Mediterranean Journal of Clinical Psychology

ISSN 2282-1619

MJCP

Volume 13, n 3, 2025

Clinical Psychology

The Questionnaire for Psychotic Experiences: Preliminary validation of the Italian version (QPE-I) in a general population sample

Marta Moselli [1], Chiara Gagliardi [2], Arianna Quassoni [2], Alessandra D'Agostino [2]*

Abstract

Introduction: Psychotic experiences (PEs), such as hallucinations and delusions, are transdiagnostic phenomena that can range from subclinical manifestations in the general population to more severe and distressing forms in the psychiatric populations. The Questionnaire for Psychotic Experiences (QPE) is a trans-diagnostic tool to explore the diverse and nuanced phenomenology of psychotic experiences from a quali-quantitative perspective. This study presents the preliminary validation of the Italian version of the Questionnaire for Psychotic Experiences (QPE-I), assessing its psychometric properties in a general population sample.

Methods: A preliminary validation study was conducted with 87 adults from the general population (M = 29.33, SD = 7.30). Participants completed the Italian version of the QPE (QPE-I) and additional self-report measures. Psychometric analyses included principal component analysis (PCA), internal consistency (Cronbach's α), convergent and divergent validity, and inter-scale correlations.

Results: The results indicate that the QPE-I largely retains the core structure of the original instrument while adapting to the Italian context. The QPE-I shows good cross-cultural adaptation, internal consistency, reliability, and convergent and divergent validity. As expected for a non-clinical sample, frequencies of hallucinations and delusions were low but detectable.

Conclusion: The QPE-I facilitates the transdiagnostic exploration of psychotic experiences by distinguishing qualitative differences in hallucinations and delusions among individuals. The QPE-I also has potential clinical applications in psychotherapy by providing a means of monitoring symptomatic change and therapeutic outcomes. However, this preliminary study is limited by its small sample size and inclusion of only non-clinical participants. Future research with larger and clinical samples is essential to complete the validation process.

[1] Department of Dynamic and Clinical Psychology, and Health Studies, Faculty of Medicine and Psychology, Sapienza University of Rome, Rome, Italy

[2] Department of Humanities, University of Urbino Carlo Bo, Italy

E-mail corresponding author: marta.moselli@uniroma1.it

Keywords:
Delusions; Interview; Hallucinations; Psychotic experiences.

Received: 11 June 2025
Accepted: 16 December 2025
Published: 24 December 2025

Citation: Moselli, M., Gagliardi, C., Quassoni, A., & D'Agostino, A. (2025). The Questionnaire for Psychotic Experiences: Preliminary validation of the Italian version (QPE-I) in a general population sample. *Mediterranean Journal of Clinical Psychology 13*(3). https://doi.org/10.13129/2282-1619/mjcp-4952

1. Introduction

In recent years, in contrast to the categorical approach of the "Kraepelinian dichotomy, (Kraepelin, