos documented a shift from anger during the mask-based dialogue to increased calmness during the creation of the transformed figure. Participant 6 (P6) initially described her sadness and vulnerability as something she was *"afraid of showing"* and as a *"weakness,"* depicting sadness in black and surrounded by symbols of achievement; following the process, she stated, *"I learned that I can be vulnerable and strong at the same time."*

Identifying Unmet Needs: Across participants, Shadow engagement was accompanied by emotional and bodily responses (e.g., tension, breath, crying, relaxation), alongside increased awareness of needs for compassion, validation, emotional expression, and bodily connection. P4 reported that the exercise helped her "*understand where my frustration was coming from*." She realized she was the one *"treating her this way"* and acknowledged that *"She doesn't deserve to be treated that way"*. Researcher memos described a visible moment of insight during the mask-based dialogue, followed by a shift from anger and sadness toward greater calm and a need for self-compassion. P5 described the session as feeling like *"an exhale after holding breath for too long."* She reported that the focus on embodiment helped her recognize the importance of *"connect[ing] with my body and my emotions."* Feedback forms and researcher memos documented references to breath, bodily awareness, and a shift from cognitive focus to bodily engagement. P6 reported difficulty expressing vulnerability and described maintaining a strong external *"character."* During the session, she reported needing space to focus on herself and identified a need for self-validation, stating that *"the validation that he needs is validation from himself."* She also reported giving herself *"permission"* to engage in enjoyable activities. Researcher memos documented crying, emotional tension, and subsequent relaxation.

Uncovering Latent Strengths: In the final phase, participants created symbolic representations integrating disowned aspects into new identity forms, marked by positive language, symbolic ownership and playfulness. All three participants engaged fully in the process and willing to keep the symbolic figure. P4 reframed her mistakes as learning opportunities, stating, *"I am grateful for the mistakes I make; I can afford them,"* and described the session as *"turning a new leaf."* She defined her action plan as viewing mistakes as "opportunities for growth." Researcher memos noted playful engagement and a request to draw an additional figure to take home. P5 uncovered *"spontaneous"* creativity, evidenced by the *"Naughty girl"* figure that integrated her anger with a *"smiley face."* P6 discovered an *"inner winner"* through the character *"Miew,"* who combined feminine/masculine traits and wore a *"crown"* and a *"star"* describing it as having both vulnerability and strength. Researcher memos documented singing and playful behavior during the wooden figure activity.

Table 1. Summary of Cross-Case Synthesis for Phase 4 (Shadow Drama).

Dimension	P4: "Dumbo"	P5: "Naughty Girl"	P6: "Miew"
Reinterpretation	from "stupid" to innocent reduced self-directed anger past-self reframed as understandable mistakes reappraised as part of learning	reduced shame around anger expressed anger rather than suppressed anger reframed as part of self-expression anger viewed as usable Showed emotional energy	acceptance of vulnerability reduced emotional inhibition vulnerability integrated with strength vulnerability reframed as supporting functioning
Unmet Need	kindness toward self awareness of frustration triggers internal emotional needs treat self with more care	acceptance of emotional expression bodily release and breath recognition of mind–body & body–emotion disconnection	self-acceptance emotional expression need recognition of misaligned public–private self emotional self-permission
Latent Strength	kindness toward mistakes increased calm and playfulness growth-oriented self-narrative mistakes used as learning resources	acceptance of emotional intensity spontaneous emotional flow integration of anger with positive self-image embodied engagement with emotions	internal validation positive affect and emotional release integrated "inner winner" identity self-directed motivation and autonomy

4. Discussion

The present findings suggest that Shadow Drama functioned as a structured experiential process through which participants moved from self-alienation toward greater emotional integration, identity coherence, and self-directed growth. Across cases, the recurring thematic patterns support conceptualizing the Shadow Drama process as four core stages: (1) Acknowledge, (2) Engage, (3) Integrate, and (4) Embrace (AEIE), capturing a progression from externalization and experiential dialogue to symbolic transformation and identity-level ownership of reframed self-aspects. The results showed alignment with established theories of shadow integration and associated with four key outcomes:

Development of Self-Compassion: Across all participants, reinterpretation of disowned traits was accompanied by a shift from harsh self-judgment toward a more compassionate stance. This pattern is consistent with conceptualizations of the Shadow as containing psychologically disowned material that, when approached with awareness and acceptance, can be reintegrated into the self-system (Jung, 1959/1951). Rather than eliminating or correcting these aspects, participants re-authored their meanings (e.g., from *"stupid"* to innocent, from *"shameless"* to creative, from *"weak"* to *"vulnerable and strong"*), suggesting a movement from moralized self-evaluation toward contextualized self-understanding. These shifts parallel models of self-compassion, which emphasize kindness toward oneself in moments of perceived failure or inadequacy (Neff, 2003). In this study, reinterpretation appeared to facilitate a kinder stance toward the self, allowing participants to relate to previously rejected aspects with warmth rather than judgment.

Emotion Regulation: Identification of unmet emotional and somatic needs was linked to observable and reported changes in emotion regulation. Participants described bodily release, shifts in breath, crying, and increased calm, suggesting engagement of bottom-up regulatory processes. P5 labeling the session as *"an exhale"* illustrates this embodied shift from tension toward physiological settling. These findings are consistent with embodied and experiential models of affect regulation, which emphasize that emotional regulation is supported through somatic awareness and experiential processing rather than cognitive reappraisal alone (Fogel, 2009, pp. 9, 97). Consistent references to breath, release, and bodily reconnection suggest that the method may support regulation through emotional expression and physiological settling rather than suppression or intellectualization, and may be particularly valuable for people with over-controlled or achievement-based emotion regulation patterns (e.g., P5, P6).

Identity Coherence: Symbolic integration of latent strengths supported greater identity coherence, as previously split qualities were combined into more coherent self-representations. P4 also mentioned Mistakes *"allow me to learn, to be hopeful, naïve and childish at times and* P6's character mentioned integrated *"vulnerable"* and *"strong."* P5's transformed character was depicted Smiling "Naughty girl" which "looking devil in the front." It reflects processes described in both Jungian and contemporary integrative frameworks, in which Shadow material becomes a source of vitality and psychological resource once acknowledged and incorporated (Jung, 1959/1951). Participants' reports of playfulness, singing, and requests to take the figures home further suggest that these representations functioned as ongoing identity anchors, extending the integration beyond the session itself.

Self-Directed Growth: Across cases, these experiential and identity-level shifts were accompanied by increased confidence in participants' capacity for self-directed growth, reflected in concrete intentions and action-oriented narratives. Rather than positioning changes as externally driven, participants described self-directed commitments. For example, P4's stated "*I will welcome every mistake as an opportunity for growth"* This pattern aligns with self-determination theory, which emphasizes autonomy and internalized motivation as central to sustainable growth (Deci & Ryan, 2000). These shifts were grounded in experiential and symbolic processes rather than abstract goal-setting, supporting the view that identity-level, emotionally integrated change may provide a stronger foundation for self-directed growth than purely cognitive or behavioral planning. These findings not only support the feasibility of Shadow Drama but also suggest that its underlying AEIE process (Acknowledge, Engage, Integrate, Embrace) may offer a structured, replicable pathway for working with disowned aspects of identity through experiential methods. By translating abstract therapeutic goals into embodied, symbolic, and creative steps, this process-level structure contributes a coherent framework for integrating emotional processing, symbolic transformation, and identity work within a single-session format. By integrating these elements within a person-centered framework, Shadow Drama extends existing practices by offering a concise, process-oriented structure—through the AEIE sequence—for engaging disowned aspects at both emotional and identity levels. This structure functions as a bridge between insight-oriented, parts-based, and embodied experiential methods. While these findings underscore the potential contribution of Shadow Drama to person-centered and experiential approaches, several limitations should be acknowledged. The small, purposefully selected sample limits the transferability of the findings, and the action research design prioritized developmental refinement of the method rather than formal evaluation of effectiveness. As the first author also served as practitioner–facilitator, researcher positionality and potential bias may have

influenced both the process and interpretation of the data, despite the use of reflexive memos and collaborative analysis. In addition, outcomes were based on qualitative self-report, symbolic material, and researcher observations rather than standardized outcome measures, limiting conclusions about the magnitude or durability of change. Future research with larger and more diverse samples, independent facilitators, and mixed-method and longitudinal designs is needed to examine the generalizability and longer-term impact of Shadow Drama.

5. Conclusion

This study developed and examined Shadow Drama, a structured, single-session experiential method that integrates art-based expression, mask dialogue, role enactment, and symbolic transformation within a person-centered framework. Findings suggest that the process may facilitate reinterpretation of disowned traits, identification of unmet needs, and integration of latent strengths—alongside increases in self-compassion, emotion regulation, identity coherence, and self-directed growth. These outcomes support the feasibility of Shadow Drama as an experiential approach to shadow-focused work and highlight its potential contribution to person-centered and integrative therapeutic practices. Grounded in the AEIE process (Acknowledge, Engage, Integrate, Embrace), the method offers a replicable pathway for facilitating identity-level change through embodied, symbolic, and relational processes. As a process model, AEIE provides a clear structure for engaging disowned aspects of self in a way that supports integration without imposing interpretive meaning. Further research is needed to evaluate its effectiveness, generalizability, and long-term impact across diverse settings and populations. The method is therapeutically informed but not a substitute for psychotherapy, and may not be appropriate in contexts involving acute trauma, active psychosis, or where emotional regulation is severely impaired.

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THE LIVED EXPERIENCES OF VICTIMS OF INTIMATE PARTNER VIOLENCE IN THE MALTESE CRIMINAL JUSTICE SYSTEM

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Abstract

Despite significant legislative reforms addressing intimate partner violence (IPV) in Malta, survivors continue to report distressing and complex experiences when engaging with the criminal justice system. This qualitative study explores the lived experiences of IPV survivors navigating Maltese legal processes from initial reporting through to case closure. Using Interpretative Phenomenological Analysis (IPA), semi-structured interviews were conducted with six survivors (four women and two men) who had direct contact with the criminal justice system. Analysis identified five interconnected group experiential themes: systemic betrayal and institutional distrust, navigating the courtroom as a victim, the lingering impact of trauma, silencing, self-blame and the fight for agency, and pathways to support and closure. Participants described early experiences of dismissal and disbelief, prolonged procedural delays, ineffective protective measures, and repeated exposure to perpetrators that intensified fear, exhaustion, and psychological distress. Legal processes were frequently experienced as re-traumatising, contributing to feelings of powerlessness and self-doubt. While some survivors accessed meaningful support through non-governmental organisations (NGOs) or individual therapy, emotional recovery and closure were often pursued outside the justice system. These findings reveal a persistent gap between legislative intent and lived reality, underscoring the need for trauma-informed, coordinated, and survivor-centred reforms within the Maltese criminal justice system to reduce secondary victimisation and support survivor recovery.

Keywords: *Intimate partner violence, criminal justice system, Malta, interpretative phenomenological analysis, trauma-informed practice.*

1. Introduction

IPV is a pervasive public health and human rights issue with profound psychological, social, and legal consequences for survivors, including increased risks of anxiety, depression, and post-traumatic stress disorder (World Health Organisation [WHO], 2013, 2021). In Malta, recent legislative developments, including the Gender-Based Violence and Domestic Violence Act (2018) and the ratification of the Istanbul Convention, were intended to strengthen victim protection, enhance institutional accountability, and align national responses with international standards (Council of Europe, 2011; Council of Europe, 2020). However, emerging evidence suggests a persistent disconnect between policy intentions and survivors' lived realities within the criminal justice system (Azzopardi et al., 2021).

International research highlights how criminal justice processes can inadvertently re-traumatise survivors through procedural delays, victim-blaming attitudes, repeated exposure to perpetrators, and insufficient emotional or informational support (Walklate et al., 2021). Survivors' interactions with legal institutions have been shown to contribute to secondary victimisation, particularly when trauma-informed principles are absent (SAMHSA, 2014). In small, close-knit societies such as Malta, these challenges may be further amplified due to limited anonymity, entrenched cultural norms surrounding family privacy, and systemic resource constraints (Scicluna & Clark, 2019). While quantitative data document prevalence rates and legal outcomes, they offer limited insight into how survivors subjectively experience justice processes over time. This study addresses this gap by examining how IPV survivors in Malta experience the criminal justice system, from initial reporting to case closure, to identify systemic barriers and emotional impacts, and inform urgently needed survivor-centred reform.

2. Literature review

2.1. Intimate partner violence and criminal justice responses

IPV is widely recognised as a serious public health, social, and legal issue affecting individuals across demographic groups. IPV encompasses physical, psychological, sexual, and coercive behaviours occurring within intimate relationships and is associated with significant mental health consequences, including anxiety, depression, and post-traumatic stress disorder (WHO, 2021). Criminal justice systems play a central role in responding to IPV through victim protection, offender accountability, and the enforcement of legal safeguards. However, research increasingly demonstrates that survivors' interactions with legal institutions are not always experienced as supportive or protective.

Research across jurisdictions shows that legal processes can be lengthy, complex, and emotionally taxing for IPV survivors. Procedural delays, repeated court appearances, and adversarial questioning may exacerbate trauma and lead to disengagement, increasing fear and emotional exhaustion, especially when survivors have limited involvement in decision-making (Walklate et al., 2021).

2.2. Secondary victimisation and institutional responses

Secondary victimisation refers to the additional harm survivors experience through negative institutional responses, including disbelief, victim-blaming, minimisation of abuse, or lack of procedural sensitivity (Walklate et al., 2021). Research indicates that such responses can significantly undermine survivors' confidence in legal authorities and deter engagement with the justice process, contributing to case withdrawal and underreporting (Orth, 2002; Walklate et al., 2021).

Closely linked to secondary victimisation is the concept of institutional betrayal, which describes the psychological impact of being harmed by institutions that are expected to provide safety and justice (Smith & Freyd, 2014). Survivors often interpret dismissive or delayed responses as a breach of trust, leading to feelings of abandonment and disillusionment (Freyd & Birrell, 2013). Research shows that institutional betrayal can intensify trauma, increase psychological distress, reduce reporting and help-seeking, and hinder long-term recovery (Smith & Freyd, 2014; Gómez et al., 2016), underscoring the need for accountable, trauma-informed responses to IPV.

2.3. Trauma-informed approaches within criminal justice systems

In response to growing recognition of the limitations of traditional legal responses to IPV, trauma-informed approaches have gained increasing attention within research and policy. Trauma-informed practice emphasises awareness of trauma's psychological impact and prioritises safety, empowerment, collaboration, and choice (SAMHSA, 2014). Within criminal justice contexts, this includes sensitive interviewing practices, clear communication, emotional preparation for court proceedings, and coordinated inter-agency support.

Evidence indicates that such practices can improve perceptions of procedural fairness, increase engagement, and reduce re-traumatisation (SAMHSA, 2014). However, implementation remains uneven, with principles often embedded in policy but inconsistently applied in practice, particularly in under-resourced or highly formalised court environments that prioritise procedure over emotional safety (Walklate et al., 2021).

2.4. The Maltese legal and cultural context

Malta has introduced significant legislative reforms to address IPV, notably the Gender-Based Violence and Domestic Violence Act (2018) and the ratification of the Istanbul Convention (Council of Europe, 2011; Commission on Gender-Based Violence and Domestic Violence, 2020). These measures aim to enhance victim protection, improve inter-agency coordination, and align national responses with international standards. However, emerging research indicates inconsistent implementation in practice, with survivors reporting court delays, limited emotional support, and variable enforcement of protection orders (Azzopardi et al., 2021).

Malta's small size and close-knit social context present additional challenges for IPV survivors, including limited anonymity, cultural stigma, and continued proximity to perpetrators, which may inhibit disclosure and hinder psychological recovery (Scicluna & Clark, 2019; Naudi, 2018). Although quantitative data document prevalence and case volumes (NSO Malta, 2022), qualitative research on survivors' lived experiences within the Maltese criminal justice system remains limited, highlighting the need for survivor-centred, trauma-informed inquiry.

3. Methodology

3.1. Research design

This study adopted a qualitative research design using IPA to explore the lived experiences of IPV survivors navigating the Maltese criminal justice system. IPA is concerned with examining how individuals make sense of significant and emotionally complex life experiences and is particularly well suited to research involving trauma, victimisation, and interactions with institutional systems. Given the study's focus on subjective meaning-making and personal interpretations of justice processes, IPA provided an appropriate and rigorous methodological framework.

The study was guided by a constructivist–interpretivist epistemological position, recognising that reality is socially constructed and understood through individual experience. Rather than seeking generalisability, the aim was to gain an in-depth understanding of how survivors perceived, interpreted, and emotionally processed their engagement with the criminal justice system.

3.2. Participants

Participants were recruited using purposive sampling and comprised six adult survivors of IPV who had prior contact with the Maltese criminal justice system. Six participants took part in the study. Four participants identified as female and two as male. The four female participants (ages 33–52) included three who accessed NGO support and one who did not access formal services. The two male participants (ages 26 and 67) both received private therapy. All participants had formally reported abuse to the police and experienced at least one stage of legal engagement, including court proceedings and/or the issuing of protection orders. The small, homogeneous sample is consistent with IPA's idiographic focus, which prioritises depth of analysis over breadth.

3.3. Recruitment procedure

Participants were recruited through collaboration with NGOs and support services working with IPV survivors in Malta. Information sheets outlining the purpose of the study, participation requirements, and ethical safeguards were distributed by gatekeepers to potential participants. Individuals who expressed interest contacted the researcher directly to minimise coercion and protect confidentiality. Inclusion criteria required participants to be over 18 years of age, to have experienced IPV within an intimate relationship, and to have engaged with the Maltese criminal justice system, with their cases having reached closure.

3.4. Data collection

Data were collected through individual semi-structured interviews, allowing participants to reflect on their experiences in their own words while ensuring that key areas relevant to the research aims were explored. Interview questions focused on experiences of reporting abuse, interactions with police and legal professionals, court proceedings, perceptions of protection and support, and emotional responses to legal outcomes. Interviews were conducted in a private and secure setting, lasted approximately 60–90 minutes, and were audio-recorded with participants' consent. All interviews were transcribed verbatim for analysis.

3.5. Data analysis

Data were analysed following Smith et al.'s (2021) six-step IPA analytic process. This involved: (1) repeated reading of transcripts to achieve immersion in the data; (2) detailed initial noting focusing on descriptive, linguistic, and conceptual elements; (3) development of emergent themes within each individual case; (4) identification of connections between themes to form personal experiential themes; (5) repetition of this process across cases; and (6) abstraction of group experiential themes capturing shared patterns while preserving individual nuance. Reflexive journaling was maintained throughout the analytic process to enhance transparency and support analytic rigour.

3.6. Ethical considerations

Ethical approval was obtained from the relevant university ethics committee prior to data collection. Given the sensitive nature of the topic, careful attention was paid to participant well-being. Informed consent was obtained from all participants, who were reminded of their right to withdraw at any time without consequence. Interviews were conducted using trauma-sensitive practices, and participants were provided with information about local support services should distress arise. All data was anonymised, securely stored, and handled in accordance with data protection regulations.

3.7. Trustworthiness and reflexivity

To enhance trustworthiness, credibility was supported through detailed engagement with the data, transparent documentation of analytic decisions, and reflexive awareness of the researcher's positionality. The researcher maintained a reflexive diary to acknowledge potential biases and emotional responses arising from engagement with participants' narratives. This reflexive process supported ethical sensitivity and ensured that interpretations remained grounded in participants' accounts rather than preconceived assumptions.

4. Findings

Analysis identified five interconnected group experiential themes reflecting participants' shared experiences of navigating the Maltese criminal justice system following intimate partner violence.

Table 1. Presentation of the GET's and Sub-themes.

Master List of Group Experiential Themes	
Group Experiential Theme	**Subthemes**
Systemic Betrayal and Institutional Distrust	Reaching Out, Being Shut Down: The First Betrayal Abuser's influence within the system "They just let it happen"
Navigating the Courtroom as a Victim	"The protection order was just a piece of paper" Court Backlogs and Endless Waiting Facing the Perpetrator: No Safe Distance
The Lingering Impact of Trauma	"It never really ended, even after court" Survival Fatigue: Isolation, Exhaustion, and Living in Fear
Silencing, Self-Blame and the Fight for Agency	Silencing and disbelief "I started to believe it was my fault" Blinded by Love: Staying, Changing, and Losing Self Efforts to reclaim voice and autonomy
Pathways to Support and Closure	Positive NGO and individual support Emotional closure outside the courtroom

5. Discussion and implications

The findings align with international literature on secondary victimisation and institutional betrayal, highlighting how criminal justice systems can inadvertently reproduce trauma when survivors' emotional and psychological needs are insufficiently addressed. Despite progressive legislative reforms in Malta, participants' experiences indicate that trauma-informed principles remain inconsistently embedded in everyday legal practice.

A trauma-informed approach requires institutions to prioritise safety, empowerment, collaboration, and transparency. In this study, the absence of adequate survivor preparation, emotional support, and procedural clarity undermined these principles and contributed to re-traumatisation. The findings further suggest that favourable legal outcomes do not necessarily equate to psychological closure, particularly within small societies where survivors may remain socially visible and in proximity to perpetrators. These dynamics underscore the need to view justice not only as a legal outcome but as an experiential process with significant emotional consequences.

5.1. Recommendations for policy and practice

Based on participants' accounts, several practical reforms are recommended to reduce secondary victimisation and enhance survivor well-being:

- Mandatory trauma-informed training for police officers, legal professionals, and members of the judiciary

- Structured emotional and procedural preparation for survivors prior to court appearances
- Multidisciplinary coordination between legal services, mental health professionals, and NGOs
- Stronger enforcement and monitoring of protection orders to enhance survivor safety
- Increased survivor-centred communication and transparency throughout legal proceedings

Implementing these measures may contribute to more compassionate, effective, and trauma-informed responses to intimate partner violence within the Maltese criminal justice system.

6. Conclusion

This study provides a focused exploration of how IPC survivors experience the Maltese criminal justice system, revealing a persistent gap between legislative reform and lived reality. Despite progressive legal frameworks, participants described justice processes as emotionally invalidating, re-traumatising, and insufficiently responsive to their needs. Rather than offering protection and closure, legal engagement often compounded distress and undermined survivors' sense of safety and trust. While limited by a small, idiographic sample consistent with IPA, the findings offer valuable insight into the emotional dimensions of justice that are often overlooked. They highlight that justice cannot be understood solely through legal outcomes but also through survivors' psychological well-being and sense of agency, particularly in small societies such as Malta, where anonymity and distance from perpetrators are limited. By centering survivor voices, this study contributes to international calls for trauma-informed, survivor-centred reform within criminal justice systems. Meaningful justice for IPV survivors requires more than legislative change; it demands institutional practices that recognise trauma, restore dignity, and ensure that seeking protection does not result in further harm.

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RISK ASSESSMENT IN PSYCHOLOGY: PAST MISTAKES AND FUTURE DIRECTIONS FOR RESEARCH

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Abstract

Forensic risk assessment has been a cornerstone of psychological research and practice since the beginning of the 20th century. Early risk appraisals relied on clinical judgment to predict outcomes like violent or criminal behavior, but these methods often lacked accuracy. The subsequent shift to actuarial approaches introduced empirically derived tools that aimed to provide objective assessments, thereby minimizing the subjectivity of clinical judgment and increasing accuracy. However, these actuarial methods were criticized for being atheoretical and failing to address criminogenic risks and needs, which became increasingly relevant as penal systems emphasized the resocialization of incarcerated individuals. In response, risk and need assessments and structured professional judgment (SPJ) tools emerged, integrating empirically established correlates of criminal behavior with clinical expertise. Despite these advancements, persistent methodological and theoretical issues remain largely unaddressed. This review critically reexamines the evolution of forensic risk assessment, highlighting a key shortcoming in existing approaches to risk assessment. We propose a roadmap for future research to enhance the validity, applicability and ethical use of risk assessment instruments in forensic psychology.

Keywords: *Forensic risk assessment, latent variable modeling, psychometrics, recidivism.*

1. Introduction

Risk assessment is a core component of the daily work forensic psychologists and psychiatrists perform. Especially the last twenty-five years are best characterized by an increasing demand for evidence-based risk-assessment instruments from the behavioral and social sciences (Monahan, 2018). However, concerns regarding the development, validation (Feldhammer-Kahr, Kaiser, Leibetseder, & Arendasy, 2024; Taxman, 2018) and a lack of reporting standards (e.g., Singh, Yang, Mulvey, & RAGEE Group, 2015), as well as the implementation into numerous areas of the justice system have sparked controversial discussions about the adequacy of the application of such instruments (Berk, Heidari, Jabbari, Kearns, & Roth, 2017; Hannah-Moffat, 2013, 2019). Despite the breadth of critical perspectives, what remains is a noticeable underrepresentation of perspectives informed by psychometric theory.

This article will first introduce forensic risk assessment in psychology before presenting a historical perspective on the development of risk and need assessment instruments, highlighting the significant improvements and changes throughout this development. The next part will then show that persistent issues are rooted in inconsistent application and evaluation of psychometric models, which disrupt theoretical advancements. Lastly, future directions towards a more psychometrically sound evaluation of theoretically derived risk and need assessment instruments are discussed.

2. The History of forensic risk assessment instruments

As commonly defined, forensic risk assessment in psychology is a diagnostic process in which information is gathered, weighed and synthesized, supported by standardized psychological risk assessment instruments (Bonta, 2002). Besides the voiced concerns of purely actuarial risk assessment (Harcourt, 2007), there exists a solid body of evidence that highlights the benefits of instrument-assisted risk assessment for predictive accuracy (e.g., Ægisdóttir, et al., 2006). These benefits should, however, not distract us from persistent issues of current risk assessment instruments.

In the past, four approaches of risk assessment – so called generations – have been identified (Andrews, Bonta, & Wormith, 2006). In the first generation of risk assessments, forensic professionals were tasked with estimating the risk of recidivism for individuals based on their professional expertise and commonly assisted by (unstructured) interviews.

Due to criticism regarding the explanatory power, inconsistency and a lack of transparency of unstructured assessments, a more empirically guided approach was developed (Burrell, 2017). Actuarial instruments assessed empirically derived static risk factors such as prior criminal offenses. They subsequently were criticized because offenders were not able to reduce risk scores through compliance with treatments or rehabilitation programs. Examples of widely used instruments include the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) and the Violence Risk Appraisal Guide-Revised (VRAG-R; Rice, Harris & Lang, 2013).

To address these limitations, dynamic risk factors were included in the third generation of instruments (Burrell, 2017). This generation of instruments is referred to as "risk/needs scales" (Andrews & Bonta, 2014). Criminogenic needs are dynamic risk factors that can be changed through intervention and result in a lower likelihood of adverse behaviors. The third generation also includes structured professional judgements (SPJ), which are instruments that 'adopt non-algorithmic, non-numeric decision processes and risk estimates' (Douglas et al., 2014, p. 94). SPJ offer a structured way of assessing risk while enabling clinical experience and expertise to influence the decision (Fletcher, Gredecki, & Turner, 2021). Third generation instruments (especially SPJs) are among the most popular forensic risk assessment instruments (Singh et al., 2014). The HCR-20 and the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) are the most widely used instruments in practice.

The latest generation of risk assessment instruments enables practitioners to include case management, and individual differences in motivation and responsivity in their assessment (Andrews & Bonta, 2014; Fletcher et al., 2021). The Level of Service/Case Management Inventory (LS/CMI; Andrews, Bonta, & Wormith, 2004) is a fourth-generation instrument that includes additional protective factors, which are not considered for the calculation of risk scores. Another example is the empirically derived Static Risk Offender Need Guide for Recidivism (STRONG-R; Hamilton et al., 2016).

3. The evolution of risk assessments from a psychometric perspective

The evolution from unstructured clinical judgement to static actuarial risk assessment that subsequently led to the inclusion of criminogenic needs and the development of SPJs, case management systems, and responsivity assessments is commonly framed as a success story (e.g., Andrews et al., 2006). Although this success narrative generally seems justified, psychometric evaluations of risk assessment instruments reveal a more nuanced conclusion. As Taxman (2018, p. 282) notes: "risk assessment tools are developed and implemented in the field without attention to many of the reliability and predictive validity issues that have affected the current state of the art". We therefore propose that the history of risk assessment instruments should be reconsidered from a psychometric point of view. We will discuss predictive and construct validity because they reveal two central issues of risk assessment instruments.

3.1. Predictive validity

Predictive validity is a numerical estimate of how well risk scores or categories predict actual adverse behavior. Predictive validity is assessed with area under the curve (AUC) statistics (Rice & Harris, 2005). AUCs summarize the performance of classification tasks by relating the true positive rate to the false positive rate at every possible threshold. AUC scores in the context of RNAs represent the probability that a randomly drawn score from a recidivist population is higher than a randomly drawn score from a non-recidivist population. However, AUCs only assess how well an instrument can differentiate between recidivists and non-recidivists (Singh, 2013), which does not quantify the relation between the predicted level of risk and the observed risk. Systematic over- or underestimations of risk can result in high discriminative validity estimates (AUCs) but low calibration.

As prior reviews have shown, only marginal improvements have been made since the second generation in terms of predictive validity (Fazel, Singh, Doll, & Grann, 2012; Singh, Grann, & Fazel, 2011; Yang, Wong, & Coid, 2010). We, among others, argue is that a strict focus on predictive validity has some major downsides for a thorough evaluation of RNAs. Usually, total scores or subscale scores are used to predict adverse outcomes. This process in itself assumes that subscales or test scores represent a single construct (such as "criminal history" or "risk of reoffending") that would justify the calculation of total scale scores (assumption of dimensionality). Further, if we presume that this assumption of dimensionality was tested and satisfied, the predictive validity of total scores does not provide information about the structural relations among predictors. The probability of reoffending in two populations of offenders may be affected differently by specific subscales, even if the predictive validity of the total score may be similar

in both populations. Differences in the relation of subscale scores to probabilities of reoffending contain relevant information for the prevention of future crimes.

3.2. Construct validity

Construct validity describes how measured indicators relate to a latent unmeasured concept of risk. Risk has been conceptualized as either an effect or causal indicator within risk assessment instruments. Effect indicators (or reflective factors) represent a common underlying unmeasured latent construct or cause of certain behaviors (Strube, 2015). Causal indicators (or formative factors) follow the conceptual idea that risk is best defined by indicators (such as criminal history) that represent facets of the latent construct. For example, effect indicators (e.g., intelligence) are the cause of answers given on a test, while causal indicators (e.g., socioeconomic status) reverse this relationship with answers or indicators defining the construct (e.g., household income, among other indicators). This difference has critical consequences for the evaluation of both types of testing procedures. At this point, it is important to note that although many risk assessment instruments have not specified a measurement model nor have been sufficiently evaluated with the appropriate methods, they presuppose a measurement model as soon as numerals are assigned to items and summarized into test scores.

The Violence Risk Appraisal Guide–Revised (VRAG-R; Rice et al., 2013), among other second-generation instruments such as the Risk Matrix 2000 (RM2000; see Thornton et al., 2003), conceptualizes risk as a causal indicator (Helmus & Quinsey, 2020).

Third-generation instruments on the other hand like the LSI-R and the Sexual Violence Risk-20 (SVR-20v2: Boer, Hart, Kropp, & Webster, 2017) tried to improve the second-generation instruments by adding criminogenic needs to risk assessment instruments. Although criminogenic needs are different from static risk factors, both get summarized as a total risk score. However, when researchers add a new dimension to the estimation of risk, they ought to show that empirical data allow for the recreation of theoretically proposed structures. Specifically, it must be shown that criminogenic needs and static risk are related (in some form, dependent on the proposed model) to the same latent risk. Investigations into the factor structure of widely used third-generation risk assessment instruments are sparse and have yielded inconsistent results that contradict theoretical models (Hsu, Caputi, & Byrne, 2011; Zhang & Liu, 2015). Although these methods are not directly applicable to SPJs, psychometric evaluations have revealed similar inconsistencies (Kanters et al., 2017; Klepfisz, Daffern, Day, Lloyd, & Woldgabreal, 2020).

A more nuanced picture arises for fourth-generation RNAs such as the LS/CMI and the STRONG-R (Hamilton et al., 2016). Similar to the LSI-R, inconsistent results have been reported for the LS/CMI (Giguère & Lussier, 2016). Contrary to other instruments, investigations into the structure of the STRONG-R have revealed an adequate factor structure of five subscales and a general risk factor (Hamilton et al., 2025). By explicitly excluding static risk factors, the authors provide ample evidence to justify the calculation of summary risk scores, including structural stability across gender and ethnic groups and negligible predictive bias (Hamilton et al., 2025). Although the STRONG-R provides an exemplary template for future development and validation practices, it remains to be seen if the results are replicable outside of the validation sample.

4. Conclusion

As the overview of the literature indicates, substantial inconsistencies exist regarding psychometric measurement models used by developers of forensic risk and need assessment instruments. While second-generation instruments rely on simple causal indicators, which were criticized for being atheoretical, third- and fourth-generation instruments argue that risk is better conceptualized as a multidimensional effect indicator. Most third and fourth-generation instruments have not provided sufficient psychometric evidence to support this claim. To illustrate this more clearly, Kroner, Mills, and Reddon (2005) have shown that similar predictive validity could be achieved by randomly restructuring the items of four popular risk assessment instruments. The authors conclude that according to their results, no single instrument has captured sufficient aspects of a theoretically superior risk assessment theory and all assessments capture a general construct of criminal risk (Kroner et al., 2005). This issue is not merely academic. When total scores are computed without a validated measurement model and prior assessment of dimensionality, they risk capturing a broad and unstable concept of risk. If interventions, parole decisions and rehabilitative efforts are based on the unstable concept of risk, they can potentially misallocate scarce resources and negatively affect the effectiveness of justice systems.

The issues raised in this paper require further investigation and substantiation with empirical data. What can be said at this point, however, is that further development of risk assessment instruments will require reconceptualization and modernization of validation procedures. This includes evaluations using latent variable models and comprehensive assessment of predictive validity. Researchers and test

developers should further be transparent about their risk concept about whether their risk concept is modeled with causal or effect indicators and evaluate it accordingly. Construct validity should be treated as a precondition of predictive validity, which especially applies to effect indicators. Risk assessment instruments can then also be more meaningfully evaluated in terms of their predictive validity, including a substantiation of discrimination with calibration indices. Rethinking validation in this way can align psychometric principles with the specific requirements of forensic risk assessment, resulting in more reliable decision-making processes and ethical implementation of instruments in practice.

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WHEN PROTECTORS BECOME PERPETRATORS: A FEMINIST ANALYSIS OF DOMESTIC VIOLENCE AMONG ISRAELI POLICE OFFICERS

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Abstract

Domestic violence perpetrated by police officers represents a critical yet underexamined manifestation of gendered power, wherein state-sanctioned authority converges with intimate partner abuse. This article offers a feminist analysis of domestic violence committed by Israeli police officers, addressing a significant gap in Israeli scholarly literature. Drawing on qualitative analysis of court verdicts, media reports, and interviews with mental health professionals, the study examines the structural, psychological, and institutional dynamics that distinguish police-perpetrated intimate partner violence from abuse in the general population. Situated within feminist theories of patriarchal control, hegemonic masculinity, and coercive control, the analysis demonstrates how police culture—characterized by militarized masculinity, emotional suppression, access to weapons, and the "blue wall of silence"—intensifies both the severity of violence and barriers to victim protection. The Israeli context, shaped by mandatory military service and chronic occupational stress, further reinforces these dynamics. Findings reveal patterns of weaponized professional knowledge, institutional minimization, and victim silence, producing what is conceptualized as compound trauma rooted in both intimate and institutional betrayal. The article argues that police-perpetrated domestic violence should not be understood as individual deviance but as a predictable outcome of institutionalized patriarchy embedded within law enforcement structures. The study concludes by calling for feminist-informed structural reforms, including independent accountability mechanisms, trauma-informed support systems, and a fundamental transformation of police culture toward gender equality and care-oriented practice.

Keywords: *Policemen, domestic violence, feminist analysis, qualitative research, Israel.*

1. Introduction

Domestic violence perpetrated by police officers represents a critical manifestation of patriarchal power structures operating at both institutional and intimate levels. Domestic violence perpetrated by police officers presents a profound paradox: those sworn to protect and serve become the very threat from which their intimate partners need protection. This phenomenon, while documented internationally, has received scant attention in Israeli academic literature despite compelling evidence suggesting elevated risk factors. This essay examines the characteristics and patterns of domestic violence committed by Israeli police officers, drawing on court documents, media reports, and interviews with mental health professionals to illuminate this understudied issue.

The intersection of law enforcement culture and intimate partner violence creates unique dynamics that distinguish police-perpetrated domestic violence from similar crimes in the general population. Officers possess specialized training in violence, access to weapons, investigative knowledge, and perhaps most significantly, membership in a professional brotherhood that may prioritize loyalty over accountability. These factors combine to create what researchers have termed a "perfect storm" for domestic abuse that is both more dangerous and more difficult to address than typical cases. Through a feminist theoretical lens, this phenomenon reveals how masculine hegemony, embedded within law enforcement culture, creates and perpetuates systems of gendered violence that extend from the public sphere into the private domain. This essay examines domestic violence among Israeli police officers, arguing that police-perpetrated intimate partner violence represents not only aberrant individual behavior but rather the logical extension of institutionalized patriarchal control mechanisms that shape both police culture and officer psychology.

Feminist scholars have long argued that domestic violence functions as a tool of patriarchal control, maintaining male dominance through physical, psychological, and economic subjugation of women (Stark & Hester, 2018). When the perpetrator is a police officer, these dynamics intensify exponentially, as state-sanctioned authority merges with intimate terrorism to create what might be termed "weaponized patriarchy"—the convergence of institutional and personal male power to ensure female subordination.

2. The Israeli context

The Israeli context adds additional layers of complexity. The nation's security-focused culture and mandatory military service create a pipeline from military to police service, potentially compounding trauma and reinforcing militaristic approaches to conflict resolution. Israeli police officers face particularly challenging employment conditions, with longer work hours, lower pay compared to Western counterparts, and limited union protections. These stressors, combined with inadequate mental health support systems, create fertile ground for maladaptive coping mechanisms, including domestic violence (Johnson, Todd, & Subramanian, 2005).

Moreover, the "blue wall of silence"—the unwritten code protecting officers from scrutiny—takes on particular significance in Israel's relatively small law enforcement community (Skolnik, 2022; Sweeting, Cole, & Hills, 2022). The researchers document how this protective culture extends to domestic violence cases, with colleagues often dismissing visible injuries on female officers as "work-related" and supervisors addressing obsessive harassment as merely an administrative inconvenience rather than criminal behavior.

The Israeli context adds layers of militarized masculinity inherited from mandatory military service. The psychological transition from soldier to police officer involves minimal decompression from combat-oriented hypervigilance and aggression. Post-traumatic stress, inadequately addressed due to cultural stigma around male vulnerability, becomes channeled into intimate terrorism. The feminist concept of "trauma as gendered performance" illuminates how officers transform psychological wounds into weapons against female partners, converting their own pain into female suffering.

The study's finding that minority officers (Ethiopian, Druze) committed disproportionately severe violence reflects intersectional dynamics where marginalized masculinities seek validation through extreme demonstrations of patriarchal control. These officers, experiencing racial subordination within the police hierarchy, may compensate through hyperviolent performances of masculinity in intimate relationships—what Bell Hooks (2004) terms "plantation patriarchy," where oppressed men replicate oppressive structures against women in their communities.

3. Feminist theoretical framework: The psychology of masculine domination

The psychological profile of officers who commit domestic violence must be understood within the broader context of hegemonic masculinity and its institutional reinforcement. Police organizations actively cultivate hypermasculine identities through recruitment, training, and socialization processes that valorize aggression, emotional suppression, and dominance (Brown, 2007). This institutional construction of masculinity creates profound psychological tensions that manifest in intimate relationships.

From a psychoanalytic feminist perspective, the police officer's need for absolute control stems from deep-seated anxieties about masculine inadequacy. The hypermasculine facade demanded by police culture requires constant performance and validation, creating what Connell (2005) terms "masculinity under threat." Officers experiencing professional stress, perceived emasculation, or challenges to their authority may attempt to restore their masculine equilibrium through domestic violence, reasserting control in the private sphere when public authority feels compromised.

The psychological splitting between "protector" and "perpetrator" roles creates cognitive dissonance that officers resolve through victim-blaming narratives and minimization. The study documents numerous cases where officers portrayed themselves as victims while depicting their female partners as manipulative, unfaithful, or psychologically unstable—classic projective identification mechanisms that preserve the officer's self-concept while justifying violence. One officer referred to himself repeatedly in the third person during court proceedings, psychologically distancing himself from his actions while maintaining his victim narrative.

Feminist analysis reveals police organizations as fundamentally patriarchal institutions that normalize and reproduce gendered violence through multiple mechanisms. The "blue wall of silence" represents not merely professional loyalty but masculine solidarity—a brotherhood united in protecting male privilege and power. When officers commit domestic violence, this protective mechanism extends to shield them from accountability, effectively institutionalizing intimate partner violence as an acceptable expression of masculine authority.

4. Psychological mechanisms of control and coercion

The psychological tactics employed by officer-abusers demonstrate a sophisticated understanding of coercive control mechanisms. Officers weaponized their professional knowledge to create elaborate surveillance and intimidation systems. They exploited their investigative training to gaslight victims, their interrogation skills to psychologically torture, and their knowledge of legal systems to ensure impunity. This represents what feminist psychologists term "institutional gaslighting"—using professional expertise to systematically undermine women's reality testing and agency.

The timing and triggers of violence reveal deep psychological patterns rooted in patriarchal entitlement. Violence frequently erupted when women asserted independence, seeking divorce, suspected of infidelity, or challenging male authority. These moments represent threats to patriarchal ownership, triggering what psychologist Lundy Bancroft (2002) calls "entitlement-based rage." The officer's professional identity as controller and enforcer makes any challenge to personal authority psychologically intolerable, necessitating violent restoration of dominance.

Particularly revealing is the psychological profile of murder victims: several were professional women, domestic violence advocates, or law enforcement personnel themselves. From a feminist perspective, these women represented the ultimate threat to patriarchal authority—empowered women who understood systems of oppression and possessed resources to resist. Their murders represent not crimes of passion but calculated eliminations of female autonomy, what feminist scholars term "femicide as patriarchal terrorism".

5. The psychology of silenced victims

The psychological impact on victims reflects multiple layers of patriarchal oppression. Partners of police officers experience what might be termed "compound trauma"—the intersection of intimate terrorism with institutional betrayal. Victims face unique psychological barriers to help-seeking, knowing their abuser's colleagues will likely protect them, that he can track them through police databases, and that the very system meant to protect them is controlled by their abuser's brotherhood.

The study documents how victims internalized patriarchal narratives, with several unable to recognize sexual coercion as rape or systematic abuse as criminal. This reflects what feminist psychologists term "patriarchal consciousness"—the internalization of male supremacist ideologies that normalize female subjugation. One victim, herself a police officer, admitted she failed to recognize abuse patterns in her own relationship despite professional training—illustrating how pervasive patriarchal conditioning overrides even professional knowledge.

The psychological isolation experienced by these victims extends beyond typical domestic violence scenarios. They face not just one abusive man but an entire patriarchal institution prepared to discredit, dismiss, and destroy them if they speak out. This creates what trauma specialist Judith Herman (1992) calls "captivity trauma"—psychological imprisonment within systems of total male control.

6. Institutional failures through a feminist lens

The systematic failures documented—lack of protocols, absent data collection, continued employment of known abusers—represent not oversight but active patriarchal preservation. The police institution's refusal to acknowledge officer-perpetrated domestic violence maintains the fiction of masculine protector-heroes while sacrificing female lives to preserve this mythology.

When colleagues dismissed visible injuries on female officers as "work-related" or supervisors treated obsessive harassment as an administrative inconvenience, they engaged in what feminist scholars term "institutional misogyny"—the systematic devaluation of women's safety and reality. The Ministry of Welfare's failure to track victims fleeing officer-partners represents deliberate ignorance designed to protect patriarchal institutions from accountability.

7. Conclusion: Toward feminist transformation

This research illuminates how police-perpetrated domestic violence represents the convergence of personal and institutional patriarchy, creating uniquely dangerous conditions for women. The psychological dynamics—from officers' fragile masculinity to victims' multiple trauma—reveal domestic violence not as individual pathology but as logical outcome of patriarchal institutional structures.

Meaningful change requires a real transformation of police culture itself: dismantling hypermasculine ideologies, implementing training on healthy relationships and emotional regulation, creating independent accountability mechanisms staffed by feminist advocates, and providing trauma-informed, gender-conscious support services for all police officers who need it. Most fundamentally, it requires recognizing that police-perpetrated domestic violence is not an aberration. but a predictable result of institutionalized patriarchy granted state-sanctioned weapons and authority along with frequent exposing to traumas.

Until law enforcement undergoes fundamental (hopefully) feminist restructuring—prioritizing care over control, community over domination, and gender equality over masculine supremacy—partners of police officers will remain trapped within dual systems of patriarchal violence: intimate terrorism backed by institutional power. This research breaks crucial silence, but silence-breaking without structural transformation merely documents oppression without dismantling it. The path forward demands nothing less than feminist revolution within law enforcement itself.

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THE COST OF WORKING DIRECTLY WITH OFFENDERS: A SYSTEMATIC REVIEW OF THE MENTAL HEALTH IMPLICATIONS

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Abstract

Working with offender populations imposes a high cost of caring, exposing professionals to unique psychological and emotional demands that may culminate in compassion fatigue (CF) – a multidimensional construct encompassing burnout, secondary traumatic stress (STS), and vicarious trauma (VT). Although CF has been widely examined across helping professions, evidence remains comparatively underexplored among professionals working directly with offenders. This systematic review synthesizes empirical evidence on the prevalence of CF and its components and associated mental health outcomes in this workforce. Following PRISMA guidelines, searches were conducted in EBSCOhost, PubMed, and Web of Science, supplemented by manual searching. Of 2,911 records, 16 studies published between 2001 and 2024 met the inclusion criteria. Most were conducted in the USA (n = 8) and UK (n = 4), with additional evidence from Brazil (n = 2), Canada (n = 1), and Australia (n = 1). Across professional groups (healthcare professionals, correctional officers, probation/parole officers, and counsellors), findings consistently indicated moderate-to-high burnout, STS, and/or VT, alongside clinically relevant traumatic stress and depressive symptoms in meaningful subgroups. Adverse outcomes were most evident where offender-facing exposure (e.g., violence, distressing material, complex caseloads) co-occurred with organisational strain (e.g., workload pressure, role conflict, limited supervision). Overall, findings support an occupational and structural framing of CF and related mental health difficulties in offender-facing services, underscoring organisational responsibility and the need for preventive, trauma-informed support infrastructures.

Keywords: *Compassion fatigue, burnout, secondary traumatic stress, vicarious trauma, offender-facing professionals.*

1. Introduction

Working directly with offenders carries psychological and emotional costs for professionals (Elias & Haj-Yahia, 2019). Offender-facing work often occurs in high-risk contexts marked by violence, trauma histories, and chronic suffering, requiring sustained emotional engagement that can erode well-being (Elias & Haj-Yahia, 2019). This burden is commonly conceptualised as the cost of caring (Figley, 2002) and is increasingly recognised in forensic and correctional services, where professionals may be exposed both to offenders' trauma histories and offence-related material, sometimes alongside direct threats or assault (Elias & Haj-Yahia, 2019). Although it has been studied under various terms, this review focuses on compassion fatigue (CF), an umbrella construct that includes burnout, secondary traumatic stress (STS), and vicarious trauma (VT). CF reflects the emotional and physical depletion that may arise from sustained empathic engagement with others' suffering, even without direct trauma exposure (Figley, 2002). Its components reflect distinct, though related, processes. Burnout is typically understood as a response to chronic occupational stressors and involves emotional exhaustion, depersonalisation/cynicism, and reduced personal accomplishment (Maslach & Leiter, 2022). STS refers to trauma-like reactions that can emerge when professionals internalise the traumatic material, with symptoms resembling post-traumatic stress responses (Figley, 2002; Leung, Schmidt, & Mushquash, 2023). VT reflects more enduring disruptions in cognitive schemas and perspectives, linked to repeated exposure to traumatic narratives and distressing details (Leung et al., 2023).

In sum, in offender-facing contexts, CF is associated with broader distress and impaired functioning and may also undermine compassion satisfaction – the fulfilment derived from helping others (Sorenson, Bolick, Wright, & Hamilton, 2017). Despite growing research interest in CF, evidence specific to offender-facing professionals remains limited. Accordingly, this review synthesised evidence on the prevalence and links between CF (burnout, STS, VT) and general mental health outcomes in professionals working directly with offenders.

2. Materials and methods

2.1. Research question

What is the prevalence of CF (burnout, STS, and VT), and what are the associated mental health implications for professionals working directly with offenders?

2.2. Search strategy

Searches were conducted in MEDLINE (PubMed), APA PsycINFO, and Criminal Justice Abstracts with Full Text (EBSCOhost), and Web of Science Core Collection from inception to April 2025 (initial search: November 2024; update: April 2025). Additional searches (March – April 2025) included backward citation chasing of included studies and relevant reviews, and targeted manual searching of field-relevant journals over the last five years. The core Boolean search string combined three concept blocks: (i) offender-facing professional roles, (ii) CF-related constructs, and (iii) mental health outcomes.

2.3. Eligibility criteria

Inclusion criteria were: (i) peer-reviewed empirical studies addressing (ii) the mental health impact of working with offenders in terms of CF (burnout, STS, and VT) and traumatic, depressive, and anxious symptomatology, (iii) on professionals of any age, sex, or gender working directly with the offending population. No restrictions were placed on the type of offense or the offender's legal status. Whenever available, data on CF prevalence and related outcomes were complemented by additional information on associations with other variables or risk/protective factors. Although no temporal or geographical restrictions have been applied, the selected studies must be written (iv) in Portuguese, English, French, or Spanish. Exclusion criteria comprised: (i) non-empirical and review literature (including theses/dissertations and conference abstracts), (ii) instrument validation studies, (iii) exclusively qualitative studies, (iv) studies without validated/clearly specified quantitative outcomes or relevant results, (v) studies involving professionals with <6 months' experience, (vi) professionals not currently working with offenders, and (vii) roles with limited direct offender contact.

2.4. Study selection and data extraction

This review followed PRISMA guidelines (Page et al., 2021). Records were managed in Rayyan (Ouzzani, Hammady, Fedorowicz, & Elmagarmid, 2016). Two reviewers independently screened titles/abstracts and full texts; disagreements were resolved by discussion and third-reviewer adjudication. Searches yielded 3,497 records; after deduplication, 2,911 were screened; 41 full texts were assessed, and 16 studies met the criteria. Meta-analysis was not conducted due to heterogeneity; findings were synthesised narratively using a structured approach.

2.5. Quality assessment

Two reviewers independently assessed study quality using Crowe's Critical Appraisal Tool (Crowe, Sheppard, & Campbell, 2012; eight domains; 22 items; total 0–40). Scores ranged from 29 to 38 (median≈ 36), indicating moderate-to-high quality. Lower scores were most evident in Design and Ethical Matters, reflecting the predominance of cross-sectional self-report designs, small/convenience samples, limited longitudinal inference, and occasional incomplete ethics reporting or use of bespoke/partially validated exposure measures. Inter-rater reliability was almost perfect (Cohen's $\kappa = .939$, $p < .001$).

3. Results

3.1. Study characteristics

Sixteen studies (2001–2024) were included (InPACT Cost of Caring list available at: https://ismaipt-my.sharepoint.com/:f:/g/personal/a038399_umaia_pt/IgCi7AGlwRDPRbT429t8K3UYASiWIQbTOMOlgNBtCMawLSU). Most were conducted in the USA ($n = 8$) and UK ($n = 4$), with additional studies from Brazil ($n = 2$), Canada ($n = 1$), and Australia ($n = 1$). Evidence was dominated by cross-sectional surveys ($n = 10$). Because exposure profiles and organisational realities vary substantially across roles, findings were grouped by professional population: **healthcare professionals** ($n = 6$), **correctional officers** ($n = 5$), **probation/parole officers (including juvenile probation**; $n = 4$), and **counsellors** ($n = 1$). To aid interpretation, we distinguish offender-related exposures from organisational/contextual factors, as many studies examined both.

3.2. Healthcare professionals

A consistent pattern emerged of moderate-to-high burnout and VT, with STS typically moderate where assessed. Distress appeared to reflect the interaction between offender-facing exposure (e.g., complex/high-risk clinical material, workplace violence) and organisational constraints (e.g., insufficient breaks/resources, inconsistent supervision), while supervision and supportive leadership repeatedly appeared protective. Burnout elevations were most consistent for emotional exhaustion, with

more variable findings for depersonalisation and personal accomplishment. VT and trauma-related outcomes also indicated meaningful burden in subgroups. Workplace violence was associated with lower compassion satisfaction and higher burnout/STS risk. In one study, VT was frequently moderate-to-high and strongly related to PTSD symptom severity, with a substantial minority reporting "at-risk" PTSD symptoms.

3.3. Correctional officers

Evidence consistently pointed to high burnout and psychological distress, often with depressive symptoms, shaped by the interaction between offender-related exposure (e.g., violence, critical incidents) and organisational strain (e.g., operational stress, workload, limited support). Burnout prevalence was commonly elevated, particularly emotional exhaustion and depersonalization, with variability in personal accomplishment. Operational stress was strongly associated with burnout, and burnout was linked to absenteeism in one large sample. Burnout indicators were also associated with depressive symptom dimensions, and depressive symptoms were linked to work stress, job satisfaction, custody level, and mistreatment of inmates. Findings also suggested that organisational/social supports (e.g., supervision, managerial/collegial support, skills adequacy) may buffer burnout/CF and support compassion satisfaction.

3.4. Probation and parole (including juvenile probation officers)

Findings converged on a pattern in which depressive symptoms and emotional exhaustion clustered with caseload complexity (particularly supervisees with serious mental illness) and organisational role strain (work stress, overload, conflict, ambiguity). Organisational climate and role strain were also directly associated with depressive symptoms, supporting an organisational interpretation of burden. Among juvenile probation officers, around one-third endorsed high emotional exhaustion, but personal efficacy/personal accomplishment was comparatively preserved; burnout and related outcomes were associated with poorer job performance, lower job/client satisfaction, turnover intentions, and more mental health concerns, with job satisfaction emerging as a strong protective factor.

3.5. Counsellors

The single counsellor study found that high CF and burnout co-occurred with high compassion satisfaction. Importantly, community-based counsellors were less likely to seek supervisory support, which contributed to elevated CF. Qualitative findings suggested potential vulnerability factors (e.g., working intensively with women; personal/family histories of addiction).

4. Discussion

This review synthesised evidence on the prevalence and mental health implications of working directly with offenders, focusing on CF (burnout, STS, VT) and related outcomes. Across the 16 studies, findings consistently indicated moderate-to-high burden across professional groups, with clinically meaningful traumatic stress and depressive symptoms in substantial subgroups. Overall, results support a key interpretive conclusion: the cost of caring is most evident when offender-facing exposure is paired with organisational strain, role-specific demands, and limited opportunities for support or recovery.

4.1. Cross-group pattern: exposure and organisational containment operate jointly

Across professional groups, psychological burden tended to be most evident when high offender-facing exposure (e.g., distressing material, violence, high-risk incidents, complex mental health needs) co-occurred with organisational strain (workload pressure, limited resources, insufficient breaks, weak supervision, role conflict/ambiguity). This pattern was evident in custodial settings (burnout/depressive symptoms) and community supervision (serious mental illness caseloads + role stressors → depressive symptoms). Similar dynamics emerged in healthcare, where sustained exposure (including, in some contexts, workplace violence) was linked to burnout, STS, and VT, and was amplified by limited recovery time and inconsistent organisational support. Across studies, organisational constraints (e.g., inadequate training/support, staff conflict, resource limitations, and high-risk case demands) repeatedly shaped risk, aligning with broader evidence that secondary trauma and burnout intensify under weak support and limited recovery opportunities (e.g., Sonnentag & Kruel, 2020).

4.2. Role-specific pathways: why patterns diverge by profession

Although all groups appeared vulnerable, dominant pathways differ by role. In healthcare professionals, burden was closely linked to sustained empathic engagement with traumatic or morally challenging material, consistent with VT and STS prominence and with evidence that repeated indirect exposure to traumatic narratives can produce clinically meaningful trauma-related effects (Maguire & Byrne, 2017). PTSD symptoms in subgroups further suggest that direct workplace trauma and indirect exposure may co-occur. Some samples reported relatively low general distress yet meaningful trauma-related burden, implying that training, supervision, and opportunities to process work impact may

buffer overall distress but not fully protect against trauma-related symptoms when exposure is intense or recurrent (Sonnentag & Kruel, 2020). VT was also linked to PTSD symptom burden and may be amplified when personal trauma histories are reactivated (Guitar & Molinaro, 2017). Within burnout profiles, emotional exhaustion appears more consistently elevated, likely reflecting cumulative depletion under restricted recovery, whereas depersonalisation may partly function as defensive emotional distancing in high-risk work (Barros et al., 2020); personal accomplishment may remain preserved in some settings, indicating that meaning and efficacy can coexist with high strain (Sonnentag & Kruel, 2020). For correctional officers, distress appeared more strongly shaped by chronic operational stress, recurrent threat, and institutional strain; elevated emotional exhaustion and depersonalisation may reflect cumulative burden and a self-protective distancing style in safety-oriented environments (e.g., Reginal & Jannetta, 2021). Burnout was linked to absenteeism in one study, indicating potential workforce and institutional consequences (Riedy et al., 2020). Personal accomplishment showed variability, suggesting that purpose and distress may co-occur (Margi & Rosenbloom, 2022). Demographic correlates should be interpreted cautiously and contextually, given cross-sectional designs (Hybels, Blazer, Eagle, & Proeschold-Bell, 2022). In community supervision, burden appears organised around caseload complexity and role strain: supervising individuals with serious mental illness, work stress, and role conflict were repeatedly associated with depressive symptoms, potentially reflecting tensions between care/support and enforcement functions (Van Deinse, Crable, Dunn, Weis, & Cuddeback, 2021). Among juvenile probation officers, comparatively preserved personal efficacy despite elevated exhaustion/cynicism suggests that reduced well-being does not necessarily imply disengagement (Rhineberger-Dunn & Mack, 2020); however, burnout was associated with poorer performance, lower satisfaction, and turnover intentions. Evidence on counsellors was limited but suggested vulnerability when supervisory support is limited and when personal/familial identification with addiction may intensify empathic involvement (Park, 2020).

4.3. Protective and mitigating factors: strong convergence across groups

Across settings, protective factors converged on organisational containment: regular supervision, supportive managers/colleagues, opportunities to process work impact, and perceived skills adequacy were repeatedly associated with lower burnout/CF or lower trauma-related burden. In probation settings, job satisfaction was consistently protective, and organisational climate and work stress were linked to depressive symptoms. Overall, this convergence supports the view that resilience is often enabled by organisational containment – including recovery opportunities and supportive environments – rather than being primarily an individual trait (Sonnentag & Kruel, 2020).

4.4. Implications for practice and policy

Across professional groups, the evidence indicates that prevention must prioritise organisational responses, not only individual resilience. High emotional load and exposure frequently co-occurred with limited supervision, unclear roles, resource constraints, and insufficient recovery time, suggesting that structured supervision, psychologically safe debriefing, trauma-informed and emotion-focused training, and managerial support should be treated as core workforce infrastructure rather than optional "well-being" initiatives. A key implication is the need to shift from "reactive support" to routine, preventive systems, including minimum supervision standards, protected time for reflective practice and recovery, and clear pathways to confidential psychological support. In custodial and probation contexts, workload management (e.g., caseload caps/weighting), clearer role expectations, and protection from chronic overexposure to high-risk incidents or high-need supervisees appear central to reducing burnout, depressive symptoms, and turnover. For healthcare professionals, integrating trauma-informed supervision into clinical governance and leadership practices may buffer CF, STS, and VT. Overall, CF and related outcomes should be framed as occupational health risks requiring system-level standards and role-specific tailoring.

4.5. Limitations and future research

Most studies were cross-sectional and self-report, limiting causal inference; longitudinal research should test whether changes in supervision, workload, and role clarity precede changes in burnout, STS, VT, and depressive symptoms. Generalisability is constrained by small samples, Western concentration, and limited diversity reporting. Future work should include larger, more diverse samples, underrepresented offender-facing groups (notably psychologists), and tests of whether distinct exposure profiles predict different symptom trajectories. Finally, intervention research should evaluate structured programmes and organisational models (e.g., trauma-informed supervision, supportive work-culture strategies), building on emerging evidence for intervention effects and the protective role of organisational support (e.g., Halamová, Ondrejková, & Kováč, 2022).

5. Conclusion

Professionals working directly with offenders show substantial psychological burden, including moderate-to-high burnout, STS, and/or VT, and clinically meaningful traumatic stress and depressive symptoms in relevant subgroups. Findings support a structural interpretation: the cost of caring is most

evident when offender-facing exposure is paired with organisational strain and limited support, underscoring the need for organisational responsibility and preventive infrastructures.

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COMPASSION FATIGUE IN CHILD WELFARE SPECIALISTS: EFFECTS OF SELF-CARE, COGNITIVE RIGIDITY AND EMOTIONAL CLARITY

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Abstract

Child welfare specialists work in high-stress environments and psychologically demanding roles, which can lead to high attrition rates, burnout, decreased mental health, secondary trauma, or compassion fatigue. Some studies suggest that self-care may help mitigate these negative effects. However, research specifically focused on child welfare specialists is scarce, and findings regarding the role of self-care remain inconclusive. Additionally, scientific literature suggests that other cognitive and emotional factors may also be important when addressing compassion fatigue in this population. The aim of this study was to identify predictors of compassion fatigue among child welfare specialists in Lithuania. It was hypothesized that higher cognitive rigidity, lack of emotional clarity, and lower levels of personal and professional self-care would predict higher levels of compassion fatigue. Child welfare specialists completed this self-reported survey after participating in a brief competency training based on simulated questioning of child avatars. Compassion fatigue was measured using the Compassion Fatigue Inventory. Self-care was assessed using the Self-Care Practices Scale, which distinguishes between professional and personal self-care. Cognitive rigidity was measured using the Cognitive Rigidity subscale from the Detail and Flexibility Questionnaire, and emotional clarity was assessed using the Lack of Emotional Clarity subscale from the Difficulties in Emotion Regulation Scale. Multiple linear regression analysis was conducted to examine these relationships. Preliminary results from the first two waves (n = 107) of this ongoing study indicate that all three variables significantly predicted compassion fatigue. Higher cognitive rigidity and lack of emotional clarity were associated with increased compassion fatigue. Lower levels of professional self-care also predicted reduced compassion; however, personal self-care did not have any significant effect. These findings highlight the importance of cognitive and emotional factors in high-stress work environments that may be related to compassion fatigue. Furthermore, they underscore the complex role of self-care as a potential protective factor in maintaining healthier boundaries at work. The practical implications of these findings will be discussed in detail.

Keywords: *Compassion fatigue, self-care, cognitive rigidity, emotional clarity.*

1. Introduction

Child welfare specialists play a significant role in promoting the safety and well-being of children while handling cases related to child abuse or neglect (King, 2024). This occupation carries significant work-related stressors such as high workload and overtime (Edwards & Wildeman, 2018), psychologically sensitive working conditions due to daily exposure to trauma experienced by individuals, family violence, and abuse (Osofsky et al., 2008). On some occasions, these specialists can even encounter potentially dangerous situations for their own health and safety (King, 2024). Due to the nature of their work conditions, child welfare specialists are at a high risk of developing compassion fatigue (Osofsky et al., 2008), which can further negatively influence their professional and personal lives.

Compassion fatigue emerges as a cumulative effect of long-term exposure while working with survivors of potentially traumatic life events (Osofsky et al., 2008). It focuses on a unique type of work-related stress that is often observed among caretaking professionals and is sometimes referred to as a "cost of caring" (Geoffrion et al., 2016). Osofsky and colleagues (2008) indicate that experiencing compassion fatigue in child welfare specialists can result in a variety of symptoms such as increased anger, sadness, cynicism, fear or anxiety about one's family, pessimism about people, use of alcohol or drugs, and diminished self-care. Therefore, specialists who experience compassion fatigue may find it hard to keep up with job requirements or may even consider leaving child welfare due to their decreased mental health and well-being.

Self-care practices are considered a significant resource for promoting resilience and are found to be associated with higher compassion satisfaction (La Mott & Martin, 2019). Ludick and Figley's (2017) proposed Compassion Fatigue Resilience Model indicates that self-care is a crucial factor in promoting resilience, positive adjustment, and having the potential to neutralize the negative effects of exposure to trauma-experienced individuals. While discussing the concept of self-care, Bressi and Vaden (2017) emphasize the need to separate professional self-care from personal self-care. According to these authors, professional self-care is largely guided by professional role expectations, including relationships with coworkers and clients. Meanwhile, personal self-care is guided by a variety of other roles outside of work that are related to family, community, or other important aspects of life and promotes a holistic attitude toward taking care of one's health and well-being (Bressi & Vaden, 2017). Considering the research provided, it is expected that lower levels of self-care will be a significant predictor of compassion fatigue in the current study.

Cognitive rigidity has been associated with psychopathology due to a lack of ability to move from non-adaptive cognitive patterns toward more adaptive ones (Morris & Mansell, 2018). However, child welfare specialists encounter various situations that may require well-established adaptation skills when dealing with uncertainty and unpredictability on a daily basis (King, 2024). Thus, higher cognitive rigidity could complicate healthy adaptation to work-related situations in a high-stress environment. In this way, over a longer period of time, cognitive rigidity could also contribute to increased compassion fatigue and reduce the possibility of switching toward healthier patterns such as reaching out for help or applying self-care when needed. Therefore, a higher level of cognitive rigidity in the current study is expected to contribute in predicting compassion fatigue among child welfare specialists.

Emotional clarity, as an individual's ability to understand one's emotions (Gratz & Roemer, 2004), may also play an important role in predicting compassion fatigue. Considering the previously mentioned psychologically difficult work conditions of this profession, it can be expected that these specialists experience various and predominantly negative emotions such as anger, sadness, or disgust at work, especially when encountering child abuse or neglect (Segal et al., 2024). Thus, lack of emotional clarity not only does not help to process experienced emotions as part of emotional regulation but can also become an additional stressor contributing to the overall negative emotional state and development of compassion fatigue.

Even though compassion fatigue is widely studied in various contexts, researchers usually focus more on healthcare professionals, while child welfare specialists receive less attention. Additionally, the literature emphasizes the need to address emotional and cognitive components of compassion fatigue. However, research on specific aspects such as emotional clarity and cognitive rigidity is still quite scarce. Therefore, the main goal of this study is to gain a deeper understanding of how self-care, emotional clarity, and cognitive rigidity contribute in predicting compassion fatigue. Additionally, we also aim to evaluate the importance of different levels of overtime and work experience within this model.

2. Method

2.1. Procedure

Respondents arrived at the Applied Psychology Research Laboratory of Mykolas Romeris University to participate in child avatar–based competence training that was prepaid by their workplace - the State Child Rights Protection and Adoption Service. The first wave of training occurred during April and May of 2025, while the second wave of training continued after a few months in October. All respondents in the current survey participated in only one training session (either in spring or in autumn). Each training session was held in a separate room and lasted about 1.5–2 hours. During the training, each child welfare specialist was paired with a specially uptrained laboratory researcher who operated the child avatar program. Each question asked towards the child avatar was coded by a laboratory researcher based on the question type (e.g., open, closed) and entered into the avatar algorithm to select the responses.

Training material consisted of four different scenarios in which child welfare specialists needed to interview child avatars in order to determine whether the child avatar had experienced a sexual abuse event or a no-abuse event scenario. All avatars were girls aged 6 or 8 years. Each age category included one sexual abuse event and one no-abuse event scenario. More information about this child avatar training program used can be found in a previously published paper by Segal and colleagues (2024).

After the training, all participants received feedback on their question formulation skills from the laboratory researcher and were then left alone in the room to complete a short feedback survey about their emotional state during the training. After completing the feedback survey, participants were redirected to an informed consent form for the current survey. SPSS version 26 was used to analyze the collected data. A two-way multivariate analysis of variance (MANOVA) was used to investigate whether there were any differences between groups with different levels of overtime and work experience on compassion fatigue

and its predictors in this study. Finally, a hierarchical multiple regression model was applied to determine statistically significant predictors of compassion fatigue among child welfare specialists.

2.2. Participants

Out of 113 child welfare specialists from both waves who participated in competence training, 107 agreed to answer the questions for the current survey and were included in further data analysis. Almost all child welfare specialists (99.1%) were directly working with families and children on a daily basis. Most of the specialists had been working in the State Child Rights Protection and Adoption Service for less than a year (29%) or 1–2 years (28%), while less than half had more experience in this workplace: 2–5 years (12.1%) or more than 5 years (24.3%). The remaining 6.5% of specialists did not answer this question. Working overtime often or very often was common for almost half of the sample (43.9%).

2.3. Instruments

a) *Compassion fatigue (CF)* was measured using the Compassion Fatigue subscale from the Compassion Fatigue Inventory (Eng et al., 2021). The Compassion Fatigue subscale had 9 items that were evaluated by respondents on a 5-point Likert scale from Strongly disagree (1) to Strongly agree (5). Item examples include: "My will to help has declined" and "My work bores me more often than before."

b) *The Self-Care Practices Scale (SCPS)* was developed by Lee and colleagues (2020) and consists of two subscales—Personal self-care and Professional self-care. Each subscale has 9 items that respondents evaluate on a 5-point Likert scale from Never (1) to Very often (5). Examples include: "I participate in activities that I enjoy" (personal self-care) and "I take small breaks throughout the workday" (professional self-care).

c) *Cognitive rigidity (CR)* was measured using the Cognitive Rigidity subscale from the Detail and Flexibility Questionnaire (Roberts et al., 2011). The Cognitive Rigidity subscale had a total of 12 items, which participants evaluated on a 6-point Likert scale from Strongly disagree (1) to Strongly agree (6). These items measure the extent to which individuals agree with statements reflecting cognitive rigidity, such as "I like doing things in a particular order or routine" and "I get angry if other people do not do things my way."

d) *Emotional clarity (EC)* was assessed using the Lack of Emotional Clarity subscale from the Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004). The subscale consisted of 3 items, which participants evaluated on a 5-point Likert scale from Never (1) to Very often (5). Examples include: "I am confused about how I feel" and "I have difficulty making sense out of my feelings."

After receiving the necessary permissions from the authors, all instruments used in this study were translated from English to Lithuanian by three psychology researchers from the Applied Psychology Research Laboratory. The final Lithuanian version of each instrument was achieved through mutual discussion between the first two authors of this paper. The Cronbach's alpha for internal consistency of each instrument in the current study was considered sufficient for further data analysis: CF = 0.881, CR = 0.802, EC = 0.861, SCPS = 0.853. Subscales of SCPS showed slightly lower, but still acceptable, internal consistency: Personal self-care = 0.782 and Professional self-care = 0.767. This study was approved by the local Research Ethics Committee of Mykolas Romeris University.

3. Results

First, it was analyzed whether emotional clarity, cognitive rigidity, personal self-care, professional self-care, and compassion fatigue differed between groups with different levels of overtime and work experience in the State Child Rights Protection and Adoption Service. Due to the relatively small sample the overtime variable was merged into two groups: low overtime (specialists who worked overtime rarely or not at all) and high overtime (specialists who often or almost always had overtime). Work experience was coded into two groups: specialists with less than 2 years of work experience and specialists with more than 2 years. A two-way MANOVA was conducted to examine the effects of overtime (low vs. high), work experience (short vs. long), and their interaction on emotional clarity, rigidity, compassion fatigue, professional self-care, and personal self-care. All assumptions for the two-way MANOVA were assessed and met, including multivariate normality, linearity, homogeneity of variance–covariance matrices, independence of observations, absence of multicollinearity, and lack of significant outliers. The MANOVA revealed a significant multivariate effect trend only for overtime (Wilks' $\Lambda = .91$, $F(4, 93) = 2.42$, $p = .054$, partial $\eta^2 = .09$). The only variable showing a significant difference based on overtime levels was professional self-care, $F(1, 96) = 9.27$, $p = .003$, partial $\eta^2 = .09$, indicating that professional self-care differed between low and high overtime groups. Specialists with low overtime reported higher levels of professional self-care ($M = 3.82$, $SD = 0.49$) compared to specialists with high overtime ($M = 3.53$,

SD = 0.495). No significant differences were observed for work experience or for the interaction between overtime and work experience.

A hierarchical multiple regression with the backward method was used to examine which variables – emotional clarity, cognitive rigidity, professional self-care, and personal self-care – significantly predicted compassion fatigue among child welfare specialists. All assumptions for hierarchical multiple regression were assessed and met, including linearity, independence of errors, homoscedasticity, normality of residuals, absence of multicollinearity, and lack of influential outliers. In the first step, cognitive rigidity, emotional clarity, professional self-care, and personal self-care were entered simultaneously. The model was statistically significant, $F(4, 102) = 11.26$, $p < .001$, and explained 30.6% of the variance in compassion fatigue ($R^2 = .31$, adjusted $R^2 = .28$). In the second step, personal self-care was removed from the model. The model remained statistically significant, $F(3, 103) = 14.69$, $p < .001$, explaining 30.0% of the variance in compassion fatigue ($R^2 = .30$, adjusted $R^2 = .28$). Lack of emotional clarity ($\beta = .28$, $t = 3.08$, $p = .00$), cognitive rigidity ($\beta = .28$, $t = 3.10$, $p = .002$), and professional self-care ($\beta = -.27$, $t = -3.25$, $p = .002$) all remained as significant predictors of compassion fatigue.

4. Discussion

The results of this study support the existing literature on compassion fatigue and its contributing factors. The observed importance of self-care and emotional clarity aligns with the Compassion Fatigue Resilience Model (Ludick & Figley, 2017). In this model, the authors emphasize the role of emotional factors, including empathic ability, which helps for the specialists not only to understand another's position, emotions, needs, and pain, but also to provide the appropriate empathic response. Considering the results of the current study, empathic ability may be closely related to emotional clarity, helping child welfare specialists navigate emotionally charged work situations more effectively.

The findings regarding self-care overall support its important role in the mechanism of compassion fatigue (Ludick & Figley, 2017) and further validate research highlighting the differences between personal and professional self-care components (Lee et al., 2020). The results also point out the need to promote professional self-care and healthier boundaries at work to reduce the risk of developing compassion fatigue. However, for child welfare specialists who already have an intense workload and high levels of overtime (Edwards & Wildeman, 2018), practicing professional self-care can be like a double-edged sword: increased workload not only contributes to the cumulative effect of compassion fatigue but also leaves fewer opportunities to find time to take care of themselves. Therefore, it may be helpful to support specialists in establishing healthy boundaries at work and provide trainings focused on increasing emotional clarity and cognitive flexibility, thereby enhancing their ability to adapt and respond to daily work stressors.

The main limitations of this study include the relatively small sample and respondents' emotional state after the trainings. The current sample represented a significant proportion of child welfare specialists in Lithuania (from about 500 specialists directly working with children and families). However, this sample size is relatively small for statistical analysis and may affect the accuracy of observed effect sizes. Additionally, respondents' answers could have been influenced by their emotional state, which might have been affected by exposure to the training material (e.g., fatigue after the training or emotional reactions to the abuse event scenarios).

Future research could further explore factors contributing to the use of personal and professional self-care among child welfare specialists and its role in reducing compassion fatigue. It is also important to investigate personal and organizational barriers that prevent specialists from practicing self-care in high-stress work environments. Longitudinal studies could provide a deeper understanding of self-care and compassion fatigue over time and identify factors that support stronger organizational backing and healthier boundaries at work. Finally, interventions aimed at increasing emotional awareness and cognitive flexibility could be beneficial in reducing compassion fatigue among child welfare specialists.

5. Conclusion

This study highlights the importance of factors predicting compassion fatigue among child welfare specialists in Lithuania. Lack of emotional clarity, higher cognitive rigidity and lower professional self-care were found to be significant predictors of compassion fatigue. Additionally, among the variables examined, professional self-care was lower for child welfare specialists with high overtime compared to colleagues with low levels of overtime. However, personal self-care and the duration of work experience in child welfare field did not appear to play a meaningful role in explaining the calculated model of compassion fatigue.

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QUALITY IN EXPERT WITNESS REPORTS – PEER REVIEW AND COMPUTERIZED EVALUATION: A WAY FORWARD?

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Abstract

Under Austrian Criminal Law, courts are required to appoint expert witnesses whenever special knowledge is required to conduct investigations or to take evidence, and such expertise is not available within the court or judicial institutions. These experts must possess special expertise and be impartial, whereby the required expertise may derive from a variety of disciplines depending on the needs of the particular case. However, in proceedings concerning the placement of an individual in a forensic therapeutic institution, it primarily has to be a psychiatric expert, preferably one who is also registered in the field of psychiatric criminal prognosis or if a psychiatric expert is not available or cannot be appointed in due time, an expert in clinical psychology may be designated instead. If – in the court's opinion - the expert witness report is indeterminate, or the opinion, contradictory or otherwise flawed or the statements of two experts differ significantly, the court must appoint a further expert if the doubts cannot be removed by questioning. However, if the court needs an expert witness because it lacks the expertise in forensic psychology, how should the court have the expertise to assess the quality, validity and thus the evidential value of expert witness reports – let alone decide between the opinions of two or more disagreeing experts? For many years – especially due to the limited availability of qualified experts and high case numbers - there is an ongoing discussion about the quality of the expert witness reports in these cases and the standards they should meet. Although there is plenty of literature in this field it still seems to be unclear for legal and forensic professionals, which criteria should be met and how this should be evaluated in daily court practice. Kannegießer et al. (2021) seem to show us a way. While this study does not pertain directly to criminal law issues, it nonetheless offers points for discussion, especially given that the fundamental questions of quality standards and their evaluation by "non-experts" apply equally to all branches of law. They propose a peer-review procedure in family related matters. However, fewer expert witnesses are available than courts and other state authorities require, compounded by the additional issue of escalating costs that would come along with a peer-review procedure. A long-term cost-effective and less time-consuming alternative could be a computerized program. The challenges of the construction of such a program will be discussed in this paper.

Keywords: *Quality, expert witness reports, peer-review, computerized program.*

1. Introduction

In some countries like Austria there is a paradox situation considering the Code of Criminal Procedure (e.g., § 126 Austrian Code of Criminal Procedure) and expert witness reports. Judges and prosecutors are required to rely on expert witnesses, when the court lacks the special expertise which is needed e.g., to assess the mental health condition of the accused at the time of the crime and the risk of future criminal behavior. However, the subsequent legal text demands that if an expert witness report is indeterminate, contradictory or otherwise flawed or two expert witnesses do not agree in essential facts or conclusions drawn from the facts, and it is not possible to dispel the courts doubts after an oral interview within the main proceedings, one must fall back on another expert witness (§ 127 (3) Austrian Code of Criminal Procedure). Meaning, the court needs to evaluate the quality of the expert witness reports despite knowing that they do not have the expertise to do so. If they had, they would not need the expert witness in the first place.

Let us keep in mind, psychological and psychiatric experts already face the challenge that the questions they are asked to answer involve issues that are far more complex than purely scientific questions

or hypothesis testing. As Schoemig and Vogel (2025) note, these are questions that concern complex situations and circumstances, in which there can be a multitude of (unpredictable) interactions between the observable variables. Often, the question arises as to whether assumptions about causal relationships can be made in such a way that they are applicable to the individual case. Therefore, it is already very challenging for experts to evaluate the quality of expert reports, unless we are dealing with extreme cases of very low quality (see Kastner, 2019). How can it be expected of judges to accomplish this, although they are the ones who make the decision?

There are a multitude of areas in which experts provide reports for courts, ranging from family law issues to questions of culpability, recidivism, and much more. Each area has a different approach to assessment and the procedures that should theoretically be applied. For instance, in criminal recidivism prediction, standardized assessment tools can offer useful guidance, potentially even more than behavioral observation. In contrast, in family psychological evaluations, interaction observation between parents and children is a very important component. Each of these areas is dealing with questions of varying complexity. Here, an exemplary research question is presented for illustrative purposes.

A 28-year-old man, was convicted of extortionate kidnapping, aggravated extortion, and grievous bodily harm, and sentenced to five years of imprisonment. At the time of the offense, he was heavily intoxicated, which significantly impaired his ability to control his actions. He has an extensive criminal record, including convictions for drunk driving, property damage, fraud, theft, and resisting police officers, indicating a pattern of repeated misconduct. After three years of imprisonment a forensic psychological risk assessment was conducted to evaluate the likelihood of future offenses, their nature, frequency, and severity, as well as measures to mitigate the risk (Kobbé, 2021).

Different stages of proceedings, initial case situations, and specific questions at hand call for different approaches, and therefore the requirements placed on assessments can only provide a rough framework. A minimum threshold that does not yet reveal anything specific about the real quality of the assessment. But let us briefly examine the minimum requirements for assessments provided by the literature, which are still only partially implemented.

2. Minimum requirements of expert witness reports

The Diagnostic and Test Commission (DTK) of the Federation of German Psychologists' Associations published a list of quality standards and their detailed specifications in 2017, including the (1) specification of the questions and (2) derivation of psychological questions, (3) the planning and justification of information gathering using high-quality and appropriate psychological methods, (4) the justification and (pre-)determination of decision-making strategies to be applied during the assessment, (5) conducting the examination, (6) evaluation of the examination results, (7) transparent, detailed, and accurate presentation of the findings, taking into account the reliability and validity of the methods used, (8) derivation of conclusions from the findings and finally, (9) answering the psychological questions and addressing the questions posed by the commissioning party (Diagnostic and Test Commission, 2017, pp. 2-7).

Westhoff and Kluck (2014) provide guidelines for the evaluation of psychological assessments by non-experts. They guide readers to ask questions about each point that should be included or implemented in an assessment. Two examples of these fifty-one recommendations should give a small insight in the process.

Example 1: “Are the pieces of information weighted according to their significance for the question at hand?” Information can vary in its relevance depending on the quality of the source, its scope, or the way it was obtained. Therefore, the assessor weights the information based on its significance for answering the question (Westhoff & Kluck, 2014, p. 252).

Example 2: “Is the question being answered?” Clients commissioning a psychological assessment seek decision-making support in situations where, in their view, their own psychological expertise is insufficient. Therefore, the client's question must be addressed in the assessment. For example, in legal cases, this question is formulated in the "evidence order." Logically, the question can only be answered once all relevant information has been presented, weighted, and combined (Westhoff & Kluck, 2014, p. 252).

Moreover, a group of experts from the fields of law - including judges of the Federal Court of Justice - as well as experts in forensic psychiatry and forensic psychology, collaborated to develop minimum standards for expert reports addressing questions of culpability risk assessment reports. These minimum standards were designed to help experts produce high-quality reports tailored to the specific needs of criminal proceedings. They were explicitly intended to assist judges in evaluating the quality of these reports. These standards cover: (1) choice of assessment methods, (2) classification systems, (3) extent of psychological disorder, (4) traceability and transparency and (5) evidentiary basis of the report, including

social and biographical characteristics, with particular attention to the temporal consistency of psychopathological findings (Boetticher et al., 2007).

3. Peer-review opportunities

But how can we achieve an improvement in the quality of assessments? Even though there are still issues with the quality of expert reports, a very positive side effect of the discussion around quality criteria is that some authors report an improvement in quality (cf. Fegert et al., 2024).

Fundamentally, questions addressed by experts are often associated with serious consequences resulting from the decisions made by the clients (cf. Kannegießer et al., 2021). Therefore, we should not be satisfied with an improvement trend in only a few individual assessments. Hence, solutions should be found that can be implemented quickly. One proposal is a publicly funded, moderated peer review process for expert assessments (Banse, 2017). Based on this proposal, Kannegießer et al. conducted a pilot project on peer review processes to improve expert reports for family psychological assessments. Fifty-one reviewers of family psychological expert reports submitted their own reports via an online platform and, in exchange, reviewed two other reports based on a standardized evaluation scheme. The expert reports received predominantly positive evaluations (Kannegießer, Wegmann, & Ebner, 2020). As the authors point out, the pilot project aimed to provide peer-to-peer feedback on an equal footing, involving colleagues with comparable qualifications and professional experience. Expert witnesses were able to volunteer and decide which reports to upload. The most significant problem in this context is self-selection (cf. Hu, Pavlou & Zhang, 2017). It can be assumed that those who participated were experts who were already motivated to improve and to critically reflect on their own work. It is rather unlikely that negative cases, such as those described by Kastner (2019), would come forward for such projects.

Belke et al. (2025) focused in their peer-review project on the statement validity assessment. The same problems are also evident in the study. In this case, only 30 experts could be recruited, who provided 33 expert reports. The reports ranged from 18 to 136 pages in length, which illustrates how substantial the effort required from the participants is. Here too, the expert reports were consistently evaluated positively, with little variance in the responses. This may be attributable to the selection process discussed above. On the one hand, experts who carry out their work less conscientiously are unlikely to participate, and on the other hand, participants may selectively choose their own reports to submit (cf. Kannegießer et al., 2020).

Such projects represent initial approaches. As part of the study, the experts also received direct feedback to help improve their work, which in principle has potential. However, just as refinements in training require time to contribute to a general improvement in the quality of expert reports, smaller projects also have the disadvantage that it may take too long to bring about actual change. As mentioned at the outset, expert evaluations involve decisions with far-reaching consequences (e.g., a child unjustifiably not seeing a parent for a period of time; an (false negative) offender being released too early and becoming a recidivist; or a (false positive) person remaining unjustly in a forensic-therapeutic institution).

The questions governments must address are whether expert witnesses can be required to undergo at least occasional peer evaluation once they are already listed as certified experts, and whether such evaluations can be linked to consequences. An incident in Austria prompted a re-evaluation of weapons-psychological assessments. As a result, the Federal Ministry of the Interior (BMI) recently pre-published an amendment to the Ordinance of the Federal Minister of the Interior, which modifies the 1st and 2nd Weapons Act Implementation Ordinances. This amendment introduces measures to enhance the quality of clinical psychological expert reports, including the mandatory use of exploratory interviews and the use of at least three standardized assessment instruments reflecting the current state of scientific research. Experts will furthermore be required to complete comprehensive field-specific training covering (1) legal foundations, particularly in the field of weapons law, (2) discipline-specific clinical-psychological aspects, (3) framework conditions for the preparation of clinical-psychological expert reports, (4) in-depth exploration of the content through cases. A list of registered experts is then maintained by the BMI. Registration will be limited to five years, after which recertification for the next five years depends on the proof of continuing advanced training, as well as completed supervision (Ministry of the Interior, 2026).

This raises the question of whether - in the case of much more complex issues (e.g. recidivism risk assessment), where there is already a shortage of expert witnesses (cf. Kastner, 2019) - it is feasible to place even greater pressure on experts. Computer-based screening tools may offer a potential solution.

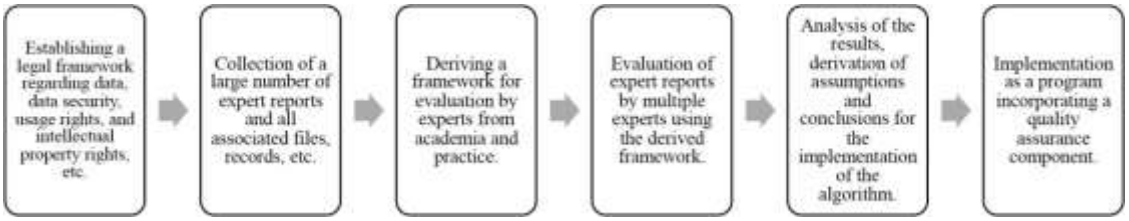
4. Technology-assisted review

One objective would be to develop computer programs that help assess the quality of expert reports. A program that could serve, on the one hand, as a tool for self-evaluation - similar to programs (e.g., TextGuard AI) that help students identify plagiarized passages in their work - and, on the other hand,

as a tool for legal professionals to evaluate expert reports. One possible approach would be the implementation of so-called technology-assisted reviews to determine the relevance of an expert report and the extent to which it serves as a decision-making aid.

To enable a computerized review of expert reports, numerous preliminary steps and a substantial investment of time are required (see concept in Figure 1). First of all, a large number of expert reports (including all relevant case files) would need to be made available and evaluated by experts based on various criteria. In addition, particularly in the context of risk assessment reports in criminal proceedings, it would be desirable to know whether the expert's assessment was accurate (while being aware of the false-positive dilemma) and to what extent the report was considered relevant. Legal frameworks regarding data protection are necessary to safeguard all mentioned or affected individuals. Once an overview of the data situation has been successfully established, experts from academia and practice should develop a framework for evaluating the expert reports (e.g., evaluation of the methods used, etc.). The next step is the training of experts who evaluate the reports (i.e., how to use this framework). Ideally, this framework would be applicable to the evaluation of all expert reports; however, as noted in the introduction, reports prepared for courts are consistently complex. Therefore, an attempt is made to address this problem by having a smaller number of expert reports evaluated in a preliminary study. Once the evaluations are completed, the data analysis focuses on deriving assumptions and conclusions that can later be implemented as a program. Due to the sensitivity of the data and the research questions, the computer program should be largely independent of conventional programs that utilize large language models (e.g. GPT Series). An important aspect is also ensuring quality through a quality assurance component, fundamentally comparable to those used in automatic item generation (Arendasy, 2004). In the case of assessments, it is crucial that the methods used are applicable to individual cases. This means that one cannot simply assume that what was valid for person X must also necessarily apply to person Y, as we are dealing with a multitude of variables. The question is: Can I ensure that a computer program is capable of evaluating not only the nomothetic assessment but also the necessarily idiographic one?

Figure 1. Process flow for the development of a support tool for quality assurance and improvement of assessments.



Furthermore, some fundamental problems arise e.g. like how can I make the quality of expert reports measurable, given that it is not a physical quantity in the actual sense (Schoemig & Vogel, 2025). Bias may be incorporated into automated assessment programs because they are developed by expert clinical judges who themselves may hold biases and may inadvertently embed these biases into the systems they design (Lichtenberger, 2006).

5. Conclusion

Fortunately, there is a broad discourse on the quality of assessments, which, as mentioned earlier, has led to various projects and improvements in the quality of expert reports (cf. Fegert et al., 2024). This is particularly important as the decisions made based on assessments are associated with serious consequences. As outlined above, the implementation of computerized support programs for experts and legal professionals is not straightforward and requires time.

Therefore, an important issue is the education and professional training of forensic psychology experts, alongside training opportunities and guidelines for legal professionals in assessing the quality of forensic psychological reports (cf. Tadei et al., 2016). Projects that enable peer-review for expert witness reports should continue to be promoted, as all involved stakeholders can benefit from the learning process. We should pursue the learning and interdisciplinary exchange, regardless of how quickly the implementation of this computer-assisted aid can be achieved.

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QUEERING JUSTICE: A STUDY OF THE LIVED EXPERIENCES OF LGBTIQ+ OFFENDERS IN MALTA

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Abstract

This study explored the lived experiences of LGBTIQ+ individuals who had contact with the Maltese criminal justice system, focusing on how sexual orientation and gender identity intersect to shape encounters with justice institutions. Using Interpretative Phenomenological Analysis (IPA), semi-structured interviews were conducted with five LGBTIQ+ offenders aged 18-54, representing diverse gender identities (cisgender and transgender) and sexual orientations (lesbian, bisexual and heterosexual). Participants had engaged with various institutions across the criminal justice pathway, including police, criminal courts, probation services, prison, and drug rehabilitation services. Analysis identified themes of marginalisation, resistance, identity negotiation, and professional engagement. Participants described navigating justice systems as perceived 'others,' encountering stigma, discrimination and hyper-visibility linked to their identities. While some professional interactions provided affirmation and support, others reflected experiences of systemic betrayal and practices that failed to recognise or accommodate their identities. Despite these challenges, participants' accounts reflected resilience, agency and acts of resistance aimed at preserving dignity and maintaining identity coherence within constrained environments. Overall, the findings suggest that identity-based marginalisation and broader structural inequalities continue to shape LGBTIQ+ individuals' experiences within the Maltese criminal justice system. This study underscores the need for intersectional and identity-affirming reforms, emphasising the importance of moving beyond tokenistic inclusion towards more equitable justice practices.

Keywords: *LGBTIQ+, offenders, Interpretative Phenomenological Analysis (IPA), lived experiences, Maltese criminal justice system.*

1. Introduction

Criminal justice systems are often framed as neutral arenas of fairness and equality aimed at safeguarding society. Yet, they do not operate entirely in isolation and could reflect societal norms and institutional practices that may marginalise those outside dominant social frameworks. International research demonstrates that LGBTIQ+ people face disproportionate discrimination and barriers across justice institutions, reflecting broader socio-cultural inequalities (Ball & Fradella, 2024; Vogler, 2025, Zhang, 2021).

However, existing studies often frame LGBTIQ+ communities as victims of discrimination, with limited attention given to those navigating criminal justice processes as offenders (Ball, 2016; Buist & Lenning, 2022). Accordingly, the term "LGBTIQ+ communities" is used to denote shared identities related to Sexual Orientation, Gender Identity, Gender Expression and Sex Characteristics (SOGIESC) without implying homogeneity. This reflects contemporary understandings of sexual minorities as diverse and networked, shaped by evolving socio-political contexts (Russell, Bishop & Fish, 2023).

While Malta has made significant strides in advancing legal protections for LGBTIQ+ populations, including anti-discrimination and gender recognition laws, LGBTIQ+ offenders remain underrespresented in research and policy. This may limit the understanding of how legislation translates into lived institutional encounters and whether justice systems accommodate diverse SOGIESC effectively. By positioning individual accounts within socio-cultural and institutional contexts, this research explored how practices might be reformed to promote fairness, inclusion, and identity-affirming approaches.

2. Literature review

Criminological research has empirically demonstrated that sexual and gender minorities are disproportionately exposed to social control mechanisms, shaped by historically entrenched

cis-heteronormative assumptions (Peterson & Panfil, 2014; Woods, 2017). Early criminological and psychiatric discourses often pathologised non-heterosexual identities, framing them as deviant, criminal, immoral or mentally disordered. Although formal legal reforms have challenged these classifications, their legacy continues to influence contemporary institutional assumptions about gender and sexuality (Knight & Wilson, 2016).

2.1. Societal and systemic challenges of LGBTIQ+ identities

LGBTIQ+ individuals face disproportionate levels of stigma, social exclusion and material disadvantage, contributing to increased vulnerability to justice system contact, particularly through criminalised survival strategies. (Vogler, 2025; Woods, 2017; Zhang, 2021). In close-knit societies, like Malta, these dynamics may be intensified by cultural shaming, moral surveillance and social policing rooted in traditional Christian values and strong interpersonal interconnectedness, positioning LGBTIQ+ offenders as both criminal and immoral (Clark, 2012).

Consequently, within criminal justice institutions, research indicates persistent limitations to recognise or accommodate diverse SOGIESC, including misgendering, using exclusionary risk assessments, and offering unsafe custodial placements. Transgender and gender-diverse individuals are particularly affected, reporting limited access to gender-affirming healthcare and heightened exposure to harassment and abuse. Such practices may reinforce stigma and obstruct rehabilitation, especially where LGBTIQ+ offenders are treated as a homogenous group rather than through an intersectional lens accounting for differentiated needs and experiences (Knight & Wilson, 2016; Russell et al., 2023).

2.2. Queer and critical criminological perspectives

Queer Theory and Critical Criminology challenge assumptions of legal neutrality by examining how criminal justice systems reproduce cis-heteronormative norms through binary classifications, institutional practices, and disciplinary power (Ball, 2016; Buist & Lenning, 2022). Intersectional approaches further demonstrate how sexuality and gender interact with race, class, and other social positions, potentially producing experiences of marginalisation (Paik, 2017). Minority Stress Theory further explains how sustained exposure to stigma and discrimination generates cumulative stress, shaping LGBTIQ+ individuals' vulnerability and engagement with justice institutions, and in turn increased exposure to recidivism (Moorhead, Lewis & Arnull, 2024).

2.3. Policy and legislative implications

Evidence indicates that formal legal protections alone are insufficient to ensure equitable treatment of LGBTIQ+ offenders where institutional cultures and professional practices remain shaped by cis-heteronormative assumptions (Woods, 2017). Without effective implementation and monitoring, reforms risk remaining symbolic. Comparative research demonstrates how cultural and political contexts shape justice responses to LGBTIQ+ rights, including jurisdictions where homosexuality remains criminalised (Redburn, 2022). Although Malta is widely recognised as a leader in LGBTIQ+ rights, reported rates of identity-based violence and discriminatory attitudes indicate a gap between formal protections and lived experiences (European Union Agency for Fundamental Rights, 2024).

3. Methods

This study adopted a qualitative design using Interpretative Phenomenological Analysis (IPA) to explore how LGBTIQ+ offenders navigate their experiences within the Maltese criminal justice system. The study was guided by the research question: "How do LGBTIQ+ offenders experience the criminal justice system, and in what ways, if any, do intersectional identities influence these experiences?" For the purposes of this study, sexual orientation is defined through participants' self-identification as heterosexual, lesbian, gay, bisexual, pansexual and other sexual orientations, while gender is reflected through self-identification as male, female, transgender or non-binary. However, it is important to note that these categories do not capture the full complexity and diversity of sexual orientation and gender identity.

3.1. Participants

Participants were recruited using purposive sampling and comprised five individuals who self-identified as LGBTIQ+ and had current or prior contact with the Maltese criminal justice system; demographics of the sample indicated in Table 1.

Consistent with IPA's idiographic focus, a small, information-rich sample was sought to facilitate in-depth, case-by-case analysis (Smith, Flowers, & Larkin, 2021). Recruitment was conducted through gatekeepers from organisations working with offenders, including rehabilitation services, NGOs, LGBTIQ+ advocacy groups, and social media platforms. Gatekeepers disseminated study information and screened potential participants against predefined inclusion criteria, including participants' age (18 years or older), capacity to provide informed consent, prior or current contact with the Maltese criminal justice system, and self-identification as LGBTIQ+, after which interested individuals contacted the researcher independently. This approach ensured voluntary participation and ethical access to a small and marginalised population while safeguarding confidentiality and autonomy.

Table 1. Demographic Characteristics of participants.

Participant	Gender Identity	Sexual Orientation	Age	Services
P1	Transgender Female	Heterosexual	54	Criminal court, Police, Prison, Probation services
P2	Cisgender Female	Lesbian	21	Criminal court, Police, Probation services
P3	Cisgender Female	Lesbian	18	Criminal court, Police, Probation services
P4	Transgender Female	Heterosexual	50	Criminal Court, Police, Prison, Probation services, Drug rehabilitation services
P5	Cisgender Male	Bisexual	37	Criminal Court, Police, Probation services

3.2. Data collection

Data were collected through in-depth semi-structured interviews, allowing participants to describe their experiences in their own terms while aligning with the study aims. Interviews were conducted face-to-face in private, neutral locations, lasting between 45 and 60 minutes, which followed an identity-affirming approach that respected participants' preferred names and pronouns. All interviews were audio-recorded with consent and transcribed verbatim. An interview guide, informed by relevant literature and IPA principles, gathered demographic information and used broad prompts on justice system experiences before exploring institutional interactions and perceived support or exclusion. Interviews were conducted in English or Maltese according to participant preference. Participants also received verbal and written briefings on the study's information, with information and consent forms provided in Maltese or English in either abbreviated or detailed formats to enhance literacy accessibility.

3.3. Data analysis

Data analysis followed Smith, Flowers, and Larkin's (2021) six-stage IPA framework. IPA was selected for its idiographic and interpretative focus, enabling an in-depth examination of lived experience and meaning-making at the intersection of SOGIESC and justice system engagement. Each transcript was analysed individually through repeated readings, detailed initial noting, and the development of emergent experiential statements. These were clustered into Personal Experiential Themes (PETs) for each participant before undertaking a cross-case analysis to identify shared and divergent Group Experiential Themes (GETs).

3.4. Ethical considerations

Given the sensitivity of the research, strict ethical safeguards were implemented, including pseudonymisation, secure GDPR-compliant data storage, and ongoing reflexive bracketing to minimise researcher bias, manage role conflicts, and ensure participants' stories remained central to the study.

4. Findings

Analysis generated four interrelated GETs describing how LGBTIQ+ offenders experienced and interpreted engagement with Maltese criminal justice institutions, indicated in Table 2.

Table 2. Presentation of Group Experiential Themes (GETs) and Subthemes.

Master List of Group Experiential Themes	
Group Experiential Theme	**Subthemes**
Navigating Systems of Justice as 'The Other'	Courtroom Visibility and Vulnerability Institutionalised Discrimination in Prison Homophobic and Transphobic Policing
Professionalism and Pockets of Inclusion	Positive Relationships with Professionals Call for Affirming and Inclusive Support Services
Enduring Societal Judgment and Stigma	Social and Online Harassment Being 'Too Visible' in Society
Resilience, Identity and Systemic Growth	Owning Queer Identity in Hostile Contexts Resistance and Advocacy

4.1. Navigating systems of justice as 'the other'

Participants described criminal justice institutions as alienating spaces in which LGBTIQ+ identities became hyper-visible and subject to scrutiny, particularly for transgender individuals in courts and custodial settings. One participant recalls a derogatory comment made by a Maltese police offer; "they call me a dog, they call me ruthless but they don't ever call me a faggot!" It is important to note that the terminology used in Maltese carries significantly stronger and more disparaging connotations. One participant's declaration "I don't have faith in justice! Nothing!" reveals a profound sense of institutional mistrust. Such experiences illustrate how institutional practices and systemic attitudes may reproduce marginalisation despite equality frameworks (Ball, 2016; Ball & Fradella, 2024).

4.2. Professionalism and pockets of inclusion

Participants also described isolated yet significant moments of affirmation, typically linked to individual professionals rather than systemic practices. One participant described a supportive relationship with a professional stating how "she used to take care of me a lot, even till today. She calls and checks in. I always respected that woman. I will keep thanking her to my death!" Respectful communication, recognition of LGBTIQ+ identity, and access to appropriate support were experienced as fostering trust and belonging within otherwise alienating systems, reflecting "recognition as a form of justice" (Fraser, 2000), supporting restorative justice and reducing recidivism. However, these encounters were framed as exceptions, highlighting the fragility of systemic inclusion. This underscores the limits of inclusion and the need for structurally embedded, identity-affirming practices (Moorhead et al., 2024; Redburn, 2022). One further asserted that "professionals should treat us the same like they treat others. We're not animals! We're not pigs just because we're lesbians! It makes me angry, the thought of it."

4.3. Enduring societal judgment and stigma

Participants reported societal stigma beyond justice settings, including familial rejection, cultural shaming, and online harassment. Despite Malta's legal framework, participants perceived a persistent gap between legislative protection and social acceptance (Clark, 2012). One participant reflected: "The problem is not the law… but changing people's mentality; it is something totally different." Others noted how community attitudes produced constant scrutiny: "I see the way people look at me. They look at you differently," and "We are in 2025… but in mentality, we are 100 years behind. People still call me 'faggot'". This surveillance contributed to feelings of vulnerability and social exclusion, reinforcing the notion that justice involvement for LGBTIQ+ offenders may extend beyond legal sanctions into everyday life (Ball & Fradella, 2024; Zhang, 2021).

4.4. Resilience, identity and systemic growth

Despite systemic constraints, participants articulated resilience through identity affirmation, resistance, and self-advocacy. One participant reflected: "At the end of the day, we are all human… it doesn't make a difference." Acts of asserting identity, challenging misrecognition, and supporting others were framed as means of preserving dignity within hostile environments with one stating "I'm still like this, you cannot change me. Even if you threaten me, even if you threaten to put me in prison, even if you beat me, torture me. I'm not going to change. I'm a lesbian and I'm proud!". These accounts highlight how participants transform marginalisation into agency, fostering personal resilience and contributing to broader social and systemic awareness (Buist & Lenning, 2022). Participants also called for social acceptance asking for people to "stop judging. Live your life how you want and let others live how they want…

Everyone is human so there are no rules to be a certain way. We have always existed and we will continue to exist forever!"

4.5. Cross-theme synthesis

Visibility functioned as a central tension, simultaneously exposing participants to harm while also enabling empowerment. While justice institutions frequently rendered LGBTIQ+ identities hyper-visible in marginalising ways, participants also reclaimed visibility as a source of agency. However, these narratives are context-bound and idiosyncratic, and caution is needed in attributing justice system experiences solely to SOGIESC without broader institutional or comparative data.

5. Conclusion

Despite Malta's progressive legal framework, LGBTIQ+ offenders' experiences remain shaped by institutional practices and societal attitudes that perpetuate marginalisation. Findings underscore the need for intersectional, trauma-informed, and identity-affirming justice practices, including; ongoing training for justice professionals and access to specialised support services for LGBTIQ+ offenders.

Limitations include a small, context-specific sample which relied on self-reported data, and underrepresentation of certain LGBTIQ+ identities, which may restrict the generalisability of findings. Future research should include more diverse LGBTIQ+ populations, explore long-term outcomes, and examine institutional practices across different cultural and legal contexts. Overall, the study contributes to queer criminology by foregrounding LGBTIQ+ experiences, emphasising the importance of centring lived experiences in efforts to create more inclusive and transformative justice processes.

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A HYBRID MODEL OF EXECUTIVE FUNCTIONS, MATHEMATICAL ABILITIES AND TIME PROCESSING SKILLS

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Abstract

Time processing (TP) skills are fundamental functions in human beings, supporting different activities in daily life. These time-related abilities can facilitate both time monitoring and the sense of time, including time management and time orientation (Buzi, Eustache, Droit-Volet, Desaunay, & Hinault, 2024). An impairment in TP skills can affect the functioning of various life contexts, ranging from structured settings (e.g., school and work) to less structured ones (e.g., relationships, family, sports). According to the literature, deficits in TP skills are mainly observed in children with neurodevelopmental disorders, including attention deficit hyperactivity disorder (ADHD) and developmental dyscalculia (Moll, Göbel, Gooch, Landerl, & Snowling, 2016). This study aims to analyse the relationships between four latent constructs: executive functions (EF), mathematical abilities, time monitoring and sense of time (SoT). A total of 768 children (5-13 years, mean age: 8.61 ± 1.5 years; 50.8 % female) completed ad-hoc computerized time monitoring tasks, self and proxy-report questionnaires about the SoT, EF tests (e.g., auditory attention, auditory inhibition and working memory, and visual attention) and mathematical tests (e.g., mental calculations, numerical reasoning, numerical search and numerical line). A test was also administered to assess non-verbal reasoning. All assessments were conducted during school hours in group and individual sessions lasting 45 minutes. The proposed hybrid model, which combines confirmatory factor analysis (CFA) with pathway analysis, shows good fit indices (RMSEA = 0.05; CFI = 0.920; TLI = 0.896; SRMR = 0.06; Hu & Bentler, 1999). Using age and non-verbal reasoning as control variables, EF significantly predict time monitoring, and mathematical abilities significantly predict SoT. Age significantly predicts only SoT. The results suggest a significant connection between EF and mathematical abilities and time processing abilities. The implications of the results of this model are discussed from a dimensional point of view, considering how the potential presence of time-processing impairment in clinical populations, such as children with ADHD and Developmental Dyscalculia (e.g., Skagerlund & Träff, 2014). In future, it would be interesting to test the model for multiple groups by comparing typically developing populations with atypically developing populations.

Keywords: *Time processing skills, ADHD, developmental dyscalculia, executive functions, mathematical abilities.*

1. Introduction

Time processing (TP) is a multifaceted construct that involves fundamental skills supporting daily life activities. The literature has primarily focused on basic TP abilities related to the monitoring of time: estimating time intervals, reproducing time durations, and discriminating between different time intervals (Buzi et al., 2024). Such temporal abilities are typically assessed through ad-hoc computerized tasks that present stimuli in auditory and/or visual modalities (Zheng, Wang, Chiu, & Shum, 2022).

Basic time monitoring skills provide the foundation for more complex abilities included in the construct of sense of time (SoT), such as time management and orientation (Buzi et al., 2024). The ability to navigate into a typical day or week, plan activities, and meet deadlines is central to the development of an efficient SoT. Therefore, TP skills are essential for functioning in a wide range of everyday contexts. Impairments in TP may negatively affect functioning in both structured contexts, such as school and work, and less structured settings, including peer relationships and sports.

Deficits in time processing have been consistently identified in children with neurodevelopmental disorders, such as attention-deficit/hyperactivity disorder (ADHD) and specific learning disorder (SLD), especially developmental dyscalculia (DD; Moll et al., 2016; Skagerlund, Karlsson, & Träff, 2016).

According to literature, the core feature of ADHD appears to be deficits in cognitive processes, particularly executive functions (EF). TP skills are stronger in individuals with robust working memory, attention, and EFs (Ogden, Samuels, Simmons, Wearden, & Montgomery, 2018). Furthermore, TP deficits have been suggested as a potential endophenotype of ADHD (Hwang-Gu & Gau, 2015) with lower accuracy in time-related tasks (Walg Hapfelmeier, El-Wahsch, Prior, & Mecklinger, 2017).

Children with DD show difficulties in acquiring number facts and basic numerical skills (Geary, Hoard, Byrd-Craven, Nugent, & Numtee, 2007). Within this framework, the Theory of Magnitude (ATOM; Walsh, 2003) states that time, number, and space perception rely on a shared magnitude-processing system. According to this framework, individuals with DD show difficulties not only in numerical processing, but also in TP. Chronometric counting helps estimate durations and is tied to TP, but it may be difficult for individuals with DD because of their impaired counting abilities (Hurks & van Loosbroek, 2014).

This study aims to analyse the relationships between EF, mathematical abilities, and time monitoring/SoT measured with a new battery under validation in Italy.

1.1. Objectives

This study explores the relationships between EFs, mathematical abilities, time monitoring, and SoT in a school-aged community sample from a dimensional perspective. A hybrid model combining confirmatory factor analysis (CFA) and pathway analysis (Goldberger & Duncan, 1973) is used to examine latent constructs while controlling for age and non-verbal reasoning. This framework allows testing of theoretically grounded hypotheses and may support early identification of risk profiles and the development of targeted educational interventions.

2. Methods

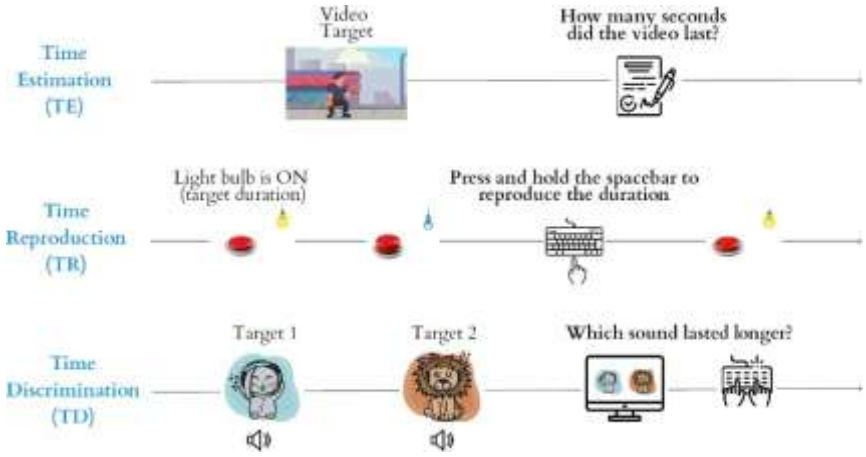
This cross-sectional study was conducted in primary and lower secondary schools in Italy. A total of 768 children (aged 5–13 years; $M = 8.61$, $SD = 1.5$; 50.8% female) were assessed between May 2024 and June 2025 during school hours, in group and individual sessions lasting approximately 45 minutes. Their parents and teachers also completed proxy-report questionnaires on the sense of time.

The tests for the assessment of TP skills are composed of ad-hoc computerized tasks and self- and proxy-report questionnaires regarding SoT. The computerized tasks are three: Time Estimation task, Time Reproduction task, and Time Discrimination task. The Time Estimation task (TE; based on Stojić, Topić, & Nadasdy, 2023) consists of two AI-generated videos, each lasting 30s. They are presented on a PC, accompanied by fast-paced music in one case and by more relaxed music in the other. Participants are asked to estimate the number of seconds corresponding to the duration of the videos presented. and the mean absolute deviation of the participant's response from the target duration is calculated. The Time Reproduction task (TR; based on Moll et al., 2016) was developed with the PsychoPy software (2023.2.3; Peirce et al., 2019). In each of the 12 trials, the target stimulus was a light bulb that turns on for a variable duration ranging from 2 to 12s. When the light bulb turns off, the participants were required to "turn it on" again for the same amount of time by holding down the spacebar on the PC. The score is calculated as the mean absolute deviation of the participant's response from the target duration. The Time Discrimination task (TD; Tobia, Rinaldi, & Marzocchi, 2018) consists of 36 trials, each includeing two visual and auditory stimuli of different durations. Each stimulus is presented as an animal hearing a sound lasting between 0.3 s and 7.5s, with increasing difficulty ratios. After both stimuli are presented, the participant must indicate which of the two animals heard the longer sound by pressing one of two keys on the computer keyboard. The score is calculated as the average of the last six reversals, referred to as the Ratio. Figure 1 summarizes the structure of the 3 ad-hoc computer tasks.

The self-report questionnaire on the SoT (STQ_Child; based on Porcelli et al., 2018) consists of 16 closed- and open-ended items that assess both time orientation and time management aspects. The proxy-report questionnaires for parents (STQ_Parent) and teachers (STQ_Teacher; Tobia et al., 2018) each consist of 10 items each, rated on a Likert scale ranging from 1 (never or rarely) to 4 (very often). The total score is obtained by summing the items responses.

EFs were assessed using standardized Italian subtests: selective auditory attention, working memory, and inhibitory control (Bisiacchi, Cendron, Gugliotta, Tressoldi, & Vio, 2005), as well as a visual attention (Marzocchi, Re & Cornoldi, 2021). Mathematical abilities were assessed using standardized Italian tests: mental calculations, numerical search, and numerical line (Biancardi, Nicoletti, & Bachmann, 2016), and numerical reasoning (Cornoldi, Mammarella, & Caviola, 2020). Non-verbal reasoning was also assessed (Kaufman & Kaufman, 2004).

Figure 1. Ad-hoc computerized tasks.



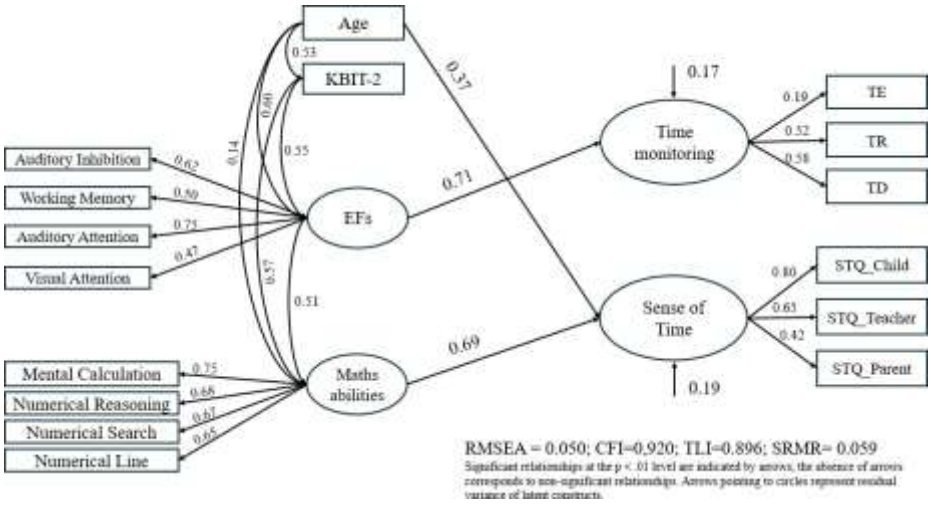
3. Analysis

Descriptive statistics were run using IBM SPSS Statistics (Version 29.02.0; IBM Corp., 2023). Based on the existing literature, a hybrid model was tested in MPlus (Version 6.11, Muthén & Muthén, 1998–2011) including four latent constructs: EFs, maths abilities, time monitoring and SoT. Age and non-verbal reasoning variables were included as predictors and possible covariates. We verified whether the variables grouped together consistently with respect to these four factors and observed the relationships between them. The model was estimated using the Maximum Likelihood (ML) method. To improve the model fit indices, the correlations recommended by the modification indices were fixed, according to theoretical background.

4. Results

The proposed hybrid model, which combines confirmatory factor analysis (CFA) with pathway analysis, shows good fit indices (Hu & Bentler, 1999). Using age and non-verbal reasoning as control variables, EFs significantly predict time monitoring, and maths abilities significantly predict SoT. Age significantly predicts only SoT. The results suggest a significant connection between EFs and maths abilities with TP skills (Figure 2).

Figure 2. Hybrid Model.



5. Discussion

The hybrid model presented showed good model fit indices, with fit indices within the ranges commonly accepted in the literature (Hu & Bentler, 1999). The latent variables of time monitoring and sense of time loaded significantly on their respective indicators, confirming the consistency of the theoretical grouping a posteriori. Similarly, the EFs and Math abilities tests showed adequate saturations on the corresponding factors. For both EFs and mathematical abilities, the indicators converge on the factor with non-identical loadings, highlighting the unity and diversity of the latent variables (Miyake & Friedman, 2012). EFs significantly predict the accuracy of time monitoring tasks. According to the literature, time monitoring is associated with EFs including working memory updating and inhibition (Ogden, Mackenzie-Phelan, Mongtomery, Fisk, & Wearden, 2019). Mathematical abilities significantly predict SoT. According to the literature, mathematical difficulties include deficits in counting processes (Butterworth, Varma, & Laurillard, 2011; Kaufman, 2008), which may be reflected in distortions in the perception, processing, and management of time (Cappelletti, Freeman, & Butterworth, 2011). The fixed correlations among age, non-verbal reasoning, executive functions, and math abilities are consistent with the literature (Arán Filippetti & Richaud, 2017).

Age shows a significant association with SoT. This result is consistent with the literature, which highlights how temporal sensitivity develops gradually with age, beginning to reach levels similar to those of adults as early as around 8 or 9 years of age (Droit-Volet, 2016). The absence of correlation between the two latent factors of time monitoring and SoT indicates that the two domains, although related in terms of temporal content, are conceptually distinct. SoT refers to a subjective and applicative dimension in which events are placed within an organised temporal framework, i.e. a more articulated representation that goes beyond the simple perception of durations (McCormack & Hoerl, 2017). Furthermore, several pieces of evidence indicate that explicit awareness of the passage of time can vary independently of the basic mechanisms of TP ability; the subjective experience of time is more influenced by cognitive, emotional and metacognitive factors that do not necessarily alter the ability to process the duration of time intervals (Droit-Volet, 2013). Overall, the model explains 83% of the variance in time monitoring and 81% of the variance in SoT, supporting the hypothesis of an association between EFs, math abilities and TP.

The dimensional approach used in this study enables us to consider what happens in clinical populations, including those with ADHD and developmental dyscalculia. In future, it would be interesting to test the model on multiple groups by comparing populations that develop typically with those with ADHD and developmental dyscalculia. Such studies could lay the groundwork for clinicians to assess and intervene in TP skills in children with neurodevelopmental disorders.

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HOW IS "MEANING MAKING" DEFINED IN PUBLICATIONS LISTED IN THE PSYCINFO DATABASE (APA PSYCNET) BETWEEN 1991 AND 2025?*

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Abstract

Analysis of the 65 entries in the PsycINFO database (APA PsycNet) provided some descriptions of the meaning-making process and the identification of some of its components that can support future research, but which also raise questions that could guide such research.

Keywords: *Meaning-making processes, meaning-making components, mental operations, museums.*

1. Introduction

Silverman (1995) considers the introduction of the concept of meaning-making in the museum field to be a paradigm shift. One is tempted to agree with him, as this introduction means that museum visitors cease to be mere receivers and memorizers of information. As they move through exhibition halls, they are transformed into producers, or if one prefers, creators of meaning.

Furthermore, since 1995, the number of publications associating meaning-making and museums has literally exploded (Hutchinson and Eardly, 2020; Taylor, 2006). Indeed, the general databases Google Scholar and Eric, consulted in September 2025, show 1,500,000 and 413,274 entries respectively! However, a quick analysis of the first 25 pages of both databases reveals that, in more than three-quarters of cases, meaning-making is used as a buzzword whose meaning is vague, fluid, or, at best, equivalent to learning, cognitive functioning, or even expression of emotions. So, seeking to define what meaning-making truly means for the museum world cannot be considered an act of pedantry or a way to alleviate boredom; it is, in fact, a worthwhile endeavor.

I hoped to find one or more reliable definitions by analyzing, using the combination of the terms "meaning-making-and-museums", the 65 entries indexed in the PsycINFO database (APA PsycNet), as the American Psychological Association has a reputation for including only research of great rigor.

The following text first presents the database and its contents, then the analysis performed on it, along with its results. It concludes with some perspectives inspired by the disappointing nature of these results.

2. The database and its content

PsycINFO (APA PsycNet) lists 48 texts published between 2022 and 2025. These texts include primarily journal articles (38), but also book chapters (7), critical reviews (2), and a journal editorial. Four of the articles had to be rejected after review because they dealt with learning rather than meaning-making. Thus, the analysis ultimately focused on only 44 texts.

The database also lists dissertations. In fact, it provides a list of 17, the earliest dating from 1991 and the latest from 2022. Only the last 16 were selected for analysis, as the very first one lacked an abstract, and the university to which I am affiliated was unable to provide me with the full text of the dissertation.

* The research underlying the production of this article received logistical support from the University of Montreal.

3. Analysis, key elements (points)

3.1. Text analysis

For each text, the following were noted: its title; the journal or book in which it was published and the field to which it belongs: psychology, communication, health, for example; its author(s); the type of museum in which the research was conducted (science, art, ethnology-archaeology-history); the category of visitors involved (children, schoolchildren, adults, groups); the type of investigation carried out (experimentation, description-analysis of a situation, theoretical study); the means used to collect information (field notes, observation or video, questionnaire, interview); the time when the information was collected (during the visit versus after it had ended); the situation in which the visitors found themselves (visit to an exhibition versus participating to an educational or cultural program offered somewhere in the museum galleries); the definition of meaning-making; and, where relevant, the results of the research conducted.†

The aim of such a thorough analysis of the texts was to contextualize each definition by means of the points with which it was associated and, where applicable, to identify constants such as: definition A appears consistently when the researcher works in a science museum with schoolchildren and obtains information from them through a questionnaire; conversely, definition B is associated with research conducted using videos in art museums and with families participating in a cultural program…

3.2. Analysis of the theses

Since the full text of the theses was not available in the database, nor, it seems, from any university other than the one where they were deposited, the analysis had to be based on the abstracts provided by the database. And, as the length and precision of these abstracts varied considerably, only the definition of meaning-making was extracted.

4. Results

4.1. Fields of study of the analyzed texts

The 44 texts studied cover a wide variety of fields: especially psychology, education, communication, and health, but also digital technologies, sociology, art or art history, museology, and leisure. This abundance and diversity of fields, as one might expect, makes it unlikely that data or definitions could be cited in texts other than the one in which they are presented.

Regarding the 16 theses, their subject matter appears to exhibit a similar dispersion.

4.2. Evolution of the number of texts and theses

The first texts date only from 2002, but they subsequently experienced significant growth. Indeed, there were 15 from 2002 to 2010, then 21 from 2011 to 2020, and 12 from 2021 to 2025, a period of only 5 years. This significant increase over a period of just 20 years should have generated numerous cross-references. However, this is not the case, probably due to the wide variety of fields covered by the texts, as highlighted above.

The first theses were published in 1991 and 1998 respectively, thus preceding the publication of the first texts by about ten years. However, the growth in theses then roughly mirrors that of the texts, with 4 from 2001 to 2010, 10 from 2001 to 2020, and 1 from 2021 to 2025.

4.3. Number of definitions found

Of the 44 texts studied, only 16 offer one or more definitions. The implications of this result are significant. Indeed, it means that 28 texts, or 63% of them, contain no definition of meaning-making. It is therefore probably not an exaggeration to say that, for the authors of these texts, meaning-making is merely a buzzword without a precise meaning. Could it be that, for an English speaker, meaning-making belongs to everyday language and that it would therefore be pointless to define it? Yet, this is a concept that, in psychology at least, has been systematically studied, even in the early 2000s (for example, see Brockmeier, 2009; Krauss, 2005; Kunner & Bosma, 2000). Why then were some of these studies not referenced?

Another question, this one particularly troubling for the scientists who evaluated these texts without definitions: How is it that they approved their publication?

Of the 16 theses studied, only 6 offer a definition of meaning-making. It would be tempting to say that the theses present the same problems as the texts, but that would be an outrageous accusation. Indeed, an abstract can, without being flawed, omit the precise presentation of the definitions offered in the thesis.

† All texts have been fully read and analyzed by the author.

4.3.1. Remarks. From the analysis of the second and third texts and the first thesis, it became clear that the definitions of meaning-making could be only implicit and that some authors also offered implicit definitions of the term meaning, i.e., of the outcome of meaning-making when it is successful. These two elements have been added to the analytical framework. However, the space available here does not allow for a presentation of the resulting information.

Of the 16 texts offering a definition, only 9 presented an explicit definition of meaning-making; the other 7 were limited to an implicit definition.

4.4. The definitions themselves

The definitions sought were in fact presented as descriptions of processes or identifications of their components. Of the 9 texts selected, 5 describe either an individual process or a group process, and 4 identify components that occur either during an individual process or during a group process.

4.4.1. Meaning-making carried out individually. This category of definitions offers the following 5 conceptions:

- Meaning-making as a process is equivalent to the process of learning (Dierking, 2002);
- Meaning-making is the process of making sense of and interpreting our experience, prior knowledge, learning, culture, beliefs, values, the world around us (Frykman, 2009). This is in fact a definition borrowed from Hooper-Greenhill (1999);
- Meaning-making is the process of situating encounters with the world in the appropriate context in order to know what they are about (Frykman, 2009). This definition is borrowed from Bruner (1996);
- Meaning-making is a process through which visitors make connection between their life and the objects they encounter in the museum (Bhavnagri & Kamash, 2019);
- Meaning-making is the process of integrating new knowledge and coordinating it with existing values, beliefs and knowledge (Soni et al. 2021). This conception is borrowed from Vygostky (1978).

4.4.2. Meaning-making carried out in a group. This category offers only the following conception:

- Meaning is emerging in the mix of artifacts, information from the museum, information brought in by the visitors themselves and the social process of the visit (Eklund, 2020).

Comments:

Each of the conceptions, except the first, offers an approach to meaning-making that can support an investigation conducted in a museum setting. But even more interesting is the fact that the positions of Hooper-Greenhill, Bruner, and Vygotsky present a complementarity that can be interpreted as follows:

- Meaning-making is a process that consists of giving meaning to one's experiences (Hooper-Greenhill)
- This meaning is obtained by situating one's experiences in an appropriate context (Bruner);
- The context would be constituted by the person's values, beliefs, and knowledge (Vygotsky).

And this complementarity can be extended by adding the conception of Bhavnagri and Kamash. Indeed, this conception specifies that the preceding process can occur when a visitor comes into contact whit a museum object.

Finally, Eklund's conception adds to the previous ones an element that characterizes group visits, namely the interaction between visitors.

In general, we can therefore assume that, while presenting different aspects of the meaning-making process, the last five identified conceptions offer such complementarity that the whole can be considered, at least temporarily, as a complex and entirely acceptable description of the process.

Unfortunately, the same cannot be said of the meaning-making process conceived as equivalent to the learning process. This equivalence does not hold; it is void! Indeed Hein (1998) and Hooper-Greenhill (1999), who researched abundantly the learning process taking place in the museum describe it as a meaning-making process!

4.5. The components of meaning-making

Here again, different texts examine the two situations of individual and group visits.

4.5.1. The Components of individual meaning-making. The collected data offer the following three conceptions:

- Meaning-making is a mental activity (Stainton, 2002);
- Meaning-making includes: internalization, externalization, tool mediators, goals, actions and operations (Bahia & Noguerita, 2019);
- Meaning-making encompasses higher-order cognitive processes such as interpretation, reflection, and understanding (Estrada, Youn, Cardillo, & Chatterjee, 2025).

4.5.2. The components of groups meaning-making. Only one author who addresses the subject (Rowe, 2002) conceives of it as follows: meaning-making encompasses construction and interpretation which depend on the context in which the group is visiting. The museum's role is then twofold: to transmit information and to encourage the divergent production of visitors, the latter depending on what each individual brings to the museum (ideas, concepts).

Comments:

The first and third conceptions of individual meaning-making complement each other as follows: meaning-making is a mental (cognitive) activity encompassing interpretation, reflection, and understanding. The context of the visit, which facilitates this activity, is further developed by the author who focuses on group visits (Rowe, 2002).

However, Bahia and Noguerita's conception appears problematic because it includes a large number of elements of diverse natures (operation and purpose, for example) without any articulation that would allow them to be situated in relation to one another. For the reader, this results in a mere jumble of terms.

5. Synthesis and perspectives

It is unfortunate that the texts of the dissertations listed in the APA database could not be consulted, as they would likely have offered definitions that would have either broadened or modified the meaning of those provided by the articles and book chapters. However, the content of the dissertations alone could not have changed the unfortunate situation created by the high percentage of texts that simply did not offer a definition. How could it be explained? How is it that more than 60% of the texts analyzed escaped defining explicitly the subject that they were researching?

Although, an analysis of the 65 entries of the APA database succeeded in identifying a few different but complementary conceptions of the meaning-making process and their cognitive components. And fortunately, the few process descriptions exhibited remarkable coherence and could thus offer valuable support for future research.

As far as they are concerned, the process components could be used as the starting point for the development of a series of questions that could lead future research intending to a better understanding of the meaning-making process. These questions read as follows: 1) Do the components mentioned, i.e., interpretation, reflexion and understanding, represent all those involved in a meaning-making process? 2) What is the dynamic of these three preceding ones? Are they complementary, and if this is the case, how do they relate to each other? 3) Given the complexity of each of these components, what series of mental operations contribute to each of them? 4) How are these operations organized or sequenced? 5) All what precedes is cognitive in nature, does it mean that the affective functioning is excluded? 6) If this is not the case, how does it intervene? Does it combine with the mental operations proper to each component of the meaning-making process? If not, how both functioning contribute to the meaning-making process?

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THE ROLE OF DISPOSITIONAL SELF-AWARENESS IN IDENTIFYING GOAL-RELATED OBSTACLES AND PERCEIVED GOAL PROGRESS

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Abstract

This study investigated the relationship between dispositional self-awareness, identification of goal-related obstacles, and progress in the pursuit of a current personal goal. Based on theoretical assumptions proposed by Kreibich, Hennecke, and Brandstätter (2020), self-awareness is expected to facilitate the identification of obstacles that hinder goal attainment. The present study extends this framework by examining the broader relationship between dispositional self-awareness, obstacle identification, and their consequences for perceived goal progress. A total of 235 participants reported on a current personal goal and completed measures assessing obstacle identification (Kreibich, Hennecke, & Brandstätter, 2020), goal progress (Werner et al., 2016), and dispositional self-awareness using the Self-Reflection and Insight Scale–Short Form. As theoretically expected, dispositional self-awareness positively predicted the identification of goal-related obstacles. However, increased identification of obstacles was associated with lower subjective perceptions of goal progress. These findings challenge assumptions regarding the uniformly beneficial role of heightened self-awareness and suggest that, in the context of achievement difficulties, greater awareness of obstacles may come at a psychological cost rather than facilitating goal attainment.

Keywords: *Self-awareness, goal obstacles, goals.*

1. Introduction

Achieving goals, whether in life or in everyday situations, is an integral part of our lives. Whether in the areas of health, work, sports, or relationships, it is assumed that most human behavior is goal-oriented (Kreibich, Hennecke, & Brandstätter, 2020). An integral but often overlooked part of the goal-achievement process is self-regulation. Self-regulation refers to the ability to direct one's activities to goal over time and across changing circumstances (Kanfer, 1990). These definitions also make it clear that self-regulation is usually considered a conscious process (Diefendorff & Lord, 2008) that requires deliberate attention to be successful. The key aspects of the self-regulation process are therefore conditioned by self-monitoring and self-awareness (Hoyle, 2010).

The current study examines the role of self-awareness in the process of achieving goals. Self-awareness is defined as an individual's ability to reflect on their thoughts, emotions, and behavior (Carver & Scheier, 1990; Duval & Silvia, 2002). Individual differences in self-awareness create a tendency for people to acquire different levels of self-focused attention, which can serve as a potential antecedent for identifying obstacles (Kreibich, Hennecke, & Brandstätter, 2020). When individuals find that obstacles stand in the way of a set goal, they may respond accordingly, for example, by identifying compensatory means to deal with the obstacle (Carver &Scheier, 1998; Myrseth & Fishbach, 2009). On the other hand, however, individuals who constantly identify many obstacles may be overwhelmed by this experience and therefore be at a disadvantage (Kreibich, Hennecke, & Brandstätter, 2020). Nevertheless, empirical evidence connecting self-awareness and goal achievement is quite limited.

The aim of the study is to conceptually replicate Study 1 by Kreibich, Hennecke, and Brandstätter (2020) by examining the relationship between dispositional self-awareness and the identification of obstacles in achieving a current goal. Current research suggests that self-awareness can have a positive impact on the process of self-regulation and goal achievement, helping individuals identify obstacles, maintain motivation, and adjust their behavior (London, Sessa, & Shelley, 2023).

2. Methods

2.1. Dispositional self-awareness

Self-Reflection and Insight Scale Short by Silvia, P. J. (2022) was used. Respondents answered individual items using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Given the study's aim to verify dispositional self-awareness, we decided to use the 6 items of the Self-reflection subscale in our research, with internal consistency in the original validation study of α = .89.

2.2. Identification of obstacles

With the aim of achieving conceptual replication, we adopted four items from the study by Kreibich, Hennecke, and Brandstätter (2020) through which we operationalized the ability to identify obstacles to achieving goals. The first two items focused on determining the respondent's tendency or ability to identify obstacles, while the second two focused on determining the frequency of identifying obstacles in the process of achieving a goal. Before completing the items, respondents were first familiarized with the concept of obstacles - *"Aspects that prevent you from achieving your goal*" (Oettingen & Stephens, 2009) and then responded to the items using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). The internal consistency of all four items in the study by Kreibich, Hennecke, and Brandstätter (2020) was α = .76.

2.3. Overcoming obstacles

In our analysis of the literature, we identified that overcoming obstacles as part of the two-stage self-regulation model by Myrseth and Fishbach (2009) had not been precisely operationalized by any methodology. The original version of the scale we constructed contained eight items rated (based on Myrseth, Fishbach theory, 2009) on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). After iterative verification of psychometric properties and removal of items that weakened the internal consistency of the scale, the final version consists of 6 items.

2.4. Goal progress

We operationalized goal attainment in the study using three items from Werner et al. (2016) measuring goal progress. The full wording of the items was: "*I have made significant progress toward this goal," "I feel that I am on track to achieve this goal," "I feel as if I have already achieved this goal."* Respondents answered the items using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). The internal consistency of all three items in the study by Werner et al. (2016) was in the range of α = .93–.96.

2.5. Goal attainment phase

Two items we constructed to determine the stage at which respondents currently find themselves in achieving their goal: "*At what stage are you currently at in achieving your goal?"*, to which respondents answered on a 7-point Likert scale (1 = I am at the beginning, 7 = I am at the end) and *"Where do you see yourself in terms of achieving your goal?"*, to which respondents answered on a 7-point Likert scale (1 = very far from achieving the goal, 7 = very close to achieving the goal). The items were designed with the intention of explicitly verifying the goal attainment phase, based on the assumption that the assessment of this phase is highly subjective and biased by the nature of the respondents' goals and perspectives. For this reason, the results relating to the goal attainment phase were interpreted with appropriate caution and considering the potential subjectivity of the assessment. The internal consistency of both items assessing the goal attainment phase was α = .848 (95% CI [.802 - .883]) and Spearman–Brown coefficient $r_{sβ}$ = .848 (95% CI [.802 - .883]).

2.6. Procedure

Beyond descriptive statistics, content analysis of respondents' goals, tests of normal data distribution, and verification of other conditions for more advanced statistical methods, the main aim of study was to conceptually replicate Pearson's correlation between dispositional self-awareness and identification of obstacles. This analysis ensured a partial conceptual replication of the results of Study 1 by Kreibich, Hennecke, and Brandstätter (2020).

3. Participants

The research sample consisted of 229 respondents, of whom 168 (73.4%) were women and 61 (26.6%) were men. Given the focus of the research on university students, the average age of respondents was 21 years (M = 20.93, SD = 1.826). The research sample was obtained through available selection and snowball selection of respondents, conducted online using Microsoft Forms administered by researchers. The final data set did not contain any missing data.

4. Results

Conceptual replication of correlations was preceded by descriptive analysis, the results of which are summarized in Table 1.

Table 1. Summary of descriptive analysis data.

	Dispositional self-awereness	Obstacles identification	Overcoming obstacles	Goal progess	Goal attainment phase
Mean	31.50	20.54	30.79	12.92	7.900
SD	6.933	4.654	6.379	3.996	2.666
Skewness	-0.412	-0.362	-0.236	-0.207	0.025
SD	0.161	0.161	0.161	0.161	0.161
Kurtosis	-0.570	-0.463	-0.713	-0.576	-0.650
SD	0.320	0.320	0.320	0.320	0.320
Minimum	13.00	8.000	15.00	3.000	2.000
Maximum	42.00	28.00	42.00	21.00	14.00

Table 2. Results of Pearson's correlation coefficient analysis.

	Dispositional self-awereness	Obstacles identification	Overcoming obstacles	Goal progess	Goal attainment phase
Dispositional self-awereness					
p-value					
95% CI					
Obstacles identification	,200**				
p-value	,002				
95% CI	[,051 – ,337]				
Overcoming obstacles	,137*	-,063			
p-value	,038	,344			
95% CI	[,003 –,267]	[-,208 – ,081]			
Goal progess	,063	-,180**	,525***		
p-value	,341	,006	< ,001		
95% CI	[-,065 – ,190]	[-,313 – -,042]	[,426 – ,614]		
Goal attainment phase	,069	-,165*	,373***	,588***	
p-value	,297	,012	< ,001	< ,001	
95% CI	[-,056 – ,190]	[-,305 – -,019]	[,254 – ,485]	[,486 – ,680]	

Based on the correlation results, we can primarily conclude that there is a significant relationship between dispositional self-awareness and the identification of obstacles (r = .200, p = .002, 95% CI [.051 – .337]). The relationship between dispositional self-awareness and overcoming obstacles (r = .137, p = .038, 95% CI [.003 – .267]) also proved to be significant.

We found other significant relationships between identifying obstacles and goal progress (r = -0.180, p = .006, 95% CI [-0.313 – -0.042]), between identifying obstacles and the goal achievement phase (r = -0.165, p = .012, 95% CI [-.305 – -.019]). We also identified significant relationships between overcoming obstacles and goal progress (r = .525, p < .001, 95% CI [.426 – .614]), between overcoming obstacles and the goal achievement phase (r = .373, p < .001, 95% CI [.254 – .485]), and between goal progress and goal attainment phase (r = .588, p < .001, 95% CI [.486 – .680]).

5. Discussion

Self-regulation and goal attainment are an important key to successful human functioning, Study serves as a partial replication, testing known relationships between dispositional self-awareness and obstacle identification, and provides an original iteration in the form of verifying the relationship between dispositional self-awareness, obstacle identification, obstacle overcoming, and goal progress using.

The results of this study will serve as a starting point for further studies that will address causal relationships within self-awareness and the identification of obstacles to achieving health goals.

Conceptual replication confirmed; there is a relationship between dispositional self-awareness and the identification of obstacles. A weaker relationship between dispositional self-awareness and overcoming obstacles has also been demonstrated. Therefore, dispositional self-awareness plays a role in goal-oriented self-regulatory mechanisms.

Surprisingly, there is no relationship between identifying obstacles and overcoming obstacles. Furthermore, dispositional self-awareness is not related to either goal progress or goal attainment phase. This corresponds to some extent with the literature. Duval & Silvia (2002) suggest that dispositional self-awareness itself cannot influence the results of goal attainment. It is rather a second-order predictor that influences first-order predictors, which in turn influence the results of the self-regulation mechanism.

Another significant relationship is the negative relationship between identifying obstacles and goal progress, which also suggests an interesting twist. The literature often points out that it is sufficient to monitor the identifying obstacles variable and, based on that, we can say that the goal will be achieved (London, Sessa, & Shelley, 2023). Our results show the opposite, a higher level of identifying obstacles leads to a reduction in goal progress (a possible indication of a U-curve where low and high identification of obstacles leads to deterioration, but an adaptive level should lead to an improvement in goal progress). Individuals who constantly identify many obstacles may be overwhelmed by this experience and therefore may be less successful in achieving their goals (Kreibich, Hennecke, & Brandstätter, 2020). On the other hand, overcoming obstacles has been nicely demonstrated as a variable that is strongly positively related to goal progress and the goal achievement phase. We can conclude that identification of obstacles is not enough. If you overcome obstacles, only then do you achieve your goal.

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EYE-TRACKING ANALYSIS OF VISUAL DESIGN PREFERENCES IN BOARD GAME SELECTION: INTEGRATING COGNITIVE ATTENTION AND MEMORY RETENTION FOR EFFECTIVE LUDIC INTERFACE DESIGN

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Abstract

This empirical study examines the relationship between visual design preferences and cognitive retention in board game evaluations using eye-tracking technology combined with structured recall interviews. Sixty participants (N = 60) viewed four distinct illustration styles (cartoonish, modern, doodle drawing, and animated/3D) while gaze data were recorded using the Tobii VT3 Mini and iMotions software, followed by a cognitive recall assessment 10 minutes post-exposure. Participants subsequently evaluated four board game designs differing in illustration style, color saturation, and visual complexity. Results show that cartoonish illustrations were the most liked style (30%) and that Animated/3D styles achieved perfect recall (100%), while Modern and Doodle Drawing styles also demonstrated high engagement and memory performance. High-saturation warm-color designs were consistently preferred and more memorable than low-saturation alternatives, with simplified, visually clear designs (Design 4) recalled with the highest accuracy. Qualitative feedback highlighted simplicity, clarity, and color vibrancy as primary drivers of preference. These findings provide empirical evidence for how visual design elements influence attention and memory in simulation board interfaces and offer actionable recommendations for optimizing visual aesthetics to enhance user engagement and cognitive retention. The study contributes to the emerging field of neuro-ludic design, with implications for both analog and digital game design practices.

Keywords: *Eye-tracking, simulation board design, visual preferences, cognitive retention, design aesthetics, user experience, memory recall, illustration styles.*

1. Introduction

Board designs rely fundamentally on static visual design to capture attention, communicate simulation mechanics, and create memorable player experiences (Zagal & Deterding, 2018). In recent years, a spike has been observed in the global playing cards and board games market, which was valued at USD 19.90 billion in 2024 and is projected to reach USD 31.93 billion by 2030, growing at a CAGR of 8.3% from 2025 to 2030 (Playing Cards & Board Games Market, n.d.). These statistics have increased the competition among game designers, which leads to the necessity of better visual design for market differentiation and player engagement.

Despite this commercial importance, systematic empirical research based on how visual design elements influence player preferences and cognitive engagement remains limited (Mai et al., 2025). Most board game design decisions have mainly relied on designer intuition, focus group feedback, and playtesting rather than quantitative measures of cognitive engagement and attention allocation (Kosa & Yilmaz, 2017). This methodological gap represents a significant opportunity for applying advanced neurocognitive research technologies to generate evidence-based design recommendations.

Eye-tracking technology has emerged over the past two decades as a powerful non-invasive methodology for measuring visual attention in real-time, providing quantitative data about where individuals direct their gaze, for how long, and in what sequence (Just & Carpenter, 1976). Early applications of eye-tracking focused primarily on reading comprehension and visual search tasks (Rayner, 1998). However, current applications have expanded to encompass human-computer interaction, user experience research, consumer behavior analysis, and increasingly, game design evaluation (Tobii, n.d.).

The integration of eye-tracking with cognitive psychology methodologies helps the authors to find out the empirical results of perfect board game design that players would like.

2. Theoretical framework & research questions

This study draws on three main theoretical frameworks: (1) visual attention theory, (2) cognitive load theory, and (3) aesthetic psychology.

Visual Attention Theory explains that human attention is a limited cognitive resource that is allocated preferentially to stimuli containing certain characteristics: novelty, salience, movement, color contrast, and personal relevance (Posner & Petersen, 1990). In the context of static visual design, elements with high color saturation, complex patterns, and clear spatial contrast capture attention more effectively than minimalist designs (Palmer, 1999).

Cognitive Load Theory, developed by Sweller (1988), shows that learning and information processing capacity are limited, with three types of cognitive load: intrinsic (inherent difficulty of material), extraneous (imposed by design), and germane (effort directed toward processing goals). When it is applied to the design of a business simulation board, it can be assumed that visual complexity imposes extra cognitive load. Simplified, well-organized visual designs reduce extraneous load, which would allow cognitive resources to focus on gameplay mechanics and strategic decision-making.

Aesthetic Psychology examines how individuals respond emotionally and cognitively to visual design elements, with established research demonstrating that perceived beauty influences initial product selection, sustained engagement, and brand loyalty (Kahn, 2004). Colors, illustration styles, and visual composition all contribute to aesthetic perception and emotional response.

This study addresses the following primary research questions:

1. Which illustration styles (cartoonish, modern, doodle, animated/ 3D) elicit the highest visual attention (measured via fixation duration and gaze density) and preferential selection in board game design?
2. What is the relationship between initial visual preference (measured via eye-tracking metrics) and subsequent memory retention (measured via structured recall interviews conducted 10 minutes post-stimulus)?
3. What qualitative factors (expressed in participant interviews) drive board game design selection, and do these factors align with quantitative eye-tracking and memory metrics?

This research provides game designers, UX professionals, and product developers with evidence-based frameworks for optimizing visual design elements in board games and related products that need users' evaluation and sustained engagement.

3. Research design

This study employed a mixed-methods design integrating quantitative eye-tracking metrics with qualitative interview data. The research includes the following phases:

Phase 1 (Illustration Style Evaluation): Participants viewed four illustration styles with several human figures (cartoonish, modern, doodle-drawing, and animated/3D representations) while eye-tracking captured gaze patterns from a website.

Figure 1. Figure selections.



Phase 2 (Board Game Design Evaluation): Participants were subsequently presented with four distinct board game designs varying in illustration style, color saturation, and visual complexity. Using the same eye-tracking process, gaze patterns were recorded. Participants then selected their preferred design from the four options.

Figure 2. Board game selections.



Phase 3 (Cognitive Recall Interview): Approximately 10 minutes after initial stimulus presentation, participants engaged in structured interviews assessing color recall, design element recognition, and subjective preference. Interviews were conducted verbally with responses recorded in standardized response forms.

4. Analysis

All 60 participants completed the full experimental protocol. No participants were excluded due to tracking failures, calibration difficulties, or incomplete data. Across the four illustration styles, preference distribution was:

Table 1. Preference distribution according to illustration styles.

Illustration Style	Selection Frequency	Recall Accuracy (Gaze vs. Interview)	Color Recall Accuracy (Gaze vs. Interview)
Cartoonish	18	94.44%	77.78%
Modern	17	88.3%	100%
Doodle Drawing	10	80.0%	100%
Animated/3D	15	100%	100%

Cartoonish illustrations were selected by most of the participants (30%); on the other hand, 100% participants were able to recall the Animated/3D character. While designs incorporating high color saturation (Design 1, 2 and 4) were preferred by more than 25% each, participants preferred low-saturation designs (Design 3) significantly less by only 16%. Another noticeable factor in board game design that the authors noticed: warm-color board game designs (Design 3 and 4) were preferred by 40.68% of participants (23.73% and 16.95%), significantly exceeding retro and vibrant color-based designs (Design 1 and 2), which were preferred by 59.32% (33.90% and 25.42%). During the interview, participants accurately recalled the designs when presented with board game designs that were significantly higher overall from the previous sets of designs (for Designs 1 to 4, respectively 90%, 60%, 70%, 100%). Apparently, all participants could remember the exact selection of a clean, simplified board game (Design 4).

5. Discussion and recommendations

This study shows that eye-tracking technology, combined with cognitive recall assessment and qualitative analysis, effectively identifies visual design characteristics that can showcase high engagement and memorable impressions. Four key findings emerged from the experiment. First, Cartoonish illustration styles were the most frequently selected, with 30% of participants choosing them. This indicates that simplified, approachable visual language resonates strongly with users. Second, visual engagement predicted memory retention, as participants accurately recalled Animated/3D characters at 100%, and recall for Cartoonish, Modern, and Doodle Drawing illustrations ranged from 80% to 94.44%, highlighting that designs capturing attention promote stronger memory consolidation. Third, in board game designs, color saturation and warmth influenced preferences, with high-saturation designs (Designs 1, 2, and 4) preferred by over 25% of participants and warm-color designs (Designs 3 and 4) favored by 40.68%, while cooler or more complex designs (Designs 1 and 2) accounted for 59.32%. Finally, qualitative analysis revealed that participants consistently valued simplicity, clarity, and vibrant colors, with the clean and simplified Design

4 being perfectly recalled by all participants, reinforcing the importance of clear, visually engaging, and easily interpretable design in supporting both preference and memory retention.

Based on the study findings, several design recommendations emerge for board game creators. First, prioritize simplified visual hierarchies by making critical gameplay elements prominent and minimizing cognitive load through high saturation, size, or contrast for supporting elements. Second, employ high-saturation warm colors (red, yellow, orange) for primary game components to enhance attention, engagement, and memorability, reserving cooler colors for backgrounds or secondary elements. Third, match visual style to the target audience, recognizing that while cartoonish designs appeal to general audiences, modern or complex styles may suit specialized players. Finally, validate designs through eye-tracking prototyping, using fixation patterns and gaze distribution as objective metrics to optimize engagement and recall before final production.

6. Conclusion

This study indicates that integrating eye-tracking with cognitive recall assessments and qualitative analysis provides a robust framework for evaluating board game visual design. Cartoonish and Animated/3D illustration styles captured the greatest attention and were most accurately recalled, highlighting the impact of simplified, approachable visuals on engagement and memory retention. Color saturation and warmth further influenced preference, with high-saturation warm colors enhancing both appeal and memorability. Qualitative insights reinforced the importance of clarity, simplicity, and vibrant color in guiding design selection. These findings offer actionable guidance for designers, suggesting that prioritizing clear visual hierarchies, strategically applying color, and validating designs through empirical eye-tracking methods can optimize user engagement and long-term recall, with implications extending to both analog and digital game design.

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THE BENEFIT OF EXPERIENCE-BASED LEARNING IN DEVELOPING EMOTIONALLY COMPETENT LEADERS

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Abstract

Motivation of study. The recruitment and development of emotionally competent leaders has become an important priority for organizations seeking to sustain growth, maintain a dedicated workforce, or operate in environments requiring leaders to manage personnel under conditions of risk, stress, and emotional strain. This aligns with long standing efforts within leadership research to identify common traits and factors associated with effective leadership (Stogdill, 1974; Yukl, 1989; Zaccaro, 2018; Lacarenza et al., 2017). Developing emotional competence may be facilitated through opportunities to experience, reflect on, and regulate one's emotions in practice oriented, experiential learning contexts. Research on developing emotional competence in leaders through education is very limited.
Objective. This study investigates whether an experience based military exercise can influence the development of emotional competence among young military leaders participating in a military bachelor leadership training program.
Context of Study. The military bachelor students completed a week-long exercise designed around staged crisis scenarios, serving alternately in roles such as operations room/crisis staff, force protection, first aid responders, bereavement support to next of kin, and observers. Each day concluded with Holistic debrief sessions emphasizing reflection on emotional responses, peer feedback, and clarification of challenges related to collaboration and interpersonal dynamics.
Method. Data were collected through semi structured, in depth interviews with participants from the training program. All respondents provided informed consent. The material was analyzed using Reflexive Thematic Analysis.
Results. Respondents expressed strong support for continued use of experience-based learning exercises. Through a detailed Reflexive Thematic Analysis (Braun & Clarke, 2019), three central themes were identified: (1) Benefit from realistic training and sharing vulnerable experiences, (2) Benefits of Experience Based Learning in Relation to Theoretical Instruction, and (3) Emotional Preparedness for Leadership. Although methodological considerations were acknowledged, they were assessed as inconsequential to the core findings. The study recommends future research that explores the perceived long-term effects of such experiential training. Overall, the findings suggest that experiential learning activities that expose students to stress inducing scenarios contribute meaningfully to the development of emotional competence in leadership.

Keywords: *Experiential learning, leader education, developing emotional competence, holistic debrief.*

1. Introduction

The pursuit of effective leadership remains a central concern in organizational research and practice (Fisher-Yoshida, 2022; Morrissett, 1955). Although definitions of successful leadership vary—often shaped by indicators such as profitability or employee satisfaction (Baptiste, 2019)—there is growing recognition that theoretical knowledge alone is insufficient. Experience-based learning has increasingly been emphasized as a critical component of leadership development (Bass et al., 2003). This study investigates whether a week of experiential military training, combined with relationship-oriented debriefing, can enhance emotional competence among young military leaders.

1.1. The role of experiential learning and emotions in leadership development

A key challenge in leadership education is the tendency of theory-driven frameworks to overlook the importance of experiential learning. Several institutions have been criticized for insufficient integration of practical learning, despite longstanding calls for such approaches (Buchanan, 2017; Roberts, 2018). Kolb's "Experiential Learning Theory" (ELT) is frequently highlighted as a foundation for structuring such learning, emphasizing the importance of real-world experience within academic contexts (Kolb, 2014). ELT describes learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualization, and active experimentation. Realism is central to this model, as authentic experiences deepen learning outcomes (Radovic et al., 2021). ELT has been applied successfully across numerous fields—including military education and sports management—where it has improved understanding and application of theoretical content (Brady et al., 2018; Ladyshewsky, 2007; Fredriksen, 2023). By 2021, it had been implemented in more than 30 areas of higher education (Kayes & Kayes, 2021). Empirical research supports the effectiveness of experiential learning compared to traditional instructional methods, particularly within leadership development. Studies demonstrate that such approaches enhance theoretical understanding and academic performance (Leal-Rodriguez & Albort-Morant, 2019). However, despite promising findings, the specific impact of experiential learning on emotional competencies remains underexplored (Gómez et al., 2019).

Emotional intelligence, as defined by Goleman (1998), is essential for regulating personal emotions, understanding others' feelings, and navigating complex interpersonal dynamics. Many leaders lack sufficient emotional competence, resulting in strained workplace relationships (Matjie, 2018). Conversely, individuals with higher emotional competence—such as teachers in demanding environments—report lower stress and burnout (Rey et al., 2016). Emotional experiences also strongly shape memory and learning, suggesting that emotionally charged contexts can strengthen retention and future application of knowledge (Damasio, 2000; 2001). Consequently, leadership training should normalize emotional expression and incorporate structured reflection, particularly in high-stress domains such as healthcare and the military (Edmonson, 2003; Moldjord, Fredriksen and Browning, 2021; Moldjord & Iversen, 2015). Shared reflection further promotes emotional resilience and team cohesion (Johnson & Johnson, 2012). Research indicates that emotionally competent leaders build stronger, more resilient teams (Issah, 2018). Nonetheless, leadership education often fails to develop such competence due to limited experiential opportunities (Rennemo & Vaag, 2018). Although some studies suggest that experiential learning can enhance emotional intelligence—especially when accompanied by critical reflection—the existing evidence is limited and often focuses on adolescents whose emotional capacities are still developing (Năstasă et al., 2022). Emotional experiences related to failure may promote growth (Bartsch, 2012; Cope, 2011), but further research is needed to clarify how experiential learning best supports emotional competence in leadership contexts.

2. Method

Utilizing qualitative methods, the research involved observing learning exercises and interviewing cadets to analyze their insights (Braun & Clarke, 2019).

Participants were all cadets (N 10) at the Royal Norwegian Air Force Academy (RNoAFA), aged 20 to 23, with equal gender representation. The cadets participated in various roles during the experiential learning exercise, which simulated crisis situations requiring leadership and teamwork.

The exercise featured four different tactical training arenas: managing crisis scenarios in a simulated operating room, responding to staged emergencies, supporting next of kin, and observing peers responsible for debriefing sessions. The debriefs focused on extracting learning from challenges and enhancing teamwork, utilizing a method called Holistic Debrief (Moldjord, 2016; Moldjord & Iversen, 2015).

Interviews were conducted by the first author and lasted approximately 40 minutes each. The semi-structured format allowed for both descriptive and emotional inquiries regarding their experiences and perceived leadership preparedness.

Reflexive Thematic Analysis (RTA) was employed to analyze the interview data, following Braun and Clarke's framework (2006, 2019). The analysis involved five phases: (1) *Familiarization*: Transcribing and reading the interviews to understand the data. (2) *Initial Coding*: Generating codes relevant to the research questions. (3) *Theme Development*: Grouping codes into initial themes, leading to six initial themes. (4) *Reviewing Themes*: Refining themes to ensure clarity and uniqueness. (5) *Defining Themes*: Finalizing three main themes: Benefit from realistic training and sharing of vulnerable experiences, Perceived Benefit of Experience-Based Learning, and Emotional Preparedness for Leadership. The second author supervised the research and provided insights into the educational context. A re-analysis of the transcribed data confirmed the original findings and redefined naming of result themes.

3. Results: Emotional preparedness for leadership

The analysis of interviews conducted with cadets at the RNoAFA yielded three key themes regarding their emotional preparedness for leadership following an experiential learning exercise. All quotes are translated from Norwegian and derived from ten interviews.

3.1. Theme 1: Benefit from realistic training and sharing vulnerable experiences

Cadets expressed strong opinions about the organization and realism of the exercise, which spanned a week and was a significant event in their academic calendar. The exercise aimed to simulate lifelike crisis scenarios with the involvement of staff, observers, and hired actors. One cadet noted, "I thought it was very easy to immerse myself in the situation, much of that was due to the very good acting performance of 'the wounded'" (R3). This sense of immersion was crucial for effective experience-based learning. Another cadet mentioned, "Not knowing the 'victims' made everything feel very real" (R5), indicating that anonymity enhanced the experience's authenticity. The effort placed into crafting realistic scenarios was acknowledged. Some cadets recognized that, despite the realism, it was still an exercise. One remarked, "Deep down you know it is still an exercise, and if it was really happening, I probably would have experienced even more stress" (R3). Nonetheless, other cadets emphasized the seriousness with which they approached the exercise: "Even though the exercise is not real, the reactions of your teammates are real" (R4).

Debrief sessions at the end of each day were viewed positively. They allowed cadets to reflect on technical and emotional aspects, fostering understanding and teamwork. One cadet stated, "I believe it helps to have a way to vent your emotions. If you don't have a debrief, I think you'll go into the next part of the exercise with negative emotions still holding you down" (R1). This sentiment was echoed by others who valued the opportunity to discuss shared experiences and emotions and a desire for more time to discuss emotional experiences (R2). Overall, cadets found the exercise engaging and educational, with one noting, "I feel I have learned a lot, maybe more so than other exercises before it" (R7).

3.2. Theme 2: Perceived benefit of experience-based learning

Cadets believed that experiential learning was more beneficial than theoretical approaches such as lectures and exams. One cadet articulated this idea succinctly: "You can take the theory test, but you can't really learn how to drive before you get in the car" (R7). This sentiment reflects a broader consensus that practical experience is essential for true understanding. Another cadet echoed this, stating, "I wish we had a bit more [experiential exercises]... it makes it easier for me to understand" (R1). Cadets felt that experiential learning provided a new perspective and deeper understanding of academic content. One noted, "If you don't put it into practice, I struggle to pay attention" (R10). Others emphasized that true leadership requires practical experience: "You can learn a lot from the theory, but at the end of the day, you have to try it for yourself" (R2).

While the value of theoretical knowledge was acknowledged, cadets highlighted the importance of combining it with practical experience. One cadet explained that theoretical foundations complement hands-on experiences, enhancing understanding of emotional reactions during leadership (R5). Another emphasized that experiential learning fosters deeper emotional connections to the material, allowing for better retention and application.

3.3. Theme 3: Emotional preparedness for leadership

Cadets reported feeling more prepared for leadership roles due to their emotional experiences during the exercise. One cadet described a pivotal moment during a "mass injury case," where confusion led him to take charge despite feeling unprepared. He learned valuable lessons about delegation and trust, stating, "Trust is crucial to leadership" (R3). This experience underscored the emotional weight of leadership responsibilities. Another cadet echoed this sentiment, noting that the exercise helped him understand how to manage embarrassment and maintain composure in challenging situations. "Leadership in practice is a lot to do with the emotional stuff," he said, highlighting the importance of self-awareness (R4). Even cadets in observation roles found opportunities to learn about leadership. One cadet reflected on how a medic leader's phrasing during a crisis impacted his emotional response, emphasizing the role of communication in leadership (R8). This experience reinforced the idea that effective leadership can also be learned through observation.

Cadets unanimously reported feeling more prepared for future leadership roles. They recognized the value of practical experience in building confidence and understanding. As one cadet stated, "All forms of leadership exercises contribute to giving you experience... and all of that is good preparation." Others noted that the skills learned would be applicable in various organizational contexts, not just in military settings. Overall, the cadets' reflections indicate a significant increase in emotional preparedness for leadership, underscoring the importance of experiential learning in their development.

4. Discussion

This study explored the role of experience-based learning in developing emotionally competent leaders, addressing concerns about overreliance on theoretical instruction in leadership education. The findings highlight the effectiveness of experiential learning at the RNoAFA, as cadets described the training as realistic and immersive, which strengthened their emotional engagement. This aligns with models emphasizing realism as a key component of experiential learning (Radović et al., 2021) and with Kolb's emphasis on concrete experience as the basis for deeper learning (Kolb, 2014).

Cadets reported that hands-on experiences enabled them to connect theoretical concepts to real emotional and interpersonal demands of leadership. While theoretical knowledge provides an essential foundation, experiential practice and subsequent reflection appear to complete the learning process. This is consistent with research showing that experiential methods foster greater emotional engagement than traditional classroom-based approaches (Allcoat & von Mühlenen, 2018). Furthermore, cadets felt more prepared for leadership roles due to the emotional challenges encountered during the exercises. This supports Bartsch's argument that experience combined with guided reflection is essential for developing motivated and emotionally aware leaders (Bartsch, 2012). The structured debrief sessions were particularly valuable in helping cadets process emotional responses and enhance their leadership competence.

The study has limitations, including potential self-reporting bias and the absence of a control group, which restricts generalizability. Future research could compare alumni who experienced experiential training with peers from more traditional programs to examine long-term effects. Overall, this study suggests that experiential learning, when combined with Holistic debriefing, enhances emotional competence and should be considered a vital component of leadership development across contexts.

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LIFESTYLE AND PSYCHOSOCIAL CORRELATES OF OBESITY, HYPERTENSION AND PCOS: A HEALTH PSYCHOLOGY STUDY IN URBAN INDIAN ADULTS

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Abstract

Rapid urbanization in India is driving a "nutrition transition" linked to rising metabolic and psychological distress. This study examined behavioural–psychological profiles and psychosocial correlates of obesity, hypertension, and Polycystic Ovary Syndrome (PCOS) in 205 urban adults (120 women, 85 men) from Mumbai, Kolkata, and Bangalore. Results indicate that 48.78% had an abnormal Body Mass Index (BMI) and 38.53% reported hypertension. Psychological distress was prevalent, with 14.1% reporting depression and 16.6% reporting anxiety. Notably, 43.95% of those reporting distress also presented with an irregular BMI. Short sleep duration (<7 hours) and frequent fast-food consumption were common, particularly among younger participants. Among women, PCOS prevalence was 15%. These findings suggest that obesity, hypertension, and PCOS in urban India are embedded in interrelated behavioural-psychological patterns involving distress, disrupted sleep, and dietary habits. Integrated interventions combining sleep hygiene, nutrition, and psychological support are suggested.

Keywords: *Obesity, sleep, psychological distress, health psychology, India.*

1. Introduction and literature background

The rising global prevalence of metabolic and reproductive health issues, including obesity, hypertension, and Polycystic Ovary Syndrome (PCOS), necessitates etiological models rooted in health psychology (Zheng et al., 2024; Ghafari et al., 2025). This perspective emphasizes that chronic health conditions are not merely biological malfunctions but are intertwined with stress management, emotion regulation, and daily behaviours such as diet, sleep, and physical activity (Dakanalis et al., 2023; Jurek & Maruda, 2024; Lei et al., 2025). Understanding the co-occurrence of these variables is vital for identifying at-risk subgroups in rapidly urbanizing regions like India (Ganie et al., 2024).

Chronic psychological stress activates the hypothalamic–pituitary–adrenal (HPA) axis, linked to central fat accumulation and hedonic reward pathways (Lei et al., 2025; Jurek & Maruda, 2024). This often manifests as emotional eating, where individuals consume energy-dense "comfort foods" to manage negative affect, contributing to weight gain and hypertension (Dakanalis et al., 2023; Jurek & Maruda, 2024). Urban India's "nutrition transition" has shifted diets toward ultra-processed foods, descriptively linked to higher rates of depression and anxiety (Lopes Cortes et al., 2021; Ejtahed et al., 2024; Ganie et al., 2024).

Sleep health is a critical mediator where psychological and physiological patterns intersect (Delrosso, 2025; McHill, Hull, & Klerman, 2022). Inadequate sleep disrupts nutrient metabolism and appetite hormones—specifically increasing ghrelin and decreasing leptin—leading to increased caloric intake (Mchill et al., 2022). Sleep deprivation also impairs executive functions such as inhibitory control, influencing dietary choices during periods of psychological distress (Mchill et al., 2022). Furthermore, a short interval between the last meal and sleep is a reported factor in metabolic dysregulation (Ni et al., 2019; Mchill et al., 2022).

Gender-specific pathways indicate that women are more likely to report psychological distress in the context of weight gain (Ernst et al., 2021; Miranda et al., 2020). PCOS represents a systemic condition in which reproductive, metabolic, and psychological pathways intersect, often involving insulin resistance and hyperandrogenism (Ghafari et al., 2025; Zheng et al., 2024). Women with PCOS have a significantly higher probability of reporting clinically relevant depressive and anxiety symptoms compared to those without the condition (Li et al., 2024; Wang, Liu, & Lei, 2023). Within urban India, the convergence of

rapid urbanization and lifestyle shifts makes it essential to descriptively map how these factors co-occur (Ganie et al., 2024).

2. Methodology

A cross-sectional observational study was conducted among 205 adults (120 women, 85 men; aged 15 to >70 years) residing in Mumbai, Kolkata, and Bangalore. Participants provided self-reported data via a structured questionnaire.

Behavioural and Psychological Variables:

- Dietary Habits: Frequency of fast-food consumption and dietary preference.
- Hydration: Habitual daily water intake.
- Sleep: Duration (<7 vs. ≥7 hours) and meal-to-sleep interval.
- Activity: Regular engagement in walking, gym-based exercise, or yoga.
- Psychological Health: Prior diagnoses of depression and anxiety.

Outcome Variables:

- Obesity: BMI calculated as (BMI = weight / height^2) and categorized (normal, overweight, obese).
- Hypertension/PCOS: Based on self-reported physician diagnosis.

Analysis was strictly descriptive, using frequencies and percentages to identify patterns of co-occurrence. Ethical approval and informed consent were secured for all participants.

3. Results

The present analysis utilizes data from 205 urban Indian adults to present findings aligned with the core objectives of this health psychology and lifestyle study. Consistent with the goal of foregrounding psychological and behavioural factors, results are organized around general lifestyle–health associations, the specific descriptive patterns of sleep timing and duration, and the women specific PCOS pathway.

3.1. General lifestyle-health associations

In the study cohort, 48.78% of participants had an abnormal BMI (overweight or obesity), with 12.68% classified as obese; obesity was more common in females (14.16%) than males (10.58%). Females also exhibited a higher prevalence of self-reported mental and physical health conditions, including anxiety (21.66% of women vs. 11.76% of men) and depression (16.66% of women vs. 10.58% of men). A notable descriptive overlap existed between psychological indicators and chronic health outcomes. Hypertension was the most prevalent condition overall (38.53%), with a significant gender difference (44.16% in women vs. 30.58% in men). Among those reporting anxiety and/or depression, 43.95% also had an irregular BMI. Lifestyle analysis revealed that 53.65% of participants walked for at least 30 minutes, though structured activities like gym or yoga were less frequent. Dietary patterns showed high fast-food consumption and low daily water intake. Professional dietary guidance was sought by 22.92% of individuals, with a higher rate among women (26.66%) than men (17.64%).

3.2. Sleep duration and meal-sleep interval effects

Descriptive results showed a notable prevalence of limited sleep duration. Overall, 63.9% of the population reported sleeping over 7 hours daily, while 17.07% reported sleep deprivation (less than 7 hours). This lack of sleep was notably more frequently reported among younger participants (aged 15–35). The co-occurrence of sleep deficiency and chronic conditions was observed, particularly among women. Inadequate sleep was frequently reported alongside a diagnosis of hypertension or other self-reported endocrine conditions in younger women (15–35 years old). Furthermore, narrow meal–sleep gaps co-occurred with higher BMI and metabolic health challenges in this age group.

3.3. Women-specific PCOS pathway

PCOS was identified as a significant health challenge within the female cohort. The study found that 15% of all women participants reported a diagnosis of PCOS. This condition was more common in the subset of women who were overweight or obese, where 19.14% reported a PCOS diagnosis.

Women reporting PCOS also reported psychological distress, and endocrine conditions were present in the cohort, suggesting a multi-system health burden. Among women aged 15 to 50 years, those reporting PCOS frequently showed co-occurrence with metabolic markers and other self-reported endocrine conditions. These descriptive patterns highlight the intersection of reproductive health, weight

status, and the behavioural habits investigated in this study, such as the co-occurrence of poor sleep duration and endocrine-related distress.

Table 1. Descriptive Characteristics of Lifestyle, Psychological, and Health Indicators in the Study Cohort (N = 205).

Metric	Total Cohort (%)	Female (n=120)	Male (n=85)
Normal BMI	51.2	—	—
Abnormal BMI (Overweight/Obese)	48.78	—	—
Obesity	12.6	14.16	10.58
Hypertension	38.53	44.16	30.58
Anxiety	16.6	21.66	11.76
Depression	14.1	16.66	10.58
Distress + Irregular BMI Overlap	43.95	—	—
Short Sleep (<7 hours)	17.07	—	—
PCOS (Women only)	—	15.0	—
Walking (30 min/day)	53.65	—	—
Professional Diet Guidance	22.92	26.66	17.64

4. Discussions

This discussion examines obesity, hypertension, and PCOS among urban Indian adults through a health psychology framework, emphasizing descriptive co-occurrence rather than causal inference. Rather than treating these conditions as isolated physiological disorders, the findings are interpreted as embedded within interrelated behavioral and psychological patterns involving diet, sleep, physical activity, and emotional distress. In the context of rapid urbanization in India, these patterns reflect broader lifestyle transitions that intersect with mental and metabolic health (Ganie et al., 2024; Dakanalis et al., 2023).

4.1. General lifestyle-health associations

The present findings indicate a substantial burden of metabolic and psychological challenges within the sample, with nearly half of participants exhibiting an abnormal BMI and over one-third reporting hypertension. These conditions frequently co-occurred with self-reported anxiety and depression, consistent with prior literature documenting strong associations between metabolic dysregulation and psychological distress (Ejtahed et al., 2024; Dakanalis et al., 2023). Notably, a significant proportion of individuals reporting anxiety or depression also exhibited irregular BMI, reinforcing health psychology models that emphasize emotional regulation as a key mechanism linking distress to weight-related outcomes.

Chronic psychological distress is known to activate the hypothalamic–pituitary–adrenal (HPA) axis, promoting cortisol dysregulation and increased preference for energy-dense foods as a coping strategy (Jurek & Maruda, 2024; Lei et al., 2025). This pattern of emotional or "comfort" eating has been shown to temporarily alleviate negative affect while simultaneously contributing to weight gain and cardiometabolic risk (Dakanalis et al., 2023). Within this urban Indian cohort, the descriptive overlap between frequent fast-food consumption, psychological distress, and abnormal BMI aligns with broader evidence linking ultra-processed food intake to poorer mental health outcomes (Lopes Cortes et al., 2021; Ejtahed et al., 2024).

Gender differences observed in the sample further support this interpretation. Women reported higher rates of anxiety, depression, and hypertension than men, consistent with research demonstrating that women are more likely to experience internalizing symptoms and to engage in emotional eating in response to stress (Ernst et al., 2021; Miranda et al., 2020). Sociocultural pressures related to body image and weight may amplify psychological distress among women, reinforcing cycles of emotional eating and reduced physical activity (Wang, Liu, & Lei, 2023). Although over half of participants reported engaging in daily walking, engagement in structured physical activity was limited, suggesting a lifestyle profile in which moderate activity may be insufficient to offset the combined effects of poor diet, stress, and sleep disruption (Dakanalis et al., 2023; Ejtahed et al., 2024).

4.2. Sleep duration and meal-sleep interval effects

Sleep emerged as a central behavioral domain in which psychological and metabolic processes converge. A substantial proportion of participants reported sleep durations below recommended levels, particularly among younger adults. Short sleep duration has been consistently associated with increased appetite, impaired glucose metabolism, and heightened cardiometabolic risk (Delrosso, 2025). These effects are mediated by hormonal alterations, including increased ghrelin and reduced leptin, which promote hunger and preference for high-calorie foods (McHill, Hull, & Klerman, 2022). Additionally, sleep deprivation impairs executive functioning and inhibitory control, increasing vulnerability to maladaptive dietary choices during periods of psychological distress (McHill et al., 2022).

The co-occurrence of short sleep duration with higher BMI and hypertension observed in this study aligns with these mechanisms and highlights sleep as a key modifiable factor in urban health. Meal timing further contributed to these patterns. Short intervals between the final meal and sleep were descriptively associated with metabolic challenges, consistent with evidence that late-night eating disrupts circadian alignment and metabolic efficiency (Ni et al., 2019; McHill et al., 2022). In the urban Indian context, late work hours and delayed evening meals may normalize such patterns, particularly among younger adults, thereby amplifying metabolic risk when combined with psychological stress and irregular sleep schedules (Ganie et al., 2024).

Sleep also plays a bidirectional role in psychological well-being. Poor sleep quality and duration are associated with increased anxiety, reduced emotional regulation capacity, and heightened stress reactivity (Delrosso, 2025). These relationships may further exacerbate behavioral patterns such as emotional eating and late-night snacking, reinforcing cycles of distress and metabolic strain.

4.3. Women-specific PCOS pathway

PCOS represents a particularly salient example of the intersection between metabolic, reproductive, and psychological health. The prevalence of PCOS observed in this cohort, particularly among overweight and obese women, aligns with existing evidence linking excess adiposity to insulin resistance and hyperandrogenism (Zheng et al., 2024; Ghafari et al., 2025). These physiological processes create feedback loops that complicate weight management and increase metabolic conditions such as hypertension.

The descriptive co-occurrence of PCOS with psychological distress observed is consistent with literature indicating elevated rates of depression and anxiety among women with PCOS (Li et al., 2024; Wang et al., 2023). Distressing physical symptoms, including weight gain and dermatological changes, may negatively impact body image and self-esteem, further contributing to emotional distress and maladaptive coping behaviors. Sleep disruption appears to be an additional compounding factor, as women with PCOS are more susceptible to sleep disorders and insomnia, which may worsen insulin resistance and inflammatory processes (Li et al., 2024; Zheng et al., 2024).

Taken together, these findings support a holistic health psychology interpretation in which metabolic, reproductive, and psychological conditions among urban Indian women are embedded within overlapping behavioral patterns involving sleep disruption, dietary habits, and emotional distress. This integrated profile reflects a broader syndemic framework in which psychological vulnerability and metabolic disease reinforce one another within the context of rapid urbanization and lifestyle transition (Ganie et al., 2024; Dakanalis et al., 2023).

5. Conclusion

This study provides a comprehensive descriptive analysis of the co-occurrence of lifestyle, psychological health, and metabolic conditions in urban India. The findings support a health-psychology view where obesity, hypertension, and PCOS are embedded in behavioral-psychological patterns, particularly regarding diet and sleep. Sleep duration and timing emerged as critical factors linked to both mental and physical outcomes. Recognizing these interdependencies is essential for developing holistic, culturally relevant health strategies to address the rising burden of non-communicable diseases and psychological distress in contemporary urban India.

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FROM STIGMA TO RESILIENCE: CULTURALLY RESPONSIVE PEER SUPPORT AS PSYCHOSOCIAL CARE FOR PEOPLE LIVING WITH HIV

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Abstract

People living with HIV (PLWH) continue to face stigma, identity disruption, and psychological distress that can undermine quality of life and engagement in care. Peer-led support groups are widely used, yet their psychological functions and cultural expressions are still under-specified. This qualitative cross-cultural study examined how peer support groups operate as psychosocial care for PLWH in Denmark and Indonesia, focusing on emotional regulation, identity reconstruction, and empowerment. Forty adults living with HIV were interviewed (20 in Denmark; 20 in Indonesia) between 2024 and 2025 using semi-structured, in-depth interviews. Participants were recruited via community organizations and networks and reflected diversity in age and gender identity. Interviews were audio-recorded, transcribed, and analyzed thematically using a phenomenologically informed approach to capture lived experience and meaning-making. Across both settings, peer groups were described as psychologically safe spaces that enabled emotion-focused disclosure and reduced shame. Peer dialogue supported identity reconstruction, helping participants move from self-blame to resilience by normalizing HIV as a manageable condition and strengthening self-worth. Participants also reported increased empowerment, including confidence in treatment self-management, communicating with healthcare providers, and navigating disclosure and intimate relationships. Cultural variations shaped how these processes were expressed: spirituality and collectivist support were more prominent in Indonesia, while autonomy, boundary-setting, and self-affirmation were emphasized in Denmark. Findings indicate that peer support can function as culturally adaptable psychosocial care that complements clinical services, with implications for integrating peer-led models into stigma-informed mental health and HIV care pathways.

Keywords: *HIV, peer support, stigma, psychosocial care, cross-cultural psychology.*

1. Introduction

People living with HIV (PLWH) continue to face psychological strain linked to stigma, disclosure concerns, and social isolation, even in contexts where antiretroviral therapy has transformed HIV into a manageable chronic condition. Stigma is commonly described as a multilevel process in which societal devaluation becomes internalized through shame, self-blame, and expectations of rejection, shaping emotional wellbeing and everyday participation (Earnshaw et al., 2019; Link & Phelan, 2014). These processes can reduce quality of life and undermine engagement in care, particularly when individuals have limited opportunities to speak openly about HIV.

Peer-led support groups are widely used in community responses to HIV and often serve as entry points to psychosocial support. In this paper, peer support groups are defined as regularly convened, non-clinical meetings facilitated by peers (typically PLWH) in which participants share lived experiences, coping strategies, and resources in a confidential environment. Existing research frequently emphasizes social connection or practical information exchange, but the psychological mechanisms through which peer groups function as psychosocial care are less consistently specified. This limits the ability to translate peer support into clinical pathways and to design culturally responsive models.

A cross-cultural perspective is important because peer support is embedded in norms about disclosure, autonomy, family roles, spirituality, and health systems. Denmark has established HIV services, yet internalized stigma can persist in workplaces, intimate relationships, and self-evaluations. In Indonesia, service expansion coexists with stronger social and structural stigma, including moralizing narratives and gendered expectations that can heighten disclosure risks. Comparing these contexts allows examination of which psychological processes of peer support remain stable and which are culturally shaped.

2. Objectives

This study examined how peer-led support groups function as psychosocial care for PLWH in Denmark and Indonesia. Specifically, it explored (1) how peer groups support emotional regulation and reduce internalized stigma, (2) how peer dialogue contributes to identity reconstruction, and (3) how participation strengthens empowerment in health-related decisions and everyday life, including self-advocacy and engagement in care.

3. Design

A qualitative, cross-cultural design was used. Data were generated through semi-structured, in-depth interviews and analyzed with reflexive thematic analysis. The study adopted a phenomenological orientation to capture lived experiences and meanings of peer support in everyday contexts, while using health psychology concepts to interpret psychological processes relevant to stigma and wellbeing.

4. Methods

4.1. Setting and participants

Forty adults living with HIV participated: 20 in Denmark and 20 in Indonesia. Participants were purposively recruited through community organizations and peer networks to reflect variation in gender, age, time since diagnosis, and engagement with peer support. In Denmark, recruitment was supported by AIDS-Fondet and HIV Denmark; in Indonesia, recruitment was supported by local NGOs and peer networks. Eligibility criteria included being aged 18 years or older, living with HIV, and having participated in a peer-led support group for at least six months. Participants' ages ranged from early adulthood to older adulthood, and the sample included men and women as well as participants who identified outside binary categories.

4.2. Data collection and interviewing procedure

Interviews were conducted between 2024 and 2025 by the first author. A semi-structured interview guide was developed in consultation with community partners and refined through pilot interviews to ensure cultural relevance and person-first language. Core domains included: pathways into peer support; experiences of enacted, anticipated, and internalized stigma; disclosure decision-making; emotional coping; changes in self-understanding; relationships and intimacy; healthcare navigation; and perceived impacts of peer support on treatment engagement and quality of life.

Interviews were conducted in participants' preferred language (Danish, English, or Indonesian). Most interviews took place in private rooms at partner organizations or other agreed confidential settings; when in-person meetings were not feasible, secure video or telephone calls were used. Interviews typically lasted 60-90 minutes. With consent, interviews were audio-recorded. Recordings were transcribed verbatim and anonymized by removing names and identifying details. Non-English interviews were transcribed in the original language; key excerpts were translated to English with attention to meaning equivalence.

4.3. Constructs and analytic approach

Major constructs were defined prior to analysis and refined iteratively during coding. Internalized stigma refers to the incorporation of negative societal beliefs about HIV into one's self-concept, including shame, self-blame, and perceived diminished worth (Earnshaw & Chaudoir, 2009). Emotional regulation refers to processes that reduce distress and help manage difficult emotions, such as relief through disclosure, validation, and learning coping strategies. Identity reconstruction refers to changes in self-understanding and meaning-making, including integrating HIV into a coherent life narrative and shifting from a stigmatized identity to a resilient one. Empowerment refers to strengthened agency, self-efficacy, and confidence in treatment self-management, healthcare communication, and social participation.

Transcripts were analyzed using reflexive thematic analysis (Braun & Clarke, 2006). The analysis followed six phases: familiarization, initial coding, theme development, theme review, theme definition, and reporting. Coding was primarily inductive (grounded in participants' accounts) but interpreted through a clinical and health psychology lens. Cross-cultural comparison was conducted by examining convergence and divergence in themes across countries, focusing on how cultural resources (e.g., collectivism, spirituality, autonomy norms) shaped the expression of the same psychological processes.

4.4. Trustworthiness, ethics, and reflexivity

Trustworthiness was strengthened through an audit trail of coding decisions, iterative memo-writing, and peer debriefing within the research team. Community partners were consulted during analysis to check resonance and cultural appropriateness of emerging interpretations. Ethical approvals were obtained in accordance with institutional requirements in Denmark and Indonesia. All participants provided informed consent and were reminded that participation was voluntary, withdrawal was possible without consequences, and data would be stored securely and reported in anonymized form. Reflexivity was maintained throughout data collection and analysis: the interviewer, a psychology researcher with experience collaborating with community partners in both settings, documented assumptions and potential power dynamics in analytic memos. Interviews started with rapport-building and a clear confidentiality explanation, and open-ended prompts were used to accommodate differences in communication style and to let participants set the pace and depth of disclosure.

5. Results

Peer support was consistently described as different from clinic-based care and everyday social interactions. Participants framed groups as psychologically meaningful spaces where HIV could be discussed without the fear of being reduced to a stigmatized label. Three interrelated themes captured how peer support operated as psychosocial care across contexts.

5.1. Emotional regulation through culturally grounded disclosure

Across both countries, participants described peer groups as safe environments for emotional disclosure. Speaking openly about fear, anger, sadness, or shame produced relief and reduced rumination. Members reported that being understood by someone with similar lived experience changed the emotional tone of disclosure from risk to connection. In Indonesia, emotional regulation was often anchored in collective reassurance and spiritual meaning-making. Participants described prayer, religious framing of adversity, and mutual care as calming resources that helped them tolerate uncertainty and maintain hope. In Denmark, participants emphasized open dialogue, privacy, and boundary-setting; the group was described as a place to name difficult emotions without needing to protect others from discomfort.

5.2. Identity reconstruction: moving from shame to resilience

Peer narratives enabled participants to reinterpret HIV as a manageable condition rather than a moral failing. Through comparison, recognition, and shared vulnerability, participants described a shift in self-concept from being “damaged” to being “still whole.” Indonesian participants frequently described identity reconstruction through belonging and family-oriented roles, often framing resilience as continuing to contribute to household responsibilities and maintaining social dignity. Danish participants more often described identity reconstruction through autonomy and self-affirmation, emphasizing personal growth, authenticity, and the ability to form relationships without hiding. In both contexts, identity reconstruction reduced internalized stigma by replacing shame-based narratives with narratives of survivorship and competence.

5.3. Empowerment in self-management and social participation

Participants reported increased confidence in treatment routines, healthcare navigation, and communication with providers. Peer dialogue provided language and scripts for disclosure decisions, medication adherence, and responding to stigmatizing remarks. In Indonesia, empowerment was commonly described as collective problem-solving, including sharing practical strategies for clinic visits, managing side effects, and negotiating disclosure within family settings. In Denmark, empowerment was often linked to self-advocacy and rights-based communication with healthcare systems and employers. Across both settings, empowerment included advocacy within peer networks, where members supported each other to seek respectful care and challenge misinformation.

5.4. Cross-cultural synthesis of shared mechanisms

Despite different cultural emphases, the findings indicate shared mechanisms: peer groups provided regulated spaces for disclosure, enabled new meanings for HIV, and strengthened agency in health-related decisions. Cultural context shaped which resources were most salient (spirituality and communal belonging in Indonesia; autonomy and privacy in Denmark), but the underlying psychological functions remained comparable.

Table 1. Summary of psychological functions of peer support and cultural expressions across settings.

Psychological function	Denmark (typical expressions)	Indonesia (typical expressions)
Emotional regulation	Safe disclosure; normalization; autonomy and self-affirmation; managing subtle stigma.	Collective reassurance; spirituality and meaning-making; managing stronger disclosure risks.
Identity reconstruction	Integrating HIV into a coherent self; reframing from shame to resilience; future orientation.	Rebuilding identity through belonging and family roles; dignity and social harmony; resilience as contribution.
Empowerment	Rights-based self-advocacy; communication with clinicians and employers; boundary-setting in relationships.	Collective problem-solving; navigating clinics and family disclosure; building confidence through group solidarity.

5.5. Communication within relationships and advocacy

Participants described that peer support improved communication in intimate and family relationships by providing language to explain HIV, treatment, and U=U in a calm and credible way. In Denmark, this supported conversations about dating, disclosure boundaries, and fear of rejection. In Indonesia, participants emphasized maintaining family harmony through selective disclosure and identifying supportive allies. Across settings, some participants also described moving from self-protection to advocacy, such as correcting misconceptions or volunteering in community activities.

6. Discussion

6.1. Implications for HIV care and mental health integration

Peer-led groups can function as a low-threshold extension of mental health support within HIV care by enabling safe disclosure, emotion-focused coping, and guided meaning-making that may not be feasible in routine clinical visits. Linking clinics and community organizations can strengthen referral pathways, facilitator supervision, and safeguarding, while maintaining confidentiality and clear boundaries (Berg et al., 2021; Chime et al., 2019).

6.2. Gender and intersectional considerations

Although the present analysis did not focus on specific sub-populations, participants' accounts suggest that gender norms and relationship expectations shape how stigma is experienced and managed. Women described additional concerns related to caregiving roles and fear of being judged as "irresponsible" partners or parents, while some men emphasized pressures around masculinity, sexual identity, and disclosure in dating contexts. These observations point to the importance of gender-sensitive facilitation and referral pathways, including links to mental health and violence-prevention services where relevant, and reinforce that stigma-informed peer support should be integrated with broader efforts addressing social determinants of health (Earnshaw & Chaudoir, 2009; Rai et al., 2020).

By specifying psychological processes, this study clarifies how peer-led support can function as psychosocial care rather than only social contact or information sharing. Emotional regulation, identity reconstruction, and empowerment formed a coherent pathway through which internalized stigma was reduced and quality of life improved. The cross-cultural comparison suggests that the same processes can be expressed through different cultural resources: spirituality and collectivism were prominent in Indonesia, while autonomy and self-affirmation were more explicit in Denmark (Earnshaw & Chaudoir, 2009; Yigit et al., 2025).

For clinical and health psychology, the findings support integrating peer support into HIV services as a complementary component of mental health care, especially where access to formal psychological services is limited or stigmatized. Training and supervision for peer facilitators could focus on creating psychologically safe disclosure norms, addressing shame-based narratives, and strengthening communication skills for healthcare interactions. Collaboration between clinics and community organizations is important for referral pathways, confidentiality protections, and sustainability (Lindgren et al., 2018; Øgård-Repål et al., 2022).

6.3. Limitations and future directions

Limitations include purposive recruitment through peer networks (which may under-represent individuals not connected to groups), possible social desirability in discussing stigma, and translation challenges when synthesizing across languages. Future research could combine qualitative mechanisms with quantitative testing of pathways (e.g., internalized stigma to wellbeing via empowerment) and evaluate implementation outcomes of culturally tailored peer models.

7. Conclusions

Peer-led support groups function as culturally adaptable psychosocial care for PLWH by enabling emotional regulation, identity reconstruction, and empowerment. Detailing the interviewing process and clarifying the constructs strengthens interpretability of the findings and supports transferability. Integrating peer support within HIV care and community services may reduce internalized stigma and improve psychological wellbeing across diverse settings.

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AN OPINION SURVEY ON ATTITUDES TOWARD MEDICAL ASSISTANCE IN DYING IN UNDERGRADUATE STUDENTS

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Abstract

The purpose of this study was to survey opinions on Medical Assistance in Dying (MAiD) and to examine factors that correlate with its acceptance or rejection. Participants received questions that asked about demographic information (such as age and gender), and were asked their opinions on positive and negative attitudes toward MAiD. We measured participants' fear of death, religiosity, social connectedness and assurance, depression, anxiety, stress, self-efficacy and satisfaction with life. A total of 168 undergraduate students at an eastern Canadian university participated in the study. The average age was 21.15 years (*SD* = 5.68; range = 18-46 years). We received scores across the range (strongly disagree to strongly agree) on all MAiD questions, indicating varied opinions. Several gender differences were noted. Women were more likely to agree that MAiD reduced the stigma of end-of-life thoughts whereas men were more likely to be neutral in this area. Men were less likely than women to fear death. Both men and women were neutral on whether they thought the legalization of MAiD was a slippery slope that could go further than planned. Other results indicated that Canadian-born participants (versus those born abroad) were less religious and were more agreeable to MAiD; they also scored higher on fear of death. Participants were asked if they would consider MAiD for themselves if they were suffering from an incurable disease in the future. A hierarchical regression analysis indicated that those who scored higher on agreement were less likely to be religious, but more likely to be born in Canada and score higher on social assurance. These results provide a snapshot of the opinions of young adults and can be used for future comparisons.

Keywords: *MAiD, Medical Assistance in Dying, opinions, attitudes.*

1. Introduction

Medical assistance in dying (MAiD) occurs when patients request assistance from qualified health professionals to end their lives. MAiD was legalized in Canada in 2016 under certain guidelines and safeguards. Most patients requesting MAiD list cancer as the primary reason for their request, and most individuals are over the age of 75 (Government of Canada, 2025). The topic of MAiD continues to be widely debated and discussed, and arguments exist both for and against the procedure (Kirchhoffer & Lui, 2021). Arguments for MAiD often include aspects of personal rights and autonomy, dignity, and alleviation of pain and suffering; arguments against include the belief in the sanctity of life, the fear of a slippery slope extending further than intended, and concern for vulnerable individuals (Claxton-Oldfield & Miller, 2015).

Research examining the correlates of positive and negative attitudes toward MAiD is in its infancy. Studies largely focus on religiosity and find that those who score higher tend to oppose MAiD (Harper, Tomaras, Powell, Reddon, & Hawrelak, 2025; Hawrelak, Harper, Reddon, & Powell, 2022). In two of the few studies published looking at other correlates of MAiD, Harper et al. (2025) and Hawrelak et al. (2021) found support varied under different scenarios and was influenced by religiosity, political stance, ethnicity, and personality. We sought to expand on this research by examining whether fear of death, depression, anxiety, stress, satisfaction with life, social connectedness and assurance, and self-efficacy predicted support or rejection of MAiD.

2. Objectives

The objectives of this study were to survey attitudes toward MAiD and to examine predictors of its acceptance or rejection.

3. Method

3.1. Participants

A total of 168 participants completed a series of questionnaires. They were recruited from undergraduate courses at a small eastern university in Canada. The average age of participants was 21.15 years (*SD* = 5.62; age range 18 - 46). The sample was predominantly comprised of women (79.2% women; 18.4% men; 1.2% transgender male; 1.2% non-binary). The majority of participants were single (91%), identified as white ancestry (72.5%), and born in Canada (74.4%).

3.2. Measures

Demographic Questionnaire (adapted from Angus Reid Institute, 2016; Annoh-Kwafo, 2020; Falconer et al., 2019; Hizo-Abes, Siegel, & Shreier, 2018). A demographic questionnaire was designed for this study. This questionnaire asked about age, gender, marital status, ethnicity, country of birth, religious affiliation, religiosity, spirituality, and political party affiliation.

MAiD Survey. The MAiD survey was based on a questionnaire compiled by Annoh-Kwafo (2020). Participants were asked, *regardless of whether you support or oppose MAiD, rate the legitimacy of the following reasons or arguments for and against MAiD.* The statements were rated on a 5-point Likert scale from 1 (*strongly disagree)* to 5 (*strongly agree*). The statements FOR MAiD appear in Table 1; the statements AGAINST MAiD are in Table 2 and the source for each statement is listed in the notes below each table.

Participants were also asked, *in the future, if you were suffering from an incurable disease, would you consider MAiD for yourself?* This question was adapted from Hizo-Abes et al. (2018) and was rated from 1 (*never consider)* to 5 (*strongly consider).* Finally, they were asked to rate their fear of death (*the thought of death frightens me)* on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*).

The Depression, Anxiety Stress Scale – 21 (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item questionnaire with three subscales comprised of 7 items each: depression, anxiety and stress. Each item is rated on a 4-point Likert scale from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time).* The scale has been widely used in research and is a reliable measure. Cronbach's α in the current study was .89 (depression), .83 (anxiety), and .82 (stress).

The Social Connectedness and Social Assurance Scales (SCS and SAS; Lee & Robbins, 1995). These two scales measure a sense of belongingness. They are comprised of 8 items each and are measured on a 6-point Likert scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). Items are worded in the negative direction; thus, higher scores are indicative of more social connectedness and assurance. Cronbach's α in the current study was .95 (SCS) and .85 (SAS).

The New General Self-Efficacy Scale (SE; Chen, Gully, & Eden, 2001). This scale measures perceived ability to engage in, and accomplish, a number of tasks. It is an 8-item measure and is scored on a 5-point Likert scale ranging from 1 (*strongly disagree)* to 5 (*strongly agree*). Cronbach's α in the current study was .91.

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). This scale measures general satisfaction with life. It is comprised of 5 items and is measured on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). It is widely used in research and had good internal reliability in this study (Cronbach's α = .87).

3.3. Procedure

Undergraduate students could earn 0.5 bonus points toward their final grade for participation in research. Those who were interested were directed to an online description of available research studies. If they wished to participate in this study, they were directed to Qualtrics, the online survey platform. A consent form appeared first, detailing the nature of the study. They were also told that the study was anonymous, and that they could refuse to answer any questions. They then had to click a button to agree to participate or they could exit the survey. The consent form was followed by the demographic measure, and then the remaining questionnaires were presented in random order. The study took approximately 20 minutes to complete.

4. Results

4.1. Data analyses

We had complete data on 169 participants. One participant was deleted from the data set (thus N = 168) because they were a univariate outlier on two variables and were also flagged as a multivariate outlier using Mahalanobis Distance.

4.1.1. Survey results and group differences. Table 1 displays four arguments FOR MAiD, and the participants' responses.

Table 1. Percentage of Respondents' Agreement on the Legitimacy of Reasons for Medical Assistance in Dying.

Statement	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree	*M (SD)*
1. Allowing Medical Assistance in Dying respects the autonomy of patients to make decisions about their own health, life, and death.	3.6	3.6	4.2	31.7	56.9	4.35 (.98)
2. In some cases, Medical Assistance in Dying reduces suffering.	3.6	0.6	3.6	27.4	64.9	4.49 (.89)
3. Medical Assistance in Dying permits one to die without stigma of suicide.	7.1	9.5	14.3	28.0	41.1	3.86 (1.25)
4. People who are suffering from incurable or terminal conditions may wish to avoid living in states that they perceive to lack dignity, or they may want to be remembered in particular ways.	1.8	1.2	10.8	31.1	55.1	4.37 (.86)

Note. Source for questions 1-3 was Falconer et al. (2019); question 4 was the Alberta Health Services Clinical Ethics (2017).

As indicated in Table 1, most participants agreed or strongly agreed that the statements were legitimate reasons for allowing MAiD. The data were analyzed for gender differences (males and females only as there were too few other genders) using independent samples *t*-tests. Women scored higher in their agreement on item #3 than did men (*M* women = 3.96; *M* men = 3.39; $t = 2.02$, $p = .05$). No other gender differences were detected. Differences were also found for country of birth (Canada versus Other). Canada had higher *M scores* on all four items (all $p < .001$). Finally, the data were analyzed for political leaning (left versus right). Differences were found on items 1, 2, and 4 (all $p < .05$); those leaning left had higher *M* scores than those leaning right.

Table 2 displays six arguments AGAINST MAiD, and the participants' responses.

Table 2. Percentage of Respondents' Agreement on the Legitimacy of Reasons Against Medical Assistance in Dying.

Statement	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree	*M (SD)*
1. Life is sacred and should therefore be preserved, despite the circumstances.	12.5	35.7	14.9	20.2	16.7	2.93 (1.32)
2. Palliative care is adequate to provide patients with relief from intolerable suffering.	11.3	25.6	14.3	32.7	16.1	3.17 (1.29)
3. No safeguards can adequately protect vulnerable persons from unwanted or coerced Medical Assistance in Dying.	11.4	32.5	31.9	15.7	8.4	2.77 (1.11)
4. Legalization of Medical Assistance in Dying is a slippery slope and may end up going further than originally planned.	12.5	27.4	25.0	28.0	7.1	2.90 (1.16)
5. The decision to end life sits with a higher being/power (God, Allah, the Creator, etc.) so humans should not interfere with this greater plan.	42.9	19.0	11.9	13.1	13.1	2.35 (1.46)
6. The availability of Medical Assistance in Dying could lead to greater pressure on vulnerable people to choose Medical Assistance in Dying.	8.9	20.8	20.2	33.9	16.1	3.27 (1.22)

Note. Source for questions 1-3 was Falconer et al. (2019); question 4 was Angus Reid Institute (2016); questions 5-6 was the Alberta Health Services Clinical Ethics (2017).

As indicated by the *M* scores in Table 2, participants were more neutral on whether the statements were legitimate arguments AGAINST MAiD. Men ($M = 3.42$) scored higher than women ($M = 2.81$) on item # 1 ($t = -2.33$, $p = .02$). Those born in Canada scored lower on all items than those born in other countries (all $p < .006$). Further, those leaning right scored higher than those leaning left on items 1, 4, and 5 (all $p < .01$).

Other differences noted were that men ($M = 2.84$) were less likely than women ($M = 3.67$) to fear death ($t = 3.34$, $p = .001$). Those born in Canada ($M = 1.99$) rated themselves as less religious than those born abroad ($M = 3.14$; $t = -5.44$, $p < .001$), were more agreeable to MAiD (*M* Canada = 3.39*; M* Other = 2.77; $t = 2.86$, $p = .005$) and more likely to fear death (*M* Canada = 3.69*; M* Other = 3.07; $t = 2.74$, $p = .007$). Further, those leaning right scored higher on religiosity (*M* right = 2.75; *M* left = 1.95; $t = -3.43$, $p < .001$), lower on MAiD (*M* right = 2.83; *M* left = 3.47; $t = 2.78$, $p = .006$), and fear of death (*M* right = 3.23; *M* left = 3.73; $t = 2.0$=, $p < .04$). Finally, those leaning right had lower stress scores (*M* right = 0.89; *M* left = 1.12; $t = 2.05$, $p = .04$) and higher satisfaction with life scores (*M* right = 5.17; *M* left = 4.69; $t = -2.18$, $p = .03$). No other group differences were found.

4.1.2. Correlations, Regression Survey Results, and Group Differences. Participants were asked (on a 5-point scale) whether they would consider MAiD for themselves if they were suffering from an incurable disease in the future. Significant positive correlations were found with social assurance ($r = .21$), depression ($r = .21$), anxiety ($r = .25$), and stress ($r = .25$), and significant negative correlations were found with religiosity ($r = -.44$) and satisfaction with life ($r = -.15$; all $p <. 01$). No statistically significant correlations were found between MAiD and age, spirituality, fear of death, social connectedness, and self-efficacy.

To further examine the relation among variables, a hierarchical regression analysis was conducted predicting whether participants would choose MAiD for themselves. Gender (male, female) and place of birth (Canada, Other) were entered on the first step. Religiosity and political leaning (left vs right) were entered on the second step. On the final step, the variables with significant zero-order correlations (social assurance, depression, anxiety, stress, and satisfaction with life) were added.

The overall model was statistically significant $F (9, 128) = 6.48$, $p < .001$, and accounted for 31% of the variance. The first step was significant $F (2, 135) = 3.93$, $p = .022$, $R^2 = .06$. Canadians scored higher on MAiD than did those born abroad. The second step was significant ΔF (2, 133) = 14.72, $p < .001$, $\Delta R^2 = .17$. People scoring lower on religiosity were more likely to endorse MAiD ($\beta = -.41$). The final step was also significant $\Delta F (5, 128) = 3.23$, $p = .009$, $\Delta R^2 = .09$. People scoring higher on social assurance were more likely to endorse MAiD ($\beta = .25$). The adjusted R^2 of .27 suggests that roughly one quarter of the variance in considering MAiD for oneself was predicted by place of birth (Canada), lower scores on religiosity, and higher scores on social assurance.

5. Discussion

This study provided data on attitudes toward MAiD in a younger Canadian sample. The practice of MAiD is in its 10th year in Canada, and thus, published data is sparse, but slowly increasing. Participants in this study generally supported the legitimacy of arguments for MAiD. In other words, they agreed that valid reasons for choosing MAiD were that it allowed patients autonomy in decision-making, it can reduce suffering, provides dignity, and alleviates the stigma of suicide. In this last regard, women were more likely to agree with this statement. Participants born in Canada were more likely to agree with MAiD than those born abroad. The sample in this study was, for the most part, young Canadian adults, who have now spent just under half their lives being exposed to the legalization of MAiD in Canada. Those born in other countries may not have experience with the practice and may be more reserved in their opinions. Further, those with left leanings in terms of their political choices were more open to MAiD than those leaning right. Indeed, the Conservative Party opposes MAiD in principle in Canada (Conservative Party of Canada, 2023).

Responses to the validity of arguments against MAiD were more neutral. Participants were neutral on whether they thought MAiD could lead to a slippery slope (roughly the same proportion of respondents agreed and disagreed). Slightly more agreed that palliative care was a valid option over MAiD, and that the availability of MAiD puts vulnerable people at risk in that they may feel undue pressure. More participants disagreed that end-of-life decisions rest with a higher power, and that no safeguards can protect vulnerable people from coercion. Men scored higher in the belief that life is sacred and should always be preserved. Further, participants born abroad scored higher on all arguments against MAiD, and right leaning participants scored higher on half of these items.

The correlational analyses revealed that people who were more likely to choose MAiD for themselves in the future if they were suffering from an incurable disease, scored higher on depression, anxiety, and stress, and scored lower on life satisfaction and religiosity; however, they reported a higher sense of self-assurance. The relations among these variables were examined further in a hierarchical regression analysis. Choosing MAiD for oneself at some point in the future was predicted by place of birth (Canada), lower scores on religiosity, and higher scores on social assurance. Of these variables, lower religiosity (regardless of religious affiliation) contributed the most variance in choosing MAiD. None of the other mental health variables (depression, anxiety, stress, life satisfaction) reached significance.

This study surveyed positive and negative attitudes about MAiD and offers a springboard for others to expand on this work. However, there were a number of limitations in this study. First, the sample was largely young adults. They tend, on average, to be healthier and view end-of-life decisions as something in the distant future. The sample was also largely women. More research is needed on older adults with a gender balanced sample. Finally, although the sample size was adequate for our analyses, more data needs to be collected on larger sample sizes, and varied gender and age ranges across the country. In conclusion, MAiD is a difficult and often emotionally charged topic. It encompasses legal issues and provokes thoughtful questions about health care and vulnerability. Research in this area is needed.

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PRELIMINARY DATA FROM A FEASIBILITY TRIAL OF AN ONLINE RESILIENCE INTERVENTION FOR PEOPLE WITH MULTIPLE SCLEROSIS: READY FOR MS

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Abstract

Multiple sclerosis (MS) is a chronic disease of the central nervous system, leading to significant physical burden and psychological challenges. The unpredictable nature of MS, characterized by relapses and progressive disability, further exacerbates psychological distress and negatively impacts quality of life. Although many people with MS (PwMS) experience significant psychological distress, there is a lack of psychotherapeutic options. In addition, only few interventions target resilience. As resilience, the ability to "bounce back" from adversity, is a key factor in coping with chronic diseases like MS, we developed and feasibility-tested an adapted German online version of the group-based resilience-enhancing program READY for MS. The program consists of a 7-module program with an additional booster session, which included videos, exercises, a personal plan and a workbook. In a single-arm feasibility study with n=19 PwMS (mean age 39.01 years; sex: 79% female) we collected data to assess program usability, perceived personal experiences and benefits, impressions and suggestions for improvement using a post-intervention survey. With a structured qualitative interview in a subset of n=5 participants we collected additional data on program satisfaction, usability and applicability. Interviews were transcribed and analyzed using qualitative content analysis, and survey data were subjected to descriptive analyses. Exploratory quantitative data on resilience, health-related quality of life, and psychological flexibility were also collected by an online survey pre- and post-intervention. Statistical analyses (Shapiro-Wilk test) were run by IBM SPSS (version 30.0). The program was well accepted, and both qualitative and quantitative findings indicated high satisfaction and perceived benefit. Participants reported greater self-reflection, awareness, and stress-resistance, and suggested minor structural and technological improvements. Quantitative results (n=19) indicated positive effects of the program on resilience (CD-RISC $p<.05$), quality of life (HAQUAMS $p<.05$), and psychological flexibility (MPFI flexibility $p<.05$; inflexibility $p<.05$). The German online version of READY for MS appears to be a feasible and well-accepted intervention to support resilience in PwMS. Preliminary data indicate significant beneficial effects on psychological flexibility and inflexibility. The next step is a randomized controlled trial to study the effectiveness of READY for MS (started in January 2026).

Keywords: *Multiple sclerosis, resilience, quality of life, mental health, acceptance and commitment therapy (ACT).*

1. Introduction

Multiple sclerosis (MS) is one of most common autoimmune inflammatory diseases of the central nervous system. It is a complex degenerative illness characterized by inflammation, demyelination and neurodegeneration in the brain and the spinal cord. The course of MS is unpredictable, and symptoms vary widely and can adversely affect most areas of a person's life, often producing fluctuating and debilitating levels of disability (Compston & Coles, 2008). Consequently, PwMS are more likely to report lower quality of life (QoL) and clinically significant psychological distress than people in the general population (Drathen et al., 2024). In particular, prevalence rates of depression (30.5%) and anxiety (22.1%) are high (Boeschoten et al., 2017). Resilience in the face of such challenges is essential for optimizing adjustment to the fluctuating demands of the illness over the long haul. Resilience involves negotiating, managing, and adapting to significant stressors or trauma by activating both internal (e.g., mindfulness, acceptance, cognitive flexibility, and active coping) and external (e.g., social support, financial capital, and community

services) resources (Windle et al., 2011). Resilience has been linked to better psychosocial and mental health outcomes and motor functioning in PwMS (Klineova et al., 2020; Koelmel et al., 2017; Silverman et al., 2017). Resilience has also been shown to ameliorate the adverse effects of fatigue and pain on QoL in PwMS (Terrill et al., 2016). Although resilience appears to be an important protective factor in coping with the challenges of MS, PwMS report lower levels of resilience than community samples and people with other chronic illnesses (Terrill et al., 2016). Hence, developing interventions that promote resilience in PwMS is a priority research endeavor.

Three published resilience training interventions for PwMS have been developed. These interventions have been informed by positive psychology (Alschuler et al., 2018), a purpose-built resilience framework (Halstead et al., 2020), and acceptance and commitment therapy (ACT) (Pakenham et al., 2018). Preliminary evaluations of their efficacy suggest they are effective in cultivating resilience and/or associated protective factors (e.g., social support). The ACT intervention called READY for MS (Pakenham et al., 2018) is the most widely researched and rigorously tested resilience intervention for PwMS and is the focus of this study. READY for MS was derived from a group resilience training program called "REsili-ence Activities for every DaY" (READY) that was effectively applied to people with cancer (Hawkes et al., 2013), congenital heart disease Steele (2016), and diabetes (Ryan et al., 2020) and staff in a workplace setting (Burton et al., 2010). A modified version of the program for PwMS was developed and called READY for MS (Pakenham et al., 2018).

READY for MS is based on ACT (Hayes et al., 2016), a contemporary variant of cognitive behaviour therapy. Reviews suggest that ACT interventions show promise in promoting mental health and QoL in PwMS (Thompson et al., 2022). ACT is underpinned by the psychological flexibility framework. ACT promotes psychological flexibility, which involves behaving consistently with one's chosen values even in the presence of unwanted intrusive internal experiences such as emotional discomfort or self-critical thinking (Hayes et al., 2016). Evaluations of READY for MS have supported its theoretical foundation by demonstrating that therapeutic change occurs through psychological flexibility, the mechanism of action proposed by the ACT framework (Hayes et al., 2016). READY for MS has been successfully applied in numerous cultural contexts including Australia, Italy, United Kingdom, Greece and Israel. It has also been delivered in various modes including in-person group (Giovannetti et al., 2020; Giovannetti et al., 2022; Pakenham et al., 2018), group via real time videoconferencing (Theodorou et al., 2022), and online self-directed format (Pakenham & Landi, 2023) Wicks et al., 2023). The self-directed online version is referred to as e-READY for MS. The purpose of the present study was to develop a German version of the digital READY for MS and evaluate it in a feasibility single arm pilot mixed methods study.

2. Methods

The study design is a single intervention condition with pre- and post-intervention assessments. Qualitative data was collected at post-intervention via semi structured interviews with a sub-sample of participants. Quantitative data was collected via an online survey for demographics and MS clinical details at pre-intervention, resilience and QoL at pre- and post-intervention and online program usability at post-intervention.

PwMS were recruited from the MS outpatient clinic of UMC Hamburg-Eppendorf. Inclusion criteria were MS diagnosis, >17 years old, and German language skills. The study was approved by the Ethics Committee of the Hamburg Chamber of Psychotherapists (01/2024).

2.1. Intervention

The e-READY for MS program consists of seven weekly modules plus a booster module five weeks after the seventh module. The seven module topics and order of presentation are as follows: 1) Introduction to the READY Resilience Model, 2) Mindfulness, 3) Acceptance, 4) Defusion I, 5) Defusion II and Self-as-context, 6) Values and Meaningful Action, 7) Review and Future Planning. The booster module provides a review of program information. Program strategies include psychoeducation, experiential exercises, guided meditations, metaphors, self-reflection tasks, self-monitoring, in-session practice activities, and home practice assignments. Participants receive a workbook that has two components: 1) module content and 2) the READY Personal Plan which is comprised of in-session and home practice exercises. Participants record their personal practice in the Personal Plan. The Personal Plan constitutes a personalized resource to help participants apply program strategies to their specific context. The workbook was provided as a PDF file; however, a hard copy of the Personal Plan was also sent to participants. Participants received an audio recording of meditations. The entire online program is guided by two animated characters whose voiceovers were recorded by professional actors. The digital READY for MS modules were integrated into the UKE@home platform, a secure website developed for research purposes and hosted by the University Medical Center Hamburg-Eppendorf.

2.2. Semi-structured interviews

Semi-structured interviews were conducted by LD with five participants. Interviews inquired about overall impressions of the program, as well as views on its challenges, usability, perceived benefits and effects on resilience and psychological well-being, and suggestions for improvement. The semi-structured interview guideline was based on Helfferich's (2009) approach to ensure consistency across all interviews.

2.3. Quantitative measures

The online survey (Lime survey hosted by the University of Hamburg) collected data on demographics (age, gender, education, employment) and MS (disease duration, MS disease course, perceived disability level (Patient Determined Disease Steps Scale (Learmonth et al., 2013). The survey also included validated standardised multi-item scales used in prior MS research that measured resilience (Connor-Davidson-Resilience-Scale 25 (CD-RISC-25), (Connor & Davidson, 2003), QoL (Hamburg Quality of Life Questionnaire in Multiple Sclerosis (HAQUAMS (Gold et al., 2001)), psychological flexibility (Multidimensional Psychological Flexibility Inventory (MPFI (Rolffs et al., 2018)) and online program usability (System Usability Scale (SUS), (Lewis, 2018).

2.4. Data analysis approach

Interviews were recorded and transcribed. Transcriptions of interviews were subjected to qualitative software (MAXQDA24 (1989 – 2025, VERBI Software. Consult. Sozialforschung GmbH, Berlin, Germany) which identified categories through a structured coding process (guidelines by (Kuckartz & Rädiker, 2019). Regarding quantitative analyses (IBM SPSS Statistics Version 30.0.0.0), Shapiro-Wilk paired-samples t-tests and Wilcoxon signed-rank one-sided tests were used to examine changes from pre-intervention to post-intervention in measures of resilience, QoL and psychological flexibility. We used a significance level of $\alpha = 0.05$.

3. Results

3.1. Qualitative

Four key themes emerged from the qualitative analyses. The first theme was labelled 'perceived effects on everyday life' and subsumed four sub-themes that reflected the positive effects of the e-READY for MS program on daily living including increased reflection and emotional awareness, greater awareness of stress and MS symptoms, and resilience. The second theme 'program use and engagement' had four sub-themes that reflected variability in engagement with program resources, time demands of the program, importance of program completion and program user friendlines. The third theme 'perceptions of program content' was composed of sub-themes that identified positive aspects of the program including an overall positive impressions, particularly helpful modules (e.g., mindfulness and acceptance) and useful resources (e.g., personal plan), as well as identifying challenging modules such as the defusion module. Finally, the fourth theme was labeled 'recommendations and improvement suggestions'.

3.2. Quantitative

A total of 19 PwMS participated in the quantitative study. The mean age of participants was 39.01 years and most (79%) were female. Just over half (53%) had a university degree and most (61%) were employed. The mean MS illness duration was 8.68 years. All but two participants reported a relapse remitting course of MS. Regarding engagement in the program, all participants completed module 1 (Introduction) and module 3 (Acceptance). Completion rates for the remaining modules ranged from 89% ($n = 17$) to 79% ($n = 15$).

Explorative satistical analyses showed that psychological flexibility (MPFI mean change +0.98, $p<.05$), psychological inflexibility (MPFI mean change -.71, $p<.05$), resilience (CD-RISC mean change +3.5, $p < .05$), and two QoL dimensions (HAQUAMS mood (mean change -.35, $p<.05$) and social function (mean change -.11, $p<.05$)) significantly improved from pre- to post-intervention.

Results from the online program usability questionnaire (SUS) showed all 19 participants indicated that they would recommend the program to other PwMS. Furthermore, some suggested that the program could be helpful for people with other health conditions. Several minor program improvements were suggested which primarily concerned technology upgrades. The questionnaire also included items assessing how participants used the program. The results indicated high retention, with 15 participants completing all eight modules of the online program. Twelve participants reported engaging with the READY for MS content quite extensively or very extensively. In contrast, engagement with the Personal Plan decreased over the course of the program. While 17 participants completed the exercises associated with Module 1,

only five participants completed all exercises in Module 8. Nevertheless, most participants reported using the Personal Plan to some degree.

4. Discussion

This study evaluated the acceptance and feasibility of the German online version of e-READY for MS, an ACT-based resilience program, in a small sample of PwMS (n = 19) using a mixed-methods approach with a focus on qualitative data. Qualitative analyses showed that participants reported high satisfaction with the program and described positive intervention effects on daily life and coping with MS. They also provided suggestions for further program improvement.

Exploratory quantitative analyses indicated trends toward improvements in resilience, quality of life, and psychological flexibility from pre- to post-intervention. The qualitative and quantitative data convergence on the positive effects of the German e-READY for MS on a range of psychosocial outcomes. Findings are consistent with previous evaluations of READY for MS delivered in different languages and formats, where participants also reported increased mindfulness, better stress management, improved QoL and new coping strategies.

Limitations include the small sample size and the high educational level of participants, which may limit the generalizability of findings. Some participants also noted technical usability issues.

5. Conclusions

This study represents an important first step toward establishing an evidence-based, fully digital intervention to strengthen resilience in PwMS in Germany. Findings provide valuable insights to guide further program development and evaluation. Results warrant testing the efficacy of the German e-READY for MS in a full scale randomized controlled trial.

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EXPLORING BREAST HEALTH EDUCATION AND KEY EDUCATIONAL PROVIDERS FOR WOMEN WITH INTELLECTUAL DISABILITIES IN AUSTRIA

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Abstract

Women with intellectual disabilities (ID) show lower participation rates in breast cancer screening than the general population. This leads to cancer being diagnosed at a later stage and higher morbidity. Studies previously highlighted the importance of education targeted at women with ID. Being educated on and understanding the importance of leads to higher utilization of breast cancer screening. However, it is yet to be explored what proportion of women with ID received breast health education in Austria. Moreover, it remains unclear who is delivering breast health education. In order to successfully target educational providers when designing educational measures, it is crucial to identify them first. This study aims to explore breast health education in women with ID in Austria. First, we aim to assess the proportion of women with ID who have previously received education on breast health, focusing on breast cancer, mammography and breast palpation. Further we aim to identify who provided them with information on the respective topics. Data collection was part of a larger online survey on breast cancer screening in Austria. We surveyed 113 primary caregivers of women with ID. Given their close connection and importance in facilitating healthcare, they represent a reliable source of information for this purpose. For this study, characteristics of women with ID and their caregivers, as well as information on breast health education was collected. Results suggest that half of the women with ID (49.6%) received education on breast cancer. A majority of the women with ID (63.5%) were provided with information on mammography and approximately 24.8% received education on breast palpation. Education on mammography was significantly associated with characteristics of women with ID. Further, education on breast cancer and mammography was mostly provided by caregivers themselves, medical personnel and social workers. Education on these domains was rarely, to almost never, delivered through educational institutions, media or family members. Comprehensive results will be presented at the conference. The results of this study show a lack of education on breast health in women with ID in Austria. Medical personnel and caregivers seem to be primarily responsible for breast health education. Contrarily, educational institutions seem to represent an underutilised source, which could potentially offer a range of possibilities for providing education. This study offers information on who to target for educational means and lays a foundation on eventually providing a comprehensive breast health education for women with ID.

Keywords: *Intellectual disabilities, breast health education, breast cancer, mammography.*

1. Introduction

Women with intellectual disabilities (ID) show lower participation rates in breast cancer screening than women without ID, while invalid screening outcomes occur more frequently (Banda et al., 2025; Horsbøl et al., 2023; Khan et al., 2024). This contributes to the inequalities in cancer care, which people with ID are facing. Cancer is often detected at later stages in individuals with ID, undermining the benefits of early detection and contributing to higher morbidity. Consequently, cancer-related mortality, including breast cancer mortality, is approximately 1.5 times higher among individuals with ID than in the general population (Cuypers et al., 2022).

Education has been recognised as a pivotal factor in shaping screening participation rates among people with ID (Kuper et al., 2024; Power et al., 2024). A deficit of information represents a significant barrier, as insufficient understanding increases distress and limits the capacity for informed decision-making (Wagner et al., 2026). As people with ID have expressed a desire for more information in prior studies, accessible and tailored materials can facilitate higher screening uptake (Kuper et al., 2024; Wagner et al., 2025).

Given the importance of increasing breast cancer screening participation among women with ID, targeted education on breast cancer and mammography is critical. Moreover, literature underscores the value of education on breast self-palpation. As it serves as a valuable additional preventive measure, targeted information may encourage regular practice (Wagner et al., 2026).

To effectively enable education on these aspects, an understanding of the baseline educational situation is needed. However, data on breast health education for women with ID in Austria is lacking. The current study aims to address this gap by investigating breast health education for women with ID from the perspective of caregivers. It aims to provide empirical evidence on the proportion of women with ID who have received education on breast health aspects and to identify educational providers.

2. Methods

2.1. Materials

Data for this study represent a subset of data stemming from a large, comprehensive online survey on breast cancer and breast health in women with ID in Austria. The survey was administered through SoSci Survey (Leiner, 2023). After providing informed consent, participants, primary caregivers of women with ID, completed items assessing knowledge and education regarding breast health and breast cancer screening. Given caregivers' close involvement in the health care of individuals with ID, and the study's focus on objective knowledge rather than subjective components, caregivers represent a useful source of information on this matter (Perkins, 2007). To assess breast health knowledge and experiences with breast health education, caregivers were asked to respond from the perspective of the woman with ID they provided care for. If caregivers supported more than one woman with ID aged 45 years or older, they were instructed to answer with reference to the woman they knew best. For each topic on which the woman had received education, participants were subsequently asked to indicate the corresponding educational provider. Sociodemographic characteristics of caregivers and the woman with ID were assessed. Caregivers were asked to rate their own knowledge of breast cancer and breast cancer screening on a 7-point Likert scale. Completion of the entire survey required approximately 10 minutes.

2.2. Procedure

Participants had to be (1) over 18 years old and (2) a primary caregiver of at least one woman with ID, being aged 45 years or older. Participation was voluntary and participants could withdraw from the study at any point without providing a reason. Participants were recruited by distributing invitation links for the online survey to representatives of organizations providing services to people with ID. Additionally, a snowball sampling approach was used to encourage further distribution of the survey to potentially interested individuals. To achieve a broad representation, organizations in every Austrian federal state were contacted. Given the exploratory nature of the study, no a priori sample size was determined and data collection ended on a predetermined date. The study was conducted in line with the Declaration of Helsinki and obtained approval from the Ethics Committee at the Medical University of Vienna (No. 1345/2022; approval date: 13.07.2022).

2.3. Statistical analyses

All analyses were descriptive. Education rates and educational providers were analysed using frequencies. Sample characteristics, including caregiver information and information about the woman with ID, were summarized using measures of central tendency and frequencies. Chi square tests were used to examine associations between breast health education and characteristics of women with ID. Percentages were based on the available responses to each question. All analyses were conducted in IBM SPSS (Version 31.0).

3. Results

3.1. Sample characteristics

The final sample size comprised 113 caregivers, each reporting information for one woman with ID. The age of women with ID represented in this study ranged from 44 to 74 years (M = 56.3, SD = 7.3). Acknowledging that the inclusion criteria required women to be over 45 years of age, we retained data for the women aged 44 (n = 2) as they had previously participated in breast cancer screening and were therefore considered relevant for the sample. Further sample characteristics are presented in Table 1.

Caregivers were aged 22 to 63 years (M = 41.7, SD = 10.6). Most caregivers were female (88.1%), followed by male (11%) and other gender (0.9%). Mean working experience with people with ID was 13.4 years (SD = 9.2, range = 1 – 34). The majority of caregivers were employed in the social care sector as support workers or care workers in residential homes. The remaining 5.4% reported another role. Examples include psychotherapist and outreach support worker. Caregivers' self-rated breast cancer and breast cancer screening knowledge (1 = none, 7 = excellent) was relatively high (M = 5.3, SD = 1.3).

Table 1. Socio-demographics of Women with ID.

Characteristic	*n*	% [a]
Communication mode[b]		
Verbal	98	87.5
Nonverbal (gestures, facial expressions)	13	11.6
Nonverbal (sign language)	3	2.7
Relationship status		
Single	76	75.2
In a relationship	25	24.8
Living area		
Rural	40	35.7
Urban	58	51.8
Suburb	14	12.5
Hearing disability[c]	12	10.8
Level of ID		
Mild	37	33.9
Moderate	56	51.6
Profound	16	14.7
Reading proficiency		
No reading ability	30	26.8
Poor	12	10.7
Somewhat poor	19	17.0
Moderate	17	15.2
Somewhat good	16	14.3
Good	14	12.5
Excellent	4	3.6
Writing proficiency		
No writing ability	26	23.2
Poor	22	19.6
Somewhat poor	20	17.9
Moderate	19	17.0
Somewhat good	13	11.6
Good	8	7.1
Excellent	4	3.6

Note. [a]for calculation of percentages, missing values were excluded. [b]Multiple responses were allowed. [c]Reflects the number and percentage of participants answering "yes" to this question.

3.2. Breast health education and educational providers

Results indicate that half (49.6%; n = 56) of the women with ID had received education on breast cancer. A majority (63.5%; n = 72) of women has been educated on mammography and 24.8% (n = 28) had received education on breast self-palpation. In total, 13.8% indicated that the woman with ID had not received information about either breast cancer, mammography, or breast palpation. Chi-square tests indicated significant associations between level of ID and education on both mammography

($\chi^2(2, n = 109) = 11.85$, $p = .003$, $V = .33$) and breast self-palpation ($\chi^2(2, n = 109) = 9.18$, $p = .01$, $V = .29$). Moreover, education on mammography was associated with relationship status ($\chi^2(1, n = 101) = 4.64$, $p = .031$, $V = .21$). and living area ($\chi^2(2, n = 112) = 6.77$, $p = .034$, $V = .25$). There were no significant associations between education on mammography or self-palpation and the remaining characteristics. Breast cancer education was not associated with any personal characteristics.

Education on these domains was most commonly provided by caregivers themselves, medical personnel, and social workers. Educational institutions and media were rarely reported as providers. Detailed information on educational providers is presented in Table 2.

Table 2. Educational Providers for Breast Health Education.

Educational provider	Breast cancer (N = 56)		Mammography (N = 72)		Breast self-palpation (N = 28)	
	n	%	*n*	%	*n*	%
Caregivers themselves	27	47.2	42	58.3	8	28.6
Medical personnel	43	76.8	53	73.6	20	71.4
Social workers	20	35.7	26	36.1	5	17.9
Educational institution	1	1.8	2	2.8	-	-
Media (e.g. social media)	4	7.1	5	8.9	2	7.1
Family members	11	19.6	7	12.5	2	7.1

Note. Numbers and percentages indicate respondents who selected each educational provider. Multiple responses were allowed.

4. Discussion

This study examines the current state of breast health education for women with intellectual disabilities (ID) in Austria. The findings indicate a substantial lack of education on breast health among women with ID. Notably, only half of the women had been educated about breast cancer. Given that the sample consists exclusively of women at an age relevant for breast cancer screening in a country with an established screening program, this result is particularly concerning.

Interestingly, education about mammography was more common than education about breast cancer itself. However, the importance of breast cancer awareness has been established (Walsh et al., 2021), and knowledge about cancer should not be omitted. Breast self-palpation was introduced to only a small proportion of women with ID. Yet it has considerable potential, as it can be practiced without a doctor's visit. Future education should incorporate this component as an additional preventative measure.

It is important to note that the sample comprised professional caregivers who reported relatively high levels of breast cancer knowledge for themselves. Consequently, education rates might be even lower among women with ID whose caregivers report lower awareness of breast cancer. Given that personal attitudes and time resources of caregivers can influence participation in breast cancer screening (Sykes et al., 2024), there is a need for systematic educational offers for women with ID.

This study also identifies key educational providers for women with ID. Medical personnel and caregivers themselves are primarily responsible for breast health education. Educational institutions currently play a largely underutilized role. Despite women with ID expressed interest in receiving education, there is a lack of inclusive materials (Wagner et al., 2026). Educational institutions likely have the expertise and resources to develop and disseminate accessible materials and can contribute to improving access to health education. Ultimately, women should be able to decide from whom they prefer to receive information about potentially sensitive topics. However, necessary resources should be established to support these choices, as accessible education is essential to improving screening uptake (Kuper et al., 2024; Power et al., 2024) and ultimately lowering breast cancer mortality.

This study did not assess individuals with ID directly, representing a limitation to these findings. Future research should explore cancer-related education from the perspectives of women with ID themselves.

Overall, the results highlight substantial gaps in breast health education among women with ID and identify key educational providers.

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REPRESSED MEMORIES: FACT OR FAKE?

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Abstract

The term 'repression' is closely associated with Sigmund Freud's psychoanalysis and was frequently linked to 'traumatic amnesia.' Both terms refer to the loss of conscious access to past (and probably problematic) memories. The term repression also found its way into current cognitive theories, clinical psychology and neuroscience. A number of experimental psychologists questions the existence of repression and traumatic amnesia, while many clinicians use and accept this term. Because of this controversy, it was spoken of the "memory war." Some researchers suggested that "after the 1990s, when the term *repressed memory* was widely criticized, proponents began to favor the term *dissociative amnesia* instead", while others argued that they are not the same. We will argue for the existence of repressed memories on the basis of cases with dissociative amnesia. By doing so, we will center on the concept of state-dependent memories and on relations between stress and amnesia, mechanisms by which repressed memories are likely to occur. Furthermore, the results of brain imaging studies are used to support the existence of repressed memories.

Keywords: *Autobiographical memory, mnestic block syndrome, functional amnesia, false memories.*

1. Introduction

Sigmund Freud introduced the terms 'repression' and 'suppression', meaning that the first is an unconscious and the second a conscious process (Langnickel & Markowitsch, 2006). Freud (1915/1957) wrote: "repression […] cannot arise until a sharp cleavage has occurred between conscious and unconscious mental activity (Freud, 1915a/1957, p. 147). He added that there had to be a strong connection between repression and what is unconscious (Freud, 1915a/1957, p. 148). Freud assumed that repression is directed by an internal source of danger, an instinctual impulse whose satisfaction would be incompatible with other demands of the mental apparatus. Freud postulated that repression is an instinctual vicissitude (Freud, 1915a/1957, p. 148) and instincts or instinctual representatives constitute the core of the unconscious (Freud, 1915b/1957, p. 185). The simplest citation on Freud and repression was published by Conway (2001, p. 319): "the essence of repression lies simply in turning something away, and keeping it at a distance from the conscious."

At present repression is frequently used in connection with *dissociative amnesia*, a psychiatric disease for which retrograde amnesia in the episodic-autobiographical domain is the core symptom (Staniloiu & Markowitsch, 2014; Markowitsch & Staniloiu, 2016, 2022). Markowitsch (2002) has introduced the term 'mnestic block syndrome' as an alternative to dissociative amnesia, in order to indicate that the memories are not lost forever, but are only temporary inaccessible – that is, they are repressed. *Memory repression* is therefore a mechanism for reducing psychological conflict (Breuer & Freud, 1895). McNally linked repression with 'traumatic amnesia' (McNally, 2004) and equalized it with 'dissociative amnesia' (McNally, 2023). In the paper of Pope et al. (2023) repressed memory was equalized with a subform of dissociative amnesia, namely "localized or selective dissociative amnesia." 'Localized amnesia' means a failure to recall events from a circumscribed period of time, and 'selective amnesia' a failure to recall certain events (or certain kinds of events). The opposite would be 'generalized amnesia', where most or all of the individual's life history is (temporarily) lost. In our experience with more than 100 patients with dissociative amnesia, the generalized form was the rule, with less than ten exceptions.

Memory suppression, on the other hand, was introduced by Michael Anderson in the last years, though some neuroscientists had used it already in the last century (e.g., Kensinger & Schacter, 1999). He studied the conscious suppression of previously learned material experimentally in a series of studies (Anderson & Hulbert, 2021; Anderson & Florescu, 2022). (Only very early in Anderson's studies, 2006, he used the inappropriate term 'repression'.)

1.1. The "memory wars"

In the 1990s the so-called memory wars started (Loftus & Ketcham, 1994) and remained ongoing until the present (Otgaar et al., 2019; Lynn et al., 2023; McNally, 2023; Staniloiu & Markowitsch, 2024; Markowitsch & Staniloiu, 2025). Other scientists wrote about the "memory debate" or the "memory dispute" (DePrince & Freyd, 1997). Otgaar et al. (2019) are of the opinion that "after the 1990s, when the term *repressed memory* was widely criticized, proponents began to favor the term *dissociative amnesia* instead" (Otgaar et al., 2019, p. 1079), while others argued that the expressions are not interchangeable (Piper et al., 2008, with respect to *psychogenic amnesia*). In fact, the term *dissociative amnesia* was used much later; at that time *psychogenic amnesi*a was the common term used. The link between psychogenic or functional or dissociative amnesia, traumatic amnesia, and repression indeed remained. Dissociative amnesia refers to an inability to recall autobiographical information in the absence of overt brain damage (Staniloiu & Markowitsch, 2014). Stress or trauma situations in the past are the usually assumed triggers for dissociative amnesia and are part of the definition in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR)* (American Psychiatric Association, 2022).

While this is the common view of clinicians, psychiatrists (and, of course, psychoanalysts) (e.g., Lego, 1996; Brewin, 2021; Ross, 2022; see also the extensive theoretical paper of Erdelyi, 2006, and the clinical review of Brandt & Van Gorp, 2006), some experimental psychologists challenge the existence of repression and traumatic amnesia (Giesbrecht et al., 2008; Lynn et al., 2014, 2019, 2023; Patihis et al., 2014; Mangiulli et al., 2023; De Brigard, 2024; Otgaar et al., 2019; Schemmel & Volbert, 2025; Radcliffe & Patihis, 2025).

An example for the controversy between the two camps is the article of Vissia et al. (2016), the critique of it by Merckelbach et al. (2016), and the reply of B. L. Brand et al. (2016). The controversy concerns Dissociative Identity Disorder (DID), a rare disease, characterized by the appearance of two or more personalities in an individual, with each personality being more or less amnesic towards the other(s). In a detailed article with a sample of 17 patients with genuine DID, 16 with simulating DID, 16 with post-traumatic stress disorder, and 16 healthy controls, Vissia et al. addressed the validity of two DID-models: the Trauma Model and the Fantasy Model. "The Trauma Model … posits that DID is etiologically related to chronic neglect and physical and/or sexual abuse in childhood" (p. 111) and the Fantasy Model states that "DID can be simulated and is mediated by high suggestibility, fantasy proneness, and sociocultural influences" (p. 111). They obtained convincing evidence for the Trauma Model, which nevertheless was criticized by Merckelbach et al. (2016). Six of the seven authors of the original article (plus a newly adopted scientist) then reacted to the critique by doing additional re-analyses and further confirmed their original conclusions, namely a consistent support for the Trauma Model of DID and evidence against the core hypothesis of the Fantasy Model.

Researchers with interest in the legal aspects of the memory debate question the relevance of experimental false memory research – such as the Roediger-McDermott paradigm on false memories (Roediger & McDermott, 1995) or Elizabeth Loftus' studies on implanting memories (Loftus et al., 1994) – for trauma-related amnesias and for cases of "forgotten" or "recovered" sexual abuse in court situations (DePrince & Freyd, 1997)

2. The pros and contras of memory repression

There are, of course, numerous clinicians, working in the field of psychiatry and in related areas, who take it for granted that memory repression exists. As evidence for their opinion, they usually take their experience with patients who had lost their memories at least temporarily or in part. They also had learned, how to assess memory repression, namely by applied clinical interviews and a number of scales and other instruments. They also are familiar with instruments, allowing to detect malingering (e.g., Ortega et al., 2012, 2014). Furthermore, they had learned and applied techniques that may help to recover lost memories (e.g., B. L. Brand et al., 2009; Staniloiu & Markowitsch, 2018; Schemmel et al., 2024).

The idea of the existence of repressed memories has a long tradition, which started with the findings of the French school of Jean-Martin Charcot, Pierre Janet and Sigmund Freud in Austria. On the other hand, in the later 20th century, findings of false beliefs, and of memory suggestibility, promoted by Elizabeth Loftus and others, questioned the assumptions that memories of a traumatic content are repressed from conscious accessibility. Especially, research on false memories – both in brain-damaged patients (Borsutzky et al., 2010) and in healthy individuals (Kühnel et al., 2008) – and demands from the legal system (e.g., Markowitsch & Merkel, 2011) led to a more cautious approach in studying repressed memories.

The equation of repressed memories with dissociative amnesia, as suggested mainly by authors who question the existence of both, is certainly a reduction, as the illness of dissociative amnesia implies more than just a memory retrieval failure (e.g., change of the self and of autonoetic awareness; Staniloiu et al., 2010). (Because Pope et al., 2023, were possibly aware of this, they limited the equation of repressed memories to localized or selective dissociative amnesia.). Repressed memories, furthermore, can be seen in a continuum from the tip-of-the-tongue-phenomenon (e.g., the name of another person is suddenly not retrievable, in spite of that one is sure, to principally know it; Schwartz & Metcalfe, 2011) over amnesia in a sudden stress situation (e.g., car accident: later, one has forgotten the time period around the crash), to limited or generalized dissociative amnesia. There are, for example, case reports from soldiers, who due to shell shock and other war-related stress situations, lost their autobiographical memories (Sargant & Slater, 1941; Jones et al., 2007; Linden & Jones, 2014; Stone, 2016). All these examples can also be viewed under the umbrellas of state-dependent memory (Tulving, 2002; Radulovic et al., 2018) and general influences of stress on memory (Shields et al., 2017).

Further support for the existence of repressed memories comes from genetic analyses (e.g., Rajkumar, 2022), morphological changes in the brain (Reinders et al., 2018) and from numerous studies in which metabolic changes in the brain were found by using various imaging techniques (e.g., M. Brand et al., 2009; Staniloiu et al., 2011; Taïb et al., 2023).

All in all, the listed evidence strongly speaks for the existence of repressed memories.

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Posters



WORKING WITH VULNERABLE CHILDREN: STRESS FACTORS AND COPING STRATEGIES IMPLEMENTED BY NGO WORKERS

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Abstract

Bolivia faces violence and poverty issues that negatively impact children and their development. In this context, professionals of local NGOs play a crucial role (Gallardo, 2022). However, prolonged exposure to stress can affect their well-being and also the quality of support for vulnerable children (Young et al., 2018). This research focuses on the difficulties of the local NGOs' professionals. This study focuses on sources of stress and coping strategies among professionals working for a child protection NGO in Tarija. To collect our data, we conducted semi-structured interviews with 13 employees of this NGO. They also completed two psychometric questionnaires: the Coping Strategy Inventory (CSI), which measures stress levels on a three-level scale (Tobin et al., 1989), and the Perceived Stress Scale 14 (PSS-14), which assesses the type of coping strategies used (Cohen et al., 1983). Despite the small sample size, the thematic analysis shows that professionals are deeply committed to their jobs. The Bolivian collectivist culture acts as a protective factor, despite few resources. Indeed, all participants emphasized the importance of the support they get from colleagues. They require psychological help and additional personnel.

Keywords: *Bolivia, local workers, stress, coping strategies, vulnerable children.*

1. Introduction

In Bolivia, the city of Tarija has the highest reported rate of child abuse. Children often grow up in conditions marked by violence, poverty, and exploitation (Gallardo, 2022). This is why there is an urgent need to improve access to quality education, social protection, and healthcare. In this context, local NGOs working to protect children play a crucial role (UNICEF Bolivia, 2018). Nevertheless, these local NGOs receive fewer funds and resources than international ones (Tran & Abouassi, 2020). They face economic, human, and material challenges that can lead to professional situations in which local workers may experience stress that affects both their well-being and professional performance (Batti, 2014). Yet the sustainability of local NGOs is a significant challenge in ensuring support for vulnerable children (Young, Pakenham, & Norwood, 2018).

2. Methodology: Research objectives, instrumentation and sample

Our exploratory research used a mixed design to investigate the sources of stress and coping strategies among local NGOs professionals. We specifically focused on 13 Spanish-speaking workers employed by a child protection NGO in Tarija. To collect our qualitative data, we conducted semi-structured interviews that explored the institution's functioning, the motivation of professionals, their needs, the sources of stress they faced, and the coping strategies they adopted. We operated a thematic analysis of these data, following Braun and Clark's method (2016). Then, we used two psychometric tools: the 14-item Perceived Stress Scale (PSS-14), which measures stress levels on a three-point scale (Cohen, Kamarck, & Mermelstein, 1983), and the Coping Strategy Inventory (CSI), which assesses the type of coping strategies used (Tobin, Holroyd, Reynolds, & Wigal, 1989). The PSS-14 has been validated in Spanish by Remor and Carrobles (2001), and the CSI by Cano-García, Rodríguez-Franco, & Garcia-Martínez (2007).

3. Results

3.1. Sociodemographic characteristics of the sample

We deliberately composed our sample by including all the individuals who daily interact with the children: 12 women and one man, between 26 and 55 years of age (mean = 38; S.D. = 8.6). Among them, eleven have a university degree and work as a director (N = 1), teacher (N = 1), educator (N = 2), and psychologist (N = 7). The last two are the cooks: the first one achieved a primary school degree, and the other, a secondary school one. Their years of experience vary from 1 to 14. Among the eight married professionals, 7 have children. The other four are single, and only one of them has children. All of them are Bolivian.

3.2. Main results

The results of the interviews provide us with interesting insights into how the institution operates. The NGO has two implementations and provides support to children with familial and/or scholar issues (children who live in the streets, are victims of violence, neglect, are orphans, etc.). It is recognized as a shelter for young girl's victims of abuse or violence, and a place that offers educational support to children. Each professional has their own role with their own tasks, and the team organises regular meetings to share information between members of the different implementations.

The collected data also show that our professionals are motivated by human values, such as commitment (N = 5), a desire to help (N = 5), and a sense of vocation (N = 2). Only one professional, a cook, is especially motivated by job stability. The participants mentioned work overload as a major source of stress (N = 10), but also reported other factors, such as unexpected events (N = 9), children's difficult situations (N = 8), or unpredictable behaviours (N = 6).

The scores on the PPS-14 are summarized in Table 1 below. The total scores range from 0 to 56: the higher the score, the greater the stress. On average, our sample has a moderate level of stress (20.15). Psychologists have the lowest scores, which can be explained by their training in managing stressful situations. The director, who has the most responsibilities, has a very high score.

Table 1. Results of the PPS-14.

		N	*Professions*
Levels of PPS-14	*Low (<20)*	6	5 psychologists, 1 educator
	Moderate (20 – 25)	4	2 psychologists, 1 teacher, 1 cook
	High (>25)	3	The director, 1 cook, 1 educator

Regarding coping strategies, the thematic analysis of the interview contents reveals that all participants report mutual aid within their team (N = 13). They feel confident with their superiors, and they frequently get support from international volunteers. They regularly debrief with colleagues and feel understood. They jointly organize the planning and budget during their meetings, which enables seven participants to manage working pressure. To manage their emotion, eight underline the social support they receive from their families, while four prefer to take refuge in religious practice; only two highlight avoidance strategies. All mention a hobby as gardening, reading, or sports.

The CSI provides eight scores ranging from 0 to 20, each of which focuses on a type of coping strategy. Table 2 shows the three highest scores of the participants. These are consistent with the content of the interviews.

Table 2. Results of the CSI.

		Mean of the sample (S.D.)
Type of coping strategies	*Problem-solved*	14 (5.9)
	Cognitive restructuring	12.69 (4.68)
	Social support	10.46 (5.15)

Finally, participants indicate that they would need additional work power (N = 7) and greater psychological support (N = 3). Some of them also wish for more concrete needs, such as a pay raise (N = 1), better quality of the equipment (N = 1), and greater flexibility in meal preparation (N = 1).

4. Discussion

The findings indicate that if our participants are motivated by their desire to provide support to children, they also report several sources of stress, including workload, unexpected events, and situations affecting children. If they generally develop problem-focused coping strategies, such as being confident with their superiors or planning their tasks, they sometimes also apply emotion-focused coping strategies (social support) and avoidance. These results are consistent with those of Stevens, Sharma, and Skeoch (2022), who emphasize that colleagues are often the most effective source of support during stressful events. Their commitment to the institution positively influences their stress management, and the collectivist culture of Bolivian society is a protective factor (Fortes, Tian, & Huebner, 2020). Furthermore, all participants have a hobby that allows them to relax and reduce their stress (Bhui, Dinos, Galant-Miecznikowska, de Jongh, & Stansfeld, 2016). This research has several limitations. Because of the small sample size, we must interpret the findings with caution. Stress and coping strategies are an important domain of research. Therefore, further research could deepen the findings, explore the perspectives of other local NGOs, and include a larger number of participants. In conclusion, by giving professionals a voice, this research highlights the need to implement training programmes related to stress prevention in humanitarian contexts. Our findings also reveal that they need psychological support and additional personnel to ensure their well-being and the NGO's sustainability.

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THE ROLE OF TEACHERS IN UNIVERSITY STUDENT MENTAL HEALTH AND ACADEMIC FUNCTIONING

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Abstract

The influence of teachers on student well-being and performance is well documented in elementary and secondary education, but less attention has been given to the role of university teachers. The goal of this research was to examine the role of teacher social support in students' mental health (symptoms of anxiety and depression, and life satisfaction) and their academic functioning. In total, 685 university students (aged 19–28; 79 % female) completed an online survey including the Depression, Anxiety, and Stress Scale (DASS); the Stress Source Questionnaire; the Academic Functioning Questionnaire, and ratings of life satisfaction and perceived social support from teachers, family, and friends/partners. Findings revealed elevated levels of anxiety and depressive symptoms, with only 36% of students scoring in the normal range for anxiety and 38 % for depression. Students reported academic functioning and life satisfaction at the moderate level. They perceived the highest social support from family and friends/partners and the lowest from teachers. The results of hierarchical regression analysis showed that lack of teacher support significantly contributed to higher levels of anxiety and depressive symptoms, whereas family and friend support had significant contribution only for depressive symptoms. Teacher support also emerged as the strongest positive contributor to life satisfaction. Furthermore, symptoms of depression, but not anxiety, were a negative predictor of academic functioning. After controlling for psychological symptoms, perceived support from family, and especially from teachers, had the strongest positive effect on academic functioning. These results highlight the critical role of university teachers in supporting both the psychological well-being and academic functioning of their students. Universities should therefore prioritize strengthening teachers' capacities to provide effective support throughout students' academic journeys.

Keywords: *Mental health, university teachers, university students, academic functioning, social support.*

1. Introduction

Mental health problems are common among university students. Recent findings from the Healthy Minds Study indicate that about 60 % of college students meet the criteria for at least one mental health problem (Lipson et al., 2022), with anxiety and depression being the most prevalent. Social support has consistently been identified as one of the strongest predictors of psychological adjustment, typically operationalized as mental health and adaptive academic or work functioning, across age groups and cultures. According to the General Benefits Model of Social Support, social support exerts positive effects by enhancing well-being and promoting beneficial psychological states such as self-worth, purpose, and positive affect, while also reducing negative affect (Rueger et al., 2016). Moreover, perceived support appears to be more strongly associated with psychological adjustment than received support (Zell & Stockus, 2025). The role of social support in the prevention of mental health problems is particularly important during major life transitions, such as emerging adulthood, and in periods of increased stress. Social support can serve multiple functions: it may buffer the negative impact of stress on mental health, attenuate biological stress responses, and facilitate adaptive coping strategies. The strength of the association between social support and lower levels of psychological symptoms may also vary depending on the source of support (Auerbach et al., 2011). While the influence of teacher support on student well-being and performance has been well documented in elementary and secondary education (e.g., Mazer & Rickwood, 2014), much less attention has been devoted to understanding the role of university teachers in fostering student mental health and adjustment.

2. Objective

The main goal of this research was to examine the role of teacher social support in the level of anxiety and depression symptoms of university students, as well as their life satisfaction and academic functioning.

3. Methods

3.1. Participants

In total, 685 university students (19 to 28 years, 79 % female) participated in the study.

3.2. Measures and procedure

Students fulfilled the following measures through an online questionnaire: Depression, Anxiety, and Stress Scale (DASS- 21, Henry & Crawford, 2005); Academic Functioning Questionnaire (Zivcic-Becirevic at al., 2021; five items rated on the scale from 0 to 4); Stress Source Questionnaire (developed for the purpose of this study with 10 items rated on scale from 0 to 4); 1-item rating of life satisfaction (scale from 1 to 7); 1-item ratings for each s ource of social support (family, friends/partners, and teachers; rated from 0 to 4).

4. Results

Findings revealed elevated levels of anxiety and depressive symptoms, with an average relative score of 0.91 (SD = 0.75) for anxiety and 1.05 (SD = 0.79) for depression. Only about one third of students scored within the normal range. Academic functioning and life satisfaction were at moderate levels (M = 2.27, SD = 0.99; M = 4.32, SD = 1.40, respectively). Students reported the highest social support from family and friends/partners and the lowest from teachers.

The contribution of social support to levels of anxiety, depressive symptoms, and life satisfaction, after controlling for age and gender in the first step, and sources of stress in the second step, was assessed using hierarchical regression analysis. For academic functioning, the contribution of depressive and anxiety symptoms was additionally controlled for in the third step. The results from the final step of the four hierarchical regression analyses are presented in Table 1.

Table 1. Social support as predictor of mental health and academic funcioning: Results of final step of hierarhical regression.

	Depression	Anxiety	Life satisfaction	Academic functioning
Gender	.06*	-.12***	.05	-.04
Age	-.09**	-.12***	.01	-.01
Sources of stress	.44***	.46***	-.32**	-.25***
Depression	-	-	-	-.19***
Anxiety	-	-	-	.03
Support – family	-.08*	.03	.07	.13**
Support - friends/partner	-. 16***	-.05	.19***	.03
Support teacher	-.12***	-.11**	.24***	.15***
R^2	.37***	.28***	.34***	.27***
ΔR^2	.06***	.01**	.12***	.04***

Legend. Gender 0 - female, 1 - male; *p < .05, **p < .01, ***p < .001

Results showed that a lack of teacher support significantly contributed to higher levels of anxiety and depressive symptoms, whereas support from family and friends significantly contributed only to depressive symptoms. Along with support from friends and partner, teacher support emerges as a positive contributor to life satisfaction. Hierarchical regression analysis indicated that depressive, but not anxiety symptoms, were negative predictors of academic functioning, while family and teacher support emerged as significant positive predictors.

5. Discussion

It is not surprising that students in our sample reported elevated levels of anxiety and depression, as the assessment was conducted in the post-pandemic period, when symptoms had not yet returned to pre-pandemic levels. This finding is consistent with global data indicating a continuing decline in university students' mental health (e.g., Lipson et al., 2022). At the same time, students evaluated their academic functioning and life satisfaction as moderate. Benitez-Agudelo et al. (2025) similarly found that students often prioritize academic success over psychological well-being. Despite notable distress, their academic performance improved, suggesting the use of maladaptive coping strategies that harm mental health. Our results also highlight an imbalance in perceived social support: while students reported higher support from their families and friends, they perceived relatively low support from teachers and the university environment. This is particularly relevant as teacher support has the consistent contribution to students' well-being (the level of anxiety and depressive symptoms, and especially life satisfaction), as well as student academic functioning. Although family support can help students cope with academic stress and function more effectively, insufficient teacher support may contribute to the development of anxiety and depressive symptoms, as well as poorer academic engagement. Our previous research has also indicated that inadequate or negative teacher feedback can increase students' cognitive vulnerability to depression. Consistent with our findings, other studies have shown that students who perceived higher levels of support from their teachers and institutions maintained greater academic motivation and experienced lower stress during the pandemic (e.g., Marler et al., 2021).

6. Conclusions and implications

Taken together, these findings emphasize the significance of supportive academic environments in promoting students' psychological resilience and academic adjustment. Therefore, universities should recognize and utilize this important resource to help students manage challenges and flourish during the critical developmental period of emerging adulthood. Even at the tertiary level, teachers can exert a significant influence: they can encourage and motivate students, enhance engagement, and contribute to their academic success.

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PERSONALITY DISORDERS TRAITS AMONG PRISONERS IN THE POLISH SAMPLE

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Abstract

The aim of the study is to establish the prevalence of personality disorders among a group of prisoners and to show the demographic correlates of the specified personality disorder traits. The study involved 754 adults from the prison population (all participants were men) aged 19 to 46 years. The author measured personality disorder traits using the Structured Clinical Interview for DSM-4 Axis II Personality Disorders. The results indicate that the most common specified personality disorders in the prison population were antisocial, narcissistic, and borderline, and the co-occurrence of these pathological traits was noted. The prevalence of personality disorders differs from that of the general population in Poland and in other countries in that obsessive-compulsive personality disorder is the most prevalent. The specified personality disorder traits are not related to age nor to the education of prisoners. However, the severity of crime differentiates the offenders' personality disorders and traits. The more severe the crime committed by a given person, the more it is associated with the antisocial personality disorder traits.

Keywords: *Personality disorders, prisoners, offenders, crime.*

1. Introduction

Personality disorders (PDs) are defined as enduring patterns of human inner experience and behavior that deviate from the norms and expectations of the culture in which people live. They manifest at least two of the following areas: cognitive, affective, interpersonal, and control of impulses (DSM-5, 2013, p. 311). Studies focusing on the prevalence of personality disorders report that these are widespread in both clinical and general populations (Zimmerman, Rothschild, & Chelminski, 2005). They are commonly observed in criminal offenders and prisoners. Prevalence rates reported in the literature show that 65% of male prisoners are diagnosed with a PD, including 47% with antisocial PD, and 42% of female prisoners are diagnosed with a PD, including 21% with antisocial PD (Fazel & Danesh, 2002, p. 545). PDs among prisoners are associated with drugs, alcohol, a risk of self-harm, violent behavior, accidents, and mortality, as well as criminal and suicidal behaviors (Tyrer et al., 2010). Research on the relation between PDs and criminal offenders is mainly focused on antisocial personality disorder, which was found to be the most prevalent PD in the offenders' populations (Fazel & Danesh, 2002). However, other personality disorders from Cluster B such as narcissistic, borderline personality disorders, are significantly associated with criminal behaviors (Czubak & Gawda, 2020). Due to the lack of data on the prevalence of PDs in the prison population in Poland, the current study focuses on filling this information gap. It is also important to determine whether the incidence rates are similar to those in other countries and whether PD occurrence is related to any demographic variables.

2. Methods

2.1. Participants

The study involved a sample of 754 adults (men) aged between 19 and 46 years. All of them were prisoners and were tested in eight state prisons in the psychological offices in different parts of Poland. Mean age is 28 years (SD = 10). All participants committed serious offences, as well as they met the criterion of an absence of acute psychotic and neurological disorders, and absence of pharmacological treatment for at least one month. They had been convicted of multiple crimes against health, life, and public order; felonies, i.e., murder, aggravated assault, felony assault, assault and battery, assault with weapons, fraud, burglary, rape, and larceny. Mean number of years of education is 13,5 years.

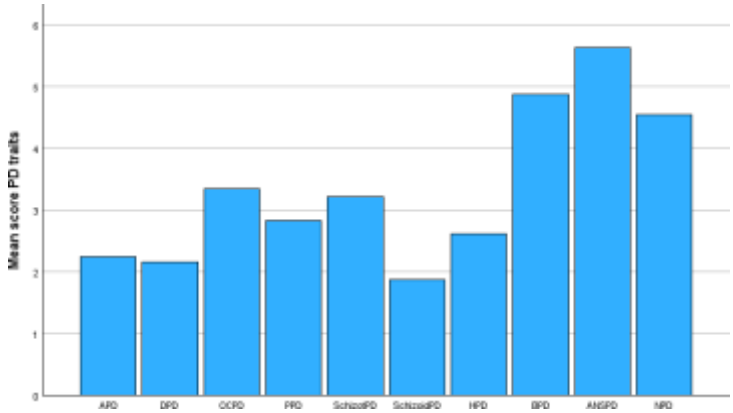
2.2. Measures

Demographic and other data about criminal history are based on the screening questionnaire. The severity of crimes committed was measured by the number of years of imprisonment. To assess PDs' traits, the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, 4th edition Axis II Disorders was used (Polish adaptation of First et al., 2010). All DSM-4 PDs were included in the interview. It is a standardized tool that allows the diagnosis of 10 personality disorders according to the DSM-4 criteria and two additional disorders. The psychometric properties of this tool are appropriate (First et al., 2010). has good reliability; a Cronbach's alpha is in the range between .72 and .81 for different PDs' subscales. We used the Polish version of the SCID-II, translated and adapted to the Polish language. Reliability in this study was assessed using Cronbach's alpha measures, which range between .701 (dependent PD) and .853 (borderline PD). The SCID-II was used because the research started in 2012. However, the specified PDs in the DSM-5 are the same as in DSM-4.

3. Results

To establish the occurrence of PDs' traits in the prisoners' sample, the descriptive statistics were calculated as the mean and standard deviation. Figure 1 presents these results. This shows that the highest level of PD traits among prisoners is antisocial (ANSPD), borderline (BPD), and narcissistic (NPD). The lowest level of personality disorder traits among prisoners is schizoid, avoidant, and dependent traits.

Figure 1. Mean PDs traits in prisoners.



To check whether PDs' traits are related to age and education, Pearson's correlations were calculated between the number of years of education, the number of years of life, and PDs' traits. All correlations were weak and non-significant. Similarly, to establish relationships between PD traits and the severity of crime, Pearson's correlations were calculated between PDs and the number of years of imprisonment. The results were following: antisocial ($r = .355$ $p<.001$), avoidant ($r = .01$ ns. [non-significant]), dependent ($r = .02$ ns.), schizoid ($r = .01$ ns.), schizotypal ($r = .04$ ns), paranoid ($r = .02$ ns.), narcissistic ($r = .01$ ns.), histrionic ($r = .07$ ns.), borderline ($r = .133$ $p<.05$), obsessive-compulsive ($r = .008$ ns.). The only antisocial and borderline PD traits significantly correlate with the severity of crime, which is associated with the number of years of imprisonment. Both correlations are positive; however, the correlation with BPD traits is weak, while with ANSPD is moderate. It means that the higher the sentence, the more severe the crime, the more it is associated with the antisocial PD traits.

4. Discussion

The results presented here indicate that antisocial PD traits are the most common among the prisoner population in Poland. The Cluster B traits, such as borderline and narcissistic PD, are also highly prevalent among prisoners. The higher rate of antisocial PD traits is associated with the severity of crime. Prisoners with antisocial PD commit more severe crimes. The results presented here are in line with other cross-cultural studies, indicating that the prevalence of antisocial PD and other PDs is stable across cultures among offenders (Fazel & Danesh, 2002; Gawda, 2018). The high occurrence of Cluster B PDs and particularly antisocial PD is typical for prisoner populations in the world (Czubak & Gawda, 2020; Tyrer et al., 2010). This trend differs from the general population's trends, being that research shows that obsessive-compulsive PD is most common in the general population (Gawda & Czubak, 2017).

In various countries around the world, OCPD is identified as the most common personality disorder. In Europe, North America, this trend occurs. For instance, research conducted with the use of the DSM-IV tool in Great Britain showed that the most frequent are cluster C disorders, including obsessive-compulsive (Coid et al., 2006). It is worth noting that the prevalence of PDs in Europe is closer to that in the USA than in Latin America (Gawda, 2018; Huang et al., 2009). The high incidence of PDs, such as antisocial or borderline, in prison populations contributes to a variety of problems. It has negative consequences for the functioning of inmates in prisons, causing self-destruction, faulty forms of adaptation, and other mental health problems (Czubak & Gawda, 2020). Particularly, antisocial PD traits impair the emotional and social functioning of prisoners. Antisocial PD was found to be related to the severity of crime. People with this personality dominate the prison population, which significantly determines the process of their rehabilitation. The characteristics of this personality make the rehabilitation process particularly difficult. People with this disorder are irritable, impulsive, and aggressive, characterized by a persistent pattern of disrespect for other people and a tendency to violate their rights and property (Gawda, 2018). The most extreme examples of this type of behavior are fights, theft, robbery, rape, lying, and fraud (Czubak & Gawda, 2020). Individuals exhibiting antisocial PD pose a huge challenge for both clinicians and the entire justice system. They receive the most severe penalties for serious crimes. They also have the highest recidivism rates, which means that they are extremely resistant to therapeutic and rehabilitation interventions.

5. Conclusions

The most common specified personality disorders in the prison population were antisocial, narcissistic, and borderline, and the co-occurrence of these pathological traits was noted. The prevalence of personality disorders differs from that of the general population in Poland and in other countries in that obsessive-compulsive personality disorder is the most prevalent. The specified personality disorder traits are not related to age nor to the education of prisoners. However, they are associated with the severity of crime. The more severe the crime committed by a prisoner, the more it is associated with the antisocial personality disorder traits.

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PHD STUDENTS' WELL-BEING: EVIDENCE FROM SELF-CARE AND STRESS-MANAGEMENT WORKSHOPS

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Abstract

Mental health is defined as an individual's emotional, psychological, and social well-being. Within the University context, particularly among PhD students, addressing mental health has become increasingly important to safeguard psychological functioning. As part of the Health Mode On project, within the PRO-BEN initiative, Vita-Salute San Raffaele University developed a set of strategies to promote well-being among University Students and particular PhD Students. A pilot well-being intervention initiative and protocol was implemented, focusing on the promotion of self-care routines, mindfulness and time and stress management. The same set of activities will be administered to the study sample, consisting of PhD students enrolled at Vita-Salute San Raffaele University. To evaluate potential changes in doctoral students' perceived well-being, following participation in the workshops, the SInAPSi academic engagement scale (SAES) will be administered at both pre- and post-intervention time and focus groups will be implemented to describe well-being changes in PhD Students. Preliminary reports from the pilot study implemented in the undergraduate population, encompasses focus groups and qualitative reports indicated a reduction in perceived stress levels after the above-mentioned intervention. These results, together with existing evidence in the literature, provided the rationale for extending the initiative to the PhD student population, reducing stress and fostering psychological well-being.

Keywords: *Well-being, mental health, PhD students, stress-management, self-care.*

1. Introduction

One in five adults currently lives with moderate-severe mental health conditions (National Institute of Mental Health [NIMH], 2023). Well-being enables individuals to sustain daily functioning, maintain social relationships, and pursue personal and professional goals (Hammoudi Halat, Soltani, Dalli, Alsarraj & Malki, 2023). Within University settings, safeguarding mental health has become increasingly crucial, as students must manage academic pressure while maintaining psychological well-being. Several contextual factors contribute to distress, including academic workload, organizational demands, and mismatches between personal resources and external expectations (Martìnez-Garcia, De Witte, Garcìa-Martìnez & Cano-Garcia, 2024). Transitions in lifestyle and exposure to demanding or unfamiliar environments further heighten psychological vulnerability (Freda, De Luca Picione & Testa, 2024). Evidence identifies several tools to promote well-being: supportive academic relationships, mindfulness, healthy nutrition, and balancing academic responsibilities with personal interests (Ruihua, Hassan, Qiuxia, Sha & Jingyi, 2025; Medlicott et al., 2021;Terzi, Isik, Inan, Akyildiz & Ustun, 2024). Literature also indicates that academic belonging also serves as key protective factors, associated with lower psychological distress, more adaptive coping, and greater academic engagement (Holt-Lunstad, 2024). The Italian Ministry of University and Research launched the national PRO-BEN initiative ("Health Mode On" [HMO]), funded between 2023 and 2025, with the aim of supporting Italian Universities in assessing mental health burdens and related challenges, identifying explicit and implicit needs within academic communities, and developing, implementing, and monitoring targeted interventions (Italian Ministry of University and Research, 2024). As part of the HMO project, Vita-Salute San Raffaele University has implemented a stepped, multidisciplinary intervention model that includes an online survey assessing academic conditions and contexts, group-based activities for both undergraduate and PhD students, and an integrated counseling program.

2. Design

This research employed a pilot study design implemented within a single academic center; the main study is longitudinal with a survey pre-post intervention.

3. Objectives

The intervention aims to enhance students' psychological and social well-being by strengthening social affiliation, self-awareness, and institutional support. At the individual level, the program supports autonomy, competence, and interpersonal skills, cultivates emotional regulation and addresses changeable habits, through workshops and activities. At the interpersonal and mesosystemic levels, it improves horizontal and vertical support, through peers and academic organization. The study's hypothesis is that workshop participation will yield increased well-being and awareness among students.

4. Methods

In a previous pilot study, the University of Vita-Salute San Raffaele invited a heterogeneous cohort of 100 first-year students across all degree programs to participate in pre-semester initiatives. The intervention comprised three workshops, both in Italian and English, aimed at promoting psychological well-being and sharing positive self-care routines. The activities targeted mindfulness, mindful eating, and time and stress management. The mindfulness workshop guided students through a brief Body Scan meditation. The mindful eating activity encouraged students to explore the sensory experience of eating a selection of foods—dried blueberries, milk chocolate, dark chocolate, and chips—reflecting on texture, taste, aroma, and sound. The time and stress management session included strategies for organizing time and cognitive approaches to managing stress. Participants engaged in a small-group exercise to design a hypothetical weekly schedule. Participation required online pre-registration and voluntary feedback was collected to assess the perceived impact of the activities on well-being and stress reduction. The same program will be offered to PhD students at the University, with an expected participation rate of 30%. The study sample will undergo pre- and post-intervention focus groups and assessments to evaluate social and academic affiliation and potential improvements resulting from the combined effects of the training activities and ongoing counseling, freely available throughout their academic program. Social affiliation will be measured using the SInAPSi Academic Engagement Scale (SAES; Freda et al., 2023), which captures university students' engagement as a multidimensional, relational, and dynamic construct. The SAES, part of the SInAPSi project ("Services for Active Participation and Inclusion of University Students"), assesses attitudes, motivation, and relational involvement in the academic context. The final SAES includes six dimensions: University Value & Sense of Belonging; Perceived Ability to Persist in University Choice; Value of University Course; Engagement with Professors; Engagement with Peers; and Relationships between University and Relational Network.

5. Results

The pilot study, conducted on a sample of 100 undergraduate students, indicated a reduction in perceived stress levels, as indicated by qualitative evaluations collected through workshop feedback. Across evaluations, participants consistently reported enhanced time management skills and a greater perceived ability to regulate stress. These findings, together with evidence from the literature on the topics, served as the rationale for offering the intervention to the target sample of PhD students. The intervention is expected to yield positive outcomes within the population of PhD students. The study hypothesizes positive associations between well-being and academic affiliation. Pre–post comparisons are expected to reveal improvements in students' reported well-being. These results would indicate that the intervention enhances psychological functioning among PhD students.

6. Discussion

This study contributes to the expanding literature on psychological well-being in university contexts by examining a multidisciplinary intervention aimed at improving self-awareness, stress management, and adaptive academic habits among PhD students. Consistent with previous evidence, initial findings indicate that mindfulness-based strategies and time management training can enhance well-being, particularly by strengthening self-awareness and perceived daily functioning (Medlicott et al., 2021; Terzi et al., 2024). PhD students are exposed to substantial psychological strain, including excessive workload, impaired work–life balance, economic and contractual instability, and, at times, unsupportive academic

climates. These factors jointly undermine emotional, psychological, and social well-being, key components for sustaining motivation, relational functioning, and academic engagement (Martínez-García et al., 2024; Freda et al., 2024). The intervention addressed these challenges by promoting autonomy, competence, emotional regulation, and interpersonal skills. A central focus was the enhancement of social affiliation, recognized as a protective factor for mental and physical health. Strengthening students' sense of belonging may buffer academic stress and promote resilience (Holt-Lunstad, 2024). Preliminary indications suggest that group-based activities centred on awareness can foster relational engagement within the academic environment, underlining the contextual nature of well-being. Participants also reported improvements in time management abilities and mindful awareness, both essential for balancing intensive academic demands with restorative activities. These effects align with evidence showing that interventions integrating emotional regulation, healthy routines, and organizational skills can reduce perceived stress and promote more sustainable academic functioning (Medlicott et al., 2021; Terzi et al., 2024). The pilot underscores the value of embedding multilevel well-being interventions within university systems, with integrated monitoring tools in a stepped-care framework supporting targeted prevention strategies. The findings show that PhD student well-being is a dynamic, multidimensional construct shaped by individual, relational, and institutional factors. Multilevel interventions may therefore contribute to more supportive academic environments and sustained student resilience.

7. Conclusions

This study provides preliminary evidence that mindfulness-based practices, time management training, and social affiliation activities can enhance psychological well-being among PhD students. The intervention targeted key stressors by promoting self-awareness, emotional regulation, and relational engagement. Results indicate that even brief, structured programs may reduce perceived stress and support healthier academic functioning. Findings also underscore the multidimensional nature of well-being and the value of multilevel interventions within university settings. Further research with larger, diverse samples is needed to confirm and extend these outcomes.

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THE PSYCHOLOGICAL EXPERIENCE OF BREAST CANCER AMONG MUSLIM WOMEN LIVING IN BELGIUM AND FRANCE

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Abstract

This study aims to explore and understand the experiences of Muslim women who have been diagnosed with breast cancer in Belgium and France. To collect our data, we conducted semi-structured interviews with five Muslim women, aged 27 to 52. Our results show that receiving the diagnosis is a significant challenge, but both religion and family are essential in helping them cope with breast cancer. Living in France or Belgium allows our participants to perceive breast cancer as a disease that may be treated. The physical consequences of treatment, especially hair loss, negatively affected their body image, but they reported a gradual improvement over time.

Keywords: *Breast cancer, Muslim women, quality of life, body image.*

1. Introduction

Breast cancer is the most diagnosed cancer worldwide, affecting more than 2.3 million people (WHO, 2025). In Belgium, over 10,000 new cases are recorded each year (Institut Jules Bordet, 2024), and in France, the number exceeds 60,000 (Institut National du Cancer, 2025). Breast cancer often has a profound psychological impact, significantly transforming a person's life (Pasquier, 2015). Both patients and their close relatives face a long and complex trajectory of treatment and care (Ménoret, Becchio, Tremblay, & L'Heureux, 2010). Many Muslims, including those of Maghrebi origin, now live in Belgium and France. As personal attitudes towards illness can vary according to cultural and religious backgrounds and take on new meanings in the context of migration, it is crucial to consider the experiences of these Muslim women. In Islam, the relationship between the body and nudity is considered taboo. Women are expected to embody discretion, modesty, and simplicity (Guerraoui, 1997). In Islamic beliefs, illness is seen as something that comes from Allah, and only He determines its outcome (Jourdan, 2007). Family dynamics often provide limited opportunities for intimate discussions about women's bodies. Furthermore, religion plays a central role in the experience of illness. These taboos can have a negative impact on patients, sometimes even leading to refusal of care. Some Muslim women are reluctant to discuss their breast health with healthcare professionals (Moey et al., 2022).

2. Methodology: Research objectives, instrumentation and sample

In this exploratory qualitative study, we adopted an inductive approach to examine the experiences of Muslim women of Maghrebi origin residing in Belgium or France affected by breast cancer. We conducted semi-structured interviews to explore participants' subjective experiences and the meanings they attribute to their illness. Participants also completed two self-administered questionnaires: the Medical Outcome Study Short Form (MOS-SF36), which assesses quality of life across eight dimensions spanning the physical, emotional, and social domains (Leplège, Ecosse, Pouchot, Coste, & Perneger, 2001), and the Body Image Scale (BIS), which evaluates body image disturbances in oncology settings (Hopwood, Fletcher, Lee, & Al Ghazal, 2001).

3. Results

3.1. Sociodemographic characteristics of the sample

The sample consists of five women aged between 27 and 52 years old. Two participants live in Belgium. They were born in Morocco and have Moroccan nationality. The other three live in France.

They have Algerian nationality. Two were born in France, and the last one was born in Algeria. Table 1 provides an overview of their sociodemographic characteristics.

Table 1. Sociodemographic characteristics of the sample.

Woman	*Age*	*Nationality*	*Country of*		*Familial situation*	*Children*	*Professional situation*
			birth	*living*			
1	52	Algerian	Algeria	France	Widow	0	Housekeeper
2	48	Algerian	France	France	Married	3	Housewife
3	44	Moroccan	Morocco	Belgium	Widow	3	Housewife
4	27	Moroccan	Morocco	Belgium	In a relationship	0	Manager of a restaurant
5	40	Algerian	France	France	Married	2	Housewife

3.2. Perception of the disease at diagnosis and received treatment

Receiving the diagnosis was challenging, although it seemed to affect their relatives more than the participants themselves. Family members were the most anxious. What frightened the participants was not death itself, but the idea of leaving their family or children behind. Participant 3 expressed fear of never seeing her family in Morocco again. Participant 4 felt into depression after her ex-partner left her upon learning about the illness.

All five participants underwent both chemotherapy and radiotherapy. Three of them had a mastectomy (removal of the breast), while two underwent a lumpectomy (surgical removal of a mammary tumour) along with axillary lymph node dissection. The treatment period was exhausting for all of them: they felt physically weak, reported that the pain was unbearable, and had side effects such as nausea, sensitivity to smells, and nail damage. Participant 5 reported having difficulty performing daily household tasks (cooking and cleaning). Hair loss was also a difficult experience for all participants.

3.3. Quantitative results at the BIS and the MOS SF-36

Table 2 shows quantitative results from the two self-administered questionnaires. The BIS scores were low for four of the women, indicating a positive body image. Participant 4, however, obtained a high score, suggesting a negative body image. She is the youngest, was diagnosed in early adulthood, and reported feeling self-conscious in front of her new partner. The MOS SF-36 scores indicate that, on average, physical dimensions score slightly higher than mental dimensions (65.38 vs 58.77). Participants 1, 2, and 5 obtained high values, reflecting a generally favourable quality of life. Participant 3 obtained consistently low scores across all dimensions, indicating a reduced quality of life in both physical and emotional domains. Participant 4 shows intermediate scores, indicating moderate well-being, with physical pain (D3), chronic fatigue (D5), and emotional difficulties (D7) being the most problematic dimensions.

Table 2. Results at the BIS and MOS SF-36.

Woman	*Age at the diagnosis*	*BIS*	*MOS SF-36*							
			Physical dimensions				*Mental dimensions*			
			D1	*D2*	*D3*	*D4*	*D5*	*D6*	*D7*	*D8*
1	48	0	80	100	57.5	87.5	55	75	100	72.5
2	44	3	80	75	100	66.67	50	100	100	68
3	33	9	35	0	22.5	16.67	10	37.5	0	12
4	21	16	80	75	20	50	30	62.5	33.33	44
5	38	8	95	100	100	66.67	70	87.5	100	68
Mean	**36.8**	**7.2**	**74**	**70**	**60**	**57.50**	**43**	**72.5**	**66.66**	**52.9**
			65.38				**58.77**			

3.4. Social and cultural experiences

Religion plays an important role for four participants. The fifth participant explained that, although religion helped her cope with the illness, it does not occupy a central place in her life. Religious beliefs facilitated acceptance of the disease. Participant 4 indicated that Allah does not punish people with disease but tests them to reveal their strength. Participants 3 and 5 reported that Allah determines the outcome of the illness. Therefore, they must trust Him and accept their fate. According to the family of participant 3, cancer is linked to death. Her family still believes she will die soon. Moreover, we found that two participants did not seek medical consultation immediately, although they had noticed something unusual in their breast. Such behaviour may be linked to their beliefs that only Allah determines the outcome of the cancer.

The five participants initially struggled to accept the physical changes caused by treatment, often accompanied by pain and discomfort. Over time, most of them reported feeling increasingly comfortable with their bodies. Four participants explained that they were raised with strong values of *modesty* and respect for the body. Only one participant felt uneasy with male healthcare providers, although the medical teams were predominantly composed of women. To avoid the gaze of others, four women chose to conceal their illness as much as possible, an attitude that also reflects their sense of *modesty*. They preferred to discuss it only with people they felt truly close to.

All five participants described the *support* of their families or close friends as essential throughout their experience. Four of them also emphasized how the kindness and attentiveness of the medical team played a crucial role in helping them cope. Participant 3 received psychological counselling, which she found particularly beneficial. Participant 4 explained that support groups with other patients had been invaluable to her.

4. Discussion

According to Islamic beliefs, cancer is inevitably linked to death (Baider & Goldzweig, 2016). Our findings indicate that Muslim women living in France or Belgium, along with their families, no longer hold this view. Only one participant reported that her family members residing in Morocco continue to perceive cancer in this way. However, these findings should be interpreted with caution, as selection bias may be present. Those who agreed to participate in the study are likely Muslim women who feel more comfortable discussing issues related to breast cancer. Previous research has shown that many Muslims are generally reluctant to talk about their disease. Women with deeply religious convictions might have chosen not to participate. Another limitation of this study concerns the limited number of participants. We suggest that future research should aim to include a larger number of participants. Moreover, some religious values, such as upholding their modesty, can influence their health behaviour (Moey et al., 2022). They tend to rely on fate and adhere to the belief that "what is meant to happen will happen". This study underscores the importance of increasing awareness among women about breast cancer screening. The WHO (2025) highlights that treatments are more effective when the disease is detected early.

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FAMILY FUNCTIONING FACTORS DIFFERENTIALLY PREDICT DIRECT AND INDIRECT AGGRESSION IN ADOLESCENTS

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Abstract

Individual and contextual factors contribute to the development of aggressive behavior during adolescence. With regard to contextual factors, it has been widely demonstrated that child neglect, abuse, and maltreatment within the family have severe negative consequences for later adolescent behavior problems, such as delinquency, aggression, and substance use or abuse. Nowadays, there is growing interest in examining characteristics of family functioning during adolescence that contribute to aggression at this stage, since family dysfunction is consistently related to adolescent maladjustment. In this work, we used the McMaster Model of Family Functioning as a comprehensive and systematic framework that has proven useful for identifying relevant family variables that distinguish healthy from unhealthy families, in order to explain different adjustment problems in adolescence. We used this model to examine which specific features of the family could lead to either direct or indirect aggression in adolescents. The sample consisted of 722 Spanish secondary school students aged 12 to 18. They completed the Family Assessment Device (FAD), a self-report measure that assesses different dimensions of family functioning (problem solving, communication, roles, affective responsiveness, affective involvement, and behavioral control), and the subscales for direct and indirect aggression from the Children's Social Behavior Scale – Self-Report (CSBS-S). Regression analyses revealed that both problem solving and roles were predictive of both forms of aggression. In addition, communication was specifically predictive of direct aggression, while affective responsiveness and affective involvement were specific predictors of indirect aggression. In conclusion, the findings clarify the contribution of family functioning to the development of adolescent aggression, and reveal the differential role of communication and affection in preventing direct and indirect aggression, respectively. Knowledge of the risk factors leading to aggressive behavior may be useful for designing specific interventions aimed at preventing the onset of and reducing adolescent adjustment problems over the course of development.

Keywords: *Family functioning, direct and indirect aggression, adolescence.*

1. Introduction and objectives

Although research on the association between family functioning and aggression in children and adolescents has increased, most studies have examined aggression as a unitary construct. Against this background, several authors have emphasized the importance of distinguishing between direct and indirect forms of aggression to obtain a more fine-grained understanding of the family factors involved in adolescent aggression (Card et al., 2008; Lundh et al., 2014). The present study examined the extent to which a dysfunctional family environment is associated with adolescents' use of direct and indirect aggression toward peers, acknowledging that these forms share similarities but also display distinct characteristics. Specifically, we first examined whether each dimension of family functioning within the McMaster Model of Family Functioning (MMFF; Miller et al., 2000) predicted each form of adolescent aggression. Second, we assessed whether each MMFF dimension was predictive of the unique aspects of direct and indirect aggression by controlling for the overlap between both forms.

2. Method

Adolescents aged 12 to 18 (M = 14.79 years, SD = 1.74) were recruited from six secondary schools in the Málaga area, Spain, resulting in a total sample of 722 pupils (373 girls and 349 boys). Distribution by grade was as follows: 24.7% seventh graders, 14.7% eighth graders, 15.7% ninth graders, 16.1% tenth

graders, and 28.9% eleventh graders. Aggression was assessed with the Children's Social Behavior Scale Self-report (CSBS-S; Crick & Grotpeter, 1995). Family functioning was measured using the Family Assessment Device (FAD; Epstein et al., 1983), which assesses each individual family member's perception of their family functioning on the dimensions of the McMaster Model of Family Functioning (MMFF; Miller et al., 2000): problem solving, communication, roles, affective responsiveness, affective involvement, and behavior control.

3. Design and results

In our first set of regression analyses, results revealed that all family dimensions of the MMFF were predictive of both direct and indirect aggression. This led us to conduct a second series of analyses, controlling for the overlapping effects between the two forms of aggression, which revealed the existence of different constellations of family dimensions predictive of direct and indirect aggression. Specifically, problem solving, communication, and roles were found to be predictors of direct aggression (see Table 1), while problem solving, roles, affective responsiveness, and affective involvement were predictors of indirect aggression (see Table 2).

4. Discussion

As expected, data from our study revealed that there are several common dysfunctional characteristics of family functioning related to the use of both direct and indirect aggression in adolescents. In particular, the family's lack of ability to solve problems at a level that maintains effective functioning, and the inability to use roles as patterns of behavior through which each family member repeatedly fulfills certain functions, appear to predict adolescents' nondistinctive use of direct or indirect aggression. In addition, we found that particular characteristics of family functioning differentially relate to direct and indirect aggression. Specifically, dysfunctions in communication were predictive of direct aggression, while dysfunctions in affective responsiveness and affective involvement were predictive of indirect aggression. That is, the less clear and simple the communication among family members, the greater the likelihood that adolescents will develop verbal or physical direct forms of aggression, whereas more subtle indirect aggression is more likely to occur when the family's affective patterns are inadequate. These findings further specify the types of family interactions that influence aggressive relationships among adolescents, thus contributing to the prevention and treatment of aggression in adolescence.

Table 1. hierarchical regression analyses for each dimension of the family functioning predicting direct aggression.

Equation	Entry order	Predictor	*B*	*SE*	*β*	*t*	R^2 change
1	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, *F* (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , *F* (1, 719) = 222.61***
	3	General Functioning	.14	.08	.06	1.87	ΔR^2 =.00, *F* (1, 718) = 3.48, *ns*
2	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, *F* (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , *F* (1, 719) = 222.61***
	3	Problem Solving	.23	.09	.08	2.51	ΔR^2 =.00, *F* (1, 718) = 6.31*
3	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, *F* (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , *F* (1, 719) = 222.61***
	3	Communication	.32	.09	.11	3.45	ΔR^2 =.01, *F* (1, 718) = 11.91***
4	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, *F* (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , *F* (1, 719) = 222.61***
	3	Roles	.37	.11	.11	3.46	ΔR^2 =.01, *F* (1, 718) = 11.96***
5	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, *F* (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , *F* (1, 719) = 222.61***
	3	Affective Responsiveness	.13	.08	.05	1.71	ΔR^2 =.00, *F* (1, 718) = 2.93, *ns*
6	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, *F* (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , *F* (1, 719) = 222.61***

	3	Affective Involvement	.04	.09	.01	.45	ΔR^2 =.00, F (1, 718) = .21, *ns*
7	1	Gender	-.92	.12	-.27	-7.50	R^2 =.07, F (1, 720) = 56.38***
	2	Indirect Aggression	.41	.03	.47	14.9	ΔR^2 =.22 , F (1, 719) = 222.61***
	3	Behavior Control	.16	.09	.05	1.71	ΔR^2 =.00, F (1, 718) = 2.92, *ns*

Note. *p < .05,*** $p \leq .001$, *ns* = non-significant

Table 2. hierarchical regression analyses for each dimension of the family functioning predicting indirect aggression.

Equation	Entry order	Predictor	*B*	*SE*	*ß*	*t*	R^2 change
1	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	General Functioning	.27	.09	.10	3.10	ΔR^2 =.01, F (1, 718) = 9.59*
2	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	Problem Solving	.29	.11	.09	2.72	ΔR^2 =.00, F (1, 718) = 7.38*
3	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	Communication	.13	.11	.04	1.21	ΔR^2 =.00, F (1, 718) = 1.46, *ns*
4	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	Roles	.28	.13	.07	2.18	ΔR^2 =.00, F (1, 718) = 4.76*
5	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	Affective Responsiveness	.28	.09	.10	3.09	ΔR^2 =.01, F (1, 718) = 9.55*
6	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	Affective Involvement	.27	.10	.09	2.64	ΔR^2 =.00, F (1, 718) = 6.96*
7	1	Gender	-.44	.14	-.11	-3.03	R^2 =.01, F (1, 720) = 9.17*
	2	Direct Aggression	.57	.04	.50	14.92	ΔR^2 =.23 , F (1, 719) = 222.61***
	3	Behavior Control	.11	.11	.03	1.01	ΔR^2 =.00, F (1, 718) = 1.01, *ns*

Note. *p < .05,*** $p \leq .001$, *ns* = non-significant

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PSYCHOLOGICAL NEEDS AND PROBLEMATIC PORNOGRAPHY USE AMONG YOUNG MEN: THE ROLE OF IMPULSIVE–COMPULSIVE MECHANISMS

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Abstract

Excessive and harmful pornography consumption is increasingly conceptualized as a form of maladaptive behavioural regulation characterized by impulsive and compulsive features. From the perspective of Self-Determination Theory (Deci & Ryan), such behaviour reflects not merely a deficit in self-control but the chronic frustration of basic psychological needs (BPNF): autonomy, competence, and relatedness. Frustration of autonomy fosters internal pressure and impulsive responding, while frustration of competence undermines self-regulation and increases reliance on immediate relief. Frustrated relatedness may expand, as pornography provides an illusory sense of intimacy without interpersonal risk. Impulsivity represents an acute response to unmet needs, whereas compulsivity reflects persistent behavior maintained despite negative consequences. Although pornography use may temporarily reduce distress, it can intensify need frustration, weakening self-regulation, and promoting a shift from impulsive to compulsive use. The present study examines the relationship between BPNF and problematic pornography use among young men, focusing on the mediating roles of impulsivity and compulsivity. Online data were collected from Slovak men aged 18–35 years (N = 794; M = 29.8; SD = 9.8). BPNF was assessed using the Basic Psychological Need Frustration Scale. Impulsivity (Short UPPS-P) and compulsivity (CPAS) were measured with validated scales and tested as mediators. Problematic pornography use was assessed with the PPCS. Linear regression models and mediation analyses examined direct and indirect associations among the study variables. As it was predicted, the BPNF were significantly associated with: (1) higher level of PPCS (B=.278***); (2) higher impulsivity (B=.343***) and (3) higher compulsivity (B=. 319***). Similarly, the impulsivity (B=.301***) and compulsivity (B=.209***) were positively associated with PPCS. The association between BPNF and problematic pornography use behaviour was partially mediated by impulsivity (B=.0656*) and by compulsivity (B=.0447*). The findings supported all hypothesized relationships, indicating that BPNF is significantly associated with PPCS among young men. This relationship was both directly and indirectly explained through impulsivity and compulsivity, with evidence for a sequential mediating pathway. The results highlight the role of impaired self-regulatory mechanisms in linking unmet psychological needs to maladaptive pornography use.

Keywords: *Psychological needs, pornography use, impulsiveness, compulsiveness, young men.*

1. Introduction

Problematic pornography use (PPU) has increasingly attracted attention as a potential form of maladaptive behavioural regulation characterized by loss of control, persistent engagement despite negative consequences, and psychological distress. Although pornography consumption is widespread and often considered a normative behaviour, a subset of individuals develops patterns of use that resemble behavioural addictions or compulsive sexual behaviours (Kraus et al., 2016; Potenza et al., 2017). Contemporary theoretical models increasingly emphasize that problematic engagement with sexual content cannot be explained solely by deficits in self-control but should be understood within broader motivational and regulatory frameworks that integrate both impulsive and compulsive mechanisms (Potenza et al., 2017).

One influential framework for understanding maladaptive behavioural regulation is Self-Determination Theory (SDT), developed by Edward L. Deci and Richard M. Ryan (Deci & Ryan, 2000). SDT posits that optimal psychological functioning depends on the satisfaction of three universal basic psychological needs: autonomy, competence, and relatedness. Research indicates that frustration of basic psychological needs may contribute to a range of problematic or compensatory behaviours, including excessive internet use, substance use, and other forms of maladaptive coping (Weinstein & Ryan, 2011).

From this perspective, individuals may turn to easily accessible digital activities as a means of regulating psychological discomfort associated with unmet needs. Online pornography may be particularly reinforcing because it can provide immediate emotional relief, perceived control over stimulation, and an illusory sense of intimacy without the risk in real interpersonal relationships (Kraus et al., 2016). However, such short-term regulation may ultimately intensify underlying need frustration, thereby contributing to a cycle of maladaptive engagement.

Within contemporary addiction frameworks, impulsivity and compulsivity are often conceptualized as partially distinct but interacting mechanisms underlying problematic behaviours (Chamberlain et al., 2016). Impulsivity generally refers to rapid, poorly controlled responses to internal or external stimuli without sufficient consideration of potential negative consequences. Compulsivity, in contrast, involves repetitive and rigid behavioural patterns that persist despite diminishing rewards or increasing harm. In the context of problematic sexual behaviours, impulsive tendencies may facilitate the initial use of pornography as a means of coping with distress or unmet psychological needs, whereas compulsive patterns may emerge over time as the behaviour becomes habitual and resistant to self-regulation (Potenza et al., 2017).

From the perspective of SDT, these regulatory processes reflect stages of maladaptive motivational dynamics. Frustration of autonomy may trigger impulsive responses, frustration of competence may weaken self-regulation, and frustrated relatedness may reinforce solitary coping behaviors such as pornography use by providing illusory intimacy without interpersonal risk (Ryan & Deci, 2017). Over time, reliance on these strategies may shift engagement from impulsive to compulsive patterns.

Despite growing interest in problematic pornography use, little research has examined how basic psychological need frustration relates to impulsive and compulsive mechanisms. The present study examines these relationships among young men, focusing on impulsivity and compulsivity as mediators linking unmet needs with problematic sexual behavior.

2. Methods

2.1. Sample

Online data collection was conducted among Slovak young men aged 18–35 years (N = 794; M = 29.8; SD = 9.8). Data were collected nationwide in Slovakia by a professional survey agency using proportional quota sampling reflecting the distribution of regions, educational attainment, and socioeconomic status in the population. The sample consisted exclusively of male participants aged 18–35 years. Participants received a small incentive from the research agency for completing the survey. Participation in the study was voluntary, and all respondents provided informed consent prior to completing the questionnaire. Data were collected anonymously. The content of the questionnaire and the data collection procedure were reviewed and approved by the Ethics Committee of Pavol Jozef Safarik University in Kosice.

2.2. Measures

Frustration of basic psychological needs (BPNF) was assessed using the Basic Psychological Need Frustration Scale, which measures the frustration of autonomy, competence, and relatedness as conceptualized within Self-Determination Theory (Bartholomew et al., 2011). Participants rated items describing experiences of psychological pressure and lack of volition (e.g., “I feel forced to do things I would not choose to do”) on a Likert-type scale, with higher scores indicating greater need frustration.

Impulsivity was measured using the Short UPPS-P Impulsive Behaviour Scale, a validated instrument assessing key facets of impulsive personality traits such as sensation seeking and lack of premeditation (Cyders et al., 2014). An example item is “I generally seek new and exciting experiences and activities.” Higher scores indicate stronger impulsive tendencies.

Compulsivity was assessed using the Compulsive Personality Assessment Scale (CPAS), which evaluates rigid behavioural tendencies and persistent goal-directed behaviour despite negative consequences (Fineberg et al., 2014). Example items include statements such as “Are you excessively devoted to work to the exclusion of leisure activities and friendships?”

Problematic pornography use was measured with the Problematic Pornography Consumption Scale (PPCS) (Bőthe et al., 2018). The scale assesses problematic engagement with pornography across several addiction-related dimensions (e.g., salience, conflict, withdrawal). Higher scores indicate greater levels of problematic pornography use.

2.3. Statistical analyses

Procedures included descriptive statistics and correlations to examine relationships among the variables. Linear regression models were used to assess the association between need frustration and

problematic pornography use. Mediation analyses were conducted to test whether impulsivity and compulsivity mediated the relationship between basic psychological need frustration and problematic pornography use. Indirect effects were estimated using bootstrapped confidence intervals (Hayes, 2018).

3. Results

As predicted, frustration of basic psychological needs (BPNF) was significantly associated with all key study variables. Higher BPNF was related to greater problematic pornography consumption (B = .278, ***p < .001), as well as to higher levels of impulsivity (B = .343, ***p < .001) and compulsivity (B = .319, ***p < .001). These findings indicate that individuals experiencing stronger frustration of autonomy, competence, and relatedness tend to report more impulsive tendencies and stronger compulsive behavioural patterns. Both impulsivity and compulsivity were also positively associated with problematic pornography use. Higher impulsivity predicted higher PPCS scores (B = .301, ***p < .001), while compulsivity was also significantly related to problematic pornography consumption (B = .209, ***p < .001).

Mediation analyses further showed that the association between BPNF and problematic pornography use was partially mediated by impulsivity (B = .0656, *p < .05) and compulsivity (B = .0447, *p < .05), suggesting that need frustration may increase the risk of problematic pornography use partly through increased impulsive and compulsive tendencies.

4. Discussion and conclusion

The findings supported all hypothesized relationships, indicating that BPNF is significantly associated with PPCS among young men. This relationship was both directly and indirectly explained through impulsivity and compulsivity, with evidence for a sequential mediating pathway. The results highlight the role of impaired self-regulatory mechanisms in linking unmet psychological needs to maladaptive pornography use.

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FROM STORYTIME TO SCREEN TIME: HOW DIFFERENT READING ENVIRONMENTS PREDICT READING COMPREHENSION

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Abstract

This study examined the predictive relationships between different types of home literacy environments and students' reading comprehension one year later. The Home Literacy Model suggests that outcomes vary according to the types of formal and informal literacy activities undertaken at home. However, it does not explicitly consider how the medium of these activities—whether print or digital—may influence performance. Given the growing role of technology in children's reading experiences, it is essential to also examine the impact of the digital literacy environment on literacy development. This study considered three literacy contexts: formal literacy environments (e.g., how often parents teach children to read or write letters and short words, or work with them on book-based learning activities), informal literacy environments (e.g., how often parents play language games, visit the library, or read to their children), and digital literacy environments (e.g., how frequently parents use digital devices to teach reading and writing, read together, or listen to audio stories). The study was conducted at two time points. It involved 220 children aged 6 to 8 years and one of their parents. Parents provided insights into formal, informal, and digital literacy activities they engage in with their children. Reading comprehension was measured one year later using a validated assessment tool. Multiple regression analysis was conducted to determine the predictive power of each environment. Findings revealed distinct patterns across literacy environments. The formal literacy environment was not a significant predictor of later reading comprehension, while the informal literacy environment showed a significant positive relationship, indicating that rich, engaging literacy experiences outside formal teaching practices foster stronger comprehension skills over time. Finally, the digital literacy environment emerged as a significant negative predictor, suggesting that higher engagement with digital reading and screen-based content may be associated with lower gains in reading comprehension. The suggested model explained 5.3% of the variance of reading comprehension ($F=4.04$, $p<.008$). These results highlight the nuanced roles of different literacy environments in shaping reading development. While traditional formal instruction alone may not account for growth in comprehension, informal literacy practices appear to provide meaningful support for literacy skills. Conversely, the negative association with digital literacy exposure underscores the need to better understand the quality and cognitive demands of digital reading experiences. The findings emphasize the importance of promoting rich, authentic literacy experiences at home, as well as developing strategies to guide productive digital reading practices in an increasingly online world.

Keywords: *Reading comprehension, digital literacy environment, middle childhood.*

1. Introduction

This study investigated how different types of home literacy environments predict students' reading comprehension one year later. According to the Home Literacy Model, children's literacy outcomes vary depending on the kinds of literacy activities they experience at home (Sénéchal & LeFevre, 2002; Sénéchal, 2006). In particular, the model distinguishes between formal literacy activities, which focus on direct instruction (e.g., parents teaching letters, words, or writing skills), and informal literacy activities, which emphasize meaning-based exposure to language, such as shared book reading and language play (Sénéchal & LeFevre, 2002). Although the Home Literacy Model has been widely used to explain individual differences in children's reading development, it does not explicitly account for the medium through which literacy activities occur. Specifically, it does not differentiate between print-based and digital literacy experiences, despite evidence that the medium of reading may influence comprehension processes and learning outcomes (Delgado et al., 2018). Given the increasing integration of digital technologies into children's everyday literacy practices, it is important to examine the role of the digital literacy environment

alongside traditional home literacy activities. Research suggests that digital literacy experiences may involve distinct interactive and cognitive processes compared to print-based activities and may therefore have unique implications for literacy development (Neumann, 2018; Neumann & Neumann, 2017).

To address this gap, the present study examined three types of home literacy contexts. First, formal literacy environments included parent-led instructional activities such as teaching children to read or write letters and short words and engaging in book-based learning tasks (Sénéchal & LeFevre, 2002). Second, informal literacy environments encompassed shared and play-oriented activities, including reading aloud, playing language games, and visiting libraries, which have been shown to support later reading comprehension (Bus et al., 1995; Sénéchal, 2006). Third, digital literacy environments referred to literacy-related activities involving digital media, such as parents using digital devices to support reading and writing, engaging in shared digital reading, or listening to audio stories together (Neumann, 2018).

2. Methods

2.1. Procedure

The study was conducted at two time points, at the beginning of school year (September 2024) and at the end of the school year (May 2025). Parents of children attending first grade of primary school were invited to participate in the study conducted as a part of the project DigiLitA: The effect of environment on child development, funded by NextGenerationEU. Those who agreed to participate signed the written consent form and filled out a questionnaire providing information about the home literacy environment at Time 1. Approximately 8 months later, at Time 2, their children were approached at school during regular school hours and completed a reading comprehension test administered in group.

2.2. Participants

The study involved 220 children aged 6 to 8 years (M=7.06, SD=.331). A total of 117, 52.9% were girls. Additionally, it involved one of the children's parents.

2.3. Measures

Home literacy environment was assessed using items that describe different literacy-related activities that children engage in with their parents. Parents estimated how often they engaged in these activities with their child in the last month, using a response scale from 1 ("Never") to 5 ("Very often"). The factor analyses showed that the items show three factors, which can be described as formal and informal home literacy activities, and digital literacy environment.

Reading comprehension was assessed by a Swedish Reading Comprehension Test (Lundberg, 2001), which was translated into Croatian (Keresteš et al., 2019). The final results are the sum of correctly answered tasks with the higher number indicating higher reading comprehension achievement.

3. Results

A multiple regression analysis was conducted to examine whether different types of home literacy environments (HLE)—formal, informal, and digital—predicted the reading comprehension. The overall regression model was statistically significant, explaining approximately 5.3% of the variance (Table 1). Although the explained variance was modest, this indicates that the set of HLE predictors made a statistically meaningful contribution.

Table 1. Hierarchical Regression Results.

Predictor	B	β	t	p	R^2	Adj.R^2	p
					.053	.040	.008
Formal HLE	-.395	-.070	-.988	.324			
Informal HLE	.836	.141	2.045	.042			
Digital HLE	-1.157	-.190	-2.688	.008			

Note. HLE=home literacy environment, Adj. R^2= Adjusted R^2

The formal HLE was not a significant predictor of the reading comprehension, suggesting that the frequency of parent-led instructional activities, such as teaching letters or words, was not significantly associated with the children's reading comprehension when informal and digital literacy environments were taken into account. The informal HLE emerged as a significant positive predictor of reading

comprehension. This indicates that higher engagement in informal literacy activities (e.g., shared reading, language games, library visits) was associated with better performance in reading comprehension 8 months later. In contrast, the digital HLE was a significant negative predictor of reading comprehension, indicating that more frequent engagement in digital literacy activities was associated with lower scores on the reading comprehension. The standardized beta suggests that digital HLE had the strongest association among the three predictors, albeit in a negative direction.

4. Discussion

Taken together, the results suggest that not all home literacy activities contribute equally to literacy outcomes. Informal, meaning-based literacy experiences appear to be beneficial, whereas digital literacy activities—at least as measured in this study—may be associated with less favourable outcomes. Formal instructional activities did not show a significant unique contribution once other forms of HLE were considered. Previous studies show conflicting findings. In an iPad-based randomized controlled trial with children aged 2 to 5, Neuman (2008) showed that literacy apps improved preschoolers' alphabet knowledge, print concepts, and name writing, but not letter writing, suggesting that additional scaffolding is needed when using tablets for emergent literacy development. In a study with children aged 6 to 7, Janez et al. (2023) found that formal HLE using traditional materials predicted reading comprehension, whereas informal practices and the digital HLE showed no significant association with reading performance. Future studies should further explore the level of parental engagement in the digital HLE practices. For example, Dore et al. (2018) showed that preschoolers recalled the more content when e-books were read together with a parent compred to independent reading of e-books using audio narration, highlighting the continued importance of adult involvement. Additionally, in a study of 28 kindergarten children, repeated shared reading of both print books and e-books showed that while all learning outcomes were related to letter knowledge, emergent literacy was higher with e-books, suggesting that well-designed e-books can enhance adult-supported emergent literacy development (Rvachew et al., 2017). While there is clearly need for further research on this topic, taken together these findings highlight the importance of distinguishing between types and contexts of home literacy experiences, particularly considering the growing role of digital media in children's literacy development.

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MATHEMATICAL WELLBEING PREDICTORS OF MATHEMATICS ACHIEVEMENT IN DIFFERENT EDUCATIONAL TRACKS: CASE OF SLOVENIA

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Abstract

The role of students' mathematical wellbeing in explaining mathematics achievement has gained increasing attention in national and international research, particularly within large-scale assessment studies (e.g. PISA, TIMSS). Among the dimensions of mathematical wellbeing, mathematics anxiety, mathematics self-efficacy, and proactive mathematics study behaviour have consistently been identified as significant predictors of mathematics achievement. The latest PISA 2022 results for Slovenia show that Slovenian 15-year-olds report substantially higher levels of mathematics anxiety and lower levels of mathematics self-efficacy and proactive study behaviour compared to their OECD peers. Given the long-term negative trend in Slovenian students' mathematics performance, this study addresses a research gap by examining the contribution of different aspects of mathematical wellbeing to explaining mathematics achievement. Since previous national studies have shown that educational programme is an important source of differences in learning behaviour and academic outcomes in Slovenia, the study also explores how the predictive effects vary across educational tracks. The analysis is based on Slovenian PISA 2022 data from a representative sample of 6,721 15-year-old students, of whom 1,486 (22.1%) attended general education and 1,339 (19.9%) vocational education programmes. From the student questionnaire, we used scales measuring mathematics anxiety, mathematics self-efficacy (formal and applied), and prosocial mathematics behaviour, while mathematics achievement was measured using ten plausible values from the cognitive database. All scales showed good internal consistency in the Slovenian sample. Linear regression analysis was applied to examine the effects of predictors within educational tracks, with multicollinearity checked prior to analysis. Data were analysed using IEA IDB Analyzer (Version 5.0.50), which accounts for PISA's two-stage sampling design by applying student and sample weights and estimating standard errors using the Bootstrap method. The results showed that mathematics anxiety and mathematics self-efficacy related to formal and applied mathematics were the most significant predictors of students' mathematics achievement in the Slovenian context, regardless of educational programme. Analyses of the model's explanatory power revealed notable differences between educational programmes, as the predictors explained 16% of the variance in mathematics achievement in general education, but only 5% in vocational education. These findings highlight the importance of strengthening students' socio-emotional wellbeing related to mathematics and fostering supportive student–teacher relationships as key pathways for improving mathematics achievement, thereby emphasizing the need to systematically address mathematics anxiety and enhance mathematics self-efficacy, while also implementing differentiated pedagogical approaches that take into account students' prior knowledge, motivational characteristics, and specific educational needs.

Keywords: *Mathematics achievement, mathematics anxiety, mathematics self-efficacy, educational tracks, PISA 2022 study.*

1. Introduction

In the international research context, recent studies consistently show that higher levels of mathematics anxiety are associated with lower mathematics achievement, even when controlling for contextual factors such as cultural background, students' age and educational level, task difficulty, and the type of mathematics assessment (Barroso et al., 2020; Esposito et al., 2025; Zhang et al., 2019). Furthermore, studies (e.g., Al Mutawah, 2015) indicate that mathematics anxiety is particularly pronounced among students who hold negative beliefs about mathematics and report low levels of mathematics self-efficacy. At the same time, mathematics self-efficacy has been consistently identified as a strong

positive predictor of mathematics achievement (Ding et al., 2024; OECD, 2025; Yang et al., 2024). Studies examining the effects of prosocial behaviour on academic achievement in primary and secondary education (Deveci & Karademir, 2019; Maamin et al., 2022) have found that learning engagement is a significant positive predictor of academic achievement. The research (e.g., Chiu et al., 2016; Ni & Han, 2022) also suggests that it is important to consider different groups of students when examining wellbeing at school, as significant differences exist between student groups.

2. Objectives

Mathematics is a central domain of the educational process and represents an essential foundation for the development of broader knowledge and skills. Results from PISA 2022 indicate that Slovenian 15-year-old students report relatively high levels of mathematics anxiety, low levels of mathematics self-efficacy, and a persistent negative trend in mathematics achievement (OECD, 2023). Previous research has predominantly examined mathematical wellbeing by focusing on single dimensions, such as mathematics anxiety or self-efficacy, while far fewer studies have simultaneously investigated multiple dimensions and their relative contributions to mathematics achievement. Consequently, important gaps remain in understanding how different aspects of mathematical wellbeing jointly relate to mathematics achievement outcomes.

In the Slovenian context, empirical evidence on mathematical wellbeing across educational programmes remains limited, despite consistent national analyses of PISA data (e.g., Štremfel & Šterman Ivančič, 2024) demonstrating large and statistically significant differences in mathematics achievement, particularly between general and vocational education. The objective of this study is to examine the combined and relative effects of multiple dimensions of mathematical wellbeing on mathematics achievement and to test whether these relationships differ across educational programmes.

3. Method

In Slovenia, 6,721 students participated in the PISA 2022 study. To examine differences in predictors of mathematical achievement across educational programmes, the analyses included a representative subsample of 1,486 students (22.1%) enrolled in general education programmes and 1,339 students (19.9%) enrolled in vocational education programmes. Data from the PISA 2022 student questionnaire were used, drawing on separate scales measuring students' perceived mathematics anxiety, mathematics self-efficacy related to formal and applied mathematics, and prosocial mathematics behaviour. All scales demonstrated good internal consistency in the Slovenian sample. Linear regression analyses were conducted to estimate the effect sizes of different predictors in explaining students' mathematics achievement within different groups of students. Prior to the regression analyses, multicollinearity among the variables was examined. The data were analysed using the IEA IDB Analyzer (Version 5.0.48), which accounts for the two-stage sampling design of PISA and enables the application of student and sample weights as well as the Bootstrap method to obtain accurate standard error estimates for the population.

4. Results

The findings indicate that, in both the general education and vocational education programmes, two predictors were consistently identified as significant: mathematics anxiety, which emerged as a negative predictor, and perceived mathematics self-efficacy in formal and applied mathematics, which functioned as a positive predictor of mathematics achievement. Furthermore, analyses of the model's explanatory power revealed notable differences between educational programmes. In the general education programme, the predictors accounted for 16% of the variance in mathematics achievement. In contrast, the same set of predictors explained only 5% of the variance in mathematics achievement in the vocational education programme.

5. Discussion and conclusions

Findings are consistent with previous research demonstrating that mathematics anxiety has a substantial negative effect on mathematics performance, whereas positive beliefs about one's mathematical knowledge and capabilities, reflected in higher levels of mathematics self-efficacy, are associated with higher mathematics achievement (Broda et al., 2023; Holenstein et al., 2021; Yang et al., 2024). Analyses of the model's explanatory power further indicate that aspects of mathematical wellbeing play a more prominent role in academically more homogeneous and higher-achieving student populations. Among

students in the general education programme, whose prior knowledge is relatively uniform and whose average achievement is higher, individual differences in mathematics performance appear to be more strongly related to emotional regulation and beliefs about one's own capabilities. In contrast, within the vocational education programme, a larger share of the variance in mathematics achievement is likely attributable to contextual and structural factors, such as learning gaps, socioeconomic background, work obligations, and attitudes towards schooling, which were not included in the present explanatory model (OECD, 2023; Kuzmina & Carnoy, 2016).

Overall, the findings highlight the need to systematically address mathematics anxiety and strengthen mathematics self-efficacy across educational programmes, while emphasizing the importance of differentiated pedagogical approaches that consider students' prior knowledge, motivational characteristics, and specific needs. These results provide a basis for developing interventions that integrate cognitive and emotional dimensions of learning and support the effective development of mathematical literacy.

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THE EFFECTS OF BACKGROUND MUSIC AND MUSIC LISTENING ON READING RECALL AND EXTRANEOUS COGNITIVE LOAD

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Abstract

Music listening is increasing worldwide due to the growing popularity of streaming services. The International Federation of the Phonographic Industry (2023) reported the highest amount of music listening measured to date, with an average listening time of 20.7 hours per week. They also found people often listen to music while completing tasks, including working. This trend suggests an increasing importance of research into background music listening and its effect on working memory. While research has been done on background music (BGM) and working memory, the results were inconclusive and mostly focused on simple memory tasks. Only recently researchers have tested the influence of BGM on working memory in more complex tasks, such as reading (Vasilev et al., 2024). As the most popular genres have a heavy focus on lyrics, the effect of lyrics in BGM on reading task performance has become an important research objective.

This experimental eye-tracking study explored the effect of lyrics in BGM and music listening frequency on reading recall ability and extraneous cognitive load. Thirty-seven participants (12 males, 18 females, 4 non-binary) with an average age of 22.2 years took part in the study. Participants were divided into two groups based on their music listening frequency (low, high) and read two text passages, one with instrumental BGM, one with lyrical BGM. While reading, their pupil diameter was measured as an indicator for extraneous cognitive load. The results indicated no effect of music listening frequency on reading recall and extraneous cognitive load. Lyrics in BGM had no effect on reading recall. However, the findings indicated an increase in extraneous cognitive load when lyrical BGM was played ($t(37) = 1.7$, $p = .049$, 95% CI = [-.003, .035]). Reading recall and extraneous cognitive load were not correlated.

This study was one of the first to explore lyrics in BGM on both working memory and extraneous cognitive load, while considering a possible effect of music listening frequency. The findings give valuable implications on music usage in an office workspace or learning environment by advancing the literature to date (e.g. Que et al., 2023; Souza & Leal Barbosa, 2023; Vasilev et al., 2024). Specifically, the findings suggest lyrics in BGM may increase extraneous cognitive load but do not influence reading recall. Hence, if reading tasks are completed without time pressure, listening to a song with lyrics compared to its instrumental version does not negatively affect reading recall ability.

Keywords: *Cognitive load, reading recall, music.*

1. Introduction

Recently, music listening has been increasing steadily worldwide due to the growing popularity of streaming services. The International Federation of the Phonographic Industry (IFPI; 2023) reported the highest amount of music listening measured to date, with an average listening time of 20.7h per week in 2023. They found that people often listen to music during activities, e.g. while working. This trend suggests an increasing importance of research into background music listening and its effect on working memory. The results of previous research on background music (BGM) and working memory were inconclusive and mostly focused on simple memory tasks. Only recently researchers have tested the influence of BGM on working memory in more complex tasks, such as reading. As the most popular genres have a heavy focus on lyrics (IFPI, 2023), the effect of lyrics in BGM on reading task performance has become an important research objective. Vasilev, Hitching, and Tyrrell (2024) looked at the impact of lyrics in BGM on self-paced reading. They found lower reading speed and reading comprehension accuracy with lyrical BGM when the songs were unfamiliar. No difference was found with familiar songs. Other studies used

eye-tracking to measure effects of BGM on cognition. Que, Zheng, Hsiao, and Hu (2023) investigated the influence of self-selected BGM on reading task performance and eye movements. Additionally, they examined individual factors such as working memory capacity and BGM listening frequency. They found no effect of BGM on reading task performance, but an increase in reading times with BGM. Eye movements indicated higher extraneous cognitive load (ECL) with BGM, although change in pupil diameter did not differ significantly between the BGM group and the group without BGM. It appears that people have implicit awareness of the negative effects of BGM on task performance and cognitive load. Souza and Leal Barbosa (2023) found that the preference of listening to less complex BGM during difficult tasks like reading aligned with the actual negative effect of lyrical BGM on reading task performance.

1.1. The present study

The present study aimed to investigate the effects of lyrics in BGM and music listening frequency (MLF) on reading recall (RR) and ECL by answering the following research question:

Do lyrics in background music and music listening frequency impact reading recall and pupil diameter?

The hypotheses for the present study were:

H1a: There will be a decrease in RR when lyrical BGM (vs. instrumental BGM) is played.

H1b: The group with high (vs. low) MLF will have higher RR scores.

H2a: There will be an increase in pupil diameter when lyrical BGM (vs. instrumental) is played.

H2b: The group with high (vs. low) MLF will have smaller pupil diameter.

H2c: There will be an interaction of BGM and MLF on pupil diameter.

H3a: There will be a negative correlation between RR and pupil diameter with lyrical BGM.

H3b: There will be a negative correlation between RR and pupil diameter with instrumental BGM.

2. Method

2.1. Design & participants

For the current study a 2x2 factorial multivariate within-between groups experimental design was applied. The independent variables for this study were BGM (2 levels: lyrical BGM, instrumental BGM) and MLF (2 groups: low, high), the dependent variables were RR and ECL. Participants were recruited on IADT campus via convenience sampling. A total of 40 participants took part. Three participants were excluded due to insufficient eye-tracking data. The remaining 37 participants (male: 12, female: 18, non-binary: 4) were between the ages of 18 and 47 years old (M = 22.2, SD = 4.7). The study was approved by the IADT Psychology Ethics Committee prior to the participant recruitment and conducted in alignment with the PSI Code of Ethics (The Psychological Society of Ireland, 2019). The study was supervised for the full duration to ensure the safety of the participants. The data was collected in alignment with GDPR guidelines. All data was anonymised using a unique identifier.

2.2. Materials/apparatus & procedure

The experiment was conducted on a PC in the Psychology lab in IADT using the Tobii Pro Spark eye-tracker. All materials were loaded into the Tobii Lab software. The data was collected using four Microsoft Forms. The participants gave informed consent to participate in the study, created their unique identifier and answered demographic questions. They then completed the questions for the Music Listening Index, a subscale of the MUSE Questionnaire (Chin & Rickard, 2012), to measure MLF. The eye-tracker was calibrated for each participant. If the calibration accuracy was above 10%, the eye-tracker was recalibrated. Participants were instructed to read two text passages of approximately 200 words (graduatehotline, n.d.-a; graduatehotline, n.d.-b) carefully. During each reading session either the instumental or lyrical versions of Fly by Nicky Minaj, feat. Rihanna were played in the background. The order of the texts and song versions was randomized. Directly after each reading session the participnats answered eight text-based multiple choice questions with five options each (“What color were the sunrises everywhere? 1. Orange, 2. Gold, 3. Persimmon orange, 4. Cantaloupe, 5. Lemon”) to measure their RR. The volume of the audio was fixed at 20%. The brightness of the screen was set to maximum. During the reading process, the participants’ pupil dilation was measured. The participants were debriefed and consented to their data being used for the study.

3. Results

A Sign Test showed no significant difference in RR based on BGM ($Z = -.171$, $p = .864$), therefore H1a was not supported. A Mann-Whitney U Test was conducted, showing no significant difference in RR based on participants’ MLF with lyrical BGM ($U = 166.5$, $p = .962$) and with instrumental BGM

(U = 137.5, p= .343). Therefore, H1b was not supported. A 2-way Analysis of Variance (ANOVA) showed no significant difference in pupil diameter based on BGM (F(1, 35) = 3.384, p = .074, pow = .432). The mean for lyrical BGM was 2.82 (SD = .056, 95% Confidence Interval (CI) = [2.71, 2.93]), the mean for instrumental BGM was 2.8 (SD = .052, 95% CI = [2.7, 2.91]). Because the results indicated that the sample size was too small, an additional Paired Samples T-Test was conducted. The results showed a significant increase in pupil diameter with L-BGM compared to I-BGM (t(36) = 1.7, p = .049, 95% CI = [-.003, .035], d = .279). H2a was supported. The 2-way ANOVA showed no significant difference in pupil diameter based on MLF (F(1, 35) = .072, p = .790, pow = .058). Therefore, H2b was not supported. The 2-way ANOVA showed no interaction between BGM and MLF (F(1,35) = 1.236, p = .274, pow = .191). H2c was not supported. A Spearman Correlation showed no significant relationship between pupil diameter and RR with lyrical BGM, r = -.079, p = .642. Therefore, H3a was not supported. A Spearman correlation showed no significant relationship between pupil diameter and RR with instrumental BGM, r = -.015, p = .931. H3b was not supported.

4. Discussion

Contrary to Vasilev et al. (2024), who reported that lyrics in background music negatively influence reading comprehension, no impact on reading recall was found in the current study. The potential negative effect of lyrics on extraneous cognitive load was supported by Que et al. (2023) who found a negative impact of background music on extraneous cognitive load. No correlation was found between reading recall and extraneous cognitive load. This may be explained by longer reading durations balancing out missing working memory resources (Que et al., 2023). MLF did not appear to affect how lyrical BGM affects RR and ECL. In the previous study by Que et al. (2023) background music listening frequency was found to be related with ECL during reading tasks (Que et al., 2023). It is therefore assumable that specific music listening behaviours play a bigger role than overall music listening frequency. For future research, a bigger sample size and more robust pilot testing are recommended for the RR questionnaires to ensure a normal distribution of the data and higher reliability of results. Additionally, future research is necessary to determine how MLF and background music listening frequency differ in their impact and potential reasons why.

5. Conclusion

The findings of the current study give valuable implications on background music usage in work and study spaces. It can be assumed that, at least as long as reading tasks are completed without time pressure, listening to a song with lyrics compared to its instrumental version does not negatively affect reading recall ability.

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ASSOCIATIONS BETWEEN TEACHERS' ANXIETY AND DEPRESSIVE SYMPTOMS AND SELECTED ASPECTS OF THE SCHOOL ENVIRONMENT

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Abstract

Recent global crises have intensified attention to mental health within school communities, including educators. Teachers' psychological well-being is closely linked to students' academic and emotional outcomes, underscoring the importance of supportive school environments. This study examined associations between teachers' symptoms of anxiety and depression and selected aspects of the school environment, including school connectedness, perceived teaching efficacy, staff collaboration, student behaviour, and parent–teacher communication competence. The sample comprised 638 primary and lower secondary school teachers from Slovakia. Data were collected using standardized instruments (DASS-10, Teacher Subjective Well-being Questionnaire, School Level Environment Questionnaire, and Parent–Teacher Conversation Competence Questionnaire) and analysed using correlational and linear regression analyses. Results revealed significant negative associations between anxiety and depressive symptoms and perceptions of school connectedness (r = –.474), teaching efficacy (r = –.316), staff collaboration (r = –.295), student relationships (r = –.289), and communication with parents (r = –.315). Higher psychological distress was consistently related to lower perceived support, efficacy, and positive interpersonal relationships within the school context. These findings highlight the importance of fostering supportive and collaborative school climates to promote teachers' mental health.

Keywords: *Teachers' mental health, anxiety and depression, school environment, parent–teacher communication.*

1. Introduction

Recent global crises, including the COVID-19 pandemic, have intensified concerns about mental health across occupational groups. Teachers represent a particularly vulnerable population due to sustained emotional demands, increasing workload, and accountability pressures. Research indicates elevated levels of anxiety, depressive symptoms, and emotional exhaustion among teachers (Agyapong et al., 2022; Zhou et al., 2024), with implications for classroom climate and student outcomes (Collie et al., 2012).

The Job Demands–Resources (JD-R) model (Bakker & Demerouti, 2017) provides a useful framework for understanding these associations. Job demands are linked to psychological distress, whereas job resources—such as collegial support, autonomy, and positive school climate—promote engagement and well-being.

School connectedness, defined as a sense of belonging and supportive relationships, has been associated with lower stress and higher job satisfaction (Collie et al., 2012). Similarly, perceived teaching efficacy reflects teachers' belief in their capacity to manage classroom demands effectively (Tschannen-Moran & Hoy, 2001) and is linked to resilience and well-being (Gu & Day, 2007).

Staff collaboration contributes to a positive organizational climate, while student behaviour and parent–teacher communication represent important relational dimensions influencing teachers' daily experiences and stress levels (Aloe et al., 2014; Oplatka, 2007).

Despite growing research, fewer studies have examined multiple school-related factors simultaneously in relation to both anxiety and depressive symptoms, particularly in Central and Eastern Europe. This study addresses this gap.

2. Objectives

The aim of this study was to examine associations between teachers' symptoms of anxiety and depression and selected aspects of the school environment, including school connectedness, perceived teaching efficacy, staff collaboration, student relationships, and parent–teacher communication competence.

3. Methods

3.1. Research sample

The sample consisted of 638 primary and lower secondary school teachers from Slovakia. Of these, 40.3% taught at the primary level and 59.7% at the lower secondary level. The mean age was 46.85 years (range 21–69), with an average teaching experience of 20.5 years. Most participants were women (92%).

3.1.1. Measures. *DASS-10 – Depression Anxiety Stress Scale* (Halford & Frost, 2021) consists of 10 items rated on a four-point scale (1 = never, 4 = almost always). Higher scores indicate higher levels of anxiety and depressive symptoms.

Teacher Subjective Well-being Questionnaire (Renshaw et al., 2015) consists of 8 items rated on a four-point scale (1 = almost never, 4 = almost always). Higher scores indicate higher perceived school connectedness and teaching efficacy.

School Level Environment Questionnaire (Johnson et al., 2007). Two of the four original subscales were used: Collaboration (6 items, 5-point scale) and Student Relations (4 items, 5-point scale).

Parent–Teacher Conversation Competence Questionnaire (Gartmeier et al., 2016). The Interpersonal Relationships subscale (3 items) was used, rated on a four-point scale. Higher scores indicate better perceived quality of parent–teacher relationships.

3.1.2 Statistical analysis. Data were analysed using correlational analysis and linear regression.

4. Results

Significant negative correlations were found between anxiety and depressive symptoms and school connectedness (r = –.474), teaching efficacy (r = –.316), staff collaboration (r = –.295), student relationships (r = –.289), and parent–teacher relationships (r = –.315). The regression model explained 26.8% of the variance in psychological distress. Significant predictors included school connectedness, relationships with students, and interpersonal relationships with parents (Table 1).

Table 1. Linear regression model of symptoms of depression and anxiety symptoms among teachers.

Predictor	Estimate	t	p	Stand. Estimate	Lower	Upper
Intercept	37.734	22.228	<.001			
SCS	-.702	-7.304	**<.001**	-.361	-.458	-.264
TEFF	.0313	.267	.789	0.012	-.079	.103
COLL	-.0504	-.723	.470	-.032	-.120	.056
REL	-.175	-2.356	**.019**	-.102	-.186	-.017
IR	-.681	-5.243	**<.001**	-.216	-.296	-.135

SCS -school connectedness; TEFF - teaching efficacy; COLL - collaboration with colleagues; REL - relationships with students; IR - interpersonal relationship with parent.

5. Discussion

The findings indicate that higher psychological distress among teachers is associated with lower perceived school connectedness, weaker relationships with students and parents, reduced teaching efficacy, and lower collaboration. These results support the view that teachers' mental health is embedded in the relational and organizational context of schools.

School connectedness emerged as the strongest predictor, consistent with previous research highlighting the protective role of belongingness and collegial support (Collie et al., 2012; Zhou et al., 2024). Within the JD-R framework, it may function as a key resource buffering occupational demands.

Relationships with students and parents also contributed significantly, emphasizing the importance of relational aspects of teaching. Emotionally demanding interactions may increase vulnerability to psychological distress (Aloe et al., 2014; Oplatka, 2007).

6. Conclusion

This study highlights significant associations between teachers' anxiety and depressive symptoms and key relational aspects of the school environment. School connectedness, positive student relationships, and constructive communication with parents appear particularly important for teachers' well-being.

The findings underscore the importance of fostering supportive school climates and strengthening communication competencies. Organizational support for teachers is essential for both their well-being and the effective functioning of school communities.

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FROM REJECTION SENSITIVITY TO PEER SUSCEPTIBILITY: BODY IMAGE AS A BRIDGE

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Abstract

Adolescence is a pivotal developmental stage marked by heightened sensitivity to social acceptance. During this period, adolescents increasingly rely on peer feedback to form their sense of self and identity. Susceptibility to peer influence can be linked both to maladaptive behaviors and to adaptive changes (Laursen & Veenstra, 2021). However, not all adolescents are equally influenced by their peers; certain personality traits may heighten this vulnerability (Belsky & Pluess, 2009). This study aims to investigate how susceptibility to peer influence is longitudinally related to rejection sensitivity and body image. Data were drawn from the longitudinal research project NAVIGATE. The study was conducted in a regional town in Lithuania. The sample consisted of students from six high schools, with a total of 746 students in grades 5 - 8. Participants were aged 10 – 14 years (M = 12.33, SD = 1.17). The sample was diverse in terms of family and socio-economic backgrounds but homogeneous in terms of ethnic background. Written parental consent and student assent were obtained prior to participation. The study was conducted across three waves over one academic year. The following measures were used: Resistance to Peer Influence scale (Steinberg & Monahan, 2007), Children's Rejection Sensitivity Questionnaire (Downey et al., 1998), Perceived Competence Scale for Children (Harter, 1985). Significant concurrent correlations were observed among all study variables across all three time points. The longitudinal interplay between the study variables was analyzed using three waves of data collected one academic year. Both direct and indirect pathways were considered. At each time interval higher rejection sensitivity predicted lower body image, and lower body image predicted higher susceptibility to peer influence. Bias-corrected bootstrapped 95% confidence intervals confirmed indirect effect: Time1 rejection sensitivity predicted Time 3 susceptibility to peer influence via Time 2 body image (β=.004 [.001, .014]. Thus, the hypothesis was confirmed.

Keywords: *Rejection sensitivity, body image, susceptibility, adolescence.*

1. Introduction

Adolescence is marked by heightened sensitivity to social evaluation and an increased reliance on peers for feedback and validation (Laursen & Veenstra, 2021). During this stage, susceptibility to peer influence becomes particularly pronounced and plays a central role in shaping adolescents' behaviors, attitudes, and emerging sense of identity. Importantly, susceptibility to peer influence is not inherently maladaptive: it can facilitate social learning and prosocial development, but it can also contribute to conformity to harmful norms depending on contextual and individual factors (Laursen & Veenstra, 2021).

Research shows substantial individual differences in susceptibility, even within similar peer contexts (Steinberg & Monahan, 2007). These individual differences cannot be fully explained by peer norms or situational pressure alone, highlighting the importance of intrapsychic factors in shaping adolescents' responsiveness to peers. Identifying psychological characteristics that increase vulnerability to peer influence is therefore important for developmental research and for targeted prevention.

One such factor is rejection sensitivity (RS), defined as the tendency to anxiously expect, readily perceive, and overreact to potential social rejection. In adolescence, elevated RS has been consistently associated with heightened emotional reactivity, interpersonal anxiety, and difficulties in peer relationships (Giovazolias, 2024). Adolescents high in RS may be especially motivated to avoid exclusion, increasing the likelihood of aligning their behavior with perceived peer norms.

However, RS may influence peer susceptibility indirectly through self-evaluative processes. Body image is a salient domain during early adolescence (Fardouly et al., 2020), and negative body image has been linked to greater attentiveness to peer feedback and increased conformity to peer norms across multiple behavioral domains, not limited to appearance-related behaviors. Longitudinal studies indicate that higher RS predicts lower body satisfaction (Yılmazer, 2025), which in turn has been associated with greater

responsiveness to peer norms. These findings suggest that body image may serve as a psychological mediator, translating a general social sensitivity into observable susceptibility to peer influence.

The present study examines longitudinal associations between rejection sensitivity, body image, and susceptibility to peer influence across three measurement waves in early adolescence. Using path analysis, the study tests whether higher rejection sensitivity is associated with subsequent changes in body image, and whether these changes are in turn associated with later susceptibility to peer influence. By modeling indirect pathways across time, this approach moves beyond concurrent associations and provides a more stringent test of developmental sequencing. In doing so, the study contributes to a more nuanced understanding of how dispositional social sensitivity may translate into differential susceptibility to peer influence during a critical period of adolescent development.

2. Design

Data were drawn from the research project, "Navigating through secondary school: the role of friends and parents (NAVIGATE)". This study used a longitudinal design with three measurement waves across one academic year. The study was conducted in Lithuanian schools, providing a culturally specific adolescent sample. At each wave, participants completed measures of rejection sensitivity, body image, and susceptibility to peer influence.

3. Objectives

The objective of this study is to examine the longitudinal associations between rejection sensitivity (RS) and susceptibility to peer influence in early adolescence, with body image considered as a potential mediator.

4. Method

4.1. Participants and procedure

Participants included 746 students (355 girls, 391 boys) in 5th (92 boys, 79 girls; M_{age} = 10.81, SD_{age} = 0.410), 6th (104 boys, 93 girls; M_{age} = 11.8, SD_{age} = 0.448), 7th (94 boys, 84 girls; M_{age} = 12.83, SD_{age} = 0.44), and 8th (101 boy, 99 girls; M_{age} = 13.72, SD_{age} = 0.464) grades.

All 5-8th graders (attending 44 classrooms in 4 middle schools) in the community were invited to participate. Written parent consent and student assent were required for participation. Trained research assistants administered questionnaires in classes on computer tablets in September 2021, February and May 2022. The study was approved by the university ethics committee (Nr. 6/202). The initial participation rate was 65.2%. Of the 746 students who participated at Time 1, 740 also participated at Time 2 and 743 participated at Time 3. There were no differences in any study or demographic variables between students who did and did not participate at both time points.

4.2. Instruments

Susceptibility to Peer Influence. Participants completed three items (Steinberg & Monahan, 2007) from a conformity to peers scale. Items were rated on a scale ranging from 1 (Never) to 5 (Always). Internal reliability was acceptable (α=.76). ***Rejection sensitivity.*** Participants completed an abbreviated 6-item rejection sensitivity scale adapted from the Rejection Sensitivity Questionnaire (Downey et al., 1998). Internal consistency was adequate (α = .71). ***Body image.*** Participants were asked to complete three self-report items from Perceived Competence Scale for Children (Harter, 1985). A = .90.

5. Results

Table 1. Interclass Correlations, Means, and Standard Deviations.

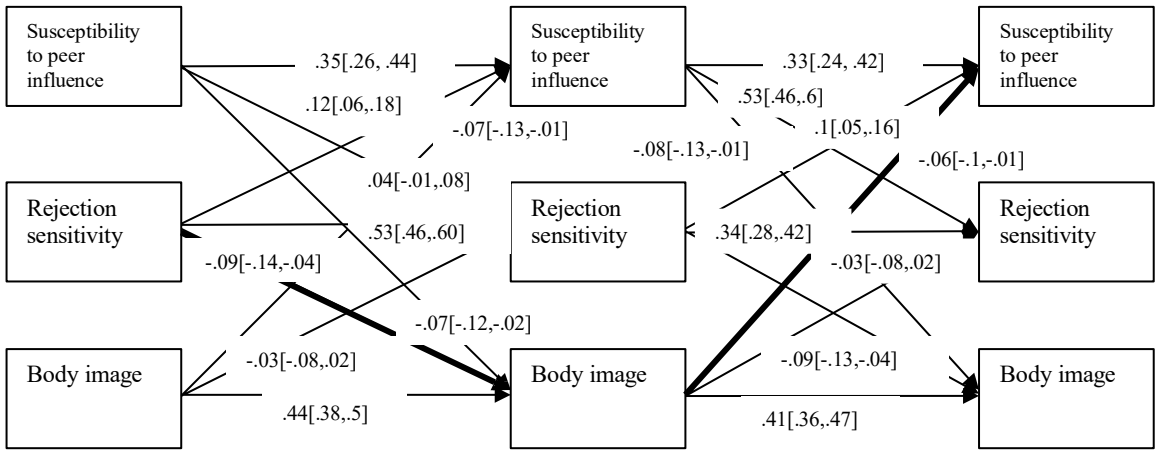
Variables	1	2	3	Mean (*SD*)
Susceptibility to Peer Influence	.428** [.368**, .431**]	.328** [.322**, .340**]	-.207** [-.118**, -.286**]	2.21(.3)
Rejection Sensitivity		.505** [.483**, .561**]	-.237** [-.260**,-.187**]	7.13(4.6)
Body image			.525** [.493**, .538**]	3.24(1.16)

Notes. N = 746 for T1 variables, N=740 for T2 variables, N=743 for T3 variables. Median scores across three times are presented, with ranges in brackets. Autocorrelations are presented on the diagonal. *p<.05, **p<.01.

Significant concurrent correlations were observed among all study variables across all three time points (Table 1). RS was positively correlated with susceptibility to peer influence at all waves, body image was negatively associated with both RS and susceptibility to peer influence. Autocorrelations along the diagonal indicate moderate stability of each construct across time.

Figure 1 presents direct and indirect longitudinal associations from rejection sensitivity to body image and from body image to susceptibility to peer influence. Model fit was acceptable $\chi 2 = 26.04$, p=.026, RMSEA = .035[.012, .055], CFI= .992. At each time interval higher rejection sensitivity predicted lower body image, and lower body image predicted higher susceptibility to peer influence. Bias-corrected bootstrapped 95% confidence intervals confirmed indirect effect: Time1 rejection sensitivity predicted Time 3 susceptibility to peer influence via Time 2 body image (β=.004, 99%CI [.001, .014]. Thus, the hypothesis was confirmed.

Figure 1.



6. Conclusions

The present findings indicate that adolescents' rejection sensitivity (RS) predicts later body image dissatisfaction, which in turn increases susceptibility to peer influence. RS, as a dispositional social sensitivity, heightens adolescents' vigilance to social evaluation and motivates conformity to peer norms to avoid rejection (Downey et al., 1998). During adolescence, body image represents a salient domain of self-evaluation, sensitive to social comparison and peer feedback, with negative perceptions reinforcing conformity behaviors (de Vries et al., 2015). Our longitudinal mediation analyses suggest that body image partially explains how dispositional social sensitivity translates into greater susceptibility to peer influence, highlighting the mediating role of self-evaluative processes.

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SUPPORTING TEACHER WELL-BEING THROUGH SCHOOL LEADERSHIP

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Abstract

Teacher well-being is crucial because chronic stress affects teacher retention, instructional quality, and school functioning. While school leadership is considered an important organizational resource, it remains unclear whether it directly improves well-being or buffers everyday work stressors. Drawing on the Job Demands–Resources model and Self-Determination Theory, this study examined how leadership fairness, people-orientation, and power-sharing relate to teachers' job satisfaction, burnout, and self-efficacy. Survey data from 1,179 Slovenian teachers showed that stressors predicted poorer outcomes, while leadership behaviors explained additional variance but did not significantly buffer the effects of job demands.

Keywords: *Teacher well-being, school leadership, job satisfaction, burnout, self-efficacy.*

1. Introduction

Teacher well-being is a major concern in educational psychology because chronic occupational stress negatively affects teacher retention, instructional quality, and school functioning (Skaalvik & Skaalvik, 2017). Teachers often face multiple job demands, including heavy workloads, time pressure, and challenging classroom conditions such as student misbehavior and low student motivation. According to the Job Demands–Resources (JD–R) model, these demands can lead to strain and burnout when adequate resources are lacking (Bakker & Demerouti, 2007). School leadership represents a key organizational resource that may support teacher well-being. Research shows that effective leadership contributes to positive school climates, collaboration, and improved teacher outcomes (Leithwood et al., 2008). Leadership behaviors characterized by fairness, relational support, and shared decision-making have been linked to higher job satisfaction and lower burnout among teachers (Kalshoven et al., 2011). Self-Determination Theory further highlights the role of autonomy, competence, and relatedness in psychological functioning (Ryan & Deci, 2017). Leadership practices such as power-sharing and people-oriented leadership may support these needs, strengthening teachers' motivation and professional self-efficacy. An unresolved question is whether leadership only contributes directly to teacher well-being or also buffers the effects of work stressors. Within the JD–R framework, leadership may function as a compensatory resource with direct effects or as a buffering resource moderating job demands. This study examines how perceived fairness, people-oriented leadership, and power-sharing relate to teacher job satisfaction, burnout, and self-efficacy in Slovenia while accounting for key work stressors.

1.1. Objectives

The study pursued two objectives. First, it examined associations between leadership behaviors (fairness, people-oriented leadership, and power-sharing) and teacher well-being indicators (job satisfaction, burnout, and self-efficacy). Second, it investigated whether leadership behaviors explain additional variance in these outcomes after controlling for common stressors, including time pressure, student misbehavior, and low student motivation. Based on the JD–R model (Bakker & Demerouti, 2007) and prior research on school leadership (Leithwood et al., 2008), we hypothesized that stressors would predict lower job satisfaction and self-efficacy and higher burnout; that leadership behaviors would be positively related to well-being; and that leadership would explain incremental variance beyond stressors.

2. Methodology

Participants. The study used cross-sectional survey data from 1,179 Slovenian teachers: 73% from elementary schools, 26% from upper secondary schools, and 1% from other educational institutions.

Measures. The questionnaire assessed work stressors, leadership perceptions, and teacher well-being outcomes (job satisfaction, burnout, and self-efficacy). Three common stressors were measured (time pressure, student misbehavior, and low student motivation) identified as key sources of teacher strain (Skaalvik & Skaalvik, 2017). Leadership was assessed through perceived fairness, people-oriented

leadership, and power-sharing, reflecting ethical and participatory leadership perspectives (Kalshoven et al., 2011).

Data Analysis. Linear and hierarchical regression analyses were conducted. First, regression models examined associations between leadership behaviors and teacher outcomes. Second, hierarchical models tested whether leadership explained additional variance after controlling for stressors. Step 1 included stressors, whereas Step 2 added leadership variables.

3. Results

Descriptive Statistics and Correlations. Teachers reported relatively high levels of job satisfaction (M = 4.29, SD = 0.80) and moderate levels of burnout (M = 2.39, SD = 0.86). Leadership behaviors were positively associated with teacher well-being: fairness, people-oriented leadership, and power-sharing correlated positively with job satisfaction and self-efficacy and negatively with burnout. In contrast, work stressors (time pressure, student misbehavior, and low student motivation) were positively related to burnout and negatively related to job satisfaction and self-efficacy.

Table 1. Descriptive statistics and correlations.

	N	*M*	*SD*	1	2	3	4	5	6	7	8
1	1182	4.13	0.85	-							
2	1182	3.26	0.42	.34**	-						
3	1181	3.38	0.94	.54**	.35**	-					
4	1184	4.59	0.99	-.24**	-.02	-.15**	-				
5	1184	3.70	1.29	-.17**	-.04	-.06	.39**	-			
6	1184	3.32	1.18	-.23**	-.02	-.08**	.27**	.51**	-		
7	1180	4.29	0.80	.44**	.24**	.38**	-.36**	-.30**	-.32**	-	
8	1181	2.39	0.86	-.26**	-.05	-.13**	.45**	.41**	.42**	-.47**	-
9	1184	3.11	0.38	.16**	.08**	.15**	-.01	-.20**	-.29**	.29**	-.27**

Note: N = number of participants; M = mean; SD = standard deviation; Predictors: 1 – Fairness, 2 – Power-sharing, 3 – People orientation; Stressors: 4 – Time pressure, 5 – Student misbehavior, 6 – Low student motivation; Outcomes: 7 – Job satisfaction, 8 – Burnout, 9 – Self-efficacy; The Pearson correlation coefficient was calculated as a measure of correlation; **p < .01; *p < .05.

Leadership and Teacher Self-Efficacy. Regression analysis showed that leadership variables explained a small but significant proportion of variance in self-efficacy (R^2 = .033, $F(3,1177)$ = 13.31, $p < .001$). Fairness (β = .11, p = .001) and people-oriented leadership (β = .09, p = .011) were positively associated with self-efficacy, whereas power-sharing was not significant.

Leadership and Burnout. Leadership variables explained 6.8% of the variance in burnout (R^2 = .068, $p < .001$). Fairness showed a significant negative association with burnout ($\beta = -.27$, $p < .001$), while other leadership variables were not significant.

Table 2. Regression coefficients of job satisfaction and burnout as predicted by stressors and leadership factors.

	Job satisfaction						Burnout					
Variable	Model 1			Model 2			Model 1			Model 2		
	B	β	SE_B	B	β	SE_B	B	β	SE_B	B	β	SE_B
Constant	5.941		.105	3.698		.195	.118		.105	.652		.212
1	-.216**	-.268**	.023	-.163**	-.202**	.021	.274**	.314**	.023	.255**	.293**	.023
2	-.055**	-.090**	.020	-.054**	-.087**	.018	.105**	.158**	.020	.104**	.156**	.020
3	-.138**	-.204**	.021	-.108**	-.159**	.019	.189**	.257**	.021	.176**	.240**	.021
4				.195**	.208**	.028				-.107**	-.106**	.030
5				.167**	.087**	.050				.021	.010	.054
6				.161**	.190**	.025				-.008**	-.009**	.027
R^2	.19			.33			.31			.32		
ΔR^2				.14						.01		

Note. Stressors: 1 – Time pressure, 2 – Student misbehavior, 3 – Low student motivation; Leadership factors: 4 – Fairness, 5 – Power-sharing, 6 – People orientation; Both regression models are statistically significant. The assumption of multicollinearity was tested on all data sets and was not violated (the VIFs were lower than 10 and varied between 1.19 and 1.57). Statistically significant coefficients are marked with ** ($p < .01$) or * ($p < .05$).

Leadership and Job Satisfaction. Leadership variables explained a substantial proportion of variance in job satisfaction (R^2 = .225, $p < .001$). Fairness (β = .32), people-oriented leadership (β = .19), and power-sharing (β = .06) were all positively associated with job satisfaction.

Hierarchical Regression Analyses. When work stressors were entered first, they explained a considerable proportion of variance in teacher outcomes. For job satisfaction, stressors explained 18.9% of the variance, while adding leadership variables increased explained variance to 33.4% ($\Delta R^2 = .145$, $p < .001$). All leadership variables remained significant predictors in the final model. For burnout, stressors explained 31.4% of the variance. Adding leadership variables increased explained variance slightly to 32.4% ($\Delta R^2 = .011$). In this model, only fairness remained a significant predictor ($\beta = -.11$, $p < .001$). A hierarchical regression model was not conducted for teacher self-efficacy because the stressor variables showed only weak or non-significant correlations with self-efficacy (see Table 1), suggesting limited potential for meaningful incremental effects. Overall, work stressors were strong predictors of teacher well-being, while leadership behaviors explained additional variance, particularly for job satisfaction.

4. Discussion

This study examined the role of school leadership in teacher well-being using the JD–R model and Self-Determination Theory. Work stressors strongly predicted teacher outcomes: time pressure, student misbehavior, and low student motivation were associated with lower job satisfaction and higher burnout, consistent with prior research on classroom-related stressors (Skaalvik & Skaalvik, 2017). Leadership behaviors were significantly linked to teacher well-being. Perceived fairness was the most consistent predictor, positively related to job satisfaction and self-efficacy and negatively to burnout, aligning with findings on ethical leadership in educational settings (Kalshoven et al., 2011). People-oriented leadership was positively associated with job satisfaction and self-efficacy, indicating that supportive leader–teacher relationships foster positive professional experiences. Power-sharing had a weaker but significant link with job satisfaction, suggesting that participation in decision-making may enhance autonomy. Leadership explained additional variance in teacher outcomes beyond stressors, although its effect on burnout and self-efficacy was modest. Overall, leadership acted primarily as a compensatory resource rather than a buffering mechanism, improving well-being without fully mitigating the impact of job demands. These findings highlight the importance of leadership development emphasizing fairness, respect, and teacher involvement to promote healthier and more supportive school environments.

5. Conclusion

This study examined how school leadership relates to teacher well-being in a large sample of Slovenian teachers. Work stressors such as time pressure and challenging student behavior were strong predictors of teacher burnout and reduced job satisfaction. Leadership behaviors, particularly perceived fairness, were significantly associated with teacher well-being and explained additional variance in outcomes beyond work stressors. However, leadership did not appear to strongly buffer the effects of job demands. Overall, the findings suggest that school leadership functions primarily as a supportive organizational resource that enhances teacher well-being rather than eliminating the impact of workplace stressors. Strengthening leadership practices may therefore represent an important strategy for promoting sustainable and supportive working conditions for teachers.

Acknowledgments

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INTEGRATING PSYCHOLOGICAL PERSPECTIVES INTO LOCAL HOUSING POLICY DESIGN AND IMPLEMENTATION

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Abstract

This paper presents the development of the Local Housing Strategy of Amarante, Portugal, as a case study of psychology-informed municipal policy design. The work was commissioned to support an application to the national 1st Right housing program and is reframed here as applied research guided by environmental psychology and community psychology. Specifically, the analysis was informed by person-environment fit, place attachment, social support, and ecological interdependence. A mixed-method participatory design combined content analysis of stakeholder questionnaires (N = 52), semi-structured follow-up interviews and clarification contacts with local political and institutional actors, consultation with frontline agencies, review of public demographic and housing statistics, and documentary analysis of regional, national, and European policy frameworks. The findings showed a structural mismatch between housing supply and housing adequacy: while family dwellings increased, population declined, low incomes, rent inflation, degraded housing, accessibility barriers, and weak informal support networks concentrated housing insecurity among older adults, isolated persons, single-parent households, and people with disabilities. At least 260 households and 5 housing clusters, comprising no fewer than 901 people, were identified as living in or near inadequate housing conditions. The strategy translated these patterns into a targeted investment package of about EUR 13 million, prioritizing rehabilitation, rental support, and territorially dispersed responses. The case illustrates how psychological concepts can strengthen local housing policy by linking material deprivation to belonging, autonomy, accessibility, and community integration.

Keywords: *Local housing strategy, evidence-based policy, public investment, social policy planning.*

1. Introduction

Housing is not only a material resource but also a psychosocial setting that structures safety, privacy, routine, autonomy, and participation in community life. International housing and human-rights frameworks have long framed adequate housing as a prerequisite for health, social protection, education, and civic participation. From a psychological perspective, housing insecurity is therefore more than a market failure: it is a condition that can erode perceived control, intensify chronic stress, weaken social ties, and disrupt place-based identities.

The present paper revisits the Local Housing Strategy of Amarante as an applied research case positioned at the intersection of environmental psychology and community psychology. Two theoretical lenses were particularly useful. First, person-environment fit helped interpret situations in which the built environment was objectively or functionally incompatible with household needs, especially in cases of reduced mobility, overcrowding, poor conservation, and deficient accessibility. Second, community-psychology concepts of ecological interdependence and social support helped explain why vulnerability was not evenly distributed across the municipality: risk accumulated where low income, aging, disability, isolation, and weak local support networks overlapped.

This reframing responds directly to the challenge of demonstrating that the work contributes to psychological knowledge and not only to administrative planning. The goal was not to test a single psychological model experimentally, but to use validated psychological perspectives to organize diagnosis, interpret vulnerability, and improve the targeting of public action.

2. Objectives

The study had three objectives: (a) to characterize demographic, socioeconomic, and housing dynamics relevant to local housing exclusion; (b) to identify psychologically salient patterns of vulnerability associated with inadequate housing; and (c) to translate this evidence into a municipal strategy aligned with the Portuguese 1st Right program while preserving community integration and territorial cohesion.

3. Method

A mixed-method applied design was used. First, a macro-social diagnosis was built from public indicators on demography, income, employment, buildings, dwellings, and rents. These data were drawn from official statistical platforms and analyzed descriptively, with attention to temporal trends and territorial differences within the municipality.

Second, local needs were mapped through a participatory procedure. A structured questionnaire, organized around eligibility profiles defined in the 1st Right program, was distributed through Qualtrics to parish-level actors, social-service teams, and community organizations; the approved abstract reports 52 completed stakeholder responses. Pandemic constraints required replacing some originally planned focus-group sessions with telephone and individual follow-up contacts. Additional qualitative information was obtained from municipal divisions, charitable organizations, Habitat for Humanity Portugal, and nine local real-estate agencies.

Third, qualitative material from questionnaires, follow-up contacts, and institutional inputs was subjected to directed content analysis. Coding categories combined statutory housing-need profiles with psychological constructs relevant to housing insecurity: person-environment misfit, barriers to autonomy, isolation and reduced social support, cumulative vulnerability, and threats to community integration. Convergence across qualitative evidence, municipal records, and public statistics was used as a triangulation criterion to increase analytical robustness.

4. Results and discussion

The macro-social diagnosis revealed a paradox that is highly relevant psychologically and politically. Between 2011 and 2019, Amarante lost 5.18% of its population, yet the stock of family dwellings increased by 2.19%. In 2011, 11.96% of dwellings were vacant, while mean rents had increased by 44.07% since 2001. In parallel, the mean monthly salary in 2018 was EUR 878.1, about 25% below the national average. These data indicate that the local crisis was not simply one of absolute shortage; it was a crisis of affordability, adequacy, and access to fit-for-purpose housing.

The participatory diagnosis identified 260 households and 5 housing clusters, involving at least 901 people. Within this group, 174 were older adults, 112 were isolated persons, 207 were dependents, 66 belonged to single-parent households, and 50 had some form of disability or incapacity. The most frequent housing problems were insalubrity or insecurity (133 cases), inadequate accessibility or functional mismatch (33), precarious housing situations (17), homelessness (19 persons), and overcrowding (12 cases). These patterns are important psychologically because they point to chronic exposure to stressors that reduce residential control, compromise privacy and restoration, and undermine the capacity to maintain stable social roles.

Older adults emerged as a particularly important group. The report highlights demographic aging, growth in one-person households among people aged 65 years or more, and repeated instances of isolated persons living in degraded or inaccessible housing. Interpreted through environmental psychology, these cases exemplify declining person-environment fit, where stairs, structural degradation, poor thermal conditions, or unsuitable layouts become barriers to everyday competence and to aging in place. Interpreted through community psychology, they also show how housing vulnerability is intensified when weak support networks and territorial isolation restrict help-seeking and daily participation.

The strategy translated this diagnosis into an estimated global investment of EUR 13 million. Most of the investment was directed toward rehabilitation-oriented actions, with Lines of Action 2 and 4 together accounting for more than 86% of the total. This distribution is theoretically coherent: rehabilitation and territorial dispersion preserve local bonds, reduce displacement, and support continuity of community membership. In other words, the strategy did not treat housing as a merely physical unit to be allocated, but as a psychosocial environment that should sustain belonging, dignity, and autonomy.

Methodologically, the study also demonstrates the value of participatory and ecologically grounded assessment. Frontline stakeholders were indispensable for identifying hidden vulnerability that would have remained invisible in aggregate statistics alone. At the same time, the analysis has limitations: no standardized psychological scales were administered, and some interpretations are inferential rather than directly measured. Even so, the combination of participatory mapping, content analysis, and territorial statistics offers a strong model for psychology-informed policy design in small municipalities.

5. Conclusions

This case study shows that local housing policy can be strengthened when psychological theory is used explicitly to interpret vulnerability and to design responses. In Amarante, housing insecurity was best understood not only as insufficient supply, but as a cumulative disruption of fit between people, dwellings, and community contexts. Environmental-psychology concepts clarified why accessibility, conservation, and residential adequacy matter for autonomy and well-being; community-psychology concepts clarified why social support, territorial belonging, and dispersed local responses matter for sustainable implementation. For psychology, the contribution lies in demonstrating how psychosocial analysis can improve public targeting. For policy, the contribution lies in showing how evidence-based diagnosis can guide substantial investment toward populations whose housing problems are inseparable from isolation, aging, disability, and social exclusion.

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SUBJECTIVE WELL-BEING AND HEALTH AMONG TEACHERS: DIFFERENCES ACROSS EDUCATIONAL LEVELS

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Abstract

Recent studies have confirmed that teachers' well-being is an important determinant of both personal and professional functioning. In the modern education system, teachers working at various levels of education face different professional requirements, working conditions and psychosocial challenges; nevertheless, comparative evidence across different educational settings is still limited. Therefore, this study aimed to compare the subjective well-being and health indicators among teachers from higher education institutions, vocational education schools, and general education schools. Data from the European Social Survey (ESS) Round 11 were used for the analysis. The sample consisted of 1820 participants. Mean age - 55.04 (SD = 16.82); 73.3 percent were women. The ESS core questionnaire includes the two most common measures of subjective well-being: happiness and life satisfaction, as well as subjective general health, negative affect, and positive affect. Analysis of variance (ANOVA) was used to examine differences among three groups of educators in subjective assessments of: (1) life satisfaction, (2) happiness, and (3) subjective general health, (4) negative affect and (5) positive affect were assessed. The results revealed that vocational education teachers are more satisfied with life and happier than school teachers, whereas university teachers evaluate their general health more positively than school teachers. Overall, the findings emphasise the need for context-specific approaches to supporting teachers' well-being across educational levels. Potential implications for policy and practice are discussed.

Keywords: *European Social Survey, teachers, life satisfaction, happiness, subjective general health.*

1. Introduction

Teacher well-being has gained increasing attention due to the inherently demanding and multifaceted nature of the teaching profession (Li et al., 2025). Recent studies suggested that teachers' well-being is an important determinant of both personal and professional functioning, including professional satisfaction, quality of work, commitment to work, and subjective health (Billaudeau et al., 2022; McInerney et al., 2018). Cervellione and colleagues' (2025) conducted a systematic review of psychological resources and interventions that affect teachers' emotional competence and well-being in the educational context, emphasising that teachers' well-being is related to both their emotional health and professional function, such as the ability to avoid burnout and maintain job satisfaction.

Subjective well-being (SWB), as conceptualized by Diener, comprises cognitive life evaluation and affective components, including positive and negative affect (Diener et al., 2012). The cognitive dimension reflects individuals' reflective judgments about their life as a whole, whereas the affective dimension captures the frequency and intensity of positive and negative emotional experiences. Together, these components provide a comprehensive assessment of individuals' overall well-being (Schimmack, 2006). Within the teaching profession, these dimensions are particularly relevant, given the high emotional demands and interpersonal nature of teachers' work. The cognitive evaluation of life satisfaction may reflect broader professional and personal fulfillment, whereas affective experiences are closely linked to daily classroom interactions, emotional labor, and stress regulation (Rafsanjani et al., 2019). Examining teachers' subjective well-being thus offers insight not only into their quality of life but also into processes that may influence educational functioning.

In the modern education system, teachers working at various levels of education face varying professional requirements, working conditions, and psychosocial challenges; nevertheless, comparative evidence across different educational levels remains limited. Teacher well-being has been studied in various contexts, but the teachers' well-being research is highly fragmented conceptually and methodologically,

and there is a lack of research that systematically compares different levels of education (e.g., school vs. higher education), so the need for such research is emphasised (Gámez-Genovart el al., 2025). This study addresses this critical issue and meaningful research gap. Using a solid dataset from the European Social Survey, this study aimed to compare the subjective well-being and health indicators among teachers from higher education institutions, vocational education schools, and general education schools.

2. Methods: sample, data collection and measures

Data from the European Social Survey (ESS) Round 11 were used for the analysis (ESS ERIC, 2025). The sample consisted of 1820 participants: 158 university and other higher education teachers, 87 vocational education teachers; 1575 primary and secondary education teachers, and others. Mean age - 55.04 (SD = 16.82); 73.3 percent were women. The European Social Survey is one of the biggest surveys conducted in Europe. Sampling and its key principles are guided by the requirements outlined in the official ESS webpage (https://www.europeansocialsurvey.org/methodology/sampling).

The ESS core questionnaire includes the two most common measures of subjective well-being: happiness and life satisfaction. Life satisfaction was measured by the item: "All things considered, how satisfied are you with your life as a whole nowadays?" and asking participants to evaluate their satisfaction from 0 to 10 points on the Likert scale, where 0 - "Extremely dissatisfied" and 10 – "Extremely satisfied". Happiness was also measured with single-item: "Taking all things together, how happy would you say you are?" asking participants to evaluate their happiness on a 0–10 scale from "Extremely unhappy" to "Extremely happy". While happiness is usually conceptualized in terms of people's emotional responses and measures their current feelings, life satisfaction is conceptualized in terms of their cognitive or evaluative responses and measures how people evaluate their life as a whole (Clark and Senik, 2011). Subjective general health was measured using self-rated item: "How is your health in general?" asking respondents to provide response 5-point Likert scale from "Very good" to "Very bad". A higher score indicates poorer subjective health. Negative affect was measured with 6 items (α = .77; "During the past week, how often did you…" feel depressed, feel that everything you did was an effort, sleep restlessly, feel lonely, feel sad, or feel unable to get going) and positive affect – 2 items (α = .77; "During the past week, how often did you…" feel happy and enjoy life).

3. Results

Analysis of variance (ANOVA) was used to examine differences of subjective wellbeing and health among three groups of educators: higher education / university teachers, vocational education teachers and school teachers. Statistically significant differences between groups were identified in life satisfaction, happiness, subjective general health, negative affect, and positive affect ($p < .005$). The results are presented in Table 1. The ANOVA Effect sizes (Eta-squared) point estimate varies from .003 to .006.

Table 1. Results of One-Way ANOVA for subjective wellbeing and health across educator groups.

Variable		Sum of Squares	df	Mean Square	F	Sig.
How satisfied with life as a whole	Between Groups	42.932	2	21.466	6.097	**.002**
	Within Groups	6365.808	1808	3.521		
	Total	6408.740	1810			
How happy are you	Between Groups	17.828	2	8.914	3.870	**.021**
	Within Groups	4161.872	1807	2.303		
	Total	4179.700	1809			
Subjective general health	Between Groups	7.688	2	3.844	5.979	**.003**
	Within Groups	1163.743	1810	.643		
	Total	1171.431	1812			
Negative Affect	Between Groups	1.116	2	.558	2.862	**.057**
	Within Groups	351.659	1803	.195		
	Total	352.776	1805			
Positive Affect	Between Groups	2.755	2	1.377	2.800	**.061**
	Within Groups	885.466	1800	.492		
	Total	888.221	1802			

The results of Multiple comparisons revealed that vocational education teachers are more satisfied with life (M = 8,02, SD = 1,521) and happier (M = 8.17, SD = 1.333) than school teachers (respectively, M = 7.33, SD = 1.880 and M = 7.71, SD = 1.515), whereas university teachers evaluate their general health more positively (M = 1.87, SD = .721) than school teachers (M = 2.08, SD = .804).

4. Discussion and conclusions

The results of this study revealed differences in teachers' subjective well-being and health at various levels of education. Previous research highlights that teachers at various levels face different demands and challenges, but empirical evidence is lacking (Gámez-Genovart et al., 2025). This study fills this gap and provides a basis for further research in this area.

This study has several limitations including large discrepancies in group sizes across educational levels and self-report measurements. Future research should take this into account and aim to ensure more equivalent group sizes, as well as to include more objective measurement instruments when planning the study.

The study results offer useful comparative insights into teachers' well-being across educational levels. Differences identified between secondary, vocational, and higher education teachers emphasize the need for context-specific approaches to supporting teachers' well-being across educational levels.

The results of this study revealed that the subjectively perceived health of school teachers needs more attention compared with university teachers. This may indicate that universities have a more strategic approach to teachers' psychological well-being, the work is perceived as less emotionally demanding because (working with adults), etc. All this emphasizes the need to further analyse school-level teachers' psychological well-being and factors that enhance it. This also has implications for educational policy and institutional practice. Different educational levels have different needs, so well-being strategies must be level-specific. School teachers may benefit from participating in programs that enhance psychological well-being, such as consultations, mentoring systems, and professional support networks. Teachers in vocational education are recommended to maintain existing good practices and share good practices with other educational levels. University teachers are recommended to engage in emotional well-being development initiatives (e.g., workshops on work stress, collaboration, work-life balance).

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FROM RELIEF TO RESILIENCE: A SCOPING REVIEW ON MULTI-DIMENSIONAL ANTI-POVERTY PROGRAMS

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Abstract

The United Nations has identified eliminating poverty as the first goal in the Sustainable Development Goals. The Government of Canada defines poverty as a condition where someone is deprived of the necessary resources, means, choices, and power to have and maintain a basic standard of living and participate in society. As of 2023, 10.2% of Canadians were living in poverty (Statistics Canada, 2025). A contributing factor to the growing rates of poverty in Canada is the number of youths not in employment, education, or training (NEET), which as of 2025, included approximately 1 in 10 Canadian youth. Unemployment amongst Canadian youth has been rising since January 2024 and, as of May 2025, was 14.2% (Statistics Canada, 2025). Given that one-third of these youth reported that it was difficult to support themselves and that they are less satisfied and hopeful about the future (Statistics Canada, 2025), the Government of Canada began to conduct several programs ranging from financial support to education and training to help prevent poverty amongst NEET youth. The present study sought to conduct a scoping review of similar programs to assess their impact on alleviating poverty. A trained librarian implemented the search strategy for this review and included the following databases: SocINDEX @ EBSCOhost, Social Work Abstracts @ EBSCOhost, and EconLit @ EBSCOhost. Those databases were searched on September 9, 2024 and 12 studies met inclusion criteria for review. Programs included had at least two different elements that were meant to alleviate poverty, with 75% that incorporated financial assistance, 75% incorporated education either such as job training, 66.7% provided mentorship and group support, and 58.3% focused on entrepreneurship to in in self-sufficiency. Overall, 68% (8 programs) identified improvement in participants' financial situation as well as the development of a greater sense of autonomy and financial literacy, which led to improved ability of participants to support themselves and their families. Interestingly, one program did lead to any improvement, as participants reported not receiving ample training in the program, coupled with environmental complications that hindered their income generation. Taken together, these results indicate that the incorporation of a form of support and/or mentorship amongst peers and program leaders, development of financial literacy and money management skills, as well as education/training are all beneficial to helping lift people out of poverty.

Keywords: *Anti-poverty programs, youth not in employment, education, or training, scoping review.*

1. Background

Young adulthood (20-24 years of age) is a period of transition, which involves making decisions to engage in postsecondary education and employment opportunities. Compared to Canada, a greater percentage of young adults in New Brunswick (NB) are not engaged in employment, education, or training (NEET). Currently, approximately 8,700 NB residents in this age group are unemployed and only 30% are in postsecondary education. NEET status during young adulthood is associated with poor employment outcomes, lower wages, more precarious work, such as part-time and temporary employment, and an increased risk of poverty. Education and training are drivers of employment success as most new jobs in NB require post-secondary education or apprenticeship training and helps to support individuals through the transition of young adulthood. Programs aimed at providing education or employment help to ensure young adults with NEET status have education and training opportunities that sets them up for success and can remove them from the risk of poverty. Thus, the purpose of this scoping review is to examine the existing literature on multi-dimensional and sustainable poverty alleviation programs to better understand their core components and limitations, thus potentially identifying strategies that can be implemented to support young adults with NEET status.

2. Method

2.1. Concept

Only peer-reviewed published research papers in English from 2007 to present and described and reported the results of a program designed to alleviate poverty were included. Papers that were published before, or used data from 2007 and earlier, relied on agricultural interventions, or provided financial aid through bursaries, grants, or tax-benefits were excluded.

2.2. Search strategy

A multi-step approach was implemented by a librarian (RW) in the development of the search strategy for this review. First, an exploratory search was performed in SocINDEX @ EBSCOhost and an analysis of the text words contained in the titles, abstracts, and subject descriptors was performed. Second, the search terms identified in step one were tested in SocINDEX in a variety of combinations and search fields until it was determined that the search results completely reflected the scope of the research available on this topic and avoided unnecessary noise from irrelevant results. At this stage, the search strategy was also reviewed by librarian (BC) using the Peer Review of Electronic Search Strategies (PRESS) guidelines (McGowan et al., 2016). Recommended adjustments were made and the search strategy was finalized. Lastly, the search was adapted and implemented across the 3 databases included in this review: SocINDEX @ EBSCOhost, Social Work Abstracts @ EBSCOhost, and EconLit @ EBSCOhost. The databases were searched on September 9, 2024. We also carried out backwards and forwards citation searches to identify additional studies by searching the reference lists of included documents and using [Google Scholar or Scopus] to identify and screen materials studies citing them.

2.3. Screening, study selection and data extraction

Upon completion of each search, the results were exported as RIS files and were uploaded into Covidence software (Covidence, Melbourne, Australia). Two reviewers independently screened out irrelevant titles and abstracts, full-texts, and finally extracted data from the records with a data extraction tool that was developed by the research team in Covidence. Extracted data included specific information about the location of the study, information about the population, context and key findings related to the scoping review's objective.

3. Results

3.1. Search results

Database searches unique 15,551 titles. 15,095 full-texts were then excluded as they did not meet inclusion criteria, leaving 456 full-texts for review. During this process, they excluded 444 studies. A total of 12 studies were included in this scoping review (Abdul Azeez & Subramania, 2019; Cai, 2022; Hameed et al., 2017; Hammad & Tribe, 2020; Hassan et al., 2024; Kim et al., 2019; Levy & Freiberg, 2022; Maldonaldo et al., 2024; Prinsloo & Pillay, 2014; Rahman et al., 2023; Tang et al., 2022; Yu et al., 2022).

3.2. Characteristics and description of programs

Ten programs provided financial aid as part of their poverty alleviation program. Nine incorporated educational programs and job training, which included social support and mentoring. Seven promoted entrepreneurships amongst participants and helped participants start their own business to sustain themselves. Six incorporated information about health and hygiene, including access to healthcare. Five programs included teaching financial literacy, helped participants with navigating resources, and providing nutritional support through food vouchers, or access to food. Four programs helped participants with financial planning, and finally two programs helped provide subsidized housing or housing relocation to areas with greater services.

3.3. Impact

Of the 12 programs, 10 were reported improvements to the financial status of participants and thus, helped to lift them out of poverty. Of those that did not work, researchers argued that limited support for program delivery and to aid participants was a barrier to success. Low enrollment and engagement rates for programs, could also lead to nonsignificant results. Of those that lessened poverty, researchers cited economic empowerment, prosocial connections through creating a sense of community, and providing a community space to address participants' needs as key factors impacting the success of these programs.

4. Discussion

Overall, the findings of this scoping review highlight the importance of capacity-building interventions in acquiring the necessary education and skills to help lift people out of poverty. Through providing mentorship, targeted education, financial and job training, as well as social and financial support, individuals can develop and enhance their money management skills, financial literacy, and understanding in hygienic, financial, and entrepreneurial planning. Therefore, to help alleviate poverty in Canada, the Government of Canada must continue implementing financial and capacity-building interventions that focus on providing support, education, and training to individuals, especially youth, across Canada.

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EVALUATING THE SOCIAL IMPACT OF AN ELEMENTARY SCHOOL PROGRAM ON EQUALITY AND NON-VIOLENCE

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Abstract

School-based prevention programs play an important role in promoting equality and reducing violence from early developmental stages. Grounded in social psychological research on stereotypes, empathy, and social attitudes, the program *Hora de Ser* ("Time to Be"), developed by the Portuguese Association for Victim Support (APAV), aims to promote personal and social skills associated with inclusive attitudes and non-violent conflict resolution among elementary school children. The present study evaluates the social impact of this intervention using a quasi-experimental design with pre- and post-test measures and a control group. The sample included 321 children attending the 3rd and 4th grades of elementary school. Measures assessed acceptance of diversity, gender stereotypes and gender role beliefs, empathy and identification of emotions in victims of violence, and attitudes toward strategies for dealing with violent situations. Repeated-measures analyses comparing experimental and control groups revealed significant changes associated with participation in the program, including reductions in gender stereotyping, greater attribution of traits to both genders, increased empathy toward victims of violence, and stronger endorsement of constructive conflict-resolution strategies (e.g., Phase × Group interaction effects, $p < .05$). No comparable changes were observed in the control group. Overall, the results suggest that *Hora de Ser* produces measurable positive social impact by promoting equality-related attitudes and non-violent behavioral orientations in elementary school children, supporting the relevance of early preventive interventions implemented in educational contexts.

Keywords: *Social impact measurement, gender stereotypes, equality, violence prevention, school intervention.*

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1. Introduction

School-based interventions play a crucial role in promoting equality and preventing violence. Early childhood is a critical period for shaping social attitudes, including gender role beliefs and empathy toward victims of aggression (Brown, 2010; Dovidio et al., 2010). Interventions targeting these factors can reduce tolerance for violence and foster prosocial behaviors.

The Hora de Ser program by APAV is designed to promote equality and prevent violence through structured activities that develop social competencies, empathy, and knowledge of effective strategies for responding to conflict. This study evaluates its social impact using applied research methods within the framework of social psychology.

2. Method

The present study used a quasi-experimental design to evaluate the social impact of the *Hora de Ser* program.

2.1. Participants

The sample consisted of 321 children (48.3% girls, 51.7% boys) from 27 classes in 18 schools in Porto, Portugal. Only children completing both pre- and post-test measures were included. Parental consent was obtained, and participation was voluntary.

2.2. Design

A 2 × 2 quasi-experimental design was implemented: Group (Experimental vs. Control) × Phase (Pre-test vs. Post-test). Experimental group children participated in the Hora de Ser program; control group children did not. Pre- and post-tests were administered in both groups under identical conditions.

2.3. Measures

The questionnaire included several sets of items assessing the main dimensions targeted by the intervention:

Acceptance of diversity. Three items assessed children's attitudes toward exclusion and discrimination based on perceived difference.

Gender stereotypes and gender roles. Participants evaluated whether several characteristics (e.g., "strong," "caring," "likes football," "likes dancing") were more typical of boys, girls, or both.

Degree of gender stereotyping. The attribution of these characteristics to one gender or both was used to assess the level of gender stereotyping.

Empathy and identification of emotions in victims. Using a vignette describing a situation of peer victimization, children evaluated the extent to which the victim might feel emotions such as anger, sadness, fear, or shame.

Strategies for dealing with violence situations. Participants evaluated the adequacy of different possible responses to a conflict situation (e.g., asking for help, talking, responding aggressively).

2.4. Procedure

Data collection occurred over two school years (2017/2018 and 2018/2019). Questionnaires were read aloud and adapted for children's age and literacy. Pre-tests were administered before program implementation and post-tests occurred after completion. The responses were anonymous.

3. Results

To evaluate the impact of the *Hora de Ser* program, several repeated-measures analyses were conducted comparing responses from the experimental and control groups between pre-test and post-test.

Regarding **acceptance of diversity**, the analysis revealed a significant interaction between phase and group [F (1.81, 295.03) = 3.50, p = .049, η^2 = .02]. While no significant changes were observed in the control group, children in the experimental group reported increased awareness of exclusionary behaviors directed toward peers perceived as different. This pattern suggests that participation in the program may have increased the salience and recognition of discriminatory behaviors among participants.

With respect to **gender stereotypes and gender role beliefs**, principal component analyses conducted separately for pre-test and post-test responses revealed a four-factor structure in both measurement moments. However, important changes were observed in the organization of these characteristics after the intervention. In the post-test, several traits traditionally associated with one gender were more frequently attributed to both boys and girls. This shift indicates a reduction in gender stereotyping among children who participated in the program.

Further analyses examining the degree of gender stereotyping confirmed this tendency. Compared to the control group, children in the experimental group showed significant movement toward the neutral midpoint of the scale for several characteristics, indicating greater attribution of traits to both genders. These changes were observed in characteristics such as being strong, sensitive, courageous, well-behaved, caring, organized, liking to dance, liking football, and liking superheroes. In contrast, the control group showed virtually no change across measurement moments.

Analyses of **empathy and identification of emotions in victims** of violence also revealed significant effects associated with participation in the program. A repeated-measures ANOVA showed a significant Phase × Group interaction [F (1, 265) = 4.77, p = .030, η^2 = .018], indicating that children in the experimental group demonstrated improved ability to identify negative emotions experienced by victims of peer aggression, including sadness, fear, and anger. This pattern suggests an increase in empathic understanding following participation in the intervention.

Finally, results concerning **strategies for dealing with violent situations** indicated that children in the experimental group were more likely, in the post-test, to evaluate constructive responses as appropriate strategies. These included actions such as talking about the situation, seeking help from adults, or asking for support from peers. No comparable change was observed in the control group.

Overall, the pattern of results across the different measures indicates that participation in the *Hora de Ser* program was associated with positive changes in several psychological dimensions related to equality, empathy, and non-violent conflict resolution. A summary of the main outcomes associated with participation in the program is presented in Table 1.

Table 1. Summary of the main psychological dimensions affected by participation in the Hora de Ser program.

Dimension	Experimental Group	Control Group
Acceptance of diversity	Increased awareness of exclusionary behaviors toward peers perceived as different	No significant change
Gender stereotypes	Reduction in gender stereotyping; greater attribution of traits to both genders	No significant change
Empathy toward victims	Improved identification of negative emotions experienced by victims (sadness, fear, anger)	No significant change
Conflict resolution strategies	Greater endorsement of constructive and non-violent responses (e.g., seeking help)	No significant change

4. Discussion

The present study evaluated the social impact of the *Hora de Ser* program, a school-based intervention aimed at promoting equality and preventing violence among elementary school children. Overall, the results suggest that participation in the program contributed to meaningful changes in several psychological dimensions associated with inclusive attitudes and non-violent conflict resolution.

One of the most notable findings concerns the reduction of gender stereotyping among participating children. After the intervention, several personal characteristics were more frequently attributed to both boys and girls, suggesting a shift toward more flexible and less rigid gender role beliefs. Given the role that gender stereotypes may play in sustaining discriminatory attitudes and social inequalities, these changes may represent an important step toward promoting more inclusive social perceptions in early developmental stages.

The program also appears to have strengthened children's empathic understanding in situations involving peer victimization. The improved identification of negative emotions experienced by victims suggests that the intervention may have enhanced children's sensitivity to the emotional consequences of aggressive behaviors. Such developments are particularly relevant in the context of violence prevention, as empathy has been consistently associated with prosocial behavior and reduced tolerance toward aggression.

Additionally, children who participated in the program showed greater endorsement of constructive strategies for dealing with conflict situations. This pattern suggests that the intervention may contribute not only to attitudinal changes but also to the development of more adaptive orientations toward interpersonal conflict.

Despite these encouraging findings, some limitations should be acknowledged. The quasi-experimental design did not allow for full random assignment of participants, and the study relied primarily on self-report measures. Future research could explore the long-term effects of the program and incorporate behavioral indicators of change.

Overall, the findings highlight the potential value of early preventive interventions implemented in school contexts. Programs such as *Hora de Ser* may play an important role in fostering equality-related attitudes and promoting non-violent forms of social interaction during childhood.

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EXPERTISE RELATED DIFFERENCES IN ABSTRACT ART PERCEPTION: AN EYE-TRACKING STUDY OF PSYCHOLOGISTS AND ARTISTS

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Abstract

Eye movement data provides objective insight into visual attention distribution, cognitive processes, level of expertise and emotional arousal. Significant differences in visual attention distribution exist between experts and novices in specific domains or individuals performing different professions. Research has also shown the influence of presented stimuli on eye movement parameters. Colours are known to influence the emotions experienced by the observer. Warm colours are typically associated with arousal, energy, passion, but also aggression and anxiety, while cool colours are linked to relaxation, calmness, harmony and stability. To determine the impact of stimulus colour and observer's profession on the perception of abstract art, we conducted an eye-tracking study. The study involved a group of 53 participants: 27 non-experts and 26 artists or art students (36 women and 17 men). Participants were presented with 8 abstract graphics depicting an identical combination of rectangles. The main goal of the analyses was to determine the differences in eye-tracking parameters between the professional groups and the colour types of the presented graphics. The results of two-way ANOVAs showed significant influence of the colour tone on the mean number of fixations, mean saccade velocity and mean saccade length during the observation of the presented graphics. These findings provide information on the differences in visual attention distribution influenced rather by colour than profession. Colour tones influence visual attention distribution more strongly than professional knowledge, contributing to the understanding of colour-related differences in art perception.

Keywords: *Eye tracking, abstract art perception, psychologists, artists, eye movement.*

1. Introduction

Eye tracking provides valuable insight into visual attention and cognitive processes, frequently revealing significant differences in perception between experts and novices within the same field (Bruder & Hasse, 2019; Gegenfurtner et al., 2011). Furthermore, different professions, such as artists and non-artists, exhibit distinct visual processing patterns when viewing the same image (Kozbelt, 2001; Krejtz et al., 2023). While figurative art typically directs attention to key features (e.g., eyes and nose in portraits) (Kesner, Grygarová, Fajnerova, & Lukavsky, 2018), abstract art perception is less driven by visual saliency and more influenced by interpretation or prior knowledge (Locher, 2010). Colour significantly influences emotions (Joosten, Van Lankveld, & Spronck, 2009; Mehta & Zhu, 2009), with lightness often associated with pleasant feelings and darker hues with negative ones (Zhang, Zuo, Erskine, & Hu, 2016). Black can be associated with sadness, while white with positive, low arousal emotions (Jonauskaite & Mohr, 2025). Popka (2012) explored how European literature links colours with specific emotional and symbolic meanings within cultural contexts, e.g., red (vitality), pink (empathy), dark blue (eternity), and light blue (calmness). To explore the influence of colours on the visual perception of artists and psychologists, we used geometric abstract graphics to examine how profession and colour influence art perception.

2. Methods

2.1. Participants

A total of 53 individuals (36 women, 17 men), aged 18–54 years (M = 28.49, SD = 9.69), participated in the study representing two professional groups. The artist group (n = 26; 18 women, 8 men), aged 18–54 years (M = 30.00, SD = 10.40), included 17 working artists (professional tenure: M = 13.59, SD = 8.19, range 1–26 years), 8 art students, and 1 non-working person with an arts degree. The psychologist group (n = 27; 18 women, 9 men), aged 19–50 years (M = 25.30, SD = 6.54), consisted

of 9 professional psychologists with a Master's degree (professional tenure: $M = 9.22$, $SD = 6.42$, range 2–21 years) and 18 psychology students.

2.2. Stimuli

The stimuli consisted of four pairs of graphics with an identical Kobro-inspired pattern of rectangles (Stronias, 2012), created in various colour tones: black-and-white, warm, cool, and mixed (Figure 1 and 2). Inspired by Albers's work (1963), light/dark pink and blue were used, with each pair showing a figure-ground reversal (positive/negative) (see Figure 2). The design, based on the Golden Ratio and Fibonacci sequence (Van Essendelft, 2020), maintained an identical composition to isolate the influence of colour on perception. Graphics were presented separately.

Figure 1. Heatmaps presenting gaze concentration (dwell time) on the black-and-white and mixed-toned graphics.



Figure 2. Two pairs of graphics: cool-toned (the first and the second) and warm-toned (the third and the fourth).



2.3. Eye tracking

Participants' eye movements were recorded using a GazePoint GP3HD eye tracker with a sampling rate of 150 Hz. The stimuli were presented on a 24.5-inch Iiyama G-master GB2530HSU monitor (resolution: 1280×720 pixels). The average measurement error was 11.23 pixels. The experimental procedure was implemented using Ogama (Open Gaze And Mouse Analyzer) software, version 5.1 (Voßkühler, Nordmeier, Kuchinke, & Jacobs, 2008). We focused on four eye-tracking metrics across the entire graphic stimuli: the mean number of fixations, the mean fixation duration (in milliseconds), and the mean saccade velocity (in pixels per second) and length (in pixels).

2.4. Procedure

The study was conducted under standardised internal artificial lighting conditions. Upon arrival, participants provided informed consent and completed a short questionnaire on geodemographics and professional experience. Participants were then seated 50–70 cm from the screen. A five-point calibration was performed before the main eye-tracking procedure, during which they viewed the four pairs of graphics in a randomised order. Each graphic was presented separately for 8 seconds.

3. Results

All analyses were performed in RStudio (Posit team, 2025). Eye-tracking data from Ogama were imported and processed to mark missing data and proceed without including them into the analytical process. After the removal of outlying values, using the IQR method, between 93.63% to 99.05% of data for each parameter was used for further analyses (Dash et al., 2023). Analyses were conducted using a 2 (artists vs psychologists) x 4 (black and white, mixed, warm, cool tones) mixed-design ANOVA, separately for each eye-movement parameter, with Tukey correction for multiple comparisons. Figure 2 presents heatmaps depicting dwell time on specific areas of the graphic, depending on profession and type of graphic. A significant main effect of colour tone on the mean number of fixations was observed, $F(3,153) = 3.12$; $p = 0.028$; $\eta G2 = 0.02$. Post-hoc analysis revealed a significant difference between the number of fixations on black-and-white graphics ($M = 21.00$, $SD = 4.68$) and cool graphics ($M = 19.1$, $SD = 5.19$), $p = 0.036$. Neither the main effect of colour tone ($p = 0.610$), nor the main effect of group (artists vs. psychologists; $p = 0.289$) on the mean fixation duration was statistically significant. However, a significant main effect of colour tone on the mean saccade length was observed, $F(3,150) = 4.36$; $p = 0.006$; $\eta G2 = 0.03$. There was a significant difference between saccade lengths for black-and-white graphics ($M = 176$, $SD = 29.7$) and warm graphics ($M = 160$, $SD = 35.5$), $p = 0.004$. A significant main effect of colour tone on the mean saccade velocity was also found, $F(3,144) = 2.97$; $p = 0.034$; $\eta G2 = 0.02$. There was a tendency for a difference between saccade velocities for black-and-white graphics ($M = 3.56$,

SD = 0.87) and mixed graphics (*M* = 3.31, *SD* = 1.11), *p* = 0.078. The specific results for each parameter are shown in Table 1.

Table 1. Means and standard deviations of number of fixations, saccade length and saccade velocity by graphic tone.

Graphic Tone	Fixation Count *M (SD)*	Average Saccade Length (px) *M (SD)*	Average Saccade Velocity (px/s) *M (SD)*
Black and white	21.00 (4.68)	165.70 (63.6)	414.00 (101.9)
Cold	19.10 (5.19)	163.70 (62.8)	423.90 (97.9)
Mix	19.30 (5.19)	150.70 (64.2)	430.20 (101.9)
Warm	19.50 (5.20)	146.40 (62.5)	427.70 (103.1)

4. Discussion and conclusions

We demonstrated that colours significantly influence the perception of abstract art, to a greater extent than the professional experience. The observed differences in visual attention driven by color tone are consistent with literature suggesting colors significantly influence emotions and visual processing (Joosten et al., 2009; Mehta & Zhu, 2009). The black-and-white graphics generated the highest number of fixations, but also the longest and fastest saccades, which might be a result of their high contrast, possibly leading to more frequent and faster switches in gaze between the clearly defined, distinct shapes. Conversely, the lower number of fixations on the cool-toned stimuli may be attributed to a potentially calming effect of the blue colour (Popka, 2012). Shorter and slower saccades on warm-toned and mix-toned graphics may suggest smaller and slower gaze switches due to a more balanced and consistent contrast. The use of simple geometric stimuli may have led to similar visual processing across groups, as such stimuli might not require specialised visual expertise. Future research could compare the influence of these same colors on the processing of more complex and varied stimuli, as using visual material that requires higher-level interpretation might then reveal profession-related differences. This exploratory study provides novel insights into the processing of simple abstract geometric stimuli in various color tones, establishing an important foundation for further investigations into the visual perception of color and expertise.

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CHALLENGING THE ROLE OF ANALYTICAL THINKING IN FAKE NEWS DETECTION: EVIDENCE FROM GENDER-RELATED MYSIDE BIAS

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Abstract

This study examined the effect of myside bias on fake news identification and its moderating role in the association between analytical thinking and success in fake news identification using an experimental paradigm. A sample of 128 adults rated their belief in news items that differed both in veracity (true vs. fake) and in congruency (congruent- favoring their gender vs. incongruent- opposing their gender). They also responded to the Verbal Cognitive Reflection Test as a measure of analytical thinking. A mixed-design ANCOVA revealed statistically significant main effects of both- myside bias and analytical thinking, while the interaction between the two was not found to be significant. The present findings demonstrate that myside bias significantly affects belief judgments in fake news evaluation, independent of individual differences in analytical thinking. Additionally, vCRT scores significantly predicted mean belief ratings, but not signal detection sensitivity, as indexed by discriminability (d′). It implies that analytical thinking may influence decision thresholds or response bias, rather than the quality of evidence integration required for accurate discrimination. Overall, this study highlights the role of myside bias in the identification of fake news while challenging the assumption that analytical reasoning is directly correlated with improved fake news detection.

Keywords: *Fake news identification, myside bias, analytical reasoning, motivated reasoning.*

1. Introduction

Scholarly literature focused on identifying factors that can make an individual more susceptible to believing in fake news has rendered the analytical thinking ability to be one of the most influential factors in predicting success in fake news identification (for example, Pennycook & Rand, 2020; Gaillard, et al., 2021). When decision conditions favour more calculated, analytical modes of cognitive processing, they are more likely to result in higher success in fake news discernment (Bryanov & Vziatysheva, 2021). However, empirical evidence supporting the *motivated reasoning approach* suggests that having cognitive abilities such as analytical thinking skills is not enough for accurate truth discernment. Rather, motivational factors such as belief bias are central to the process of truth discernment. People with higher ability do not necessarily engage more in analytical thinking, rather they may simply be more successful when they do so (Evans, 2008). If motivational factors do not encourage them to engage analytical thinking, higher cognitive abilities can in fact assist them in explaining away inconvenient data (Kahan, 2017). Studies concerning this debate have shown a more profound effect of analytical thinking ability than motivational factors. However, they have heavily relied on *belief bias*, which is a type of bias that is remediable. It is sensitive to analytical thinking ability as it emerges from testable beliefs which are easily verifiable and can be updated by personal observations, expert opinions, and even sophisticated methods of science (Stanovich & Toplak, 2023). It would be interesting to see whether analytical reasoning ability will help individuals overcome more rigid biases. One such bias is *myside bias*, which emerges from distal beliefs that are difficult to verify directly through experience or even expert opinion. These beliefs are accompanied with high conviction and emotional commitment, making them more resistant to change. Thus, we suspect that although analytical thinking ability has been found to aid in overcoming belief bias in processing fake news, it will have little impact on myside bias in the context of fake news identification. We hypothesize that, firstly, participants will be more likely to believe the news that favours their gender identity (referred as *congruent)*, regardless of its actual veracity and reject that does not favour their gender identity (referred as *incongruent)*, regardless of its actual veracity. Secondly, analytical thinking ability will have little influence on the believability ratings in the presence of myside bias.

2. Method

Our target sample for the study was 128 young adults (mean age= 21.5 years; 83 females, 45 males). Participants were presented with the *Fake News Identification Task* containing 12 news items, of which six reported true incidents and six were fabricated. Among the true items, two described incidents favouring women (female-congruent), two favoured men (male-congruent), and two were unrelated to gender (neutral). The fabricated items were structured in the same manner. For each item, participants rated the perceived probability that the news was true on a scale ranging from 0% to 100%. The vCRT was used to measure analytical thinking skills (Sirota et al., 2021). This test comprises 10 items in the form of questions that elicit an obvious but wrong answer and a less obvious but incorrect answer.

3. Analysis

We employed a mixed-design analysis of covariance (ANCOVA), with myside bias (operationally defined in terms of congruency with two levels- congruent vs. incongruent) as the within-subjects factor and vCRT scores entered as a continuous between-subjects covariate. This allowed us to test for within-subject differences in believability ratings across conditions while accounting for individual variation in vCRT scores. We also conducted the analysis of discriminability (d′), a signal detection-based index that reflects the ability to separate signal from noise, in this case fake news from true news. This index was computed by calculating the difference between mean believability ratings on fake items and those on true items.

4. Results

4.1. Main effects and moderation analysis

A mixed-design analysis of covariance (ANCOVA) revealed a statistically significant main effect of congruency, $F(1, 126) = 7.20$, $p = .008$, $\omega^2 = .022$, indicating that participants' responses differed reliably between congruent and incongruent conditions after controlling for individual differences in verbal Cognitive Reflection Test (vCRT) scores. The magnitude of the effect was small but meaningful, with congruency accounting for approximately 2.2% of the variance in responses. The significant main effect of congruency reflects higher adjusted responses in the congruent condition ($M = 61.34$, $SE = 1.72$, 95% CI [57.93, 64.74]) relative to the incongruent condition ($M = 48.91$, $SE = 1.65$, 95% CI [45.64, 52.17]), as indicated by the estimated marginal means computed at the mean level of vCRT. Similarly, a statistically significant main effect of CRT was observed, $F(1, 126) = 5.198$, $p = 0.24$), indicating that believability ratings on fake news identification task varied as a function of participants' vCRT scores.

In contrast, the interaction between congruency and vCRT scores was not statistically significant, $F(1, 126) = 0.05$, $p = .824$, $\omega^2 \approx 0$ (Table 1), indicating that the effect of congruency did not vary as a function of participants' level of analytical thinking. Taken together, these findings suggest that congruency exerted a robust and uniform influence on performance across participants, independent of variation in analytical thinking ability, and that cognitive reflection did not moderate sensitivity to congruency in the present task.

4.2. Analysis of discriminability

Linear regression analyses were conducted to compare the relationship of analytical reasoning ability with believability ratings and that with discriminability index. First, vCRT scores significantly predicted mean belief ratings, $R^2 = .042$, $F(1, 126) = 5.48$, $p = .021$, indicating that higher levels of analytical thinking were associated with lower news believability ratings. In contrast, vCRT scores did not significantly predict signal detection sensitivity, as indexed by discriminability (d′), $R^2 = .003$, $F(1, 126) = 0.38$, $p = .537$. These findings indicate that individual differences in analytical thinking were not meaningfully associated with participants' ability to discriminate between true and false items at the level of signal detection sensitivity.

5. Discussion

The present findings demonstrate that both myside bias and analytical thinking independently influenced believability judgments in the fake news identification task. The mixed-design ANCOVA revealed a statistically significant main effect of myside bias, with higher adjusted belief ratings for items congruent with participants' gender identity. This finding is consistent with prior research on myside bias and motivated reasoning, which demonstrates that individuals tend to evaluate information more favourably when it aligns with their existing beliefs, values, or identity-relevant attitudes (Roozenbeek, et al., 2022).

Importantly, this effect remained significant after controlling for vCRT scores, suggesting that unlike belief bias, myside bias operates as a robust cognitive bias that is not reducible to individual differences in analytical reasoning alone.

Similarly, a significant main effect of vCRT was observed, indicating that believability ratings varied as a function of participants' analytical thinking ability. This finding suggests that analytical thinking does play a role in shaping belief judgments in the context of fake news, likely by influencing overall response tendencies. However, the presence of a vCRT main effect alongside a strong effect of myside bias suggests that analytical thinking operates independently of myside bias, rather than moderating it. That is, individuals higher in analytical thinking ability may adopt a generally more cautious evaluative stance, but this does not eliminate the advantage afforded to congruent information.

The non-significant interaction between congruency and vCRT indicates that participants with higher and lower levels of analytical thinking ability showed comparable differences between congruent and incongruent conditions. In other words, analytical thinking did not attenuate sensitivity to myside bias in the present task. This finding aligns with emerging evidence that analytical reasoning does not uniformly reduce motivated cognition, and in some cases may coexist with, or even facilitate, biased evaluation when information is belief-consistent (for example, Cavojova et al., 2024; Greene et al., 2021). From this perspective, analytical thinking may be selectively engaged to justify preferred conclusions, known as *rationalization*, rather than to impartially evaluate evidence. The absence of moderation therefore supports theoretical frameworks proposing that motivated and analytical processes are not mutually exclusive but can operate in parallel.

The discriminability analyses further clarify the role of analytical thinking in the process of fake news identification. While vCRT scores significantly predicted mean belief ratings, they did not predict discriminability (d′). This dissociation suggests that individuals higher in analytical thinking differed in their overall response tendencies—that is, how skeptical or believing they were on average—but not in their ability to distinguish true from false information. This pattern implies that analytical thinking may influence decision thresholds or response bias, rather than the quality of evidence integration required for accurate discrimination. Participants with higher vCRT scores may adopt a more cautious or skeptical evaluative stance, but this does not necessarily translate into improved sensitivity to veracity cues.

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EXPLORATORY STUDY OF THE LINK BETWEEN APHANTASIA AND INTEROCEPTIVE SKILLS

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Abstract

Introduction: Aphantasia, the absence or marked reduction of mental imagery (Zeman et al., 2024), provides an opportunity to investigate how mental imagery contributes to bodily self-representation and interoception, defined as the perception and regulation of internal bodily signals (Garfinkel et al., 2015). Preliminary findings indicate reduced physiological reactivity, reduced emotional response and reduced attention to bodily cues in aphantasia (Wicken et al., 2021; Monzel et al., 2024). However, empirical investigations are limited. This study aimed to investigate whether aphantasia is associated with specific characteristics in three dimensions of interoception (accuracy, sensibility, awareness; according to the tridimensional interoceptive model of Garfinkel et al., 2015). *Methods:* Thirty-three healthy adults were divided into two groups: 9 aphantasic participants (4 women; M_{age}=34.22, M_{VVIQ}=32) and 24 controls (20 women; M_{age}=35.00, M_{VVIQ}=127.71). Group classification was based on the Vividness of Visual Imagery Questionnaire (VVIQ; Marks, 1973), which assesses the clarity, detail, and lifelike quality of mental images. All participants completed the Body Perception Questionnaire (BPQ; Porges, 1993) and the Multidimensional Assessment of Interoceptive Awareness (MAIA; Mehling et al., 2012) to evaluate interoceptive sensibility, the Heartbeat Counting Task (HBC) to measure interoceptive accuracy, and confidence ratings to assess interoceptive awareness. *Results:* Compared to controls, the aphantasic group exhibited significantly lower interoceptive accuracy (W=35, p=.003, rrb= -.676), reduced sensibility in BPQ (W=9.0, p <.001, rrb= -.917), and diminished scores on five of eight MAIA subscales (all p <.01). Regarding interoceptive awareness, a significant correlation was observed between interoceptive accuracy and confidence levels in the control group (r=.643; p < .001) but not in the aphantasic group (r= -.183; p=.638). VVIQ scores correlated positively with sensibility in BPQ (r=.791, p < .001) and in five MAIA dimensions (r=.502–.689, p <.01) and with interoceptive accuracy (r=.595, p < .001). *Conclusion:* These findings indicate that reduced visual imagery vividness in aphantasia is associated with lower interoceptive accuracy and sensibility, suggesting a link between imagery vividness and multiple interoceptive dimensions. Moreover, interoceptive awareness (i.e., reflecting the congruence between confidence and performance) appears also affected by imagery deficits, suggesting an underestimation of accuracy skills by aphantasics.

Keywords: *Aphantasia, visual imagery, interoception, heartbeat counting task.*

1. Introduction

Mental imagery, defined as the ability to generate mental experiences in the absence of external sensory input, exhibits considerable interindividual variability. While most individuals experience imagery with moderate vividness, a subset of the population reports either an almost complete absence of mental imagery called aphantasia (Zeman, 2024). Aphantasia, estimated to reach around 1% of the population, is often familial. Although aphantasia is typically defined as the absence of visual imagery, it can also extend to other sensory modalities and, in some individuals, encompass all forms of sensory imagery (Zeman, 2024). Individuals with aphantasia often report difficulties, or even an inability, in generating mental pictures of people, places, or events, instead relying on factual or semantic representations (Milton et al., 2021). It has been associated with reduced autobiographical memory and face recognition difficulties, suggesting a multifaceted neurocognitive basis (Monzel et al., 2024; Wicken et al., 2021; Zeman, 2024). However, its implications for interoception remain underexplored. Indeed, more recent perspectives propose that vivid mental imagery also depends on the integration of interoceptive information into sensory and cognitive representations (Silvanto & Nagai, 2025). Interoception, defined as the perception and representation of internal bodily states, contributes critically to emotional awareness, self-referential

processing, and subjective experience (Critchley & Garfinkel, 2017). According to Garfinkel et al. (2015), interoception can be characterized along three dimensions: interoceptive accuracy, referring to objective performance in tasks such as heartbeat counting task (Schandry, 1981); interoceptive sensibility, which captures subjective beliefs or attention to internal signals; and interoceptive awareness, reflecting the metacognitive correspondence between accuracy and confidence in one's interoceptive judgments. Previous studies suggest that mental imagery can be understood as the integration of sensory and interoceptive signals, and aphantasia may reflect a disruption in this integration, which could explain its links to reduced autobiographical memory, emotion perception, and traits such as autism, alexithymia, and dyspraxia (Silvanto & Nagai, 2025). Integrating this framework, this study examined whether the absence of visual imagery in aphantasia is associated with reduced interoceptive accuracy, sensibility and awareness, combining behavioral tasks and self-report measures.

2. Methodology

2.1. Participants

Thirty-three healthy French-speaking adults participated in this study divided into two groups according to the *Vividness of Visual Imagery Questionnaire* score (VVIQ; Marks, 1973). This questionnaire measures the vividness and clarity of visual mental imagery through 16 items in two conditions (closed eyes and open eyes condition) in which participants rate, on a 5-point Likert scale, how clearly, they can visualize specific scenes, objects, or familiar people. The score of 32 was taken as the threshold indicating the absence of visual mental imagery. Therefore, the first group consisted of 9 individuals with aphantasia (APH; 4 women; M_{VVIQ}=32; SD_{VVIQ}=*0*) and the second group of 24 controls with typical imagery (CTRL; 20 women; M_{VVIQ}=127.71; SD_{VVIQ}=*11.89*) matched for age (W=107.5; p=1.000; M_{APH}=34.22; M_{CTRL}=35) and education level (W=107.5; p=1.000; M_{APH} =14; M_{CTRL}=14.33). Two control participants with unusually low VVIQ scores (≤ 80) were identified as outliers and excluded from the analyses. Inclusion criteria were the absence of neurological, psychiatric, or neurodevelopmental disorders, substance abuse, uncorrected sensory deficits, and being a native French speaker. To assess cognitive functioning, participants completed four subtests (Matrix Reasoning, Arithmetic, Coding, Information) of the WAIS-IV (Wechsler, 2008). Participants with a score below a standard score of 7 on one of subtests were excluded. No significant difference between the groups was observed on the four subtests. Anxiety was assessed using the STAI-Y (Spielberger, 1983); participants scoring ≥ 40 on either subscale were excluded. No significant difference between the groups was observed on the scale State (W=116; p=.760) and the scale Trait (W=113.5; p=.837). Each participant signed a written informed consent form in accordance with the Declaration of Helsinki and the General Data Protection Regulation (GDPR) (European Parliament, 2016). An information letter outlining the aims and requirements of the study was given to each participant.

2.2. Material

The HeartBeat Counting task (HBC; Schandry, 1981) is used to assess objectively the **interoceptive accuracy.** The participants should count each heartbeat they feel in your body. There were six trials at different times: 25,30,35,40,45 et 50s. The real beats were evaluated by a pulse oximeter. An accuracy score: 1 − (|nbeatsreal − nbeatsreported|)/((nbeatsreal + nbeatsreported)/2) is calculated for each trial and then an average is calculated over the 6 trials. The accuracy score is between 0 (low interoceptive accuracy) and 1 (high interoceptive accuracy). The participants also judged their confidence in interoceptive accuracy after the task on Likert scale from 1 to 7. This subjective data is used to assess **interoceptive sensitivity** in addition to two questionnaires: Body Perception Questionnaire (BPQ; Porges, 1993) and the Multidimensional Assessment of Interoceptive Awareness (MAIA; Mehling et al., 2012). The former assesses subjective perception of internal body sensations (Mehling et al., 2012; Porges, 2003). The latter assesses subjective metacognition interoception. This questionnaire is composed of 8 subscales (noticing, not-distracting, not-worrying, attention regulation, emotional awareness, self-regulation, body listening and trusting. Finally, **interoceptive awareness** involves combining objective measures of interoceptive accuracy (e.g., heartbeat counting performance) with subjective confidence ratings to examine the relationship between perceived and actual interoceptive ability (i.e., congruence between confidence ratings and HBC accuracy; Garfinkel et al., 2015). This subjective score was then correlated with the average accuracy score for estimate the interoceptive awareness. The closer r is to 1, the more confidence is adjusted to the actual performance, indicating a high level of interoceptive awareness.

3. Results

Intergroup comparisons using Mann–Whitney tests revealed that, aphantasics showed higher difference between reported beats and real beats for the interoceptive accuracy (M_{APH}=.55, SD_{APH}=.20) than

controls (M_{CTRL}=.79, SD_{CTRL}=.09; W=35, p=.003, rrb=-.676). For the interoceptive sensibility, aphantasics showed significantly lower scores in confidence judgements of the HBC task (M_{APH}=1.44, SD_{APH}= .53) compared to controls (M_{CTRL}=3.63, SD_{CTRL}=1.47; W=18.5, p <.001, rrb=-.829). For the questionnaire, aphantasics' scores were significantly lower in BPQ (M_{APH}=78.44, SD_{APH}=20.45) compared to controls (M_{CTRL}=114.38, SD_{CTRL}=9.17; W=9.0, p <.001, rrb= −.917) and also at five subscale of MAIA (*noticing* (p=.001), *attention regulation* (p=.009), *emotional awareness* (p=.008), *self-regulation* (p=.006) and *body listening* (p=.007)). However, there was no significant difference for subscale *not-distracting* (p=.156), *not-worrying* (p=.453), and *trusting* (p=.178). In terms of interoceptive awareness, a significant correlation was observed between interoceptive accuracy and confidence levels in the control group (r=.643; p<.001) but not in the aphantasic group (r=-.183; p=.638). Correlation analyses across the full sample revealed strong associations between VVIQ scores and accuracy (r=.595, p < .001), interoceptive sensibility in confidence rating (r=.544, p=.001), in BPQ (r=.791, p <.001), and in five MAIA subscales (r = .502–.689, all p < .01). Regression analyses confirmed that imagery vividness significantly predicted variance in accuracy (R^2 = .299), in sensibility with BPQ (R^2 = .626), confidence rate (R^2 = .296) and MAIA subscales (R^2 = .252–.474, all p < .01).

4. Discussion

The findings demonstrate that reduced imagery vividness in aphantasia is associated with diminished interoceptive accuracy and sensibility (evaluated by auto-reported questionnaire and confidence score at the HBC), supporting the hypothesis of a functional link between visual mental imagery and internal bodily perception. The present findings show also a dissociation between objective and subjective measures of interoception in aphantasia. While controls displayed a significant positive correlation between interoceptive accuracy and confidence, indicating that more accurate participants felt more confident, this relationship was absent and even slightly negative in the aphantasic group. This pattern suggests that aphantasics may experience impaired interoceptive metacognition. Empirical findings also support the idea that aphantasia involves atypical metacognitive functioning in general. Aphantasics show reduced confidence in memory and associative imagery tasks, even when their objective performance is intact (Wittmann & Şatırer, 2022). These results are aligned with recent models proposing shared neural bases between imagery, interoception, and self-monitoring (Silvanto & Nagai, 2025). Together, these results suggest that visual imagery contributes not only to sensory representation but also to metacognitive awareness of bodily states. However, the small sample size and gender imbalance limit generalization, warranting replication with larger and more diverse cohorts. Future research should adopt longitudinal and neuroimaging approaches to clarify causal pathways and explore whether interventions such as mindfulness training or biofeedback can improve interoceptive competence in aphantasia.

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THE PERCEPTUAL LIMIT IN THE DEVELOPMENT OF READING SPEED

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Abstract

The acquisition of fluent reading emerges from the interaction of visual-perceptual mechanisms and higher-order cognitive processes. A well-established constraint is visual crowding—the impaired recognition of a target stimulus caused by nearby distractors. Bouma's law (Bouma, 1970) describes this effect as a fundamental limit on letter recognition in peripheral vision: the minimum space needed to recognize the target increases with eccentricity from the fovea. Previous research has shown that crowding is a major bottleneck for reading in both typical and struggling readers (Pelli et al., 2007; Spinelli et al., 2001; Martelli et al., 2009; Pelli et al., 2016), but its developmental trajectory during primary school remains poorly understood. This cross-sectional study aimed to investigate the developmental trajectory of peripheral crowding from first to fifth grade, to trace how crowding range and reading proficiency co-evolve during childhood, and to explore the role of crowding in atypical reading development. To this end, we assessed 159 children across grades 1–5, examining peripheral crowding and its relationship with reading fluency. Reading proficiency was assessed with standardized passage and word list tests, and participants were classified as skilled or low readers (≤ –1.5 SD). Peripheral crowding and reading speed (RSVP paradigm) were measured using a computerized application (EasyEyes; Jiang, Burchell, & Pelli, 2021) under controlled conditions. Results revealed a clear developmental trajectory: peripheral crowding decreased systematically with grade, reflecting an expansion of the visual span, while reading speed increased reliably. Higher grade levels predicted both reduced crowding ($r = –0.66$, $p < .001$) and faster reading rates ($r = 0.64$, $p < .001$). Across the sample, reading performance was inversely associated with crowding ($r = –0.64$, $p < .001$), with stronger effects in low-skilled readers ($r = –0.73$, $p < .001$), suggesting that crowding imposes a particular constraint on children with reading difficulties. These findings indicate that peripheral crowding diminishes with age and plays a central role in the acquisition of fluent reading. From an applied perspective, results underscore the importance of incorporating perceptual constraints into developmental models of literacy, and suggest that interventions targeting crowding and visual span may help support children with reading difficulties.

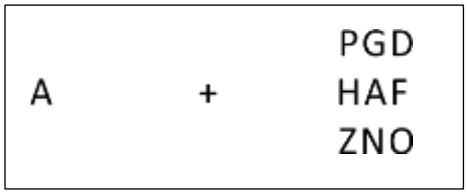
Keywords: *Reading development, perceptual integration.*

1. Introduction

Reading is a multicomponent process that relies on the integration of perceptual and cognitive mechanisms. Among the visual factors that influence fluent reading, *visual crowding* plays a significant role. Crowding refers to the difficulty in identifying a target when it is surrounded by nearby distractors, and numerous studies have shown that it limits reading speed and letter recognition in both typical and dyslexic readers (Pelli et al., 2007; Spinelli et al., 2001; Martelli et al., 2009; Pelli et al., 2016).

Crowding represents a fundamental perceptual bottleneck operating at early stages of sensory processing since it limits the identifiable letters needed for reading (Figure 1).

Figure 1. Demonstration of crowding. Fixate the +. It is easy to identify the A on the left but impossible to identify the A on the right, because of the flankers.



The unit of measurement for crowding is the *critical spacing*, defined as the minimum distance required between stimuli for the target to be correctly recognized. This critical spacing is small in the fovea and increases with eccentricity (distance from the fovea), becoming much larger in peripheral vision.

According to Bouma's law (Bouma, 1970), this spacing corresponds to approximately half the eccentricity at which the target is presented. During reading, when letters are displayed with uniform center-to-center spacing, those falling in peripheral vision may become difficult to discriminate due to interference from adjacent letters. This reveals a bottom-up perceptual limitation that can strongly affect the extraction of information from text.

Evidence also indicates that crowding decreases with development, paralleling improvements in reading fluency (Kwon *et al.*, 2007; Pelli & Tillman, 2008). However, the precise developmental trajectory of this phenomenon remains unclear, as does the relative contribution of intrinsic visual factors and maturational influences to individual differences in crowding.

The present study aims to investigate the developmental course of peripheral crowding from first to fifth grade, to track how crowding range and reading proficiency co-evolve during childhood, and to explore the role of crowding in atypical patterns of reading development.

2. Methods

159 students from 1st to 5th grade were screened for reading, through standardized passage reading (MT Reading Test) and word list tests (One Minute Test), and fluid intelligence (Raven Coloured Progressive Matrices).

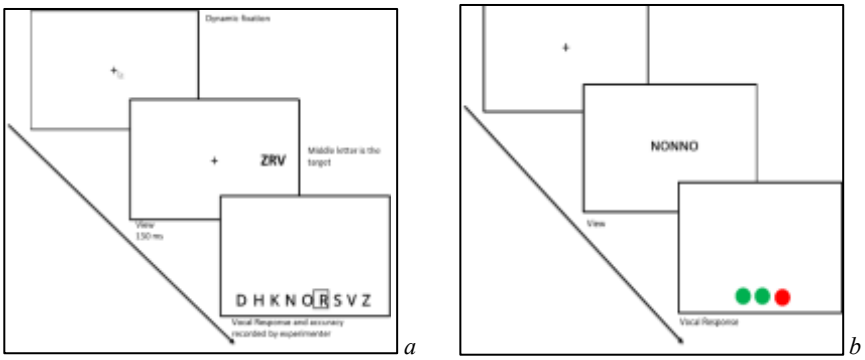
Based on their reading performance, the sample was split into two groups: skilled readers (N=141) and low readers (N=18). Low readers were defined as those scoring more than 1.5 standard deviations below the mean in speed and/or accuracy on a standardized passage-reading aloud task.

Peripheral crowding was measured using a computerized application (EasyEyes; Jiang, Burchell, & Pelli, 2021). Children were required to follow a moving fixation point with the mouse cursor and then identify the central letter of a trigram presented at 8 degrees of eccentricity, either to the right or to the left of the screen.

Reading speed was also measured using Easy Eyes through the Rapid Serial Visual Presentation (RSVP) paradigm, in which three words were displayed sequentially with no interval, and the examiner recorded the accuracy of the child's response. Both tasks employed an adaptive procedure.

The experimental procedure is graphically reported in Figure 2.

Figure 2. Procedure of Peripheral Crowding task (a) and Rapid Serial Visual Presentation (b).



a *b*

3. Analysis

Pearson correlation coefficients were computed to examine the associations among grade level, peripheral critical spacing (deg), and reading speed (w/min). These analyses assessed both developmental trends and the relationship between crowding and reading performance across the full sample. Simple linear regression models were additionally used to quantify the predictive contribution of grade level to crowding and reading speed, as well as the strength of the association between crowding and reading performance. To explore whether this relationship differed as a function of reading ability, all analyses were repeated separately for skilled and low readers. All analyses were run using Jamovi 2.6.19.

4. Results

Results revealed a clear developmental trajectory: peripheral crowding decreased systematically with grade, reflecting an expansion of the visual span, while reading speed increased reliably. Higher grade levels predicted both reduced crowding ($r = –0.66$, $p < .001$) and faster reading rates ($r = 0.64$, $p < .001$). Across the entire sample, reading performance was inversely associated with crowding ($r = –0.64$, $p < .001$), indicating that children with larger critical spacing tended to read more slowly.

When examined by subgroup, this relationship was even stronger among low-skilled readers ($r = –0.73$, $p < .001$), suggesting that visual crowding imposes a particularly pronounced constraint in children with reading difficulties.

5. Discussion and conclusions

Overall, these findings show that peripheral crowding limitation diminishes with age and plays a central role in the development of fluent reading. From an applied perspective, the results highlight the importance of incorporating perceptual constraints into developmental models of literacy and suggest that interventions targeting perceptual processes may be beneficial for children who struggle with reading.

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NONCONFORMITY AND FOREST NATURE DEFICIT AMONG POLISH RESIDENTS

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Abstract

Forest nature deficit can be understood as a limited or complete lack of human contact with forests, which carries negative biological, social, emotional, and functional consequences. Contact with forest environments provides well-documented, multidimensional health benefits—from strengthening immunity and reducing stress through phytoncides and negative air ions, to the relaxing effects of essential oils, as well as supporting circadian rhythm regulation and improving sleep quality. Forests also promote creativity, exploration, and physical activity, serving as a key space for both psychological and physical well-being. Limited access to such experiences may lead to reduced activity, weaker psychological resilience, and lower readiness to take on new challenges. As part of a research project funded under the OPUS competition by the National Science Centre, Poland, the Forest Nature Deficit Questionnaire (QDFN) was developed—the first psychometric instrument in Poland designed to measure forest nature deficit. Nonconformity, understood within the interactionist framework of psychology, is a source of motivational energy that activates an individual's potential toward independence, creative expression, and the ability to resist social pressure. It can be measured, among other tools, using the Nonconformity Scale included in the Creative Behaviour Questionnaire. To date, no studies have examined the relationship between nonconformity and forest nature deficit. The present presentation introduces pioneering findings based on a sample of more than 1,000 Polish residents, opening new perspectives for analyzing personality determinants of human contact with nature.

Keywords: *Forest nature deficit, Forest Nature Deficit Questionnaire, nonconformity, personality.*

1. Introduction

Whereas in the past the proximity of nature constituted an integral element of everyday human functioning, today contact with the natural world is significantly limited for many people, often occurring only occasionally, fragmentarily, or even exceptionally (Schroeder, 2021). This phenomenon carries important consequences, as numerous empirical studies indicate that the natural environment plays a crucial role in maintaining physical, mental, and social health (Hartig, Mitchell, De Vries, & Frumkin 2014). Its deficit may lower individuals' quality of life and increase the burden on healthcare systems (Louv 2006). Nature deficit manifests itself in somatic dimensions (e.g., higher risk of metabolic and cardiovascular diseases) (Korcz, 2025), psychological dimensions (higher levels of stress, depression, and anxiety) (Siah et al., 2023), and social dimensions (weakened interpersonal bonds and reduced social capital) (Korcz, Kamińska, & Ciesielski, 2024). This highlights the growing importance of research into the role of the natural environment as a protective factor buffering the negative consequences of contemporary lifestyles. Within this broader context, the forest represents a specific and particularly significant space in which the manifestations of nature deficit acquire clear ecological, psychological, and social dimensions. Despite an increasing number of studies on the benefits of spending time in forests, there remains a lack of clear evidence identifying the consequences of *not* having such contact. In-depth analyses and clear research conclusions answering key questions are still missing: 1. Do contemporary societies indeed experience a forest nature deficit, and do we have tools enabling its reliable assessment? 2. What factors shape this phenomenon?

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Forest Nature Deficit has so far remained an unexplored issue, which prompted its inclusion in an interdisciplinary psychological–environmental research project. It has been defined as the absence or infrequent personal contact with forests that may lead to negative biological, social, emotional, and functional outcomes. Based on a meta-analysis of studies on the significance of forests for human functioning (Korcz, 2025), four components of forest nature were identified: biological component – influencing the functioning of the human body. Social component – referring to relationships with others, with oneself, with forest nature, and with the cultural heritage of forests. Emotional component – concerning the effects of forest environments on emotions and well-being. Functional component – encompassing the role of the forest in cognitive, sensory, physical, recreational, and creative development.

The components described above were reflected in the development of the Forest Nature Deficit Questionnaire (QDFN), created within the project as the first instrument in Poland designed to diagnose forest nature deficit. In the search for psychological determinants, the study focused on identifying the relationship between nonconformity and forest nature deficit. Nonconformity can be analyzed in four research domains: as individual behavior, as group behavior, as a personality structure (Jackson & Tremblay 2002), and as an aspect of creative personality (Bernacka 2020, Mróz et al., 2023, Necka et al., 2006, Song et al., 2012). In Popek's (2015) theory, nonconformity is defined as a relatively stable disposition toward autonomy and independence in thinking, evaluating, and acting, grounded in one's own value system. It includes such characteristics as adaptive flexibility, dominance, tolerance, self-organization, originality, independence, openness, coherence, perseverance, activity, courage, self-criticism, and high self-esteem (Popek, 2015, Grohman & Szmidt, 2012). To date, nonconformity has not been examined in the context of forest nature deficit; however, it plays a particularly important role in situations in which the individual is confronted with social norms, values, customs, and social pressure (Mróz et al., 2023).

The aim of the present study was therefore to investigate the relationship between nonconformity and forest nature deficit among Polish residents. It was hypothesized that nonconformity would be significantly related to the level of forest nature deficit.

2. Methods

2.1. Participants

A total of 1070 individuals participated in the study (52% women, 48% men), aged 18 to 74 years ($M = 46.39$; $SD = 15.15$). Education levels: 4.7% – primary education, 24.8% – vocational education, 34.3% – secondary education, 36.2% – higher education. Overall, 58.8% of participants lived in urban areas and 40.2% in rural areas; 6.4% of respondents reported never going to the forest.

2.2. Measures

Nonconformity was measured using the Creative Behaviour Questionnaire (CBQIII) (Bernacka et al., 2016). The questionnaire contains 13 statements describing nonconformist traits, rated on a 5-point scale. Higher scores indicate higher levels of nonconformity. Test reliability in the present study: $\alpha = 0.76$. Forest nature deficit was measured using the original Forest Nature Deficit Questionnaire (QDFN) (Korcz, Bernacka, Kobyłka, & Kamińska, unpublished). The scale consists of 15 items rated on a 5-point scale. Higher scores indicate a higher level of deficit. Test reliability in the present study: $\alpha = 0.97$.

2.3. Procedure

The study was conducted online through an external research company specializing in public opinion surveys. The research procedure was carried out in accordance with the ethical standards of the Polish Committee on Ethics in Science and the 1964 Declaration of Helsinki and its later amendments. The project received approval from the Ethics Committee for Scientific Research Involving Humans of the Forest Research Institute in Sękocin Stary (No. 1/2025), issued on 06.05.2025.

3. Results

Correlation analysis revealed a significant relationship between nonconformity and forest nature deficit: Spearman's rho = –0.25; $p < 0.01$. The result confirms the hypothesis regarding a significant association between the variables.

4. Discussion

The aim of the study was to examine the relationship between nonconformity and forest nature deficit. The findings showed that nonconformity was weakly and negatively associated with forest nature deficit—higher nonconformity was linked to a lower deficit. This mechanism may stem from ways of

achieving well-being. Individuals high in nonconformity experience psychological comfort when initiating change and seeking meaning and purpose in their actions (Popek, 2015).

Nonconformist individuals with a low forest nature deficit tend to: experience physical relaxation and improved bodily functioning; view the forest as a space for reflection and encounters with oneself, other people, and the environment; feel calm, relaxed, and more mindful; perceive the forest as a place that stimulates the senses, develops imagination, inspires innovation and creativity; and are more inclined to experiment and learn through direct experiences of forest nature (Korcz, 2025). Because nonconformity enhances autonomy and well-being, it increases readiness for personal contact with the forest, which is reflected in lower levels of forest nature deficit.

5. Conclusion

The study demonstrated a significant relationship between nonconformity and forest nature deficit, indicating that individuals with higher levels of nonconformity are less likely to experience a lack of contact with the forest. This association may result from their greater autonomy, tendency to independently seek well-being, and openness to experience, all of which support direct engagement with nature. For such individuals, forest contact serves a regenerative and inspiring function, enhancing both well-being and readiness for creative activity. The findings highlight the importance of promoting attitudes that support autonomy and conscious use of natural resources as factors reducing forest nature deficit.

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GUILT AS A MEDIATOR OF ENERGY-SAVING BEHAVIOR?

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Abstract

This study investigates how social referents and disapproval emojis impact energy saving behaviors in the context of digital energy alerts. 300 adult consumers participated in the study. The research examines emotional responses and behavioral intentions upon receiving a digital alert indicating excessive personal energy consumption, tested across six experimental conditions. Participants were asked socio-demographics questions, and we measured their numeracy level. We also asked them about their environmental values using the New Environmental Paradigm. Participants were also asked to rate their self-reported emotions related to the received digital alert, and two behavioral intention measures: whether they intended to increase, keep at the same level, or decrease their energy consumption (Decision task) and to estimate the expected percentage of changed consumption rate (Estimate task). The 6 experimental conditions resulted from a 3x2 factorial design where it was manipulated the absence or presence of a Social Referent (neighbor or friend) and the absence or presence of a disapproving Emoji. The study not only measured self-reported emotions but also recorded skin conductance to deepen insight into emotional arousal. Results of the mediation analysis indicated that Social Referent and Emojis increased guilt which in turn impacted participants' intentions to reduce energy consumption (indirect effect). While our findings confirm that guilt significantly mediates the effect of these social and emotional cues, skin conductance response revealed a mild autonomic activation. The presence of a disapproval Emoji combined with the knowledge of a neighbor's or friend's lower consumption heightened guilt feelings, which in turn influenced sustainable behavioral intentions. These findings highlight the importance of emotional triggering cues in behavioral change strategies and the potential of such psychosocial factors in environmental conservation efforts.

Keywords: *Social referent, guilt, emoji, SGR, energy-saving behavior.*

1. Introduction and objectives

Understanding the psychological mechanism behind energy-saving behaviours is crucial for designing effective interventions. Previous research has highlighted the role of social norms and feedback in shaping sustainable behaviours, yet little attention has been given to the emotional processes involved (for a recent discussion, see Dorigoni and Bonini, 2025). This study investigates how guilt mediates the influence of social referents and disapproving emojis in digital energy alerts, offering new insights into the role of emotional triggers in behavioural change.

The aim of the study is not to test the effect of injunctive social norms on energy-reduction behavior which is well established in literature. Rather, the aim is to test whether the expected typical effect of the "Social Referent" (e.g., information about the neighbor or friend's lower energy-consumption level) and the "disapproving Emoji" (e.g., a frowny face) on energy-saving behavior is mediated by the guilt felt by the participant for the reported personal excessive energy consumption.

If the effects of the Social Referent and Emoji experimental manipulations on energy-saving behavior are due to a guilt avoidance mechanism, then a statistically significant indirect effect of guilt on these behaviours should be found in a mediation analysis. Other previous studies supported this hypothesis (McCarty, 2024; Jacobson et al., 2021).

We used two types of Social Referent. In one case, participants were informed about the lower consumption level of the neighbours. In the other case, they were informed about the lower consumption level of a friend.

In sum, from our hypothesized mediation model, we predict that the presence of a Social Referent or a disapproving Emoji would make the participant feel guiltier, which in turn would favour sustainable behaviours (e.g., the decision to reduce energy-consumption and its planned amount). Thus, a statistically significant indirect effect of guilt on sustainable behaviours should be reported in a mediation analysis.

2. Methods

Three-hundred adult consumers participated to the study, and were individually tested. They were first asked about a few socio-demographics questions. The Electrodermal Activity (EDA) of participants was recorded during all the experimental session by the Biopac GSR-100C EDA amplifier.

Participants first read on a monitor PC a general scenario that was identical for all 6 experimental conditions. The scenario asked them to imagine having downloaded an app on their mobile phone that reads their instantaneous energy power consumption from a smart meter and allows them to get immediate feedback on their current electricity consumption. Then, they were presented with the information related to their current energy consumption ("energy-alert"). In all 6 conditions, the energy alert reported an hourly electricity consumption of 1.5 kwh, which amounts to 0.54 €/hour. This information was orthogonally presented across the 6 experimental conditions resulting from the 3x2 experimental factorial between-subjects design. Namely, factor "Social Referent" (absent vs. neighbour vs. friend) and Factor "Emoji" (absent vs. present). The energy-alert was presented for 20 seconds. When the energy-alert exposure ended, participants had to complete the PANAS scale to measure their feelings (included the "guilty" scale) related to their excessive energy consumption. After that, behavioural intention measures were recorded following the methodology by Graffeo and colleagues (2015). Namely, they were asked whether they intended to increase, keep at the same level, or decrease their energy consumption (Decision task) and to estimate the expected percentage of changed consumption rate (Estimate task). The 300 participants were randomly and equally distributed across the 6 experimental conditions.

After the experimental session ended, we measured participants numeracy and their environmental values by respectively the Lipkus' scale and the Dunlap and Liere's New Environmental Paradigm scale (NEP).

3. Results and discussion

50% of participants were female. Their mean NEP value was 3.8. The percentage of participants who correctly responded to the numeracy test was the following: 41% (0-6 correct answers out of 8), 28% (7 correct answers out of 8), and 31% (8 correct answers out of 8). The age of participants was roughly equally distributed across three intervals: 30% (21-28 yrs.), 35% (29-44 yrs.) and 35% (over 44 yrs.).

Our hypothesized mediation model predicts that the presence (vs. absence) of a Social Referent (neighbour or friend) and the presence (vs. absence) of a disapproving Emoji would make the participant feel guiltier (Path A) which in turn would favour (Path B) intended sustainable behaviours (e.g., the decision and the amount of intended energy-consumption reduction). Thus, a statistically significant indirect effect of guilt on both sustainable behaviours (Path A by Path B) should be found.

To test the indirect effect of guilt on sustainable behaviours we ran a simple mediation analysis by using Hayes PROCESS SPSS macro (Version 4.2, Model 4). We run six simple mediations analyses. Three analyses related to the decision to decrease the energy-consumption ("Decision task". Factors: Neighbour, Friend and Emoji), and three analyses related to the estimated amount of energy consumption decrease ("Estimate task". Factors: Neighbour, Friend and Emoji). The indirect effect found in three analyses for the Decision task are reported below.

Neighbour: The indirect effect of Neighbor to Decision was tested by a bootstrapping analysis. The indirect effect (I.E.=.441) was statistically significant: 95% C.I. (.180, .813). As predicted, the Social Referent neighbor caused the participant to feel guiltier, which in turn favored the decision to reduce energy-consumption. A direct effect of Neighbor on Decision was also reported (Path C'). This finding suggests that the effect of Neighbor on the decision to reduce energy consumption is only partially mediated by guilt, and that Neighbor has some additional effect on Decision that is not mediated by guilt.

Friend: The indirect effect of Friend to Decision was tested by a bootstrapping analysis. The indirect effect (I.E.=.263) was statistically significant: 95%C.I. (.022, .560). As predicted, the Social Referent Friend caused the participant to feel guiltier which in turn favored the decision to reduce energy-consumption. No statistical direct effect of Friend on Decision is reported (Path C'). This finding suggests that the effect of Friend on the decision to reduce energy-consumption is fully mediated by guilt.

Emoji: The indirect effect of Emoji on Decision was tested by a bootstrapping analysis. The indirect effect (I.E.=.270) was statistically significant: 95% C.I. (.052, .557). As expected, the presence of the Emoji caused the participant to feel guiltier which in turn favored the decision to reduce energy consumption. No statistical direct effect of Emoji on Decision is reported (Path C'). This finding suggests that the effect of Emoji on the decision to reduce energy-consumption is fully mediated by guilt.

The indirect effect found in three analyses for the Estimate task are reported below.

Neighbour: The indirect effect of Neighbor to Estimate was tested by a bootstrapping analysis. The indirect effect (I.E.=-2.044) was statistically significant: 95% C.I. (-3.595, -.727). As predicted, the referent Neighbor caused the participant to feel guiltier which in turn increased the estimated amount of energy-consumption reduction. No statistical direct effect of Neighbor on Estimate is reported (Path C'). This finding suggests that the effect of Neighbor on Estimate is fully mediated by guilt.

Friend: The indirect effect of Friend to Estimate was tested by a bootstrapping analysis. The indirect effect (I.E.=-1.218) was statistically significant: 95%C.I. (-2.453, -.053). As predicted, the Social Referent Friend caused the participant to feel guiltier which in turn increased the estimated amount of energy-consumption reduction. No statistical direct effect of Friend on Estimate is reported (Path C'). This finding suggests that the effect of Friend on the Estimate is fully mediated by guilt.

Emoji: The indirect effect of Emoji to Estimate was tested by a bootstrapping analysis. The indirect effect (I.E.=-1.10) was statistically significant: 95% C.I. (-2.305, -.174). As predicted, the Emoji caused the participant to feel guiltier which in turn favored a greater intended reduction of energy consumption. No statistical direct effect of Emoji on Estimate is reported (Path C'). This finding suggests that the effect of Emoji on Estimate is fully mediated by guilt.

As predicted, in all six mediation analyses an indirect effect of guilt on intended sustainable behaviours (both for the Decision and Estimate tasks) was found. Said differently, the presence of the Social Referent (Neighbour or Friend) and the Emoji made the participant feel guiltier (Path A) which in turn favoured the decision to reduce energy-consumption, and its estimated amount (Path B). The result is congruent with the hypothesized guilt-avoidance mechanism (see, for example, Jacobson et al., 2021 and McCarty, 2024).

These findings have theoretical implications, particularly in understanding how abstract concepts like environmental conservation can be internalized through emotions like guilt. The study anchors itself in the broader psychological discourse, where emotions are increasingly acknowledged as catalysts for behavioural change.

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BY CREATING A LIFE, I AM PUTTING MINE IN JEOPARDY: EXPERIENCES AND FEELINGS OF WOMEN SUFFERING FROM THE LEIDEN MUTATION, AND THEIR PARTNERS, WITH BECOMING PARENTS

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Abstract

Background: The Leiden mutation, one of the most frequently diagnosed thrombophilias, is supposedly connected to increased risk of thrombosis during pregnancy and other pregnancy-related complications, including recurrent pregnancy loss, preeclampsia or excessive postpartum haemorrhage. As of to date, scholarly sources have not yet proven a direct causal relation between the Leiden mutation and pre-, peri- or postnatal complications. The study aimed to explore how women diagnosed with the Leiden mutation, together with their partners, experienced pregnancy-related complications in different phases of gestation, what emotions they felt and which coping strategies they utilised.
Method: A pilot qualitative exploratory study was conducted using semi-structured interviews. The data were analysed using Interpretative Phenomenological Analysis (IPA).
Findings: In the research sample (N=4, F=3, M=1, m = 36), which included one heterosexual couple, a variability in experiencing and feelings based on the course of pregnancy, frequency and severity of pregnancy complications was identified, including: lack of information about potential risks, trivialization of the diagnosis, fear of losing the baby, distrust in the prophylactic treatment or fear of harming the baby with the treatment. Social support and relationship satisfaction were recognised as key protective factors for the mental health of female participants, whereas emotional instability and maladaptive coping strategies, particularly depressive tendencies, emerged as significant psychological risks. For the male participant, a rational and pragmatic way of thinking functioned as a protective factor.
Conclusion/Impact: The results of this exploratory study provided a unique insight into the underexplored phenomenon of experiencing pregnancy complications while being diagnosed with the Leiden mutation. The findings may be beneficial for future psychological research and clinical practice not only in the Czech Republic.

Keywords: *Leiden mutation, pregnancy complications, feelings, experiences, protective and risk factors.*

1. Introduction

The Factor V Leiden (FVL) mutation is one of the most commonly inherited thrombophilias, particularly in its heterozygous form, and is associated with a five- to eight-fold increased risk of venous thromboembolism (VTE) during pregnancy compared to women without this mutation (Gerhardt et al., 2016). The risk is even higher in homozygous carriers. However, a direct causal relationship between FVL and pregnancy complications remains inconclusive. Scholarly sources suggest that the inconsistent findings may be influenced by racial and geographic variability in the prevalence of the FVL mutation (Arachchillage et al., 2022). The absence of clear and consistent guidelines regarding screening criteria, diagnostic procedures, and anticoagulation treatment may increase patient anxiety, reduce adherence to therapy, and undermine trust in medical care (Hunter et al., 2017). This study aimed to explore the lived experiences and feelings of women diagnosed with FVL and their partners across the prenatal, perinatal, and postnatal phases of pregnancy, and to identify related psychological risk and protective factors, as well as coping strategies that support mental stability and psychological well-being.

2. Methods

To capture internal psychological processes such as feelings, emotional responses, and lived-through situations, and their impact on personality (de)evolvement, this pilot study employed a qualitative design using semi-structured interviews. Triangulation was originally intended through

individual and joint couple interviews, but was instead realised through analysis by two independent researchers due to limited male participation.

2.1. Research sample, data collection and ethical aspects

Participants were recruited through purposive sampling. Eligibility criteria included: women with a diagnosis of Factor V Leiden (either type) and an experience of a non-standard pregnancy, labour, or puerperium within the past three years. In total, the sample consisted of three female participants and one male participant, two of whom formed a married heterosexual couple. Data were collected through online semi-structured interviews. All participants provided informed consent for the interviews and were informed of their right to withdraw at any time or skip any questions they found uncomfortable.

2.2. Data analysis

To fulfil the study's objectives focused on lived-through experience and feelings, Interpretative Phenomenological Analysis (IPA) was employed to examine participants' emotions and understand how they made sense of their experiences, following the analytic procedure by Smith and Nizza (2021).

3. Results

The experiences of women diagnosed with Factor V Leiden were shaped by the course and severity of pregnancy complications. Common themes included insufficient medical attentiveness, trivialisation of the diagnosis, and a lack of information (shown in Table 1, Themes 3a–3d). For two participants, assisted reproduction and the fear of not being able to have children were central themes. In one case, this fear profoundly affected her identity and led to depression. Another participant's experience was shaped by the challenges of prophylactic treatment, including distrust in anticoagulants, discomfort with self-administration of LMWH, and fear of harming the baby.

Table 1. Cross-theme analysis - female participants.

Group Experiential Themes	Zoe	Leah	Ellen
Theme 1. Being diagnosed with the Leiden mutation	x	x	x
Theme 1a. Prior knowledge	x	x	x
Theme 1b. Learning about FVL	x	x	x
Theme 2. Navigating the fertility challenges	x		x
Theme 2a. Being on the IVF rollercoaster	x		x
Theme 2b. Becoming a mother	x		
Theme 2c. Contemplating the possibility of not being able to have a child	x		x
Theme 2d. Being depressed	x		
Theme 3. Experiencing Factor V Leiden mutation during pregnancy	x	x	
Theme 3a. Factor V Leiden mutation and pregnancy complications	x	x	x
Theme 3b. Experiencing Factor V Leiden mutation during pregnancy – (Lack of) Medical attentiveness	x	x	x
Theme 3c. Experiencing Factor V Leiden mutation during pregnancy – Power of knowledge	x	x	x
Theme 3d. Prophylaxis		x	
Theme 4. Birth	x	x	x
Theme 5. Postdelivery – complications		x	x
Theme 6. Puerperium		x	
Theme 7. Summary of the overall experience	x	x	x
Theme 7a. Overall experience	x	x	x
Theme 7b. Risk and Protective Factors - Statements Synthesis and Observations	-	-	-
Theme 7c. I would have appreciated	x	x	x

Despite the emotional and physical challenges they encountered, all three women ultimately evaluated their experiences positively, largely due to the outcome of having a healthy child or children. However, their reflections also revealed ongoing needs for a more patient-centred medical approach, access to consistent and reliable information, and better availability of psychological or peer-based support. Social and partner support emerged as key protective factors, while emotional vulnerability, rigid thinking, and limited support posed risks to their well-being.

In spite of having a medical background and trusting in healthcare professionals, the male participant emphasised the value of concise, accessible information about Factor V Leiden and its associated risks to the wider population. He also mentioned preparing a backup plan in case of unexpected complications and described feeling relieved when the postpartum bleeding resolved without intervention. His pragmatic approach and emotional detachment appeared to serve as protective factors for his

psychological well-being. However, this emotional detachment also posed a potential risk of disconnection from his partner.

The couple's interview revealed that navigating complications related to FVL strengthened the relationship, enhanced communication, and fostered couple resilience. While the male participant coped through pragmatism and conversations with a friend, the female participant sought connection through online stories of women with similar experiences. These findings highlight the importance of recognising the shared emotional dynamics of couples facing pregnancy complications.

4. Discussion

Most research on Factor V Leiden (FVL) and pregnancy complications is medically oriented, offering limited psychological insight. This study revealed insufficient communication and information related to FVL, aligning with conclusions by Hunter et al. (2017), who found that unclear or missing information from healthcare providers contributed to anxiety, hypervigilance, and distrust in care. One participant's discomfort with anticoagulant use and concern about harming the baby was consistent with the results of León-García et al. (2022), where women prioritised fetal safety over their own. Female participants also reported emotional distress and depressive symptoms, consistent with studies by Voss et al. (2020), who observed greater psychological vulnerability in women experiencing recurrent pregnancy loss. Social and partner support emerged as key protective factors for female participants' mental health (Voss et al., 2020), alongside optimism and goal orientation. For the male participant, pragmatism and social support appeared beneficial; however, emotional detachment also posed a relational risk, as also presented by Ruderman et al. (2020).

The limitations of this study included an insufficient theoretical saturation, insufficient male representation, limited theoretical frameworks - particularly in defining psychological terms, challenges in interview quality and IPA analysis, and possible loss of meaning in translation.

5. Conclusions

This study explored the lived experiences, emotional processes, and coping strategies of women diagnosed with Factor V Leiden and their partners during atypical pregnancies. Participants reported that the diagnosis was often underestimated and noted a lack of clear information, potentially endangering both mother and child. Social and partner support were key protective factors, while depression posed a major psychological risk. These findings may contribute to improving communication practices, tailoring psychological care, and encouraging the development of peer support groups. Future research could examine how women on prophylactic treatment navigate labour decisions, particularly regarding perceived risks such as postpartum haemorrhage.

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PRIMARY PREVENTION OF ONCOLOGICAL DISEASES AMONG YOUNG ADULTS IN THE CZECH REPUBLIC: A PILOT STUDY

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Abstract

Cancer remains a major public health challenge, with incidence rates continuing to rise despite advances in diagnostics and treatment. As a substantial proportion of cancer cases is considered preventable, primary prevention and cancer-related health literacy are particularly important in young adulthood, a period when long-term health behaviors are formed. The aim of this pilot study was to map the level of health literacy, awareness of cancer and its symptoms, and knowledge of preventive strategies including awareness of human papillomavirus (HPV) among young adults in the Czech Republic. The study employed an exploratory quantitative design based on a one-time questionnaire survey. The first part of the survey collected demographic data and explored previous health education in the family, the presence of health-oriented role models, and respondents' self-assessment of healthy lifestyle adherence. Three validated instruments were used: the Cancer Awareness Measure (CAM), the Health Literacy Survey 2019 (HLS19-Q12), and the HPV Knowledge Measure. The research sample included 164 participants aged 18–30 years (M = 22.48, SD = 2.13), comprising 106 women (64.2%) and 58 men (35.2%). The results showed a generally low level of health literacy, with 44.3% of respondents categorized as having inadequate and 32.9% as problematic health literacy. Gender differences emerged in lifestyle behaviors: women demonstrated greater adherence to healthy eating and sufficient sleep, while men reported higher engagement in physical activity. Respondents showed limited awareness of cancer and its symptoms, as well as very low knowledge of HPV-related risks and prevention. Identified barriers to seeking medical help included embarrassment, lack of time, and fear of diagnosis. This study highlights critical gaps in cancer-related health literacy and prevention awareness among young Czech adults, emphasizing the need for targeted, gender-sensitive educational campaigns and comprehensive public health interventions aimed at strengthening primary prevention efforts.

Keywords: *Health literacy, primary prevention, risk factors, oncological diseases, young adulthood.*

1. Introduction

Cancer has increasingly come to the forefront of public health discussions due to its rising incidence and substantial societal impact. Despite progress in diagnostics and treatment, incidence continues to rise, placing a growing burden on individuals and healthcare systems. As 30–50% of cancer cases are preventable (Soerjomataram & Bray, 2021), the role of primary prevention is therefore particularly significant, as it targets behavioral and environmental risk factors while promoting protective health behaviors. These considerations are especially relevant in young adulthood, a key yet often overlooked period for prevention, during which individuals gain increasing independence, establish long-term health habits, and frequently engage in risky behaviors while making limited use of preventive services (Daw et al., 2017; Harris et al., 2006).

The present study examines health literacy, cancer awareness, and HPV-related knowledge among young adults aged 18–30 in the Czech Republic, with the aim of identifying key informational gaps that may support the development of targeted preventive strategies.

2. Method

The study employed a quantitative, exploratory, one-time questionnaire design. The sample consisted of 164 young adults aged 18–30 (M = 22.48, SD = 2.13); 106 were women (64.2%) and 58 men (35.2%). Inclusion criteria were Czech nationality and age within the specified range. Participants were recruited online through convenience and partial snowball sampling.

Data were collected via an online questionnaire comprising demographic items and three validated self-report measures. Cancer awareness was assessed using the Cancer Awareness Measure (CAM), covering warning signs, risk factors, screening awareness, and help-seeking barriers. In addition to general domains, the CAM also includes items targeting awareness of specific high-incidence cancers, such as breast, prostate, and colorectal cancer (Cancer Research UK, 2008). The measure was translated and culturally adapted to the Czech sociocultural context using a forward–backward translation procedure. Health literacy was measured with the 12-item Health Literacy Survey 2019 (HLS19-Q12; HLS19 Consortium of the WHO Action Network M-POHL, 2021). Knowledge of HPV, HPV testing, and vaccination was examined using the HPV Knowledge Measure (Waller et al. 2012), which was also translated and linguistically validated.

Participants were informed about the study aims, anonymity, and their right to withdraw. Data were analyzed using descriptive statistics, independent samples t-test for gender comparison, and frequency-based content analysis for open-ended responses.

3. Results

Most participants reported having been encouraged to follow a healthy lifestyle in their family (79.3%) and having at least one close person who adheres to healthy habits (90.2%). Women more frequently reported sufficient sleep and adherence to healthy eating habits, while men more commonly reported regular engagement in physical activity.

3.1. Health literacy

Of 164 participants, 133 provided complete data. The mean health literacy score was M = 50.93 (SD = 9.69). Following HLS19-Q12 criteria (Pelikan et al., 2022), 43.3% were classified as inadequate and 32.9% as problematic, while only 4.9% showed sufficient health literacy. Another 18.9% could not be categorized due to frequent non-responses. The most difficult items concerned finding information on managing psychological problems and locating professional help, rated as difficult or very difficult by over 70% of respondents.

Gender differences in health literacy were examined using an independent samples t-test after checking normality with the Shapiro–Wilk test. Men scored slightly higher (M = 52.97, SD = 10.74) than women (M = 49.86, SD = 8.97), but the difference was not statistically significant, $t(131) = 1.77$, $p = .078$, Cohen's d = 0.32.

3.2. Cancer awareness

Knowledge varied across CAM domains. Awareness of common warning signs was relatively high, whereas less salient symptoms produced greater uncertainty. Participants correctly identified breast cancer as most common in women, but fewer recognized prostate cancer as most common in men. Screening awareness was highest for breast and cervical cancer, but fewer than half knew about colorectal cancer screening.

Help-seeking intentions indicated potential delays: 56.7% of respondents would wait longer than one week before consulting a doctor for a potentially serious symptom. Barriers were assessed with the CAM help-seeking subscale, using a four-point response scale ("yes, often"; "yes, sometimes"; "no"; "don't know"). The most frequently endorsed obstacles were "having too many other things to worry about" (18.9% "yes, often", 40.2% "yes, sometimes"), embarrassment (14.0% "yes, often", 34.1% "yes, sometimes"), and fear of diagnosis (23.2% "yes, sometimes"). These patterns suggest that psychological rather than practical factors are the main obstacles to timely help-seeking.

3.3. Knowledge of HPV

HPV knowledge was generally low, with a mean correct response rate of 39.63%. Following the approach of Breitkopf et al. (2016), scores at or above the 75th percentile (≥ 68.97% correct answers) were classified as high knowledge. Only 25.6% of respondents reached this level, while 74.4% showed low HPV knowledge. Respondents frequently selected "don't know" in items concerning HPV transmission, testing, vaccination, and vaccine availability. Overall, 32.3% of the sample reported having been vaccinated against HPV.

4. Discussion and conclusion

The findings of this study indicate that young adults in the Czech Republic show generally low health literacy, with most respondents classified as inadequate or problematic. Compared with findings by

Kučera et al. (2023), the level observed here is markedly higher. Cancer awareness was uneven: while common warning signs were recognized, uncertainty remained around less salient symptoms. The CAM subscale showed that lack of time, embarrassment, and fear of diagnosis were the most common barriers, indicating psychological factors that may delay help-seeking, consistent with Tarkang and Zotor (2015). HPV-related knowledge was also low, with substantial uncertainty regarding testing, vaccination, and basic characteristics of HPV infection, which aligns with findings by Marlow et al. (2013).

These results highlight the need for clearer and more accessible preventive communication for young adults. Strengthening health literacy, improving understanding of cancer risks, and addressing psychological barriers to help-seeking may support earlier detection and healthier behavior. Tailored educational interventions, personalized approaches, and accessible preventive information could play an essential role in reducing the burden of future cancer within this age group.

However, these findings should be interpreted with caution due to the small, non-probability sample and reliance on self-report measures, which limit generalizability.

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Virtual **Presentations**



TRAUMA: HOW DO WE GET IT AND HOW CAN WE OVERCOME IT

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Abstract

The paper describes the major kinds of responses to traumatic experiences, and presents a three-stage model of progression from the event, to trauma and finally to posttraumatic response. Major treatments of traumatic responses are described, and are characterized in terms of their focus on elaborating the event or in contrast reducing contact with it. Two studies were briefly described, referring to responses to retrospective or prospective trauma. The results provided information about the factors responsible for high levels and low levels of disturbance in response to traumatic experiences, based mainly on dwelling in detail on the event and elaborating its personal connotations versus focusing on factual reports devoid of personal involvement.

Keywords: *Trauma, posttraumatic disorder, treatment, three-stage model, CBT.*

1. Introduction: The nature of trauma

Trauma is one of the most frequent and most difficult psycho-physical phenomena. According to the DSM-5 trauma occurs due exposure to real or threatened death, serious injury, or sexual violence, which involve intense fear, helplessness, or horror. It is assumed that it forms the basis for trauma-related diagnoses like Post-Traumatic Stress Disorder (PTSD). Criterion A of PTSD requires merely exposure to the event, which may be direct or indirect, i.e., hearing about it or seeing it happening to others); a trauma diagnosis also requires specific reactions to the event, including fear, helplessness, or horror; while PTSD requires subsequent symptoms like re-experiencing, avoidance, negative thinking, and hyperarousal.

The description of the event, trauma, and PTSD implies that we are dealing with a process that may have several stages. The first stage consists of exposure to the event that is identified as unusual, scaring and dangerous. Nothing much happens in addition or subsequently. The second stage consists in experiencing the event as a trauma. Trauma involves emotional reactions which consist mainly of fear, horror, shock, confusion, anxiety, denial, but the person is still able to function and take care of one's basic needs and obligations.

The third stage is identified as PTSD which involves physical symptoms (sleep disorders, nightmares, shortness of breath, sweating, trembling, digestive problems), cognitive symptoms (negative thinking and attitudes about oneself, others, the world, detachment, withdrawal from feeling positive, flashbacks), behavioral symptoms (avoidance, difficulties at work, difficulties in the family and with friends), and emotional symptoms (hyperarousal, irritability, intense startle reactions).

1.1. The inter-stage progression

Examining the described three stages implies the possibility that there may be a progression from stage 1 to stage 3. The progression consists in various respects and may be described in terms of four dimensions. The first one is in terms of the temporal interval between the occurrence of the event and the appearance of symptoms. Stage 1 occurs in direct proximity with the event, while stage 3 may occur weeks or months after the event. It may be assumed that stage 2 occurs in between direct exposure to the event in stage 1 and the occurrence of PTSD in stage 3.

The second dimension of progression is in terms of the durability of reactions or symptoms. In stage 1 the reactions disappear within minutes (up to 60 minutes) after exposure to the event; in stage 2 they may last for hours; in stage 3 they may last for weeks and months or even more.

The third dimension of progression is in terms of the range of symptoms. In stage 1 the reactions do not correspond to symptoms. In stage 2 there are symptoms and they are mainly emotional and cognitive, which means that they are relatively limited in their effect. In stage 3 the range of symptoms extends beyond the immediate emotional and cognitive boundaries to the behavioral domain which encompasses work, studies, friendships and family relations.

The fourth dimension of progression is in terms of the degree of pathology. In stage 1 there is merely experiencing but no pathology of any kind. In stage 2 there may be emotional reactions that may seem pathological, such as temporary confusion, but they do not always appear and mostly there are no further indications of pathology. In stage 3 there are definite signs of pathology insofar as the reactions overstep even the boundaries of the original by affecting wide domains of life and functioning.

The major conclusions supported by the description of the four dimensions of progression from stage 1 to stage 3 are that the stages appear sequentially in a fixed order progressing from stage 1 to stage 3; and that the progression is unidirectional and proceeds only from stage 1 to stage 3.

2. The hypotheses

The description of the inter-stage progression suggests that the progression from stage 1 to stage 3 is not absolutely necessary and can stop at any stage – stage 1 or stage 2 or stage 3, without proceeding further. This implication raises the following major questions: What are the factors which determine the progression from stage 1 to stage 2, and those that determine the progression from stage 2 to stage 3? Accordingly, the first hypothesis is that there may be one or more intervening factors that impact the inter-stage progression from stage 1 to stage 2. The second hypothesis is that there may be one or more intervening factors that impact the inter-stage progression from stage 2 to stage 3.

A further implication of the hypotheses is that when the intervening factors inhibit the progression from stage 1 to stage 2 or from stage 2 to stage 3, they may contribute to breaking or stopping the progression and may therefore be considered as protective factors.

2.1. The nature of the intervening factors

The nature of the intervening factors hypothesized for the present studies was determined on the basis of an analysis of several major studies concerning treatment of PTSD. The major type of treatment is called talking therapies, which include mainly or even exclusively CBT and its variations. This kind of therapy is based on different psychological techniques designed to help the patient to come to terms with what happened, recalling the details of the event, reducing avoidance, understanding what happened, and coping with the situation (Kar, 2011). A similar treatment is dynamic treatment based on psychoanalytic principles dwelling on the personal meanings of the trauma and hope (Levi, 2019; Paintain & Cassidy, 2018). Other kinds of treatment are based on mindfulness (Boyd, Lanius, & McKinnon, 2018; Lang, 2017), meditation (Talkowsky & Lang, 2017), social support (Jaffe, Walton, Walker, & Kaysen, 2023), physical training (Björkman & Ekblom, 1922; Li, Xia, Yu, Hu, & Zhu, 2025), the cognitive orientation approach that is based on beliefs about the self, goals and reality (Kreitler, 2014; Shiri, Wexler, Meiner, & Kreitler, 2010) or the psychological methodology of attention bias modification which consists in training shifting away from the threatening event (Alon, Azriel, Pine, & Bar-Haim, 2023).

The success of each type of treatment is assessed in terms of symptoms mostly based on self-report and the ensuing behavioral changes. All treatments lead to some degree of improvement. The best treatment seems to be CBT, possibly not only due to the major approach but also because of the wide array of skills that are being treated as adjuncts, such as identifying the patient's resources, enhancing self efficacy, applying shared decision-making, learning about trauma and ensuring the patient's safety (Wampolda et al., 2010). CBT is even better than dynamic treatment (Paintain & Cassidy, 2018). All other treatments have lower levels of success. It is however difficult to compare them due to methodological issues.

In sum, the following factors were used in the different types of studies: identifying verbally the event; discussing one's reactions of all kinds to the event, including mainly emotions; clarifying emotional complications and difficulties; making memories less distressing and vivid; learning different coping behaviors and thinking styles, - all these mainly in CBT and dynamic treatment and to some extent also in social support; doing things that help oneself to avoid the event and not think about it (mainly in meditation, mindfulness, physical training, attention modification). Another factor is cognitions and beliefs, mainly about the self, goals and reality (Shiri, Wexler, & Kreitler, 2010). However, CBT does not provide a clarification why PTSD developed or what specifically contributes to its reduction. The other treatments are more focused and their effect seems to rely mainly on distancing oneself from the event by avoiding thinking about it and thus also minimizing emotional reactions to it.

2.2. The factors and the three-stage model

Applying the identified factors to the inter-stage model shows that there are differences in regard to the three stages. In regard to stage 1, the focus is on attention to the event. According to CBT and dynamic therapy, there is a lot of attention to the event, while according to all other treatments and approaches there is less attention to the event.

In regard to stage 2, the focus is on emotions and cognitions concerning the situation. According to CBT and dynamic therapy, a great number of different kinds of emotions and cognitions are evoked and discussed concerning the traumatic situation as a whole. According to other approaches beliefs about oneself, one's goals and reality are considered. Other treatments and approaches, dwell little on specific emotions and cognitions.

In regard to stage 3, the focus is on evoking a lot of all psychological aspects – different kinds of factors are evoked, often spreading beyond the boundaries of the traumatic situation. According to CBT and dynamic therapy a great number of emotions, cognitions, and behaviors become involved, including personal experiences, goal beliefs, memories, habits, work and interpersonal relations, affecting many domains of one's life.

The expectations in regard to the two studies described in the present context were based on the following considerations: (a) the above reported findings of previous studies, (b) long-term observations of victims of traumas in survivors of the holocaust and many war veterans in Israel, and (c) focusing on the goal which was to identify the factors contributing most to preventing or weakening reactions and symptoms that may stop or reduce the progression from stage 1 to stage 2 and from stage 2 to stage 3, in contra to other approaches that apparently include also goals such as deepening understanding of the impact of the trauma and integrating the event into one's personality.

3. Study 1. Retrospective

Study 1 was designed to examine the hypotheses in terms of data collected retrospectively. The method consisted of interviewing individuals 25-38 years old who volunteered to participate in a study about their reactions to different traumatic events that have occurred in their life or to which they have been exposed, particularly during their service in the army. The interview referred to the following issues:

Table 1. The Interview in Study 1.

The examined issues	The suggested responses	The responses
(a) Identification of the event	Superficially, medium, in detail. Scores 1,2,3	The events were 39 military, 10 personal and family, 11 mixed. Mentioning briefly, short description, described a lot in great detail
(b) Preliminary reactions – their nature and amount	Emotions, cognitions. Some, medium, a lot. Scores 1, 2, 3	Anger, fear, surprise, sadness, curiosity, agitation, trembling. A little, endlessly
(c)With whom/to whom did you tell or talk about it?	Friends, colleagues; family; professional, Scores 1,2,3	Friends, colleagues, brothers, neigbors
(d) How often or how much did you talk about it?	Rarely, a little; medium; very often, a lot. Scores 1,2,3	Almost never, a lot
(e) What was the major contents of what you told the others?	Facts about the event; cognitions, thoughts and attitudes; emotions, sensations. Scores 1,2,3	Facts about how it happened, emotions, sensations
(f) If you had thoughts about the situation, what were they?	General, politics; about the enemy, the situation; about myself and how I was saved. Scores 1,2,3	Why it happened, how I survived
(g) If you had emotions about the situation, what were they?	General; about and of others; about myself. Scores 1,2,3	Emotions about others, emotions others had,
(h) How much were you bothered by the situation?	Not at all or barely; a little, medium; a lot. Scores 1,2,3	I was not bothered at all, I was scared but not all the time, I was crazy all the time
(i) For how long were you bothered by the situation after the event?	Hours, days; weeks, months; over a year. Scores 1,2,3	Just in the beginning; for some months, it never stopped
(j) Degree of disturbance by the situation. Please list or mention the disturbances	Emotions, cognitions, behaviors, disturbance at work, disturbance in studies, disturbance in relations with friends, disturbance in relations with family, physiological symptoms, disturbed sleep, nightmares, need for help. Each kind of disturbance (n=11) got a score 1-3, according to intensity	Listing of symptoms, emotions, frightening thoughts, difficulties of concentration, shaking, sweating, becoming angry and even shouting without real cause, withdrawing from social contacts, joining group therapy, sleep disorders, impatience

Method. Items (a) – (g) were scored 1 to 3. They served for identifying the causes for traumatic responses. Items (h) – (j) served for diagnosing the traumatic state of the individual, i.e., stage 2 or 3. Items (h) and (i) were scored 1-3, item (j) included 11 disturbances each of which was scored 1-3, so that the total was 1-33. Summing up the indicators of traumatic state, i.e., the scores for items (h) - (j) ranged from 13 (2-11) to 39 (6+33). The total range 13-39 was divided into three parts, each comprising 8.6. Thus, stage 1 was defined by the range of 13-21.6; stage 2 was defined by the range of 21.6-30.2; and stage 3 was defined by the range of 30.2-38.8.

Results. In terms of their scores (in items h-j), 53% (n=32) of the subjects were in stage 1, 21%(n=13) were in stage 2, and 25% (N=15) were in stage 3. The next issue that was analyzed was to identify the variables out of those in the list of (a) – (g) which were correlated with the degree of disturbance. For this purpose, a comparison was done between the means of the high and low scores in stage 1 in each of the items (a)- (g). The same procedure was repeated for the high and low scorers in stage 2, and again separately for the high and low scorers in stage 3. The results showed that the subjects who were in stage 1, scored high in short descriptions of the event (a), few and short preliminary responses (b), spoke about the event mainly to friends (c), and focused mainly on facts (d). The subjects who were in stage 2, score high in talking a lot about the event (a), in having varied and intense emotional preliminary reactions (b), in talking with many people including family, friends and colleagues (c), in talking very often (d), in telling others about the details of the situation in which the event happened (e), in thinking how bad the situation was and how many others have been hurt (f), about the emotions of others who were hurt or could have been hurt (g). The subjects who were in stage 3 spoke a lot and in great detail about the event and its context and similar events (a), , had many varied emotional reactions that recurred (b), spoke a lot with family, friends, colleagues, professional therapists, neighbors, strangers, spoke sometimes compulsively (c), spoke a lot sometimes endlessly but there were pauses (d), mainly emotions of others and those evoked by the situation (e), about what has happened and could happen to oneself due to what happened (f), about myself, how my life changed and will never again be the same as it was, emotions of oneself and one's life (g).

Conclusions. About a quarter of the sample had symptoms and reactions corresponding to PTSD. Comparing the responses of those in stage 3 with the responses of those in stages 1 and 2 indicated that a main difference seemed to be that those in stage 3 dwelt more on what has happened to them and could have happened to them, mainly physically, and on the self-related emotions. Also, their descriptions of the event were much more detailed.

4. Study 2. Prospective

The objective of study 2 was to examine the hypotheses in a prospective study. The study was performed in the course of the Israel-Iran 12 days war which occurred in 13-24 of June, 2025 (called Am-Kelavi). The subjects were recruited through the social media and by direct contact in a public shelter in Tel-Aviv. The participants were 30 individuals who experienced 3-5 missile attacks. The event consisted in experiencing the missile attacks by Iran while they stayed in a public shelter. The subjects were interviewed immediately after the war ended, on 24-28 of June. The questions used in the interview were the same as in study 1. The subjects consented to be contacted again after two-three months.

The results in the first phase of interviewing showed that 70% (n=21) of the subjects were highly disturbed, judging by the mean scores of their responses to items (h)–(j). Comparing their responses to those of the other subjects who scored low on disturbance show significant differences in their responses to items a,d,e,f,g. The responses to these items indicate that the highly disturbed subjects told in greater detail about each missile attack (a), spoke about their experiences a lot and very often (d), spoke mainly about physiological and psychological responses they and others had, emphasizing emotions and sensations (e), told about their thoughts, attitudes and expectations that the situation will become much worse in the future (f), and dwelt especially on emotions referring to themselves – comparing themselves to the soldiers in the front in terms of danger and afflicted harm (g).

In September 2025, the same subjects were contacted by phone, based on their prior agreement to be interviewed again. They were interviewed again with the same questions of items a-j. The sample included 22 highly disturbed subjects (73.3%), based on their scores in items (h) –(j), These 22 subjects included 16 who were highly disturbed also in the first phase of interviewing and 7 subjects who in the first phase of interviewing scored low on disturbance. Comparing the subjects who scored high on disturbance (n=22) with those who scored low (n=8) showed that the main differences concerned items a, b, e, f, g. The subjects with high disturbance described in great detail the event, emphasizing the minutest aspects (a), and their initial reactions, combining responses to items (a) and (b), spoke a lot (to whoever was ready to listen) about the frightening emotions and reactions of everyone around (e), welling mainly on physical sensations (e), negative thoughts (f), and emphasizing the personally relevant impact on themselves in all respects- their body, career, work, health, life plans and family relations. Five subjects planned to leave

their work and 3 more planned to emigrate to another country for an indefinite period of time. The low scorers were characterized by focusing on facts, political implications, analyses of present and future military developments and what has been learned from the war with Iran, and the impressions of the other people whom they have met in the public shelter.

5. Some general conclusions

In the two retrospective and prospective studies between 25% and 50% of the subjects had scores indicating high disturbance in the range close to PTSD. One indication of these results is that not all subjects exposed to a serious trauma develop a response that resembles PTSD and as our findings show even if they do start a development along these lines they may still retreat. The progression to the level of high disturbance depends on two major factors. The first is dwelling in detail on the event, elaborating it, widening its context in terms of time and place, comparing it to other similar events, reporting it to new listeners, adding new details, dwelling on it as often as possible. The second factor consists in emphasizing one's deep personal involvement in the event and its effects on one's health, emotions, thoughts, behavior, work and family. The subjects scoring high on disturbance due to the trauma consider themselves as having been harmed deeply, hopelessly and irrevocably by exposure to the trauma. They feel as if they were physically harmed and could deteriorate in the future. Hence, in order to save and guard themselves they consider even immigrating from the country so as to distance themselves from the location of the trauma.

The subjects who did not score high on disturbance talked briefly about the facts concerning the traumatic event, described briefly the reactions of others, did not report any personal effects but dwelt on political causes, results, implications and expected developments. Notably, both elaborating the event and withdrawing from it were used as major factors in the most common therapeutic treatments of traumatic responses. The therapeutic recommendations are to encourage the individuals to focus on brief reports of the event, based on impersonal facts rather than on emotions and thoughts reflecting personal effects.

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UNPACKING THE LONGITUDINAL INTERPLAY BETWEEN EMOTIONAL ABUSE, FAMILY DYSFUNCTION AND DEPRESSION IN ADOLESCENTS

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Abstract

Adolescence represents a sensitive developmental period, during which individuals are particularly vulnerable to the long-term effects of adverse interpersonal experiences. Within this context, family dynamics and early emotional experiences play a pivotal role in shaping psychological adjustment and mental health outcomes. Emotional abuse (EA), in particular, has been consistently linked to increased risk for depressive symptoms (DS), yet the mechanisms through which it influences adolescent mental health over time remain insufficiently understood. To address these gaps, the present longitudinal study examined the temporal associations among EA, family function (FF), and DS across three time points spanning one year. Data were collected at baseline, six months later, and twelve months later from a large community sample of 1,887 Italian adolescents (mean age = 15.44 years, SD = 1.09). EA was measured using the EA subscale of the Childhood Trauma Questionnaire–Short Form, FF was assessed via the General Functioning Subscale of the McMaster Family Assessment Device, and DS was measured with the depression subscale of the Depression Anxiety Stress Scales–21. Structural equation modeling was used to investigate bidirectional relationships and potential mediation effects, which showed excellent fit to the data ($\chi^2(312)=462.401$, $p<.001$; $\chi^2/df=1.482$; CFI=.996; RMSEA=.016, 90% CI [.013–.019]; SRMR=.017). The results revealed that EA at T1 and T2 significantly predicted both FF and DS at T2 and T3, respectively. FF at T1 and T2 significantly predicted DS at T2 and T3, respectively. FF did not predict EA, and DS did not predict either EA or FF. Mediation analyses indicated that EA at T1 indirectly influenced DS at T3 through its effects on EA, FF and DS at T2. Similarly, FF at T1 indirectly predicted DS at T3 via FF and DS at T2, but not through EA at T2. Finally, DS at T1 showed no indirect effects on DS at T3. Taken together, these findings underscore the central role of FF as a key mechanism linking EA to the development of DS during adolescence. From a clinical and preventive standpoint, the results highlight the importance of early identification of emotionally abusive experiences and the implementation of interventions aimed at fostering supportive family environments, enhancing communication, and promoting adaptive emotional relationships. Strengthening FF during adolescence may be particularly critical for mitigating the long-term risk of DS and promoting psychological resilience.

Keywords: *Emotional abuse, family functioning, depression, adolescents, longitudinal study.*

1. Introduction

Adolescence is a sensitive developmental period marked by heightened emotional reactivity, changing social relationships, and the formation of core personality traits (Best & Ban, 2021; Chen et al., 2023). Supportive family environments, characterized by emotional recognition, open communication, and stress management, are crucial for resilience, identity formation, and coping, whereas suboptimal family functioning (FF) increases vulnerability to psychological distress (Best & Ban, 2021). Emotional abuse (EA), including verbal attacks, manipulation, humiliation, and withholding support, has been linked to lower self-esteem, reduced emotional security, heightened risk for anxiety, depression, shame, and chronic helplessness, and disturbances in family relationships (Cohen & Thakur, 2021; Rost, Gossmann, Fegert, Ziegenhain, & Köhler-Dauner, 2024). Poorer FF, including low emotional support, persistent conflict, or inconsistent parenting, can exacerbate these risks, limiting adolescents' coping abilities and promoting persistent depressive symptoms (DS) (Huang, Hu, Yao, & Peng, 2022). Adolescent depression is a growing public health concern, with prevalence rising faster than in adults, often manifesting in fatigue, appetite changes, and insomnia (Daly, 2022). Cognitive and family systems models suggest that EA undermines

family cohesion and communication, reducing emotional support and reinforcing maladaptive beliefs and coping strategies, which increase vulnerability to DS over time (Chen, Wang, & Yang, 2023; Feeny et al., 2009). Based on this framework, FF may act as a mediator between EA and adolescent depression, highlighting the need for longitudinal research to clarify temporal pathways linking early family adversity to depressive outcomes.

1.1. Objectives

Using a three-wave longitudinal design, this study examined temporal associations among EA, FF, and DS in adolescents to better understand DS trajectories. Although prior research links EA and FF to adolescent mental health, longitudinal evidence on their interplay and the mediating role of FF is limited. We investigated temporal relationships between (1) EA and FF, (2) EA and DS, and (3) FF and DS, and tested mediation pathways to clarify how EA and FF contribute to adolescent DS (see Figure 1).

2. Method

2.1. Participants and procedures

The study recruited adolescents aged 14–17 from North, Central, and South Italy using a three-wave longitudinal design over one year (T1: Nov 2023, T2: May 2024, T3: Nov 2024). Data were collected via a 15-minute online survey on Google Forms by 30 trained research assistants (10 per region) in collaboration with schools. Informed consent was obtained from adolescents and their legal guardians. At T1, 1,887 of 1,979 eligible students participated (95.4% response rate), with retention rates of 93.7% at T2 and 91.7% at T3. The study adhered to the Declaration of Helsinki and Italian Association of Psychology (AIP) ethical standards, with formal approval obtained.

2.2. Measures

2.2.1. Emotional abuse. EA was measured using the Italian version of the EA subscale of the Childhood Trauma Questionnaire-Short Form (CTQ-SF) (Sacchi, Vieno, & Simonelli, 2018), comprising five items rated on a 5-point Likert scale (1 = never true, 5 = very often true), with higher scores indicating greater abuse. Internal consistency across waves was high (α = .87–.89).

2.2.2. Family functioning. FF was assessed with the Italian version of the General Functioning Subscale of the McMaster Family Assessment Device (FAD) (Roncone et al., 1998), consisting of 12 items rated on a 4-point Likert scale (1 = strongly agree, 4 = strongly disagree), with higher scores reflecting poorer FF. Reliability was strong across waves (α = .90–.91).

2.2.3. Depression. The Italian adaptation of the Depression Anxiety Stress Scales-21 (DASS-21) (Bottesi et al., 2015) was administered using only the depression subscale, which consisting of seven items rated on a 4-point Likert scale (0 = did not apply, 3 = applied very much/most of the time), with higher scores indicating more severe DS. Internal consistency was high across waves (α = .87–.88).

2.3. Data analysis

Statistical analyses were conducted using SPSS and RStudio. Descriptive statistics and Pearson correlations were first calculated to examine demographic and linear relationships across T1–T3. A three-wave SEM approach was used to examine autoregressive and cross-lagged paths, with sex included as a covariate. Residuals were allowed to correlate within waves, and a parceling strategy grouped items into three indicators per latent construct to reduce measurement error. Maximum likelihood estimation and FIML handled missing data, with model fit evaluated using χ^2, χ^2/df (<3), CFI (≥.90), RMSEA (≤.10), and SRMR (≤.08). Mediation analyses were exploratory within the SEM framework, with EA and FF at T1 as predictors, all T2 constructs as potential mediators, and DS at T3 as the outcome. Six indirect paths were tested, controlling for sex, autoregressive and cross-lagged paths, and within-wave residuals. Indirect effects were estimated using bias-corrected bootstrap (5,000 iterations).

3. Results

3.1. Preliminary analyses

Table 1 summarizes descriptive statistics for all study variables across the three waves, including participant demographics and the means and standard deviations for each variable at every time point.

Table 1. Descriptive statistics of the variables.

	Time 1 (*N* = 1.887)	**Time 2 (*N* = 1.769)**	**Time 3 (*N* = 1.622)**
	%	**%**	**%**
Sex			
Boys	49.8	49.8	49.9
Girls	50.2	50.2	50.1
Gender Identity			
Cisgender Girls	47.3	47.0	47.4
Cisgender Boys	42.7	43.1	42.8
Transgender Girls	2.4	2.3	2.3
Transgender Boys	4.5	4.4	4.3
Non-Binary	3.1	3.2	3.2
Ethnicity Identity			
Asian	4.6	4.7	4.5
Black	8.7	9.1	9.0
Latinx	5.5	5.4	5.7
Multi-ethnic	7.3	7.3	7.2
White	73.9	73.5	73.6
Maternal Education			
Elementary School	22.2	22.6	22.4
Middle School	33.3	33.2	33.6
High School Diploma	32.6	32.5	32.4
Bachelor's Degree	8.3	8.0	7.9
Postgraduate Degree	3.6	3.7	3.7
Paternal Education			
Elementary School	21.0	21.5	21.1
Middle School	31.3	31.0	31.4
High School Diploma	35.5	35.2	35.0
Bachelor's Degree	10.4	10.5	10.6
Postgraduate Degree	1.8	1.9	1.9
Variable	**M (SD)**	**M (SD)**	**M (SD)**
EA	9.22 (4.07)	9.23 (4.08)	9.36 (4.16)
FF	24.29 (10.10)	24.26 (10.20)	24.41 (9.46)
Depression	5.04 (3.31)	5.10 (3.61)	5.19 (3.41)
Age	15.44 (1.09)	-	-

Note. EA = Emotional Abuse; FF = Family Functioning; T1 = Time 1; T2 = Time 2; T3 = Time 3.

Table 2 shows the correlations among the study variables. Pearson analyses indicated moderate and stable associations between EA, FF, and DS across the three waves (r = .27–.62). Cross-variable correlations demonstrated consistent, significant relationships at each time point, supporting the hypothesized links among the constructs.

Table 2. Descriptive analyses and correlations.

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. EA T1	-								
2. EA T2	.61*	-							
3. EA T3	.55*	.62*	-						
4. FF T1	.41*	.32*	.28*	-					
5. FF T2	.36*	.38*	.29*	.58*	-				
6. FF T3	.33*	.34*	.36*	.44*	.55*	-			
7. Depression T1	.42*	.33*	.27*	.40*	.32*	.28*	-		
8. Depression T2	.39*	.42*	.34*	.38*	.41*	.32*	.45*	-	
9. Depression T3	.36*	.36*	.38*	.35*	.36*	.40*	.35*	.40*	-

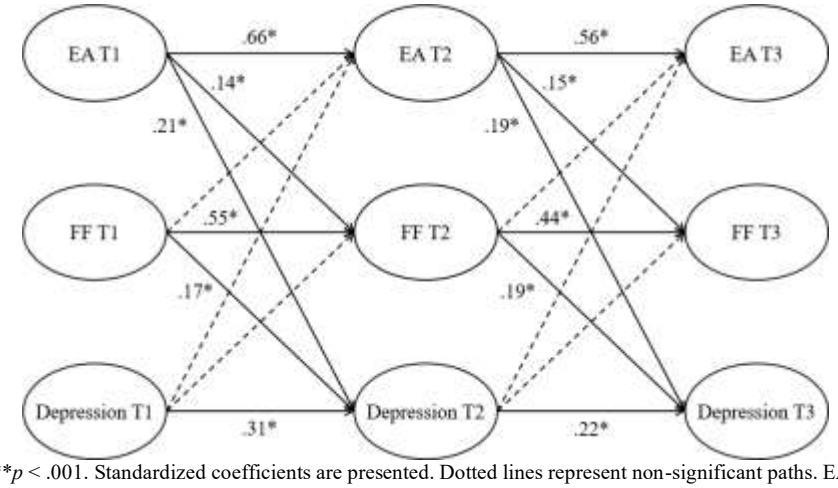
Note. $p < .01$. EA = Emotional Abuse; T1 = Time 1; T2 = Time 2; T3 = Time 3.

3.2. Three-wave SEM analysis

The model fit was excellent: $\chi^2(312) = 462.401$, $\chi^2/df = 1.482$, CFI = .996, RMSEA = .016, SRMR = .017. T1 EA predicted poorer FF and higher DS at T2; T2 EA predicted poorer FF and higher DS at T3. FF at T1 and T2 predicted higher DS at subsequent waves. No paths from FF → EA or

DS → EA/FF were observed. Within-wave residual covariances were positive and significant across all waves (all $p < .001$), supporting meaningful cross-sectional relationships.

Figure 1. Three-wave SEM model.



Note. *$p < .01$, **$p < .001$. Standardized coefficients are presented. Dotted lines represent non-significant paths. EA = Emotional Abuse; T1 = Time 1; T2 = Time 2; T3 = Time 3. Parcels and mediation effects are not shown for clarity purposes.

3.3. Mediation effects

Six indirect paths were tested using bias-corrected bootstrap (5,000 iterations), controlling for sex, autoregressive, cross-lagged, and residual correlations. Significant indirect effects included:

- T1 EA → T2 EA → T3 DS ($\beta = .13$, $p < .001$);
- T1 EA → T2 FF → T3 DS ($\beta = .03$, $p < .001$);
- T1 EA → T2 DS → T3 DS ($\beta = .05$, $p < .001$);
- T1 FF → T2 FF → T3 DS ($\beta = .10$, $p < .001$);
- T1 FF → T2 DS → T3 DS ($\beta = .04$, $p < .001$).
- T2 EA did not mediate the FF → DS pathway ($\beta = .01$, $p = .25$), consistent with SEM findings. Overall, these effects suggest incremental, temporally consistent influences of EA and FF on DS.

4. Discussion

The findings provide new insights into the longitudinal interplay among EA, FF, and DS in adolescents. EA was longitudinally associated with higher DS, consistent with prior research linking verbal abuse, manipulation, and humiliation to lower self-esteem and emotional insecurity (Chen et al., 2023; Ness, 2023; Reich & Schatzberg, 2023). Importantly, FF acted as a mediator in this relationship: higher EA at T1 predicted poorer FF at T2, which in turn was associated with elevated DS at T3 (Dai & Wang, 2015; Zhang et al., 2024). These results extend cognitive models of depression, showing that environmental factors such as FF interact with cognitive vulnerabilities to shape depressive trajectories (Fu et al., 2021; Huang et al., 2022). Indirect effects, though modest ($\beta = .03$–$.13$), were statistically robust, suggesting that cumulative disruptions in FF or prior DS may incrementally contribute to later depressive outcomes. FF, characterized by poor communication, low emotional support, or unresolved conflict, further amplifies risk by limiting adolescents' coping resources and emotional regulation (Huang et al., 2022; Zhang et al., 2024). The results also underscore a dynamic, temporally interdependent cascade: EA can trigger FF disruptions, which then contribute to DS, reflecting interactive rather than deterministic mechanisms. Overall, these findings highlight the importance of considering adolescents' environmental context in understanding depression, demonstrating that EA and FF are intertwined contributors to DS over time. From a clinical perspective, they suggest that interventions targeting FF and family-based support could help mitigate depressive trajectories among youth exposed to EA (Huang et al., 2022; Zhang et al., 2024). The results highlight the critical role of mental health professionals in detecting early signs of EA and maladaptive FF in adolescents. Interventions for DS may benefit from targeting both cognitive vulnerabilities and FF, potentially disrupting the pathways through which EA contributes to later DS. Promoting emotional support, emotion regulation skills, and increasing parental awareness of EA are key targets. Future research should examine additional factors influencing the pathways, such as peer relationships, anxiety, and stress, to better understand broader adolescent emotional adjustment. Studies in diverse populations and with extended longitudinal designs could clarify the stability, generalizability, and developmental shifts in these mechanisms over time.

5. Conclusion

In sum, the study underscores the complex, interrelated associations among FF, EA, and DS in adolescents. Findings show that higher EA is longitudinally linked to poorer FF and increased DS, while lower FF predicts later DS. These patterns reflect risk associations rather than deterministic outcomes. Early interventions aimed at enhancing emotional support and improving family dynamics may help mitigate the long-term impact of EA. Overall, the study provides insight into how adverse early experiences relate to adolescent psychopathology and informs future research and therapeutic strategies targeting both individual and family-level processes.

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UNMASKING AUTISM IN A GENETIC SYNDROME: A FIVE-YEAR DEVELOPMENTAL TRAJECTORY EMPHASIZING REEVALUATION AND COLLABORATION

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Abstract

Accurately identifying autism spectrum disorder (ASD) in children with co-occurring rare genetic conditions presents significant diagnostic challenges, particularly when early developmental features overlap with syndrome-specific phenotypes. This case report expands upon a longitudinal case of a child with SATB2-associated syndrome (SAS) who demonstrated an evolving clinical presentation, including late regression and a marked decline in social communication between ages 2 and 7. The paper highlights how early social strengths, profound speech delays, and motor impairments initially obscured ASD symptomatology, leading to a preliminary diagnosis of global developmental delay. Comprehensive reevaluation in later childhood revealed clear ASD features, emphasizing the necessity of ongoing monitoring for diagnostically complex children. The report underscores the critical role of multidisciplinary teams in differentiating ASD from genetic-syndrome-related behaviors and in providing integrated assessments across developmental domains. Additionally, it discusses how genetic diagnoses such as SAS influence prognosis, guide intervention planning, and support family access to resources. This case study illustrates the importance of combining genetic, developmental, and behavioral perspectives to improve diagnostic accuracy and optimize long-term outcomes for children with rare genetic disorders and co-occurring ASD.

Keywords: *SATB2-associated syndrome, autism spectrum disorder, regression, developmental delay, genetic disorders.*

1. Introduction

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition characterized by persistent deficits in social communication and restricted, repetitive behaviors (American Psychiatric Association, 2022). The U.S. Centers for Disease Control and Prevention estimates a prevalence of approximately 1 in 36 children (Maenner et al., 2020), highlighting the growing importance of accurate and timely diagnosis. Early identification allows access to evidence-based interventions that can significantly improve adaptive functioning, language acquisition, and quality of life (Kodak & Bergmann, 2020). However, diagnosis is often complicated when ASD co-occurs with other neurogenetic syndromes. Children with chromosomal microdeletions or single-gene conditions frequently display overlapping cognitive and behavioral symptoms that mimic ASD but arise from distinct etiologies (Zarate et al., 2021). Misattributing behaviors to one disorder alone can delay or obscure appropriate interventions. Glass Syndrome, also known as *SATB2*-associated syndrome (SAS), is a rare genetic disorder caused by alterations in the "*SATB2*" gene (Zarate & Fish, 2017). The first known case of SAS was identified in 1989 by Dr. Ian Glass, who diagnosed a 16-year-old boy with a genetic deletion on chromosome 2 (specifically 2q32.2-q33.1 microdeletion). At that time, Dr. Glass named the condition "Glass Syndrome," based on his identification of the chromosomal deletion as the cause (Glass et al., 1989).

SATB2-associated syndrome (SAS) exemplifies this challenge. The condition shares several features with ASD, including social-communication difficulties, repetitive movements, and variable intellectual impairment, yet also exhibits distinctive social warmth and a characteristically cheerful demeanor (Zarate & Fish, 2017). Understanding when autism represents a true comorbidity versus part of the SAS behavioral phenotype remains an active area of research.

2. SATB2-associated syndrome and ASD: Overlapping phenotypes and diagnostic challenges

SATB2-associated syndrome is a rare genetic condition caused by pathogenic variants or deletions involving the SATB2 gene. SAS is associated with intellectual disability, severely limited or absent speech, craniofacial anomalies, feeding difficulties, dental abnormalities, hypotonia, motor delays, and a behavioral phenotype often described as "friendly" or "jovial" (Zarate & Fish, 2017). Autism-like features, including stereotypies, irregular social engagement, sensory behaviors, and repetitive actions, have been reported in nearly half of individuals with SAS (Bissell et al., 2022; Zarate et al., 2021).

These overlapping symptoms pose significant diagnostic challenges. Early in development, limited speech, delayed milestones, and motor impairments may be attributed solely to the genetic syndrome rather than ASD. Conversely, some children with genetic disorders exhibit social strengths that mask emerging ASD features. In this case study, the child's initial presentation at age 2 showed bright affect, eye contact, symbolic play, and cooperative engagement, leading clinicians to diagnose global developmental delay without ASD. Overlap in symptomatology can obscure early autistic traits or create diagnostic overshadowing, where impairments are misattributed to the genetic syndrome alone.

A second complicating factor involves late regression, an area with limited research in SAS. Regression in ASD typically appears before age 3 (Boterberg et al., 2019). In this child, regression emerged later and appeared intertwined with the developmental trajectory of SAS. This pattern underscores the necessity of considering both genetic etiology and neurodevelopmental profiles simultaneously.

3. Case presentation

A male child was initially brought to a university-affiliated Child Development Center at 2 years 10 months due to concerns regarding delayed communication and motor development. He was born at term following an unremarkable pregnancy and delivery. Early developmental history was notable for markedly delayed gross-motor milestones; he did not achieve independent walking until 19 months and exhibited hypotonia, poor balance, and frequent falls. These difficulties prompted physical therapy prior to referral. Speech and language development was significantly limited, with no meaningful word production in either language spoken at home. At the time of the initial evaluation, he was receiving multidisciplinary early intervention services, including speech, occupational, and physical therapy. His family history included a first-degree relative diagnosed with autism spectrum disorder. He resided with both parents and a younger sibling. Initial chromosomal microarray results were reported as normal.

A comprehensive developmental and diagnostic assessment was completed using the Autism Diagnostic Interview–Revised (ADI-R), the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2), and the Adaptive Behavior Assessment System, Third Edition (ABAS-3). Findings were most consistent with global developmental delay rather than autism spectrum disorder. Scores fell well below ASD diagnostic thresholds (ADI-R = 13; ADOS-2 comparison score = 1; ABAS-3 composite = 60). Clinically, he demonstrated a number of social strengths, including consistent eye contact, smooth separation from caregivers, and eager participation in play-based tasks. He used nonverbal communication strategies—such as open-hand pointing and waving—paired with eye gaze, and he engaged in early symbolic play routines. His affect was bright and socially engaged throughout the session. Although motor delays were evident, including a wide-based gait and drooling, these challenges did not limit his ability to participate meaningfully in the evaluation.

At approximately 4 years of age, repeat genetic testing identified a non-recurrent microdeletion at 2q33.1 involving the SATB2 gene, establishing a diagnosis of SATB2-associated syndrome (SAS). When the child returned for reevaluation at 7 years 2 months, caregivers reported increasing concern regarding stagnation of developmental progress and a noticeable loss of previously acquired social and communicative abilities. A second evaluation was conducted using the same standardized measures. Results showed substantial worsening across domains (ADI-R = 47; ADOS-2 comparison score = 8; ABAS-3 composite = 46). Direct observation revealed the absence of eye contact, lack of vocalizations, markedly restricted affect, and persistent repetitive object manipulation. Cooperative and pretend play were no longer observed, and distress sounds had replaced purposeful communication attempts. Motor difficulties persisted, including hypotonia, drooling, and a wide-based gait. Physical maturation highlighted craniofacial and dental findings characteristic of SAS, including a high-arched palate and dental crowding. Based on the convergence of behavioral observations, test findings, and parent report, the child met DSM-5-TR criteria for autism spectrum disorder (Level 3) and Severe Intellectual Disability at the time of follow-up.

4. The importance of ongoing assessment and longitudinal monitoring

For children with rare genetic disorders or diagnostically complex presentations, a single evaluation rarely captures the full developmental picture. Instead, ongoing assessment across multiple time points is critical. Developmental trajectories can change rapidly, and new symptoms may emerge as demands increase with age.

In this case study, the divergence between the two evaluation periods was striking. Initial assessment at age 2 revealed social strengths and emerging play behaviors, whereas the follow-up at age 7 demonstrated profound loss of social communication, absence of expressive language, flat affect, and prominent repetitive behaviors. Without longitudinal reassessment, the diagnosis of ASD would have remained unrecognized and untreated.

Ongoing assessment serves several purposes:

1. Capturing Regression or Plateauing Skills

Developmental regression is a red flag for both ASD and certain genetic syndromes. Regular evaluations enable early detection and clarification of whether regression is global, domain-specific, or behaviorally driven.

2. Differentiating ASD from Global Developmental Delay or Intellectual Disability

As children age, developmental expectations shift and discrepancies become more apparent. The loss of eye contact, social overtures, and symbolic play at age 7 clearly differentiated the child from peers with static developmental delays.

3. Monitoring Adaptive Functioning

Adaptive skill assessments (e.g., ABAS-3) are crucial for refining diagnoses, identifying intellectual disability, and tailoring support services. In this case, adaptive scores declined significantly, signaling increasing functional impairment.

4. Updating Treatment Needs

As diagnostic clarity increases, intervention plans must be recalibrated. Longitudinal evaluation ensures treatments remain aligned with developmental needs.

5. Multidisciplinary teams in the evaluation of complex cases

Children with rare genetic conditions require broad, collaborative evaluation to ensure diagnostic accuracy. Multidisciplinary teams typically include: Clinical psychology (diagnosis of ASD, intellectual functioning, adaptive behavior); Speech-language pathology (communication profile, feeding concerns); Occupational therapy (sensory processing, fine motor skills, adaptive functioning); Physical therapy (gross motor delays, gait abnormalities); Developmental pediatrics (overall medical evaluation); Medical genetics (genetic testing, interpretation, counseling); and Neurology (if seizures, tone abnormalities, or regression occur).

In this specific case report, collaboration between psychology and speech-language pathology yielded critical information at both time points. Genetic testing later revealed SAS, which reframed interpretation of early developmental signs. Without interdisciplinary input, clinicians risk diagnostic overshadowing or incomplete conceptualization of the child's needs.

- Multidisciplinary assessment provides a comprehensive developmental and behavioral profile. Such team-based assessment is cross-disciplinary, offering perspectives that detect subtle deficits. Using multiple skilled examiners from different disciplines would theoretically improve the ability to differentiate between ASD symptoms and genetic-syndrome traits, which in turn could increase the diagnostic confidence for families and service providers. Finally, multidisciplinary teams can provide unified and detailed recommendations for intervention and family support. Such collaboration is now recognized as essential in complex neurodevelopmental evaluations, particularly when genetic disorders are suspected or confirmed.

6. Clinical and research implications

This case highlights several broader implications for clinical practice:

1. Genetic Testing Should Be Standard. As recommended by ASD clinical guidelines, genetic testing is essential in evaluating children with developmental delays or intellectual disability. Yet many children do not receive it (Moreno-De-Luca et al., 2020), resulting in missed diagnoses and suboptimal treatment plans.

2. Dual Diagnoses Require Nuanced Interpretation. ASD and genetic syndromes can co-occur; the presence of one does not exclude the other. Clinicians must remain cautious not to over-attribute delays to genetic conditions or assume ASD alone explains the child's presentation.

3. Longitudinal Data Are Critical. Without reevaluation, this child's significant regression and ASD symptoms would have been missed. Timely reassessment should be an expected component of care.

4. More Research Is Needed on Regression in Genetic Syndromes. Very few studies describe regression in SAS. Detailed case reports such as this one help build a foundation for future research and syndrome-specific guidelines.

7. Conclusion

This case illustrates the diagnostic complexity of ASD when co-occurring with SATB2-associated syndrome. The case demonstrates how genetic findings reshape diagnostic understanding, how late regression can alter developmental trajectories, and how multidisciplinary teams play a vital role in accurate diagnosis and comprehensive care. Ongoing assessments are essential for capturing emerging symptoms, refining diagnoses, and guiding evolving treatment needs. Children with dual diagnoses require individualized, intensive, and interdisciplinary intervention plans that account for both ASD and genetic-syndrome-specific features.

By integrating genetic, developmental, behavioral, and adaptive information, clinicians can better support children with complex neurodevelopmental profiles and improve long-term outcomes. This case contributes meaningful data to the limited SAS literature and reinforces the necessity of genetic testing, multidisciplinary collaboration, and sustained evaluation for children with rare disorders and suspected ASD.

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PRAXIS: A DOCTORAL PILOT STUDY OF A PRACTICE-BASED INTERVENTION FOR STRESS AND WELLBEING

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Abstract

PRAXIS is an early-stage doctoral protocol. Background: sustained academic pressure, role ambiguity, and limited access to timely support can elevate stress and undermine wellbeing in young adults and early-career researchers. This project aims to develop and pilot PRAXIS: Predictive Risk Assessment with eXplainable & Interpretable Systems, a brief, scalable, practice-based program that translates evidence from applied psychology into daily routines. PRAXIS will integrate psychoeducation about stress, skills for self-regulation and guided reflection to strengthen coping and psychological flexibility. Methods: an iterative mixed-methods approach will be used. In Phase 1, it was designed the protocol, that integrates validated Italian versions of the Columbia Suicide Severity Rating Scale (C-SSRS) and the Orbach–Mikulincer Mental Pain Scale (OMMP-8) with two standardized writing tasks (a distress narrative and a best-possible-self narrative) followed by post-task distress sliders. Annotation will apply Columbia Classification Algorithm of Suicide Assessment (C-CASA) categories alongside a composite severity index (severity_praxis, 0–9 or U). In Phase 2, a feasibility pilot will assess recruitment, retention, adherence, and intervention fidelity, alongside acceptability indicators (satisfaction and perceived usefulness). Expected contribution: although no results are available yet, this submission outlines the theoretical rationale and planned methodology. If feasibility and acceptability are supported, PRAXIS will inform a subsequent randomized controlled trial and provide a transferable toolkit for stress management and wellbeing promotion in academic and community settings.

Keywords: *Intervention development, stress management, wellbeing, psychological flexibility, doctoral research.*

1. Introduction

Suicide is among the leading causes of preventable death globally, and its accurate assessment remains a fundamental challenge for clinical research (Fazel & Runeson, 2020). A critical conceptual difficulty concerns distinguishing suicidal ideation from suicidal behaviour: theories such as the Ideation-to-Action framework and the Three-Step Theory (Klonsky & May, 2015) posit that the two are governed by partially distinct mechanisms, yet most assessment instruments conflate or inadequately separate them. The Columbia Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011) and the Columbia Classification Algorithm of Suicide Assessment (C-CASA; Posner et al., 2007) represent current best practice for standardized, hierarchical taxonomy of suicidal phenomena, but their application demands trained raters and is difficult to scale across institutions.

A compounding problem is the difficulty of integrating data across institutions. Heterogeneous instruments, varying time frames, and incompatible coding schemes make harmonization non-trivial: Campos et al. (2023) found that concordance across 20 instruments and 27 international cohorts is often modest. European data-protection law (GDPR) further constrains sharing of sensitive mental-health data, requiring careful pseudonymization and governance architectures before any multi-site pooling is feasible. Self-report questionnaires, while essential, carry well-documented limits: social desirability effects, under-reporting driven by stigma, and fixed-response formats that constrain idiomatic expression of distress (Khazem et al., 2021; Campos et al., 2023). Standardized short free-text narratives can provide complementary signal: research shows that language features (pronoun patterns, negative affect vocabulary, temporal markers) carry information related to psychological distress and suicidal ideation (Li et al., 2023; Arowosegbe & Oyelade, 2023). However, this evidence base is largely English-language, relies heavily on social media data, and rarely pairs text with validated clinical assessments. A clinically anchored, governed Italian corpus is therefore a meaningful gap to address.

Against this backdrop, PRAXIS pursues three exploratory hypotheses, formulated conservatively given the early stage of this work:

H1 (exploratory): Higher ideation and severity scores may be associated with elevated negative affect markers, increased self-focused pronoun use, and reduced future-oriented language in distress narratives.

H2 (exploratory): Mental pain scores (OMMP-8) may correlate with semantic clusters reflecting entrapment, hopelessness, or social disconnection themes.

H3 (exploratory): Protective (best-possible-self) narratives may show greater future orientation and agency-related language relative to distress narratives.

2. Method

PRAXIS: Predictive Risk Assessment with eXplainable & Interpretable Systems is a cross-sectional, observational study administered entirely online via a secure web-based platform. The platform is selected according to a governance checklist that requires disabled IP logging, encrypted storage, and secure export (see Section 2.4).

2.1. Participants

Participants are undergraduate students aged 19–23, recruited online through institutional channels at Italian universities. Participation is entirely voluntary and unpaid. Inclusion criteria are: Italian as primary language, age 19–23, and provision of informed digital consent. No minimum sample size is pre-specified at this pilot stage, as the primary goal is protocol validation and corpus construction.

2.2. Measures

The battery proceeds in a fixed order. (1) A demographics form collects exact age, region of origin within Italy, and sex. (2) The C-SSRS Baseline in its validated Italian version assesses suicidal ideation on an ordinal 0–5 scale and categorizes suicidal behaviours (none, preparatory, aborted, interrupted, actual, completed, non-suicidal self-injury, intent unknown; Posner et al., 2011). (3) The OMMP-8 in its validated Italian version assesses mental pain as a transdiagnostic proximal risk factor (Landi et al., 2025; Tossani et al., 2021). (4) Brief quantitative distress check items appear between sections to monitor participant state.

2.3. Standardized writing tasks

After the structured measures, participants complete two short writing tasks in fixed order. Task 1 (Distress Narrative) asks participants to write about their feelings and thoughts during a stressful or difficult event in the past six months; they are explicitly instructed not to include names or identifying details. Task 2 (Best Possible Self) asks participants to describe, as realistically as possible, their best possible self one year from now, again without identifying information. Both tasks use identical interface elements: a fixed 6-minute timer, a live word counter, and a minimum threshold of 80 words. These parameters standardize production conditions for cross-participant comparability. Immediately after each task, participants complete two 0–10 sliders rating: distress intensity while writing and perceived controllability or manageability of that distress.

2.4. Data privacy and governance

PRAXIS adopts a privacy-by-design architecture. Each participant is assigned a random alphanumeric identifier at registration; no real names, email addresses, or institutional identifiers are linked to response data. IP addresses and precise geolocation data are not collected. Only non-identifying technical metadata may be retained where operationally necessary (completion time, word count, device type). Participants are instructed before writing not to include names, dates, locations, or other potentially identifying details. Data access is restricted to the principal researcher and designated clinical annotators under a signed data-access agreement, with retention limited to the duration of the active project. Crucially, PRAXIS is a research protocol and is not used for clinical decision-making; this is communicated clearly to participants. A non-clinical escalation screen is shown to participants endorsing active ideation on check items, consistent with a human-in-the-loop safety philosophy (Chandler et al., 2022).

2.5. Data analysis

Each text will receive four annotation fields. First, a primary C-CASA label (Posner et al., 2007) will classify the overall nature of the expressed content. Second, a C-SSRS ideation level (Posner et al., 2011) will be assigned only if ideation content is discernible in the text; otherwise, this field will remain null. Third, a C-SSRS behaviour field will record the highest-order suicidal behaviour detectable (none, preparatory, aborted, interrupted, actual, completed, NSSI, intent_unknown). Fourth, a composite index severity_praxis (0–9 or U) will be derived as max (ideation severity, behaviour severity): behaviour present maps to 6–9; ideation only without behaviour maps to 1–5; no suicidality maps to 0; insufficient information yields U (undetermined). This index provides a single ordinal anchor for downstream modelling while preserving the ideation/behaviour distinction.

A subset of 20–30% of texts, stratified across severity levels, will be independently co-annotated by two clinicians blind to participant demographics. Inter-rater agreement will be computed using weighted Cohen's kappa for ordinal fields and Cohen's kappa or Krippendorff's alpha for categorical fields. Discrepancies will be reviewed collaboratively. The resulting discussion will update the annotation guidelines to version 2. Persistent disagreements will receive the code U.

Analyses will proceed in three steps. First, interpretable psycholinguistic features will be extracted (including first-person singular pronoun frequency, negation density, emotional valence and arousal vocabulary, temporal markers and social reference words) drawing on LIWC-like category logic (Tausczik & Pennebaker, 2010).

These features offer the highest communicability to clinical audiences and will be the primary unit for initial exploratory correlational and group-difference analyses.

Second, word and sentence embeddings will be computed to explore semantic clustering within the Italian corpus, with the aim of identifying families of expressions proximal to suicide-related content in Italian. Third, transformer-based representations will be explored in an explicitly hypothesis-generating frame. Throughout all modelling, the protocol enforces conservative practices: cross-validation and held-out test sets to control overfitting, explicit handling of class imbalance, threshold-sensitivity analysis and comprehensive error analysis foregrounding false-negative cases, which carry the greatest clinical risk. No claim of clinical prediction will be made on the basis of this pilot study (Chandler et al., 2022; Pigoni et al., 2024).

3. Results

All contributions described below are conditional on completion of data collection and annotation, as the study is in an early stage. Methodologically, PRAXIS will produce the first standardized Italian corpus of short texts paired with clinically anchored suicide-related labels, addressing a documented gap in non-English NLP resources for suicidology (Arowosegbe & Oyelade, 2023). The severity_praxis index will offer a reusable composite measure anchored to two internationally validated instruments, serving as a prototype for future cross-site harmonization. The annotation guidelines, platform governance checklist, and privacy-by-design architecture are intended as directly replicable artefacts for other Italian university settings.

Clinically, the psycholinguistic feature set will yield a preliminary map of Italian textual markers associated with levels of suicidal ideation and mental pain, presented in interpretable form to maximize communicability to practitioners. Theoretically, the design allows direct comparison between distress and protective narratives, testing whether future-oriented and agency-related language differs across groups, consistent with theoretical accounts of protective cognition in suicidology (O'Connor & Nock, 2014).

The human-in-the-loop governance model may also serve as a blueprint for responsible deployment of NLP-assisted tools in sensitive clinical research contexts.

4. Discussion

PRAXIS addresses a recognized methodological gap in Italian-language suicidology research: the absence of a standardized, clinically anchored corpus of free-text data collected under reproducible, ethically governed conditions. Existing self-report instruments, while indispensable, are constrained by fixed-response formats and well-documented under-reporting tendencies; standardized elicited narratives may provide complementary, less demand-susceptible signal. By pairing two writing tasks, one distress-oriented, one protective, with validated measures of suicidal ideation, behaviour, and mental pain, PRAXIS grounds textual data in a coherent clinical taxonomy. The severity_praxis index, derived as the maximum of ideation and behaviour severity fields, provides a single ordinal anchor for downstream modelling without obscuring the theoretically important ideation-to-behaviour distinction.

Key methodological strengths include rigid task standardization (fixed timer, word minimum, identical instructions), a structured reliability procedure involving blind clinical co-annotation, an interpretable-first NLP pipeline. Nonetheless, several risks warrant explicit acknowledgment: the study is early-stage and the convenience sample of university students limits generalizability: free-text narratives are not immune to self-presentation effects, annotation at intermediate severity levels may remain contested and transformer-based models trained on a small pilot corpus carry substantial overfitting risk.

Several limitations should be acknowledged. The protocol is at an early stage and all anticipated contributions remain prospective. Participants constitute a convenience sample of young Italian university students, generalizability to older adults, clinical populations, or other cultural contexts is a future target. Free-text narratives, while less constrained than fixed questionnaires, are not immune to self-presentation effects (Khazem et al., 2021). Annotation is inherently labour-intensive and subject to clinician disagreement, particularly at intermediate severity levels; the reliability procedure mitigates but cannot eliminate this. NLP models trained on this pilot corpus will reflect its specific population and task parameters, and any future applied use would require independent clinical validation and regulatory review.

The primary next step will be replication of the same protocol across different student cohorts and, subsequently, additional sample types, to improve external validity. Multi-site replication would require a shared governance framework alongside formal data-sharing agreements aligned with GDPR constraints.

5. Conclusion

PRAXIS (Predictive Risk Assessment with eXplainable & Interpretable Systems) is an early-stage doctoral protocol designed to collect standardized short Italian texts from undergraduate students aged 19–23 and to produce clinically anchored labels of suicide-related risk severity, enabling exploratory extraction of semantic and psycholinguistic indicators within a human-in-the-loop framework. Its primary contribution is not a predictive model but a replicable pipeline: a governed, pseudonymized corpus paired with a coherent annotation scheme, a composite severity index, and an annotation guideline designed to evolve through clinical reliability review. Throughout, the protocol maintains a clear boundary between research signal and clinical decision-making, consistent with responsible NLP practice in sensitive domains. The immediate next steps are the completion of online data collection, finalization of the annotation guidelines to version 2 following blind clinical co-annotation, and execution of the planned exploratory psycholinguistic and embedding analyses. Upon completion of these phases, replication of the protocol across additional student samples and, in subsequent work, across more diverse populations will be pursued, with the longer-term aim of contributing a governance blueprint and open methodological resource for multi-site Italian suicidology research.

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UNDERSTANDING THE RELATIONSHIP BETWEEN MENTAL HEALTH STIGMA AND CHATGPT USE: THE ROLE OF PERCEIVED EFFECTIVENESS

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Abstract

General purpose artificial intelligence (AI) chatbots, such as ChatGPT, are increasingly used for conversational support in addressing personal mental health difficulties. For individuals experiencing mental health stigma, non-judgmental and on-demand chatbot interactions may be more appealing than face-to-face support, partly due to their convenience and anonymity. Given the rapid global uptake of AI technologies, understanding mental health stigma in AI-mediated help-seeking contexts is becoming more important for their safe and ethical use. This cross-sectional study aimed to examine whether ChatGPT use for personal mental health difficulties is associated with mental health stigma, and whether the perceived effectiveness of ChatGPT mediates this relationship. Participants (n = 73), who were primarily university students, completed online self-report measures assessing ChatGPT usage for mental health purposes, perceived effectiveness of ChatGPT for mental health issues, and mental health stigma. The results showed that ChatGPT usage was positively associated with perceived effectiveness. While ChatGPT usage and perceived effectiveness were not directly associated with stigma, our tested mediation analyses indicated a significant indirect effect such that greater ChatGPT usage was associated with reduced stigma via increased perceived effectiveness. These findings suggest that ChatGPT use is associated with reduced mental health stigma only when its use is perceived to be effective, highlighting the importance of perceived effectiveness. As AI-based tools are rapidly emerging in mental health contexts, a clearer understanding of why individuals use these technologies, along with their potential benefits and limitations, will be essential for informing appropriate guidelines and best practices for AI-based mental health support.

Keywords: *Artificial Intelligence (AI), AI chatbot, ChatGPT, mental health stigma, mental health.*

1. Introduction

General-purpose Artificial Intelligence (AI) chatbots are increasingly used for mental health support, with users seeking low-cost, conversational guidance for distress and mental health support despite these tools not being designed or regulated as therapeutic services (Haque & Rubya, 2023). This emerging practice raises important questions about how and why individuals adopt AI chatbots for mental health purposes.

Research indicates that general-purpose AI tools, including ChatGPT, may support mental health by providing empathy and supporting stigma-related concerns, (Howcroft et al., 2025; Li, Peng & Rheu., 2024). Conversely, critics argue that chatbots lack authentic empathy and a genuine therapeutic alliance (Brown & Halpern, 2021). Still, AI chatbot-based support is particularly appealing to individuals encountering stigma-related barriers, as anonymity can mitigate fear of judgment and promote self-disclosure (Lucas et al., 2017). Considering that stigma may be a reason that individuals turn to AI chatbots, this research aims to investigate associations between AI chatbot use and mental health stigma.

The stigma associated with mental health disorders and symptoms is a multifaceted phenomenon acting as one of the most substantial barriers to seeking support for affected individuals globally (Fox, Earnshaw, Taverna & Vogt, 2018). In the present study, stigma is defined as comprising two mechanisms: anticipated stigma and self-stigma. Anticipated stigma is defined as the expectation that others will judge, reject, or discriminate against individuals with mental health difficulties (Docksey, Gray, Davies, Simkiss & Snowden, 2022). Self-stigma is defined as the internalisation of negative self-stereotypes, whereby individuals perceive themselves as devalued (Lannin et al., 2015). This staged internalisation process is associated with rumination and critical self-evaluation (Dickson, Moberly & Huntley, 2019). Notably, these

stigma mechanisms often overlap empirically due to this staged process, as measures of self-stigma frequently include elements related to other stigma mechanisms, particularly anticipated stigma (Fox et al., 2018; Hannah, Drake, Huntley & Dickson., 2025). This overlap supports the adoption of a broader stigma construct in the emerging AI field where stigma-related processes may not yet be clearly distinguished.

Mental health stigma among university students is closely associated with perceptions of academic competence and often discourages disclosure and help-seeking due to fears of judgment and academic consequences (Wada et al., 2019). Therefore, AI chatbot-delivered support may be particularly appealing because it offers accessible, low-cost, and time-efficient assistance. As such, this study aimed to investigate the relationship between mental health stigma and patterns of use among university students who already use ChatGPT for their mental health. A plausible mechanism helping explain this process may be perceived effectiveness. Specifically, users' beliefs about whether ChatGPT can provide meaningful support may shape engagement with the tool and, in turn, stigma-related experiences.

Perceived effectiveness refers to an individual's beliefs about the potential benefits of an intervention or activity and aligns with the Theory of Planned Behaviour (TPB; Ajzen, 1991). The TPB posits that behavioural evaluations are shaped by outcome expectancies and the value attributed to those outcomes. These expectancies may influence results through placebo-like mechanisms, as individuals who believe a treatment is effective can experience greater benefits even when the active components remain unchanged (Rutherford et al., 2017). This finding underscores the role of expectancies in shaping perceived benefits of the intervention. If individuals perceive ChatGPT's advice as effective for mental health support, they may experience lower stigma as interactions can feel anonymous and less judgmental; if it is viewed as ineffective, stigma-related concerns may remain. Notably, perceived effectiveness may not reflect actual effectiveness.

The Artificially Intelligent Device Use Acceptance (AIDUA) model (Gursoy, Chi, Lu & Nunkoo, 2019), which builds on the TPB, helps explain this process: perceived effectiveness corresponds to performance expectancy within the appraisal stage, whereas stigma-related concerns align with affective responses (e.g., discomfort or anticipated judgment) that influence adoption intentions. Consistent with AIDUA, positive emotional attitudes and expectancies have been shown to predict the use of AI chatbots (Ma & Huo, 2023). Accordingly, the present study examined whether ChatGPT use for mental health support is associated with mental health stigma, and whether perceived effectiveness indirectly explains this relationship.

2. Method

2.1. Participants

The sample consisted of 73 individuals aged 18 to 61 years (M = 29.56, SD = 9.89), drawn from a university sample of 62 participants (84.9%) and the broader community (11 participants/15.1%). The sample comprised 56 females (76.7%), 16 males (21.9%), and one participant who identified as non-binary/third gender. The eligibility criteria required participants to report current or prior ChatGPT use for their own mental health difficulties.

2.2. Materials

2.2.1. Demographic questionnaire. Participants completed demographic items including age and gender.

2.2.2. ChatGPT Usage and perceived effectiveness. Single individual items were designed to assess ChatGPT usage and its perceived effectiveness on 5-point Likert scales and were piloted with five students and reviewed for face validity by the research team.

2.2.3. Mental health stigma. The Stigma and Self Stigma Scales (SASS; Docksey et al., 2022) were used to assess participants' degree of mental health anticipated stigma and self-stigma. Anticipated stigma and self-stigma had a substantial correlational overlap (r = .87, p < .001) and so both stigma types were combined to create the *mental health stigma* construct as guided by previous research (Aird, Reisinger, Webb & Gleaves., 2025). The composite stigma score was computed by averaging the Anticipated Stigma and Self-Stigma subscale totals (possible range = 0 to 24); higher scores indicate greater stigma.

2.3. Procedure

The Edith Cowan University (ECU) Human Research Ethics Subcommittee approved the research (Reference: 2024-05264-DICKSON). A participant information sheet was provided at the beginning of the online survey and participants indicated informed consent by ticking a box before proceeding.

2.4. Data analyses

Data were screened in according to guidelines by Tabachnik and Fidell (2007) and subsequent analyses were conducted using IBM SPSS version 29 (IBM Corp., 2023), using PROCESS v4.2 (Hayes, 2022). Bootstrapped confidence intervals were computed using 5,000 samples, and standardised coefficients are reported.

2.5. Power calculations

An a priori power analysis based on Cohen's (1988) guidelines indicated that a minimum of 55 participants was required to detect a medium effect (f^2 = .15) with 80% power at α = .05 for the primary mediation analyses. The final sample (n = 73) exceeded this requirement.

3. Results

3.1. The relationships between ChatGPT use, perceived effectiveness and stigma

Means, standard deviations and Pearson's r correlations between the main study variables for ChatGPT use, perceived effectiveness, and mental health stigma are outlined in Table 1 below.

Table 1. Descriptive Statistics and Pearson's r Correlations Between Main Study Variables.

Variable		2	3	M (SD)
1. ChatGPT Usage	-	.57***	.04	2.04 (1.01)
2. Perceived Effectiveness		-	-.22	2.51 (0.96)
3. Mental Health Stigma			-	13.87 (6.22)

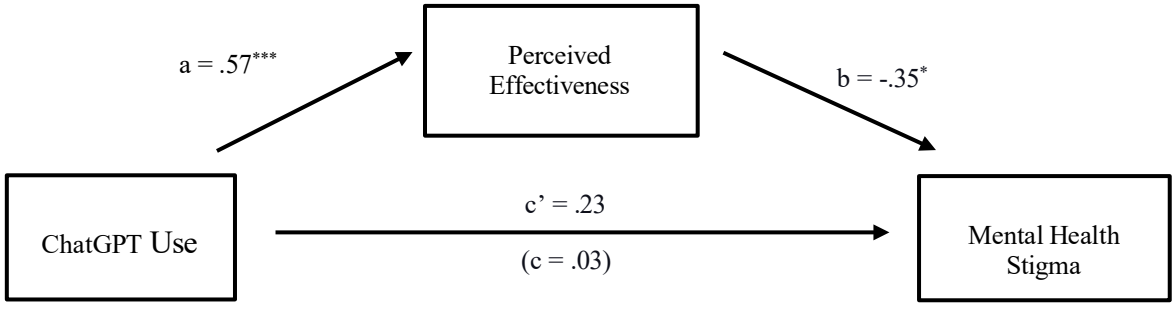
Note. N = 73, ***p < .001.

As shown in Table 1, ChatGPT usage had a significant medium to large positive correlation with perceived effectiveness, but not with mental health stigma. Age had a small, significant negative correlation with mental health stigma (r = -.25, p = .033), but did not significantly correlate with ChatGPT usage nor perceived effectiveness (ps > 0.05). Finally, gender was not significantly related to any of the main study variables (all ps > 0.05). Next, we tested the main hypothesis using mediation analyses, controlling for age but not gender.

3.2. Does perceived effectiveness mediate the relationship between ChatGPT use and mental health stigma?

Results of the mediation analysis are shown in Figure 1 below.

Figure 1. Mediation Model Showing the Relationship Between ChatGPT Use and Mental Health Stigma via Perceived Effectiveness.



Note. N = 73. Numerical values are standardised coefficients. *p < .05. ***p < .001.

As can be seen in Figure 1, perceived effectiveness indirectly and significantly mediated the relationship between ChatGPT usage and mental health stigma. The indirect effect was medium-sized and significant, with ab = -.20, BCa 95% CI [-0.37, -0.04]. The direct effect of ChatGPT usage on mental health stigma was not significant with perceived effectiveness included in the model (c′ = .23, p = .099). Although perceived effectiveness showed only a small negative bivariate correlation with mental health stigma (r = -.22), it significantly predicted lower stigma in the mediation model after controlling for ChatGPT usage. (β =-.35, p = .012). In the model, the covariate age was not associated with perceived effectiveness

(β = 0.02, p = .833) but was significantly associated with mental health stigma (β = -0.24, p = .033), indicating that younger participants reported higher mental health stigma scores.

4. Discussion

This study tested whether ChatGPT use for mental health difficulties was associated with mental health stigma and whether perceived effectiveness explained this relationship. Contrary to our initial hypothesis, although ChatGPT usage was positively associated with perceived effectiveness, it was not significantly associated with mental health stigma. However, mediation analyses supported an indirect significant effect which showed increased ChatGPT use was indirectly associated with reduced stigma via increased perceived ChatGPT effectiveness.

One possible explanation is that individuals who perceive ChatGPT as effective may be more likely to engage with it, listen to its advice, and internalise its responses. These individuals may initially seek out ChatGPT as a way of managing stigma-related concerns; however, perceived effectiveness may emerge when the responses successfully normalise mental health difficulties, challenge negative self-evaluations, and reduce fears of judgment.

The significant positive relationship between ChatGPT use and perceived effectiveness suggests that users perceive it as a valuable tool for addressing mental health concerns. However, it remains unclear whether participants anticipated AI would be useful before engaging with it. Additionally, the perceived effectiveness of ChatGPT may also be important to consider in understanding ongoing use. Contrary to prediction, the lack of a significant correlation between ChatGPT use and mental health stigma suggests that participants may be using ChatGPT for several other mental health concerns, of which stigma was not a component.

The absence of the direct effect further highlights the role that perceptions and beliefs regarding ChatGPT's effectiveness may have in explaining the relationship between ChatGPT usage and mental health stigma. Notably, when one perceives ChatGPT as more effective for addressing their mental health concerns, this is associated with lower levels of their reported mental health stigma. As individuals engage with ChatGPT about their mental health, they may receive responses perceived as empathetic and supportive, which may reinforce beliefs about the tool's effectiveness and alleviate stigma concerns. These experiences, combined with the absence of judgment, may provide a safe and anonymous context for discussing mental health concerns. Over time, such interactions may reduce concerns about negative social evaluation, thereby attenuating perceptions of mental health stigma.

Overall, the present findings are consistent with prior research demonstrating the emerging positive perceptions of AI chatbots within mental health contexts (Ayers et al., 2023; Haque & Rubya, 2023). Our findings add to the emerging field by demonstrating that perceived effectiveness may be an important mechanism interacting with stigma in AI mediated mental health contexts.

We recommend the development of a validated perceived effectiveness measure for participants already utilising generative AI. Future research would benefit from comparing the end user's perceived effectiveness with other clinical mental health constructs to observe any disparity between perceived and actual effectiveness. Additionally, qualitative research avenues will help elucidate the adoption of AI chatbots for mental health purposes beyond stigma.

In the context of some methodological considerations, the small sample size was predominantly female and largely composed of undergraduate university students, which limits the generalisability of the findings. The cross-sectional design precludes causal inferences, and the use of broad categorical ranges for AI-based mental health usage reflects the absence of established normative usage patterns in this emerging area. Although the mediation analyses suggest plausible pathways, longitudinal research is required to confirm the directionality of these relationships. Finally, single-item measures may limit reliability and construct validity, however, they are commonly used in exploratory research where validated instruments are not yet available.

Although ChatGPT use was not directly associated with stigma, it's increased use was indirectly related to lower stigma through higher perceived effectiveness, highlighting perceived effectiveness as a key mechanism shaping stigma-related outcomes in AI-mediated mental health support. These findings do not imply therapeutic or actual effectiveness. Rather, they highlight the importance of user perceptions in influencing psychological experiences with AI tools. Future research using longitudinal designs, larger samples and psychometrically validated measures of AI usage and perceived effectiveness is required to inform the safe and ethical use of general-purpose AI chatbots in mental health contexts.

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WHY NOSTALGIA COMFORTS US

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Abstract

This systematic review of 10 sources identifies multiple converging mechanisms through which nostalgia provides psychological comfort. The most consistently supported pathway is social connectedness: nostalgia augments feelings of belonging and acceptance, which mediates its effects on both meaning in life and self-continuity. Nostalgia also comforts by fostering self-continuity, a sense of connection between one's past and present self—which confers eudaimonic well-being operationalized as subjective vitality. Additionally, nostalgia serves an existential function by bolstering meaning in life, particularly when meaning is threatened, and provides a window to the intrinsic self-concept, increasing authenticity and buffering against threats to self-expression. Evidence also suggests nostalgia maintains physiological comfort, with nostalgic reflection increasing perceived warmth and tolerance to cold. These comforting effects are not universal but depend on important boundary conditions. Nostalgia's benefits are most pronounced for individuals with low attachment-related avoidance, who derive greater social connectedness from nostalgic memories. Critically, identity continuity between past and present is a necessary condition: when individuals perceive their past as disconnected from their present, such as during major life transitions, nostalgia can have negative rather than positive consequences for well-being. A reflective stance focusing on similarities between past and present selves enhances nostalgia's positive effects. These findings are consistent across cultures, suggesting nostalgia serves universal human needs for social connection, temporal coherence, and existential meaning.

Keywords: *Nostalgia, coping, pop culture, comfort.*

1. Introduction

Nostalgia is typically defined as a sentimental longing for personally meaningful past experiences that are both self-relevant and social. Once conceptualized as a form of homesickness or maladaptive dwelling on the past, contemporary research portrays nostalgia as a predominantly positive emotion that is common across cultures and the lifespan (Sedikides & Wildschut, 2022). Nostalgic episodes often involve warm memories of time spent with close others, cherished places, or meaningful activities, and are accompanied by mixed but net-positive affect.

A growing empirical literature shows that nostalgic reflection can promote psychological comfort in several ways. Experimental and correlational studies indicate that nostalgia increases positive affect, reduces the impact of loneliness on well-being, and bolsters meaning in life and self-esteem (Routledge et al., 2011; Wildschut et al., 2010). Nostalgia also appears to foster self-continuity—the sense that one's present self remains connected to who one has been across time and, through this pathway, contributes to eudaimonic well-being such as subjective vitality (Sedikides et al., 2016).

At the same time, the comforting effects of nostalgia are not unconditional. Identity continuity emerges as a key boundary condition: when people feel that their past identity is compatible with who they are now, nostalgia is associated with better well-being and more adaptive life choices, but when they experience sharp identity discontinuity (e.g., following major life transitions), nostalgia can be unsettling or even detrimental (Iyer & Jetten, 2011). Attachment-related avoidance, age, time perspective, and individual differences in reflective style also moderate the benefits of nostalgia (Hepper et al., 2021; Wildschut et al., 2010; Baldwin, 2015; Fawn, 2018).

Despite this rich literature, there has been relatively little integrative work specifically addressing *why* nostalgia is comforting—what proximal mechanisms translate looking back on the past into present-moment psychological ease. This paper synthesizes findings from 10 empirical and review sources to answer that question. Drawing on studies of social connectedness, self-continuity, meaning in life, authenticity, and physiological comfort, the review proposes nostalgia as a multi-level resource: it restores feelings of social bonding, stabilizes the self across time, supports existential meaning, reconnects people with an intrinsic sense of self, and even modulates bodily comfort.

2. Methods

This review followed a narrative systematic approach focused on empirical and review articles that investigated nostalgia as a primary construct and examined its comforting or protective effects on psychological outcomes. Electronic searches were conducted in *PsycINFO*, *PubMed*, *Web of Science*, and *Google Scholar*. Search strings combined the term *nostalgia* with comfort-related and mechanism-related keywords (e.g., *social connectedness*, *belongingness*, *meaning in life*, *self-continuity*, *authenticity*, *loneliness*, *well-being*, *stress*, *warmth*). Searches were limited to human participants and to English-language, peer-reviewed publications or doctoral dissertations.

Records were eligible for inclusion if they: (a) treated nostalgia as a primary variable (state or trait) rather than a peripheral construct; (b) assessed comfort-related outcomes (e.g., positive affect, well-being, vitality, social support, perceived warmth, buffered stress or threat responses); (c) employed quantitative or mixed methods designs (experimental, correlational, longitudinal) or constituted a systematic narrative review; and (d) used validated measures or well-established experimental manipulations of nostalgia and outcome constructs. Studies focused solely on consumer behavior, nostalgia marketing, or non-psychological outcomes were excluded.

Database searches initially yielded approximately 50 records. Titles and abstracts were screened against inclusion criteria, followed by full-text review when necessary. Ten sources met all criteria: eight peer-reviewed empirical articles, one doctoral dissertation, and one narrative cross-cultural review. Together, these studies encompassed undergraduate and community samples, older adults, and participants from multiple cultural contexts. For each included source, information was extracted on study design, sample characteristics, nostalgia induction or measurement, comfort-related outcomes, mediators, moderators, and key results. Given heterogeneity in designs and outcomes, findings were synthesized thematically rather than meta-analytically, with particular attention to recurrent mechanisms and boundary conditions.

3. Results

Across the 10 included sources, several converging mechanisms emerged to explain why nostalgia comforts. The most robust pathway involved social connectedness. Experimental paradigms that prompted participants to recall nostalgic versus ordinary autobiographical memories consistently found increases in perceived belongingness, acceptance, and social support following nostalgic recall (Routledge et al., 2011; Wildschut et al., 2010). In these studies, nostalgic memories were disproportionately populated by close others and meaningful interpersonal interactions, and nostalgia weakened the association between loneliness and adverse outcomes such as unhappiness or perceived lack of support. Parallel findings in older adults showed that frequent nostalgic reflection helped buffer the impact of loneliness on well-being (Fawn, 2018; Hepper et al., 2021).

A second mechanism involved self-continuity. Nostalgia promoted a felt connection between one's past and present self, often via its social content. In a multi-study program, Sedikides et al. (2016) showed that nostalgia enhanced social connectedness, which in turn increased self-continuity and, ultimately, eudaimonic well-being indexed by subjective vitality. Similarly, Hepper et al. (2021) found that nostalgia mitigated the negative impact of limited time horizons on well-being, in part by preserving a coherent sense of self over time. Longitudinal and quasi-experimental work on identity transitions indicated that nostalgia's benefits depended on the degree of perceived continuity: when people could integrate past and present identities, nostalgia supported adjustment and constructive life choices, but low continuity was associated with poorer coping and well-being (Iyer & Jetten, 2011).

Nostalgia also served an existential function by bolstering meaning in life. Routledge et al. (2011) demonstrated that nostalgia was both positively associated with meaning in life and increased meaning when experimentally induced. When participants faced threats to meaning (e.g., reading essays that undermined life's purpose), nostalgia rose as a compensatory response and, in turn, reduced defensiveness and protected well-being. Cross-cultural work suggests that such meaning-related functions of nostalgia

generalize across diverse cultural contexts, supporting the view that nostalgia helps people sustain a coherent life narrative connecting past, present, and future (Sedikides & Wildschut, 2022).

A fourth mechanism centered on authenticity and the intrinsic self. In seven studies, Baldwin, Biernat, and Landau (2015) found that state nostalgia was associated with, and experimentally increased, a sense of accessing one's "real" or intrinsic self, accompanied by reduced focus on external standards and expectations. Nostalgic recall highlighted experiences that felt self-defining and value-consistent, thereby reinforcing an authentic self-concept. Complementary work on temporal self-comparison indicated that nostalgia's benefits were strongest when individuals reflected on continuity and similarity between past and present selves rather than dwelling on discrepancies (Baldwin, 2015).

Finally, one line of evidence documented physiological comfort. Zhou et al. (2012) showed that nostalgia maintains homeostatic warmth: higher levels of music-evoked nostalgia were associated with increased perceived physical warmth, and participants who recalled nostalgic versus ordinary events rated the ambient temperature as higher and tolerated noxious cold for longer. These findings suggest that the metaphorical association between nostalgia and warmth has literal bodily correlates, extending the comfort model beyond purely psychological outcomes.

Across studies, several moderating factors emerged. Attachment-related avoidance consistently shaped nostalgia's benefits: individuals lower in avoidance derived more social connectedness from nostalgic memories, and the link between loneliness and nostalgia was stronger in this group (Wildschut et al., 2010). Identity continuity, as noted above, was essential; high continuity supported positive effects, whereas low continuity sometimes led nostalgia to exacerbate distress (Iyer & Jetten, 2011). Age and time perspective also mattered: older adults high in trait nostalgia or exposed to nostalgic interventions showed better maintenance of well-being over time and reduced vulnerability to loneliness (Fawn, 2018; Hepper et al., 2021). Traits that promote reflective, similarity-focused processing of the past—such as self-reflection and a reflective (rather than evaluative) mindset—appeared to strengthen nostalgia's beneficial impact (Baldwin, 2015; Baldwin et al., 2015).

4. Discussion

This review suggests that nostalgia comforts by recruiting multiple, interrelated psychological resources rather than through a single pathway. Across diverse samples and methods, the most consistent finding is that nostalgia enhances social connectedness. Nostalgic memories tend to center on close others and group experiences, so calling them to mind temporarily restores a sense of being embedded in a network of valued relationships. That boost in belongingness not only feels good in the moment but also mediates downstream effects on self-continuity and meaning in life (Routledge et al., 2011; Sedikides et al., 2016; Wildschut et al., 2010).

These processes are synergistic. When people feel socially connected through nostalgia, it becomes easier to perceive continuity between who they were and who they are now, supporting a coherent identity over time (Sedikides et al., 2016). A coherent identity, in turn, undergirds eudaimonic well-being, including feelings of vitality and purpose (Hepper et al., 2021). At the same time, nostalgic memories often highlight intrinsically meaningful, self-defining experiences, which can reorient people toward an authentic self-concept (Baldwin et al., 2015). In this way, nostalgia can be understood as a flexible resource that simultaneously reaffirms social bonds, stabilizes the self across time, and reinforces personally meaningful values—each of which contributes to psychological comfort.

The evidence also underscores that nostalgia's comforting effects are conditional, not automatic. Identity continuity is a central boundary condition: when the past feels like "mine" in a way that is compatible with the present, nostalgia facilitates adaptive coping and well-being; when the past feels alien or irreconcilable—such as after identity-disrupting events or major life transitions—nostalgic reflection may evoke loss or regret rather than comfort (Iyer & Jetten, 2011). Attachment-related avoidance offers a complementary lens: individuals who are more comfortable depending on others are best positioned to benefit from nostalgia's social content, whereas those who defensively downplay attachment needs may engage less with nostalgia's relational aspects (Wildschut et al., 2010).

These boundary conditions have practical implications. For clinicians and practitioners, nostalgia-based exercises may be especially helpful when clients feel disconnected, uncertain about the future, or constrained by limited time horizons, but still experience a sense of continuity with valued past selves (Hepper et al., 2021). In such contexts, guided nostalgic reflection may help clients access social support, recall successful coping strategies, and reconnect with intrinsic motivations. For individuals struggling with severe identity discontinuity or high attachment avoidance, however, nostalgia may need to be approached with caution or integrated into broader interventions that first stabilize identity and attachment security.

At a broader level, the findings complement cross-cultural work showing that nostalgia is a pancultural emotion with similar triggers and functions across societies, even as its specific content varies with cultural norms and history (Sedikides & Wildschut, 2022). This suggests that the comfort derived from nostalgia taps into basic human needs for belonging, temporal coherence, and meaning. Nevertheless, the existing evidence base has limitations. Many studies rely on Western, student-heavy samples, brief laboratory manipulations, and self-report outcomes. Longitudinal and ecologically valid research is still relatively rare, and few studies examine potentially adverse effects of nostalgia when boundary conditions are not met. Future work would benefit from more diverse samples, intensive longitudinal designs (e.g., daily process studies), and multi-method assessments that integrate behavioral, physiological, and qualitative indicators of comfort.

5. Conclusion

Nostalgia is more than a wistful glance over the shoulder; it is a psychologically potent resource that can help people feel socially held, temporally anchored, and existentially grounded. Across the reviewed studies, nostalgia consistently increased social connectedness, which in turn supported self-continuity, meaning in life, and authenticity, and even influenced perceptions of physical warmth. When people feel that their past and present selves are connected, and when they are open to interpersonal closeness, nostalgia appears to offer a reliable route to psychological comfort.

At the same time, nostalgia is not a one-size-fits-all intervention. Its benefits depend on identity continuity, attachment style, and how people think about their past. A reflective, similarity-focused stance—one that highlights ongoing threads between "who I was" and "who I am"—seems especially important. Understanding these mechanisms and boundary conditions can guide more intentional use of nostalgia in clinical practice, community programs, and everyday life, helping individuals draw on the past in ways that support, rather than hinder, present well-being.

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PROSPECTS FOR THE USE OF BIOMETRIC TECHNOLOGIES IN PSYCHOLOGICAL PRACTICE

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Abstract

The study aims to explore the possibilities and attitudes regarding the use of biometric technologies and in psychological practice. Using a questionnaire centered on future projections, data was gathered from respondents aged 18 to 54 who were pursuing a Bachelor's or Master's degree in Psychology and possessed varying levels of knowledge regarding biometric technologies. The research establishes that those technologies will play an increasingly significant role in socio-psychological services, supporting diagnostics and psychotherapy. However, a key challenge remains preserving the human factor and emotional connection in these professions. Projections up to the year 2030 indicate that biometric technologies will be widely integrated into organizational processes, becoming standard assistive tools in socio-psychological practice. Respondents are optimistic that biometric technologies will be used to assess progress in psychotherapy and as an an objective indicator of the effect of interventions for anxiety and trauma. In conclusion, the study highlights the need for a balanced approach to technological changes—one that combines the efficiency of automation with the preservation of emotional intelligence and interpersonal relationships in the workplace

Keywords: *Biometric technologies, psychological practice, projections, diagnostics, psychotherapy.*

1. Introduction

Technological innovation is rapidly transforming the ways in which social and psychological services are delivered. Among the emerging developments, biometric technologies have gained increasing attention for their potential applications in psychological assessment and therapeutic practice. A biometric technology is a system that functions as a pattern recognition mechanism that collects biometric information from an individual, processes this information to extract distinctive features and then compares these features with stored templates in a database to determine a match (Jain et al., 2004). Biometric technology uses measurable physiological or behavioral characteristics to differentiate and identify one individual from another (Abdulrahman & Alhayani, 2021). Leading platforms such as iMotions, Affectiva, FaceReader, and Emotient exemplify the technological progress. These systems combine facial expression analysis with streams of biometric data—including eye tracking, EEG, Facial Expression Recognition—to develop a more nuanced and detailed understanding of emotional dynamics (https://imotions.com/?srsltid=AfmBOooUZX5CQ67wZQeY9s2H6zRv3RvwDN_QQlE5CiaP50Jt_WtEbBa5). These technologies offer new possibilities for collecting objective data about emotional states, attention and behavioral patterns, which may complement traditional methods of psychological evaluation. Such integration creates new opportunities for studying emotional responses in real time across various contexts, ranging from psychotherapy and education to consumer behavior and social neuroscience.

In recent years, the integration of digital tools and data-driven approaches into mental health services has accelerated, particularly in areas such as remote counseling, digital therapy platforms, and automated monitoring systems. Biometric technologies have the potential to enhance these developments by providing real-time physiological feedback that can support diagnostic processes, monitor therapeutic progress, and evaluate the effectiveness of psychological interventions. For example, in psychological therapies psychologists may use measured indicators of a patient's emotional state to adjust the course of treatment according to the individual's needs (Brás et al., 2018). In addition, digital biometric methods for detecting Post-Traumatic Stress Disorder (PTSD) are receiving growing attention. However, their

development has been hindered by variations in study design, inconsistent reporting practices, and insufficient consideration of sex-based differences (Khaing & Nakayama, 2026). Therefore, biometric technologies may be especially valuable in the assessment and treatment of various psychological conditions where physiological indicators often play a significant role. Eye-tracking technology has also become an important methodological tool in psychological research, allowing researchers to objectively measure visual attention and cognitive processing through gaze patterns and fixation behavior (Duchowski, 2017; Holmqvist et al., 2011).

Despite these promising opportunities, the growing use of biometric technologies in psychological practice also raises important professional and ethical questions. One of the central concerns involves the preservation of the human element in therapeutic relationships. Psychological practice traditionally relies on empathy, emotional understanding and interpersonal communication between practitioner and client. The increasing reliance on automated systems and technological mediation may challenge these core components of therapeutic work if not carefully integrated into professional practice.

Given these developments, it is important to examine how future psychologists perceive the role of biometric technologies in their profession. Understanding their expectations, attitudes and concerns can provide insight into how such technologies may be adopted in practice and what challenges may arise during their implementation.

The present study explores the perceptions of psychology students regarding the future use of biometric technologies in socio-psychological services. By examining respondents' projections about technological integration up to the year 2030, the research aims to identify both the perceived benefits and potential limitations of biometric tools in diagnostics, psychotherapy and the evaluation of therapeutic outcomes.

2. Methods

2.1. Procedure

A Delphi-style questionnaire was distributed via Google forms to psychology students. The collected responses were then analyzed. Participants were informed that their involvement was voluntary and that all information would remain confidential. The survey took place in January 2026.

2.2. Participants

The sample consisted of 77 university students, enrolled in bachelor's or a master's programmes in psychology. The stakeholders encompass a diverse range of age groups. Specifically, there are 23 participants aged 18-24, 18 individuals in the 25-34 age group, 23 respondents aged 35-44 ,10 students in the 45-54 age group and 3 individuals aged 55-64. The majority of participants were female (n = 70), with 7 males.

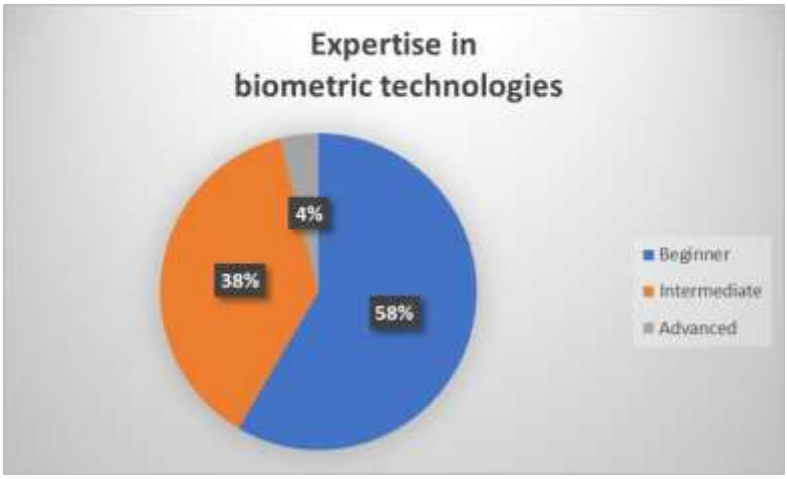
2.3. Measures

The study employed a specially designed survey comprising 10 statements, each examining various aspects of biometric technologies in psychology. The research aimed to assess the potential applications in the mid-term of these technologies within psychological practice in Bulgaria where their adoption remains limited and they are not yet widely implemented.

3. Analysis of results

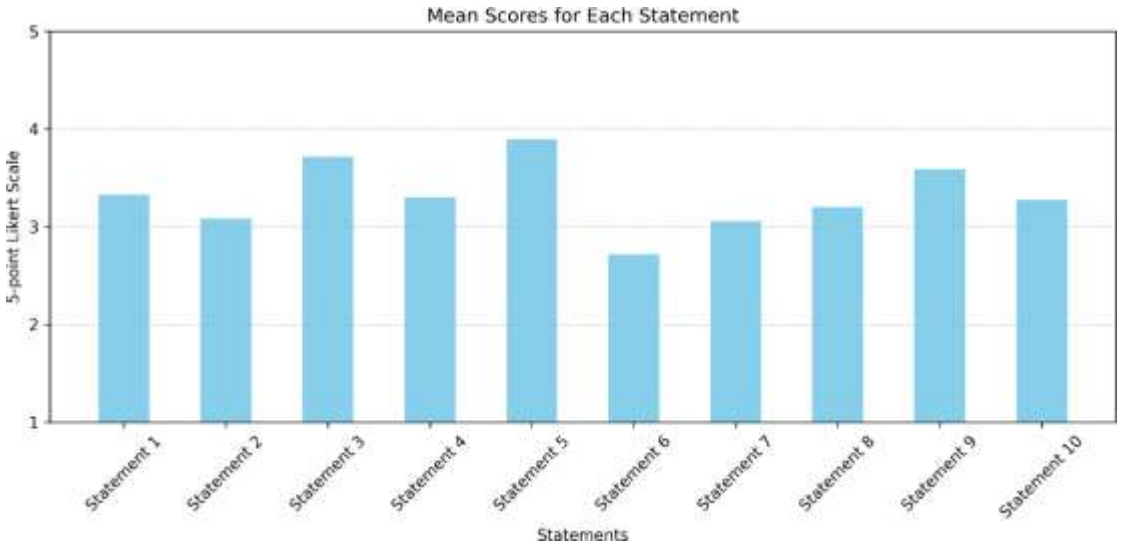
The majority of respondents (58%) reported having beginner-level knowledge of biometric technologies, indicating limited familiarity with these tools. A substantial portion (38%) described themselves as having intermediate expertise, suggesting a moderate understanding of the concepts and applications. Only a small minority (4%) considered themselves advanced users, highlighting that highly experienced individuals in biometric technologies are rare among the sample. This distribution suggests that most participants may have basic exposure to biometric technologies, which could influence their perceptions, attitudes and expectations regarding the use of these tools in psychological practice. The results can be seen in Figure 1.

Figure 1.



To address our research objective, we analyzed the response patterns on the 5-point Likert scale. The answers range from 1- not likely at all to 5- highly likely. Figure 2 presents the distribution of responses for all ten survey statements. Most statements fall in the moderately likely range (3), indicating that respondents generally expect these outcomes related to biometric technologies to come true, but with some caution. Statement 5, which states "By 2030, at least one biometric technology platform will be available in Bulgarian (including interface/documentation/training)", stands out as the highest mean (4.00), showing strong confidence or agreement. Statement 6, stating "By 2030, biometric tools will be implemented in at least 50% of psychological centers of various institutions (schools, hospitals)", has the lowest mean (2.67), indicating uncertainty or less expectation that this scenario will occur in the near future.

Figure 2.



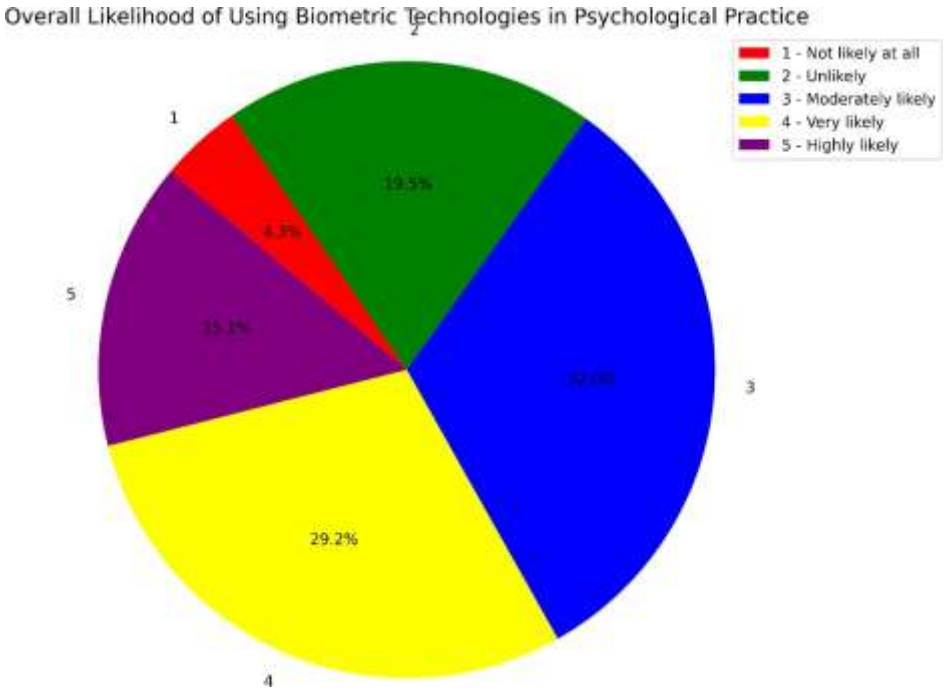
The overall distribution of responses across all survey statements indicates a generally positive expectation regarding the use of biometric technologies in psychological practice. The largest proportion of responses falls within the moderate likelihood category (3- moderately likely), accounting for 32.0% of responses. This suggests that many respondents perceive the future integration of biometric technologies as possible but with some uncertainty.

A substantial share of participants selected 4 – very likely (29.2%), indicating that they consider the adoption of these technologies likely. Additionally, 15.1% of responses fall within the highest category (5 – highly likely), reflecting a notable level of confidence in the future implementation of biometric technologies in psychological practice.

In contrast, lower likelihood responses were less common. Only 19.5% of responses correspond to 2 (unlikely) and 4.3% to 1 (not at all likely), suggesting that relatively few respondents strongly doubt the potential integration of such technologies.

Overall, the results indicate a moderately optimistic outlook, with the majority of responses concentrated in the middle-to-upper range of the Likert scale (3–5). This pattern suggests that psychology students generally expect biometric technologies to play a role in future psychological practice, although some degree of uncertainty remains. The results can be seen in Figure 3.

Figure 3.



4. Discussion

The findings of this study provide insight into psychology students' expectations regarding the future use of biometric technologies in psychological practice. Overall, the distribution of responses across the Likert scale indicates a moderately optimistic outlook toward the integration of such technologies. Most responses were concentrated in the middle and higher categories of the scale (3–5), suggesting that respondents generally perceive biometric technologies as likely to become part of psychological practice, although some uncertainty remains. The highest proportion of responses fell within the moderate likelihood category, which may reflect the current stage of technological adoption in psychological practice, particularly in the Bulgarian context where biometric technologies are not yet widely implemented. The results also need to be interpreted in light of the participants' level of familiarity with biometric technologies. As indicated in the study, the majority of respondents identified themselves as beginners in this area. This limited level of expertise may partially explain the moderate rather than strongly positive expectations observed in the data. As knowledge and exposure to biometric technologies increase during professional training and practice, attitudes toward their implementation may also become more favorable.

Overall, the findings suggest that psychology students recognize the potential benefits of biometric technologies, particularly as supportive tools that could enhance diagnostic accuracy, monitor emotional and physiological responses, and evaluate therapeutic progress. However, respondents also appear to view these technologies primarily as complementary instruments rather than replacements for traditional psychological methods.

Acknowledgments

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SOCIAL SUPPORT AND SELF-EFFICACY AS PREDICTORS OF BASIC NEEDS CRAFTING AMONG ADOLESCENTS

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Abstract

Need crafting represents the degree of self-awareness and proactive engagement in fulfilling the basic psychological needs for autonomy, competence, and relatedness. This trait develops during adolescence and may be supported by relationships with significant others. At the same time, adolescents in middle and late adolescence have sufficient life experience to perceive and evaluate their own self-efficacy. The aim of the study was to examine the relationship between need crafting within the three basic psychological needs, social support from family, friends, and significant others, and general self-efficacy. The sample consisted of 293 adolescents (Mage = 17.69, SD = 1.33; 62,5% of women). Data were collected using the Need Crafting Scale, the Multidimensional Scale of Perceived Social Support, and the General Self-Efficacy Scale. Data were processed in SPSS 21 using regression models. According to the results, need crafting for competence ($R^2 = 30.50$; $F = 25.22$, $p < .001$), autonomy ($R^2 = 22.50$; $F = 16.70$, $p < .001$), and relatedness ($R^2 = 31.12$; $F = 26.05$, $p < .001$) was associated with social support from significant others and friends. Social support from family did not show a significant relationship with the dependent variables. Self-efficacy was a significant predictor of need crafting in the areas of competence and autonomy, but not relatedness. The results support the examination of the role of significant others in the development of adolescents' personality and mental health. In the category of significant others, it is possible to include friends, romantic partners, as well as important non-parental adults present in the adolescents' natural environment. At the same time, results suggest that self-awareness and proactivity in the domain of relational needs may be associated with different personality traits than those related to autonomy and competence.

Keywords: *Social support, self-efficacy, basic needs, need crafting, adolescence.*

1. Introduction

Need crafting represents awareness and a proactive stance toward satisfying one's own psychological needs (LaPorte et al., 2022). During adolescence, it becomes especially important due to increasing self-awareness and identity development. The question arises as to what extent this mechanism results from external sources and to what extent from internal predispositions. At the same time, Self-Determination Theory posits that the needs for autonomy, competence, and relatedness function as distinct psychological nutrients for personal growth, and that different environmental conditions lead to the satisfaction of each of them (Ryan & Deci, 2017).

Self-efficacy is the belief that an individual can successfully manage new or difficult tasks and cope with various challenges (Schwarzer & Jerusalem, 1995). Studies show that self-efficacy is associated with higher autonomy, mastery, reduced perceived risk, and decreased passivity (Napier et al., 2024; Putter et al., 2024). In order for individuals to approach their needs proactively, they must believe in their ability to meet them.

Social support has also been shown to play an important role in psychological needs. It provides a context in which adolescents can shape and practice the ability of need crafting, which requires safety for experimentation and opportunities to experience beneficial social situations (Laporte, 2022). LaPorte et al. (2022) found that autonomy-supportive parenting was associated with higher need satisfaction and lower need frustration. A remaining question concerns the role of different social contexts in which support is provided, and how these contexts contribute to the crafting of each basic need.

The aim of this contribution is to examine the relationship between self-efficacy and various sources of social support in relation to the need crafting of adolescents' individual psychological needs.

2. Methods

The sample consisted of 293 adolescents (Mage = 17.69, SD = 1.33; 62,5% of women). Adolescents were invited to participate in the study through university students, who were instructed to approach adolescents aged 15–20 years within their social networks, specifically secondary school students. In addition, the legal guardian of each adolescent completed an informed consent form containing information about the study prior to data collection. To prevent duplicate responses from the same participant, each respondent was asked to provide a unique personal code at the beginning of the questionnaire.

The Need Crafting Scale (Laporte et al., 2022) is a 30-item instrument assessing a proactive approach to fulfilling the needs for autonomy, competence, and relatedness. Each need is evaluated through 10 items, of which six capture the awareness component and four measure the action component. Example items include: "It is clear to me …" and "As much as possible, I try to do things …". All items are rated on a 5-point Likert scale ranging from 1 (not at all true) to 5 (completely true) (Cronbach alfa=0.866).

The Multidimensional Scale of Perceived Social Support (Zimet et al., 1990) measures social support from family, friends, and significant others. Each form of support is assessed through four items, rated on a 7-point Likert scale indicating the degree of agreement. (Cronbach's alpha …)

The General Self-Efficacy Scale (GSES) (Košč et al., 1993) measures the extent of an individual's beliefs regarding their general self-efficacy, understood as the ability to respond to environmental demands and to exert control over them. Respondents rate the extent to which ten self-evaluative statements apply to them on a 4-point scale. (Cronbach's alpha …).

The data were processed using descriptive statistics, Pearson's correlation coefficient, and regression models in the JAPS software.

3. Results

Table 1. Descriptive Statistics.

	NCM_C	NCM_A	NCM_R_	SSFam	SSFri	SSSig	Self-efficacy
M	25.297	25.116	25.628	21.706	22.918	23.860	30.546
SD	3.845	3.820	4.022	5.779	5.016	5.260	5.344
Skewness	-0.730	-0.854	-0.975	-0.811	-1.188	-1.554	-0.423
SE	0.142	0.142	0.142	0.142	0.142	0.142	0.142
Min	7.000	7.000	9.000	4.000	4.000	4.000	14.000
Max	35.000	35.000	35.000	28.000	28.000	28.000	40.000

*NCM_C – need crafting (competence), NCM_A – need crafting (autonomy), NCM_R (relatedness). SSFam – social support of family, SSFri – social support of friends, SSSig (social support of significant adult), Self-efficacy

Table 2. Correlation of variables.

	1.	2.	3.	4.	5.	6.	7.
1. Need crafting (competence)	—						
2. Need crafting (autonomy)	.737**	—					
3. Need crafting (relatedness)	.712**	.713**	—				
4. Social support (family)	.201**	.241**	.273**	—			
5. Social support (friends)	.418**	.308**	.467**	.403**	—		
6. Social support (significant other)	.468**	.446**	.522**	.613**	.713**	—	
7. Self-efficacy	.371**	.361**	.315**	.219**	.338**	.301**	—

Note ** p<0.001

Regarding social support, all forms of need crafting were significantly correlated with all its types. Support from a significant other consistently showed the highest correlations with needs (r = .468 to .522), followed by support from friends (r = .308 to .467), and finally support from family (r = .201 to .273). This suggests that a close, significant person contributes the most to the satisfaction of psychological needs, whereas family support appears to have a weaker effect.

General self-efficacy was also significantly correlated with all three forms of need crafting. The correlations ranged from r = .315 (relatedness) to r = .371 (competence), indicating that individuals with stronger beliefs in their ability to cope with situations also tend to experience greater satisfaction of their psychological needs.

Table 3. Social support and general self-efficacy as a predictors of competence related need crafting.

	B	**SE**	**β**	**t**	**p**	**Lower CI**	**Upper CI**	**Tolerance**	**VIF**
Intercept	12.048	2.257	—	5.336	<.001	7.605	16.491	—	—
Social support: family	0.083	0.078	0.051	1.066	.287	-0.072	0.240	.740	1.352
Social support: priatelia	-0.005	0.022	-0.012	-0.226	.822	-0.048	0.038	.568	1.762
Social support: significant other	0.231	0.064	0.230	3.587	<.001	0.104	0.358	.596	1.676
General Self-Efficacy	0.180	0.044	0.223	4.089	<.001	0.093	0.266	.800	1.187

A linear regression analysis was used to examine the relationship between family social support, friend social support, and significant-other social support, as well as self-efficacy, in relation to competence-related need crafting.

The model was statistically significant, $F(4, 288) = 31.48$, $p < .001$, and explained approximately 30% of the variance in the dependent variable ($R = .553$, $R^2 = .306$, Adjusted $R^2 = .298$). Support from a significant other, as well as general self-efficacy, significantly predicted the level of competence-related need crafting

Table 4. Social support and general self-efficacy as a predictors of autonomy related need crafting.

	B	SE	β	t	p	Lower CI	Upper CI	Tolerance	VIF
Intercept	13.755	1.328	—	10.359	< .001	—	—	—	—
Social support: family	0.025	0.084	0.035	0.305	.754	-0.140	0.191	.740	1.352
Social support: friends	0.062	0.026	0.206	2.286	.023	0.008	0.116	.568	1.787
Social support: significant other	0.157	0.049	0.216	3.215	.001	0.060	0.253	.559	1.670
General Self-efficacy	0.129	0.033	0.236	3.903	< .001	0.064	0.195	.840	1.191

A linear regression analysis was used to examine the relationships among family social support, friend social support, significant-other social support, and general self-efficacy in relation to autonomy-related need crafting. The model was statistically significant, $F(4, 288) = 20.924$, $p < .001$, and explained 22.6% of the variability in autonomy-related need crafting ($R = .475$, $R^2 = .226$, Adjusted $R^2 = .214$). Significant predictors were friend social support, significant-other social support, and general self-efficacy.

Table 5. Social support and general self-efficacy as a predictors of relatedness related need crafting.

	B	SE	β	t	p	Lower CI	Upper CI	Tolerance	VIF
Intercept	13.806	1.321	—	10.526	<.001	—	—	—	—
Social support: family	0.016	0.046	0.021	0.266	.715	-0.074	0.106	.740	1.352
Social support: friends	0.175	0.056	0.223	3.148	.002	0.065	0.285	.566	1.767
Social support: significant other	0.208	0.038	0.270	5.449	<.001	0.133	0.284	.595	1.670
General Self-efficacy	0.078	0.034	0.204	3.083	.002	0.011	0.144	.840	1.191

A regression model was used to examine the relationships among family social support, friend social support, significant-other social support, and general self-efficacy in relation to relatedness-related need crafting. The model was statistically significant, $F(4, 288) = 32.113$, $p < .001$, and explained 36.0% of the variance in the dependent variable ($R = .600$, $R^2 = .360$, Adjusted $R^2 = .352$). Significant predictors were friend social support, significant-other social support, and general self-efficacy.

4. Discussion

The aim of the study was to examine the relationships between three forms of social support (family, friends, and significant other) and general self-efficacy in relation to need crafting for the three basic psychological needs—autonomy, competence, and relatedness. The target group consisted of adolescents aged 15 to 20.

The results showed that general self-efficacy was a predictor of need crafting for all three needs. Social support from a significant other was likewise a predictor across all three needs. Friend social support predicted autonomy-related need crafting and relatedness-related need crafting, but competence-related need crafting was not associated with friend social support. Family social support was not associated with need crafting for any of the needs.

The predictors of competence-related need crafting were general self-efficacy and social support from a significant other. In this case, it is possible to consider a link between the satisfaction of the needs for competence and relatedness. When the need for relatedness is met, space is created for the fulfilment of the need for competence (Niemiec & Ryan, 2009; Furrer & Skinner, 2003). During adolescence, social life gradually shifts from prioritizing belonging to a peer group toward dyadic relationships (Brown & Larson, 2009). Competence-related need crafting may therefore reflect adolescents' perceived ability to build close relationships. At the same time, the question arises of who can qualify as a significant other. A romantic partner, a close friend, or even a natural mentor may serve as a person fulfilling the role of a significant relational figure (Van Dam et al., 2018). Future research could develop and validate instruments that distinguish the role of a significant adult's social support more precisely.

Autonomy-related need crafting and relatedness-related need crafting were predicted by friend social support, significant-other social support, and general self-efficacy. Family social support was not a significant predictor. This finding does not necessarily indicate a lack of family support among adolescents, but rather reflects the increasing importance of relationships outside the family during middle and late adolescence. Separating from the family of origin is an essential condition for the development of autonomy (Beyers et al., 2024). Autonomy-supportive parenting provides a secure foundation for forming other adaptive relationships in which autonomy can be expressed (Joussemet, Landry, & Koestner, 2008). It is possible that family social support did not emerge as a significant predictor for any form of need crafting because its influence overlaps with the effects of friend and significant-other support.

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COLLABORATIVE VIRTUAL REALITY EXPOSURE FOR ACROPHOBIA: A MULTIPLE-BASELINE SINGLE-CASE STUDY WITH PSYCHOLOGICAL AND PHYSIOLOGICAL MEASURES

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Abstract

This study investigated the use of a collaborative immersive virtual reality environment (CIVE) for therapist-guided exposure in the treatment of acrophobia, integrating both psychological and physiological measures. Using a Single Case Experimental Design (SCED) with a multiple-baseline structure, three participants with a fear of heights completed repeated baseline sessions followed by therapist-guided virtual reality exposure therapy (VRET) sessions conducted in a shared virtual space. Our CIVE application enabled real-time interaction between therapist and client, dynamic adjustment of exposure intensity, and continuous heart rate (HR) monitoring via Bluetooth-connected sensors. Participants progressed through a height-simulation protocol inside a virtual elevator while completing validated measures of fear, anxiety, distress, and simulator sickness. Semi-structured interviews complemented the quantitative data to capture subjective experiences of the cognitive-behavioral therapy (CBT) process. The study aimed to examine how collaborative VR-based exposure, informed by real-time physiological feedback, could support individualized therapeutic work with acrophobia and provide deeper insight into psychological and physiological processes during guided VRET.

Keywords: *Collaborative immersive virtual environment, VR, exposure therapy, CBT, acrophobia.*

1. Introduction

Immersive virtual reality (VR) technology is increasingly utilized beyond entertainment, including for educational and clinical purposes. By presenting vivid, controllable environments, VR can elicit realistic emotional and behavioral responses (Checa & Bustillo, 2019). In psychotherapy, this control allows practitioners to expose clients to feared stimuli in a safe and repeatable fashion (Diemer et al., 2015).

Exposure to heights is a core intervention for acrophobia. During exposure, individuals confront feared situations to disconfirm catastrophic expectations and facilitate fear reduction (Craske et al., 2014). Evidence synthesized across trials shows that VRET produces outcomes comparable to those of traditional exposure for various specific phobias (Carl et al., 2019).

Many contemporary VRET systems employ preprogrammed scripts or position the therapist outside the virtual scenario. While automation can provide consistency, it may lack the warmth, flexibility and alliance that a live therapist offers (Buchholz & Abramowitz, 2020). Research on guided VRET suggests that therapist involvement can smooth physiological recovery even when self-reported anxiety is unchanged (Varšová et al., 2024).

CIVEs are networked VR platforms that allow multiple users to occupy the same simulated space, observe each other as avatars, and interact in real time. Their use has grown in education and training, yet applications to psychotherapy are limited (Zarei et al., 2024). The study summarized here explored whether embedding the therapist within a CIVE would enhance exposure outcomes for people with severe fear of heights. We anticipate that repeated sessions in a collaborative immersive VR setting with a therapist will gradually reduce participants' self-reported anxiety and lead to more adaptive physiological responses, such as lower peak HR and faster post-exposure recovery compared with baseline. We also expect participants to view the treatment as credible and to have positive expectations, with these attitudes remaining steady or improving over time. Finally, we predict that any gains in subjective anxiety and physiological regulation will persist at follow-up rather than fading immediately after the sessions.

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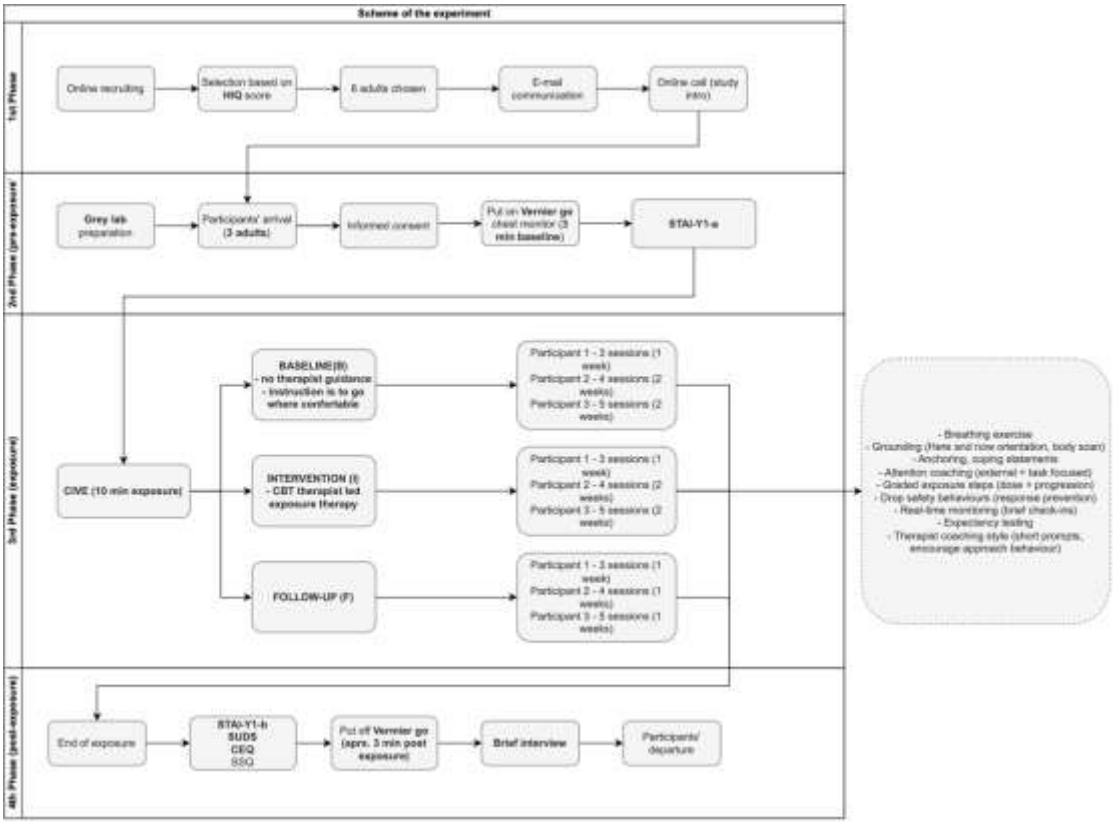
2. Methods

2.1. Participants and design

Three adults (two women, one man) with significant acrophobia responded to recruitment adverts and were screened to exclude other psychological disorders. A multiple-baseline SCED was used to control for time effects and to allow individual trajectories to be compared across staggered baselines (Kratochwill et al., 2010).

Each participant progressed through baseline (B), intervention (I) and follow-up (F) phases. Baseline consisted of three to five sessions in which participants explored a virtual skyscraper by themselves. During the intervention, a psychotherapist connected to the same environment using an avatar, delivering cognitive restructuring, coping instructions and encouragement while the participant ascended floors. The follow-up phase, scheduled after a delay, mirrored the baseline sessions but without the psychotherapist present. Whole course of the experiment is illustrated in Figure 1.

Figure 1. Overview of the experimental procedure.



2.2. Ethics

Ethical approval was obtained from Masaryk University's Faculty of Arts ethics panel, and the study complied with the Declaration of Helsinki. Participation was voluntary; each participant gave written consent and could withdraw at any point before data collection ended without penalty or loss of compensation, after which personal identifiers were destroyed. The study's aims, procedures and data handling were explained in full before enrollment. Although the VR sessions provoked anxiety, they produced no lasting changes in HR or other physiological measures.

2.3. Measures

The primary behavioral outcome was the subjective evaluation of distress, state anxiety, and highest floor participants ascended in each session. State anxiety was assessed using the State form of the State–Trait Anxiety Inventory (Spielberger, 1989) before and after each session. Distress was rated repeatedly using a 0–10 Subjective Units of Distress (SUDS) scale. Heart rate was recorded continuously via a chest-strap sensor. Participants also completed the credibility–expectancy questionnaire (CEQ; Devilly & Borkovec, 2000) and Simulator Sickness Questionnaire (SSQ; Kennedy et al., 1993) after each session.

2.4. Data analysis

Participants were de-identified (P1–P3) and sessions were coded into baseline (B), intervention (I) and follow-up (F) phases using staggered baselines (3, 4 or 5 sessions) and matched intervention lengths to support replication logic. Primary outcomes included maximum floor reached, state anxiety measured before and after each exposure (STAI-Y1-a and STAI-Y1-b, with ΔSTAI = STAI-Y1-b − STAI-Y1-a) and SUDS ratings recorded every five floors; SUDS were summarized per session as the mean across reached floors, and secondary outcomes (SSQ, CEQ) were analyzed at the session level. For each participant and phase we computed means, standard deviations and sample sizes for floor reached, STAI-Y1-a, STAI-Y1-b, ΔSTAI and mean SUDS, then visually inspected time-series plots with phase transitions to assess level, trend, variability, immediacy of effect, overlap and cross-participant consistency, summarizing phase stability as the proportion of points within ±15 % of the median. Phase contrasts were quantified using non-overlap effect sizes-NAP and PND-comparing baseline against intervention and follow-up in the direction of improvement. Within each case we fitted segmented regressions to estimate immediate level change at intervention onset and slope change during intervention for floor reached and ΔSTAI, and across cases we ran linear mixed-effects models with random intercepts and fixed effects for intervention and follow-up (baseline reference) for floor reached, mean SUDS, STAI-Y1-a and -b, SSQ and CEQ, aligning with standardized mean-difference frameworks and verifying model-based estimates using established single-case effect-size calculators. Physiological reactivity was assessed via the maximum cross-correlation between the elevator height profile and heart rate within a −10 to +30 s lag, with phase differences tested using the non-parametric Tau-U index to detect decoupling between stimulus and response. All analyses and figures were generated via reproducible Python notebooks, and brief semi-structured interviews before and after sessions captured subjective experiences such as anxiety tolerance, coping strategies, perceptions of therapist co-presence and perceived changes or learning across sessions.

3. Results

Descriptive analysis indicated that participant P1 averaged roughly 10 floors in B, dropped slightly during the I to 9 floors and then improved markedly at F (around 16), whereas P2 and P3 progressed from about 8 to 12 floors and maintained or improved further in F; change scores showed P1's state anxiety rising during the intervention (ΔSTAI≈15) but declining afterwards, while P2 and P3's anxiety decreased during the I and remained low. Patterns in pre- and post-session STAI scores mirrored these trends, with P2 and P3 declining across phases and P1's post-session anxiety increasing during the intervention but falling by F.

Visual inspection revealed stable B for P1 and P2 but instability for P3, immediate increases in performance for P2 and P3 and a decline then recovery for P1 during I, and high stability in F; SUDS for B and anxiety were unstable, with P2 and P3 showing decreases or stability during I and P1 improving mainly at F. Non-overlap metrics confirmed these differences, with weak floor improvements for P1 (NAP=0.28) versus strong improvements for P2 and P3 (NAP≈0.94–0.96) and anxiety reductions only in P2 and P3; comparing B to F showed complete non-overlap for floors for all and sustained anxiety reductions. Mixed-effects models yielded significant increases in floors (baseline mean 8.67, +2.67 floors during intervention, +6.11 at follow-up), significant reductions in SUDS and state anxiety, marked declines in SSQ and improved CEQ, indicating robust and persistent intervention effects. Segmented regressions showed P1 had an immediate negative level change followed by a positive slope, while P2 and P3 exhibited immediate and sustained gains; physiological analysis found strong HR–stimulus coupling for P1 (rmax=0.82) with no decoupling, low coupling and complete decoupling for P2 (rmax=0.34, Tau-U=–1.00) and moderate coupling with partial decoupling for P3 (rmax=0.65, Tau-U=–0.80). SSQ scores remained low and CEQ ratings high, suggesting good tolerance. Qualitative observations noted P1's transition from escape-driven patterns to deliberate pacing and stable HR, P2's reduction in gastrointestinal discomfort and increased control (with an anomalous bradycardic profile late in treatment), and P3's shift from anticipatory panic and freezing to active engagement supported by grounding, breathing and therapist co-presence, even though physiological processing remained effortful.

4. Discussion

The present study provides early evidence that placing a therapist in the virtual environment can enhance acrophobia treatment. The behavioral gains and anxiety reductions observed during the psychotherapist-assisted sessions are consistent with the idea that real-time feedback, reassurance and modelling of calm behavior promote inhibitory learning and reduce reliance on safety behaviors (Craske et al., 2014).

The observed reductions in HR–height coupling suggest that psychotherapist presence may support down-regulation of autonomic arousal. This finding resonates with research linking presence, fear and physiological responses in VR (Gromer et al., 2019) and with studies showing that supportive guidance reduces heart rate during VR tasks (Felnhofer et al., 2014).

Several limitations temper these conclusions. The small sample limits generalizability, and the multiple-component nature of the intervention (which combined therapist presence, cognitive restructuring and repeated exposure) makes it hard to isolate active elements. A nonconcurrent baseline design cannot rule out placebo effects or spontaneous remission. To better understand the mechanisms at play, future work should compare co-present and externally guided VRET in larger samples, measure therapeutic alliance, and test the approach with different phobias.

Despite these constraints, the findings illustrate the promise of CIVEs in psychotherapy. Advances in networked VR and decreasing hardware costs mean that therapists could share the virtual environment with clients more routinely, potentially strengthening the therapeutic relationship and promoting engagement (Buchholz & Abramowitz, 2020; Zarei et al., 2024). Integration with adaptive biofeedback and other technological innovations, as discussed by Moldoveanu et al. (2023), may further enhance outcomes.

5. Conclusion

Embedding a psychotherapist within a virtual exposure session appears to confer meaningful benefits for adults with acrophobia. In this multiple-baseline SCED study, psychotherapist involvement improved behavioral performance, lowered subjective anxiety and altered physiological responses. These promising results call for more rigorous studies to determine whether shared virtual presence reliably augments virtual reality exposure therapy and to explore its applicability to broader clinical populations.

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ADOLESCENT'S PERSPECTIVE ON BULLYING PREVENTION AND HEALTH PROMOTION

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Abstract

This article analyzes adolescents' perceptions of school bullying practices, considering victimization, perpetration, and strategies for prevention and health promotion. A study was conducted with 85 students from the 6th to the 9th grade of elementary school at a private school in São Paulo, through the application of a questionnaire based on the School Bullying Assessment Scale (EAB-E) and the realization of focus groups by grade level. The results indicate a relevant frequency of exclusion, unwanted nicknames, and derogatory comments mainly associated with body-related aspects and skin color, in addition to barriers to seeking help from reference adults. Greater recognition of the suffering related to victimization was observed than of one's own involvement in aggressive behaviors, suggesting the naturalization of such behavior as "joking." Conversation circles expanded the understanding of the findings and fostered reflection and communication. It is concluded that preventive and dialogical interventions, with the active participation of Psychology in schools, are essential for the promotion of mental health in adolescence.

Keywords: *Bullying, school violence, adolescent health, prevention, health promotion.*

1. Introduction

Bullying is a complex phenomenon that permeates the school context and may compromise the emotional, social, and academic development of children and adolescents. According to Olweus (1993), it is characterized by aggressive, intentional, and repetitive behaviors, carried out by an individual or group against someone at a disadvantage of power. It manifests itself in direct forms (physical and verbal aggression) and indirect/relational forms (social exclusion, spreading rumors, and isolation), and may include practices in the digital environment (Smith et al., 2004; UNICEF, n.d.; SaferNet Brazil, 2009).

In adolescence, a period marked by bodily and identity changes and by the greater centrality of peer groups, aggressions and derogatory nicknames related to the body, skin color, and other social markers tend to produce significant impacts on self-esteem, belonging, and mental health (Fante, 2005; Machado Júnior, 2016). In Brazil, Law No. 13,185/2015 established the Program to Combat Systematic Intimidation, reinforcing the need for preventive and educational actions in the school environment.

However, the identification of bullying is hindered when practices occur in a veiled manner or when students avoid reporting incidents due to fear, shame, or disbelief in adult responses. Thus, assessment instruments such as the EAB-E may support screening and intervention planning. Nevertheless, understanding the phenomenon also requires listening and dialogue devices; in this sense, conversation circles and focus groups foster critical reflection and the elaboration of experiences, in line with a dialogical perspective in education and health (Freire, 1996; Kitzinger, 2000).

2. Objective

To identify and analyze experiences and perceptions of bullying victimization and perpetration among adolescents from the 6th to the 9th grade, articulating standardized assessment and focus groups, with the aim of supporting prevention and health promotion actions in the school context.

3. Methodology

This is a mixed-methods study (quantitative and qualitative), conducted with 85 adolescents aged 11 to 15 years from lower secondary education (6th to 9th grade) at a private school in São Paulo. The sample was distributed by grade level as follows: 6th grade (n=10), 7th grade (n=23), 8th grade (n=25), and 9th grade (n=27).

Quantitative instrument and procedure. A self-administered questionnaire based on the School Bullying Assessment Scale (EAB-E) was used, composed of 47 closed-ended items ("always," "sometimes," "never"). The items were organized into two blocks: (a) victimization (e.g., exclusion, nicknames, humiliation, rumors, threats, and derogatory comments about body/skin color) and (b) perpetration (e.g., giving nicknames, mocking, fighting, hitting/pushing, spreading lies, threatening, and taking out anger on others). Responses were analyzed descriptively using percentages.

Qualitative stage. After completing the questionnaire, students participated in focus groups/conversation circles, separated by age group and grade level, with mediation by facilitators. This stage aimed to deepen the understanding of the findings and to foster the expression of feelings, meanings attributed to the practices, and possibilities for coping (Kitzinger, 2000; Freire, 1996).

4. Results and discussion

Regarding sample characterization, overall, 51.9% of participants were female. Most lived with both parents (75.3%), followed by those living only with their mother (17.3%).

With respect to victimization and suffering, the most frequent indicators involved experiences of distancing after suffering harm (48.1% "sometimes"), feelings of exclusion (54.2%), and the occurrence of unwanted nicknames (39.9%). Among those who experienced nicknames and offensive joking, 23.5% reported crying as a result of these situations, and 38.9% "sometimes" (13.8% "always") reported discomfort with tasteless jokes. Negative comments about body parts or skin color were also highlighted (48.1% "sometimes" and 6.2% "always"), suggesting an association between bullying and identity and bodily markers, which are particularly sensitive during puberty (Fante, 2005; Machado Júnior, 2016).

Issues related to coping, silence, and seeking support were also addressed by the questionnaire. The perception of threat was relatively low (19.8% "sometimes" and 1.2% "always"); nevertheless, important barriers to communication with adults emerged. Some adolescents indicated difficulty in confronting those who made them feel bad (24.7% "sometimes" and 17.3% "always") and fear of telling someone about hurtful jokes due to concern that the situation would worsen (17.3% "sometimes" and 6.2% "always"). Additionally, 12.3% reported fear of going to school, and 29.6% "sometimes" (14.8% "always") reported fear of telling their parents what happens. These findings support the hypothesis that suffering is intensified when there are no safe channels for listening and institutional response, fostering isolation and avoidance.

Regarding perpetration, compared to victimization, there was less explicit recognition of aggressive behaviors. Twenty-one percent reported that they had "sometimes" been perpetrators of bullying; 23.5% reported "sometimes" mocking others; and 27.2% reported "sometimes" hitting, pushing, or hurting someone. At the same time, ambivalence regarding nicknames was observed, as many reported liking to give nicknames but not to receive them (87.7%). The discrepancy between recognizing suffering and recognizing perpetration suggests the naturalization of aggressive practices as "joking" and reinforces the importance of psychoeducational interventions that name violence, promote accountability, and expand empathy and emotional self-regulation.

The conversation circles, as an investigative and at the same time therapeutic action, deepened the questionnaire data by fostering the expression of feelings related to nicknames, jokes about the body, and the need to be heard. At the end, adolescents summarized the experience using terms such as respect, reflection, communication, and understanding, indicating the potential of dialogical devices to promote critical awareness, coexistence agreements, and the strengthening of bonds in the school context (Freire, 1996).

5. Final considerations

The results indicate that bullying, especially in its relational and verbal forms, remains associated with experiences of exclusion, nicknames, and derogatory comments about body and skin color, with relevant emotional repercussions. Difficulty in seeking help and communicating the problem to reference adults was also observed, which may perpetuate violence and isolation.

The integration of standardized assessment and conversation circles proved to be a promising strategy to identify patterns of victimization and perpetration and, at the same time, to promote listening, reflection, and accountability. In this process, the role of the psychologist in the school environment stands out, acting in the promotion of mental health, conflict mediation, strengthening of socioemotional skills, and articulation with families and the pedagogical team for continuous prevention.

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TRACING THE LONG-TERM IMPACT OF EMOTIONAL ABUSE ON ADOLESCENT DETACHMENT AND ANXIETY

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Abstract

Patterns of psychological adjustment during adolescence are shaped by the complex interplay between developmental transitions and relational experiences. Emotional abuse, in particular, has been repeatedly associated with a wide range of negative outcomes, including maladaptive personality features, and elevated internalizing symptoms. Despite this growing body of evidence, the mechanisms through which emotional abuse exerts its influence over time remain insufficiently clarified. To address these gaps, the present longitudinal study investigated the dynamic relationships between emotional abuse, detachment, and anxiety across three time points spanning one year. Data were collected at baseline, six months later, and twelve months later from a large community sample of 1,847 Italian adolescents, with a mean age of 15.50 years (SD = 1.09). EA was assessed using the Emotional Abuse subscale of the Childhood Trauma Questionnaire–Short Form (CTQ-SF), detachment through the detachment subscale of the Personality Inventory for DSM-5–Brief Form (PID-5-BF), and anxiety via the anxiety subscale of the Depression Anxiety Stress Scales–21 (DASS-21). Structural equation modeling (SEM) with latent variables was conducted. The final model showed acceptable fit:: $\chi2(312)=525.179$; $p<.001$, $\chi2/df=1.683$, CFI=.993, RMSEA=.019 (90% CI=.016–.022), and SRMR=.014. The findings revealed that emotional abuse at T1 and at T2 significantly predicted both detachment and anxiety at T2 and at T3, respectively. Detachment at T1 and at T2 significantly predicted anxiety at T2 and at T3, respectively. Detachment did not predict emotional abuse, and anxiety did not predict either emotional abuse or detachment. Mediation analyses indicated that emotional abuse at T1 indirectly predicted anxiety at T3 through emotional abuse at T2, detachment at T2, and anxiety at T2. In addition, detachment at T1 indirectly predicted anxiety at T3 through detachment at T2 and anxiety at T2, but not through emotional abuse at T2. Finally, anxiety at T1 did not indirectly predict anxiety at T3 through emotional abuse at T2, detachment at T2, or anxiety at T2. Taken together, these results underscore the central role of detachment as a key mechanism linking emotional abuse as a predictor to the development of anxiety as an outcome. From a clinical and preventive perspective, these findings highlight the importance of early identification of emotionally abusive experiences and the implementation of interventions aimed at promoting emotional awareness, adaptive coping strategies, and relational engagement. Strengthening emotional resilience during adolescence may be particularly crucial for disrupting maladaptive developmental pathways and reducing the long-term psychological burden associated with emotional abuse.

Keywords: *Emotional abuse, detachment, anxiety, adolescents, longitudinal study.*

1. Introduction

Adolescence is a critical developmental stage characterized by heightened emotional reactivity and evolving social dynamics, during which emotional validation and support are essential for healthy psychological development emotional abuse (EA), defined by a lack of emotional recognition and nurturing, is associated with adverse developmental outcomes and increased vulnerability to psychological disorders (Calaresi, Verrastro, Giordano, Gullo, & Saladino, 2024; Saladino, Cuzzocrea, Calaresi, Gullo, & Verrastro, 2024). A potential mechanism linking EA to anxiety is detachment, a coping response marked by emotional withdrawal and social disengagement (Back, Flechsenhar, Bertsch, & Zettl, 2021). Although initially protective, persistent detachment may impair emotional regulation, reduce social support, and exacerbate psychopathology when individuals face stressors (Galloghly, Apputhurai, & Knowles, 2024;

Lin, Ye, Ye, Wang, & Zhang, 2024). The Developmental Cascade Model (Masten & Cicchetti, 2010) provides a framework for understanding how early adverse experiences, such as EA, initiate interconnected developmental processes that shape later psychological outcomes. Within this perspective, EA disrupts the development of key competencies, including emotional regulation and healthy relational skills (Krvavac & Jansson, 2021), triggering a chain of maladaptive adjustments. One central mechanism in this cascade is detachment, conceptualized as a protective response to emotionally harmful environments (Back et al., 2021; Galloghly et al., 2024). Although initially adaptive, persistent detachment may consolidate into a stable trait, limiting emotional expression and access to social support. Over time, this process amplifies vulnerability to anxiety, as reduced relational and regulatory resources hinder effective coping under stress (Galloghly et al., 2024; Lin et al., 2024). In this model, anxiety emerges both as a direct consequence of EA and as an outcome reinforced by detachment within the cascading developmental pathway.

1.1. Objectives

This study uses a three-wave longitudinal design to examine the associations among EA, detachment, and anxiety symptoms in adolescence. While prior research has highlighted the detrimental effects of EA and detachment on mental health, longitudinal evidence on their dynamic interplay remains limited, particularly regarding the role of detachment in linking EA to anxiety. The study therefore investigates reciprocal relationships between (1) EA and detachment, (2) EA and anxiety, and (3) detachment and anxiety across time, and tests potential mediation pathways connecting EA and anxiety through detachment.

2. Method

2.1. Participants and procedures

The study recruited adolescents aged 14–17 from Northern, Central, and Southern Italy using a three-wave longitudinal design over one year (November 2023–November 2024). Data were collected via a 15-minute online questionnaire administered in schools by trained research assistants. At T1, 1,847 out of 1,934 eligible students participated (95.5% response rate), with retention rates of 93.8% at T2 and 88.1% at T3. Informed consent was obtained from adolescents and their legal guardians, and the study complied with the Declaration of Helsinki and AIP ethical guidelines, with formal ethical approval granted.

2.2. Measures

2.2.1. Emotional Abuse. EA was measured using the Italian version of the EA subscale from the Childhood Trauma Questionnaire-Short Form (CTQ-SF) (Sacchi, Vieno, & Simonelli, 2018), consisting of five items rated on a 5-point Likert scale, with higher scores indicating greater exposure. Internal consistency was high across waves (α = .87–.88).

2.2.2. Detachment. Detachment was assessed using the Italian adaptation of the detachment subscale from the Personality Inventory for DSM-5-Brief Form (PID-5-BF) (Fossati, Somma, Borroni, Markon, & Krueger, 2017), including five items rated on a 4-point Likert scale, with higher scores reflecting greater social withdrawal and emotional disengagement. Reliability was strong across time points (α = .87–.88).

2.2.3. Anxiety. Anxiety levels were assessed using the Italian adaptation of the anxiety subscale from the Depression Anxiety Stress Scales-21 (Bottesi et al., 2015), composed of seven items rated on a 4-point Likert scale, with higher scores indicating greater symptom severity. Internal consistency was high across waves (α = .87–.89).

2.3. Data analysis

Data were analyzed using SPSS and RStudio. Descriptive statistics and Pearson's correlations were first computed to examine demographic characteristics and associations among EA, detachment, and anxiety across three waves. Longitudinal and reciprocal associations among EA, detachment, and anxiety were tested using three-wave SEM with latent variables, accounting for autoregressive and residual effects. Parameters were estimated via maximum likelihood, and parceling (three indicators per construct) was applied to enhance measurement precision. Indirect effects were tested using bias-corrected bootstrapping (5,000 resamples). Model fit was evaluated using χ^2, χ^2/df, CFI, RMSEA, and SRMR.

3. Results

3.1. Preliminary analyses

Table 1 presents the descriptive statistics for all study variables across the three waves, providing key demographic information, as well as the means and standard deviations for the variables at each time point.

Table 1. Descriptive statistics of the variables.

	Time 1 (*N* = 1.847)	**Time 2 (*N* = 1.732)**	**Time 3 (*N* = 1.627)**
	%	**%**	**%**
Sex			
Boys	49.5	49.8	49.3
Girls	50.5	50.2	50.7
Gender Identity			
Cisgender Girls	47.4	47.1	47.6
Cisgender Boys	43.3	43.8	43.1
Transgender Girls	2.5	2.4	2.4
Transgender Boys	3.9	3.8	3.8
Non-Binary	2.8	2.8	3.0
Ethnicity Identity			
Asian	4.8	4.8	4.5
Black	8.9	9.3	9.2
Latinx	5.4	5.3	5.4
Multi-ethnic	7.5	7.6	7.4
White	73.4	73.0	73.4
Maternal Education			
Elementary School	22.6	23.0	22.4
Middle School	33.0	32.9	33.3
High School Diploma	32.4	32.3	32.3
Bachelor's Degree	8.5	8.2	8.3
Postgraduate Degree	3.5	3.6	3.7
Paternal Education			
Elementary School	21.7	22.3	21.7
Middle School	30.5	30.1	30.5
High School Diploma	35.3	34.9	35.0
Bachelor's Degree	10.8	10.9	10.9
Postgraduate Degree	1.7	1.8	2.0
Variable	**M (SD)**	**M (SD)**	**M (SD)**
EA	9.32 (4.07)	9.27 (4.03)	9.28 (4.09)
Detachment	5.08 (4.23)	5.07 (4.30)	4.99 (4.03)
Anxiety	5.74 (4.05)	5.77 (4.44)	5.79 (4.19)
Age	15.50 (1.09)	-	-

Note. EA = Emotional Abuse; T1 = Time 1; T2 = Time 2; T3 = Time 3.

Table 2 displays the correlations between the study variables. The correlation coefficients varied from .28 to .63, indicating moderate strength and confirming the expected relationships. The correlations within each variable showed a moderate degree of stability over time. Furthermore, the cross-variable correlations revealed consistent patterns, with significant relationships observed across all waves, providing support for the hypothesized connections between the variables.

Table 2. Descriptive analyses and correlations.

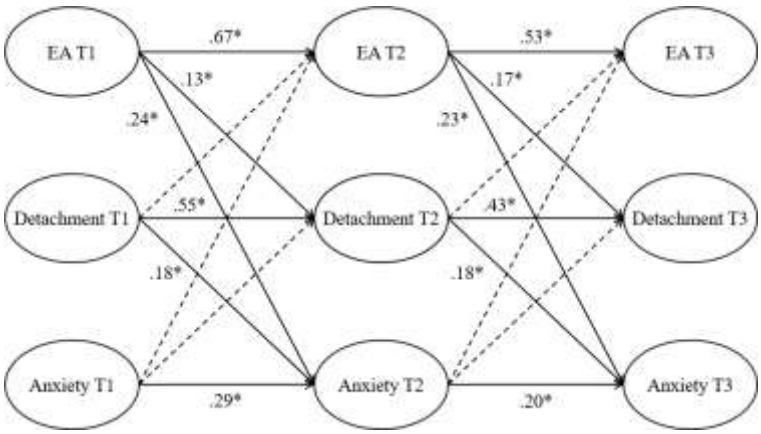
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. EA T1	-								
2. EA T2	.62*	-							
3. EA T3	.55*	.63*	-						
4. Detachment T1	.39*	.31*	.30*	-					
5. Detachment T2	.34*	.37*	.31*	.54*	-				
6. Detachment T3	.33*	.36*	.38*	.43*	.53*	-			
7. Anxiety T1	.42*	.34*	.32*	.38*	.29*	.28*	-		
8. Anxiety T2	.41*	.43*	.37*	.37*	.40*	.33*	.44*	-	
9. Anxiety T3	.39*	.42*	.44*	.34*	.38*	.42*	.39*	.44*	-

Note. $p < .01$. EA = Emotional Abuse; T1 = Time 1; T2 = Time 2; T3 = Time 3.

3.2. Three-wave SEM analysis

The results of the proposed model demonstrated a strong fit to the data, with the following fit indices: $\chi2(312) = 446.566$; $p < .001$, $\chi2/df = 1.431$, CFI = .995, RMSEA = .015 (90% CI = .012 – .018), and SRMR = .014. Significant relationships between the study variables were observed, as illustrated in Figure 1. Specifically, the SEM analysis revealed that emotional EA consistently predicted both detachment and anxiety across all waves, highlighting EA's influence on personality development and psychological distress. Additionally, detachment was found to consistently predict anxiety, but did not significantly predict EA, suggesting a one-way effect of detachment on anxiety potentially fostered by EA. Furthermore, anxiety was not a predictor for either EA or detachment, indicating that anxiety is more likely an outcome of these factors, rather than a predictor.

Figure 1. Three-wave SEM model.



Note. *$p < .01$, **$p < .001$. Standardized coefficients are presented. Dotted lines represent non-significant paths. EA = Emotional Abuse; T1 = Time 1; T2 = Time 2; T3 = Time 3. Parcels and mediation effects are not shown for clarity purposes.

3.3. Mediation effects

The three-wave SEM analysis explored potential indirect effects of EA at T1 and detachment at T1 on anxiety at T3. The bootstrap analysis identified significant indirect pathways. Specifically, it was found that EA at T1 affected anxiety at T3 via EA at T2 ($\beta = .16$, $p < .001$), detachment at T2 ($\beta = .02$, $p = .001$), and anxiety at T2 ($\beta = .05$, $p < .001$). Similarly, detachment at T1 influenced anxiety at T3 through detachment at T2 ($\beta = .10$, $p < .001$) and anxiety at T2 ($\beta = .04$, $p < .001$). However, no indirect effects were found linking detachment at T2 to anxiety at T3 via EA at T2.

4. Discussion

This study shows that EA predicts both detachment and anxiety over time, with detachment contributing unidirectionally to increased anxiety. Mediation analyses indicated that EA at T1 indirectly influenced anxiety at T3 via EA, detachment, and anxiety at T2, supporting a cascading effect consistent with the Developmental Cascade Model (Masten & Cicchetti, 2010). Adolescents exposed to EA may develop detachment as a protective coping mechanism, withdrawing emotionally and limiting social support, which exacerbates anxiety (Domènech-Abella et al., 2021; Lin et al., 2024). Over time, detachment can consolidate into a stable trait, creating a self-perpetuating cycle in which emotional isolation amplifies anxiety and impairs emotional regulation and social functioning (Bates, Elphinstone, & Whitehead, 2021; Berzenski, 2019). Neurobiological evidence further suggests that EA can dysregulate multiple physiological systems influencing anxiety, with detachment intensifying these effects (Gabarrell-Pascuet et al., 2023; Tomoda et al., 2024). Overall, the results highlight how EA initiates a developmental cascade, with detachment mediating and amplifying anxiety, deepening long-term psychological vulnerability during adolescence. Future studies should explore additional mechanisms linking EA, detachment, and anxiety, including peer relationship quality and co-occurring mental health conditions (e.g., stress, depression). Research across diverse samples, countries, and age groups, as well as longer longitudinal follow-ups, would clarify the stability and generalizability of these effects. Findings highlight the role of mental health professionals in identifying emotional distress and maladaptive traits in adolescents. Interventions should enhance emotional support, develop key emotional skills, and educate parents on fostering positive connections and reducing abusive behaviors.

5. Conclusion

In sum, findings highlight the interconnected roles of EA, detachment, and anxiety, emphasizing detachment as a key mediator. Early intervention targeting EA and detachment may help reduce the risk of developing significant anxiety. This study contributes to the literature on the long-term impact of early adverse experiences and informs future research and interventions aimed at preventing and managing adolescent psychological distress.

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PERCEIVED SCHOOL PRESTIGE AND TEACHING EFFICACY: THE MEDIATING ROLE OF SUBJECTIVE STATUS AND SCHOOL SOCIAL CLIMATE

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Abstract

Aim: This study aimed to explore whether subjective socioeconomic status and school social climate mediate the association between perceived school prestige and teaching efficacy. *Method:* A serial mediation model (PROCESS Model 6) examined whether perceived school prestige is associated with teaching efficacy (a subscale of the Teacher Subjective Well-being Questionnaire / TSWQ)) through teachers' perceptions of their subjective socioeconomic status and school social climate (Student relationships and Collaboration and Instructional Innovation, as two subscales of the School-Level Environment Questionnaire / SLEQ). The research sample consisted of 235 teachers (M = 43.41, SD = 10.78; 85.5% women). *Results:* Higher perceived school prestige was associated with higher subjective socioeconomic status, which in turn was linked to more positive student relations and greater collaboration and instructional innovation within the school. These school climate factors were subsequently associated with higher teaching efficacy. Both the direct and total indirect associations were significant, indicating partial mediation. These findings suggest that teachers' perceptions of school prestige are linked to their teaching efficacy both directly and indirectly through perceived social status and relational characteristics of the school environment. *Conclusions:* The results highlight the importance of school prestige and its ripple effects on teacher outcomes. Schools perceived as prestigious may enhance teachers' sense of social standing and foster positive interpersonal relationships among students, which together contribute to stronger teaching efficacy. Interventions aimed at improving teaching efficacy could benefit not only from professional development but also from fostering a positive and collaborative school climate and reinforcing teachers' pride in their school's reputation. Moreover, school leaders might consider how school branding, community engagement, and internal recognition can shape teachers' perceptions of status and relational dynamics, ultimately supporting more confident and effective teaching practices.

Keywords: *Perceived school prestige, subjective socioeconomic status, teaching efficacy, school social climate.*

1. Introduction

Organizational prestige plays a significant role in shaping teachers' perceptions of their schools. When schools are perceived as reputable, teachers tend to demonstrate stronger organizational identification, higher motivation, and improved performance (Yıldız, 2018). It can be hypothesized that when teachers perceive their schools as prestigious, they contribute more positively to the school climate and experience better collegial relationships, as well as higher levels of motivation, engagement, and job satisfaction. School climate reflects both institutional and interpersonal aspects of the school environment, including organizational characteristics such as leadership, management, and decision-making practices, as well as relational elements such as collegiality and student teacher relationships (Fang & Qi, 2023). Consequently, understanding teachers' perceptions of school prestige is essential for enhancing school effectiveness (Yıldız, 2018).

Organizational prestige can be conceptualized as consisting of internal and external dimensions. External prestige refers to employees' perceptions of how their organization is viewed by external stakeholders, including the public, competitors, and other institutions. These perceptions influence employees' sense of pride, belonging, and work-related attitudes (Ahmed, Abduljabbar, & Thabit, 2023). In the present study, external prestige is assessed by asking teachers to rate the prestige or reputation of

their school relative to other schools in Slovakia using a ten-point scale. This approach captures teachers' perceptions of their school's standing within the broader educational and social context and aligns with the concept of perceived external organizational prestige.

Caprara, Barbaranelli, Borgogni, & Steca (2003) emphasized that teaching increasingly functions as an interdependent professional activity grounded in Bandura's theory of efficacy beliefs (Bandura, 1977). Teachers' effectiveness therefore depends not only on individual instructional skills but also on contextual factors such as school leadership, staff efficiency, family involvement, and collaboration among colleagues. Within this framework, the overall functioning of the school and its recognition within the community shape teachers' beliefs about their capacity to influence student learning and educational outcomes. School prestige reflects the collective capacity to fulfill institutional goals and strengthens teachers' perceptions of collective teaching efficacy, while individual professional achievements reinforce personal teaching efficacy.

This study is grounded in the teacher well-being model proposed by Renshaw, Long, and Cook (2015), which emphasizes two core positive dimensions, namely school connectedness reflected in prosocial relationships and teaching efficacy conceptualized as self-efficacy. The teaching efficacy subscale used in this research refers to teachers' perceptions of their ability to effectively manage diverse teaching tasks and evaluates the extent to which their teaching behaviors successfully meet environmental demands (Renshaw et al., 2015).

Previous research indicates that variations in teachers' socioeconomic status are associated with differences in teaching quality and educational outcomes (Lutfiu & Hoxha, 2024). In line with the conceptual distinction between objective and subjective socioeconomic status, objective socioeconomic status refers to measurable indicators such as income and educational attainment, whereas subjective socioeconomic status reflects individuals perceived social standing within society (Adler, Epel, Castellazzo, & Ickovics, 2000; Tan, Kraus, Carpenter, & Adler, 2020). Accordingly, the present study focuses on subjective socioeconomic status in relation to teachers' perceptions of school prestige.

Empirical studies simultaneously examining perceived school prestige, teachers' subjective socioeconomic status, school climate, and teaching efficacy remain limited. However, existing conceptual frameworks and partial empirical evidence suggest that perceived school prestige is positively associated, both directly and indirectly, with teachers' self-efficacy.

2. Aim

This study aimed to explore whether perceived subjective socioeconomic status and school social climate mediate the association between perceived school prestige and teaching efficacy.

3. Method

3.1. Sample and procedure

The sample consisted of 235 teachers, 85.5% of whom were women. Participants' mean age was 43.4 years (SD = 10.78), and they had an average of 16.37 years of teaching experience. Data were collected via a Slovak agency in October 2025.

3.2. Measures

School social climate

A shortened version of the School Level Environment Questionnaire (SLEQ; Johnson, Stevens, & Zvoch, 2007) was used, comprising 17 items on a five-point scale across four subscales: Collaboration (6 items), Student Relations (4 items), Decision Making (3 items), and Instructional Innovation (4 items). A four-factor solution met the Kaiser criterion, but the fourth factor included a single item and was excluded. The Decision Making subscale was also removed due to low internal consistency and conceptual heterogeneity. Principal axis factoring (PAF) was then conducted on the remaining 14 items. The Kaiser-Meyer-Olkin measure was 0.779 and Bartlett's test was significant, $\chi^2(55) = 1575.72$, $p < .001$. Three additional items with low sampling adequacy were removed, leaving 11 items. PAF with Promax rotation yielded a two-factor solution explaining 56.7% of the variance: Collaboration and Instructional Innovation (7 items, $\alpha = .847$) and Student Relations (4 items, $\alpha = .899$), supporting construct validity and internal consistency.

Teaching efficacy

Teaching efficacy was assessed using a four-item subscale of the Teacher Subjective Well-Being Questionnaire (TSWQ; Renshaw et al., 2015), rated on a 4-point Likert scale from 1 (almost never) to 4 (almost always; $\alpha = .830$).

Teachers' perceptions of their subjective socioeconomic status

Participants rated their perceived socioeconomic status on a 10-point scale, where 1 represented the lowest status (least money, education, and prestige) and 10 represented the highest status (most money, education, and prestige), indicating their relative position compared with others in Slovakia.

Teachers' perceptions of their school prestige

Participants rated the prestige or reputation of the school where they work on a 10-point scale, where 1 represented the lowest prestige (worst school) and 10 represented the highest prestige (best school), relative to other schools in Slovakia.

3.3. Statistical analyses

Data analyses included correlation and multiple regression, as well as a serial mediation analysis using the PROCESS macro (Model 6; Hayes, 2018) in SPSS version 25. Confidence intervals were estimated with 5,000 bootstrap samples at the 95% level.

4. Results

Table 1 presents descriptive statistics and correlations. Teaching efficacy was positively related to all study variables, whereas the association between subjective socioeconomic status and collaboration and instructional innovation was weak and nonsignificant.

Table 1. Descriptive statistics and correlation coefficients between study variables.

	PSP	SES	CaI	SRel	TE
PSP	1	,393***	,266***	,402***	,323***
SES	,393***	1	0,098	,309***	,307***
CaI	,266***	0,098	1	,435***	,293***
SRel	,402***	,309***	,435***	1	,342***
TE	,323***	,307***	,293***	,342***	1
Mean	6.60	6.20	24.69	13.34	13.45
SD	2.05	1.71	3.88	3.02	2.00

Note: PSP = Perceived school prestige, SES = Teachers' perceptions of their subjective socioeconomic status, CaI = Collaboration and Instructional Innovation, SRel = Student relationships, TE = Teaching efficacy, ***p < 0.001

A multiple linear regression analysis was conducted to examine the associations between perceived school prestige, teachers' perceptions of their subjective socioeconomic status, student relationships, collaboration and instructional innovation, and teaching efficacy (Table 2). Prior to analysis, the assumptions of linear regression, including normality, linearity, multicollinearity, and homoscedasticity, were evaluated and met. The results indicated that all examined factors were positively and significantly associated with teaching efficacy. Specifically, teachers who perceived higher school prestige and greater subjective socioeconomic status, who reported more positive student relationships, and who engaged in higher levels of collaboration and instructional innovation demonstrated higher teaching efficacy.

Table 2. Multiple Linear Regression Model Examining Teaching Efficacy.

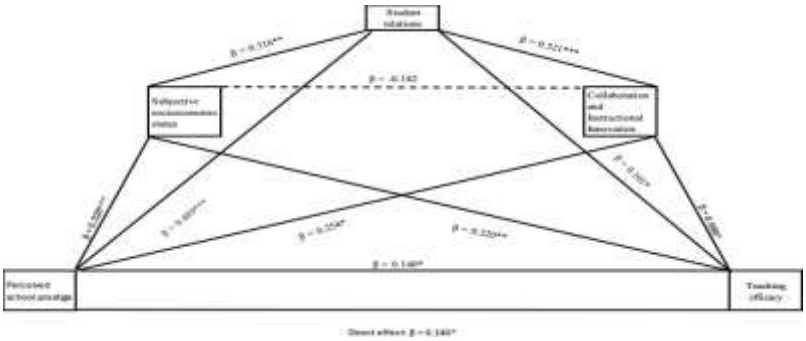
					95.0% Confidence Interval for B	
	B	SD	Beta	Sig.	Lower Bound	Upper Bound
Perceived school prestige	0.14	0.066	0.143	0.037	0.009	0.271
Teachers' perceptions of their subjective socioeconomic status	0.219	0.076	0.187	0.004	0.069	0.370
Student relationships	0.101	0.047	0.152	0.032	0.009	0.193
Collaboration and Instructional Innovation	0.088	0.034	0.171	0.010	0.021	0.155

Note: $R^2 = 0.21$

A serial mediation analysis using the PROCESS macro for SPSS (Model 6; Hayes, 2018) examined the associations between perceived school prestige and teaching efficacy, with teachers' subjective socioeconomic status, student relationships, and collaboration and instructional innovation as sequential mediators (Figure 1). Perceived school prestige was positively associated with teachers' subjective socioeconomic status, which in turn was associated with stronger student relationships (b = 0.33, 95% CI [0.23, 0.43] and b = 0.32, 95% CI [0.09, 0.54], respectively). Perceived school prestige was also directly associated with student relationships (b = 0.49, 95% CI [0.30, 0.68]), and student relationships were associated with collaboration and instructional innovation (b = 0.52, 95% CI [0.36, 0.69]).

Direct associations of perceived school prestige and teachers' subjective socioeconomic status with collaboration and instructional innovation were weaker or non-significant (b = 0.25, 95% CI [0.003, 0.51]; b = -0.18, 95% CI [-0.47, 0.11], respectively). When all variables were considered simultaneously, perceived school prestige (b = 0.14, 95% CI [0.01, 0.27]), teachers' subjective socioeconomic status (b = 0.22, 95% CI [0.07, 0.37]), student relationships (b = 0.10, 95% CI [0.01, 0.19]), and collaboration and instructional innovation (b = 0.09, 95% CI [0.02, 0.16]) were each positively associated with teaching efficacy. Indirect effects of perceived school prestige on teaching efficacy were observed through teachers' subjective socioeconomic status, student relationships, and collaboration and instructional innovation, both independently and in sequential combinations, with the total indirect effect reaching b = 0.18, 95% CI [0.11, 0.25]. These results suggest that perceived school prestige is associated with teaching efficacy both directly and indirectly, with teachers' subjective socioeconomic status and student relationships serving as central mediators and collaboration and instructional innovation primarily reinforcing these associations in combination with student relationships.

Figure 1. Mediation model.



Note: Dashed line represents paths that was not statistically significant, **p* < .050, ***p* < .010, *** *p* < .001

5. Discussion

The present findings can be meaningfully interpreted within established frameworks of teacher self-efficacy, particularly Bandura's social cognitive theory (Bandura, 1997) and its application to teaching contexts (Tschannen-Moran & Hoy, 2001). A central finding of the study is the prominent role of student relationships, conceptualized as students' observable behaviors related to learning and school, including motivation, cooperation with teachers, discipline, courtesy, and respect for school staff. In self-efficacy theory, such behaviors closely correspond to mastery-related information, the most influential source of efficacy beliefs (Bandura, 1997). Students' engagement, cooperation, and responsiveness provide teachers with continuous feedback about the effectiveness of their instructional practices and classroom management. The consistent involvement of student relationships across both simple and serial indirect pathways suggests that perceived school prestige is associated with teaching efficacy largely through teachers' interpretations of everyday classroom interactions and student behavior.

The role of teachers' perceptions of their subjective socioeconomic status can also be situated within self-efficacy theory, particularly in relation to social persuasion and contextual appraisal processes (Bandura, 1997; Klassen, Tze, Betts, & Gordon, 2011). Teachers perceived social standing within the school context may influence how institutional prestige is internalized and evaluated, shaping expectations, professional confidence, and the interpretation of classroom experiences. In this sense, subjective socioeconomic status appears to function as a contextual filter that links broader institutional perceptions to efficacy-relevant classroom experiences.

In contrast, collaboration and instructional innovation did not operate as an independent intermediary in the association between perceived school prestige and teaching efficacy. Its contribution was evident primarily when embedded within pathways that included student relationships. From a self-efficacy perspective, this pattern suggests that collaborative and innovative practices may strengthen efficacy beliefs most effectively when they are accompanied by positive student responses that can be interpreted as mastery experiences (Tschannen-Moran & Hoy, 2007). Without supportive student behavior, collaboration and innovation alone may provide weaker efficacy-relevant information, explaining their conditional role in see the observed associations.

Overall, the findings support a view of teaching efficacy as a socially embedded belief system (Bandura, 1997; Tschannen-Moran & Hoy, 2001), shaped not only by individual characteristics or formal organizational features but by teachers' interpretations of their relational and behavioral classroom environments. By showing that perceived school prestige is associated with teaching efficacy primarily through subjective status perceptions and student relationships, the study extends existing self-efficacy frameworks by clarifying how institutional-level perceptions are translated into efficacy-relevant information through everyday social interactions in schools.

6. Conclusion

The results suggest that schools' perceived prestige is not only relevant for organizational functioning but also for teachers' subjective socioeconomic status. Educational leaders and policy makers should therefore consider how institutional reputation, public recognition, and professional status shape teachers' perceptions of their social standing. Strengthening school prestige through transparent communication, community engagement, and recognition of teachers' professional contributions may support higher self-efficacy, a more positive school climate, and improved teacher well-being.

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TRUST IN SCIENCE AS A PREDICTOR OF PSYCHOLOGICAL MISCONCEPTIONS AMONG PRE-SERVICE TEACHERS

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Abstract

Psychological misconceptions among pre-service teachers represent a persistent problem that can negatively influence pedagogical decision-making, the use of scientific knowledge, and the implementation of evidence-based practices in educational settings. While previous research has focused primarily on knowledge acquisition and critical thinking as factors related to misconception endorsement, the role of trust in science remains underexplored. Trust in science refers to the extent to which individuals perceive scientific knowledge as credible, relevant, and socially beneficial. Lower levels of trust in science may increase susceptibility to simplified or unverified explanations of psychological phenomena among pre-service teachers. This study aimed to examine the relationship between trust in science and psychological misconceptions among pre-service teachers and to verify whether trust in science represents a significant predictor of misconception endorsement after controlling for study-related variables including year of study, number of completed psychology courses, and teaching practice experience. The sample consisted of 183 pre-service teachers (63.4% women) enrolled in bachelor's and master's teacher education programs in Slovakia, with a mean age of 22.10 years (SD = 1.72). Data were collected using paper-based questionnaires that included demographic and study-related variables, a modified version of the Psychological Information Questionnaire assessing psychological misconceptions, and the Credibility of Science Scale measuring trust in science. Statistical analyses included Pearson correlation analysis and hierarchical linear regression. Results revealed a significant positive relationship between trust in science and correct identification of psychological myths ($r = .215$, $p = .003$), indicating that higher trust was associated with fewer misconceptions. Hierarchical regression analysis demonstrated that after controlling for study-related variables in the first model ($R^2 = .113$, $p < .001$), trust in science significantly predicted lower misconception endorsement ($\beta = .199$, $p = .005$), explaining an additional 3.9% of variance ($\Delta R^2 = .039$). Active teaching practice also emerged as a significant predictor ($\beta = .208$, $p = .021$). These findings suggest that trust in science represents an important factor associated with lower psychological misconception endorsement among future teachers, beyond the influence of formal psychological education and practical experience. Teacher education programs should consider fostering trust in scientific methods alongside psychological knowledge to enhance psychological literacy and support evidence-based pedagogical practice.

Keywords: *Psychological misconceptions, trust in science, pre-service teachers, psychological literacy, teacher education.*

1. Introduction

Psychological misconceptions represent persistent and resistant beliefs about human behavior and mental processes that contradict established scientific evidence. Common examples include the belief that "humans use only 10% of their brain capacity" or that "individuals learn more effectively when instruction matches their preferred learning style" (Bensley & Lilienfeld, 2015). Although exposure to formal instruction in psychology may reduce endorsement of such misconceptions, research consistently shows that myths about learning, memory, intelligence, or brain functioning remain widespread even among university students and pre-service teachers (Ferrero et al., 2016; Furnham & Hughes, 2014). The persistence of psychological myths is particularly concerning in teacher education, as inaccurate beliefs may influence pedagogical decision-making, classroom management strategies, and the adoption of evidence-based practices (Chojak et al., 2021; Dekker et al., 2012; Grospietsch & Mayer, 2018).

Within the broader framework of psychological literacy, teachers are expected not only to possess knowledge of psychological principles but also to critically evaluate information and apply scientific understanding to real educational contexts. Psychological literacy refers to the capacity to apply evidence-based psychological knowledge in adaptive and ethical ways, including the ability to distinguish scientific findings from myths or pseudoscientific claims (Cranney & Dunn, 2011; McGovern et al., 2010). This competence is especially important in educational settings, where teachers not only apply psychological knowledge but also transmit it to students and shape their understanding of psychological phenomena (Horn et al., 2021). However, research suggests that exposure to psychological coursework alone does not necessarily eliminate misconceptions, as intuitive beliefs may persist despite formal instruction (Macdonald et al., 2017; Newton & Salvi, 2020).

One potential factor that may influence the persistence of these misconceptions is trust in science. Trust in science refers to the extent to which individuals perceive scientific knowledge and scientific institutions as credible, reliable, and socially beneficial (Rutjens et al., 2018). Lower levels of trust in science have been linked to greater susceptibility to misinformation and rejection of scientific consensus across domains such as health, climate change (van der Linden et al., 2017), and vaccination (Plohl & Musil, 2021). Within the context of teacher education, trust in science may influence whether pre-service teachers rely on evidence-based psychological principles or on simplified and unverified explanations of classroom phenomena. Despite its theoretical relevance, the role of trust in science in shaping endorsement of psychological misconceptions among future teachers has received limited empirical attention. The present study therefore seeks to examine whether trust in science is associated with lower endorsement of psychological myths and whether it predicts misconception levels beyond formal academic preparation and teaching experience.

2. Objectives

The main objective of this study was to examine the relationship between trust in science and psychological misconceptions among pre-service teachers. Specifically, the study investigated whether trust in science is associated with the correct identification of psychological myths and whether it remains a significant predictor of misconception endorsement after controlling for study-related variables, including year of study, number of completed psychology courses, and teaching practice experience. In addition, the relative contribution of trust in science was evaluated in comparison to formal psychological education and practical teaching experience.

3. Methods

3.1. Sample and data collection

The sample consisted of 183 pre-service teachers enrolled in bachelor's and master's degree programs in teacher education at the University of Presov in Slovakia. Of the participants, 63.4% were women, with a mean age of 22.10 years (SD = 1.72). Regarding the level of study, 88 participants (48.1%) were enrolled in bachelor’s programs and 95 participants (51.9%) in master’s programs. With respect to year of study, 6 participants (3.3%) were in their first year, 61 (33.3%) in their second year, 21 (11.5%) in their third year, 79 (43.2%) in their fourth year, and 16 (8.7%) in their fifth year.

Participants varied in the number of completed psychology-related courses and experience with teaching practice. Data were collected using paper-based questionnaires administered during lectures and seminars of psychology courses between November and December 2025. Participants were informed about the purpose of the study, the voluntary nature of participation, and the anonymity of data processing. Completion of the questionnaire was considered to indicate participants' informed consent to participate in the study.

3.2. Measures

Data were collected using a questionnaire designed for the purposes of the present study. The questionnaire included items assessing basic demographic characteristics (gender, age) and selected academic variables, including year of study, field of study, the number of completed psychology courses at the university level, and previous teaching experience. Teaching experience was categorized as either observational or active teaching practice.

Psychological misconceptions were measured using a modified version of the misconceptions items from the Psychological Information Questionnaire (PIQ) (Kowalski & Taylor, 2011), adapted for the population of pre-service teachers. The modified version comprised 25 true-false items designed to identify common psychological misconceptions. The total score represented the number of correctly identified items, with higher scores indicating greater accuracy in identifying misconceptions and, consequently, lower endorsement of inaccurate psychological beliefs. In the present study, psychological misconceptions were operationalized as the accuracy of identifying them using the PIQ. Because the PIQ consists of heterogeneous knowledge-based items representing distinct psychological misconceptions rather than a single latent construct, internal consistency was not considered an appropriate indicator of reliability in this case. Each item assesses a different domain of psychological knowledge; therefore, low inter-item correlations are expected and do not necessarily reflect poor measurement quality.

Trust in science was measured using the Credibility of Science Scale (Hartman et al., 2017). This instrument assesses the extent to which individuals perceive scientific knowledge and scientific institutions as credible, reliable, and socially beneficial. The scale consists of 6 items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), with higher scores indicating greater trust in science. The internal consistency of the Credibility of Science Scale in the present study was acceptable (Cronbach's $\alpha = .786$).

3.3. Statistical analyses

Statistical analyses were conducted using IBM SPSS Statistics 26. Data were analyzed using Pearson correlation and hierarchical linear regression analyses. Pearson correlations were first computed to examine the association between trust in science and the correct identification of psychological myths. Hierarchical regression was then conducted to test whether trust in science predicted misconception endorsement beyond study-related variables (year of study, number of completed psychology courses, and teaching practice experience).

4. Results

To examine the association between trust in science and psychological misconceptions, Pearson correlation analysis was conducted. Results revealed a significant positive correlation between trust in science and correct identification of psychological myths ($r = .215$, $p = .003$). Given that higher scores on the misconception measure reflected a greater number of correct responses (fewer misconceptions), this finding indicates that higher trust in science was associated with lower endorsement of psychological myths.

A hierarchical linear regression analysis was conducted to determine whether trust in science predicted psychological misconceptions after controlling for selected study-related variables.

In the first step of the hierarchical regression analysis, year of study, number of completed psychology courses, and teaching practice experience (observational and active) were entered as control variables. The model was statistically significant, $F(4, 178) = 5.68$, $p < .005$, explaining 11.3% of the variance in psychological misconceptions ($R^2 = .113$). Among the control variables, only active teaching practice emerged as a significant predictor, whereas year of study, number of completed psychology courses, and observational teaching practice were not statistically significant. Detailed results for Model 1 (control variables) are presented in Table 1.

Table 1. Hierarchical Linear Regression Predicting Psychological Misconceptions – Model 1.

Variable	B	SE	β	t	p
Year of study	.679	.698	.271	.972	.332
Number of completed psychology courses	-.104	.299	-.055	-.349	.727
Observational practice	-.275	1.066	-.050	-.258	.797
Active teaching practice	2.017	.869	.208	2.322	**.021**

In the second step, trust in science was added as the primary predictor, resulting in a significant increase in explained variance ($\Delta R^2 = .039$, $p = .005$), indicating its incremental predictive validity beyond the control variables. In the final model, trust in science remained a significant predictor of psychological misconceptions, with higher levels of trust associated with a greater number of correct responses and, consequently, lower endorsement of psychological myths. The results of the final hierarchical regression model including trust in science are presented in Table 2.

Table 2. Hierarchical Linear Regression Predicting Psychological Misconceptions – Model 2.

Variable	B	SE	β	t	p
Year of study	.705	.685	.281	1.029	.305
Number of completed psychology courses	-.092	.293	-.048	-.314	.754
Observational practice	-.450	1.047	-.082	-.430	.668
Active teaching practice	1.975	.852	.203	2.319	**.022**
Trust in science	.130	.045	.199	2.865	**.005**

5. Conclusions

The results suggest that trust in science is linked to lower endorsement of psychological misconceptions among pre-service teachers. Although the relationship was relatively modest, it was statistically significant, indicating that students who perceive science as credible and socially valuable are more likely to correctly identify psychological myths. This finding implies that beyond factual knowledge, a general confidence in scientific evidence may influence how individuals evaluate psychological claims. Trust in science may therefore help individuals rely more on evidence-based explanations rather than on intuitive or oversimplified interpretations that often sustain persistent educational myths.

Importantly, trust in science remained a significant predictor even after controlling for academic progression and exposure to psychological coursework. The lack of significant effects for year of study and number of completed psychology courses suggests that formal instruction alone may not be sufficient to reduce misconceptions, a finding consistent with prior research highlighting the resilience of intuitive beliefs (Ferrero et al., 2016; Furnham & Hughes, 2014). In contrast, active teaching practice emerged as a significant predictor, indicating that direct pedagogical engagement may promote reflective processing and more accurate evaluation of psychological concepts. The incremental contribution of trust in science, although accounting for a relatively small proportion of additional variance, underscores its relevance as a complementary factor in the development of psychological literacy within teacher education.

The findings should be interpreted in light of several limitations. The sample was drawn from a single Slovak university, limiting generalizability to other institutional and cultural contexts. The adapted version of the Psychological Information Questionnaire was not independently validated for this population and primarily assessed declarative knowledge rather than the practical application of psychological understanding. In addition, the cross-sectional design prevents causal conclusions, and unequal subgroup sizes in teaching practice analyses may have affected the stability of some estimates.

Future research should replicate these findings across multiple institutions and cultural settings and employ longitudinal designs to clarify the developmental and causal relationship between trust in science and psychological misconceptions. Further studies could also examine additional contributing factors, such as scientific reasoning, critical thinking, and misconception detection skills, as well as use qualitative approaches to better understand how pre-service teachers evaluate and apply psychological knowledge in classroom contexts.

Teacher education programs could strengthen trust in science by incorporating structured activities that encourage critical evaluation of psychological and educational claims. For example, courses may include myth-debunking tasks where students analyze common learning myths and compare them with empirical evidence. In addition, training students to interpret research findings, understand basic research methods, and assess the credibility of sources may help future teachers rely more confidently on scientific evidence. Integrating these elements into both theoretical coursework and teaching practice can support the development of psychological literacy and promote more evidence-informed pedagogical decision-making.

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MEASURING WHAT MATTERS: EDUCATORS' SOCIAL-EMOTIONAL COMPETENCIES

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Abstract

Teachers' social-emotional competencies (SEL) play a central role in shaping instructional quality, classroom climate, and educators' professional well-being. Despite growing recognition of their importance, valid and profession-specific tools for assessing educators' SEL remain limited. The EduSEL questionnaire was originally developed to address this gap through a domain-specific, practice-anchored assessment of educators' social-emotional competencies. Empirical use of EduSEL across multiple studies demonstrated its sensitivity to developmental differences among preservice, novice, and experienced educators, as well as its relevance for SEL-focused professional learning. At the same time, accumulated evidence highlighted conceptual and psychometric limitations, including partial alignment with the CASEL framework, redundancy across items, and constraints on external validity. These insights motivated the development of a refined instrument: EduSEL-R. EduSEL-R was developed through a systematic, multi-stage validation process comprising expert content review, expansion and refinement of behavioral items, and large-scale exploratory and confirmatory factor analyses. Across four studies (N = 1,683), results supported a robust four-factor structure – self-management, ethical problem solving, self- and social awareness, and relationship skills – with high internal consistency and improved construct validity. By tracing the conceptual and empirical progression from EduSEL to EduSEL-R, this paper illustrates how iterative measurement development can strengthen the assessment of educators' SEL and enhance its usefulness for research, professional development, and policy.

Keywords: *Social-emotional learning, educators, assessment, questionnaire development, validity.*

1. Introduction

Social-emotional learning (SEL) has been widely recognized as a critical foundation for effective teaching, positive classroom climates, and educators' professional well-being (American Psychological Association, 2020). A growing body of research demonstrates that educators' social-emotional competencies are associated with heightened performance (Cipriano et al., 2023), job satisfaction and commitment (Pan, 2023) and overall well-being (NEA, 2021). Despite this consensus, systematic assessment of educators' SEL remains underdeveloped. Most existing SEL instruments were designed for children, adolescents, or general adult populations and do not adequately capture the professional, relational, and ethical demands of educational practice. As a result, educational systems lack valid tools for identifying educators' SEL profiles, monitoring professional development, or evaluating SEL-oriented interventions.

In response to this gap, the Educators' Social-Emotional Learning questionnaire (EduSEL) was developed as a domain-specific assessment grounded in everyday educational interactions (Hemi & Kasperski, 2023). Initial validation studies demonstrated promising psychometric properties and sensitivity to developmental differences across career stages (Kasperski, 2023). However, accumulated empirical use also revealed conceptual and structural limitations, motivating the development of a refined instrument: EduSEL-R.

2. Design objectives

The refinement of EduSEL into EduSEL-R was guided by the need to strengthen theoretical alignment with contemporary SEL frameworks, particularly the CASEL model (CASEL, 2020), while

preserving the profession-specific focus that distinguishes educator-centered assessment from general SEL measures (such as Zych et al., 2018).

In addition, methodological standards for questionnaire development emphasize the importance of convergent validity, structural validity, and reliability when refining existing instruments (Cohen, 2013; Fornell & Larcker, 1981). These considerations informed a multi-stage validation process combining expert review, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA).

3. Methods

Convergent validity was examined by comparing EduSEL with the Social and Emotional Competencies Questionnaire (SEC-Q), a validated SEL measure designed for adolescents and young adults (Zych et al., 2018; Figueroa-Varela & Rodriguez Vera, 2023). Although the SEC-Q is not profession-specific, it provides an established benchmark for examining shared SEL constructs across contexts.

Exploratory and confirmatory factor analyses were conducted following established psychometric guidelines. Model fit was evaluated using multiple indices, including the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA), applying recommended cutoff criteria. Reliability and convergent validity were assessed using composite reliability and average variance extracted.

4. Findings

4.1. Exploratory factor analysis

An exploratory factor analysis (EFA) was conducted on the expanded version of the EduSEL questionnaire using a sample of 363 educators. Principal axis factoring with oblique rotation was applied. Initial analyses suggested a multi-factor solution; following the removal of items with low or cross loadings and guided by theoretical considerations, a four-factor structure was retained.

The final EFA solution yielded four factors – self-management, ethical problem solving, self- and social awareness, and relationship skills – which together accounted for 49.4% of the total variance. All retained items loaded at or above the accepted threshold on their respective factors. The factors were moderately to strongly correlated, indicating related but distinct dimensions of educators' social-emotional competencies.

4.2. Confirmatory factor analysis

The four-factor structure identified in the EFA was subsequently tested using confirmatory factor analysis (CFA) with an independent sample of 1,320 educators. For each factor, the five items with the highest factor loadings were selected, resulting in a refined 20-item version of the EduSEL-R questionnaire. The CFA indicated an adequate fit of the four-factor model to the data, $\chi^2(153) = 447$, $\chi^2/df = 2.9$, CFI = .97, TLI = .97, RMSEA = .038 (90% CI [.034, .042]), and SRMR = .029. Standardized factor loadings were statistically significant and ranged from moderate to high across all factors.

4.3. Reliability and convergent validity

The overall EduSEL-R scale demonstrated high internal consistency (Cronbach's $\alpha = .92$). Reliability coefficients for the four subscales were also satisfactory, with all values exceeding accepted thresholds. Composite reliability indices were above .70 for all factors. Convergent validity was supported by significant correlations between EduSEL-R scores and scores on a validated SEL questionnaire administered concurrently. Average variance extracted (AVE) values were generally acceptable, although discriminant validity indices indicated substantial correlations among factors.

5. Discussion

The findings support a four-factor structure of educators' social-emotional competencies comprising self-management, ethical problem solving, self- and social awareness, and relationship skills. This structure aligns broadly with the CASEL framework while reflecting adaptations specific to professional educational practice (CASEL, 2020).

The empirical integration of self- and social awareness into a single factor suggests that, for educators, reflective awareness of one's own emotions and sensitivity to others' perspectives function as an interconnected competency. In the context of teaching, self-reflection and perspective-taking are enacted simultaneously within ongoing interpersonal interactions, rather than as distinct processes (Jones & Bouffard, 2012).

The emergence of ethical problem solving as a distinct factor highlights the centrality of moral judgment and relational decision-making in educators' work. Competencies such as assertiveness, probing, persuasion, and conflict management clustered together, underscoring that educators' social-emotional functioning is closely tied to navigating value-laden and relationally complex situations.

In comparison with the original EduSEL instrument, EduSEL-R represents a substantive refinement. The revised questionnaire demonstrates closer theoretical alignment with contemporary SEL frameworks, reduced item redundancy, and improved robustness through validation on substantially larger samples. These refinements strengthen the instrument's capacity to assess educators' SEL in a manner that is both theoretically coherent and empirically grounded.

Finally, the strong correlations among factors suggest that educators' SEL competencies are dynamically interrelated. This pattern reflects the integrated nature of social-emotional enactment in educational practice, where regulation, judgment, and relationship-building co-occur within the same professional interactions.

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EXPLORING THE DEVELOPMENT OF THE KOLB EXPERIENTIAL LEARNING PROFILE IN JAPANESE

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Abstract

The aim of this study was to develop the Japanese version of the Kolb Experiential Learning Profile (KELP). To achieve this aim, we applied 147 Japanese undergraduates and adopted a test-retest approach at a 5-week interval. Results of the paired t-test indicated no significant difference between them concerning six key learning style variables, suggesting the measurement stability of the Japanese version. As for scale reliabilities, Cronbach's alphas of four scales within the Japanese version stayed at an acceptable range except a reflective observation scale. In terms of construct validity, results of a factor analysis revealed that a component of active experimentation served as a cross-loading to bipolar factors, indicating a room for improvement on the construct validity. To improve the Japanese version, we further created the modified version of Japanese KELP, collecting the additional data from 63 Japanese undergraduates. Results of the internal consistency test illustrated that Cronbach's alphas of all four scales of the modified version were acceptable. Results of a factor analysis indicated strong bipolar structure without an issue of cross-loading. Those results drew us to conclude that the modified version of the Japanese KELP can be a proper measure to examine learning styles of Japanese people.

Keywords: *Kolb Experiential Learning Profile, Japanese version, scale development.*

1. Introduction

Kolb's experiential learning theory (Kolb, 1984; Kolb & Kolb, 2017) is one of the most influential learning theories (Kayes, 2002). It is conceived as one of the broadly used and disseminated learning style categories across multiple academic areas (Desmedt & Valcke, 2004; Hawk & Shah, 2007). To examine individual's learning style and process, Kolb initially invented the Kolb Learning Style Inventory (KLSI) in 1970s (Kolb & Kolb, 2021). Its latest assessment tool is the Kolb Experiential Learning Profile (KELP; Kolb & Kolb, 2021), which has been improved through six previous versions for over 50 years (Kolb & Kolb, 2021). Consequently, it can be observed that the KELP has been well established as reliable and valid measurement (Kolb & Kolb, 2021).

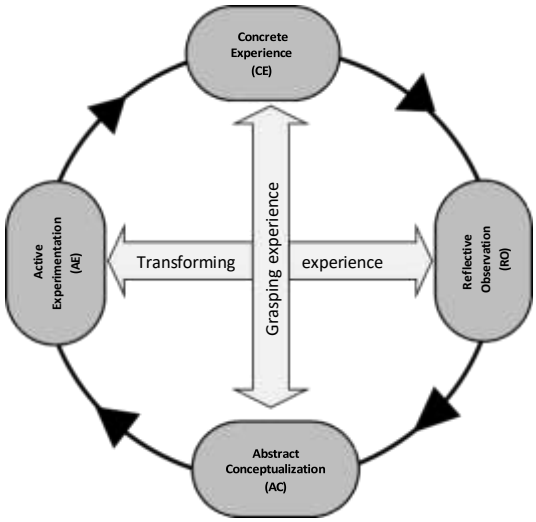
The KELP which is in English as the original version is broadly used worldwide. Although the previous versions of the KELP, that is the KLSI, were translated into various foreign languages (Kolb & Kolb, 2021), the KELP as a newest tool has not been much translated into other languages. Since the KELP includes the additional question-items of learning flexibilities (Kolb & Kolb, 2021), it is considered as being quite important to translate it into other foreign languages. This study paid much attention to this gap and intended to fill it. Particularly, we sought to create a Japanese version of the KELP, which has not been translated, yet. Accordingly, the purpose of the present study was to develop the Japanese version of the KELP. Before discussing a process of developing a Japanese version, we briefly reviewed the Kolb's experiential learning theory and its instruments of the KELP and its previous assessment of the KLSI.

2. Kolb's experiential learning theory

The Kolb's experiential learning theory (1984; Kolb & Kolb, 2005, 2017, 2021) shows us how to learn in learning situations. When people learn, they are required to use four learning modes: concrete experience (CE), abstract conceptualization (AC), reflective observation (RO), and active experimentation (AE). The CE plays an important role to grasp an experience by using sensing and feelings, which produces apprehensive knowledge. This knowledge is transformed by the RO mode, which relies on carefully watching and patiently listening. Through this transformative processing, such appreciative knowledge is

developed to comprehensive knowledge, which requires the AC mode. The AC mode serves to make people's experience explicitly in the forms of words, concepts, and numbers. The comprehensive knowledge subsequently becomes a basis for actively testing by using the mode of AE, which calls for taking action and initiatives, leading to a new experience. The CE mode and the AC mode are one dialectical relationship in the learning dimension of grasping experience, while the RO mode and the AE mode are the other in another learning dimension of transforming experience. Figure 1 shows Kolb's experiential learning model.

Figure 1. Kolb's experiential learning model.



3. Kolb Experiential Learning Profile (KELP)

The KELP, which is the latest assessment tool based on Kolb's experiential learning theory, has a total of 20 questions (Kolb & Kolb, 2021), while its previous version such as the KLSI 3.1 version (Kolb, 1999) is composed of 12 questions. Kolb and Kolb (2021) indicated that 12 questions of the KELP are similar to those of the KLSI 3.1 version, while 8 additional questions of the KELP are related to individual's learning in different learning situations. The 8 questions are designed to analyze individual's learning flexibility (Kolb & Kolb, 2021). For each question, there are four choices theoretically linked with the four modes of learning: concrete experience (CE), abstract conceptualization (AC), reflective observation (RO), and active experimentation (AE). The KELP asks people to determine the best option (most preferred), the second best, the third best, and the least preferred among the four learning modes. Hence, the KELP applies a forced-choice approach in alignment with the dialectical learning dimensions conceptualized into Kolb's experiential learning theory. To categorize an individual's learning style, two different learning scores from two learning dimensions respectively are necessary. One learning score shows a relative preference for AC over CE or vice versa (AC-CE), while the other score presents a relative preference for AE over RO or vice versa (AE-RO).

4. Methods

To achieve our purpose of developing a Japanese version of the KELP, this study performed two steps. The first step was to translate English to Japanese, completing a Japanese translated version. The second step was to test the psychometrics of the Japanese version. These two steps were guided by the study of Andreou et al. (2015) which developed the Greek version of the KLSI 3.1 version.

To translate the KELP in English into Japanese, this study specifically carried out a translation procedure used for cross-cultural studies, which Brislin Lonner, and Thorndike (1973) proposed the technique of translation and back-translation. The first and third authors independently translated the original English version to Japanese languages. Afterwords, the second author performed back-translation from the Japanese version into English. Then, the first and third authors compared its original and back-translated English and then revised some Japanese expressions, receiving the confirmation from the second author.

This study employed 143 Japanese undergraduate students at a department of business administration in Tokyo Japan. Since the present study utilized a test-retest examination to analyze a reliability and stability of the Japanese version of KELP, we collected data from Japanese students twice at a 5-weeks interval. The first and third authors explained to their classes in terms of the purpose of this study and then they asked students to participate into this Japanese translation project of the KELP. Table 1 presents the demographic characteristics of the 147 participants.

Table 1. Demographic Characteristics of 147 Undergraduate Students.

Demographics		*N (%)*	Demographics		*N (%)*
Gender	male	90 (61)	Academic	1st	29 (20)
	female	57 (39)	year	2nd	56 (38)
Age	*mean*	19.8		3rd	39 (27)
(years)	*s.d.*	1.2		4th	23 (16)

5. Results

5.1. Reliability tests

Results of the internal consistency revealed that Cronbach's alphas of the first test were ranged from 0.74 to 0.84, while those of the second retest were ranged from 0.65 to 0.83. The Cronbach's alpha of reflective observation (RO) scale at the retest was only below the 0.70 value.

This study investigated the other reliability as measurement stability by analyzing scores of test-retest examinations. The present study performed a paired t-test of six key learning variables between the first and second tests. This approach was also used by the study of Andreou et al. (2015) developing the Greek KELP (ver. 3.1). Results of the paired t-test indicated no statistical significance of all six learning style variables: AC, CE, AE, RO, AC-CE, and AE-RO between test and retest, suggesting that student's preference for certain learning modes in a learning situation is stable at a 5-week interval. Thus, it can be interpreted that the Japanese version is reliable and stable as measurement.

5.2. Validity tests

According to the description about internal construct of the KELP, two bipolar factors should be produced—one generated by AC and CE scales scores, and the other yielded by AE and RO ones (Kolb & Kolb, 2021). Past psychometrics research on KLSI 3.1 version as a previous measure of the KELP demonstrated such two factors by applying principal component analysis with the method of varimax rotation (Andreou et al., 2015; Kayes, 2005). Results of the factor analysis on both the test and retest scores revealed two bipolar factors according to eigenvalue greater than 1 together with scree plot analysis. Because the sample size in this study was 147, which stays between 100 to 200, this study applied a factor loading of at least 0.5 as a cut-off point, which was suggested by Field (2013). With regard to the detail components of the bipolar factors extracted from the first test scores, Factor 1 was composed of three variables: AC, CE, and AE, while Factor 2 consisted of AE and RO. Those results indicated that AE is considered as a cross-loading function. Concerning the retest scores, Factor 1 was also composed of AC, CE, and AE, while Factor 2 possessed only RO. Although both results of the test and the retest showed two bipolar factor structure, it was suggested that AE and RO scales may need to be thoroughly scrutinized to improve construct validity. Table 2 summarized the results of principal component analysis with varimax rotation about the test and retest scores.

Table 2. Results of principal component analysis with varimax rotation.

	Test		**Retest**	
	Two-Factor Solution			
Variables	Factor 1	Factor 2	Factor 1	Factor 2
AC	**-0.99**	0.13	**-0.99**	-0.12
CE	**0.70**	0.32	**0.60**	-0.38
AE	**0.53**	**0.55**	**0.68**	-0.34
RO	0.00	**-0.99**	-0.11	**0.99**
Eigenvalue	1.99	1.15	2.06	1.02
Variance (%)	49.65	28.85	51.39	25.44
Cumulative (%)		78.49		76.83

5.3. Summary of results

Based on the study results, we found that the Japanese version of the KELP has a room for improvement on Cronbach's alpha of RO scale reliability in particular, as well as on the construct validity relevant to mainly connection between RO and AE. Accordingly, this study attempted to improve the Japanese version of the KELP by scrutinizing a translated question-items of Japanese from original English ones.

5.4. Study for scale improvement

In this section, we described the methods and results of the additional but crucial study for scale improvement on the Japanese version of the KELP.

Based on the weak question-items of each scale identified, the first author modified their words and expressions with keeping content validity of a certain learning mode. For example, a question item of a RO learning mode must be agreeable with its role and function based on Kolb's experiential learning theory. After the first author completed modifications in the Japanese version of KELP, the second and third authors independently checked the modifications, discussing modified items with the first author until reached consensus. To examine the reliability and construct validity of the modified version of the Japanese KELP, 63 Japanese undergraduate students at the same management department of the Japanese university participated in this further study.

We examined the internal reliability, Cronbach's alphas, of the modified version, resulting in an internal coefficient range from 0.74 (AE) to 0.84 (AC). A Cronbach's alpha of RO was greatly improved from 0.65 at the retest to 0.75 at this additional study

We analyzed the construct validity of the modified version using the principal component analysis with varimax rotation. Results of the factor analysis on the scores of the modified version revealed specifically two bipolar factors according to eigenvalue greater than 1 together with scree plot analysis. Factor 1 consisted of AC (factor loading = -0.95) and CE (factor loading = 0.84), while Factor 2 was composed of AE (factor loading= 0.78) and RO (-0.93). Those two factors did not have a cross-loading item with larger than factor loading of 0.30 as those did when the test and the retest were conducted. Results of the factor analysis indicated that the construct validity of the modified version was greatly improved in comparison with that of the test and the retest. Table 3 shows the results of principal component analysis with varimax rotation in terms of the modified version of Japanese KELP.

Table 3. Results of principal component analysis with varimax rotation for modified version.

	Modified version	
Variables	Factor 1	Factor 2
AC	**-0.95**	-0.08
CE	**0.84**	0.25
AE	0.26	**0.78**
RO	-0.06	**-0.93**
Eigenvalue	2.18	1.05
Variance (%)	54.49	26.25
Cumulative (%)		80.74

6. Conclusions

Our study aimed to develop a Japanese version of the KELP. This study conducted two phases for the development of the KELP in Japanese. First, our initial tests of scale reliability and validity resulted in a room for improvement on Cronbach's alpha of RO scale reliability and the construct validity relevant to mainly connection between RO and AE. Second, we attempted to improve those psychometric properties of the KELP in Japanese. Subsequently, this study modified the Japanese KELP and investigated the psychometric properties, describing acceptable statistics concerning the modified version of the KELP. Accordingly, those results drew us to conclude that the modified version of the Japanese KELP can be a proper measure to examine learning styles of Japanese people.

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FANDOMS AS COMMUNITIES OF BELONGING AND COPING

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Abstract

This systematic review of 10 empirical studies examines fandoms as communities of belonging and coping across science fiction, fanfiction, music, television/film, celebrity, and sport fandoms. Strong evidence demonstrates that fan communities create powerful belonging effects: science fiction fans report high psychological sense of community across several dimensions (belonging, needs fulfillment, influence, shared connection, and conscious identification), and fans often rate sense of community higher for fan groups than for their local geographical communities (Chadborn, Edwards, & Reysen, 2018; Obst, Zinkiewicz, & Smith, 2001). Belonging operates through interconnected psychological processes (identification, attachment, and eudaimonic motivations), social processes (peer support, shared practices, and participation in events), and cultural processes (creative transformation of media and community narratives) (Bacon-Smith, 1991; Cavicchi, 1998; Dym, Brubaker, Fiesler, & Semaan, 2019; Tsay-Vogel & Sanders, 2017). Evidence for explicit coping functions is more limited but consistent where measured. Qualitative studies show that online fandoms provide emotional support, stress reduction, and identity-safety, especially in crisis and marginalized contexts such as LGBTQ individuals using fanfiction communities for identity work and Roswell fans mobilizing collective mourning and support after the September 11 attacks (Dym et al., 2019; Stein, 2002). The same mechanisms that create belonging—identification, peer support, and meaning-making—appear to underlie coping benefits. However, these benefits are shaped by fandom type, individual characteristics, and platform features and are constrained by challenges such as toxic behaviors and identity safety concerns. Overall, fandoms function as communities of belonging and coping rather than trivial leisure spaces, though the strength and pathways of these effects vary across contexts.

Keywords: *Fandom, belonging, coping, community, parasocial.*

1. Introduction

Fandoms are often stereotyped as frivolous hobbies, yet decades of scholarship suggest they function as meaningful social worlds in which people construct identity, find belonging, and cope with stress (Bacon-Smith, 1991; Cavicchi, 1998). In media and cultural studies, fans have been described as active producers of meaning who appropriate and transform texts, build shared rituals, and form enduring communities around television series, films, music, and celebrities (Bacon-Smith, 1991; Stein, 2002). Psychological and communication research similarly highlights that fan participation can foster social connection, identity development, and emotional regulation, particularly when communities gather online around shared interests (Dym et al., 2019; Parsakia & Jafari, 2023; Tsay-Vogel & Sanders, 2017).

Quantitative work on sense of community shows that fans report robust psychological sense of community in science fiction conventions and fan organizations (Obst et al., 2001) and that they sometimes experience stronger community attachment to fandom than to their local neighborhoods (Chadborn et al., 2018). Qualitative and ethnographic studies of music, TV, and celebrity fandoms document rich cultures of storytelling, mutual support, and everyday practices (e.g., sharing artifacts via mobile phones, attending concerts, creating fan works) that mark group boundaries and belonging (Cavicchi, 1998; Fuente & Lacasa, 2020; Stein, 2002).

However, existing research is scattered across disciplines and focal populations, with some studies emphasizing belonging and identity, others focusing on coping, and many implicitly touching both without explicitly integrating them. The present review synthesizes empirical studies that examine fandoms as communities, asking: How do fandoms function as communities of belonging and coping? We focus specifically on mechanisms (psychological, social, and cultural), empirical indicators of belonging and coping, and moderating factors (individual, community, and contextual) across fandom types.

2. Methods

2.1. Search strategy

To identify empirical studies on fandoms as communities of belonging and coping, a systematic search was conducted in major bibliographic databases commonly used in psychology and communication research. Specifically, PsycINFO, PubMed, Web of Science, and Scopus were searched, supplemented by targeted searches in Google Scholar to capture relevant work in conference proceedings and book-length ethnographies. Search strings combined fandom-related terms (e.g., fandom, fan community, fan culture, science fiction fandom, music fandom) with belonging and coping constructs (e.g., sense of community, belonging, social identity, coping, social support, well-being). Searches were limited to publications from 1990 onward and to works available in English. Reference lists of key articles were also scanned to identify additional eligible studies. This process yielded an initial pool of candidate publications that were then screened for relevance to the review questions.

2.2. Screening and eligibility criteria

Titles and abstracts were screened against predefined inclusion criteria. Studies were eligible if they (a) included participants who actively engaged in fandom communities of any type (e.g., media, sports, music, fanfiction, celebrity); (b) conceptualized fandom as a social group or community rather than focusing solely on individual fan behavior; and (c) examined at least one construct related to belonging or coping, such as psychological sense of community, social identity, community attachment, emotional support, coping strategies, or well-being within fan contexts.

Only empirical studies (quantitative, qualitative, or mixed-methods) and peer-reviewed conference papers, journal articles, or scholarly books were included; purely theoretical pieces and commentaries were excluded. To maintain focus on psychosocial processes rather than consumption, studies were excluded if they centered primarily on marketing, consumer behavior, or economic aspects of fandom. In addition, studies had to consider the community or social aspects of fandom participation (e.g., conventions, online forums, fan clubs) rather than individual preferences in isolation. Decisions were made holistically, taking all criteria into account when determining whether to retain each study.

2.3. Data extraction and synthesis

For each included study, information was extracted on (a) fandom type and focal property (e.g., science fiction, transformative media fandom, music fandom around a specific artist, fanfiction, teen celebrity fandom); (b) study design, methods, and sample characteristics (e.g., survey vs. ethnography, sample size, demographics, duration of fieldwork); and (c) the main constructs and measures related to belonging and coping (e.g., psychological sense of community scales, perceived membership, qualitative indicators of emotional support or identity work).

In addition, key mechanisms and contextual factors were coded. These included psychological processes (e.g., identification, attachment, eudaimonic motivation), social processes (e.g., peer support, shared experiences, conventions, interaction patterns), and cultural processes (e.g., creative meaning-making, community narratives, ritual practices). Moderating factors—such as age, gender, community structure, and online versus offline settings—were also noted when discussed, along with any reported challenges (e.g., toxic behaviors, identity safety concerns).

Because many works—especially ethnographies and HCI conference papers—were accessed primarily through abstracts and summaries rather than full open-access texts, data extraction emphasized the main findings and theoretical claims authors themselves highlighted. The heterogeneity of designs, fandom types, and outcome measures precluded formal meta-analysis; therefore, a narrative synthesis approach was used to integrate convergent themes and to map how different mechanisms of belonging and coping operated across fandom contexts.

3. Results

3.1. Characteristics of included studies

Ten empirical works met inclusion criteria, spanning science fiction, transformative media fandom, fanfiction, music fandom, teen celebrity fandom, and TV/film franchises. Designs ranged from large-scale surveys of fan communities (e.g., Obst, Zinkiewicz, & Smith, 2002; Chadborn, Edwards, & Reysen, 2018) to multi-year ethnographies of specific fan cultures (Bacon-Smith, 1992; Cavicchi, 1998; Fuente & Lacasa, 2020) and mixed-methods studies of online transformative fandoms and fanfiction communities (Dym, Brubaker, Fiesler, & Semaan, 2019; Fiesler & Dym, 2020). Fan settings included conventions and concerts, local meet-ups, and online spaces such as forums, social media platforms, and fanfiction archives.

3.2. Evidence of belonging effects

Across methods and fandom types, findings consistently indicated that fandoms function as powerful communities of belonging. Survey work showed high psychological sense of community among science fiction fans and, in some cases, stronger sense of community in fan groups than in local geographic communities (Chadborn et al., 2018; Obst et al., 2002). In *Harry Potter* fandom, perceived membership was linked to greater enjoyment, appreciation, and engagement with the media text (Tsay-Vogel & Sanders, 2017). Ethnographic accounts of television, music, and teen celebrity fandoms described dense networks of practices—such as conventions, zine and tape circulation, and everyday sharing of media via mobile phones—that built enduring relationships, "insider" identities, and a sense of home in the fan group (Bacon-Smith, 1992; Cavicchi, 1998; Fuente & Lacasa, 2020).

3.4. Moderating factors and overall pattern

The strength and form of belonging and coping varied by individual, community, and contextual factors. At the individual level, eudaimonic motivations and high narrative exposure predicted deeper communal involvement (Tsay-Vogel & Sanders, 2017), while developmental stage shaped how adolescents used fandom for friendship and identity work (Fuente & Lacasa, 2020). Community norms, inclusion–exclusion dynamics, and moderation practices influenced whether spaces felt safe and supportive or conflictual (Dym et al., 2019; Parsakia & Jafari, 2023). Platform affordances and long-term migration across technologies showed that social bonds and shared practices, rather than specific tools, sustained fan communities over time (Fiesler & Dym, 2020). Overall, the corpus suggests that fandoms reliably provide strong belonging and, especially in marginalized or crisis contexts, meaningful resources for coping, even though formal mental-health outcomes were rarely quantified.

4. Discussion

This review suggests that fandoms reliably function as emotionally significant communities of belonging and, in many cases, as informal coping networks that can feel as cohesive as or more cohesive than local neighborhoods or workplaces (Chadborn et al., 2018; Obst et al., 2001).

4.1. Belonging as a core function of fandom

Across quantitative and qualitative work, belonging emerged as a central psychological function of fandom rather than a secondary benefit. Identification with fan groups, social support, and shared cultural practices jointly provide a framework for relationships, meaning-making, and creative participation (Bacon-Smith, 1991; Cavicchi, 1998; Dym et al., 2019). Context matters: dispersed media fandoms often build "chosen family" through online platforms and transformative works, whereas music fandoms embedded in local scenes can blur boundaries between "fan" and "local" communities (Cavicchi, 1998; Chadborn et al., 2018).

4.2. Belonging and coping as intertwined processes

Although coping was rarely measured directly, the same mechanisms that foster belonging—peer support, shared narratives, and collective meaning-making—also appear to support coping. LGBTQ fanfiction communities illustrate how feeling embedded in a supportive fan network is inseparable from managing minority stress and identity-related challenges (Dym et al., 2019), and Roswell fans' response to September 11 shows how pre-existing community ties provide infrastructure for rapid collective coping in crises (Stein, 2002). Belonging and coping are therefore better understood as interdependent outcomes.

4.3. Platform design and community management

Platform affordances and community management shape whether fandoms enhance or erode well-being. Anonymity, pseudonymity, and selective visibility can promote identity exploration and safety for marginalized fans (Dym et al., 2019; Fiesler & Dym, 2020), yet the same environments can enable harassment and "toxic fandom" that undermine belonging (Parsakia & Jafari, 2023). Long-standing transformative fandoms show that communities endure platform shifts by prioritizing social bonds and shared practices over specific technologies, highlighting the value of inclusive moderation, clear norms, and member agency (Fiesler & Dym, 2020).

4.4. Limitations of the evidence base

The evidence base remains limited by cross-sectional designs, ethnographic work without standardized mental health measures, and partial access to full texts, making conclusions about coping more tentative than those about belonging. Future research should incorporate validated well-being and coping

measures, longitudinal designs, and comparative work across fandom types and demographic groups, while examining both benefits and harms, including exclusion, burnout, and harassment within fan communities.

5. Conclusions

Across ten empirical studies, fandoms emerged as communities where people find strong belonging and, in many contexts, resources for coping with personal and collective challenges. Psychological identification, peer support, and shared cultural practices work together to create social worlds that can rival or exceed traditional local communities in perceived connection. Although explicit measures of coping are scarce, qualitative accounts point to fandoms as informal support systems that aid identity work, emotional regulation, and crisis response.

These findings suggest that fandoms should be taken seriously as communities of belonging and coping rather than dismissed as trivial leisure pursuits. For researchers, practitioners, and platform designers, understanding how fandoms foster or hinder belonging and coping can inform efforts to build healthier online and offline communities more broadly.

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DEVELOPMENT AND VALIDATION OF THE EMPLOYEE EXIT EXPERIENCE SCALE

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Abstract

Employee turnover research heavily focused on antecedents, decisions and treating leaving as a behavioral endpoint rather than a experience. This study addresses this gap by developing and validating the Employee Exit Experience Scale (EEES), a multidimensional scale capturing the psychological and organizational dynamics of the exit process. In the stud, a sequential mixed-methods design was used. In the qualitative phase, 16 semi-structured interviews were analyzed using inductive thematic analysis to generate an initial pool of 90 items. Following expert review and a pilot study (n = 66), data was collected from larger sample (n = 384 valid responses). Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) using the CB-SEM algorithm supported a two-domain structure. The antecedent model consisted of Leaving Motivation, Emotional Effects, Manager and Management, Coworker Support, Working Conditions and Balance, and Workplace Policies and Culture. The consequence model identified five dimensions, Knowledge Transfer, Employee Morale, Employee Networks, Turnover Intention Spillover, and Employer Brand. Both model showed acceptable fit and satisfactory reliability in the analyses. The findings showed that employee exit is a transition process with measurable organizational reverberations. The EEES provides a theoretically differentiated and psychometrically robust tool for turnover research and gives evidence-based offboarding practices.

Keywords: *Employee Exit Experience, turnover, scale development, organizational psychology.*

1. Introduction

Employee turnover is one of the central topics in organizational psychology and behaviour. Most of research have identified job dissatisfaction, low organizational commitment, burnout, and perceived injustice as antecedents and its consequences for both employees and organizations (Hom et al., 2017; Lee & Mitchell, 1994). However, the dominant paradigm views leaving a job as a behavioral outcome stemming from cognitive evaluations and attitudinal processes. Within this framework, leaving a job is treated as an event rather than a transition that has already occurred. This outcome-oriented approach has left a critical conceptual gap.

However, the employee's experience of leaving a job can actually be conceptually different from other related constructs. For example, unlike burnout, which reflects chronic work-related stress that may be the reason for the decision to leave (Maslach & Leiter, 2016), the experience of leaving a job encompasses the subjective evaluation of the leaving process itself. Similarly, unlike organizational commitment (Meyer & Allen, 1991), the experience of leaving a job is concerned with how commitment changes after the decision is made. Likewise, while organizational justice and psychological contract breaches provide partial explanations for dissatisfaction or perceptions of breach (Colquitt et al., 2001; Rousseau, 1995), they do not address the entirety of the emotional, relational, procedural, and financial dynamics that emerge during the leaving phase. Therefore, the experience of leaving a job cannot be reduced solely to pre-existing attitudes or post-leaving consequences. It can represent a distinct transitional construct in its own right.

Theoretically, the experience of leaving a job can be understood as a multi-layered transitional phase shaped by pre-existing organizational conditions, the immediate relational and procedural dynamics experienced during the separation, and the post-separation consequences, both for the individual and the organization. From the perspective of the unfolding model of turnover (Lee & Mitchell, 1994), conservation of resources theory (Hobfoll, 1989), and social exchange theory (Blau, 1964), the exit experience can be conceptualized as an interpretive process in which employees evaluate resource loss or gain, fair treatment, managerial responses, financial conditions and their own future expectations. These evaluations give rise to both immediate emotional responses and long-term consequences such as alumni advocacy, employer brand narratives, and psychological closure.

Although employee turnover and post-turnover employee relations are gaining increasing importance within the scope of employee experience, there is currently no scale designed to measure employee departure experience as a multidimensional construct. To address this limitation, the Employee Exit Experience Scale (EEES) was developed and validated in this study. Conceptually, the scale is structured in two complementary domains: (1) antecedent conditions shaping the exit experience and (2) perceived consequences emerging from that experience. The antecedent domain captures six dimensions: Leaving Motivation, Emotional Effects, Manager and Management, Coworker Support, Working Conditions and Balance, and Workplace Policies and Culture. These dimensions reflect employees' evaluations of motivational, emotional, relational, and structural conditions experienced during the separation process. The consequences domain encompasses five dimensions representing the organizational reverberations of exit experiences: Knowledge Transfer, Employee Morale, Employee Networks, Turnover Intention Spillover, and Employer Brand. Together, these domains conceptualize employee exit as a transitional process shaped by contextual conditions and extending to broader social and organizational consequences.

2. Methods

This study employed a sequential mixed-methods design to develop and validate the Employee Exit Experience Scale (EEES). The research process consisted of a qualitative item development phase followed by quantitative validation through exploratory and confirmatory factor analyses. Each stage adhered to established scale development procedures in organizational research.

2.1. Item development

The item development phase is based on inductive thematic analysis of qualitative data. Sixteen participants who voluntarily left their jobs within the last three years were included in the study using purposive sampling to ensure variability across sector, organizational size, and role level. A total of 577 minutes of semi-structured interviews were conducted. All interviews were transcribed prior to analysis.

Qualitative data were analyzed using MAXQDA 2024. Inductive open coding was performed on the entire dataset. In the first stage, short descriptive codes were generated to capture meaningful textual units reflecting key aspects of the exit experience. Coding was performed iteratively, allowing for the refinement of the code list as new patterns emerged. In the second stage, the entire dataset was systematically coded using finalized open codes to ensure consistency between interviews. Conceptually relevant codes were then grouped into higher-level categories and subsequently clustered into broader themes representing the central dimensions of the employee exit experience. Themes were reviewed and refined to ensure internal consistency and conceptual divergence. Themes were merged, split, or redefined as needed. Qualitative findings revealed that the exit experience encompassed both the antecedent conditions shaping the exit process and the perceived consequences stemming from it. These themes were integrated with information obtained from a literature review on job exit and related theoretical concepts, leading to the item generation phase.

Based on this qualitative and theoretical foundation, a question pool of 90 items was created. The items were written to reflect experiential evaluations of the exit experience rather than general work attitudes. Following item generation, the draft scale was reviewed by experts for content validity, clarity, and redundancy. Revisions were made before the quantitative test. Subsequently, a pilot study (n = 66) was conducted to examine item performance and explore latent structure. Based on the pilot findings and expert review, the items were revised before being administered in the main study.

2.2. Participants

The main validation sample consisted of 412 respondents, of which 384 cases were retained as valid after data screening. A total of 139 males (36.4%) and 243 females (63.6%), aged between 18-55. Of the participants, 52 were between 18-25 years old (13.6%), 160 were between 26-35 (41.9%), 127 were between 36-45 (33.2%), and 43 were between 46-55 (11.3%). Regarding educational status, 18 were high

school graduates (4.7%), 281 were university graduates (73.6%), 49 had a master's degree (12.8%), and 34 had a doctorate (8.9%). In terms of economic status, 9 participants reported only meeting basic needs (2.4%), 235 reported spending thoughtfully (61.5%), and 138 reported spending comfortably (36.1%). Concerning the type of organization they left, 31 departed from public organizations (8.1%), 335 from the private sector (87.7%), and 16 from non-governmental organizations (4.2%). Lastly, regarding the time elapsed since leaving their jobs, 149 had left 1 year ago (39.0%), 148 had left 2-3 years ago (38.7%), 9 had left 3-4 years ago (2.4%), and 76 had left 5 years or more ago (19.9%).

2.3. Application

Data were collected via an online survey. Participants responded to the scale using a Likert-type scale. Standard data screening procedures were applied prior to factor analyses. EFA analyses were conducted with SPSS and CFA analyses were conducted with SmartPLS 4 programs.

2.4. Results

Table 1. Factor Loadings, Internal Consistency, and Convergent Validity of the Antecedents of the EEES.

Factors	Items	Factor Loading	CA	CR (rho_a)	CR (rho_c)	AVE
Leaving Motivation	During my separation process, I felt that the work I did was valued.	0.863	0.933	0.932	0.933	0.776
	During my separation process, there were adequate incentives to maintain my motivation.	0.882				
	During the separation process, the satisfaction I derived from my job decreased.	0.888				
	During the separation process, I felt that the work I did was meaningless.	0.890				
Emotional Effects	During the separation process, my stress led to a feeling of burnout.	0.849	0.932	0.931	0.932	0.774
	During the separation process, the pressure and targets at the workplace wore me out.	0.876				
	During the separation process, the stress I experienced at the workplace negatively affected my personal health.	0.894				
	During the separation process, I had to work under constant stress.	0.898				
Manager and Management	During the separation process, the attitude displayed by management in a specific incident reinforced my decision to leave the workplace.	0.880	0.949	0.947	0.949	0.790
	During the separation process, the attitude displayed by management decreased my desire to stay at the workplace.	0.884				
	During the separation process, the feedback from my manager was insufficient and unconstructive.	0.887				
	During the separation process, I did not feel supported by my managers.	0.896				
	During the separation process, I experienced communication problems with my manager.	0.897				
Coworker Support	During my separation process, the attitude of my coworkers was positive.	0.840	0.913	0.912	0.915	0.779
	During the separation process, I had difficulty finding social support at the workplace.	0.890				
	During the separation process, my coworkers supported me.	0.916				
Working Conditions and Balance	During the separation process, the working environment at my workplace was comfortable and supportive.	0.877	0.921	0.917	0.920	0.794
	During the separation process, my heavy workload negatively affected my personal life.	0.889				
	During my separation process, my working hours were already irregular and exhausting.	0.908				
Workplace Policies and Culture	During the separation process, the workplace policies I encountered increased my desire to distance myself from the workplace.	0.866	0.915	0.914	0.915	0.782
	During the separation process, the culture of the organization contributed to a positive working environment.	0.884				
	During the separation process, the workplace policies positively affected my experience.	0.903				

All standardized factor loadings exceeded the recommended threshold of .70, indicating strong item–factor relationships. Internal consistency coefficients (Cronbach's Alpha and Composite Reliability) were above .90 across all antecedent dimensions, demonstrating high reliability. Average Variance Extracted (AVE) values ranged between .774 and .794, exceeding the .50 criterion and supporting convergent validity. Confirmatory factor analysis using the CB-SEM algorithm indicated good model fit (CFI = .937, TLI = .948, RMSEA = .041, SRMR = .036), suggesting that the six-factor antecedent structure adequately represents the data.

Table 2. Factor Loadings, Internal Consistency, and Convergent Validity of the Consequences of the EEES.

Factors	Items	Factor Loading	CA	CR (rho_a)	CR (rho_c)	AVE
Knowledge Transfer	My separation process negatively affected knowledge transfer.	0.807	0.751	0.769	0.841	0.582
	My separation experience increased knowledge loss during knowledge transfer.	0.865				
	My separation process increased the workload during the handover process.	0.884				
	My separation process increased delays experienced during the knowledge transfer process.	0.888				
Employee Morale	My separation process negatively affected the morale of other employees.	0.711	0.839	0.829	0.868	0.632
	My separation experience weakened the sense of belonging at the workplace.	0.883				
	My separation experience decreased my coworkers' trust in the job.	0.886				
	My separation process negatively affected my coworkers' performance.	0.890				
	My separation process negatively affected the team spirit at the workplace.	0.891				
Employee Networks	My separation experience caused my negative views about the organization to spread to others.	0.881	0.941	0.939	0.941	0.799
	My separation experience negatively affected the organization's recognition.	0.885				
	My separation experience led to the spread of negative information about the organization's atmosphere.	0.894				
	My separation process led me to share my negative experiences about the organization.	0.913				
Turnover Intention	My separation experience decreased my coworkers' motivation to stay at the workplace.	0.762	0.728	0.702	0.782	0.576
	My separation experience strengthened my coworkers' intentions to leave their jobs.	0.863				
	What I experienced during my separation process accelerated other employees' decisions to leave.	0.880				
	What I experienced during my separation process triggered other employees' thoughts of leaving.	0.883				
Employer Brand	My separation experience negatively affected my perception of the job security and stability the organization provides to its employees.	0.893	0.971	0.970	0.971	0.825
	My separation experience created the impression that the organization does not value its employees.	0.896				
	My separation process caused me to question the organization's commitment to its employees.	0.902				
	What I experienced during my separation process caused me to negatively evaluate the organization's attitude towards its employees.	0.907				
	My separation process made me find the support and opportunities provided by the organization to its employees inadequate.	0.909				
	My separation process caused me to develop negative thoughts about the organization's reputation.	0.916				
	What I experienced during the separation process reinforced the perception that the organization is not a fair employer.	0.934				

Standardized factor loadings ranged between .711 and .934, exceeding the recommended threshold of .70, with only one item slightly above the acceptable lower bound. Cronbach's Alpha and Composite Reliability values were above .70 for all consequence dimensions, indicating satisfactory internal consistency. AVE values ranged from .576 to .825, exceeding the .50 criterion and supporting convergent validity. Confirmatory factor analysis demonstrated acceptable model fit (CFI = .894, TLI = .876, RMSEA = .069, SRMR = .071), suggesting that the five-factor consequence structure adequately represents the data.

3. Results

This study conceptualizes leaving a job not as a decision or a single event, but as a multidimensional experiential transition, and developed and validated the EEES. Research on turnover has largely focused on the reasons for the decision and the types of decision-making process (Hom et al., 2017; Lee & Mitchell, 1994). However, the findings of this study show that the exit phase itself constitutes a psychological and relational process.

The model of the antecedents of the exit experience showed strong psychometric properties with high attributions, good reliability, and robust convergent validity. The six antecedent dimensions capture employees' context-specific evaluations during separation, including managerial behavior, emotional strain, workplace climate, and perceived fairness. These dimensions are conceptually different from burnout, which reflects chronic stress (Maslach & Leiter, 2016), and organizational commitment, which reflects attitudinal commitment (Meyer & Allen, 1991). Instead, the EEES measures interpretations specific to leaving, supporting its status as a transitional construct.

The consequence model demonstrated acceptable model fit and satisfactory reliability, identifying five individual and organizational outcomes such as knowledge transfer, employee networks and other employees turnover intention. Particularly strong validity in the Employer Brand and Employee Network dimensions suggests that exit experiences shape post-exit narratives and reputational perceptions. Consistent with social exchange theory (Blau, 1964) and conservation of resources theory (Hobfoll, 1989), employees evaluate how they are treated during separation and translate these evaluations into broader organizational consequences.

Overall, EEES has the potential to advance work-off research by empirically capturing the experiential essence of employee exit and relating it to outcomes at both individual and organizational levels. The findings highlight that exit management is strategically important, shaping not only individual perceptions but also morale, information continuity, and employer reputation.

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UNCERTAIN TIMES, UNCERTAIN JOBS, DEPLETED WORKERS: BURNOUT AS A LINK BETWEEN JOB INSECURITY AND WELL-BEING

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Abstract

Job insecurity represents a salient job demand in contemporary work contexts and has been consistently linked to reduced employee well-being. However, less is known about the mechanisms through which job insecurity translates into impaired well-being. Drawing on occupational stress and Job Demands–Resources perspectives, the present study examined whether burnout, conceptualized as exhaustion and disengagement, explains the association between job insecurity and employee well-being. Data were collected in autumn 2022 in Montenegro, during a period of heightened uncertainty related to the COVID-19 pandemic. A total of 275 employees participated in the study. The questionnaire included the Job Insecurity Scale, the Oldenburg Burnout Inventory (exhaustion and disengagement), the WHO-5 Well-Being Index, and a set of questions about demographic variables. Multiple regression analyses were conducted to examine the relationships among variables while controlling for gender, age, overall work experience, and organizational ownership. Results showed that the overall model was significant, explaining 38.9% of the variance in well-being, $R^2 = .39$, $F(3, 193) = 40.94$, $p < .001$. Exhaustion ($\beta = -.38$, $p < .001$) and job insecurity ($\beta = -.25$, $p < .001$) were significant negative predictors of well-being, whereas disengagement was not ($\beta = -.13$, $p = .075$). Mediation analysis (PROCESS Model 4) indicated that job insecurity significantly predicted exhaustion ($B = 0.27$, $SE = 0.04$, $t = 7.25$, $p < .001$), which in turn predicted lower well-being ($B = -0.72$, $SE = 0.10$, $t = -7.31$, $p < .001$). The total effect of job insecurity on well-being was significant ($B = -0.45$, $SE = 0.06$, $p < .001$), while the direct effect remained significant but was reduced when exhaustion was included ($B = -0.26$, $SE = 0.06$, $p < .001$), indicating partial mediation. Bootstrap analysis (5,000 samples) confirmed a significant indirect and partial effect of job insecurity on well-being via exhaustion ($B = -0.19$, Boot$SE = 0.04$, 95% CI [−0.28, −0.12]). These findings support the health-impairment process proposed by the JD–R model and highlight exhaustion as a key mechanism through which job insecurity undermines employee well-being.

Keywords: *Job insecurity, burnout, exhaustion, disengagement, employee well-being.*

1. Introduction

Job insecurity represents a salient job demand in contemporary work contexts and has been consistently associated with reduced employee well-being (De Witte, 1999; De Witte et al., 2016; Halbesleben & Demerouti, 2005). However, the underlying mechanisms through which it translates into impaired well-being remain poorly understood. To explain these mechanisms, the present study draws on the Job Demands–Resources (JD–R) model, which conceptualizes job demands as drivers of strain through a health-impairment process (Bakker & Demerouti, 2007, 2017; Demerouti et al., 2001).

The importance of examining job insecurity in contemporary work contexts is further underscored by the broader economic conditions shaped by the COVID-19 pandemic. Montenegro, in particular, represents a context highly vulnerable to such disruptions, given its strong reliance on tourism, which accounts for a substantial share of both GDP and employment. The pandemic had a severe impact on this sector, with tourist arrivals declining by more than 80% and tourism revenues dropping by approximately 86% in 2020 (OECD, 2022). This contraction contributed to a significant decline in overall economic activity, with GDP decreasing by around 15% and unemployment rising markedly (Bertelsmann Stiftung, 2022). Although partial recovery was observed in 2021 and 2022, economic conditions remained unstable, particularly in tourism-dependent sectors (Vienna Institute for International Economic Studies - wiiw, 2023). In such a context, employees were likely exposed to heightened job insecurity and increased job demands, making it particularly relevant to examine the mechanisms through which job insecurity affects employee well-being.

To better understand these mechanisms, the present study draws on the Job Demands–Resources (JD–R) theory (Bakker & Demerouti, 2007, 2017; Demerouti et al., 2001). According to this framework, job demands—defined as aspects of the job that require sustained physical or psychological effort—are associated with physiological and psychological costs and may lead to strain through a health-impairment process. Job insecurity can be conceptualized as a hindrance job demand, as it reflects a chronic stressor that threatens the continuity and stability of employment. As such, it is likely to deplete employees' energetic resources and contribute to adverse outcomes, particularly in contexts characterized by heightened uncertainty and instability.

Within the JD–R framework, burnout represents a key outcome of the health-impairment process. The Oldenburg Burnout Inventory conceptualizes burnout as comprising two dimensions: exhaustion, reflecting the depletion of energetic resources, and disengagement, reflecting psychological distancing from work (Bakker & Demerouti, 2007; Demerouti et al., 2001; Demerouti et al., 2003). While both dimensions are theoretically relevant, exhaustion is often considered the more immediate manifestation of strain, whereas disengagement may reflect a more distal coping response. Accordingly, burnout may represent an important mechanism through which job insecurity translates into reduced well-being.

Drawing on these considerations, the present study examined whether burnout, conceptualized as exhaustion and disengagement, mediates the relationship between job insecurity and employee well-being.

2. Method

Data were collected in autumn 2022 in Montenegro, during a period of heightened uncertainty related to the COVID-19 pandemic. A total of 275 employees participated in the study (due to missing data, N = 170–230, depending on the analysis). The sample consisted of 64.5% men and 32.5% women, while 2.9% did not report gender. The mean age was 31.4 years (SD = 11.95), and the average work experience was 7.66 years (SD = 9.06). The majority of participants worked for private organizations (57.2%), followed by state-owned organizations (32.3%), organizations with mixed ownership (7.1%), and self-employed individuals (3.9%). Most participants (71.7%) perceived their socio-economic status as average, 19.5% as above average, and 8.8% as below average.

The online questionnaire included the Job Insecurity Scale (De Witte, 2000), the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2003), and the WHO-5 Well-Being Index (Topp et al., 2015), and a set of demographic questions. Job insecurity was measured with four items rated on a 5-point Likert scale, with higher scores indicating higher job insecurity (e.g., "I feel insecure about the future of my job"; Cronbach's α = .74). Burnout was assessed using the OLBI, comprising two dimensions: exhaustion (e.g., "There are days when I feel tired before I arrive at work"; Cronbach's α = .74) and disengagement (e.g., "I frequently talk about my work in a negative way"; Cronbach's α = .69), rated on a 4-point Likert scale. Well-being was measured using the WHO-5 Well-Being Index (e.g., "I have felt cheerful and in good spirits"), rated on a 5-point frequency scale ranging from never or almost never to always or almost always (Cronbach's α = .86). Higher scores on all scales indicated higher levels of the respective constructs. Multiple regression analyses were conducted to examine the relationships among variables while controlling for gender, age, overall work experience, and organizational ownership.

3. Results

A multiple regression analysis was conducted to examine whether job insecurity, disengagement, and exhaustion predicted well-being. The overall model was significant, explaining 38.9% of the variance in well-being, R^2 = .39, $F(3, 193) = 40.94$, $p < .001$. Exhaustion (β = −.38, $p < .001$) and job insecurity (β = −.25, $p < .001$) emerged as significant negative predictors of well-being, whereas disengagement was not (β = −.13, $p = .075$).

A mediation analysis was conducted using PROCESS Model 4 to examine whether exhaustion mediated the relationship between job insecurity and well-being. Job insecurity significantly predicted exhaustion (B = 0.27, SE = 0.04, t = 7.25, $p < .001$). In turn, exhaustion significantly predicted lower well-being when controlling for job insecurity (B = −0.72, SE = 0.10, t = −7.31, $p < .001$). The total effect of job insecurity on well-being was significant (B = −0.45, SE = 0.06, $p < .001$). When exhaustion was included in the model, the direct effect remained significant but reduced (B = −0.26, SE = 0.06, $p < .001$), indicating partial mediation. Bootstrap analysis (5,000 samples) confirmed a significant indirect effect (B = −0.19, BootSE = 0.04, 95% CI [−0.28, −0.12]).

4. Discussion

The present study examined the relationship between job insecurity and employee well-being, with a particular focus on burnout, conceptualized as exhaustion and disengagement, as a mediating mechanism (Halbesleben & Demerouti, 2005). The findings provide clear support for the health-impairment process proposed by the Job Demands–Resources (JD–R) theory (Bakker & Demerouti, 2007, 2017). Specifically, job insecurity emerged as a significant negative predictor of well-being, both directly and indirectly through exhaustion. Importantly, the observed partial mediation by exhaustion underscores its role as a key mechanism through which job insecurity translates into reduced well-being. These results suggest that job insecurity functions as a hindrance demand that initiates a strain process, whereby sustained exposure depletes employees' energetic resources, leading to exhaustion and, consequently, diminished well-being.

The findings should be interpreted within the broader economic context of Montenegro during and following the COVID-19 pandemic. Montenegro is highly dependent on tourism, which accounted for a substantial share of both GDP and employment prior to the pandemic. However, the sector was severely affected by the crisis, with tourist arrivals declining by more than 80% and tourism revenues dropping by approximately 86% in 2020. This sharp contraction contributed to a significant decline in overall economic activity, with GDP decreasing by around 15% and unemployment rising markedly. Although partial recovery was observed in 2021 and 2022, economic conditions remained unstable, particularly in tourism-dependent sectors. In such a context, employees were likely exposed to heightened job insecurity, increased workload due to workforce reductions and absences, and prolonged uncertainty. From a JD–R perspective, these conditions represent intensified job demands that may deplete employees' energetic resources and contribute to the health-impairment process.

Interestingly, disengagement did not emerge as a significant mediator in the relationship between job insecurity and well-being. This finding suggests that, in the present context, the effects of job insecurity may be more strongly reflected in the energetic component of burnout rather than in its motivational component. Within the JD–R framework, exhaustion represents the core manifestation of the health-impairment process, whereas disengagement reflects a more distal, motivational response characterized by psychological distancing from work. In a context marked by heightened uncertainty and job instability, employees may be less likely to detach from their work due to concerns about job loss, and instead remain engaged while experiencing increased strain and fatigue. This pattern may explain why exhaustion, but not disengagement, mediated the relationship between job insecurity and well-being. This interpretation is also consistent with the conceptualization of burnout in the Oldenburg Burnout Inventory, where exhaustion captures the primary strain reaction, while disengagement reflects a more context-dependent and potentially constrained coping response (Demerouti et al., 2003; Halbesleben & Demerouti, 2005).

From a theoretical perspective, the findings contribute to the Job Demands–Resources (JD–R) model by clarifying the mechanisms through which job insecurity influences employee well-being. Specifically, the results highlight exhaustion as a core component of the health-impairment process, suggesting that the energetic dimension of burnout may be more proximal to strain outcomes than disengagement in contexts of heightened uncertainty. These findings also underscore the importance of distinguishing between burnout dimensions when examining mediating processes within the JD–R framework.

From a practical perspective, the findings highlight the importance of reducing job insecurity and managing excessive job demands in order to protect employee well-being. Organizations should implement transparent communication practices and provide support mechanisms aimed at mitigating uncertainty and preventing exhaustion. Interventions focused on monitoring and alleviating employee strain may be particularly important in contexts characterized by heightened instability.

Overall, the findings underscore the critical role of exhaustion as a key mechanism through which job insecurity undermines employee well-being, particularly in contexts characterized by heightened uncertainty.

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THE MEDIATING ROLE OF NEED CRAFTING IN THE RELATIONSHIP BETWEEN SELF-AWARENESS AND SATISFACTION OF BASIC PSYCHOLOGICAL NEEDS

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Abstract

Satisfaction of basic psychological needs is, according to Self-Determination Theory, one of the key predictors for mental health. Its important correlate however, is self-awareness, which—during the period of emerging identity in adolescence—may represent a challenging task often accompanied by negative emotional experiences. A potential mediator between self-awareness and overall satisfaction of the basic needs for autonomy, competence, and relatedness may be need crafting, that is, intentional and proactive adjustments in behavior and thinking through which individuals attempt to fulfill their psychological needs. The aim of this study is to examine the mediating role of need crafting focused on the need for autonomy, competence, and relatedness in the relationship between self-awareness and overall satisfaction of basic psychological needs. The sample consisted of 293 adolescents (M_{age} = 17.69, SD = 1.33; 62,5% of women). Data were collected using the Need Crafting Scale, the Basic Psychological Need Satisfaction Scales (BPNS), and the Self-Determination Scale. The results indicate a direct relationship between self-awareness and the fulfillment of basic psychological needs (B = 0.093, SE = 0.012; R^2 = 31.9), as well as an indirect effect through competence-oriented need crafting (B = 0.013; $p < 0.05$; R^2 = 0.038). The relationship between self-awareness and need crafting in the domain of relatedness was not confirmed. Likewise, no significant relationship was found between autonomy-oriented need crafting and overall need satisfaction. The findings highlight, on a practical level, the importance of fostering self-awareness during adolescence. On a theoretical level, it may be considered that need crafting in the domain of relatedness requires different personality characteristics than other psychological needs. Relatedness-oriented need crafting may be more strongly tied to contextual factors than to self-awareness itself. On the other hand, autonomy-oriented need crafting may focus more on one's own identity rather than one need satisfaction.

Keywords: *Awareness of self, satisfaction of basic psychological needs, need crafting, adolescents.*

1. Introduction and aim of research

Adolescence is a period of many changes, including psychological maturation. This manifests itself in the area of self-regulation (goal-oriented behavior and impulse control). Social-cognitive development in adolescence is also related to the relevance of the social context and peer acceptance (Blakemore & Mills, 2014). At the same time, identity develops and becomes more defined. The fulfillment of basic psychological needs is highly relevant for these processes. According to self-determination theory, these needs include autonomy, competence, and relatedness (Deci & Ryan, 2018).

To be able to satisfy psychological needs, a person must be able to identify them, which is an act of self-awareness. In order to fulfill these needs, one must first be able to recognize them — which constitutes an act of self-awareness. Ryan and Deci (2017) also consider self-awareness to be a manifestation of autonomous regulation. Autonomous functioning requires openness and awareness toward internal signals (Ryan, Kuhl & Deci, 1997). Organismic integration presupposes that people are naturally "open" to internal signals, which allows for the continuous integration of experiences.

Neurological development in adolescence forms the basis for increasing self-reflection and, consequently, self-awareness. On the other hand, self-reflection in adolescence is also a source of negative emotional experiences, since abstract thinking is accompanied by an exaggerated perception of one's own negative characteristics. Negatívny interpretatívny bias sa v adolescencii môže týkať aj self (Wang, 2025). Also, adolescents typically experience greater daily emotional fluctuations compared to children and adults (Arnett, 1999; Larson et al., 2002; Maciejewski et al., 2015).

Among the variables that may regulate the extent to which awareness of self becomes a predictor of psychological need satisfaction is need crafting. In line with SDT's organismic dialectical perspective (Ryan & Deci, 2002), adolescents actively shape their experiences and assign meaning to them; they are not merely passive recipients. They can contribute to their own need-based experiences and thereby facilitate the fulfillment of their psychological needs (Laporte et al., 2021).

At the same time, the concept of need crafting is a relatively new and insufficiently explored construct. Although it is assumed that awareness of self is a prerequisite variable for need crafting (Napier et al., 2024), this assumption has not been adequately examined in adolescents. Moreover, self-reflection in adolescence may be associated with negative emotional experiences, which may not necessarily predict the crafting of psychological needs. It is also well established that the satisfaction of psychological needs depends on the context, which varies in the extent to which it supports the needs for autonomy, competence, and relatedness (Ryan & Deci, 2017).

Therefore, the aim of this study is to examine the mediating role of need crafting focused on the need for autonomy, competence, and relatedness in the relationship between self-awareness and overall satisfaction of basic psychological needs.

2. Methods

The sample consisted of 293 adolescents (Mage = 17.69, SD = 1.33; 62,5% of women). Adolescents were invited to participate in the study through university students, who were instructed to approach adolescents aged 15–20 years within their social networks, specifically secondary school students. In addition, the legal guardian of each adolescent completed an informed consent form containing information about the study prior to data collection. To prevent duplicate responses from the same participant, each respondent was asked to provide a unique personal code at the beginning of the questionnaire.

The Need Crafting Scale (Laporte et al., 2021) is a 30-item instrument assessing a proactive approach to fulfilling the needs for autonomy, competence, and relatedness. Each need is evaluated through 10 items, of which six capture the awareness component and four measure the action component. Example items include: "It is clear to me …" and "As much as possible, I try to do things …". All items are rated on a 5-point Likert scale ranging from 1 (not at all true) to 5 (completely true) (Cronbach alfa=0.866).

The *BMPN – Balanced Measure of Psychological Needs* scale measures the satisfaction and frustration of three basic psychological needs: autonomy, competence, and relatedness. It is based on Self-Determination Theory and enables the assessment of both the fulfilment and the frustration of these needs. Respondents rate the items on a 7-point Likert scale (1 – not at all true; 7 – completely true), with each need represented by a pair of subscales – satisfaction and frustration. Higher overall scores indicate a higher level of overall need satisfaction (Cronbach alfa=0.823).

The *Self-Determination Scale* (Sheldon et al., 1996) measures two subscales: awareness of self and perceived choice. Each subscale is assessed with 5 items. Respondents choose which statement in each pair (A or B) fits them better, with each pair representing a continuum from low to high self-determination. The items are rated on a 5-point scale (1 – only A is true; 5 – only B is true).

Examples of items: (1) A. My emotions sometimes seem alien to me; B. My emotions always feel like they belong to me; (2) A. When I accomplish something, I often feel that it wasn't really me who achieved it; B. When I accomplish something, I always feel that it was truly me who achieved it. (Cronbach's alpha: 0.802).

The data were processed using the JAPS program with the SEM module.

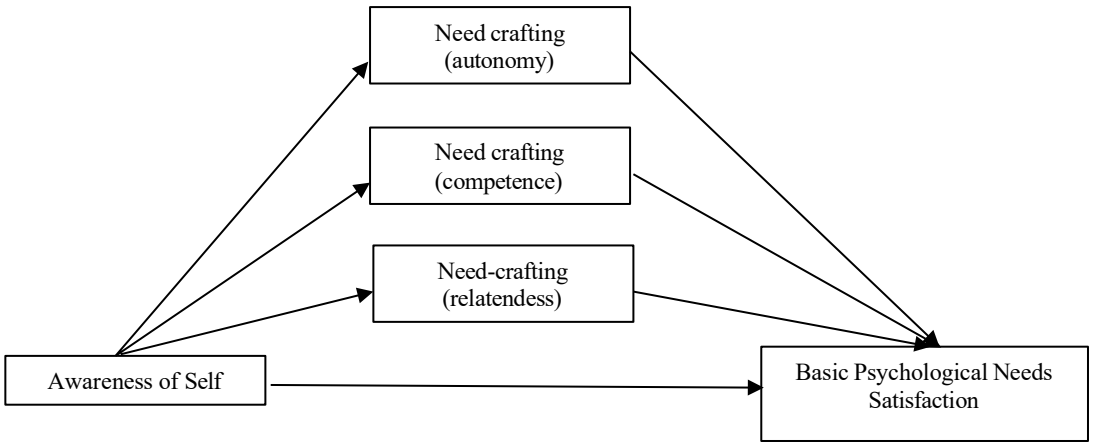
3. Results

Table 1. Descriptive statistics of the variables.

	BMPN	AS	NCM_C	NCM_A	NCM_R
M	48.857	18.406	25.297	25.116	25.628
SD	9.198	4.578	3.845	3.820	4.022
Skewness	-1.060	-0.423	-0.730	-0.854	-0.975
SE	0.142	0.142	0.142	0.142	0.142
Min	9.000	6.000	7.000	7.000	9.000
Max	63.000	25.000	35.000	35.000	35.000
P25	44.000	15.000	23.000	23.000	24.000
P50	50.000	19.000	25.000	25.000	26.000
P75	56.000	22.000	28.000	27.000	28.000

Notes: BMPN – balanced measure of basic needs – satisfaction; AS=awareness of self; NCM_C – need crafting (competence), NCM_A – need crafting (autonomy), NCM_R – need crafting (relatedness)

Figure 2. Need Crafting as a mediator between Awareness of Self and Basic Psychological needs Satisfaction.



The structural equation model was estimated using the robust maximum likelihood estimator (MLR), which adjusts standard errors and confidence intervals for deviations from normality. This approach ensured stable parameter estimates despite the presence of a pronounced ceiling effect in the variable representing overall need satisfaction. The model explained 31.9% of the variance in overall need satisfaction,

Awareness of self significantly and positively predicted overall psychological need satisfaction ($\beta = 0.083$, SE = 0.012, $z = 6.587$, $p < .001$, 95% CI [0.056, 0.104]). Awareness of self was also significantly associated with all three need crafting components: competence ($\beta = 0.046$, $p = .001$), relatedness ($\beta = 0.027$, $p = .046$), and autonomy ($\beta = 0.033$, $p = .007$).

Among the mediators, both competence-related need crafting ($\beta = 0.176$, SE = 0.077, $p = .022$) and relatedness-related need crating ($\beta = 0.138$, SE = 0.072, $p = .012$) significantly predicted overall need satisfaction. The autonomy-related NCM component was not a significant predictor ($\beta = 0.063$, $p = .469$).

Of the three tested mediation pathways, only a very small but statistically significant indirect effect emerged: autonomy related need crafting mediated relationship between awareness of self and overall need satisfaction ($\beta = 0.002$, SE = 0.001, $z = 2.103$, $p = .035$, 95% CI [0.000, 0.007]).

The indirect effects through competence-related NCM ($\beta = 0.007$, $p = .069$) and relatedness-related NCM ($\beta = 0.004$, $p = .148$) were not statistically significant.

These findings indicate that the effect of Awareness of Self on overall need satisfaction is predominantly direct, with only a marginal contribution of the need crafting.

The total effect of Awareness of self on overall need satisfaction was significant and positive ($\beta = 0.089$, SE = 0.012, $z = 7.025$, $p < .001$, 95% CI [0.068, 0.118]).

Although the total indirect effect reached statistical significance ($\beta = 0.013$, $p = .037$), its magnitude was very small, confirming the minimal mediating role of need crafting components.

4. Discussion

The aim of the present paper was to examine the mediating role of need crafting in the three basic psychological needs—autonomy, competence, and relatedness—in the relationship between self-awareness and basic need satisfaction in a sample of adolescents aged 15–20 years.

The findings demonstrate that awareness of self contributes to psychological need satisfaction, and this effect is primarily direct. The use of the robust MLR estimator ensured reliable estimation despite the ceiling effect. Need crafting played only a minor mediating role, with a significant mediation emerging solely in the autonomy dimension.

The results highlight several patterns: self-awareness increases need crafting across all three psychological needs. Although self-awareness in adolescence may sometimes be associated with negative emotional experiences, our findings contribute to the literature by suggesting that awareness of self appears to function as a variable that supports a proactive approach to psychological needs. In this sense, awareness of self may be considered a contributing factor to self-regulation, as suggested in theoretical frameworks by Carver and Scheier (1998).

Competence-related need crafting and relatedness-related need crafting predicted overall psychological need satisfaction, whereas autonomy-related need crafting did not. A possible explanation is that competence and relatedness are more directly linked to concrete behaviors that can enhance them (school engagement, forming relationships), whereas the need for autonomy—and its crafting—is tied to internal characteristics of personality. These are more difficult to articulate and, in adolescence, are still in the process of development alongside identity formation. At the same time, a mediating effect of autonomy-related need crafting appeared in the relationship between awareness of self and overall need satisfaction. This may have practical implications—supporting awareness of self through self-reflection-based interventions, such as youth mentoring, could enhance autonomy-related processes.

Awareness of self was associated with a higher overall level of psychological need satisfaction. Individuals with higher self-awareness are better able to recognize their own needs and to choose environments and activities that help them satisfy those needs. This supports the relevance of the need-crafting concept and its investigation in adolescence. Acting autonomously means acting with a sense of choice and personal endorsement, which presupposes a certain level of self-understanding (Ryan & Deci, 2022).

However, the findings must be interpreted with caution due to a notable limitation: the variable "overall psychological need satisfaction" showed a strong ceiling effect, with most respondents reporting high levels of need satisfaction—an effect commonly observed in non-clinical samples.

Moreover, the authors of the Balanced Measure of Psychological Needs Scale note that the needs for autonomy, competence, and relatedness should not be treated as a single overall indicator of psychological need satisfaction, but rather examined separately. Conversely, Ryan and Deci (2017) argue that the three psychological needs are interdependent and mutually reinforcing; for example, supporting relatedness may foster competence and autonomy satisfaction. Future research could therefore focus on exploring specific ways in which psychological needs are satisfied and the degree to which these strategies are adaptive.

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STUDYING SOCIOECONOMIC STATUS IN THE FIELD OF PSYCHOLOGY: A SYSTEMATIC REVIEW OF CURRENT PRACTICES

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Abstract

Sociodemographic variables are of great importance to social sciences in terms of shaping or predicting psychological outcomes. Socioeconomic status (SES) is one of the most prominent of these variables that are widely used in psychological research. Upon thorough examination of the literature, one can observe numerous methodological strategies regarding the use of SES. This situation may be interpreted as a result of SES being used as a descriptive variable instead of a primary variable; thus, researchers do not allocate enough time to its operationalization. The present research aims to test this assumption by reviewing the long-term research projects (i.e., theses/dissertations) that approach SES as the primary focus of the project. Accordingly, this systematic review covers the psychology theses submitted to the Turkish National Thesis Center between 2000 and 2023. Sixty-five theses that appeared as a result of the filtered search were screened and selected in terms of the following criteria: to have SES as a precise primary variable in the research, to be written in English or Turkish, to use quantitative methods, and to be open-access at the time of searching. Twenty-three theses were included in the review after the screening and selection phases. The synthesized review findings demonstrated that only 34.8% of the theses provided a definition or a discussion of the SES concept, while the remaining 65.2% did not give any coverage of conceptualization. In addition, the theses with SES definitions varied among themselves regarding the indicators of SES they mentioned, such as education, income, occupation, prestige, power, and wealth. In terms of methodology, the level of SES assessment (i.e., area, family/household, individual) showed a significant variety. All measurements were examined in terms of subjectivity, the type of indicators included, and the final SES variable types. Overall, review findings showed that even in the long-term projects where SES is the primary focus, most researchers still do not attach sufficient importance to the conceptualization and measurement of SES. Examining these methodological inconsistencies highlights the necessity of a clear SES conceptualization in psychology and provide psychometrical insights for future research.

Keywords: *Socioeconomic status, social class, psychological measurement.*

1. Introduction

Socioeconomic status (SES) has been frequently used in psychological research both as a sociodemographic sample descriptor and a main predicting variable. However, the definition of SES and how it is measured is not clear and consistent among studies that use it for different purposes. Many research focuses on the distinction between objective and subjective SES and how subjective SES is typically a stronger predictor of psychological outcomes compared to objective SES (e.g., Kraus et al., 2009; Singh-Manoux et al., 2005). While the objective-subjective distinction is theoretically quite explicit, there are various overlooked conceptual and methodological details with different practices in the literature; such as the choice of SES indicators (e.g., income, education, occupation), the level at which SES is measured etc. Antonoplis (2023) approaches this issue from a researcher's perspective and argues that finding a clear pathway to follow while studying SES is not straightforward. As a consequence of this confusion, researchers may take the easy way out and use the most convenient and practical measure due to time and effort constraints. The present study addresses how researchers approach SES when they conduct studies with less time pressure and greater opportunity to focus on the conceptualization of their variables detailedly.

2. Objectives

This study aims to test the assumption that the large variation in SES' operationalization may be due to the fact that it is often not treated as a main variable resulting in limited methodological attention. For this purpose, long-term research projects in which SES is the primary focus of the study are reviewed. Graduate theses and dissertations are considered a proxy for long-term projects where researchers are expected to allocate more time on how they operationalize their main variables, including SES. Therefore, this systematic review provides an overview of the theses and dissertations that have SES as one of their main variables.

3. Methods

This review study was conducted and will be reported following the The Preferred Reporting Items for Systematic reviews and Meta-Analyses (*PRISMA*) guidelines (Page et al., 2021). The search for the review was conducted in Ulusal Tez Merkezi (*Turkish National Thesis Center*). This database comprises all the master's theses and doctoral dissertations that were conducted in the universities that are situated in Türkiye. In addition, theses from the degrees whose equivalencies are approved by Yükseköğretim Kurulu (*Turkish Council of Higher Education*) are available at this thesis database. As the goal was to reach graduate theses in psychology that consider SES one of their main variables, the search was limited with the "psychology" subject. Titles of the theses had to include one of the SES-related words that were used as search words; i.e., socioeconomic, socio-economic, social class, social status, or SES. The date of search was March 22, 2023. Search results were restricted to the period between 2000 and 2023 in terms of submission time. The language of the theses was either Turkish or English. As a result of the search with the filters given, 65 theses appeared.

Initially, sixty-five theses were screened based on their title and abstracts. Theses that do not have SES as a precise main variable (n=13) and whose full-texts were not available at the time of the search (n=7) were excluded. Additionally, 9 studies were removed since the search words with abbreviation (i.e., SES) were used in texts with meanings other than socioeconomic status. After these exclusions, 36 theses were screened based on their full texts. The same inclusion criteria were applied to the full-text screening process. Thirteen theses that handle SES with methods other than self-reports or researcher-assigned groups, that have not used quantitative methods, and theses that have relevant yet different variables than SES (e.g., socioeconomic *adversity,* socioeconomic *characteristics*) were excluded from the final list of studies included. Therefore, 23 theses were included in the review.

From 23 studies, the following information was extracted: year of submission, degree obtained with the thesis (master's vs. Ph.D.), the term used to describe the SES variable both in Turkish and English abstracts, whether a clear definition of SES or any argument over the definition is provided, the emphasized aspects/indicators of SES if a definition is stated, the method of measuring SES, the level at which SES is operationalized (i.e., area-, household/parental-, or individual-level), the indicators of SES represented in the measurement (income, education, occupation etc.), whether the focus of the measurement was subjective- or objective-SES, and final variable type (categorical vs. continuous).

4. Results

The present study draws mainly on descriptive analyses. Only 2 out of 23 theses were doctoral dissertations, whereas the remaining 21 were master's theses. In the abstracts, the most commonly used term to refer to SES was "socioeconomic status" appearing in 16 theses (69.6%). Four other theses used "socioeconomic level", one used "socioeconomic situation", one used "social status", and one used "SES" alone as an abbreviation. In terms of providing a definition, the majority (65.2%) did not define SES in their introduction or methods sections. Specifically, 8 (34.8%) theses (i.e., Ateşyakar, 2021; Erdoğan, 2002; Gönül, 2020; Keşir, 2019; Kızılakça-Soyaslan, 2022; Mavioğlu, 2018; Taşdelen, 2019; Yılmaz, 2022) either provided a definition or a discussion over the conceptualization such as SES' theoretical background or what it represents in terms of specific indicators (see Appendix A for the full citation list of the theses included in the review).

The level of SES assessment (i.e., area/school, parental/household, individual) showed a significant variety. Majority of the theses (56.5%) measured SES considering either parental or household-related information. Six theses measured SES at the area/school-level (i.e., Atalay, 2010; Çakıcı, 2006; Hantal, 2007; Karagöbek, 2014; Kılıç-Duran, 2007; Sancakoğlu, 2011). Number of studies that measured individuals' SES based solely on their own information was relatively small (i.e., Ateşyakar, 2021; Erdem, 2015; Keşir, 2019; Yılmaz, 2022; Yiğitoğlu, 2009). For the area/school level measurements, interpreting the subjectivity of the measurement may not be feasible as the

participants/subjects are not directly involved in the measurement process.. Nevertheless, among the parental/household- and individual-level ones, there were 14 objective (12 parental/household-; 2 individual-level) and 4 subjective measures (2 parental/household-; 2 individual-level). As one study (i.e., Ateşyakar, 2021) included both objective and subjective measures, the total number of objective and subjective measures is higher than the total number of relevant theses (see Table 1 for the summary of the information regarding SES measurement in each thesis).

Out of 23 theses, the final SES-variable types were: 19 ordinal categorical and 5 continuous. Total number is 24 instead of 23 as Baydarol (2007) included both categorical and continuous versions of the final SES variable. Ten included two categories (e.g., low/high, lower/upper etc.) while 8 included three categories (e.g., low/middle/high), and one had 5 categories (i.e., low/low-middle/middle/ middle-high/high; Çıtak, 2008).

5. Discussion

The present systematic review aimed to examine how SES is approached conceptually and methodologically in relatively long-term psychological research practices. A 23-year period was searched and screened systematically on the Turkish National Thesis Center database. Data were extracted from theses that mainly focused on SES with quantitative methods. Overall, the findings demonstrated that even in the long-term projects where SES is the primary focus, limited importance is attached to the conceptualization and measurement of SES, consistent with the previous research (see Antonoplis, 2023; Liu et al., 2004). Conceptualization of SES remains insufficiently addressed, and the selection of SES indicators in methodology lacks a consistent theoretical basis.

The large variety of the methodologies underscores the need for a clear conceptual framework and a general consensus on the measure for SES. For instance, the current review shows the matches between different SES terms and their reflections on the measures. Specifically, while “socioeconomic status” is mostly measured with levels of education, income/wealth, occupation or household- information (e.g., Erdoğan, 2002; Ünsal Özberk, 2016); “social status” is measured with popularity- and attractiveness-related variables (e.g., Yılmaz, 2022). However, despite this distinction being observable through the measures; most of the literature treats these terms as if they refer to the same construct. Such interchangable use may result in approaching the literature of different constructs as if they refer to the same one.

With a systematic and data-driven approach, this review aimed to highlight inconsistencies in the use of SES even when it is more than a descriptive, secondary variable. Future research that develops clear conceptual frameworks for SES might help promote coherent use of SES in psychological research and generate more reliable, generalizable results.

Table 1. Summary of the Information Regarding the SES Measurements in 23 Theses Included in the Review.

Author & Year	Measurement	SES Indicators
Alan, 2016	Subjective evaluation of household monthly income	Income/wealth
Atalay, 2010	SES levels assigned to schools based on school directors' evaluations	NA
Ateşyakar, 2021	1) Early-Objective SES: Parental education level and number of bedrooms per person in the family house; 2) Current-Objective SES: Standardized mean of individual's own education and monthly household income; 3) Early-Subjective SES: Parents' position on the MacArthur's Scale of Subjective Social Status (Adler et al., 2000) 4) Current-Subjective SES: Individual's own position on the MacArthur's Scale of Subjective Social Status (Adler et al., 2000)	1) Education & household type/goods 2) Education & income/wealth 3/4) Education, income/wealth, and occupation
Baydarol, 2007	Parental education level	Education
Çakıcı, 2006	SES levels assigned to schools based on the statistics received from the state databases	NA
Çıtak, 2008	Socioeconomic Status Scale (Bacanlı, 1990) adjusted by the researcher	Education, occupation, household members/family type, household type/goods

Erdem, 2015	Assigning people who applied for financial or social support to the Ministry of Familty and Social Services to the low-SES group	Income/wealth
Erdoğan, 2002	Socioeconomic Status Scale (Bacanlı, 1997) adjusted by the researcher	Education, occupation, income/wealth, household members/family type, household type/goods
Gönül, 2020	Parental education level	Education
Güven, 2015	Household monthly income	Income/wealth
Hantal, 2007	SES levels assigned to schools based on the kind of the school: Private vs. state	NA
Karagöbek, 2014	SES levels assigned to schools based on the researcher's assumption regarding the areas	NA
Keşir, 2019	Level of education	Education
Kılıç Duran, 2007	SES levels assigned to schools based on the kind of the school: Two private vs. four state	NA
Kızılakça Soyaslan, 2022	Socio-economic Status Scale (Kalaycıoğlu et al., 2010)	Education, occupation, income/wealth, household type/goods, and other possessions
Mavioğlu, 2018	Standardized mean of parental education and family income	Education & income/wealth
Pala Sağlam, 2016	Maternal education level	Education
Sancakoğlu, 2011	SES levels assigned to schools based on the kind of the school: Private vs. state	NA
Taşdelen, 2019	A composite score of household income and parental education level	Education & income/wealth
Toprak Coşkun, 2012	Number of family/household members, owner of the house, number of bedrooms in the house, household goods, and possessions	Household members/family type, household type/goods
Ünsal Özberk, 2016	Maternal education level	Education
Yılmaz, 2022	Scale of Subjective Social Status (Sweeting & Hunt, 2014; Türkay et al., 2018)	Popularity, doing well at school, being attractive/stylish, powerful, trouble-maker, attractive or stylish, sporty, to be respected
Yiğitoğlu, 2009	Subjective SES evaluation	Not specified

Note. NA: Not applicable. Indicators were stated as "not applicable" in the area/school-level measurements to avoid potential misinformation.

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Bacanlı, H. (1997). *Sosyal İlişkilerde Benlik-Kendini Ayarlamanın Psikolojisi*. İstanbul: Milli Eğitim Basımevi.

Kalaycıoğlu, S., Çelik, K., Çelen, Ü., & Türkyılmaz, S. (2010). Temsili bir örneklemde sosyo-ekonomik statü (SES) ölçüm aracı geliştirilmesi: Ankara kent merkezi örneği. *Sosyoloji Araştırmaları Dergisi, 1,* 183-220.

Kraus, M. W., Piff, P. K., & Keltner, D. (2009). Social class, sense of control, and social explanation. *Journal of Personality and Social Psychology, 97*(6), 992–1004.

Liu, W. M., Ali, S. R., Soleck, G., Hopps, J., Dunston, K., & Pickett Jr., T. (2004). Using Social Class in Counseling Psychology Research. *Journal of Counseling Psychology, 51*(1), 3–18.

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Singh-Manoux, A., Marmot, M. G., & Adler, N. E. (2005). Does subjective social status predict health and change in health status better than objective status? *Psychosomatic Medicine, 67*(6), 855–861.

Sweeting, H. & Hunt, K. (2014). Adolescent socio-economic and schoolbased social status, health and well-being. *Social science and medicine, 121,* 39- 47.

Türkay, H., Mumcu H. E., Kusan, O., Aydın A. D. & Güngöz, E. (2018). Öznel sosyal statü ölçeğinin Türkçeye uyarlanması. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi, 7*(4), 2391-2403.

Appendix A. Full Citation List of the 23 Theses Included in the Review.

Alan, C. (2016). *Lise öğrencilerinin saldırganlık davranışları ile sosyoekonomik durumları ve anne baba tutumları arasındaki ilişkinin incelenmesi: İstanbul ili Sultangazi ilçesi örneği.* (Unpublished master's thesis). İstanbul Ticaret University, İstanbul.

Atalay, A. (2010). *Akran zorbalığı gösterme ve akran zorbalığına maruz kalmanın cinsiyet, yaş, sosyoekonomik düzey, anne-baba tutumları, arkadaş ilişkileri ve benlik saygısı ile ilişkisi.* (Unpublished master's thesis). Dicle University, Diyarbakır.

Ateşyakar, N. (2021). *The relationship between socioeconomic status parameters and inflammation in pregnant women in Turkey.* (Unpublished master's thesis). Boğaziçi University, İstanbul.

Baydarol, Ö. (2007). *Self and conformity: The role of socio-economic status, values and socialization patterns.* (Unpublished master's thesis). Boğaziçi University, İstanbul.

Çakıcı, S. (2006). *Alt ve üst sosyoekonomik düzeydeki ailelerin aile işlevlerinin, anne-çocuk ilişkilerinin ve aile işlevlerinin anne – çocuk ilişkilerine etkisinin incelenmesi*. (Unpublished master's thesis). Gazi University, Ankara.

Çıtak, A. (2008). *Kadınların çalışmasına yönelik tutum: Cinsiyet, cinsiyet rolü ve sosyoekonomik düzeye göre bir karşılaştırma*. (Unpublished master's thesis). Ankara University, Ankara.

Erdem, Ç. (2015). Aile ve Sosyal Politikalar Bakanlığı İl Müdürlüğüne müracaat eden eğitim düzeyi ve gelir seviyesi düşük bireylerde bağlanma stillerinin umutsuzluk düzeyleri ve stresle başa çıkma tarzları arasındaki ilişki. (Unpublished master's thesis). İstanbul Arel University, İstanbul.

Erdoğan, F. (2002). *İlköğretim II. kademe öğrencilerinde sosyal becerilerin sosyo-ekonomik düzey, cinsiyet ve yaş ile ilişkisi.* (Unpublished master's thesis). Gazi University, Ankara.

Gönül, B. (2020*). How children and their parents reason about inequalities and exclusion based on socioeconomic status: The roles of children's age, family socioeconomic background and exclusion context.* (Unpublished doctoral dissertation). Middle East Technical University, Ankara.

Güven, F. (2015). *Ortaokul 8. sınıf öğrencilerinin zorbalık yapmaları ile zorbalığa maruz kalmalarının, cinsiyet, anne-baba eğitimi, sosyoekonomik düzey ve empati eğilimi açısından incelenmesi.* (Unpublished master's thesis). Toros University, Mersin.

Hantal, B. R., (2007). *Mother-adolescent relations across contexts representing different cultural value orientations and socio-economic conditions.* (Unpublished master's thesis). Koç University, İstanbul.

Karagöbek, A. B. (2014). *The effect of maternal parentification history, maternal attachment styles, socioeconomic status and children's self-construals on parentification roles and perceived parental caregiving.* (Unpublished master's thesis). Middle East Technical University, Ankara.

Keşir, N. (2019). *Socioeconomic-related differences in Turkish mothers' autonomy granting to adolescents*. (Unpublished master's thesis). Boğaziçi University, İstanbul.

Kılıç Duran, Ş. (2007). *9.10.11 yaşındaki çocukların zihinsel gelişim ve benlik saygısına ailenin sosyo-ekonomik düzeyinin etkisi.* (Unpublished master's thesis). Maltepe University, İstanbul.

Kızılakça Soyaslan, T. (2022). Sosyo-ekonomik statünün toplumsal cinsiyet rolleri ve cinsel mitler değişkenleri aracılığıyla cinsel doyuma etkisinin ölçülmesi. (Unpublished master's thesis). Ankara University, Ankara.

Mavioğlu, R. N. (2018). *The effect of socioeconomic status and 5-HTTLPR on preschoolers' social competence and diurnal cortisol levels.* (Unpublished master's thesis). Boğaziçi University, İstanbul.

Pala Sağlam, Ş. (2016). *School-aged children's experience and expression of shame and guilt: The role of age, gender, context, parenting and socioeconomic status.* (Unpublished master's thesis). Boğaziçi University, İstanbul.

Sancakoğlu, S. (2011). *Relation between socioeconomic status and depression, anxiety, and self-esteem in early adolescents.* (Unpublished master's thesis). Fatih University, İstanbul.

Taşdelen, A. S. (2019). Examining the role of SES, mothers' reflective functioning, mothers' psychopathological symptoms, and emotion socialization practices on the toddlers' behavior problems. (Unpublished master's thesis). Ozyegin University, İstanbul.

Toprak Coşkun, A. (2012). *Adet öncesi gerginlik sendromu ile ruh sağlığı, stres, sosyoekonomik düzey, vücut algısı ve kontrol odağı arasındaki ilişkiler.* (Unpublished master's thesis). Ankara University, Ankara.

Ünsal Özberk, E. B. (2016). Wechsler Çocuklar için Zeka Ölçegi IV Türkçe formundaki maddelerin işlev farklılığının sosyo-ekonomik düzey ve cinsiyet açısından incelenmesi. (Unpublished doctoral dissertation). Ankara University, Ankara.

Yılmaz, F. (2022). Üniversite öğrencilerinin öznel sosyal statü algılarının, aile aidiyeti, psikolojik doğum sırası ve bazı değişkenlere göre incelenmesi. (Unpublished master's thesis). Mersin University, Mersin.

Yiğitoğlu, Z. (2009). *İzlenim ayarlamacılığı ve iş doyumu arasındaki ilişkinin sosyo-ekonomik düzeye göre incelenmesi.* (Unpublished master's thesis). Ankara University, Ankara.

Note. All of the given theses/dissertations can be reached through search in Turkish National Thesis Center's website https://tez.yok.gov.tr/UlusalTezMerkezi/giris.jsp. As the links are not specified for each thesis, they were stated as unpublished works.

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ACADEMIC BURNOUT AMONG UNIVERSITY STUDENTS IN MONTENEGRO: PERFECTIONISM AND EMOTION REGULATION

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Abstract

Perfectionism and emotion regulation have been increasingly recognized as important psychological constructs related to academic burnout, a phenomenon that poses a growing challenge to students' well-being and academic functioning. The Burnout Assessment Tool (BAT), originally developed for occupational settings, has also been adapted for assessing academic burnout among university students (BAT-S). Within the Study Demands-Resources framework, academic burnout is conceptualized as a state of exhaustion characterized by extreme tiredness, reduced emotional and cognitive functioning, and mental distancing from academic work. The aim of the present study was to examine the contribution of perfectionism and emotion regulation to academic burnout among students in Montenegro. A sample of 181 students from several universities in Montenegro participated in the study. The instruments included the Frost Multidimensional Perfectionism Scale (FMPS; 35 items, 5-point Likert scale), the Emotion Regulation Questionnaire (ERQ; 18 items, 5-point Likert scale), and the student version of the Burnout Assessment Tool (BAT-S; 34 items, 5-point frequency scale ranging from *never* to *always*, with higher scores indicating more frequent experience of burnout symptoms), along with a set of socio-demographic questions. The results indicated a strong positive correlation between perfectionism and academic burnout ($r = .66$, $p < .001$), as well as an even stronger association between difficulties in emotion regulation and burnout ($r = .74$, $p < .001$). Regression analyses showed that both perfectionism and emotion regulation significantly predicted burnout levels, with emotion regulation accounting for a larger proportion of explained variance. Furthermore, students reporting greater difficulties in emotion regulation scored significantly higher on the BAT compared to those who regulated their emotions more effectively. Overall, the findings suggest that while perfectionistic tendencies contribute to vulnerability, difficulties in emotion regulation play a more central role in the development and severity of academic burnout. The results highlight the importance of preventive and educational interventions aimed at strengthening adaptive emotion regulation strategies and promoting realistic academic expectations. Such efforts may contribute to reducing burnout risk, improving students' psychological well-being, and fostering healthier academic environments.

Keywords: *Perfectionism, emotion regulation, academic burnout, university students, Montenegro.*

1. Introduction

Montenegro has undergone profound transitions and structural changes across all spheres of life since the 1990s. The country was granted candidate status for European Union membership in 2010 (European Commission, n.d.). Higher education has likewise been substantially reformed over the past two decades, particularly following the country's participation in the Bologna Process and its accession to the European Higher Education Area (EHEA), as reflected in the Law on Higher Education (Vlada Crne Gore, 2022). Within this framework, which conceptualizes full-time study as equivalent to an 8-hour working day, students face increased academic demands and heightened pressures related to academic success and future employability.

The contemporary academic environment is further characterized by continuous assessment and high performance expectations. Consequently, university students are exposed to numerous stressors that may negatively affect their psychological well-being. One of the most frequently studied psychological outcomes associated with academic stress is academic burnout (Schaufeli et al., 2002; Walburg, 2014).

Academic burnout is typically defined as a psychological syndrome consisting of emotional exhaustion, cynicism toward academic tasks, and reduced academic efficacy. Previous research has demonstrated that burnout is associated with lower academic motivation, poorer academic performance, and increased risk of psychological difficulties among students (Maslach et al., 2001; May et al., 2015).

Among the psychological factors associated with burnout, perfectionism has received considerable attention. Perfectionism refers to the tendency to set excessively high personal standards accompanied by critical self-evaluation (Frost et al., 1990). Contemporary research commonly distinguishes between adaptive and maladaptive perfectionism. While adaptive perfectionism may foster motivation and persistence (Frost et al., 1990), maladaptive perfectionism is characterized by excessive concern over mistakes, doubts about actions, and fear of negative evaluation, which can increase vulnerability to stress and burnout (Zhang et al., 2007). Empirical studies indicate that maladaptive perfectionism is associated with higher levels of academic stress and burnout among university students (Hill & Curran, 2016).

Emotion regulation represents another important factor associated with students' psychological adjustments. Emotion regulation refers to the processes through which individuals influence which emotions they experience and how they express them (Bargh & Williams, 2007). According to the process model of emotion regulation, individuals use different strategies to manage emotional responses, such as cognitive reappraisal and expressive suppression (Gross, 1998). Effective emotion regulation strategies may help students cope with academic demands, whereas difficulties in emotional regulation may intensify stress and emotional exhaustion (Gross & Thompson, 2007; Seibert et al., 2017).

Although academic burnout has been extensively studied internationally, research examining the combined effects of perfectionism and emotion regulation among university students in Southeast Europe remains limited. In particular, empirical evidence focusing on students in Montenegro is scarce, highlighting a notable gap in the research literature. Addressing this gap may contribute to a more comprehensive understanding of the psychological risk and protective factors associated with academic burnout, particularly within underrepresented educational and socio-cultural contexts.

The present study is grounded in the Job Demands-Resources (JD-R) framework (Bakker et al., 2004) further extended through the Study Demands-Resources (SD-R) framework. According to this model, burnout arises when academic demands exceed available personal resources (Bakker et al., 2004; Schaufeli & Bakker, 2004). Within this model, maladaptive perfectionism can be conceptualized as an additional psychological demand, whereas effective emotion regulation may serve as a personal resource that buffers against academic burnout. Therefore, the aim of this study was to examine the relationship between perfectionism, emotion regulation, and academic burnout among university students in Montenegro.

2. Design

The study employed a quantitative cross-sectional research design aimed at examining relationships between perfectionism, emotion regulation, and academic burnout among university students. Data were collected using a structured questionnaire consisting of standardized psychological scales and demographic questions.

This research design enabled the analysis of associations between the examined psychological variables and the identification of potential predictors of academic burnout. The design was appropriate for examining individual differences in psychological characteristics and their relationship with burnout symptoms in the academic context.

3. Objectives

The main objective of this study was to examine the relationship between perfectionism, emotion regulation, and academic burnout among university students in Montenegro.

More specifically, the study aimed to:

- Examine whether perfectionism significantly predicts burnout,
- Examine the influence of emotion regulation on academic burnout,
- Explore whether there are differences in burnout levels between students with different levels of emotional regulation

Based on these objectives, the following hypotheses were formulated:

H1: Perfectionism has a significant effect on academic burnout among students.

H2: Difficulties in emotion regulation predict academic burnout

H3: There is a difference in burnout levels between students with higher and lower emotion regulation abilities.

4. Methods

4.1. Participants and procedure

The study was conducted on a sample of 181 university students from different universities in Montenegro. Participants were recruited through an online survey distributed through academic networks. Participation in the study was voluntary and anonymous, and respondents were informed about the purpose of the research before completing the questionnaire. The survey of standardized psychological scales and a set of socio-demographic questions.

4.2. Instruments

Three standardized instruments were used in the study.

The Frost Multidimensional Perfectionism Scale (FMPS) was used to measure multiple dimensions of perfectionism, including concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organization.

The Emotional Regulation Questionnaire (ERQ) was used to assess individual differences in emotion regulation strategies, particularly cognitive reappraisal and expressive suppression.

Academic burnout was measured using the Burnout Assessment Tool (BAT), which measures symptoms of burnout including emotional exhaustion, mental distance from academic activities, cognitive impairment, and emotional impairment.

In addition to these scales, socio-demographic variables such as age, gender, and academic performance were collected.

4.3. Data analysis

Data were analysed using descriptive statistics, correlation analysis, and regression analysis. Descriptive statistics were used to examine the distribution of the main variables. Pearson correlation coefficients were calculated to examine relationships between perfectionism, emotion regulation, and burnout. Regression analyses were used to determine the predictive role of perfectionism and emotion regulation in explaining academic burnout among students.

5. Results

5.1. Description of the sample

Descriptive analyses indicated that students demonstrated moderately high levels of perfectionism ($M=3.53$, $SD=0.65$) and moderate to relatively high levels of emotion regulation ($M=3.62$, $SD=0.60$). Academic burnout scores indicated a moderate level of burnout symptoms ($M=3.45$, $SD=0.72$).

The majority of students reported spending between five and seven hours per day on academic activities such as studying and attending lectures. Regarding academic performance, most students reported relatively high-grade averages, with the largest proportion of students having an average grade between 8.0 and 8.99.

Approximately 71.8% of students reported that they had never experienced burnout, while smaller proportions reported experiencing burnout before the pandemic (2.8%), during the pandemic (5.0%), or after the pandemic (20.4%).

5.2. Relationship between perfectionism, emotion regulation, and burnout

Correlation analysis revealed a significant positive relationship between perfectionism and academic burnout ($r=0.661$, $p<0.01$). This indicates that higher levels of perfectionism are associated with higher levels of burnout among students.

A simple linear regression analysis showed that emotion regulation also significantly predicted academic burnout ($F(1,179) = 211.043$, $p<0.001$), explaining 54.1% of the variance ($R^2=0.541$). These results indicate that difficulties in emotion regulation are a particularly strong predictor of burnout symptoms.

An independent samples t-test further showed that students with greater difficulties in emotion regulation reported significantly higher burnout scores ($t = -8.519$, $p<0.001$).

5.3. Predictors of academic burnout

A multiple regression analysis was conducted to examine additional predictors of burnout. The overall model was statistically significant ($F(8,171) = 7.374$, $p<0.001$) and explained 25.7% of the variance in academic burnout ($R^2=0.257$).

The results indicated that daily academic workload was a significant positive predictor of burnout, while variables such as university, year of study, and average grade were not statistically significant predictors.

These findings suggest that the intensity of academic demands and students' emotional coping capacities play an important role in explaining burnout.

6. Discussion

The results of this study indicate that both perfectionism and emotion regulation represent important psychological factors associated with academic burnout among university students.

The findings revealed a strong positive correlation between perfectionism and academic burnout, suggesting that students with stronger perfectionistic tendencies are more likely to experience burnout symptoms. Maladaptive aspects of perfectionism, such as excessive concern over mistakes and self-criticism, may intensify academic pressure and increase emotional exhaustion.

In addition, difficulties in emotion regulation were strongly associated with higher levels of burnout. Students who reported greater difficulties managing emotional responses demonstrated significantly higher levels of academic burnout. These findings suggest that emotion regulation plays an important role in students' ability to cope with academic stress.

From the perspective of the Study Demands-Resources framework, maladaptive perfectionism may function as an additional academic demand that increases psychological strain. Emotional regulation may represent a personal resource that helps students manage academic challenges and reduce the risk of burnout.

These findings are consistent with previous research emphasizing the importance of psychological resources in coping with academic stress and maintaining students' mental health.

7. Conclusions

The present study examined the relationship between perfectionism, emotion regulation, and academic burnout among university students in Montenegro. The findings indicate that both perfectionism and emotion regulation significantly contribute to the development of academic burnout. In particular, difficulties in emotion regulation appear to represent a strong predictor of burnout symptoms among students. These results highlight the importance of preventive programs aimed at strengthening adaptive emotional regulation strategies and reducing maladaptive perfectionistic tendencies among students.

Future research should further examine these relationships in larger and more diverse samples and explore interventions that may help reduce burnout and improve students' psychological well-being and academic functioning.

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SUSTAINABLE ADAPTABILITY AT WORK: A QUALITATIVE EXPLORATORY STUDY OF INDIVIDUAL PSYCHOSOCIAL COMPETENCIES IN THE FRENCH NUCLEAR INDUSTRY

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Abstract

Sustainable adaptability represents a critical issue in high-reliability organizations characterized by stringent safety requirements, complex socio-technical systems, and continuous regulatory and organizational changes, such as the nuclear industry. In this context, employees must continuously adjust their activity while ensuring both safety and operational performance under conditions of uncertainty and high responsibility.

Drawing on work and career psychology, sustainable adaptability can be conceptualized as a dynamic process involving the long-term mobilization and regulation of psychosocial resources (Savickas, 1997, 2013; Hobfoll, 1989; Luthans et al., 2007). However, little is known about how these processes are concretely enacted in safety-critical environments.

This qualitative exploratory study aims to identify the individual psychosocial competencies that support sustainable adaptability among employees in EDF's Nuclear Generation Division. Seventeen semi-structured interviews were conducted across diverse occupational roles and analyzed using inductive thematic analysis (Braun & Clarke, 2006).

The results highlight three interrelated families of competencies — cognitive, emotional, and interactional — which enable employees to manage uncertainty, regulate pressure, and coordinate effectively within complex work systems. These competencies support what participants describe as a process of sustainable professional adjustment.

This study contributes to a contextualized understanding of sustainable adaptability in high-reliability environments and identifies specific psychosocial mechanisms underpinning long-term adjustment in the nuclear sector.

Keywords: *Sustainable adaptability, psychosocial adaptative competencies, nuclear industry, individual adjustment at work.*

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1. Introduction

Contemporary transformations of work, characterized by increasing demands, growing complexity, and heightened uncertainty, have placed employees' adaptability at the center of research on sustainable work and organizational functioning. In this context, workers' adaptability cannot be understood as a one-time response to change, but rather understood as a dynamic and sustainable adjustment process that enables individuals to preserve effective performance, well-being and long-term professional viability.

In this study, sustainable adaptability is defined as a dynamic and ongoing process through which individuals regulate their cognitive, emotional, and interactional resources in order to maintain effective functioning, well-being, and professional viability over time, in the face of sustained and evolving work demands. This definition extends existing conceptualizations of adaptability (Savickas, 2013) by explicitly integrating temporal sustainability and the regulation of psychosocial resources under high-demand conditions (Hobfoll, 1989). Sustainable adaptability should not be reduced to a set of stable competencies but rather understood as a regulatory process through which individuals dynamically mobilize and articulate psychosocial resources in response to sustained work demands.

Research in work and career psychology has contributed extensively to the conceptualization of adaptability as a set of individual resources mobilized in response to transitions and work-related demands, notably through models of career adaptability (Savickas, 1997, 2013), psychological capital (Luthans et al., 2007), and conservation of resources (Hobfoll, 1989). However, these approaches have largely been developed in general occupational contexts (i.e., work settings not characterized by high-reliability or safety-critical demands), and often rely on quantitative methodologies, thus leaving partly unexplored the psychosocial dimensions on which individuals rely to adapt to demanding and evolving work environments This issue is particularly salient in high-reliability and safety-critical work settings, such as the nuclear industry. In these environments, employees are exposed to high levels of responsibility, stringent safety requirements, and continuous regulatory constraints, making sustainable adaptability a central condition for maintaining effective and sustainable professional functioning. The nuclear industry can be conceptualized as a high-reliability organization, in which error prevention, anticipation, and coordination are critical for ensuring safety in complex socio-technical systems (Weick & Sutcliffe, 2007).

For this reason, the present study adopted a qualitative exploratory approach aimed at identifying the individual psychosocial competencies that support sustainable adaptability among employees of EDF's Nuclear Generation Division in France. By analyzing employees' accounts across a range of occupational roles, the study sought to gain an in-depth understanding of the individual adjustment processes mobilized over time within a highly demanding work environment.

2. Method

This study adopted a qualitative exploratory design. Seventeen semi-structured interviews were conducted with employees of EDF's Nuclear Generation Division holding a variety of occupational roles, in order to explore their perceptions of work demands and the resources mobilized to sustain adjustment over time. Participants were recruited on a voluntary basis, in accordance with ethical principles governing research in work and organizational psychology.

The interviews focused on participants' experience of working in the nuclear context, characterized by recurrent organizational and technical changes, situations perceived as particularly demanding, and the competencies mobilized to cope with these constraints and maintain sustainable professional functioning. All interviews were audio-recorded and fully transcribed.

The semi-structured interview guide was designed to explore three main dimensions: (1) participants' perceptions of work demands and changes in the nuclear context, (2) situations perceived as particularly challenging or requiring adjustment, (3) the individual resources and competencies mobilized to maintain effective and sustainable functioning over time. Participants were also invited to reflect specifically on what could be described as "sustainable professional adjustment", through questions such as: "Can you describe situations in which you had to adapt over time to maintain your work performance?" and "What helps you continue functioning effectively despite repeated constraints or changes?".

The data were analyzed using an inductive thematic analysis, following the approach proposed by Braun and Clarke (2006). This analytic process made it possible to identify recurrent themes related to individual adjustment processes and psychosocial competencies mobilized in everyday work situations. The analysis followed an iterative process, involving multiple readings of the data and progressive refinement of themes. Coding decisions were discussed between the researchers to enhance analytical rigor and ensure the consistency of theme identification.

3. Results

The analysis of the interviews indicates that sustainable adaptability in the nuclear context relies on a coherent set of psychosocial competencies mobilized in work activity. These competencies were organized into three main families: cognitive, emotional, and interactional, which were recurrently described by participants as central to their ability to cope with demanding work situations.

Cognitive competencies referred to employees' ability to analyze work situations, distance themselves from immediate constraints, and anticipate potential developments. Participants described the cognitive management of unexpected situations, the prioritization and hierarchical organization of actions, and the capacity to maintain a global, systems-oriented understanding of work activity. This included integrating multiple constraints simultaneously, such as safety requirements, operational demands, time pressure, and coordination with other actors. Participants emphasized that adaptability often involved making trade-offs between competing priorities rather than applying predefined solutions, particularly in complex or unstable situations.

Emotional competencies were described as essential for coping with sustained and frequently changing work demands. Participants emphasized their ability to identify, regulate, and, when necessary, contain their emotional reactions, especially in situations involving pressure, uncertainty, or high responsibility. Emotional regulation was described as a means of preserving cognitive availability, maintaining vigilance, and sustaining professional engagement. Several participants highlighted that managing emotional load was perceived as a condition for remaining effective in their work activity and avoiding overload in demanding contexts.

Interactional competencies referred to employees' capacity to mobilize their relational environment in an appropriate and targeted manner. Participants highlighted the importance of clear and functional communication, cooperation with relevant actors, and the selective use of social and professional support. Beyond general collaboration, employees described the ability to identify appropriate interlocutors depending on the situation, to activate support at the right moment, and to coordinate effectively across professional boundaries as critical elements of their adaptive functioning in everyday work situations.

Differences were also observed according to occupational status and professional seniority. Managers holding direct hierarchical responsibilities more frequently referred to competencies related to coordination, collective anticipation, and emotional regulation associated with responsibility. In contrast, non-managerial employees emphasized competencies related to the operational management of work activity and the handling of concrete task-related constraints.

In addition, employees with more than ten years of tenure within the organization described a more integrated and stabilized mobilization of psychosocial competencies. Their accounts emphasized experience-based adjustments and consolidated ways of managing demanding situations. Conversely, less experienced employees more frequently referred to learning processes, ongoing cognitive adjustments, and the search for reference points to guide their action in unfamiliar or evolving situations.

4. Discussion

Taken together, these findings suggest that sustainable adaptability is not reducible to the possession of isolated competencies, but relies on their situated articulation within concrete work activity. The originality of this study lies in the contextualized conceptualization of psychosocial adaptive competencies within a high-reliability and safety-critical environment. While previous models of adaptability (e.g., Savickas, 2013; Luthans et al., 2007) identify general adaptive resources, the present findings specify how these competencies are concretely mobilized under conditions of high responsibility, safety constraints, and system complexity.

In contrast to general work contexts, adaptability in the nuclear industry appears to rely less on flexibility or improvisation and more on controlled adjustment processes, involving anticipation, regulation, and coordination within tightly constrained socio-technical systems. This highlights a form of "regulated adaptability", specific to safety-critical environments. This contribution lies not only in identifying adaptive competencies, but also in showing how they are regulated, combined, and sustained over time in a safety-critical environment.

The findings of this qualitative exploratory study indicate that sustainable adaptability in high-demand work environments primarily relies on individual adjustment processes mobilizing cognitive, emotional, and interactional psychosocial competencies. Rather than isolated skills, these competencies appear to be dynamically articulated within work activity and to function as interdependent components of a broader regulatory process supporting continuous adjustment over time.

From a theoretical perspective, this conception of sustainable adaptability is consistent with developmental models of career adaptability, which conceptualize adaptability as a dynamic and evolving process enabling individuals to respond to work-related demands across time and contexts (Savickas, 1997, 2013). The identification of distinct but interrelated families of competencies echoes this process-oriented view, emphasizing how individuals continuously adjust their ways of thinking, regulating emotions, and interacting with others in response to situational constraints.

The use of a qualitative approach makes it possible to access employees' lived experiences and to capture the dynamic and situated nature of adaptive processes, which are difficult to apprehend through standardized quantitative measures (Blustein, 2011).

The results also resonate with theoretical approaches focusing on the mobilization and preservation of individual resources at work. Cognitive analysis of work situations, emotional regulation under pressure, and selective mobilization of relational support can be understood as psychosocial resources contributing to the maintenance of professional functioning under demanding conditions. In this regard, the findings are coherent with the conservation of resources framework (Hobfoll, 1989), which emphasizes individuals' efforts to protect and mobilize valued resources when facing high demands. Similarly, the articulation of these competencies aligns with perspectives on psychological capital (Luthans, Youssef, & Avolio, 2007) and resilience at work (Sutcliffe & Vogus, 2003), which highlight the role of integrated resource mobilization in sustaining performance and engagement, without implying a direct validation of these models. However, while psychological capital primarily emphasizes positive psychological states, the present findings suggest that adaptability in safety-critical environments also involves constraint management, emotional containment, and regulated action, which are less explicitly addressed in these models.

Importantly, the variations observed according to occupational status and professional seniority suggest that psychosocial adaptive competencies are embedded in a developmental dynamic. Managers holding direct hierarchical responsibilities emphasized competencies related to coordination, anticipation, and emotional regulation associated with responsibility, whereas non-managerial employees focused more strongly on competencies linked to the operational management of work activity. These differences do not reflect distinct or fixed profiles but rather variations in the demands encountered and the forms of adjustment required by different roles.

Similarly, employees with greater professional seniority described a more integrated and stabilized mobilization of psychosocial competencies, while less experienced employees emphasized learning processes, cognitive adjustments, and the search for reference points. This observation is consistent with career development approaches highlighting the progressive construction and consolidation of adaptive resources across career trajectories (Super, 1957; Savickas, 2013). It suggests that sustainable adaptability may be supported by experience-based regulation processes that evolve through exposure to demanding work situations.

Finally, the nuclear industry constitutes a particularly relevant context for examining sustainable adaptability, as high reliability and safety requirements place strong constraints on individual work activity. In such safety-critical environments, adaptability relies less on improvisation than on the controlled and regulated adjustment of cognitive, emotional, and interactional resources. By focusing on employees' lived experiences in this demanding context, the present study contributes to a contextualized understanding of the psychological mechanisms supporting sustainable adaptability at work.

5. Conclusion and limitations

The present study contributes to research on sustainable adaptability by proposing a qualitative and contextualized examination of individual psychosocial adaptive competencies within a safety-critical work environment. By grounding the analysis in employees' lived experiences, it provides an empirically informed articulation of cognitive, emotional, and interactional competencies as they are mobilized in everyday work activity, rather than as abstract or decontextualized constructs.

Beyond identifying these competencies, the study highlights the importance of considering sustainable adaptability as a process embedded in work situations and professional trajectories. The variations observed according to occupational role and professional seniority suggest that adaptive competencies are shaped by the nature of work demands and evolve through experience, supporting a process-oriented and developmental understanding of adaptability at work.

Several limitations should nevertheless be acknowledged. First, the relatively small sample size and the reliance on self-reported data call for caution regarding the generalization of the findings. Although the nuclear context offers a particularly relevant setting for studying sustainable adaptability, its specificity may limit the direct transferability of the results to other occupational environments. Second, the cross-sectional design does not allow for the examination of how psychosocial adaptive competencies evolve longitudinally over time.

Furthermore, the focus on a single organization may limit the transferability of the findings. However, this choice allows for an in-depth analysis of a highly specific and theoretically relevant context, which is particularly appropriate for exploratory qualitative research aiming at conceptual refinement rather than statistical generalization (Yin, 2018).

Despite these limitations, this study highlights the value of a qualitative, process-oriented approach for advancing the understanding of the mechanisms that support sustainable adaptability at work, particularly in environments characterized by high levels of complexity, responsibility, and safety requirements.

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FROM ASSESSMENT TO ENACTMENT: FIVE YEARS OF RESEARCH ON EDUCATORS' SOCIAL-EMOTIONAL LEARNING (SEL) COMPETENCIES

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Abstract

Social–emotional learning (SEL) has been increasingly recognized as a central component of educators' professional functioning, well-being, and instructional effectiveness. However, research on educators' SEL has often remained fragmented, focusing on isolated interventions, single assessment tools, or narrowly defined outcomes. The present paper integrates findings from a multi-year program of research examining educators' SEL across assessment, developmental differences, simulation-based learning, and enactment in professional contexts. Drawing on a sequence of quantitative and qualitative, intervention-based, and simulation-oriented studies, we synthesize evidence from the development and refinement of the EduSEL-R - a questionnaire specifically designed for educators; investigations of individual differences across educators' career stages, and studies examining the effects of clinical simulations on SEL development and enactment of educators. The integrated findings highlight three central insights: (a) educators' SEL can be reliably assessed using profession-specific instruments; (b) SEL competencies vary across career stages and do not develop linearly through experience alone; and (c) different types of simulation-based learning - ranging from active participation to mimetic learning-by-observation (across face-to-face, online, and video-based modalities) - support not only SEL development but also its enactment in complex, value-laden professional situations. Together, these findings contribute to a more integrated understanding of educators' SEL as a dynamic, contextually enacted professional capacity and offer directions for research, teacher education, and professional development.

Keywords: *Educators' social–emotional learning, SEL assessment, simulation-based learning, teacher education, SEL enactment.*

1. Introduction

Teaching is an inherently social and emotional profession (Hargreaves, 1998; Korthagen, 2017). Beyond subject-matter knowledge and pedagogical expertise, educators are required to regulate emotions, manage interpersonal relationships, resolve ethical dilemmas, and sustain caring yet bounded interactions with students, parents, and colleagues (Darling-Hammond, 2000). These everyday demands position social-emotional learning (SEL) not as a secondary skill set, but as a core component of professional practice.

Over the past two decades, SEL research has expanded substantially, largely focusing on students and school-wide programs (Jones & Bouffard, 2012). In this literature, educators are typically framed as implementers of SEL (Charlton et al., 2021) rather than as learners whose own social-emotional competencies shape classroom processes, professional well-being, and instructional quality. As a result, empirical research on educators' SEL has often relied on generic adult measures or indirect indicators, limiting both conceptual clarity and cumulative knowledge building.

In response to these limitations, our research program has pursued a coherent line of inquiry into educators' SEL over approximately five years. This program has combined the development of profession-specific assessment tools, empirical mapping of individual differences across career stages, and examination of learning processes – particularly simulation-based learning – that support SEL development and enactment. Our work is grounded in established SEL frameworks, particularly the model proposed by the Collaborative for Academic, Social, and Emotional Learning (CASEL), which conceptualizes SEL as comprising self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). This conceptualization informed both the development of assessment tools and the design of learning interventions examined across the studies synthesized in this paper.

2. Overview of the research program

The findings presented in this paper derive from a sustained line of research conducted over five years, aimed at conceptualizing educators' social–emotional learning (SEL) as a professional capacity. The program began by addressing the lack of profession-specific assessment tools, leading to the development and validation of EduSEL (Hemi & Kasperski, 2023) and its subsequent refinement into EduSEL-R, with expanded scope and improved psychometric validity (Kasperski & Hemi, 2024). As these instruments were applied across diverse samples, the research focus shifted toward examining variability in educators' SEL across career stages, revealing non-linear developmental patterns that challenge assumptions of growth through experience alone (Hemi, 2025; Kasperski, 2023).

Building on these insights, later phases of the program investigated how educators' SEL can be intentionally developed through simulations-based pedagogies. These studies examined the continuum from active participation in clinical and online simulations (Hemi et al., 2025; Kasperski & Hemi, 2022; Kasperski & Crispel, 2022; Kasperski et. al., 2025; Levin et al., 2023) to mimetic learning-by-observation across face-to-face, online, and video-based modalities (Kasperski & Crispel, 2022; Kasperski et al., 2023). Most recently, the research extended beyond self-reported competencies to examine how SEL is enacted within complex, value-laden professional interactions, highlighting the situated and integrated nature of educators' social–emotional functioning (Hemi et al., under review; Kasperski & Hemi, under review).

3. Integrated findings

The development of EduSEL and its refined version, EduSEL-R, addressed a central gap in the literature: the absence of valid, profession-specific tools for assessing educators' SEL. Initial validation of the original EduSEL (Hemi & Kasperski, 2023) revealed a three-factor structure (cognitive, emotional, and social), aligning with Jones and Bouffard's (2012) framework. Subsequently, following the addition of expert-reviewed items designed to broaden the assessment scope the EduSEL-R yielded a stable four-factor structure, comprising self-management, ethical problem solving, self- and social awareness, and relationship skills, which better aligns with the CASEL framework. EduSEL-R demonstrated high internal consistency and strong structural validity across large and diverse samples (Hemi & Kasperski, 2023; Kasperski & Hemi, 2024). Importantly, the factor structure reflects both alignment with established SEL frameworks and adaptation to the ethical and relational demands of educational practice, particularly through the emergence of ethical problem solving as a distinct dimension.

Across multiple studies, educators' SEL competencies were found to differ meaningfully across career stages. Preservice educators, beginner teachers, and experienced educators showed distinct profiles in overall SEL and in specific competency domains, particularly within cognitive–emotional dimensions such as awareness and regulation (Hemi, 2025; Kasperski, 2023). These findings challenge assumptions of linear SEL development through accumulated experience. Instead, they suggest that certain competencies may plateau or decline without intentional support, underscoring the importance of structured learning opportunities throughout educators' careers.

Intervention studies employing online and face-to-face clinical simulations, as well as video-based simulations consistently demonstrated that educators' SEL competencies are responsive to targeted learning experiences (Hemi et al., 2025; Kasperski & Crispel, 2022; Kasperski & Hemi, 2022; Kasperski et. al., 2023, 2025; Levin et al., 2023). Improvements were observed across career stages, with particularly strong gains among preservice educators. At the same time, the magnitude and nature of change varied by experience level, indicating that simulation-based learning interacts with educators' developmental positions and prior professional schemas. These differential effects highlight the importance of aligning simulation design and facilitation with participants' career stages.

More recent studies in the program extended beyond self-reported competencies to examine SEL enactment. Analyses of simulated professional interactions revealed that educators do not enact SEL as isolated skills but as integrated responses to complex, emotionally and ethically charged situations (Hemi et al., under review; Kasperski & Hemi, under review). Simulation contexts enabled close examination of how emotional regulation, ethical judgment, and relational strategies co-occur in practice. These findings support a view of educators' SEL as a situated, enactable capacity rather than a static individual attribute.

4. Discussion

The integrated findings from this research program advance understanding of educators' SEL in several important ways. *First*, they demonstrate that educators' SEL can be reliably and meaningfully assessed using profession-specific instruments. The development of EduSEL and EduSEL-R provides a methodological foundation for cumulative research and evaluation in this area. *Second*, the findings indicate

that educators' SEL is developmentally patterned but non-linear. Differences across career stages, together with evidence of responsiveness to intervention, suggest that SEL competencies are shaped by both experience and learning opportunities rather than by professional tenure alone. *Third*, the convergence of assessment, intervention, and enactment findings highlights the unique contribution of simulation-based learning. Simulations appear particularly well suited to supporting educators' SEL because they combine experiential, reflective, and mimetic learning processes within emotionally authentic professional scenarios.

Taken together, these findings support conceptualizing educators' SEL as a dynamic, integrated professional capacity that develops through situated learning and is expressed through enactment in relational practice.

5. Implications and future directions

The integrated evidence presented here carries several implications. For research, validated tools such as EduSEL-R enable more precise investigation of SEL trajectories and intervention effects. For teacher education and professional development, the findings support the systematic integration of simulation-based learning to foster SEL across career stages. For policy and program design, the results caution against assumptions that SEL develops naturally over time and underscore the need for intentional, sustained support. Future research should continue to examine how SEL enactment transfers from simulated contexts to everyday practice and how organizational conditions shape educators' opportunities to enact social–emotional competencies.

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PSYCHOPATHOLOGICAL DISORDERS AND EXECUTIVE FUNCTIONING IN JUVENILE OFFENDERS IN FRANCE

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Abstract

Studies on the mental health of young offenders are scarce, particularly in Europe. Likewise, international data on the specificities of their executive functioning remains rare. This study aimed to assess the prevalence of mental disorders in a representative sample of young delinquents placed under judicial supervision in France (N = 60) and to compare their executive test performance with a comparison group from the general population (N = 60). The diagnostic assessment of mental disorders was conducted using the Mini International Neuropsychiatric Interview (DSM-5), and executive functions were evaluated using three neuropsychological tests: Trail Making Test, Stroop and N-back. The results highlighted a higher prevalence of mental disorders among the young offenders (95%) than in the young people from the general population (33.3%). The most common disorders were conduct and antisocial personality disorders (71.7%), disorders linked to substance use other than alcohol (56.7%), prior episodes of major depression (33%) and post-traumatic stress disorder (25%). The level of comorbidity in the offender group was also higher. The young offender group had significantly lower performances on executive tests than the comparison group. These findings highlight the marked vulnerability of young offenders in terms of their mental health and psychosocial adjustment. It is thus necessary to continue investigating this field and to set up national prevention programs.

Keywords: *Young offenders, mental health, mental disorders, executive functions, juvenile justice system.*

1. Introduction

This presentation, prepared for InPACT 2026 and supervised by Professor Nicolas Combalbert, is part of a national project funded by the French Ministry of Justice (Combalbert et al., 2025) focusing on the psychosocial characteristics of justice-involved youth (excluding those placed in closed educational centres, CEF). The project includes a first component centred on professionals' perceptions and a second component involving direct assessment of young people (clinical interviews, questionnaires, and cognitive tasks). The study presented here derives from this second component.

European data on the mental health of justice-involved adolescents remain relatively scarce, although international literature consistently demonstrates robust links between psychopathological disorders and delinquent behaviour (Fazel et al., 2016; Fovet et al., 2020).

Existing research converges toward a high prevalence of psychiatric disorders and substantial comorbidity in these populations. (Beaudry et al., 2021; Heller, 2020) In France, the study conducted by Bronsard et al. (2019, 2025) has already reported very high levels of psychopathology; however, it exclusively examined youth placed in closed educational centres (CEF). Moreover, studies combining standardized diagnostic assessment with structured measures of executive functioning (flexibility, inhibition, updating) remain limited, despite evidence suggesting executive deficits that may interact with psychopathology and affect psychosocial and academic adjustment (Borrani et al., 2019; Sepulveda et al., 2022).

In this context, our study aims to simultaneously document (1) the prevalence of mental disorders and (2) executive functioning in justice-involved youth, compared with a general population sample.

The central research question is therefore the following: Do justice-involved youth present a higher prevalence of mental disorders and lower executive functioning performance than adolescents from the general population, and is psychiatric comorbidity associated with poorer executive efficiency?

Three hypotheses guided our study. First, we hypothesized that the prevalence of mental disorders would be significantly higher among justice-involved youth compared to the comparison group. Second, we expected lower performance on executive tasks among justice-involved youth. Third, we hypothesized that greater psychiatric comorbidity (i.e., a higher number of disorders) would be associated with poorer executive functioning.

2. Method

The total sample comprised 120 participants aged 13 to 20 years, divided into two equal groups. Group 1 (G1) included 60 justice-involved youth (minors and young adults) supervised by the French Youth Judicial Protection Service (PJJ). Group 2 (G2) included 60 adolescents from the general population without judicial history, recruited on a voluntary basis and matched to G1 on age (G1: 17.53 ± 1.28; G2: 17.75 ± 1.58) and sex (G1: 6 females, 54 males; G2: 12 females, 48 males).

Marked educational differences were observed: 18.2% of G1 participants were enrolled in school at the time of data collection compared to 100% in G2. The number of completed years of education was lower in G1 (9.82 ± 1.23) than in G2 (12.07 ± 1.33). Furthermore, 56.67% of G1 participants reported having obtained a diploma, compared to 93.3% in G2.

G1 participants were recruited nationwide through three types of residential or placement facilities operating under judicial supervision. G2 participants were recruited from public secondary schools in the Centre–Val de Loire region. In accordance with French data protection regulations (CNIL), offences were described using broad categories only: property offences (43.1%), offences against persons (37.93%), and drug-related offences (29.31%). Categories could overlap (31.58%), and 10.34% of participants declined to respond.

Sociodemographic data were collected through a semi-structured interview (approximately 10 minutes). Mental health was assessed using the structured diagnostic interview MINI (DSM-5): the MINI-KID version for participants under 16 years old and the adult version from age 16 onward. The interview covered major depressive episodes (current and past), anxiety disorders, substance-use disorders, conduct disorder/antisocial personality disorder, and psychotic syndromes (for participants aged 16 and above). Administration lasted between 15 and 45 minutes.

Executive functioning was assessed using three tasks: the Trail Making Test (TMT; flexibility), the Stroop task (inhibition), and the N-back task (2-back; updating). Indices were computed from response times (TMT, Stroop) and accuracy (2-back). Executive task administration lasted approximately 10 minutes.

Data collection (December 2023 to April 2025) was conducted by three clinical psychologists in quiet and confidential settings. Participation was voluntary, anonymous, and confidential, and participants could withdraw at any time. Data were anonymized using alphanumeric codes; parental consent was required for minors.

3. Results

Results indicate a markedly higher prevalence of mental disorders among justice-involved youth. Overall, 95% of participants in G1 met criteria for at least one mental disorder, compared to 33.3% in G2. Across diagnostic categories, conduct disorder/antisocial personality disorder was by far the most prevalent condition in G1 (71.7%), compared to 1.7% in the general population group. Substance-use disorders (excluding alcohol) were also highly prevalent in G1 (56.7%) versus 3.3% in G2.

Mood disorders showed substantial differences between groups: current mood disorders were observed in 21.7% of justice-involved youth versus 5% in the comparison group, while past major depressive episodes were reported in 46.7% of G1 compared to 33.3% in G2. Anxiety disorders were present in 26.7% of G1 and 15% of G2. Probable PTSD was identified in 25% of justice-involved youth versus 15% in the general population group. Alcohol use disorder affected 20% of G1 compared to 5% of G2, and psychotic disorders were identified in 10% of G1 participants, whereas none were detected in G2. Taken together, these results highlight not only a higher overall psychiatric burden in justice-involved youth, but also a broader distribution of severe and externalising disorders within this group.

Comorbidity was substantially higher among justice-involved youth. While 33.3% of adolescents in the general population had at least one disorder, this proportion reached 95% in G1. Moreover, 70% of justice-involved youth presented at least two disorders and 50% at least three disorders, compared to 25% and 10% respectively in G2. Among participants diagnosed with conduct disorder or antisocial personality disorder (n = 43), 86% had at least one additional psychiatric condition, illustrating the strong overlap between behavioural disorders and other forms of psychopathology.

Justice-involved youth performed significantly worse than the comparison group across all three executive components. For cognitive flexibility (TMT), mean flexibility index scores were 49.25 in G1 compared to 26.02 in G2 ($p < .001$), indicating markedly poorer shifting ability among justice-involved youth. For inhibition (Stroop interference index), mean scores were 26.37 in G1 versus 17.64 in G2 ($p < .001$), reflecting greater difficulty in inhibiting automatic responses. For working memory updating (2-back accuracy), justice-involved youth showed lower performance (80.63%) compared to the general population group (88.04%) ($p < .001$). These findings indicate broad impairments in cognitive control processes among justice-involved adolescents.

Correlation analyses further revealed significant associations between psychiatric comorbidity and executive functioning. Comorbidity was positively associated with poorer cognitive flexibility ($r = .42$, $p < .001$) and poorer inhibition ($r = .20$, $p = .031$). When considering cumulative disorders, similar patterns were observed (flexibility: $r = .41$, $p < .001$; inhibition: $r = .19$, $p = .033$), suggesting a meaningful relationship between the number of co-occurring disorders and diminished executive control. In contrast, associations between comorbidity and updating performance (2-back accuracy) were weaker and did not reach statistical significance ($r = –.17$, $p = .067$; cumulative disorders: $r = –.15$, $p = .099$). Taken together, these findings suggest that increasing psychiatric burden is particularly related to impairments in flexibility and inhibitory control, whereas updating processes may be less directly affected.

4. Discussion

Our findings first confirm that the prevalence of mental disorders is significantly higher among justice-involved adolescents than in the comparison group. The rates observed in the judicial sample are extremely high and appear to exceed those reported in several international studies, suggesting a particularly strong concentration of psychopathology in this population. Nevertheless, the general population group also displayed a non-negligible level of psychological difficulties, highlighting broader adolescent mental health vulnerability beyond the judicial context.

Our results also support the hypothesis of poorer executive functioning among justice-involved youth. These adolescents demonstrated weaker performance across flexibility, inhibition, and updating tasks. Functionally, such impairments may translate into difficulties adapting to changing situations, shifting cognitive strategies, and regulating impulsive or emotionally driven responses. These executive difficulties may limit adjustment to social, educational, and institutional demands. While consistent with the hypothesis of cumulative adverse experiences and substance use impacting prefrontal development, our design does not allow causal inference.

Finally, the hypothesis that higher psychiatric comorbidity would be associated with poorer executive functioning was partially supported. Greater comorbidity was significantly associated with lower flexibility and inhibition performance, suggesting that comorbidity may reflect broader cognitive regulation vulnerability beyond mere symptom accumulation. However, no significant association was observed between comorbidity and updating performance (2-back), possibly reflecting lower sensitivity of the accuracy-based measure used.

Regarding limitations, the main concern relates to G1 sampling: participation was voluntary and mediated by professionals, and systematic evaluation across all facilities was not possible, potentially limiting representativeness. The low proportion of females also restricts the scope of sex-based comparisons.

Future research should extend assessment to additional cognitive domains (attention, reasoning, metacognition) and ideally adopt longitudinal designs to better document temporal relationships between adversity, psychopathology, and cognitive functioning.

From an applied perspective, our findings support an integrated strategy combining regular screening, targeted interventions (particularly in psychotrauma and addiction), and educational support adapted to executive difficulties, potentially complemented by simple cognitive training exercises.

5. Conclusion

Our results show that justice-involved adolescents present both very high levels of psychopathology and broadly impaired executive functioning, reflecting substantial mental-health and cognitive-control needs. High psychiatric comorbidity is associated with poorer executive performance, constituting a major vulnerability factor for psychosocial adjustment, interpersonal relationships, and academic functioning.

In a European context where research on the mental health of young offenders—particularly minors—remains limited and methodologically challenging, these findings support the implementation of structured national prevention and treatment programmes. Such programmes should include systematic psychological screening, regular standardized assessments, simple cognitive interventions aimed at improving executive functioning, targeted treatment depending on individual difficulties, and strengthened partnerships with specialists in psychotraumatology and addiction.

Violent justice-involved youth should therefore be considered in light of their high levels of psychopathology, executive dysfunction, and accumulated adversity, rather than solely through the lens of their offending behaviour.

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ADVERSE CHILDHOOD EXPERIENCES, DENIAL AND CROSSOVER OFFENDING PATTERNS IN INDIVIDUALS WITH SEXUAL CONVICTIONS

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Abstract

Studies indicate that individuals who perpetrate violent and sexual offences are more likely to have experienced Adverse Childhood Experiences (ACEs), with prevalence rates exceeding those observed in the general population. According to cumulative trauma theory, exposure to multiple types of traumatic events, especially during early childhood, increases the risk of maladaptive outcomes, including criminal behaviour. ACEs tend to be particularly high among those offenders who report convictions for sex crime. This may be related to the specific characteristics of these offenders' criminal careers, as well as a pattern of denial and minimisation by which they often attempt to distance themselves from their criminal behaviour. Therefore, the present study aimed to explore the relationship between ACEs, denial, and crossover offending patterns among individuals convicted of sexual offences. To identify predictors of the four denial domains of the Comprehensive Inventory of Denial – Sex Offender Version (CID-SO), namely: Cluster A (denial of sexually deviant behaviours and arousal), Cluster B (denial of the need for treatment or management), Cluster C (denial of responsibility), and Cluster D (minimisation of harm), hierarchical multiple regression analyses were performed. Results indicated that the ACE total score significantly predicted both Cluster C ($\beta = 0.186$, $p = .018$) and Cluster D ($\beta = -0.161$, $p = .040$). Conversely, significant predictors of Cluster A were found to be the perpetrator's age ($\beta = 0.261$, $p < .001$) and having crossover age victims (i.e., both child and adult victims) ($\beta = 0.265$, $p = .001$). Finally, the presence of a crossover offending pattern involving both hands-on and hands-off sexual behaviours significantly predicted Cluster B ($\beta = -0.221$, $p = .007$). Taken together, these findings suggest that early adverse experiences may influence the development of individual meaning-making processes, self-attribution mechanisms, and narrative constructions concerning the offence, potentially shaping how individuals interpret, explain, and emotionally reframe their criminal behaviour. Moreover, the identification of distinct offence- and victim-related predictors highlight the role of offence trajectory characteristics in modulating how individuals cognitively and affectively position themselves with respect to their actions, accountability, and treatment needs. This perspective underscores the importance of adopting specialised and individualised assessment and intervention strategies that consider the different dimensions and manifestations of denial, along with the underlying psychological and developmental determinants.

Keywords: *Adverse childhood experiences, denial, sexual offending, crossover, assessment.*

1. Introduction

Studies consistently indicate that individuals who perpetrate violent and sexual offences report significantly higher rates of adverse childhood experiences (ACEs) compared to the general population, with elevated prevalence of childhood abuse, neglect, and household dysfunction (Dalsklev et al., 2021; Kahn et al., 2021).

Evidence from forensic-focused reviews further supports these findings. A systematic review examining childhood maltreatment in offender populations reported that experiences of physical and sexual abuse are consistently associated with an increased likelihood of violent offending in adulthood (Dalsklev et al., 2021). Beyond increasing general risk for criminal behaviour, ACEs may also shape the structure and trajectory of criminal careers (Saramago et al., 2020; Scurich & Gongola, 2021). These findings indicate that early developmental adversity may contribute not only to the emergence of criminal behaviour, but also to its persistence and diversification over time. However, not all forms of offence heterogeneity may carry the same psychological meaning. Different dimensions of crossover offending may differentially

relate to internal cognitive and narrative processes, such as responsibility attribution, harm appraisal, and treatment motivation, rather than uniformly reflecting greater denial or deviance.

Contemporary models increasingly conceptualise denial in sexual offending not as a unitary or dichotomous phenomenon, but as a multidimensional construct encompassing distinct cognitive, affective, and narrative processes (Zara et al., 2018, 2020). Trauma-exposed individuals may be more likely to engage in denial, minimisation, or externalisation of responsibility as strategies to manage shame, threat to self-concept, or unresolved trauma-related distress (Blagden et al., 2013; Levenson et al., 2016). Such denial processes have been conceptualised not merely as attempts to deceive, but as psychologically meaningful responses that serve a defensive or self-protective function in the context of adverse developmental histories (Ievins, 2019).

The present study, which is part of a larger project (namely, the SORAT project; Zara et al., 2020), aimed to examine the presence of ACEs, offence-related characteristics, including features of the criminal career and victim categories, and denial processes among individuals convicted of sexual offences.

2. Methods

2.1. Participants and procedures

The sample consisted of 180 male individuals with at least one conviction for a sexual offence, legally binding, and no longer subject to appeal. Participants' age at the time of the first interview ranged from 20.02 to 76.18 years (M = 45.34, SD = 12.37). With regard to nationality, 64.4% of the sample were Italian (n = 116), while 35.6% were foreigners (n = 64). In terms of employment status, 81.4% of participants were employed (n = 144), 11.3% were unemployed (n = 20), and 7.3% were retired (n = 13). The sample had a mean duration of formal education of 9.83 years (SD = 3.82).

Semi-structured clinical interviews were conducted by licensed psychologists trained in forensic assessment to obtain both a comprehensive account of their life history, including childhood and family background, relational experiences, and developmental trajectories into adulthood, as well as participants' narratives regarding the index offence, with particular attention to the degree of acknowledgment or denial, attribution of responsibility, and the strategies used to explain, justify, or minimise their actions.

Informed consent was obtained from all participants prior to study enrolment. All procedures were conducted in accordance with the Declaration of Helsinki. The study protocol received formal approval from the Ethics Committee of the University of Turin, Italy (protocol reference number 6494/2018).

2.2. Measures

Demographic and Criminal Career variables included age at assessment and offence-related characteristics. To characterise offending trajectories, a set of variables capturing key behavioural dimensions of sexual offending was coded. Specifically, five categorical indicators were used: (1) crossover by victim gender (offending against both male and female victims); (2) crossover by victim age (offending against both child and adult victims); (3) crossover by victim relationship (offending against victims both within and outside a familial or intimate relationship); (4) crossover by offence type (engagement in both contact and non-contact sexual offences); and (5) crossover offending history (presence of heterogeneity across the criminal career, with involvement in both sexual and non-sexual offences). Each variable was coded dichotomously (0 = absence, 1 = presence).

The *Comprehensive Inventory of Denial – Sex Offender Version* (CID-SO) is a clinician-rated instrument to assess the multidimensional construct of denial in individuals convicted of sexual offences. The CID-SO comprises 18 items, each rated on a 3-point ordinal scale (0 = no denial, 1 = partial denial, 2 = complete denial), producing both domain-specific subscale scores and a total denial score ranging from 0 to 36. Items are organised into four theoretically and empirically grounded domains: (1) denial of sexually deviant arousal and behaviours; (2) denial of the need for treatment or management; (3) denial of responsibility for the offence; and (4) minimisation of harm caused to victims. Higher scores indicate greater levels of denial within each domain and overall (Jung & Daniels, 2012).

The *Adverse Childhood Experiences* (ACE) questionnaire is a retrospective self-report measure designed to assess exposure to a range of adverse events occurring before the age of 18. ACE score ranges from 0 to 10, with higher scores reflecting a greater cumulative burden of childhood adversity.

2.3. Analytical strategy

To examine predictors of the four CID-SO denial domains (Cluster A: denial of sexually deviant behaviours and arousal; Cluster B: denial of the need for treatment/management; Cluster C: denial of responsibility; Cluster D: minimisation of harm), four hierarchical multiple regression analyses were conducted. Predictor variables were entered sequentially in three blocks: age (Block 1), crossover variables

(Block 2), and adverse childhood experiences (Block 3). All variables within each block were entered simultaneously using the Enter method.

Statistical significance was set at $p < .05$. Multicollinearity was evaluated using tolerance values and variance inflation factors (VIFs), which indicated acceptable levels for all predictors. All analyses were performed using IBM SPSS Statistics, version 29.

3. Results

Results of the hierarchical multiple regression analyses are reported in *Table 1*. For Cluster A (denial of sexually deviant behaviours and arousal), higher denial scores were significantly associated with older age ($\beta = .261$, $p < .001$) and with a crossover age victimisation pattern involving both child and adult victims ($\beta = .265$, $p = .001$).

With regard to Cluster B (denial of the need for treatment/management), a crossover pattern involving both hands-on and hands-off sexual behaviours was significantly associated with lower levels of denial ($\beta = -.221$, $p = .007$).

For Cluster C (denial of responsibility), adverse childhood experiences were the only significant predictor, with higher total ACE scores being associated with higher levels of denial ($\beta = .186$, $p = .018$).

Finally, for Cluster D (minimisation of harm), adverse childhood experiences were significantly associated with denial, but in the opposite direction, such that higher ACE total scores were related to lower levels of minimisation of harm ($\beta = -.161$, $p = .040$).

4. Discussion

The present findings support the notion that denial is a multidimensional phenomenon affected by partially distinct developmental factors, such as the presence of ACEs, and offence-related factors (Dalsklev et al., 2021; Ware & Mann, 2012). In particular, higher ACEs scores were associated with greater denial of responsibility for the offence, consistently with cumulative trauma perspectives indicating that repeated exposure to early adverse experiences is associated with impairments in self-regulation, attributional style, and responsibility-taking (Hailes et al., 2019). Individuals with extensive ACEs' histories may therefore be more likely to externalise blame and minimise personal agency when confronted with their offending behaviour (Levenson et al., 2016). In this sense, denial of responsibility may function as a psychologically protective mechanism aimed at preserving a coherent self-concept in the presence of unresolved developmental trauma (Blagden et al., 2013).

At the same time, ACEs were associated with lower levels of minimisation of harm, indicating a reduced tendency to downplay the impact of the offence on victims. This inverse association suggests a nuanced and non-linear relationship between early adversity and denial processes. Research on individuals convicted of sexual offences indicates that personal histories of victimisation may be associated with increased victim empathy and harm acknowledgment, even when responsibility attribution remains compromised (Levenson & Prescott, 2009). This pattern underscores the importance of distinguishing between different dimensions of denial, as acknowledgment of harm may coexist with defensive strategies aimed at avoiding self-blame (Hamilton, 2017).

In contrast to the effects of ACEs, offence-related characteristics played a more prominent role in denial domains directly linked to behavioural patterns and treatment engagement. Specifically, denial of sexually deviant behaviours and arousal was associated with older age and with a crossover pattern involving both child and adult victims, suggesting that features of the offending trajectory may shape how individuals cognitively and narratively position themselves in relation to their sexual behaviour. In fact, age-related crossover implies a broader disruption of sexual scripts and victim representation, potentially challenging core aspects of sexual identity and self-concept. Previous research indicates that broader and less coherent victim profiles are associated with heightened identity threat and narrative dissonance, which may in turn elicit defensive responding and denial (e.g., Marshall et al., 2009).

With respect to denial of the need for treatment or management, the only significant predictor was a crossover pattern involving both hands-on and hands-off sexual behaviours, which was associated with lower levels of denial. Importantly, this negative association reflects a greater acknowledgment of treatment need among individuals with more behaviorally diverse sexual offending patterns, rather than an absence of defensive processes per se. Evidence indicates that individuals with more diverse and escalating offending patterns are more likely to acknowledge treatment need, possibly due to greater offence awareness and increased contact with correctional and clinical systems (e.g., Seto, 2019). Notably, neither age nor ACEss were associated with this domain, suggesting that recognition of treatment need may be more closely linked to offence-related insight than to developmental history (Blagden et al., 2016).

Some limitations of the present study should be acknowledged. The cross-sectional design and the retrospective assessment of ACEs, and the exclusively male sample. Future research would benefit from longitudinal designs examining how denial processes evolve over time and from integrating additional psychological variables.

From a clinical and forensic perspective, the results underscore the need for individualised assessment approaches that account for the heterogeneous pathways leading to different forms of denial. Trauma-informed interventions have been shown to be particularly relevant for individuals whose denial of responsibility is linked to early adversity (Levenson et al., 2017). Conversely, approaches aimed at reducing denial of deviant behaviours or treatment need may benefit from a focus on offence awareness, behavioural patterns, and narrative integration (Mann & Barnett, 2017).

Table 1. Hierarchical multiple regressions predicting denial domains (CID-SO scores) from demographic characteristics, crossover variables, and ACE (N = 180).

Predictor variables	B	β	t	Adj R^2	F	ΔR^2	ΔF
Cluster A: denial of sexually deviant behaviours and arousal							
Model 3				0.124	4.535**	0.002	0.304
Age	0.049	0.261	3.553**				
Crossover gender	0.641	0.085	0.832				
Crossover age	1.719	0.265	3.343**				
Crossover relationship	-0.165	-0.024	-0.310				
Crossover hands-on and -off	-0.640	-0.107	-1.395				
Crossover offending	-0.068	-0.017	-0.185				
ACE Total	-0.043	-0.041	-0.552				
Cluster B: denial of the need for treatment or management							
Model 3				0.025	1.612	0.000	0.004
Age	0.012	0.085	1.099				
Crossover gender	0.323	0.042	0.513				
Crossover age	0.444	0.089	1.058				
Crossover relationship	-0.009	-0.002	-0.021				
Crossover hands-on and -off	-1.018	-0.221	-2.714**				
Crossover offending	0.190	0.049	0.631				
ACE Total	0.004	0.005	0.060				
Cluster C: denial of responsibility							
Model 3				0.047	2.185*	0.032	5.758*
Age	0.002	0.012	0.155				
Crossover gender	0.203	0.027	0.336				
Crossover age	0.489	0.101	1.216				
Crossover relationship	-0.009	-0.002	-0.021				
Crossover hands-on and -off	-0.445	-0.100	-1.241				
Crossover offending	0.508	0.136	1.761				
ACE Total	0.147	0.186	2.400*				
Cluster D: minimisation of harm							
Model 3				0.044	2.108*	0.024	4.275*
Age	0.012	0.080	1.048				
Crossover gender	0.870	0.116	1.427				
Crossover age	0.644	0.131	1.582				
Crossover relationship	0.151	0.029	0.359				
Crossover hands-on and -off	-0.378	-0.084	-1.040				
Crossover offending	0.349	0.092	1.193				
ACE Total	-0.128	-0.161	-2.068*				

ACE = Adverse Childhood Experiences questionnaire.
* $p<.05$; ** $p<.01$

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THE MEDIATING ROLE OF POST-TRAUMATIC STRESS DISORDER IN THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND DISSOCIATIVE SYMPTOMS IN JUVENILE OFFENDERS

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Abstract

This study examined whether post-traumatic stress disorder (PTSD) mediates the relationship between adverse childhood experiences (ACEs) and dissociative symptoms among justice-involved youth. The sample included 120 adolescents aged 13–20 (60 under judicial supervision and 60 matched controls). Participants completed standardized measures of ACEs, PTSD symptoms (PCL-5), and dissociation (DES). Mediation analyses revealed that, within the PJJ group, ACEs were indirectly associated with dissociation through PTSD symptoms, while the direct effect was non-significant. These findings suggest that early adversity increases vulnerability to PTSD, which in turn contributes to dissociative manifestations. Addressing PTSD symptoms may therefore be essential in interventions targeting dissociation in juvenile offenders.

Keywords: *Adverse childhood experiences, post-traumatic stress disorder, dissociation, juvenile offenders.*

1. Introduction

Recent research on the mental health of juvenile offenders reveals a high exposure to traumatic events occurring during childhood or adolescence (Biglavio, 2014; Guarnaccia et al., 2022). These experiences, referred to as Adverse Childhood Experiences (ACEs), include various forms of physical, emotional, or sexual abuse, neglect, family dysfunction, or witnessing violence or substance use within the household (Felitti et al., 1998). Their accumulation is associated with an increased risk of psychiatric disorders such as depression, anxiety, suicidal ideation, and notably post-traumatic stress disorder (PTSD) (Bielas et al., 2016; Fox et al., 2015).

The DSM-5-TR (2022) describes PTSD as a lasting response to one or more traumatic events, characterized by symptoms of intrusion, avoidance, negative alterations in cognition and mood, and hyperarousal. Post-traumatic stress disorder is significantly more prevalent among youth involved in the justice system than in the general population, with rates ranging from 10% to 30% depending on the context (Abram et al., 2004; Dierkhising et al., 2013). Several studies have indeed highlighted a strong association between the presence of mental disorders and delinquency in minors who have experienced abuse or neglect (Espinosa, 2013; Visser et al., 2025). Traumatic events, which are widespread in this population (Baglivio et al., 2014), therefore carry a high risk of leading to the development of PTSD (Moore et al., 2013).

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In parallel, the literature points to a close link between PTSD and dissociative symptoms (Lyssenko et al., 2018). Dissociation, defined as a temporary disconnection from reality or the self, is a protective response to intense environmental threats (Farina & Liotti, 2013; Di Cori, 2024). While adaptive in the short term, dissociation impairs the cognitive integration of trauma (Thompson-Hollands et al., 2017) and can become persistent, representing a central feature of PTSD (Sartor et al., 2023). This dynamic is particularly present among juvenile offenders, who are highly exposed to traumatic experiences (Ford et al., 2018).

Thus, the main hypothesis of this study is that PTSD mediates the relationship between ACEs and dissociative symptoms, offering an explanatory model for the link between early trauma and psychological disturbances among youth in conflict with the law.

2. Method

This study was approved by the local Research Ethics Committee, including the Ethics and Research Committees of the Universities of Tours and Poitiers, CESREES, and the French National Commission for Data Protection and Privacy (CNIL).

2.1. Sample and procedure

Participants were 120 adolescents and young adults aged 13 to 20, divided into two groups.

Group 1 consisted of 60 youth under judicial supervision, recruited from 20 facilities of the French Juvenile Protection Service (PJJ), including diversified and collective accommodation units, as well as reinforced educational centers.

Group 2 was a control group of 60 individuals without criminal records, matched on age and gender, recruited from public schools in the Centre-Val de Loire region.

Participation was voluntary and based on informed consent, with legal guardian approval for minors. Data were collected from December 2023 to April 2025 by three clinical psychologists in confidential settings. Instructions were adapted when needed to ensure full understanding. Each participant was assigned a unique alphanumeric ID to guarantee anonymity and data confidentiality.

2.2. Instruments

2.2.1. Sociodemographic data. Basic biographical information (age, gender, education, health status) was collected via a semi-structured interview lasting approximately 10 minutes. No specific offense details were collected due to CNIL restrictions.

2.2.2. Adverse Childhood Experiences. ACEs were measured using the Adverse Childhood Experiences Questionnaire (Felitti et al., 1998), a 10-item standardized tool assessing abuse, neglect, and household dysfunction. Responses were binary ("yes"/"no"), with a total score ranging from 0 to 10. The scale showed good internal consistency in this study (GLB = 0.866). Average administration time was 5 minutes.

2.2.3. Post-Traumatic Stress Symptoms. PTSD symptoms were assessed with the PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013), validated in French (Shields & Guay, 2013). It includes 20 items aligned with DSM-5 criteria, scored from 0 ("not at all") to 4 ("extremely"). The total score (0–80) reflects symptom severity. Internal consistency was high (McDonald's ω = .723–.844; Guttman's $\lambda 6$ = 0.935). Completion time averaged 7 minutes.

2.2.4. Dissociative symptoms. Dissociative experiences were assessed using the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986). The scale includes 28 items scored from 0% to 100% and measures three dimensions: amnesia, depersonalization/derealization, and absorption. A two-factor model was used: defensive dissociation (F1) and "auto-pilot" functioning (F2) (Laroi et al., 2013). Internal consistency was excellent (Guttman's $\lambda 6$ = 0.959). Administration lasted around 10 minutes.

2.3. Data analyses

Descriptive and correlational analyses were conducted using JASP 0.18.3. Group comparisons were performed using Chi-square tests for categorical variables and Mann–Whitney U tests for continuous variables when normality assumptions were not met. A mediation analysis was carried out in JASP to examine whether PTSD symptoms mediate the relationship between ACEs and dissociative symptoms, using a bootstrap procedure with 5,000 resamples ($p < .05$).

3. Results

As shown in Table 1, adolescents under judicial supervision reported significantly higher levels of adverse childhood experiences, PTSD symptoms, and dissociative experiences compared to the control group.

Table 1. Mean scores and standard deviations for post-traumatic symptomatology and dissociative experiences in both groups, including group effects.

Variables	Group 1	Group 2	Group effect	p-value
ACE	*n = 59*	*n = 60*	*z (117) =*	*p =*
Score total [0 - 10]	*3.92 (2.43)*	*1.23 (1.56)*	***5.99******	***<.001***
PCL-5	*n = 58*	*n = 50*	*z (106) =*	*p =*
Score total [0 - 80]	*30.10 (17.77)*	*17.78 (13.94)*	***3.52*****	***<.001***
B-Intrusion symptoms	*6.69 (5.35)*	*4.26 (3.69)*	***2.14****	***.032***
C-Avoidance symptoms	*3.53 (2.49)*	*2.48 (2.23)*	***2.08****	***.037***
D-Mod in cognition and mood	*9.52 (6.01)*	*6.22 (5.98)*	***2.92****	***.004***
E-Hyperarousal symptoms	*10.36 (7.11)*	*4.82 (4.57)*	***4.10*****	***<.001***
DES	*n = 59*	*n = 56*	*z (113) =*	*p =*
Score total [0% - 100%]	*28.03 (16.18)*	*19.61 (15.22)*	***3.04****	***.002***

z coefficient from the Mann–Whitney U test comparing mean ranks between the two groups.
Group 1: Juvenile delinquent adolescents; Group 2: General population adolescents; ACE: Adverse Childhood Experiences; PCL-5: Post-Traumatic Stress Disorder Checklist DSM-5 version; *Mod.: Modification; DES: Dissociative Experiences Scale;* *$p < .05$; **$p < .01$; ***$p < .001$.

As shown in Table 2, significant positive correlations were observed between ACEs, PCL-5, and DES in both groups.

Table 2. Spearman correlations between ACE, PCL-5, and DES scores for each group.

Variables		PCL-5 Total	PCL- 5 Criterion B	PCL- 5 Criterion C	PCL- 5 Criterion D	PCL- 5 Criterion E
Group 1	*ACE*	***0.32****	***0.44****	***0.28****	*0.26*	*0.18*
	DES	***0.64****	***0.57****	***0.30****	***0.55****	***0.56****
Group 2	*ACE*	***0.52****	***0.47****	***0.32****	***0.43****	***0.45****
	DES	***0.57****	***0.47****	***0.47****	***0.46****	***0.50****

Spearman correlation coefficient ρ.
Group 1: Juvenile delinquent adolescents; Group 2: General population adolescents; ACE: Adverse Childhood Experiences; PCL-5: Post-Traumatic Stress Disorder Checklist DSM-5 version; Criterion B: Intrusion symptoms; Criterion C: Avoidance symptoms; Criterion D: Negative alterations in cognition and mood; Criterion E: Hyperarousal symptoms; DES: Dissociative Experiences Scale.* $p < .05$.

As shown in Table 3, consistent with our hypothesis proposing that PTSD mediates the relationship between ACEs and DES, PTSD symptoms significantly mediated this association in both groups, thus confirming our mediation hypothesis. In contrast, the direct effect of ACEs on dissociation was non-significant.

Table 3. Mediating Effect of PCL-5 Score on the Relationship Between ACE and DES.

Outcomes	Effect (ACE; PCL-5)	Estimate	Z	95% CI	p value
Group 1	Indirect	1.419*	2.510*	0.311; 2.527	.012
	Direct	- 0.508	- 0.686	-1.958; 0.943	.493
Group 2	Indirect	1.898*	2.507*	0.414; 3.382	.012
	Direct	2.104	1.202	-0.252; 4.459	.080

Group 1: Juvenile delinquent adolescents; Group 2: General population adolescents; ACE: Adverse Childhood Experiences; PCL-5: Post-Traumatic Stress Disorder Checklist DSM-5 version; * $p < .05$.

4. Discussion

The findings observed in adolescents from the PJJ group suggest that adverse childhood experiences are not directly associated with dissociation; rather, they appear to increase vulnerability to the development of post-traumatic stress disorder symptoms, which constitute a proximal mechanism in the emergence of dissociative manifestations. This pattern is consistent with the seminal work of Felitti et al. (1998), demonstrating that cumulative exposure to childhood adversity significantly elevates the risk of later psychopathological outcomes. Moreover, several studies have shown that dissociation is strongly associated with the severity of PTSD symptoms, and that these symptoms largely account for the relationship between early trauma and dissociative phenomena (Dalenberg et al., 2012; Vonderlin et al., 2018). Research on the dissociative subtype of PTSD further supports the notion that dissociative manifestations are closely linked to the neurobiological and psychophysiological mechanisms underlying the trauma response (Lanius et al., 2010). Thus, within the PJJ group, ACEs may be conceptualized as a distal risk factor, whereas PTSD symptomatology represents a more proximal intermediate mechanism directly implicated in the clinical expression of dissociation.

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BEYOND EMPLOYMENT STATUS: CONSISTENCY IN WOMEN'S CLOTHING PURCHASE DECISION-MAKING

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Abstract

Although women's participation in formal employment has increased, many continue to fulfil primary caregiving and household responsibilities alongside work demands. These dual roles often lead to time pressure and heightened stress. Shopping has been identified as a potential leisure activity and coping mechanism; however, limited research has examined women's clothing purchase decision-making styles (DMS), particularly in relation to employment status. Despite managing more than half of household consumption, women's DMS remain under-explored. This quantitative, non-experimental comparative study investigated DMS in clothing among 228 South African women aged 18–65. Data were collected via an online questionnaire incorporating a 40-item Consumer Styles Inventory (CSI). Exploratory factor analysis identified eight DMS factors. Contrary to expectations, three dominant styles, habitual/brand loyalty, recreational/hedonistic orientation, and price/value consciousness, remained consistent across employment groups. Employed women (EW) reported more planned and enjoyable shopping experiences, suggesting a potential coping function, whereas unemployed women showed greater demonstrated price sensitivity. Overall, employment status influenced contextual constraints but did not fundamentally alter underlying cognitive and affective decision-making orientations. These findings highlight the psychological consistency of women's clothing DMS across employment categories and contribute to applied consumer psychology

Keywords: *Clothing purchase behaviour, decision-making styles, employment status, women consumer.*

1. Introduction and objectives of the study

The modern woman increasingly occupies dual roles: participation in formal employment while remaining primarily responsible for caregiving and household management. Despite societal shifts, gendered expectations surrounding women's domestic responsibilities persist and are even increasing (Vandecasteele et al., 2021). These dual demands frequently result in work–life conflict and elevated stress levels among employed women (Dreyer et al., 2025). Consumer behaviour research suggests that shopping may serve as both a coping mechanism and a leisure activity, particularly for women (Bisht & Desu, 2024). From a psychological perspective, consumption behaviour may serve the functions of emotional regulation, stress reduction, and identity construction (Chen & Pham, 2018). However, limited research has examined whether employment status meaningfully alters women's decision-making styles (DMS) during clothing purchases.

Women represent a powerful consumer segment, controlling more than half of household expenditure in South Africa (IQBusiness, 2020). They frequently purchase not only for themselves but also for spouses and dependents. While employed women (EW) may face time scarcity and stress, unemployed women may experience different constraints, particularly financial limitations. This difference in employment status could, in theory, influence women's cognitive and affective decision-making processes. Higher income, as in the case of EW in this study, can lead to increased purchasing, and research suggests it would influence an individual's DMS (Alavi et al., 2016) making this study, which compares employed and unemployed women consumers, particularly relevant.

The present study, therefore, aimed to explore and describe the clothing purchase DMS of South African women in relation to their employment status. The first objective is to describe these DMS, followed by the second objective to determine whether these DMS differ according to employment status. This study advances applied consumer psychology by shifting the focus from traditional socio-economic segmentation to the underlying stability of DMS. By demonstrating that these psychological traits transcend employment status, the research challenges the conventional reliance on professional standing as a primary predictor of consumer behaviour. These insights advocate for a more robust, unified framework for understanding the female consumer, enabling practitioners to implement precise targeting strategies that remain effective regardless of shifting labour market demographics.

2. Decision-making styles as psychological constructs

Consumers' decision-making is influenced by many factors, but research shows that all consumers use one or more DMS when making purchases (Sproles & Kendall, 1986). These DMS reflect the mental orientations that guide attitudes and purchases, shaped by heuristics, and express consumers' personalities through their buying choices (Sproles & Kendall, 1986; Van Romburgh et al., 2026). Sproles and Kendall (1986) developed the 40-item CSI scale, identifying eight consumer DMS types that define purchasing behaviour including: Brand-aware consumers who believes price equals quality and prefers well-known brands; Recreational/Hedonistic conscious consumers who often shop for fun; Impulsive consumers who make unplanned, spontaneous purchases without considering price or value; Habitual/brand loyal consumers who generally purchase specific brands or at specific stores out of habit; Price-conscious consumers who compare products to find the lowest price and best value; Confused by over choice consumers who easily get overwhelmed by too many options; High-quality conscious consumers who seek the best items and make careful, deliberate purchases and Fashion conscious consumers who stay on trend, regularly buying new items and enjoying the variety.

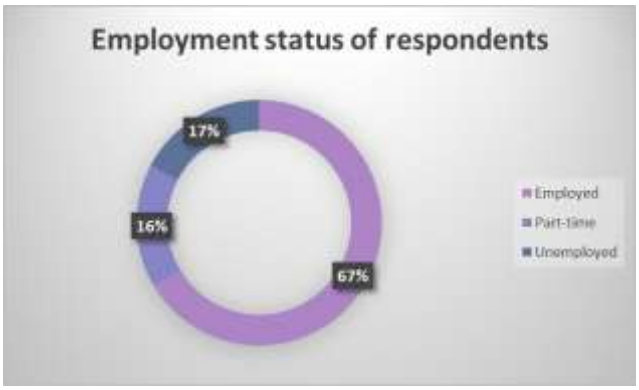
3. Research design

This study employed a quantitative, non-experimental, comparative cross-sectional design to examine clothing DMS among employed and unemployed South African women. A non-probability purposive sampling approach was used to recruit respondents who met predefined inclusion criteria (female, 18 years or older, South African resident, purchasing their own clothing, with internet access, and basic English proficiency). Data was collected through a self-administered online questionnaire created in Google Forms and distributed via social media platforms. The instrument comprised screening and demographic items, as well as a 40-item Consumer Styles Inventory (CSI) 5-point Likert scale adapted from Sproles and Kendall (1986) and applied in South African research (Potgieter et al., 2013; Le Roux et al., 2017) to measure clothing DMS (1 = Strongly disagree; 5 = Strongly agree). A total of 228 valid responses were obtained. Data was analysed using SPSS (version 25), applying descriptive statistics, exploratory factor analysis (EFA), reliability testing (Cronbach's alpha), and ANOVA to determine differences between employment groups. The Kaiser-Meyer-Olkin value (0.81) confirmed sampling adequacy for factor analysis on the DMS (the factor solution explained 51.94% of variance), and reliability coefficients ranged from $\alpha = 0.70$ to $\alpha = 0.87$, indicating good reliability (Field, 2013). Mean factor scores are used for discussion of the findings and are interpreted as follows: <2.5 = disagree; ≥ 2.5 and <3.5 = neither agree nor disagree; ≥ 3.5 and <4.5 = agree, and ≥ 4.5 = strongly agree. Ethical approval was obtained (XXX-00932-19-A1), and further ethical standards were upheld through electronic informed consent, voluntary participation, and confidentiality of responses.

4. Findings

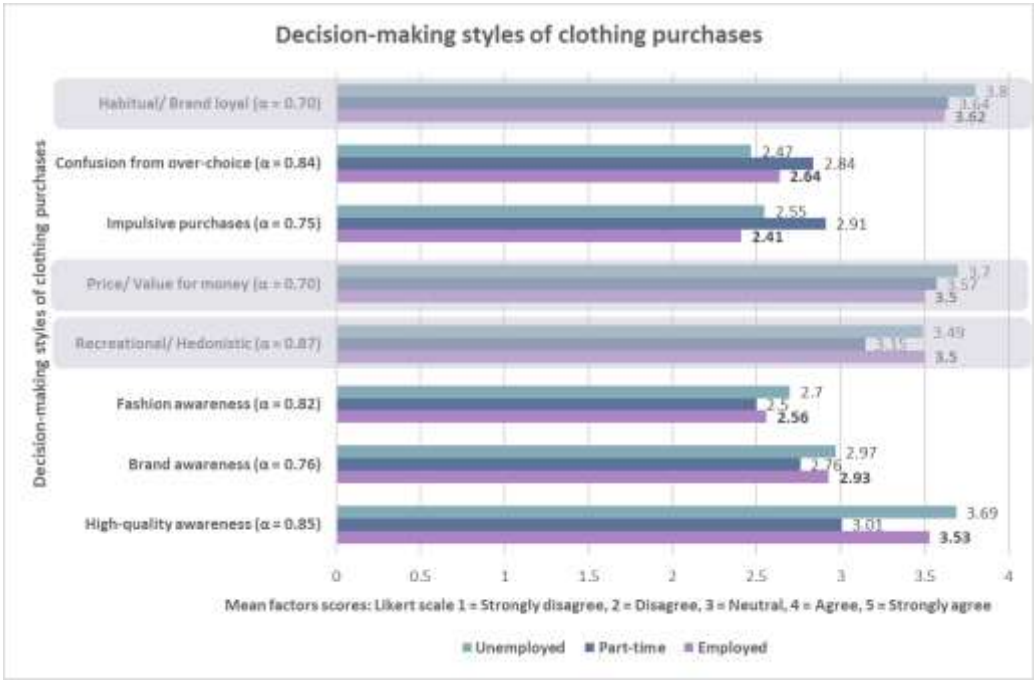
The findings revealed that most respondents were employed full-time (Figure 1) and under 30 years of age. Nearly half (44.7%) purchased clothing only for themselves, while the remainder also bought clothing for spouses, children, or parents. Almost half of those surveyed purchased clothing once a month, regardless of employment status. Exploratory factor analysis (EFA) was employed to address the first objective of this study: to describe the DMS of the study population. The influencing consumer DMS extracted from the EFA to which all the respondents agreed were "price/value for money" (m = 3.66; SD = 0.73), "habitual/brand loyalty" (mean = 3.54; SD = 0.77) and "recreational/hedonistic" (m =3.52; SD = 0.92) while respondents were neutral towards "fashion awareness" (m =2.92; SD = 1.06), "high quality awareness" (m =3.47; SD = 0.76), "confusion from over-choice" (m = 2.47; SD = 1.00), "impulsive purchases" (m = 2.62; SD = 0.86), and "brand awareness" (m = 2.58; SD = 0.73).

Figure 1. Employment status of respondents (N=228).



Although differences were anticipated, three DMS emerged as the most consistently applied across employment statuses: “price/value-for-money", “habitual/brand-loyal”, and “recreational/hedonistic” (Figure 2). Employed women indicated increased clothing-planning purchase behaviour and described shopping experiences as enjoyable. This suggests that clothing shopping may function as a psychologically restorative activity, which underscores the recreational/hedonistic DMS that emerged as a prominent factor. This might indicate a possible coping strategy among employed respondents who may often face unmet expectations and therefore regard shopping as a recreational activity and a possible way of lowering experienced stress levels. On the other hand, unemployed respondents may have more time available but show greater price and value-for-money consciousness when shopping for clothing, likely reflecting income constraints. However, the underlying DMS remained largely comparable.

Figure 2. Decision-making styles of respondents towards clothing purchases (N=228).



5. Discussion and conclusion

From the results, eight DMS emerged, which compare well with the original study by Sproles & Kendall (1986) and the adapted studies by Potgieter et al. (2013) and Le Roux et al. (2017), from which the CSI applied in this study was derived. The findings suggest psychological consistency in decision-making regarding women's clothing purchases across DMS, despite structural differences in employment status. While employment status influences factors such as time and income, respondents' DMS regarding clothing purchases remain similar. Consequently, dominant DMS, price/value for money, habitual/brand loyalty, and recreational/hedonistic orientation were consistently present across employment categories.

Although unemployed respondents exhibited slightly stronger price and value consciousness, reflecting rational economic adaptation rather than a distinct psychological orientation, this DMS was also among the dominant styles observed in EW, who reported more structured and enjoyable shopping experiences. These variations reflect contextual adaptation rather than divergent decision architectures. Both employed and unemployed women displayed habitual brand loyalty, likely because familiar brands save time, reduce decision-making effort, and offer a sense of trust and reliability in their purchases. Furthermore, the prominence of the recreational/hedonistic DMS among EW may reflect adaptive coping strategies by possibly providing emotional regulation. While employment affects available time and income, it does not appear to fundamentally alter women's cognitive shopping styles. These findings support the view that DMS function as relatively stable psychological traits, suggesting that women, regardless of employment status, represent a largely homogeneous consumer group in terms of DMS, even though purchase frequency and expenditure may vary.

From a theoretical perspective, the findings support trait-based models of consumer behaviour (Sproles & Kendall, 1986; Van Romburgh et al., 2026), suggesting that DMS function as relatively stable cognitive–affective schemas guiding evaluation, heuristic processing, and choice. Employment status serves as a situational moderator that influences constraints, but not the foundational orientation toward consumption. The prominence of recreational/hedonistic shopping among EW further aligns with affect-regulation and emotional coping mechanisms (Bisht & Desu, 2024). In contexts of dual work–family demands, clothing purchases may serve as emotion-focused coping episodes that facilitate temporary psychological restoration. Importantly, this coping function coexists with value consciousness and brand loyalty, indicating that emotional and rational orientations are not mutually exclusive but integrated within stable decision styles.

Finally, the findings suggest that structural socio-economic differences do not necessarily translate into psychologically distinct consumer identities. Women appear more homogeneous in decision orientation than demographic segmentation models assume, reinforcing the value of psychographic frameworks in applied consumer research

6. Implications and recommendations

This study provides evidence that women's clothing DMS functions as relatively stable cognitive–affective orientations rather than context-dependent reactions to employment status. Although employment shapes structural constraints such as time availability and income, the dominant styles, namely price/value consciousness, habitual/brand loyalty, and recreational/hedonistic orientation, remained consistent across groups.

These findings reinforce the trait-based conceptualisation of DMS proposed by Sproles and Kendall (1986), positioning them as enduring decision schemas that guide heuristic processing and evaluative judgement. Importantly, the prominence of recreational/hedonistic shopping among EW strengthens theoretical linkages to affect-regulation and coping frameworks. In line with psychological models of emotion-focused coping, shopping may operate as a short-term coping strategy that temporarily reduces stress associated with dual work–family demands. Employment status, therefore, appears to moderate contextual pressures, but not the underlying psychological architecture of consumption.

Practically, the findings challenge demographic segmentation models that prioritise employment categories. Instead, psychographic positioning based on stable decision orientations offers greater strategic precision. Retailers should emphasise value transparency, loyalty reinforcement, and cognitively efficient shopping environments across segments, while recognising the potential affect-regulatory function of experiential retail elements. Methodologically, the study confirms the contextual robustness of the CSI in a South African female sample and highlights the need for longitudinal and mediation-based designs to directly test coping mechanisms and psychological well-being outcomes.

Overall, the findings suggest that structural employment participation does not fundamentally reconfigure women's consumer identities, suggesting marketers can treat them as a largely homogeneous consumer group when designing strategies around brand loyalty, price sensitivity, and hedonistic convenience. By demonstrating the psychological continuity underlying behavioural variation through the vehicle of DMS, this study contributes to a more theoretically integrated and application-oriented understanding of female consumption.

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THE IMPACT OF COMMUNICATION CHANNEL ON SKILL ACQUISITION IN A DYNAMIC COLLABORATIVE TASK

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Abstract

Research on collaborative problem solving typically focuses on speech as the primary driver of team success. Yet, recent studies on joint action have identified additional, non-verbal mechanisms for coordination, such as entrainment, perception-action matching, and action-based communication. Perhaps even more surprising are studies using the complex dynamic Co-op Space Fortress task, which demonstrate that even in the absence of a communication channel, dyads can coordinate effectively through non-verbal mechanisms alone. More impressively, an ACT-R model constructed for this task successfully reproduced dyadic skill acquisition trajectory, suggesting that the same processes underlying individual skill acquisition can also describe how dyads become more skilled at coordinating. This possibility stems, in part, from the nature of Co-op Space Fortress. This task imposes high perceptual-motor demands on subjects while offering limited flexibility for changing the joint plan, aside from selecting teammate roles. Consequently, it has been argued that subjects acquire all necessary task knowledge during initial instruction and subsequently execute the only viable plan, while adopting the role they are more successful at. Automatic skill processes are then responsible for performance improvements. The current study aims to challenge the sufficiency of this account for Co-op Space Fortress by introducing explicit communication channel between participants. Using a between-subject design, we compared dyads without a communication channel to those allowed to communicate either verbally during game play (in-game verbal) or textually between games (in-pause textual). If explicit communication was not needed in this task, we expected that there would be no significant impact on skill acquisition rates and final scores between conditions. Our results demonstrated the opposite. Dyads with a communication channel significantly outperformed the no-communication group, improving their scores at a significantly faster rate. Furthermore, those with an in-game verbal communication channel showed a non-significant tendency for faster improvement than those with the in-pause textual channel. These findings suggest that initial task knowledge is often incomplete and that communication facilitates faster convergence on joint plans and effective real-time monitoring of partners. This study demonstrates that even in high-demand perceptual-motor tasks, explicit communication provides a critical advantage that exceeds the capabilities of individual learning mechanisms.

Keywords: *Collaborative skill acquisition, collaborative problem solving, coordination, communication channel, Co-op Space Fortress.*

1. Introduction

Collaboration is fundamental to human society, underpinning everything from physical labor and artistic improvisation to complex problem-solving (Graesser et al., 2018). Today, collaborative skills are recognized as crucial 21st-century competencies (Griffin & Care, 2015), a shift reflected in large-scale evaluations like those by PISA and the ATC21S project (OECD, 2017; Griffin & Care, 2015).

Research on joint action traditionally highlights speech as the primary driver of team success (Clark, 1996). In collaborative problem solving specifically, verbal communication allows teams to form shared beliefs, construct joint plans, make group decisions, and coordinate execution (Hesse, Care, Buder, Sassenberg, & Griffin, 2015). However, recent studies on joint action have shifted focus toward non-verbal coordination mechanisms, such as entrainment, perception-action matching, and action-based communication (Knoblich, Butterfill, & Sebanz, 2011; Sebanz & Knoblich, 2021).

The efficacy of non-verbal mechanisms is evident even in complex dynamic tasks like Co-op Space Fortress (Dimov, Anderson, Betts, & Bothell, 2019), a collaborative variant of classic skill-acquisition games (e.g., Mane & Donchin, 1989; Dimov, Anderson, & Betts, 2024). Recent work demonstrates that dyads can successfully master this task relying entirely on non-verbal coordination. Furthermore, an ACT-R model successfully reproduced this dyadic skill acquisition trajectory, implying that the same processes underlying individual learning can scale to explain how teams become more skilled (Dimov, Anderson, Betts, & Bothell, 2023).

This possibility stems partly from the nature of Co-op Space Fortress. The task imposes high perceptual-motor demands while offering limited flexibility for changing the joint plan, aside from selecting teammate roles. Consequently, it is hypothesized that teammates acquire all essential knowledge and plan during initial instruction, generate the only viable plan, and learn to adopt their optimal roles during its execution. Automatic skill processes are then responsible for performance improvements.

The current study challenges the assumption that explicit communication is unnecessary in Co-op Space Fortress. Using a between-subjects design, we compared a *no-communication* control group with dyads allowed to communicate either verbally during gameplay (*in-game verbal* condition) or textually between rounds (*in-pause textual* condition). If communication is truly superfluous for this task, introducing these channels should yield no significant impact on skill acquisition rates or final scores.

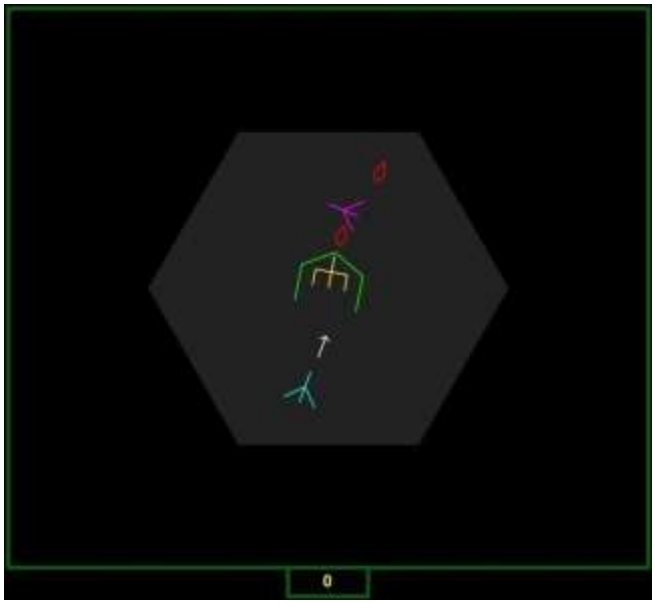
2. Methods

2.1. The task: Co-op Space Fortress

In Co-op Space Fortress, two players each control a spaceship with the shared goal of destroying a shielded fortress located in the center of a gray hexagon (Figure 1). Both players begin outside of this gray hexagon, as the fortress automatically targets the first ship that enters its perimeter and stays locked onto it until the ship exits. To successfully destroy the fortress, one player must act as bait and prompt the fortress to shoot. This action causes the fortress's shield to open up in the back, exposing a vulnerable region where it can be shot. The second player must then move in and shoot the fortress down while it remains vulnerable. Once the fortress is killed, both players must exit the hexagon so the fortress can reappear.

Team performance is tracked via a point system that ultimately translates into a payment bonus for the participants at the end of the experiment. Each time the team successfully kills the fortress, the players earn 100 points. However, players must carefully avoid getting hit by the fortress's shells or crashing into obstacles; if they do, they die and lose 100 points. Additionally, players must manage their ammunition efficiently and avoid wasting missiles, as every missile that fails to kill the fortress incurs a 10-point penalty.

Figure 1. A screenshot of Co-op Space Fortress during gameplay.



2.2. Participants

114 subjects (48 male; M_{age} = 21; Min_{age} = 18; Max_{age} = 40) from the Pittsburgh area, mostly students from Carnegie Mellon University and University of Pittsburgh, participated for Figure 1 money, which included a base payment ($15) and a performance-contingent bonus payment. Pairs of participants were formed either randomly, restricted by participant availability, or by asking participants to bring another participant to play with. Informed consent approved by the University Institutional Review Board (IRB) of Carnegie Mellon University was obtained from each participant.

2.3. Procedure

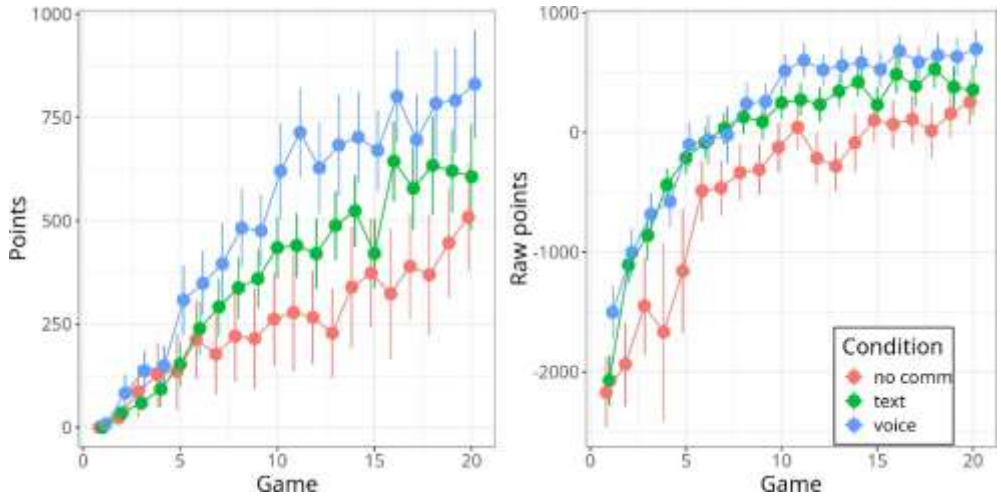
Participants were assigned to one of three conditions: *no-communication*, *in-game verbal*, or *in-pause textual*. Data for the *no-communication* baseline condition was collected first (n = 28). The two communication conditions were subsequently run in parallel: an *in-game verbal* condition (n = 46) where dyads could speak to each other through a verbal channel during active gameplay, and an *in-pause textual* condition (n = 40) where participants communicated via a text chat interface exclusively during the pauses between games.

To isolate the targeted communication channels and prevent unintended non-verbal signaling, each participant was seated in a separate room. The experimental session consisted of four sequential phases: (1) a demographic questionnaire, (2) game instructions, (3) twenty 3-minute rounds of Co-op Space Fortress, and (4) a concluding feedback questionnaire. Both dyad members were required to complete each phase before the team could advance to the next. A one-minute break was provided halfway through the gaming session, immediately after the tenth round. In total, the experimental procedure took each participant between 1 h 15 min and 1 h 20 min to complete.

3. Results

Team success was evaluated using two metrics: *points* and *raw points* (Figure 2). Points represent the in-game score visible to players, which is floored at zero. Because players respond to this visible metric, they may adopt riskier behaviors (e.g., crashing without penalty) when they cannot earn positive points. Conversely, *raw points* provide a more objective measure of performance. By capturing negative scores, *raw points* are sensitive to subtle performance improvements early in the learning process before players are skilled enough to achieve positive scores.

Figure 2. Dyadic skill acquisition curves over the course of 20 3-minute games per condition. (A) Points per game (mean and CI). (B) Raw points per game (mean and CI).

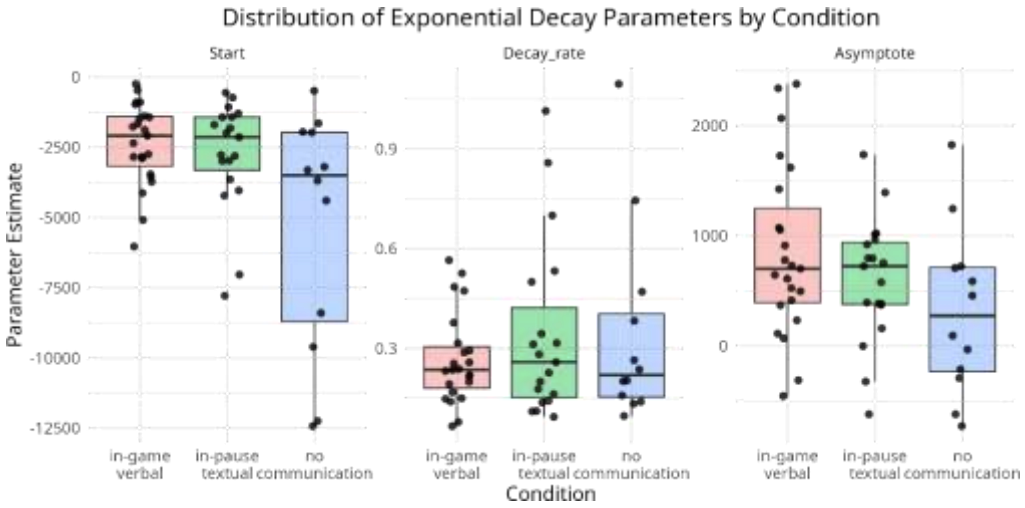


In Game 1, only dyads in the *in-game verbal* condition had the opportunity to communicate, while the *in-pause textual* and *no-communication* groups did not. No team in any condition was skilled enough to score positively during this initial round (M_{verbal} = 8.26, $M_{textual}$ = 0, $M_{no\ communication}$ = 0). However, a Kruskal-Wallis test revealed a significant difference in Game 1 raw points across conditions (p = .026). A pairwise Wilcoxon test indicated that the *in-game verbal* dyads scored significantly higher than both the *in-pause textual* (p = .041) and *no-communication* (p = .041) dyads. By Game 2, both communication groups had interacted. Performance differences remained significant (Kruskal-Wallis: p = .031). At this stage, dyads in the *no-communication* condition scored significantly lower than *in-game verbal* (p = .043) and *in-pause textual* (p = .043) dyads.

To assess longer-term trends, we averaged dyad scores over three-game blocks for the middle (Games 10–12) and end (Games 18–20) of the experiment. Mid-game performance differed significantly across conditions ($p = .003$). Both communication groups significantly outperformed the no-communication baseline (*in-game verbal*: $p = .003$; *in-pause textual*: $p = .034$), with the verbal condition showing a non-significant tendency to score higher than the textual condition ($p = .158$). By the end of the study, the overall difference between conditions was only marginally significant ($p = .076$). A pairwise Wilcoxon test confirmed that the *in-game verbal* condition still scored marginally significantly higher than the *no-communication* condition ($p = .071$).

Finally, we modeled dyadic learning trajectories by fitting exponential decay curves to the raw points for each dyad, starting from Game 2. Raw points were used because their trajectories adhered to the shape required for an exponential fit, unlike the zero-truncated point curves. We fitted an equation with three parameters: starting score (S_{Start}), decay rate, and asymptotic score ($S_{Asymptote}$). Although visual trends (Figure 3) suggested higher starting and asymptotic scores for the two communication conditions, a Kruskal-Wallis test indicated that none of these parameters were statistically different across the groups ($p_{Start} = .32$, $p_{Decay_rate} = .54$, $p_{Asymptote} = .53$).

Figure 3. Exponential decay curve parameter distributions.



4. Discussion

This study investigated how the presence and modality of a communication channel impact skill acquisition in a dynamic collaborative task previously shown to be learnable without explicit communication. Our findings confirm that communication channels facilitate learning, with different modalities offering distinct advantages.

4.1. Does speech help when learning to collaborate

In The beneficial impact of speech is evident across several contrasts. In Game 1, dyads using *in-game verbal* communication significantly outperformed other groups that had not yet communicated. This suggests that even when players are struggling with basic controls and cannot fully focus on high-level planning, real-time communication provides an immediate advantage. By Game 2 – following one communication pause – the *in-pause textual* condition caught up with the *in-game verbal* group, with both significantly outperforming the *no-communication* baseline.

This performance gap persisted into the middle of the experiment. However, toward the end, only the verbal condition maintained a statistically higher score than the baseline. Ultimately, these results indicate that any communication yields a higher dyadic skill acquisition rate than none, with in-game verbal communication proving more beneficial than in-pause textual.

4.2. Why does communication help?

Research on collaborative problem solving suggests that communication aids in understanding the task, forming shared plans, coordinating their execution, and monitoring their execution progress (Hesse et al., 2015). Although the ACT-R model for this task assumed task understanding and planning were completed prior to gameplay, the superiority of the two communication conditions suggests this assumption is incomplete. Players likely do not acquire all necessary knowledge from the instructions alone; instead,

they dynamically fill knowledge gaps and share newly discovered causal knowledge through communication. Moreover, they might also share both high-level joint plans and low-level individual strategies (e.g., specific ship controls), accelerating individual skill acquisition and preventing misaligned plans. The tendency for the *in-game verbal* condition to outperform the *in-pause textual* condition late in the experiment, albeit not significant, likely stems from the real-time capabilities of coordinating plan execution and monitoring progress, but also of managing the interpersonal relations and social obligations essential for team cohesion (Petukhova & Bunt, 2020).

4.3. Shortcomings

These results should be interpreted cautiously due to the relatively small sample size, which resulted in marginally significant contrasts and non-significant differences in model fit parameters. Future research must replicate these findings with larger cohorts to ensure robustness. Additionally, our design perfectly confounded two factors: communication time (in-game vs. in-pause) and communication channel (verbal vs. textual). While texting during gameplay would cause excessive interference, future studies should introduce an in-pause verbal condition to disentangle these variables. Furthermore, the *in-pause textual* condition lacked pre-game communication, effectively rendering its Game 1 identical to the baseline no communication. Finally, Co-op Space Fortress is a highly specific task that can be mastered without communication, inherently limiting the marginal potential for communication-driven improvement. However, this exact middle ground characteristic makes the game an excellent environment for studying the precise benefits of communication

Acknowledgments

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THE EFFECT OF ANIMACY IN REPEATED VISUAL SEARCH

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Abstract

Previous research has indicated that animate entities often attract more attention than inanimate ones. The aim of the present work was to examine whether and how stimulus animacy may affect visual search performance and efficiency in a repeated search paradigm. Fifteen participants (10 female, 5 male; M = 23.5 years, SD = 2.1 years) were asked to search for a target stimulus within displays of three, six, or nine stimuli. The stimuli were pixel images representing animals (e.g., hedgehog, snail, owl; animate condition), objects of common usage (e.g., car, mug, computer; inanimate condition) or upper-case letters (control condition). The stimuli were presented on a computer screen in the form of a circle with a radius of 8° around the center point. At the beginning of each trial, the target was presented at this center point, and the participants' task was to locate this target in the peripheral circle and to click on it as quickly and accurately as possible. The target was always present. Furthermore, the search display stayed either the same within a block of 90 searches (repeated display) or changed after each search (unrepeated display). All three factors (stimulus type, search condition and set size) were varied block wise, resulting in 1620 searches (18 blocks of 90 trials) for each participant in total. The order of the blocks was randomized for each participant. Manual response times revealed that participants needed longer to find an animate target than an inanimate and letter target in a changing search environment, while, in repeated displays, such a disadvantage for animates occurred only in larger displays. In addition, animacy had some impact on search efficiency, regardless of whether the search was repeated or not. Together, these results suggest that stimulus animacy may affect visual search performance negatively, especially in changing search environments.

Keywords: *Visual search, animacy, attention.*

1. Introduction

Imagine you are sitting on the couch and looking for a book on the bookshelf. The process you must execute for finding the book is visual search, which is defined as the search for a desired object (the target), among irrelevant objects (the distractors). In visual search paradigms, a target stimulus is usually presented visually or auditorily and the participant's task is to find it among a varying number of distractors (e.g., Eckstein, 2011; Wolfe, 2020). If the target differs from the distractors in more than one dimension (e.g., when searching for a red square in a display of green squares and red circles), the search times typically increase with the number of distractors in the display (Treisman & Gelade, 1980). In contrast, if the target and the distractors differ in only one dimension (e.g., when searching for a red square among green squares), the number of distractors usually does not affect search time. Previous research has indicated that we can keep track of object locations we have already searched through (e.g., Kristjánsson, 2000) and can utilize information of previously inspected distractors to speed up a search if we must search the same display once again (Höfler, Gilchrist, & Körner, 2014, 2015; Körner & Gilchrist, 2007). Also, when the same search display is repeatedly presented for several times, response times decrease over time compared to a situation when the displays changes partially or fully after each trial (Solman & Smilek, 2010). This suggests that stable environments not only foster the use of memory during a visual search but also build memory for distractors inspected during the search. However, other findings showed no evidence that repeated visual search was supported by memory processes when a localization task ("where is the always present target located?") compared to a two-alternative forced-choice task ("is the target absent or present?") was used (Kunar, Flusberg, & Wolfe, 2008).

While there is much research on the question of how memory processes affect (repeated) visual search performance, only a few studies addressed the questions of whether and how animacy of the stimuli

might influence a (repeated) search. New, Cosmides, and Tooby (2007) proposed the animate-monitoring hypothesis, suggesting that attention is stronger and faster allocated to human and non-human animals as compared to non-living objects. Indeed, with regard to several non-search tasks, stimulus animacy has been identified as an important factor for task performance (e.g, Bailey & Lang, 2022; Bonin, Gelin, & Bugaiska, 2014; Calvillo, & Hawkins, 2016). For instance, in an inattentional blindness task, Calvillo and Jackson (2014) showed that participants detected unexpected objects more frequently when these objects were animate than inanimate, and more frequently when they were under a low vs. high perceptual load. Also, using an RSVP task to test for attentional blink, Guerrero and Calvillo (2016) showed that animate objects were detected more often than inanimate objects. With regard to visual search, one of the few papers that addressed animacy were Loucks, Reise, Gahite, and Fleming (2023). In their Experiment 1, they showed that participants found an animate (mammal or non-mammal) target faster compared to an inanimate target. In contrast, Long, Störmer, and Alvarez (2017) showed that participants needed *more* time to find an animate than an inanimate target (Experiment 1). However, animate targets were still found faster when embedded among inanimate vs. animate distractors. In the current experiment, we aimed to test whether and how animacy of the target object may influence search performance and efficiency when a display is searched repeatedly. To this end, we adopted the experimental design from Kunar et al. (2008) and had participants search a repeated or unrepeated displays 90 times for a target stimulus that was always present. The displays included either three, six, or nine items which were either animate or inanimate objects or letters for control. In line with previous research, we expected that the search for animate objects should be overall faster than the search for inanimate objects and letters (Loucks et al., 2023) and that participants should be faster and more efficient irrespective of whether the search was repeated or unrepeated (Kunar et al., 2008).

2. Methods

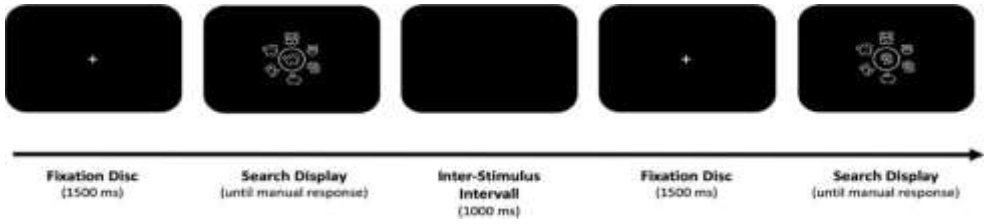
2.1. Participants

Fifteen participants (10 female, 5 male; M = 23.5, SD = 2.1) took part in the experiment. The sample size was determined based on the sample used in Kunar et al. (2008). All participants were right-handed and had normal or corrected-to-normal vision. They gave written informed consent prior participation. The experiment was approved by the ethic committee of the University of Graz.

2.2. Stimuli, design, & procedure

All stimulus images were in the size of 22 x 22 px (0.9°) and presented in gray (RGB: 140/140/140) on a black background (see Figure 1). The letter stimuli were upper case letters randomly sampled from 22 letters of the Roman alphabet (I, L, M, and W were omitted) and presented in Arial using Adobe Photoshop Elements 9. Both the animate and inanimate images were pixel images created with Gimp 2.8. All animate stimuli were animals (e.g., hedgehog, snail, owl) while the inanimate stimuli were objects of common usage (e.g., car, mug, or computer). The experimental setup was created using Experiment Builder 1.10.165 (SR Research). Participants sat in a quiet, darkened and sound-proof cabin approximately 63 cm away from a 21" monitor (resolution: 1152 x 864 pixel). A chin rest was used to minimize head movements. At the beginning of a trial, a central fixation cross was presented for 1500 ms, followed by the search display that consisted of three, six, or nine search objects (letters, animate, or inanimate objects), positioned evenly around the circumference of an imaginary circle with a radius of 8°, centered on fixation (see Figure 1). The target was presented in the center of this circle. Participant's task was to locate the – always present – target in the peripheral circle and respond to it via mouse click as quickly and accurately as possible (see Kunar et al., 2008). We measured participant's search times from the onset of the search display until the mouse click. After this, the display was cleared for 1000 ms and a new trial started. In the repeated condition, the display remained the same throughout one block of 90 trials, while in the unrepeated condition, a new display was presented in each trial. All three factors (stimulus condition, search condition and set size) were varied within subject and presented block wise in a random order. This resulted in 1620 searches (18 blocks of 90 trials) for each participant in total. The entire session lasted approximately 90 minutes.

Figure 1. Sequence of events in a trial (set size 6, animate & repeated condition).



3. Results

3.1. Error analysis

A search was considered as correct if a participant clicked via mouse on the correct object in the outer circle within a radius of 20px from the center of the target. Across individual means, the error rates were generally low (unrepeated condition: 1.6% – 7.3%; repeated condition: 1.7% – 8.9%). A 2 (Search) x 3 (Stimuli) x 3 (Set Size) repeated-measures analysis of variance (ANOVA) showed significant main effects of Search, $F(1,14) = 4.97$, $p = .043$, $\eta^2_p = .26$ with a slightly higher error rate in the repeated (M = 8.9, SD = 1.7) than in the unrepeated condition (M = 7.3, SD = 1.6, and Set Size, $F(1.35, 19.03) = 5.22$, $p = .025$, $\eta^2_p = .27$ (Greenhouse-Geisser corrected). However, posttests (Bonferroni-corrected t-tests) showed no difference between any set sizes. Also, neither the third main effect of Stimuli nor any interaction reached significance (all ps > .05). For the following analysis, we included only trials in which the target was found correctly and in which the individual search times were within the range of 2.5 standard deviations from the group mean (91.3% of all searches).

3.2. Response times

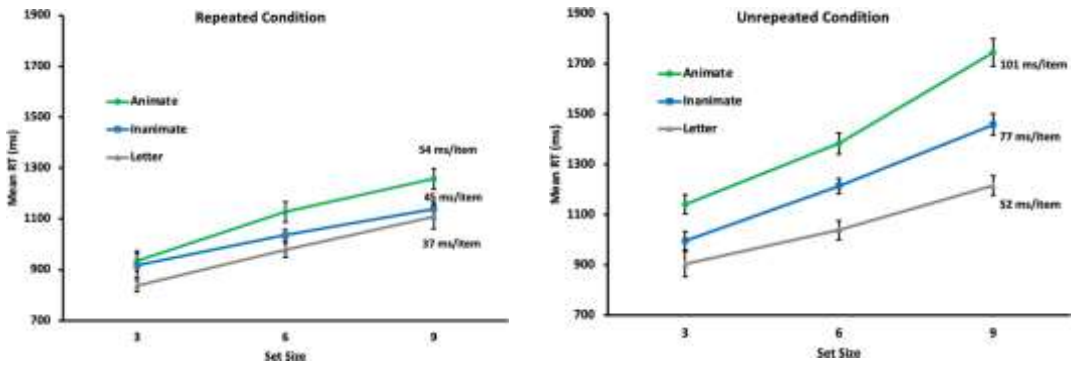
Average response times regarding the different conditions are shown in Table 1. For analysis, we conducted two within-subjects ANOVAS separately for the two search conditions (repeated, unrepeated).

Table 1. Average response times (standard deviations) for the repeated and unrepeated condition, depending on stimulus type (animate, inanimate, letters) and set size.

		Set size		
Condition		3	6	9
Repeated	Animate	936 (140)	1128 (121)	1257 (135)
	Inanimate	917 (117)	1037 (141)	1138 (137)
	Letters	837 (124)	977 (135)	1108 (170)
Unrepeated	Animate	1142 (130)	1384 (178)	1746 (207)
	Inanimate	997 (131)	1215 (156)	1459 (211)
	Letters	904 (128)	1040 (142)	1217 (193)

A 3 (Stimuli) x 3 (Set Size) within-subjects ANOVA for the repeated condition showed significant main effects of Stimuli, $F(2, 28) = 31.75$, $p < .001$, $\eta^2_p = .69$ and Set Size, $F(1.39, 1.42) = 119.32$, $p < .001$, $\eta^2_p = .90$. The interaction was also significant, $F(4, 56) = 3.17$, $p = .020$, $\eta^2_p = .19$. Bonferroni-corrected t-tests showed that, for all set sizes, a letter target was always found faster than an animate or inanimate target (see Figure 2, left). This might be due to the increased stimulus complexity of both animate and inanimate stimuli compared to the letter stimuli. More interestingly, while we did not find any differences in response times between animate and inanimate targets for set sizes three and six, for set size nine, participants needed significantly more time to find an animate target than an inanimate target, $t(14) = 5.79$, $p = .002$. This suggests that the effect of animacy was more likely to come into play when a more demanding search - as it is the case for larger displays - had to be performed.

Figure 2. Mean response times (RT) for each set size (3, 6, 9) and search efficiency (ms per item) for the repeated (lef) and unrepeated (right) search condition. Error bars represent the normalized 95% confidence intervals (Cousineau, 2005; Morey, 2008).



In the unrepeated search condition, a 3 (Stimuli) x 3 (Set Size) within-subjects ANOVA showed significant main effects of Stimuli, $F(1.22, 17.08) = 142.80$, $p < .001$, $\eta^2_p = .91$ and Set Size, $F(2, 28) = 254.30$, $p < .001$, $\eta^2_p = .95$. The interaction was also significant, $F(4, 56) = 23.60$, $p < .001$, $\eta^2_p = .63$. Again, Bonferroni-corrected *t*-tests were applied as posttests. As in the repeated condition, a letter target was found faster than an animate or inanimate target for all set sizes, reflecting a basic effect of stimulus complexity. However, in contrast to repeated searches, participants needed more time to find an animate than an inanimate target regardless of set size. This suggests that, when participants always searched a new search display, object's animacy might have already affected the search even in smaller displays.

3.3. Search efficiency

To analyze the search efficiency for the repeated and unrepeated search condition, we calculated the search slopes by plotting the reaction times against the set size for each type of stimuli (see Figure 2). The slope represents the additional cost of each item added in a display. That is, a shallow slope can be interpretated as an efficient search in contrast to a steeper slope which indicates a more inefficient search. In the repeated condition, a one-way ANOVA showed significant main effects of Stimuli, $F(2, 28) = 5.74$, $p = .008$, $\eta^2_p = .29$. Bonferroni-corrected *t*-tests showed only a steeper slope for animate compared to inanimate targets, $t(14) = 3.86$, $p = .005$. No difference was found between letter targets and animate ($p = .399$) or inanimate targets ($p = .384$). Also, in the unrepeated condition, we found a significant effect of stimuli, $F(1.43, 19.99) = 41.30$, $p < .001$, $\eta^2_p = .75$ with steeper slopes for animate ($M = 101$ ms, $SD = 21$ ms) than for inanimate targets ($M = 77$, $SD = 21$, $t(14) = 3.65$, $p = .007$) or for letters ($M = 52$, $SD = 19$, $t(14) = 8.52$, $p < .001$). Furthermore, we found also steeper slopes for inanimate targets than for letters, $t(14) = 7.42$, $p < .001$. Together, these results again suggest that participants were more inefficient when searching for aminates than for inanimate stimuli regardless of whether the search display was repeated or unrepeated.

4. Discussion

The aim of this paper was to examine whether and how stimulus animacy affects performance and efficiency in a repeated visual search paradigm. While Loucks et al. (2023) found a benefit for animate compared to inanimate stimuli in a visual search task, in our study, we basically found the opposite effect. Except for smaller repeated displays, in which searches lasted equally long for both categories, search performance was worse for animates than for inanimates in all other cases. One reason for this inconsistent finding might be that Loucks et al. presented two target templates (one animate, one inanimate) prior the search display which both required attentional and working-memory resources. Based on the animate monitoring hypothesis (New et al., 2007), the animate target may have attracted more attention in their experiment, which may have in turn led to a preference for animate over inanimate stimuli also in the subsequent (mixed) search display. In our experiment, no such prioritization effects and selective guidance, respectively, were possible because we presented a unique target template before search and the display always consisted of the same stimulus category.

On the other hand, we replicated the results from Long et al. (2017) who showed that, overall, participants needed longer to find animate compared to inanimate targets when searching in either uniform displays (i.e., all stimuli of the same category) or mixed displays (i.e., stimuli of different categories). Still, the disadvantage of animate objects over inanimate objects in terms of search performance in our case contradicts the expectation that animacy leads to attentional capture. However, when Bugaiska et al. (2019) had participants perform an animacy Stroop task, they found that participants also took longer to name the color of the ink color of an animate word compared to an inanimate word, irrespective of whether the response was orally or manually. They argued that the more pronounced interference for animate words is because they do automatically capture more attention such that it takes participants longer to overcome the task-irrelevant feature of the stimulus. Also, when testing for the effect of reward stimuli, Watson et al. (2020) showed that participants' disengagement from high-reward distractors was delayed as it took them longer to look away from these distractors. Accordingly, in our study, the disadvantage for animates might be also caused by a delayed disengagement from these stimuli. That is, participants might have needed longer to disengage from the centrally presented animate vs. inanimate target to initiate the search processes. As we neither tracked the eye movements nor the mouse movements of the participants during the search, we cannot test these assumptions conclusively. Also, the stimulus categories used in this experiment were selected on an ad hoc basis. Hence, we cannot rule out that factors such as e.g., low-level stimulus features (e.g., visual properties) or emotional characteristics of the stimuli influenced the observed findings. Future research is therefore necessary to address these issues.

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MESSY MINDS, MEANINGFUL CHOICES: CREATIVE-CHAOS AND EVERYDAY EMPLOYED FEMALE CONSUMERS' BEHAVIOUR

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Abstract

Everyday consumer decision-making among employed females (EFs) occurs amid role strain, time scarcity, and cognitive overload. While personality traits are known to influence stress appraisal and coping, less is understood about how trait configurations may shift in response to contextual pressures. This study examined personality, perceived shopping-related challenges, and coping strategies among South African EFs (N = 255). Exploratory factor analysis of the MINI-IPIP6 largely reproduced the expected six-factor structure but revealed an additional, theoretically coherent factor comprising high imaginative engagement and behavioural disorganisation. This emergent dimension, labelled *Creative-Chaos (C-C)*, reflects a contextual blending of Openness and low Conscientiousness. Regression analyses indicated that C-C predicted both increased organisational strain and greater creativity-based coping, suggesting a dual risk–resilience convergence. Rather than proposing a new personality trait, findings highlight how trait interactions may manifest uniquely under gendered role demands. The study contributes to applied personality psychology by demonstrating how contextual pressures shape the expression of traits in everyday economic behaviour.

Keywords: *Consumer psychology, coping, creative-chaos, employed female, personality configuration.*

1. Introduction and motivation

Routine purchasing of fast-moving consumer goods (FMCGs) may appear cognitively simple. However, for employed females (EFs) managing occupational responsibilities alongside household coordination, these decisions occur within persistent time pressure, mental load, and competing demands (UN Women, 2024). Such pressures can elevate stress and negatively affect well-being (Kinnear & Naidoo, 2024). In addition, information overload increases cognitive strain and emotional discomfort, undermining decision quality and potentially reducing productivity (Qiu et al., 2025).

Within psychological models of consumer decision-making, personality traits shape stress evaluation, impulse regulation, and coping behaviour (Abood, 2019). From a transactional stress perspective, personality influences both primary appraisal (perceived demands) and secondary appraisal (perceived coping capacity) (Lazarus & Folkman, 1984). Personality traits, therefore, can shape the experience of routine consumption under conditions of time scarcity and cognitive overload (Zhao, 2025). Although personality has been widely linked to impulsivity (Qureshi et al., 2025), ethical consumption (Dreyer et al., 2024), and planning behaviour (Ngcamu et al., 2023), research on these dynamics among EFs in emerging economies remains limited (Pushpika et al., 2025).

Employed females frequently navigate dual roles as caregivers and income earners, increasing cognitive load and decision fatigue (UN Women, 2024). Under such strain, individuals rely more strongly on dispositional tendencies, making personality more behaviourally visible in high-demand contexts. FMCG purchasing can therefore be understood as a recurring site of psychological regulation where stress appraisal and coping processes are enacted. Personality traits are known to predict important life outcomes, including mental well-being (Anglim et al., 2020). While traits are typically conceptualised as stable temperaments, contemporary perspectives emphasise contextualised trait expression, whereby traits dynamically co-activate in response to environmental pressures (Kuper et al., 2021). This perspective positions personality as both enduring and situationally responsive.

In the present study, personality was assessed using the MINI-IPIP6 (Sibley et al., 2011), measuring Openness (O), Conscientiousness (C), Extraversion (E), Agreeableness (A), Neuroticism (N), and Honesty–Humility (H-H). These traits reflect enduring patterns of cognition, affect, and behaviour

relevant to stress appraisal and behavioural regulation. Within constrained consumer environments, C tends to support structured purchasing but may heighten perceived time pressure (Tharp et al., 2020). Openness promotes cognitive flexibility and adaptive problem-solving (Parra et al., 2022), whereas N reflects greater stress sensitivity and impulsive purchasing under strain (Chein et al., 2020). Extraversion may increase engagement with stimulating retail environments, while Agreeableness can encourage cooperative, family-oriented purchasing, but also increase susceptibility to external influence (Hilbig, Zettler, Leist & Heydasch, 2013). H-H is associated with ethical, value-driven consumption and reduced prestige-based motives (Hilbig, Zettler, Moshagen & Heydasch, 2013). These tendencies influence whether coping responses are disciplined and problem-focused (e.g., planning and budgeting) or more emotion-focused and avoidant (e.g., impulsive purchasing or stockpiling). As such, coping strategies function as the behavioural bridge linking structural constraints to purchasing outcomes. While the six-factor personality model provides a robust framework, contextual pressures may also shape how traits combine within specific populations.

This article forms part of a broader study examining perceived purchasing challenges, coping strategies, and consumer personality among employed South African females. While challenges and coping strategies were measured, the present paper focuses on the structural validity of the MINI-IPIP6 in this context and the emergence of an exploratory personality configuration labelled **Creative-Chaos (C-C)**. By integrating trait psychology with stress–coping consumer behaviour theory, the study extends the psychological application of personality science within everyday consumer behaviour.

2. Methodology

As part of a more extensive descriptive, cross-sectional survey, this paper reports the personality constructs and their relationship with the challenges and coping strategies of EFs. However, the discussion focuses only on C-C and relevant associations. We used a quantitative, cross-sectional design, employing convenience and snowball sampling, and distributed an online questionnaire via social media to South African EFs (18-65 years) nationwide. Inclusion criteria required current employment and responsibility for household FMCG purchasing. Ethical clearance was obtained from an institutional Health Research Ethics Committee (XXX-00003-19-S1). Employed female respondents (N = 255) were predominantly young (71.3%; 18-44 yrs), and most indicated Afrikaans as home language (43.5%). These demographic data indicate that the findings of this study cannot be generalized, but were deemed appropriate for its exploratory purposes.

The measures included the Mini-IPIP6 personality scale (Sibley et al., 2011; Sibley & Pirie, 2013) employing a 24-item Likert scale (1: Strongly disagree; 5: Strongly agree) to determine participants' personality dimensions profile (Table 1).

Table 1. Summary of the scales and resulting factors for the study variables.

Scale with Factors	KMO[1]	Explained variance %	α[2]	Mean factor score	SD[3]
Personality[4]	0.775	80.8			
Honesty-Humility (H-H)			0.781	3.131	0.999
Extraversion (E)			0.566	2.847	0.764
Neuroticism (N)			0.518	3.018	0.732
Openness to experience (O)			0.720	2.564	0.905
Agreeableness (A)			0.643	3.753*	0.720
Creative-Chaos (C-C)			0.614	2.836	0.923
Challenges[4]	0.904	92.2			
Internal struggles regarding informed decisions			0.864	3.499	0.893
Product and time availability			0.688	2.955	0.891
Lack of alone time			0,725	3.360	0.997
Lack of support system			0.705	2.738	1.096
Work-life balance struggles			0.817	3.031	1.041
Coping strategies[4]	0.759	84.3			
Higher-order coping			0.709	3.177	0.792
Buy known brands			0.711	4.034	0.653
Short-cut heuristics			0.782	2.761	0.881
Rely on external sources			0.609	3.379	0.752
Figh-or-flight			0.662	3.838	0.736
Cope with children			0.599	2.784	0.928

1 Kaiser-Meyer-Olkin sampling adequacy measure (KMO)
2 Cronbach alpha (α)
3 SD – Standard deviation
4 Likert scale: 1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: I strongly agree.

Participants also reported perceived FMCG-related challenges (time pressure, cognitive overload, budget strain, emotional exhaustion) and coping strategies (planning, avoidance, impulse buying, creativity-based coping). These variables are summarised briefly to contextualise the focal analysis. Both the challenges scale (22 items [Mohanasundhari, 2017; De Hauw & Greenhaus, 2015; Yadav & Dabhade, 2014; Payne & Doyal, 2010) and coping strategies scale (26 items [Aliasgar, 2017; Rao et al., 2017; Somech & Drach-Zahavy, 2012] of EFs used a self-compiled and adapted Likert scale (1: Strongly disagree; 5: Strongly agree).

Data analysis included descriptive statistics and Spearman's rank-order correlations using IBM SPSS version 25. We established construct validity using an exploratory factor analysis (EFA), applying Principal Axis Factoring to extract factors and using direct Oblimin rotation with Kaiser normalisation (KMO). Assumptions for factor analysis were satisfied (KMO > .70; Bartlett's Test $p < .001$). Factors with eigenvalues > 1 were retained, and interpretability, as guided by the literature, guided the final selection. Cronbach's alpha indicated internal reliability within each factor.

3. Results

3.1. Factor structure of the personality scale

For the personality scale, EFA largely replicated the expected six-factor structure; however, a seventh factor emerged (eigenvalue > 1), explaining additional variance. Three items cross-loaded, forming a coherent factor characterised by: high imaginative engagement and tendency to behavioural disorganisation ("Have a vivid imagination" [Openness]; "Make a mess of things" [Reverse Conscientiousness]; "Often forget to put things back in their proper place" [Reverse Conscientiousness]. These items, together, describe someone who is imaginative yet disorganized, creative yet messy. This pattern in creativity literature is known as *"disorderly openness"* or *"chaotic creativity"* (Egan, 2025). Given the exploratory design and theoretical origins of the MINI-IPIP6, this factor was interpreted cautiously and labelled **Creative-Chaos (C-C)**. It is not proposed as a revision of trait theory, but as a contextual configuration that requires confirmatory testing in independent samples. Respondents generally reported more neutral responses towards the personality dimension, resulting in neutral mean factor scores, although the standard deviations indicated high variance (Table 1). However, respondents tend to agree being more **agreeable**.

3.2. Correlational findings

Although Table 2 includes all correlations among challenges, coping strategies, and personalities for completeness, we discuss only those applicable to the *C-C dimension*. *Creative-Chaos* showed significant associations with all challenge categories (small to medium effect sizes). Higher *C-C* scores were linked to greater *internal struggles* (r = .258), perceived *product and time constraints* (r = .289), and *work-life balance* difficulties (r = .247), with smaller associations observed for *lack of alone time* and *perceived support.*

Table 2. Correlations between the challenges, coping strategies, and personality dimensions of employed females.

		PERSONALITY DIMENSIONS					
		Openness to experience	**Extro-version**	**Agree-ableness**	**Neuro-ticism**	**Honesty-Humility**	**Creative-Chaos**
CHAL-LENGE	**Internal struggles**	0.297	-0.183	-0.052	*0.420	0.090	**0.258**
	Product & Time Availability	0.302	-0.003	-0.249	0.183	0.113	**0.289**
	Lack of Alone Time	0.243	-0.134	-0.031	0.135	0.130	**0.145**
	Lack Support	0.243	-0.134	-0.031	0.135	0.130	**0.145**
	Balance Struggles	0.179	-0.099	-0.047	0.199	0.027	**0.247**
COPING STRATEGIES	**Higher Order Coping**	0.132	-0.016	-0.209	-0.155	0.295	**0.123**
	Buy Known Brands	-0.097	0.115	0.135	0.033	-0.008	0.044
	Short-Cut Heuristics	0.197	0.140	-0.186	0.008	*0.431	**0.320**
	Rely on External Sources	0.025	0.224	-0.026	-0.174	0.159	0.093
	Fight & Flight	0.087	-0.114	0.112	*0.351	0.149	**0.274**
	Cope With Children	0.125	0.017	-0.190	-0.035	0.266	**0.155**

*Notes: **Bold values** indicate a small, medium, or large correlation values for Creative-Chaos*
Small size effect (r ~ 0.1), medium size effect (r ~ 0.3), and large size effect (r ~0.5).
** Asterix indicates the large effect size values*

Correlations between *C-C* and the coping strategies identified in this study context shed light on whether respondents choose problem-focused, emotion-focused, or avoidance-based coping strategies to bridge structural and contextual challenges. *C-C* correlated with four of the six coping strategies. Accordingly, medium effect-size tendencies indicated that respondents with higher *C-C* tend to use *short-cut heuristics* ($r = .320$, $p < .05$) to cope, or to exhibit *Fight or Flight* behaviour ($r = .274$, $p < .05$). Using *short cut heuristics* can be seen as a problem-focused coping strategy, while choosing to *fight or flee* is emotion-focused or avoidance-based coping strategies, which is regarded as unhealthy coping strategies on the long term (Dreyer et al, 2025). Additionally, there were small-to-medium effect-size correlations between *C-C* and *higher-order coping* ($r = .123$, $p < .05$) and *coping with children* ($r = .155$, $p < .05$).

4. Discussion, limitations and implications

The findings suggest that the *C-C* configuration reflects a hybrid self-regulatory pattern in which high *O* supports divergent thinking and cognitive reframing, while lower *C* reduces behavioural structure. Under role strain, this pattern may simultaneously generate vulnerability and resilience. Behavioural disorganisation can amplify everyday challenges through inefficiencies that increase time pressure and stress, whereas imaginative flexibility may support adaptive coping through creative problem-solving. This dual-process dynamic aligns with resilience theory, which conceptualises adaptation as the coexistence of vulnerability and resourcefulness (The Conversation, 2023), and offers insights into how EFs in South Africa navigate everyday consumer demands.

Research on creativity similarly suggests that highly creative individuals often display psychological complexity, combining tendencies that may appear contradictory when considered independently (Csikszentmihalyi, 1996). Neuroscientific perspectives indicate that creative cognition emerges from the interaction of three large-scale brain systems: the default mode network (idea generation), the salience network (relevance detection), and the executive control network (evaluation and regulation). Variability in the balance among these systems may produce imaginative thinking alongside reduced behavioural structure. In this context, the *C-C* configuration (vivid imagination combined with behavioural disorganisation) may reflect strong idea generation with comparatively weaker executive structuring. Importantly, *C-C* should not be interpreted as a distinct personality trait. Rather, it appears to represent a contextually expressed interaction between *O* and *C* that becomes significant under sustained cognitive load and role strain. Contemporary personality theory increasingly recognises that trait expression may vary in response to environmental pressures (Kuper et al., 2021). Within routine FMCG decision environments, such interactions may shape how consumers appraise stress and regulate behaviour. Overall, the findings demonstrate that personality meaningfully shapes how EFs experience routine consumer challenges. While the MINI-IPIP6 dimensions largely behaved as expected, the emergence of the *C-C* configuration highlights how contextual pressures can influence how traits combine and manifest in everyday decision environments.

This study is limited by its cross-sectional design, convenience sampling, and reliance on self-report measures. Future research should employ confirmatory factor analysis to assess structural stability and use longitudinal designs to examine cumulative stress processes. Practically, the findings suggest that consumers characterised by the *C-C* structure may benefit from decision environments that reduce cognitive strain while preserving flexibility. Retailers and digital platforms could support such consumers through simplified product comparisons, automated shopping lists, or subscription-based replenishment systems for routine goods. At an organisational level, the association between *C-C* and work–life balance pressures highlights the importance of workplace well-being initiatives that address cognitive load and role strain among EFs. Rather than revealing a statistical anomaly, the *C-C* pattern illustrates how everyday decision environments can surface hidden formations of personality, suggesting that what appears to be a behavioural disorder may instead represent the psychological architecture of adaptive creativity under pressure.

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A LITTLE SLEEP AND SYMPATHY: POOR SLEEP IS POSITIVELY CORRELATED WITH INCREASED SYMPATHY

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Abstract

Sleep is important for emotional regulation and social cognition. Insufficient or disturbed sleep is associated with increased emotional reactivity, negative affect, increased negative situation appraisal, and instability in emotion processing. Prior work examining sleep and empathy (the ability to share another's emotional state) found that decreased sleep is associated with decreased empathy. No research on sleep and sympathy (concern for another's suffering accompanied by a motivation to alleviate it, without mirroring the other's feelings) has been conducted. Sympathy requires social evaluation of another's situation that includes determination of a lack of fault, feelings of love as well as sadness, and a desire to correct the distressing situation. Given previous work on sleep and empathy, it was hypothesized that poor sleep would be associated with decreased sympathetic feelings.
Methods: Data from the publicly available Midlife in the United States (MIDUS) study were obtained from the ICPSR repository and analyzed as secondary data (MR1P4 dataset). Participants included 790 adults (clinic visit age range 26–78 years; M = 52.74, SD = 13.44; 419 women, 371 men). Sleep was assessed via the Pittsburgh Sleep Quality Index (PSQI). Sympathy was measured using the total score on the Sympathy Scale (TSS; Expanded). Pearson correlations were conducted between Global PSQI scores, PSQI subscales, and the TSS score; *t* tests assessed sex differences, and multiple regressions examined the predictive value of the PSQI measures, sex, and age on Sympathy scores.
Results: Higher Global PSQI (indicating poorer sleep quality) was positively correlated with TSS score (r = .098, p = .006). Women reported poorer sleep across all measures, and more sympathy (x=4.78, sd=.57) than men (x=4.50, sd=.61, independent t-test p<.0001). Age (β=.005, *t*=2.99 p=.003) and sex (β=.14, *t*=6.77 p<.0001) were significant predictors, and Global PSQI was a marginally significant predictor (β=.012, *t*=1.93, *p*=.05) of sympathy.
Discussion: Contrary to expectations, poor sleep was associated with increased sympathy. Sleep loss related emotional instability and negativity bias may heighten sensitivity to suffering, leading to perception of hardship as more salient or distressing, even with the reduced perspective taking (e.g.: decreased empathy) reported in another research. Sleep disruption, by amplifying negative emotional processing, may result in sympathetic concern. Results support that poor sleep may impact interpersonal interactions, situational evaluations, and possibly prosocial behaviors.

Keywords: *Sleep, sympathy, PSQI, emotional assessment.*

1. Introduction

Sleep is a biological process that supports multiple functions, including emotional regulation and social behavior. Insufficient or disrupted sleep has been consistently associated with heightened emotional reactivity and increased negative affect, reflecting impaired regulation of emotional responses (e.g.: Walker & van der Helm, 2009; Yoo et al., 2007). These affective consequences of sleep loss have led researchers to examine sleep's impact on socio-emotional cognition, including interpersonal responding.

Recently, research has demonstrated that sleep disruption adversely affects empathy. Empathy refers to the capacity to understand and share another person's emotional state and is commonly conceptualized as being comprised of both cognitive (e.g., perspective taking) and affective (e.g., empathic concern) components (Tempesta et al., 2014). Evidence indicates that sleep loss undermines empathy. For example, physicians working night shifts show reduced empathy for patients' pain, prescribing fewer pain medications on the night shift, compared to those working day shifts (Choshen-Hillel et al., 2022). Similarly, Gordon-Hecker et al. (2025) reported that poorer global sleep quality, reduced sleep efficiency,

and shorter sleep duration were associated with lower empathic concern, as measured by the Interpersonal Reactivity Index (IRI; Davis, 1980, 1983). Decreased sleep efficiency was additionally associated with diminished perspective taking. Experimental sleep interruption was also shown to causally reduce empathic responding and to attenuate perceptions of others' pain. Together, findings indicate that sleep disruption impairs both affective and cognitive components of empathy.

Importantly, empathy-related measures such as the IRI assess multiple constructs, including sympathy, which is conceptually distinct from empathy. Sympathy involves feelings of concern for another's suffering and a motivation to alleviate that suffering, without necessarily experiencing the same emotional state (Eisenberg et al., 2010; Tempesta et al., 2014). While sympathy is often embedded within broader empathy scales (e.g., the Empathic Concern subscale of the IRI; Davis, 1980, 1983), no studies have examined sympathy as a distinct construct in relation to sleep.

The present study addresses this gap by examining the association between sleep and sympathy specifically, using a 10-item scale derived from the Sympathy Scale developed by Uchida and Kitayama (2001), as implemented in the Midlife in the United States (MIDUS; https://midus.wisc.edu/) study. This measure allows for a targeted examination of concern for others' suffering, independent of emotional sharing or other empathy constructs. We hypothesized that poorer sleep quality would be associated with lower levels of sympathy, consistent with prior findings linking sleep disruption to reduced empathic concern. We also examined whether sex moderated this relationship. Based on prior work showing no sex differences in empathy and no moderating effect of sex on the relationship between sleep and empathic responding (Gordon-Hecker et al., 2025), we hypothesized that sex would similarly not moderate the association between sleep and sympathy.

2. Methods

2.1. Participants

Publicly available data from the Midlife in the United States (MIDUS) study was used for this research (https://midus.colectica.org/). The 863 participants from the MIDUS Refresher Biomarker Project (data set MR1P4) completed the surveys described below. Data and documentation about this dataset are publicly available via ICPSR (https://www.icpsr.umich.edu/sites/icpsr/home). In addition to the surveys used in analyses here, the MR1P4 data also include additional biological, physiological, self-report, and other data. For additional details about the MR1P4 dataset see the Field Report included with the MR1P4 (2011-2014) documentation (Weinstein, Ryff, & Seeman, 2019).

The analytic sample consisted of 790 adults (419 women, 371 men) aged 26 - 78 years during the Refresher survey phone interview ($M = 52.74$, $SD = 13.44$) who completed all parts of the surveys described below.

2.2. Materials

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989). The PSQI yields a global score and seven component scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction. Higher scores on all measures indicate or reflect poorer sleep quality.

Sympathy was measured using ten questions derived from the Sympathy Scale (Uchida & Kitayama, 2001) as used by, and reported in, the MIDUS data set. Participants indicated whether they agreed, on a seven point scale ranging from 'strongly disagree' to 'strongly agree', with ten statements evaluating how sympathetic they are to others. Scores were summed across the ten items to produce a Total Sympathy Score (TSS), with higher scores indicating more sympathy.

3. Statistical analyses

Pearson correlations were conducted between the eight PSQI variables (Global PSQI and seven subscores) and the TSS. Independent-samples *t* tests assessed sex differences. Effect sizes were calculated using Cohen's *d*. To account for multiple comparisons across eight PSQI measures, a Bonferroni-corrected alpha level of $p < .00625$ was applied. Multiple regressions examining the predictive value of the PSQI measures, sex, and age on TSS were also conducted.

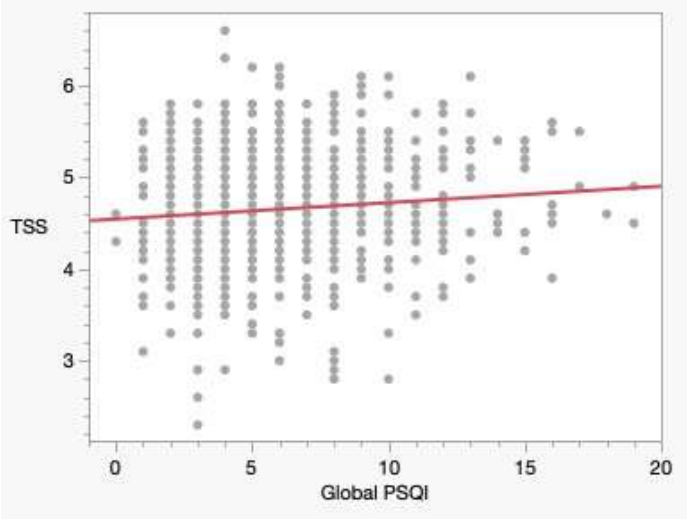
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4. Results

4.1. Sleep quality and sympathy

Poorer global sleep quality (Global PSQI) was significantly associated with greater sympathy (r=.098, p=.006). Significant positive associations were also observed between TSS and sleep latency (r=.10, p=.0031), sleep disturbance (r=.10, p=.0032), and habitual sleep efficiency (r=.07, p=.05). However, when applying a Bonferroni correction (α=.00625), only the association between global sleep quality and sympathy remained statistically significant (See Figure 1).

Figure 1. Scatterplot and Best Fit Line between Global PSQI and TSS.



4.2. Sex Differences in sleep and sympathy

Women reported significantly poorer sleep than men across all sleep measures, and significantly higher sympathy (see Table 1).

Table 1. Sex Differences in Sleep Quality and Sympathy.

Measure	Men (M ± SD)	Women (M ± SD)	*p*	Cohen's *d*
PSQI Global Score	5.36 ± 3.13	6.42 ± 3.41	< .0001	0.32
Subjective Sleep Quality	0.93 ± 0.65	1.05 ± 0.66	.0075	0.18
Sleep Latency	0.85 ± 0.84	1.03 ± 0.91	.0046	0.20
Sleep Duration	0.72 ± 0.72	0.85 ± 0.84	.0171	0.17
Habitual Sleep Efficiency	0.38 ± 0.76	0.54 ± 0.85	.0055	0.20
Sleep Disturbance	1.20 ± 0.55	1.35 ± 0.58	.0004	0.27
Daytime Dysfunction	0.80 ± 0.73	0.91 ± 0.71	.0337	0.15
Use of Sleep Medication	0.48 ± 1.00	0.69 ± 1.15	.0063	0.19
Sympathy (Total Score)	4.50 ± 0.61	4.78 ± 0.57	< .0001	0.48

4.3. Sex and age

A regression analysis, using all seven PSQI subscales, sex, and age as predictors of TSS was significant (F[9,780]=7.54, p<.0001, R^2=.08). Increased age was associated with increased sympathy (β=.0046, t=2.85, p=.004). Sex was also significantly related to sympathy; replicating the t-tests, men scored lower on sympathy (β=.145, t=6.74, p<.0001). Increasing sleep latency was additionally associated with increased sympathy (β=.06, t=2.11, p=.035). A multiple regression using the global PSQI score, sex, and age as predictors of TSS was also significant (F[3,786]=19.63, p<.0001, R^2=.07). Again, age (β=.005, t=2.99 p=.003) and sex (β=.14, t=6.77 p<.0001) were both significantly predictive of sympathy in the model. Global PSQI was a marginally significant predictor of TSS (β=.012, t=1.93, p=.05).

5. Discussion

The present findings indicate that poorer sleep is associated with increased sympathy, contrary to prior research demonstrating poorer sleep and decreased measures of empathy (e.g.: Choshen-Hillel et al., 2022; Gordon-Hecker et al., 2025; Guadagni, Burles, Ferrara, & Iaria, 2014). However, supporting the present work, at least one previous study reported a positive correlation between empathy measured via the IRI and global PSQI score, with increased empathy associated with increased poor sleep (Guadagni, Umilta, & Laria, 2020). IRI also positively correlated with insomnia symptoms. Here, although some sleep–sympathy associations did not survive correction for multiple comparisons, indicating that these effects should be interpreted cautiously, the consistent directionality of effects across multiple sleep measures supports the interpretation that poor sleep is associated with increased sympathy, and at the very least that sleep plays a meaningful role in sympathetic responding. Sleep therefore plays a role in socio-cognitive processes, and it is possible that such impacts could extend more broadly to waking prosocial behavior, an under-examined area of research.

It is difficult to reconcile the contradictory findings across studies examining empathy constructs. Participant characteristics may play a role, and one direction for future research may be to explicitly consider personality correlates of empathy and their interaction with sleep.

It is interesting to note that both Guadagni, Umilta, & Laria (2020) and Gordon-Hecker et al. (2025) reported positive correlations between poor sleep and personal distress. Guadagni, Umilta, and Laria, (2020) found that personal distress, measured via the subscale of the IRI, was positively correlated with global PSQI, sleep latency, sleep duration, and symptoms of insomnia. These findings are aligned with Gordon-Hecker et al. (2025), who reported increased personal distress as being associated with increased global PSQI score. At a neurobiological level, the overarching pattern of increased sympathy and increased personal distress (this latter as reported in other studies) both being associated with poorer sleep is consistent with models suggesting that sleep loss amplifies emotional reactivity by weakening prefrontal regulatory mechanisms. Such a condition might result in increased responsiveness to emotionally salient stimuli (Walker & van der Helm, 2009) while reducing cognitive processing. That is, increased emotional circuit activity in response to poor sleep might result in increased sympathy and personal distress, while at the same time being associated with decreased cognitively-mediated sharing via reduced frontal lobe activity (e.g.: empathetic ‘putting oneself in another’s shoes’).

Women reported poorer sleep and greater sympathy than men. These findings replicate previous work on sleep (e.g.: Guadagni, Burles, Ferrara, & Iaria, 2014; Tang et al., 2017) and empathy (e.g.: Guadagni, Burles, Ferrara, & Iaria, 2014; Rueckert & Naybar, 2008). In contrast to Gordon-Hecker et al.’s (2025) work on empathy, here sex contributed to the models of the relationship between sleep and sympathy. However, the association between poor sleep and heightened sympathy operates similarly across sexes, even in the presence of baseline sex differences in sleep and affective functioning. Increased sympathy associated with increasing age, demonstrated via increased empathic concern via the ISI in previous research, also is aligned (Sze et al., 2012).

6. Limitations

Several limitations should be noted. First, the cross-sectional design precludes causal inference regarding the directionality of the relationship between sleep and sympathy. As mentioned, it is possible that individual characteristics impact this association. Second, although multiple significant correlations were observed, only the relationship between global sleep quality and sympathy survived correction for multiple comparisons, indicating that some findings may reflect Type I error. Third, all measures were self-reported, raising the possibility of self-report bias. Future research should incorporate objective sleep measures and experimental sleep manipulation to clarify causal mechanisms and to resolve conflicting reports from the literature.

7. Conclusion

Poor sleep is associated with increased sympathetic concern, suggesting that poor sleep may heighten emotional sensitivity rather than uniformly impair social functioning. These findings highlight the importance of distinguishing sympathy from empathy, suggesting that these constructs rely on different, albeit overlapping, neural mechanisms. Finally, the findings here underscore that sleep is a meaningful contributor to socioemotional processes.

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VIRTUAL LANDSCAPES TO COMBAT STUDENT ANXIETY: WHICH ONE HELPS THE MOST?

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Abstract

Psychological health issues, particularly anxiety, have become more prevalent among university students in recent years, impacting both academic performance and overall well-being. While previous research has shown that natural environments tend to reduce anxiety more than urban ones, it remains unclear whether all types of natural landscapes are equally effective. This study examined the impact of five distinct landscape types—green, autumn, rainy, desert, and urban—on state anxiety. A sample of 127 university students (Mage = 21 years, SD = 2.40; 82.7% female) participated during a high-stress period, characterized by upcoming exams and assignment deadlines. Among them, 47.2% had previously tried virtual reality, 97.6% reported no weekly exposure to virtual environments, and only 7.1% had regular daily contact with natural spaces. Using the State-Trait Anxiety Inventory, total state anxiety scores were measured before and after exposure to each landscape in a repeated-measures design. Results indicated a significant reduction in state anxiety following exposure to natural landscapes, with the green landscape yielding the greatest decrease, followed by the autumn landscape. In contrast, the rainy, desert, and urban landscapes did not produce significant reductions, with the desert landscape showing the least benefit. These findings suggest that not all natural environments are equally effective in alleviating anxiety, highlighting the importance of specific environmental characteristics when designing virtual interventions to support psychological well-being in high-pressure academic settings.

Keywords: *State anxiety, virtual landscapes, nature, virtual reality, university students.*

1. Introduction

In recent years, growing concern for psychological well-being has intensified interest in how environmental factors—particularly natural spaces—can influence mental health (Spano et al., 2023). University students are a population especially vulnerable to psychological distress due to high academic demands, time pressure, and limited contact with restorative environments (Beiter et al., 2015). Among the emotional symptoms affecting students, state anxiety—a transient emotional condition triggered by situational stressors—has become especially prevalent, underscoring the urgent need for accessible and effective strategies for its regulation (Regehr, Glancy, & Pitts, 2013).

Research has consistently shown that exposure to natural elements, such as green (vegetation) and blue (water) spaces, is positively associated with psychological well-being (Browning et al., 2023; Dzhambov, 2018). Moreover, both real and virtual contact with nature have demonstrated potential to reduce symptoms of anxiety and promote emotional balance (Jiménez et al., 2021; Browning et al., 2020). In particular, virtual reality (VR) has emerged as a promising tool in mental health promotion due to its immersive nature and capacity to simulate complex environments in a controlled manner (Maples-Keller et al., 2017; Spano et al., 2023). Despite its growing application in clinical or professional training contexts (Valmaggia et al., 2016; Freeman et al., 2017), its use among university students for anxiety regulation remains largely unexplored.

While existing research has consistently shown that natural environments are more beneficial than urban settings for psychological well-being (Browning et al., 2023; Hammoud et al. 2024; Samus et al., 2022), most studies treat nature as a uniform category. This overlooks important variations in natural landscapes, such as seasonality, brightness, aridity, or atmospheric conditions, which may shape emotional responses differently. Although virtual landscapes have proven useful for promoting well-being (Spano et al., 2023; Yeo et al. 2020), it is still unclear whether all types of virtual nature elicit the same effects.

Considering these gaps, there is a clear need to identify the specific environmental landscapes that most effectively alleviate anxiety, particularly in virtual settings. These findings could inform the design of both educational spaces and psychological interventions that harness the restorative potential of nature in accessible, scalable formats.

2. Objective

This study aims to evaluate the impact of five types of virtual landscapes—green, autumn, rainy, arid, and urban—on state anxiety levels in a sample of university students during a period of elevated academic pressure. Given prior evidence highlighting the psychological relevance of water features in natural environments (blue spaces) (Browning et al., 2020; Dzhambov, 2018), special attention is paid to how the presence or absence of water, and how water is presented in the landscape (e.g., rain, waterfall), may influence anxiety responses. Using a repeated-measures design, we explore whether the benefits associated with nature exposure differ based on the specific characteristics of each landscape. In doing so, the study fills a gap in the literature and provides practical implications for developing targeted, evidence-based virtual interventions aimed at reducing anxiety in university students.

3. Methodology

3.1. Design

A within-subjects repeated-measures design was used to assess the impact of five virtual landscape environments on state anxiety in university students. The independent variable was the type of virtual landscape (green, autumn, rainy, arid, and urban), and the dependent variable was state anxiety. Each participant was exposed to all five environments in a counterbalanced order to control for order effects.

3.2. Participants

The study included a total of 65 university students. Participants were recruited during a high-stress academic period, characterized by upcoming exams and assignment deadlines. The age range was between 18 and 31 years, with a mean age of 21.40 years (SD = 2.55). The sample was predominantly female (75.4%), and nearly half of the participants (46.2%) had experienced virtual reality at least once. However, 95.4% reported not using virtual reality regularly, and only 7.7% had frequent daily contact with natural environments, suggesting that a significant portion of the sample may experience nature only sporadically.

Participation was voluntary, and all individuals provided informed consent prior to taking part in the study. Convenience sampling was used, based on student availability and willingness to participate. The inclusion criteria specified that participants had to be university students aged 18 or older, with normal or corrected-to-normal vision (via eyeglasses or contact lenses), to ensure a consistent experience within the virtual environment. Participants were also instructed to refrain from wearing facial makeup or voluminous hairstyles, as these could interfere with the proper adjustment of the virtual reality equipment. Individuals with a diagnosis of epilepsy or other neurological conditions were excluded from the study to minimize potential risks. The research followed the ethical principles outlined in the Declaration of Helsinki and received approval from the university's Ethics Committee.

3.3. Stimuli

The study employed five virtual landscapes, each selected to represent different natural and non-natural environments with varying characteristics related to vegetation and water presence. All of them were presented using the Guided Meditation VR software (https://guidedmeditationvr.com/), available on the Steam platform (https://store.steampowered.com/). Below is a description of each landscape, along with its corresponding label:

Green landscape: a lush green forest featuring dense vegetation and a central waterfall.

Autumn landscape: a leaf-covered, seasonally transitional forest with warm colors and visible footpaths, but no water elements.

Rainy landscape: a moody, overcast mountain landscape with ongoing rain and low lighting, lacking visible water bodies.

Arid landscape: a dry, expansive landscape characterized by sandy soil and distant mountains, with no vegetation or water.

Urban landscape: an indoor scene from a modern building without water elements.

3.4. Measure and instrument

State anxiety was assessed using the *State-Trait Anxiety Inventory* (STAI; Spielberger, Gorsuch, & Lushene, 1970), a widely used self-report instrument designed to measure temporary fluctuations in anxiety in response to specific situations. For this study, only the state anxiety subscale was employed, consisting of 20 items rated on a 4-point Likert scale (0 = Not at all to 3 = Very much so). Total scores ranged from 0 to 60, with higher scores indicating greater levels of state anxiety. Several items are reverse-scored to control for response bias, and these were recoded accordingly prior to calculating total scores. The reliability coefficient (Cronbach's alpha) for the state anxiety subscale in this study was 0.939, indicating excellent internal consistency.

3.5. Data collection and analysis

Data collection took place in a controlled and supervised environment, where participants were exposed to the virtual reality landscape conditions during scheduled sessions. Prior to the study, the necessary permissions were obtained from university authorities, and informed consent was collected from all participants. Participation was voluntary, and students were informed about the study's purpose and procedures. The assessments were administered individually. Confidentiality and anonymity were maintained throughout the data collection process, ensuring that all personal data remained protected.

Participants experienced five immersive landscape conditions—green, autumn, rainy, arid, and urban—via virtual reality. All scenes were standardized in duration (6 minutes) and presented using high-definition, computer-generated environments through MetaQuest VR headset to maintain consistent exposure and minimize external variability. The order of presentation was counterbalanced across participants to control for sequence effects. The STAI was administered immediately before and after exposure to each landscape, and anxiety change scores were calculated by subtracting pre-exposure from post-exposure values. Before calculating the change scores, the relevant items were reverse-coded. These change scores were used to assess the effectiveness of each landscape in reducing anxiety.

Descriptive statistics were computed for each condition, and comparisons across the five landscapes were made using non-parametric tests, since most of the variables did not follow a normal distribution. To analyze the data, a Friedman test was used to assess differences in anxiety change scores across the five landscape conditions. Post hoc pairwise comparisons were conducted using the Wilcoxon signed-rank test to examine specific differences between pairs of landscapes. Statistical significance was set at $p < .05$ for all analyses and were performed with SPSS v. 28.

4. Results

Normality tests were performed using the Kolmogorov-Smirnov test, given that the sample exceeded 50 participants. The results showed that the scores did not follow a normal distribution in almost all variables ($p < .05$), with the exception of green (K-S = .111, $p = .044$) and rainy landscape (K-S = .133, $p = .006$). To test whether there were statistically significant differences between the change variables as a function of landscape type, and taking into account that most of them did not follow a normal distribution, the Friedman Test was used. There was a statistically significant difference in state anxiety as a function of the type of landscape experienced through virtual reality, $\chi^2(4) = 79.387$, $p < .001$. The descriptive analysis of STAI change scores and the results of the Wilcoxon signed-rank test across the five experimental conditions can be found in Table 1. A positive value in the mean change variable indicates an increase in anxiety levels after the intervention, while a negative value reflects a decrease in these levels.

Table 1. Descriptive statistics and Wilcoxon signed-rank test results for changes in anxiety across the five experimental conditions.

Anxiety State Change Variable	*N*	*M*	*SD*	*Rank comparisons*
Green Landscape	65	-10.11	9.04	
Autumn Landscape	65	-7.38	9.39	$Z = -2.49$, $p = .013$*
Rainy Landscape	65	-.38	12.61	$Z = -6.04$, $p < .001$**
Arid Landscape	65	-.66	11.81	$Z = -6.22$, $p < .001$**
Urban Landscape	65	-3.34	8.52	$Z = -5.72$, $p < .001$**
Autumn Landscape	65	-7.38	9.39	

Anxiety State Change Variable	*N*	*M*	*SD*	*Rank comparisons*
Rainy Landscape	65	-.38	12.61	Z = -4.94, p < .001**
Arid Landscape	65	-.66	11.81	Z = -4.77, p < .001**
Urban Landscape	65	-3.34	8.52	Z = -4.29, p < .001**
Rainy Landscape	65	-.38	12.61	
Arid Landscape	65	-.66	11.81	Z = -.13, p = .898
Urban Landscape	65	-3.34	8.52	Z = -.86, p = .392
Arid Landscape	65	-.66	11.81	
Urban Landscape	65	-3.34	8.52	Z = -.55, p = .583

Note. p < .05 (*), p < .01 (**).

Wilcoxon signed-rank tests were conducted to compare anxiety reduction across conditions. The green landscape led to significantly greater reductions than the others. The autumn landscape also outperformed the rainy, arid, and urban landscapes in reducing anxiety. No significant differences were found between rainy and arid, rainy and urban conditions, or arid and urban conditions.

5. Discussion and conclusions

This study explored the impact of five types of virtual landscapes—green, autumn, rainy, arid, and urban—on state anxiety in university students. Findings revealed that not all natural environments are equally effective in reducing anxiety, challenging prior assumption that any exposure to nature—often narrowly understood as green spaces—universally promotes psychological well-being (Browning et. al., 2020, 2023; Hammoud et al., 2024; Jiménez et al., 2021).

In particular, the green landscape led to the most significant reduction in anxiety levels, followed closely by the autumn environment. Although both natural settings were effective, the slightly lower impact of the autumn landscape may be attributed to differences in color palette, vegetation density, or symbolic associations tied to seasonal change. Nevertheless, both types of natural environments significantly outperformed the rainy, arid, and urban landscapes in terms of effectiveness, supporting the idea that richly vegetated environments offer stronger restorative benefits (Dzhambov, 2018; Samus et al., 2022; Spano et al., 2023).

Conversely, the rainy, arid, and urban landscapes were considerably less effective, with some even associated with stable or slightly increased anxiety levels. This suggests that not all natural or outdoor environments are inherently beneficial. This finding could be related to the lack of restorative stimuli or negative cultural associations linked to these environments, such as loneliness, hostility, or sensory overload in urban settings.

Several limitations should be acknowledged. First, the use of a convenience sample may limit the generalizability of the findings. Second, although virtual reality provides high experimental control, it lacks the multisensory depth of real-world nature (Samus et al., 2022). Third, the study assessed only short-term effects (Yeo et al., 2020).

Future research should consider individual differences (e.g., nature connectedness or personality traits), which may influence responses to virtual environments. Longitudinal studies are also needed to examine the cumulative effects of repeated or prolonged exposure. Replicating the study in clinical, educational, or occupational settings would help determine the broader applicability of virtual nature interventions.

Moreover, future studies should investigate specific environmental features that drive the restorative effects of nature, such as color schemes, visual complexity, and soundscapes. Finally, combining physiological indicators of stress (e.g., heart rate variability, cortisol) with self-reported anxiety could offer a more comprehensive understanding of the underlying mechanisms (Spano et al., 2023).

In conclusion, the integration of virtual nature environments into educational contexts offers a promising, easily accessible tool for reducing anxiety in students. By providing students with an opportunity to engage with calming, nature-based experiences, universities can help mitigate the impact of academic stress, contributing to a healthier and more supportive learning environment.

5.1. Practical applications

Virtual nature exposure offers a promising, low-cost tool to manage student anxiety, particularly during high-stress periods like exams. Universities could integrate virtual nature breaks into wellness programs, offering short sessions of green or autumn-themed environments during study breaks or in designated relaxation spaces. This would provide students with an accessible, non-invasive way to manage anxiety and improve emotional well-being (Browning et. al., 2020).

Moreover, virtual nature could be incorporated into mental health strategies, available through mobile apps or campus spaces where students can access calming environments during times of personal stress. Educators might also use these virtual environments in classrooms, helping students to relax before exams or challenging tasks. Such interventions could complement mindfulness and resilience-building programs, supporting long-term emotional health.

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DESIGNING FOR WONDER: A NEURO-ARCHITECTURAL ANALYSIS FRAMEWORK (NAAF) FOR INVESTIGATING EXPERIENCE IN DESIGN HAPPENINGS

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Abstract

This paper introduces the neuro-architectural analysis framework (NAAF), a design-research-driven system that integrates mobile EEG (MoBI) with design-ethnography and smart building sensor data to provide a comprehensive assessment of the whole human experience within dynamic social spaces. Situated within an urban design research lab, the NAAF is tested and developed through "Design Happenings" (participatory, sensory events modeled after Allan Kaprow's art "Happenings") that serve as a testbed for investigating wonder as a sustained, curiosity-driven, affective-cognitive state. By introducing a wireless electroencephalography (EEG) headset, specifically the *g.tec Unicorn Hybrid Black*, to capture brain-computer interface (BCI) data including time-resolved neural indicators of attention and arousal in situ, a critical "experiential gap" in current architectural and design research is filled. The NAAF is developed on a pragmatic-phenomenological theoretical foundation and enriched through principles of architectural experience design, humanistic psychology, and neuroaesthetics. The NAAF enables interdisciplinary teams to develop constructed environments that not only support physical safety and function but also create experiential value and holistically serve human, and more-than-human, well-being.

Keywords: *Design happenings, design research, EEG, mobile brain/body imaging (MoBI), neuroarchitecture.*

1. Introduction

Iconic architects Louis Kahn, Tadao Ando, and Shigeru Ban have expressed that architecture must be "unmeasurable," engage body and mind, and that even temporary buildings can be made permanent -if people love them (respectively). Fundamental to architecture are the Vitruvian requirements of *Firmitas* (stability), *Utilitas* (utility), and the psychophysical experience of *Venustas* (delight) - a principle closely connected to contemporary concepts of wonder and eudaimonic wellbeing (Coburn et al., 2020); (Daum, 2019). Given these demands, how do we measure 'delight' in architecture? In contemporary architectural practice, smart-building technologies utilize sensor networks to optimize environmental performance and hedonic comfort, monitoring variables like temperature, air quality, and user occupancy (Schwee et al., 2019); (Coulby, G., Clear, A., Jones, O., & Godfrey, A. 2020). These systems rely on proxy-based inference and lack the contextual data to capture how an environment is actually "felt" or how it facilitates deep engagement (Cahill et al., 2019). While design-ethnographic research compliments smart-building sensor data by observing natural behaviors and social context, it often lacks temporal precision (Mavros, Austwick, & Smith 2016).

To bridge this "analytical gap," and built on a *Pragmatic-Phenomenological* theoretical foundation, the Immersive Design Research Lab is integrating Mobile Brain/Body Imaging (MoBI) with smart-building technologies and design-ethnography as a neuro-architectural analysis framework (NAAF) (Barker 2019). This framework structures the capture of natural cognition in action where perception and environment are tightly coupled (Gramann, Ferris, Gwin, & Makeig 2014); (Jungnickel & Gramann 2016). While smart-building technologies already measure human comfort and systems' efficiency, they don't capture how environments are experienced. Through design-ethnography, we gain some insight into presence, engagement, and meaning. MoBI adds a complementary data layer indicating attention and engagement shifts during real-world architectural and design experiences. The goal of this work is to extend in situ architectural and design assessment methods to capture the whole human experience (Vartanian et al., 2013); (Krugliak & Clarke, 2022).

2. Objectives

Design and architecture are pragmatic, phenomenological, and ethically accountable practices; they shape wellbeing, from short-term hedonic comfort (pleasure and safety) to long-term eudaimonic flourishing (meaning and engagement) (Ryff, Boylan, & Kirsch, 2021). In order to design for the whole human experience, a means to assess the psychophysical impacts of the constructed environment, as a tool of continuous improvement, is required. Through the lens of neuroaesthetics, these experiences are modeled through an aesthetic triad of neural systems: knowledge-meaning, emotion-valuation, and sensorimotor- which process how the built environment impacts our senses and sensibilities (Chatterjee, 2011). For example, experiencing architectural awe (frequently a goal of religious, institutional, or cultural buildings) is often a disarming, overwhelming response to scale that results in a "small self" and a need for cognitive accommodation (van Elk, Arciniegas Gomez, van der Zwaag, van Schie & Sauter, 2019).

Wonder, in contrast, is a sustained state of curiosity and rapt attention that facilitates deeper embodied participation, is an engaging, exploratory re-orientation of self-in-world, and state of attentional modulation and active sense-making (Shiota, Keltner, & Mossman, 2007); (Gallagher, Reinerman-Jones, Janz & Sollins, 2015); (van Elk, et al., 2019); (Keltner & Haidt, 2003); (Raichle, et al., 2001). By creating immersive prototype environments, we go beyond system-centered efficiency and are intentionally designing for transformative sensory and psychological experiences (Kaprow, 2003); (Boczar, Montrosse-Moorhead & Davidesco, 2025).

2.1. Designing for wonder

We design for wonder for the following key reasons:

- Cognitive Transformation: Wonder acts as a catalyst for transformative insight, creating a tension between sense experience and intellectual judgment. It disrupts automatic thinking patterns and opens cognitive space for new ideas and reordered conceptual frameworks. Historically, wonder is recognized as the foundation of philosophy and science (Daum, 2019); (Guan, Xiang, Chen, Wang, & Chen, 2018).
- Social Connection: Wonder encourages embodied participation and generative knowledge production, helping individuals feel integrated into a "bigger whole" and fostering prosocial relationality (Gallagher et al., 2015); (Graziosi & Yaden, 2019); (Morgan et al., 2022).
- Disruption of the Status Quo: Neuroscientifically, the maintenance of a cognitive or sensorimotor status quo is associated with beta-band oscillations (BBA). We design sensory "features" to defamiliarize and disrupt these patterns to achieve a state of wonder, signaling a readiness to process novel information (Shiota, et al., 2007); (Chirico & Yaden, 2018); (Engel & Fries, 2010).
- Health "Repair": As a self-transcendent emotion, wonder facilitates "unselfing," a process that diminishes ruminative self-focus and is associated with reduced sympathetic arousal and inflammation (Monroy & Keltner, 2023); (van Elk et al., 2019).

Designing for wonder demonstrates ethically responsible practice, serving the whole of human well-being.

3. Materials and methods

The NAAF aligns three complementary modalities to assess the whole human experience:

1. Smart Building Sensing: Monitors environmental performance and physical comfort (Coulby et al., 2020); (Schwee et al., 2019).
2. Mobile EEG (MoBI): Captures time-locked indicators of attention dynamics and affective arousal in real-world settings (Jungnickel et al., 2016); (Gramann et al., 2014); (Gramann, 2024).
3. Design-Ethnography: Captures lived experience, social resonance, and contextualized meaning-making through multi-modal documentation, situated field notes, and participant reflection (Cahill et al., 2019).

Mobile EEG Implementation (per the literature and *g.tec* guidelines): Data are to be acquired using the *g.tec Unicorn Hybrid Black*, an 8-channel wireless system. The montage (Fp1, Fp2, Fz, Cz, Pz, P3, P4) prioritizes frontal-central-parietal coverage to capture dynamics associated with attentional engagement and environmental attunement. Data are sampled at 250 Hz (24-bit resolution) with a 0.1-40 Hz band-pass filter. Consistent with MoBI practices, data quality is evaluated in relation to ecological validity rather than laboratory purity (Jungnickel et al., 2016); (Gramann, 2024).

Table 1. Neuro-Architectural Analysis Framework (NAAF): Three complimentary modalities for assessing architectural and design experiences. Smart-building and environmental sensing systems provide robust measures of environmental performance and comfort-related wellbeing. Mobile EEG is introduced to provide time-resolved indicators of attentional and affective dynamics during real-world experiences. Design-ethnographic methods capture lived experience, meaning-making, and social engagement. Together, these modalities support a more comprehensive assessment of the whole (more than) human interactive design and architectural experience.

	Smart Building & Environmental Sensing	***Mobile EEG (MoBI) Data Capture***	***Design- Ethnographic Assessment***
Application	*Advanced Building Research and Practice*	***Experiential Research Gap***	*Advanced Design Research and Practice*
Well-Being	*Hedonic (pleasure and safety)*	*Bridging Hedonic and Eudaimonic (attention)*	*Eudaimonic (meaning and engagement)*
Primary Focus	*Comfort (Bodily)* *Safety (Physical)* *Energy and Systems Optimization*	*Attention Dynamics* *Affective Arousal* *Experiential Transitions*	*Affective Engagement* *Embodied Participation* *Experiential Resonance*
Primary Tools	*Environmental Sensors (temperature, humidity, light, sound, air quality)* *Occupant Movement Tracking* *Energy and Technology Systems Monitoring*	*Portable EEG (eg. g.tec Hybrid Black, Unicorn EEG)* *Time-locked Event Markers* *Synchronized Movement, Spatial, and Sensing Logs*	*Human+ Participant Monitoring (direct, in-situ video capture, wearables)* *Interviews, Surveys, and Reflective Commentary,* *Behavioral and Social Mapping*
Data Type	*Environmental Performance*	*Neural Dynamics*	*Contextual Meaning and Culture*
Data Characteristics	*Aggregate* *Continuous* *Proxy-Based Inference* *System-Centered*	*Event-Based* *Noisy* *Time-Resolved* *Physiological*	*Contextualized* *Experience Centered* *Interpretive* *Multi-Modal*
Limitations	*Does not capture:* *Motivations* *Productivity* *Psychological Impact*	*Does not:* *Attribute Meaning* *Decode Emotions* *Diagnose Conditions*	*Does not capture:* *Ecological Validity* *Interpretive Bias* *Participant Mental State*
NAAF Integrated Whole Human Experience Assessment of Architecture and Design Engagement			

The NAAF is an integrated methodological framework used to investigate 'wonder' in the context of architectural and design experiences; prototyped through Design Happenings in an urban design research lab. Environmental sensing is augmented through design-ethnographic observation and participant reflection which form the interpretive foundation, while mobile EEG provides a complementary layer capturing attentional dynamics during lived spatial engagement. The framework emphasizes triangulation and explicitly limits interpretation, positioning EEG as an evaluative tool rather than a diagnostic or causal instrument.

4. Preliminary observations and expected results

The Immersive Design Research Lab (IDRL) has implemented three Design Happenings in its new downtown location. Focusing on design-ethnographic methods, researchers have observed consistent experiential patterns: prolonged attention and sensory engagement with "features", openness to interaction with strangers, slowed physical movement, dwelling, and social clustering (Kaprow, 1969). Initial testing of the MoBI system is expected to reveal specific neural modulations:

- Spatial transitions leading to observed pauses are expected to correlate with theta-band activity (4–7 Hz) related to cognitive control and the realization of a need for engagement (Cavanagh & Frank, 2014).
- Social clustering is expected to produce sustained attention patterns discernible in time-resolved physiological data.
- Beta-band modulation (13–30 Hz) is expected to signal the disruption of the cognitive status quo when constituents encounter sensory "features". EEG is not used to detect wonder or specific emotions; interpretation requires a priori ethnographic context to attribute meaning to neural dynamics (Debener, Minow, Emkes, Gandras & de Vos, 2012); (Engel & Fries 2010); (Gramann, 2024).

5. Discussion

This work establishes a methodological pathway for studying dimensions of design otherwise inaccessible through typical tools. By integrating MoBI with smart-building sensors and ethnography, we fill a precise epistemic gap. While awe dominates current scientific literature due to its intensity and laboratory inducibility, wonder is more architecture and design-practice relevant as a slower-forming, sustained state (Gallagher, Reinerman-Jones, Janz & Sollins, 2015); (Shiota et al., 2007).

Humanistic psychology legitimizes the framework's prioritization of agency and subjective experience. EEG data is introduced, subordinated to lived experience, as time-locked neural variation - only meaningful when situated within a broader phenomenological and social context. The NAAF represents a beginning for interdisciplinary neuro-architectural collaboration, providing a shared language for designers, psychologists, and neuroscientists developing places of experiential wellbeing. Ultimately, the NAAF fills an epistemological gap for developing experiential environments that are "unmeasurable", experienced by body and mind, and loved by the agents that engage with them - making the constructed environment more durable, sustainable, valuable, and culturally relevant.

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REDUCING MENTAL HEALTH DISORDER CASES BY IMPROVING ORGANIZATIONAL CULTURE CONDITIONS

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Abstract

The quality of mental health care and patient health improvement are closely linked to organizational culture in health care institutions. A positive and supportive organizational culture enhances staff well-being, professional collaboration, and safe clinical practice, which are reflected in patient outcomes. This study aimed to analyze the impact of organizational culture on patient health improvement in a mental health care institution by identifying key cultural mechanisms related to care quality and patient experience. A quantitative cross-sectional study was conducted using an anonymous self-assessment questionnaire among employees of the National Centre for Mental Health (N = 110). The study applied an integrated methodological approach combining the Denison organizational culture model and Ryff's psychological well-being model to examine the relationship between organizational culture dimensions and employees' psychological well-being. The results revealed a statistically significant association between organizational culture quality and employees' psychological well-being, particularly in the social relations dimension. These findings suggest that strengthening organizational culture may serve as an effective instrument for promoting patient health improvement in mental health care institutions. Aim of the study: to analyze how organizational culture in a mental health care institution influences patient treatment outcomes and health improvement, by identifying key organizational culture mechanisms.

Keywords: *Organizational culture, mental health, prevalence of mental disorders, burnout, stress, prevention of mental health disorders.*

1. Introduction

The prevalence of mental health disorders among the working-age population has become one of the most significant public health and occupational safety challenges in recent decades. Stress, burnout, and work-related anxiety and depressive disorders are increasingly associated with psychosocial work environment risks, including organizational culture quality, leadership practices, and social climate (Mannion & Davies, 2018; West et al., 2014). The health care sector, particularly mental health care, is recognized as a high-risk work environment for employees' mental health due to emotional demands, patient aggression risk, and staff shortages (Aiken et al., 2012; No et al., 2024).

Contemporary health care literature increasingly emphasizes that organizational culture is a key determinant of employee well-being and patient care quality. A supportive and fair organizational culture fosters psychological safety, teamwork, and learning, while reducing burnout and stress-related disorders (Edmondson, 2018; Braithwaite et al., 2017). Conversely, dysfunctional organizational cultures are associated with increased staff turnover, work incapacity, and deterioration in care quality (Singer et al., 2009; West et al., 2014).

In Latvia, mental health care quality assessment increasingly integrates patient experience and quality indicators; however, empirical studies examining the relationship between organizational culture and employees' psychological well-being as a preventive factor remain limited (Taube et al., 2018). Therefore, this study aims to analyze organizational culture management conditions in a mental health care institution, link them to employees' psychological well-being indicators, identify psychosocial risks across structural units, and assess organizational culture potential for reducing mental health disorder risk.

2. Quality of psychiatric care and patient satisfaction in Latvia

In recent years, the first systematic studies on psychiatric patient satisfaction have been conducted in Latvia. A cross-sectional study by Bērziņa et al. (2021), using the internationally validated Psychiatric Inpatient Patient Experience Questionnaire – On-Site (PIPEQ-OS), found that patients generally reported high satisfaction with received care. Particularly high ratings were given to staff professionalism, attitude, and sense of safety, while lower ratings were associated with opportunities for family involvement and clarity of information provided (Bērziņa et al., 2021).

Since mid-2023, the PIPEQ-OS survey has been implemented nationally in psychiatric hospitals. Data from the Centre for Disease Prevention and Control (2024) indicate that most patients feel safe, satisfied with treatment, and experience subjective improvement in coping with mental health difficulties. At the same time, patients highlight the need to improve nutrition, rehabilitation and leisure activities, privacy, and information accessibility, indicating targeted quality improvement potential (SPKC, 2024).

Latvia's Mental Health Care Improvement Plan 2023–2025 and studies by Taube et al. confirm a gradual transition toward internationally recognized quality indicators and patient experience measurement, supporting a modern, patient-centered, outcome-oriented mental health care model (Taube et al., 2018; Cabinet of Ministers, 2023).

3. Impact of organizational culture on patient treatment outcomes

International literature increasingly demonstrates that organizational culture is a key determinant of patient safety, care quality, and treatment outcomes in health care systems. Organizational culture is defined as a set of shared values, norms, behaviors, and attitudes shaping how work is organized and decisions are made (Mannion & Davies, 2018).

A systematic review by Braithwaite et al. (2017), analyzing over 90 empirical studies, found that positive and supportive organizational cultures are significantly associated with lower patient mortality, fewer complications and adverse events, shorter hospital stays, and higher patient satisfaction. These findings confirm that organizational culture is not merely a background factor but a critical clinical quality indicator.

Safety culture is a central component of organizational culture in health care. Singer et al. (2009) demonstrated that hospitals with stronger safety cultures exhibit fewer medication errors, falls, and care failures, along with better incident reporting practices. Organizations that treat errors as system learning opportunities achieve higher patient safety.

Psychological safety is considered a key mechanism through which organizational culture influences clinical work (Edmondson, 2018). Teams with high psychological safety are more likely to ask questions, report errors, and engage in improvement processes, ultimately reducing severe patient safety risks.

Research on nursing work environments further highlights this relationship. A large European multicenter study found that hospitals with better nursing work environments, supportive leadership, reasonable workloads, and respectful professional relationships showed lower 30-day postoperative mortality and fewer complications, directly linking organizational culture quality to patient survival (Aiken et al., 2012).

Leadership style is also closely related to patient outcomes. West et al. (2014) demonstrated that health care organizations with high employee engagement, supportive leadership, and positive psychological climate achieve lower patient mortality and higher care quality, emphasizing leadership's role in shaping culture.

In mental health care, safety climate and staff psychological stability are particularly critical. A 2024 study found that better safety climate in psychiatric units was associated with fewer aggressive incidents and higher patient trust in staff (Smith et al., 2024).

Overall, organizational culture influences patient outcomes through interconnected mechanisms: employee well-being, psychological safety, safety culture, teamwork, and leadership practices. A positive organizational culture acts as both a protective factor for employee mental health and a key quality assurance mechanism for patient care.

4. Methodology

The study was conducted as a quantitative cross-sectional study using a structured anonymous self-assessment questionnaire. The study population consisted of employees from various structural units of the National Centre for Mental Health in Latvia. Data collection took place in 2025, adhering to ethical principles of voluntary participation and anonymity.

The total sample included 110 respondents. Multiple structural units were represented, allowing analysis of organizational microculture differences. Most respondents worked full-time (87.3%), and more than half had over ten years of service, indicating an experienced workforce.

A combined survey instrument was developed based on two internationally recognized and empirically validated models: the Denison organizational culture model and Ryff's psychological well-being model. The questionnaire was adapted to the mental health care context.

The questionnaire comprised three sections: sociodemographic characteristics; organizational culture assessment using 42 items across Denison's four dimensions (involvement, consistency, adaptability, mission); and psychological well-being assessment using adapted Ryff subscales (positive relations with others and personal growth). Responses were recorded using Likert scales. A separate section assessed staff perceptions of patient well-being.

Data analysis employed quantitative statistical methods, including Cronbach's alpha for reliability, Kruskal–Wallis tests for group comparisons, Spearman correlations for associations, and linear regression analyses controlling for structural unit, tenure, and workload.

5. Results

Internal Consistency of the Instruments: The internal consistency of the measurement instruments used in the study was assessed by calculating Cronbach's alpha coefficients. The overall organizational culture index demonstrated excellent internal consistency ($\alpha = 0.957$), indicating a high level of inter-item consistency and instrument stability. The alpha coefficients of individual subscales ranged from 0.510 to 0.884, with most reaching an acceptable to good level of reliability.

Higher internal consistency was observed in the subscales reflecting learning and development ($\alpha = 0.845$), strategic direction and identity ($\alpha = 0.884$), and patient well-being and engagement ($\alpha = 0.820$). In contrast, relatively lower alpha values were found in the subscales related to coordination and resources ($\alpha = 0.510$) and innovation and flexibility ($\alpha = 0.580$), which may indicate the multidimensional nature of these constructs or uneven perceptions across different organizational units.

The Ryff psychological well-being subscales used to assess employee well-being demonstrated acceptable to good reliability, including positive relations with others ($\alpha = 0.714$) and personal growth ($\alpha = 0.855$), confirming the suitability of these subscales for further analysis.

Descriptive statistics indicated that respondents generally rated the organizational culture relatively highly ($M = 4.03$; $SD = 0.47$; possible range 1–5), suggesting a positive perception of organizational culture within the studied institution. At the same time, substantial variability was observed in employees' psychological well-being indicators.

The mean score for the positive relations with others dimension was 38.12 ($SD = 5.35$; range 31–50), while the personal growth dimension showed a mean score of 39.24 ($SD = 7.04$; range 23–48). These results indicate heterogeneous well-being profiles among employees, particularly in the personal growth dimension, where greater dispersion of scores was observed.

Differences Between Structural Units

Comparative analysis across structural units revealed statistically significant differences in both the organizational culture index and psychological well-being indicators (Kruskal-Wallis test, $p < 0.001$). The highest organizational culture and well-being scores were observed in the administrative unit, whereas the lowest scores were found in the support and technical services unit.

Employees in the administrative unit demonstrated the highest mean organizational culture index ($M = 4.64$), as well as the highest scores in both positive relations with others and personal growth dimensions. In contrast, the support and technical services unit exhibited the lowest scores across all analyzed variables, particularly in the personal growth dimension. These findings indicate substantial differences in internal organizational microcultures associated with varying levels of employee well-being.

Relationship Between Organizational Culture and Psychological Well-Being

Spearman correlation analysis revealed a strong positive association between the overall organizational culture index and the Ryff dimension positive relations with others ($\rho = 0.695$; $p < 0.001$), as well as a moderate positive association with the personal growth dimension ($\rho = 0.308$; $p < 0.001$). These results suggest that a more favorable perception of organizational culture is closely linked to higher levels of social well-being, while its relationship with personal growth is weaker but statistically significant.

6. Discussion

The findings confirm that organizational culture is a significant determinant of employee psychological well-being in mental health care settings. The strongest associations emerged in the social relations dimension, highlighting social climate and psychological safety as key mechanisms. Differences

between structural units indicate the presence of organizational microcultures, emphasizing the need for targeted interventions.

Improving organizational culture may serve as a primary prevention strategy for psychosocial risks and contribute to improved patient safety and care quality. Study limitations include cross-sectional design, self-report measures, and single-institution sampling, suggesting directions for future longitudinal and multi-institutional research.

7. Conclusions

1. Organizational culture quality is significantly associated with employees' psychological well-being, particularly positive social relations.
2. Structural unit differences indicate organizational microcultures and concentrated psychosocial risks.
3. Organizational culture development may function as an effective preventive instrument for mental health risk reduction.
4. Improving organizational culture also supports patient safety and treatment outcomes.
5. Future research should apply longitudinal designs, broader institutional comparisons, and objective quality indicators.

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THE FLOW EXPERIENCE IN UNIVERSITY STUDENTS AND THE BLOSSOMING OF MENTAL HEALTH

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Abstract

Flow, or optimal experience, is a state of deep immersion in an activity associated with a deep sense of fulfillment. While the existing literature often focuses on Flow in individual, competitive, or athletic contexts, there is a need to explore its induction in non-performance group settings to foster general psychological well-being. This study aimed to investigate the effectiveness of a novel, short-term training program, specifically designed to induce Group Flow and to promote Flourishing, improving mental health metrics among university students. A training program, totaling 13 hours over four structured sessions, was developed. The intervention was built upon two main pillars: 1) the practice of Mindfulness fundamentals, spanning all sessions; and 2) the use of introspective-exploratory techniques designed to progressively enhance a sense of personal and interpersonal connectedness, culminating in exercises involving the entire group. The program was tested on a heterogeneous sample of 24 university students (N=24), drawn from the "Rinaldo Franci" Conservatory in Siena and the bachelor degree program in Psychological Sciences and Techniques at the University of Urbino "Carlo Bo". The study utilized a pre-post quantitative design. Participants were assessed using two standardized and validated instruments: the Flourishing Scale (FS) and the Flow Short Scale (FSS). Statistical analyses (paired samples t-tests) were conducted on the mean scores. Additionally, qualitative assessments regarding perceived enjoyment and learning were collected post-training, complemented by a three-month follow-up focus group. Statistical analyses revealed statistically significant differences in the mean scores between the pre- and post-intervention phases for both scales. Participants demonstrated a reliable increase in their self-reported Flow experience ($p < .05$) and in their overall level of Flourishing ($p < .05$) after completing the training. These quantitative findings were strongly corroborated by the qualitative data, which indicated a noticeable and sustained positive shift in self-perception and relational efficacy among participants. The preliminary results indicate that the structured induction of Group Flow represents a highly promising and useful intervention. This model could be effectively integrated into university curricula to develop crucial transversal skills and serve as a reliable tool for the proactive, continuous promotion of mental health and the discovery of new internal psychological resources among students.

Keywords: *Flow, flourishing, mental health, training program, psychological well-being.*

1. Introduction

In recent years, the psychological well-being of university students has become a central concept for academic institutions worldwide. The transition to higher education often involves significant stressors, including academic pressure, social reorganization, and identity development. Within this framework, the concept of "Flow" – first introduced by Csikszentmihalyi (1975) – offers a powerful lens through which to promote mental health. Flow is defined as a state of optimal experience where an individual is fully immersed in an activity, with a shift in perception in the sense of self and time and in which there is a profound fulfillment which is not dependent on external goals, but on the perceived state of inner harmonious order.

While most research has focused on Flow in individual performance (e.g., sports, arts, or work), recent studies emphasize the importance of Group Flow (Sawyer, 2003). Group Flow occurs when a collective unit reaches a state of shared synergy, leading to enhanced interpersonal connectedness and mutual support. This study hypothesizes that inducing Group Flow in a non-competitive, psychoeducational setting can significantly impact "Flourishing" – a multi-dimensional construct representing social and psychological well-being (Diener et al., 2010).

Following the theoretical framework of Beyköylü, Vervaeke, and Meling (2025), we explored how a structured intervention based on mindfulness and collective resonance could trigger to a certain degree a non-ordinary state of consciousness and a "blossoming" of internal resources. Our primary research questions were: 1) Can Group Flow be effectively induced through a brief 13-hour training? and 2) Does this experience correlate with a measurable increase in students' overall flourishing?

2. Methods

2.1. Participants

The study involved a heterogeneous sample of 24 university students (N=24; 11M and 13 F). The sample was intentionally diverse to test the program's adaptability, including students from the "Rinaldo Franci" Conservatory in Siena (artistic/musical background) and the bachelor's degree program in Psychological Sciences and Techniques at the University of Urbino "Carlo Bo". Participants were free to join by registering their interest via email. No remuneration was provided. The group formed consisted of students with a mean age of 23 and with no previous experience of meditation practices nor any prior knowledge of the topic of Flow and its meaning.

2.2. The training program structure

The intervention consisted of an intensive 13-hour program divided into four structured sessions over three days. The methodology integrated two core pillars:

Mindfulness Practice: Techniques focused on present-moment awareness and non-judgmental observation, breathing exercises used as a "grounding" tool at the beginning and end of each session.

Introspective-Exploratory Techniques: A series of progressive exercises designed to gain awareness about subtler layers of one's own experience and to shift focus from the individual to the collective. These included movement-based tasks, shared storytelling, and group problem-solving and visualizations activities designed to foster "deep resonance" among participants and to foster insights about one's own thinking and emotional processes. Moreover, the exercises and practices were designed so as to involve the participants in all kinds of combinations: the individual, one-to-one, subgroups of about 3-4 participants, and finally the whole group together.

2.3. Instruments

A pre-post quantitative design was utilized. Participants completed two validated scales at baseline (Pre-test) and immediately following the final session (Post-test):

- Flow Short Scale (FSS) (Rheinberg, Vollmeyer & Engeser, 2003): To measure the components of flow (e.g., absorption, fluency of performance).
- Flourishing Scale (FS) (Diener et al., 2009): To assess self-perceived success in areas such as relationships, self-esteem, and purpose.
- Furthermore, qualitative data were collected through "First Impressions" reports, filled by participants immediately after the final session and a 3-month follow-up, resulting in a focus group evaluating the long-term impact of the experience.

3. Results

The statistical evaluation of the training program's efficacy was conducted through a dual approach, integrating quantitative longitudinal data with qualitative insights gathered at the end of the sessions and during the three-month follow-up.

3.1. Quantitative analysis: Flourishing and flow states

To determine the impact of the 13-hour intervention, a series of paired samples t-tests were performed on the mean scores of the two primary psychometric scales. The analysis focused on the shift from baseline (Pre-test) to the immediate conclusion of the training (Post-test). (Table 1)

Regarding the Flourishing Scale (FS), which measures the respondents' self-perceived success in important areas such as relationships, self-esteem, and purpose, the results indicated a significant upward trend. Participants reported a higher level of overall psychological functioning after the intervention (M = 46.5, SD = 5.85), compared to the pre-test (M = 43.0, SD = 5.71), $t(23)$ = -4.44, p <.001. The effect size for this increase was large (d = 0.91).

Similarly, scores on the Flow Short Scale (FSS), which measures the perceived flow state of respondents and the degree of their absorption in action, showed a statistically significant increase from pre-test (M= 52.6, SD = 5.46) to post-test (M = 61.1, SD = 7.79), $t(23)$ = -4.95, p <.001, representing a substantial effect size (d= 1.01).

Table 1. Mean comparison and statistical analysis between Pre and Post Intervention (N=24)

Variabile	Pre-test *M*	Pre-test *SD*	Post-test *M*	Post-test *S*	*t*(23)	*p*-value	Cohen's *d*
Flourishing (FS)	43	5.71	46.5	5.85	- 4.44	<.001	0.91
Flow Short Scale (FSS)	52.6	5.46	61.1	7.79	- 4.95	<.001	1.01

3.2. Qualitative evaluation and long-term impact

To complement the quantitative data and delve deeper into the participants' subjective experience, a qualitative analysis was conducted by means of "First Impressions" reports collected at the end of the last session of the intervention and by means of the three-month follow-up focus group. The transcripts and texts were analyzed following the principles of Thematic Analysis (Braun & Clarke, 2006), which allowed us to identify several key themes relating to the training's effects: students frequently used terms such as "resonance," "deep connection" and "temporary suspension of judgment" to describe the group exercises. Mostly, they found the training program emotionally challenging and impactful.

The most significant findings, however, emerged from the 3-month follow-up, during the focus group. This delayed assessment was crucial to verify the sustainability of the "flourishing/blossoming" effect. The analysis of the focus group transcripts highlighted three main themes:

Sustained Relational Efficacy: Participants reported feeling more "proactive" and less "defensive" in their academic social circles.

Reduction in Ruminative Thinking: Several students noted that the mindfulness techniques learned during the Flow induction sessions were still being used to manage exam-related anxiety and some of them started to join meditation classes.

Vividness of Connection: The sense of "interpersonal connectedness" developed during the exercises remained a vivid psychological resource.

Finally, another remarkable finding deriving from the Focus-Group was that some students with no conceptual knowledge about the topic of Flow, spontaneously described some subdimensions of the construct, such as the shift in perception of time/space, of mind-body synchronization, and of the sense of self. Also, it is noteworthy the interest and enthusiasm shown by the young population, albeit a small sample, in the introspective themes aimed at self-knowledge, exploring their own thought processes, and increasing their expressive abilities in sharing their inner world.

4. Discussion, limitations and conclusions

The results of this study suggest that Group Flow is not just a spontaneous occurrence but can be "structured" and taught. The significant increase in both Flow and Flourishing scales supports the idea that collective optimal experiences serve as a catalyst for mental health by inducing a notable shift in individual and collective perception. It was notable how participants moved from fragmented attention toward a state of collective immersion. In particular, one student remarked: "The training didn't just give me a technique; it changed the way I feel when I am in a group". In other words, participants were interested in the transformative power of the experience, meaning that besides the shared contents, they enjoyed the change in their way to make connection with themselves and with the others. We still wish to implement the project also exploring more in depth the possible association between Meaning in life and Flow, since these constructs seem to have interesting relationship between each other (Delle Fave, 2009).

Future research should include an active control group to further validate these preliminary findings. Due to logistical and organizational constraints, it was not possible to structure a more extended intervention, with regular meetings, which would perhaps have helped to integrate more effectively the shared content and produce greater and more far-reaching changes. This study captured immediate changes following the 13-hour training program. However, it is not yet possible to determine whether these benefits to mental health and psychological well-being remain stable over time. Longitudinal research including 6-month follow-up assessments is needed to evaluate the long-term persistence of the effects.

The research also highlighted that a group of approximately 10 up to 24 participants is an adequate size if there is a single workshop leader. A larger group would make it more difficult for the leader to adequately address the emerging needs of individuals. While the results reached statistical significance, such a limited number of participants reduces the statistical power and prevents the findings from being generalized to the broader university population. Furthermore, the participants were drawn from specific academic backgrounds (Psychology and Music Conservatory). These students may already possess a higher-than-average predisposition toward introspection or flow experiences (particularly in the case of musicians), which may have influenced the outcomes. Subsequent research should aim to replicate this intervention with larger and more diverse samples (e.g., students from STEM disciplines or working professionals).

In conclusion, Flow is a phenomenon of great interest, as it is represented and registered in almost all demographic samples. It does not depend on gender, age, specific culture, or other socioeconomic variables (Csikszentmihalyi, 1990). It is therefore a universal phenomenon and, as such, it could also be studied to better understand human evolution and the growth potential of the individual and of communities (Vervaeke, Ferraro & Herrera-Bennett, 2018). Therefore, investigating the Flow experience in a non-competitive context can lead to the exploration of a variety of related constructs, concerning mental health, understood not as the mere absence of illness, but as a continuous flourishing and blossoming of new resources and possibilities for relating to the world. We hypothesize that Group Flow, if housed within an appropriate framework, can provide a contribution to the fulfillment of the individual's needs for growth and that it can be helpful to gain insight about meaningful issues of one own's inner and outer life and therefore help in advancing on a path of conscious flowering. Finally, integrating such programs into university curricula—perhaps through the use of Open Badges to certify these transversal skills—could represent a proactive strategy for student well-being.

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GOAL DISENGAGEMENT AND GOAL RE-ENGAGEMENT PROCESSES IN RELATION TO MENTAL WELL-BEING FOR PEOPLE LIVING WITH CHRONIC PAIN

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Abstract

Chronic pain, typically defined as pain persisting for three months or more, affects around one in five adults worldwide, and poses significant challenges to mental health and everyday functioning. Recent theory and research suggest that adaptive goal processes, effective goal disengagement and effective goal re-engagement are associated with increased well-being, in general populations. To date, however, scant research has examined these two distinct goal processes in relation to mental well-being for people living with pain. Living with chronic pain may well disrupt the pursuit of valued personal goals, thus leading to frustration and diminished mental well-being. Therefore, the present study aimed to investigate whether effective goal re-engagement (i.e., the ability to re-engage in a new goal) and effective goal disengagement (i.e., the ability to effectively dis-engage), when faced with an unachievable goal, were associated with mental well-being in adults living with chronic pain. Participants were 190 Australian adults (M age = 49.46, SD = 17.38; 49.5% men), with pain duration ranging from 3 months to >5 years. Participants completed the Goal Adjustment Scale (GAS), the Warwick–Edinburgh Mental Well-being Scale, and a measure of Chronic Pain Grade Scale (CPGS). As predicted, mental well-being was positively associated with effective goal re-engagement but counter to prediction, effective goal disengagement was not related to mental well-being in the full sample. Together, these findings suggest that re-engagement supports mental well-being in chronic pain, whereas the implications of disengagement may be more nuanced. Overall, these findings highlight the value of studying distinct adaptive goal mechanisms that may further inform our understanding of the nature of pain from a motivational perspective.

Keywords: *Chronic pain, goal dis-engagement, goal re-engagement, mental well-being.*

1. Introduction

Chronic pain, commonly defined as pain persisting for three months or longer (Treede et al., 2015), represents a major global public health concern due to its high prevalence and profound impact on daily functioning and mental well-being (Breivik, Collett, Ventafridda, Cohen, & Gallacher, 2006). Epidemiological estimates suggest that approximately one in five adults worldwide lives with chronic pain, making it one of the most common long-term health conditions across populations (Goldberg & McGee, 2011). Beyond sensory discomfort, chronic pain is associated with reduced participation in work, social, and valued life activities, as well as elevated risk for depression, anxiety, and diminished quality of life (Breivik et al., 2006). Importantly, the burden of chronic pain extends far beyond symptom intensity alone; it disrupts individuals' ability to pursue meaningful goals and maintain a coherent sense of everyday functioning (Eccleston & Crombez, 2007; Karoly & Ruehlman, 2007). As such, chronic pain is increasingly understood not merely as a biomedical condition, but as a complex biopsychosocial experience with substantial motivational and psychological consequences (Gatchel, Peng, Peters, Fuchs, & Turk, 2007).

Although chronic pain is often treated within a biomedical framework, growing evidence indicates that psychological processes play a central role in shaping how individuals adapt to persistent pain (Gatchel et al., 2007). Because effective cure or complete pain relief is not always achievable, understanding psychological adaptation is a central concern in long-term pain management. People with similar levels of pain intensity can differ markedly in functioning, emotional adjustment, and engagement with daily life, suggesting that psychological factors influence outcomes beyond experience pain alone (Eccleston & Crombez, 2007; Vlaeyen, 2000). Chronic pain therefore represents an enduring demand on psychological adaptation: It could be argued that some individuals sustain meaningful engagement in daily life and

preserve mental well-being despite persistent discomfort, whereas others experience escalating distress and functional decline. Understanding these differences requires examining the psychological mechanisms that support adaptive functioning under conditions of chronic physical limitation.

Personal goals function as central organising structures of everyday behaviour, providing direction, meaning, and a framework through which everyday experiences are interpreted (Dickson, Moberly, & Kinderman, 2011; Emmons, 1997). Goal-directed activity allows individuals to organise daily life around valued pursuits (Carver & Scheier, 1998); however, when important goals become unattainable, adaptive functioning depends on the capacity to adjust goal investment rather than persist rigidly in pursuing an unattainable goal (Brandtstädter & Rothermund, 2002). Theoretical models of self-regulation emphasise that well-being is maintained through flexible modification of goals in response to changing constraints, a principle later formalised within goal adjustment theory (Wrosch, Scheier, Miller, Schulz, & Carver, 2003). Goal adjustment theory distinguishes two complementary mechanisms: goal disengagement, defined as the ability to withdraw effort and commitment from unattainable goals, and goal re-engagement, defined as the ability to identify and invest in new meaningful goals (Wrosch, Scheier, Miller, et al., 2003).

Pain interference may disrupt engagement in everyday activities that structure identity and provide meaning (Karoly & Ruehlman, 2007). However, such interference extends beyond functional limitations (Crombez, Eccleston, Van Damme, Vlaeyen, & Karoly, 2012; Turk, Wilson, & Cahana, 2011). It can disrupt a person's sense of agency, with important consequences for emotional adjustment and mental well-being (Breivik et al., 2006). From a goal-regulation perspective, blocked or threatened goals can become a recurring feature of daily life when living with pain. Under these circumstances, the capacity to disengage from unattainable pursuits and re-engage in alternative meaningful goals may be critical for preserving well-being. Yet, despite the relevance of these adaptive goal processes, relatively little research has examined goal adjustment mechanisms in the context of chronic pain. Applying goal adjustment theory to chronic pain provides a framework for understanding why some individuals maintain adaptive functioning despite persistent interference, whereas others experience escalating distress and diminished mental well-being.

The present study aimed to investigate whether adaptive goal processes are associated with mental well-being in adults living with chronic pain. Guided by goal adjustment theory, we hypothesised that greater goal re-engagement and effective goal disengagement would be positively related to mental well-being. Because chronic pain varies in the extent to which it disrupts daily functioning, we also conducted exploratory analyses to examine whether these relationships differed across levels of pain-related interference. This approach allowed us to evaluate not only the overall link between goal regulation and mental well-being, but also whether the psychological role of disengagement and re-engagement shifts under conditions of increasing functional limitation. Therefore, our study also aimed to examine whether associations between adaptive goal processes and mental well-being differed as a function of reported pain.

2. Methods

The study used a cross-sectional correlational design to examine associations between adaptive goal processes (i.e., goal re-engagement and goal dis-engagement) and mental well-being in adults living with chronic pain.

2.1. Participants and sample size

Participants were Australian adults experiencing chronic pain, defined as pain persisting for three months or longer (Treede et al., 2015). Eligibility required participants to be at least 18 years of age and currently residing in Australia. The final sample consisted of 190 individuals (96 women, 94 men) ranging in age from 18 to 88 years (M = 49.46, SD = 17.38).

2.2. Measures

The Goal Adjustment Scale (Wrosch, Scheier, Miller, et al., 2003) is a self-report instrument designed to assess effective goal dis-engagement and goal re-engagement. The disengagement subscale comprises4 items and re-engagement subscale 6 items. Disengagement items assess the ability to withdraw effort from unattainable goals (e.g., "It's easy for me to stop thinking about the goal and let it go"), whereas the re-engagement items assess the tendency to identify and pursue new goals (e.g., "I seek other meaningful goals"). Items are rated on a 5-point Likert scale (1 = almost never true to 5 = almost always true). Subscale scores are summed, with higher scores indicating stronger adjustment capacities. Reverse scoring was applied where required (n = 2 dis-engagement items). Internal consistencies were acceptable for re-engagement (α = .90) and disengagement (α = .68).

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; Tennant et al., 2007) is a 14-item measure designed to assess positive aspects of mental well-being. Items describe experiences of

emotional and social well-being over the previous two weeks (e.g., "I've been feeling optimistic about the future"). Items are rated on a 5-point frequency scale ranging from 1 (none of the time) to 5 (all of the time). Item scores are summed to produce a total mental well-being score, with higher values reflecting greater positive mental health. In the present sample the measure showed good reliability (α = .93).

The Chronic Pain Grade Scale (CPGS;Von Korff, Ormel, Keefe, & Dworkin, 1992) s a brief self-report measure of pain intensity and pain-related interference. Participants rated current, worst, and average pain over the previous three months on 0-10 scales. Ratings were averaged and multiplied by 10 to yield a pain intensity index (0-100). Three further items assessed interference with daily, social, and work activities and were scored identically to yield a pain interference index (0-100). Internal consistency was good for both indices (αs = .90).

2.3. Recruitment & procedure

Ethical approval was granted by the Edith Cowan University Human Research Ethics Committee. Participation was voluntary and anonymous, and consent obtained prior survey access. Data were collected via an online Qualtrics questionnaire from participants recruited through an Australian research panel managed by PureSpectrum. The self-report questionnaire took approximately 10 minutes to complete. Demographic information was collected first, followed by goal process and motivation measures. Pain measures were administered last to minimise mood priming (Tourangeau, Rips, & Rasinski, 2000).

2.4. Data analysis

Statistical analyses were conducted in IBM SPSS 30. Preliminary screening assessed data completeness and distributional assumptions, including normality. Bivariate Pearson correlations examined associations between goal disengagement, goal re-engagement, and mental well-being in the full sample. To examine variation by pain-related interference, participants were grouped into low, medium, and high categories using tertile splits of CPGS interference scores, and correlations were repeated within subgroups. Pain interference was selected because it reflects functional disruption and shows stronger associations with mental well-being than pain intensity in previous research (Swindells, Iddon, & Dickson, 2023).

3. Results

Preliminary screening assessed data completeness and normality. Analyses were conducted on the full sample (N = 190). Musculoskeletal pain was the most prevalent condition, followed by fibromyalgia.

3.1. Associations between adaptive goal processes and mental well-being

As can be seen in Table 1 and as hypothesised, greater goal re-engagement was positively associated with increased mental well-being. Contrary to prediction effective goal disengagement was not significantly related to increased mental well-being. The two goal processes were not significantly correlated with each other.

Table 1. Descriptive statistics and correlations among study variables.

Variable	1	2	3	M	SD
1. Goal disengagement	1			11.47	2.87
2. Goal re-engagement	.14	1		19.76	4.74
3. Mental Well-being	−.09	.36***	1	45.81	10.89

Note. **p < .001. (2-tailed).

As shown in Table 2, sub-group analyses examined whether associations between goal processes and mental well-being differed across pain-interference levels. Goal re-engagement was positively associated with mental well-being in the low- (n = 55), medium- (n = 74), and high-interference groups (n = 61). In contrast, goal disengagement was not associated with mental well-being in the low- or medium-interference groups, but was negatively associated in the high-interference group. This pattern suggests that the psychological role of disengagement may shift under greater pain interference.

Table 2. Goal processes associated with mental well-being across interference levels.

Level of Interference	n	Goal disengagement – Mental well-being	Goal re-engagement – Mental well-being
Low	55	−.10	.30*
Medium	74	−.18	.41***
High	61	−.31*	.40**

Note. $p < .05$. *$p < .01$. **$p < .001$.

4. Discussion

The present study examined associations between adaptive goal disengagement, goal re-engagement, and mental well-being in adults living with chronic pain. Further, we explored whether these associations varied across levels of pain-related interference. Pain interference was used as the subgrouping variable because it reflects functional disruption of valued activities and aligns more closely with the goal-regulation framework. Consistent with prior findings, interference shows stronger associations with well-being than pain intensity (Iddon, Taylor, Unwin, & Dickson, 2019; Swindells et al., 2023). Consistent with our hypothesis, goal re-engagement showed a clear positive association with mental well-being. This aligns with goal adjustment theory, which conceptualises re-engagement as an adaptive process through which individuals restore meaning after valued pursuits become constrained or abandoned (Wrosch, Scheier, Carver, & Schulz, 2003). In the context of chronic pain, where disruption to everyday functioning is often unavoidable, the capacity to redirect effort toward alternative and flexible goals appears central to sustaining mental well-being (Iddon et al., 2019; Swindells et al., 2023). These findings support the view that, when pain is persistent, the capacity to identify and invest in alternative meaningful goals is central to sustaining mental well-being.

Contrary to our hypothesis, effective goal disengagement was not significantly associated with increased mental well-being. This finding is counter to theoretical views that posit effective goal disengagement is associated with increased mental well-being. However, the non-significant finding is consistent with recent empirical research in relation to psychological distress (Dickson et al., 2011). Theoretically, effective goal disengagement is viewed as an adaptive in response to an unattainable goal because it is thought to reduce repeated failure and persistent discrepancy (Wrosch, Scheier, Carver, et al., 2003). However, this goal theory has not been tested in the context of chronic pain. Notably, our finding indicates that effective goal disengagement may be context-dependent in chronic pain, as findings are mixed. Disengagement has been linked to less adaptive cognitive-affective patterns, particularly when it is not accompanied by successful goal re-engagement (Ramírez-Maestre et al., 2019). While other work suggests that adaptive goal adjustment, including letting go of unachievable goals, can be associated with positive outcomes (Arends, Bode, Taal, & Van de Laar, 2013). Letting go of valued goals may be experienced as loss, especially when pain restricts access to alternative pursuits and limits opportunities to invest in replacement goals.

The exploratory analyses revealed a differentiated pattern of findings. Goal re-engagement was positively associated with mental well-being across low, moderate, and high-interference groups, indicating a broadly beneficial role even as functional limitation increased. In contrast, disengagement was negatively associated with mental well-being only in the high-interference group. This suggests that the implications of disengagement depend on the severity of day-to-day disruption. Under high interference, disengagement may reflect forced loss of valued roles rather than flexible adjustment, with corresponding costs for mental well-being. This interpretation aligns with evidence that disengagement can resemble withdrawal under some chronic pain conditions (Ramírez-Maestre et al., 2019).

Taken together, the findings support a clear conclusion for re-engagement while pointing to a conditional role for disengagement. Re-engagement appears robustly linked to increased mental well-being for people living with chronic pain, even when interference is substantial. Disengagement, although conceptualized as adaptive within goal adjustment theory, may not uniformly confer benefits in pain contexts and may become psychologically costly when interference is high. The role of disengagement appears more nuanced and warrants further investigation.

Several methodological limitations should be noted. The cross-sectional design precludes causal inference, and self-report measures may have inflated associations through shared method variance. The subgroup findings were exploratory and require replication, ideally using longitudinal and moderation analyses. Future research should test whether these associations vary by pain intensity and whether strengthening goal re-engagement improves psychological outcomes in chronic pain.

5. Conclusion

Overall, goal re-engagement was positively associated with mental well-being, whereas goal disengagement was not. Contrary to theoretical assumptions, effective goal disengagement was not positively associated with mental well-being. Exploratory analyses further showed that disengagement was negatively associated with mental well-being in the high pain-interference group. This finding requires further investigation.

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ETHICS AS A PSYCHIC REGULATOR: ETHICAL COHERENCE, SELF-ESTEEM STABILITY AND COMPENSATORY SELF-REGULATION

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Abstract

This paper conceptualizes ethics not primarily as external moralism or social compliance, but as a psychic regulator that supports self-coherence, stable self-esteem, and psychological well-being. Building on psychoanalytic accounts of guilt, shame, and superego dynamics, and engaging with contemporary models of autonomy and self-regulation, we propose the construct of ethical coherence: the experienced alignment between one's actions, internal values, and self-representation. We argue that ethical coherence functions as a protective structure in the psychic economy by reducing unconscious guilt and shame-based self-attack, thereby weakening the need for compensatory strategies such as excessive validation-seeking, compulsive productivity, and addictive patterns of consumption or distraction. From a psychoanalytic perspective, ethically dissonant action may intensify persecutory moral configurations and generate residues that require repression, rationalization, or manic repair; in contrast, ethically coherent action consolidates ego continuity and supports more mature object relations. Developmentally, we distinguish authentic ethical functioning from mere compliance: when ethical positions are internally integrated rather than externally imposed, they tend to strengthen autonomy and reduce defensive dependency on external approval. Clinically and socially, this framework reframes ethics as a form of psychic hygiene - a preventive mode of psychological self-regulation that minimizes internal fragmentation and preserves psychological flexibility. We outline practical implications for assessment and intervention (e.g., exploring ethical dissonance as a source of diffuse guilt, rumination, and compulsive self-regulation) and propose testable hypotheses linking ethical coherence to self-esteem stability and reduced compensatory behaviors in contexts marked by acceleration and performativity.

Keywords: *Ethics, ethical coherence, self-esteem, guilt, self-regulation.*

1. Introduction

Ethics has traditionally been approached within moral philosophy as a normative system governing conduct and defining socially acceptable behavior. In psychological research, it is frequently operationalized through constructs such as moral reasoning, prosociality, or internalization of norms (Haidt, 2001; Kohlberg, 1984). While these approaches illuminate important aspects of moral development and social functioning, they tend to frame ethics primarily as a regulatory mechanism of interpersonal order rather than as a structural organizer of intrapsychic life.

From a psychoanalytic perspective, however, moral experience cannot be reduced to social conformity. Freud (1923/1961) conceptualized morality through the formation of the superego, an internal agency that both regulates behavior and generates guilt. In Civilization and Its Discontents, Freud (1930/1961) further emphasized that guilt often persists independently of external punishment, suggesting that moral conflict operates fundamentally within the psychic economy. Moral transgression thus produces not only social consequences but internal destabilization.

Subsequent psychoanalytic developments expanded this view. Object relations theorists highlighted how internalized relational patterns shape moral self-evaluation and affect regulation (Fairbairn, 1952; Winnicott, 1965). Self-psychology further reframed ethical failures as threats to self-cohesion, linking shame and fragmentation to disruptions in value-consistent action (Kohut, 1971). Across these traditions, morality appears less as obedience to rules and more as a dimension of self-organization.

Contemporary motivational theories converge with this perspective in unexpected ways. Self-determination theory posits that autonomy, competence, and relatedness are basic psychological needs, and that internalized values function differently depending on whether they are integrated or externally imposed (Deci & Ryan, 2000). When individuals act in accordance with self-endorsed values, psychological well-being increases; when behavior is externally controlled, defensive dependency and instability are more likely. This distinction parallels psychoanalytic differentiations between authentic integration and mere compliance (Winnicott, 1965).

Despite these convergences, ethics is rarely conceptualized explicitly as a regulatory structure within the psychic economy. Much of the literature treats guilt, shame, self-esteem, and self-regulation as separate constructs, without articulating how value-behavior alignment may function as an organizing axis that stabilizes them.

The present paper addresses this gap by proposing the construct of ethical coherence, defined as the experienced alignment between one's actions, internal values, and self-representation over time. We argue that ethical coherence operates as a protective configuration within the psychic economy. When behavior is consistent with internalized values, superego friction diminishes, unconscious guilt decreases, and self-esteem becomes less contingent on external validation (Baumeister et al., 2003). Conversely, ethical dissonance may intensify persecutory moral configurations, requiring compensatory regulatory strategies such as excessive productivity, validation-seeking, or addictive consumption.

By reframing ethics as a psychic regulator rather than merely a moral prescription, this framework integrates psychoanalytic accounts of superego dynamics with contemporary models of autonomy and self-regulation. Ethical coherence is proposed as a stabilizing axis linking value-behavior alignment to reduced guilt load, decreased compensatory regulation, and greater self-esteem stability, particularly under conditions of social acceleration and external evaluation.

2. Ethical coherence: Conceptual definition and theoretical delimitation

The construct of ethical coherence is introduced here as a structural configuration within the psychic economy. It refers to the sustained alignment between internalized values, enacted behavior, and narrative self-representation over time. Unlike episodic moral action, ethical coherence concerns continuity and structural integration.

Psychoanalytic theory suggests that moral conflict becomes pathogenic when internalized demands remain dissociated from enacted conduct. Freud (1923/1961) described how the superego, as heir to parental authority and cultural prohibition, monitors the ego and generates guilt in response to perceived transgressions. Importantly, this guilt may persist even when no external punishment occurs (Freud, 1930/1961). The persistence of guilt reveals that morality operates within the internal regulatory system of the psyche.

Ethical coherence differs from mere superego compliance. Compliance may reduce anxiety temporarily but does not necessarily integrate values into the ego structure. Winnicott (1965) distinguished between adaptive submission and authentic integration, arguing that psychological maturity requires the emergence of action grounded in an internally appropriated self. Ethical coherence, in this sense, requires internal endorsement rather than reactive conformity.

Self-psychology further supports this distinction. Kohut (1971) demonstrated that self-cohesion depends on structural consistency. When individuals repeatedly act against deeply held values, fragmentation and shame intensify. Such misalignment weakens self-representation and increases vulnerability to narcissistic injury.

Contemporary motivational theory converges with these psychoanalytic insights. According to self-determination theory, values can be internalized at different levels, ranging from external regulation to integrated regulation (Deci & Ryan, 2000). Only when values are integrated into the self do they promote autonomy and psychological well-being. Ethical coherence corresponds to this integrated level of regulation, where behavior reflects endorsed commitments rather than external pressures.

2.1. Differentiation from adjacent constructs

To clarify its theoretical position, ethical coherence differs from adjacent constructs. Authenticity refers to subjective alignment with experience but does not necessarily entail moral accountability. Rogers' (1961) notion of congruence concerns consistency between self-concept and experience without specifying value-behavior alignment. Moral internalization may generate rule-following without narrative integration. Ethical coherence, in contrast, requires convergence between internalized value structures, enacted conduct, and narrative continuity. When these elements align, superego activation becomes modulatory rather than persecutory.

2.2. Ethical dissonance as structural instability

Conversely, ethical dissonance occurs when behavior systematically contradicts internalized commitments. This misalignment may activate superego aggression and generate unconscious guilt, even in the absence of conscious moral conflict (Freud, 1930/1961).

Such dissonance destabilizes ego cohesion and increases reliance on compensatory regulatory strategies. These strategies may manifest as excessive productivity, compulsive validation-seeking, addictive consumption, or chronic rumination — all attempts to restore internal equilibrium through external reinforcement.

Thus, ethical coherence may be understood as a structural moderator of superego intensity and guilt load within the psychic economy.

3. From ethical dissonance to compensatory self-regulation: A guilt-mediated mechanism

If ethical coherence functions as a stabilizing configuration within the psychic economy, its inverse—ethical dissonance—may produce regulatory instability. Ethical dissonance refers to the persistent misalignment between internalized values and enacted behavior. This misalignment is not merely cognitive inconsistency; from a psychoanalytic standpoint, it activates structural processes involving guilt, shame, and superego aggression.

Freud (1930/1961) emphasized that guilt may operate independently of conscious wrongdoing. The superego, as an internalized authority, can generate tension even when no transgression is consciously acknowledged. This suggests that ethical dissonance may function below the threshold of conscious awareness, producing diffuse discomfort rather than explicit moral conflict. External punishment may temporarily modulate guilt, yet when superego configurations remain persecutory, punitive experiences may intensify rather than resolve intrapsychic conflict.

Unconscious guilt often manifests indirectly. Rather than appearing as remorse, it may emerge as irritability, self-sabotage, compulsive activity, or heightened need for approval. These phenomena can be understood as regulatory attempts to neutralize internal tension (Freud, 1923/1961). The ego, confronted with superego pressure, seeks alternative pathways to restore equilibrium.

Object relations theory further clarifies this process. When internalized value-structures are violated, the individual may experience fragmentation of self-representation and increased shame (Kohut, 1971). Shame, unlike guilt, threatens the cohesion of the self. To counteract this threat, compensatory mechanisms become mobilized.

This process may be summarized as follows: ethical dissonance activates superego pressure, intensifies unconscious guilt and shame, destabilizes ego cohesion, and mobilizes compensatory self-regulation.

Such compensatory regulation may manifest in validation-seeking, overproductivity, addictive distraction, rumination, or defensive self-justification. These behaviors function as attempts to restore a threatened self-image through external reinforcement. However, because they do not address the underlying value-behavior misalignment, they tend to produce only temporary stabilization.

Empirical research on self-esteem supports this interpretation. Baumeister et al. (2003) demonstrated that unstable self-esteem is associated with defensive reactivity and compensatory patterns rather than genuine psychological resilience. When self-worth is contingent upon external validation, regulatory volatility increases.

In contrast, when behavior aligns with internalized values—ethical coherence—superego friction diminishes. The reduction of unconscious guilt load decreases the need for compensatory regulation. Ego continuity becomes less dependent on external metrics, and self-esteem stabilizes across contexts.

From a motivational perspective, self-determination theory distinguishes between externally regulated and integrated forms of behavior (Deci & Ryan, 2000). Integrated regulation—where values are fully assimilated into the self—correlates with psychological well-being and reduced defensive functioning. Ethical coherence may be understood as a specific manifestation of such integration within the moral domain. Thus, ethical coherence functions not as moral rigidity but as structural stabilization. It reduces regulatory volatility by minimizing internal conflict at its source.

4. Self-esteem stability as a structural consequence of ethical coherence

If ethical dissonance increases regulatory volatility through guilt-mediated destabilization, ethical coherence may produce the opposite effect: structural stabilization of self-esteem.

Self-esteem has long been conceptualized as a global evaluation of self-worth (Rosenberg, 1965). However, subsequent research has demonstrated that the stability of self-esteem is more predictive of psychological adjustment than its absolute level (Kernis, 2003). High but unstable self-esteem is often associated with defensiveness, aggression, and contingent validation-seeking (Baumeister et al., 2003). In contrast, stable self-esteem reflects a more consolidated self-structure.

From a psychoanalytic perspective, self-esteem stability corresponds to reduced oscillation in ego cohesion. When superego activation is excessive, fluctuations in self-representation intensify. Guilt and shame function as destabilizing affects, introducing discontinuities in self-experience (Freud, 1930/1961; Kohut, 1971).

Ethical coherence stabilizes self-esteem by reducing superego tension (Freud, 1923/1961), reinforcing narrative continuity (McAdams & McLean, 2013), and decreasing contingency on external approval (Crocker & Wolfe, 2001). Self-evaluation becomes anchored in structural alignment rather than fluctuating feedback.

Within self-determination theory, integrated regulation—where values are fully assimilated—correlates with greater psychological well-being and resilience (Deci & Ryan, 2000). Ethical coherence may be understood as a domain-specific form of integrated regulation within the moral sphere.

Thus, we propose that self-esteem stability is not merely a byproduct of positive self-appraisal, but a structural outcome of reduced intrapsychic conflict.

4.1. Ethical coherence as structural buffer in contexts of acceleration

In contexts marked by performative pressure and constant evaluation, self-worth becomes increasingly contingent on visibility and productivity (Baumeister et al., 2003). Ethical coherence may function as a stabilizing buffer by grounding self-evaluation in value-consistent action rather than external metrics. Under conditions of social acceleration, such internal anchoring reduces regulatory volatility and preserves psychic continuity.

5. Hypotheses and operationalization

The previous sections conceptualized ethical coherence as a structural regulator linking value-behavior alignment to reduced guilt load, diminished compensatory regulation, and increased self-esteem stability. To render this framework empirically testable, ethical coherence may be operationalized as the degree of alignment between internalized personal values, enacted behavior, and narrative self-consistency across time. This alignment may be assessed through discrepancy indices between endorsed core values and recent behavioral reports, adapted integrated regulation measures derived from self-determination theory (Deci & Ryan, 2000), and narrative coherence coding procedures examining value-action consistency in autobiographical accounts (McAdams & McLean, 2013). Ethical dissonance, correspondingly, may be defined as persistent discrepancy between internal commitments and enacted conduct rather than isolated moral lapses.

The model yields three central hypotheses. First (H1), ethical coherence will be positively associated with self-esteem stability, operationalized as lower intra-individual variability across repeated administrations of self-esteem measures (Rosenberg, 1965), independent of mean self-esteem level. Prior research indicates that unstable self-esteem predicts defensiveness and compensatory reactivity (Baumeister et al., 2003; Kernis, 2003); ethical coherence is expected to reduce such volatility by minimizing intrapsychic conflict.

Second (H2), the association between ethical dissonance and compensatory self-regulation will be mediated by guilt and shame proneness. Guilt may be assessed through validated measures such as the GASP scale (Cohen et al., 2011), while compensatory behaviors may be indexed through indicators of excessive validation-seeking, compulsive productivity, addictive consumption, or rumination (Nolen-Hoeksema et al., 2008). This mediation model directly tests the proposed structural sequence in which value-behavior misalignment activates superego pressure, intensifies guilt, and increases reliance on compensatory strategies..

Third (H3), ethical coherence will moderate the relationship between exposure to evaluative or performative contexts and psychological distress. Under experimentally induced social evaluation or performance feedback conditions, individuals with lower ethical coherence are expected to show greater self-esteem fluctuation and compensatory tendencies, whereas those with higher ethical coherence should demonstrate reduced reactivity. Such moderation effects would indicate that ethical coherence functions as a stabilizing buffer in environments characterized by heightened external evaluation.

The model is empirically falsifiable insofar as ethical coherence may fail to predict stability, guilt may not mediate the proposed associations, or moderation effects may not emerge under evaluative stress.

By specifying measurable constructs and directional predictions, the framework advances from conceptual proposal to testable theory.

6. Conclusion: Ethics as psychic hygiene in clinical and social contexts

This paper reconceptualized ethics as a structural regulator within the psychic economy. Ethical coherence—defined as sustained alignment between internalized values and enacted behavior—reduces superego tension, lowers unconscious guilt load, and stabilizes self-esteem. Rather than functioning primarily as moral prescription, ethics may operate as a form of psychic hygiene that preserves internal continuity and minimizes fragmentation.

Clinically, ethical dissonance may underlie diffuse guilt, rumination, and compensatory overregulation, suggesting value-behavior alignment as a relevant intervention axis. Socially, in contexts characterized by acceleration and performativity, ethical coherence may serve as a stabilizing anchor that reduces dependency on fluctuating external validation.

Ethics, in this formulation, becomes not a demand for perfection but a structural resource for psychic integration and resilience.

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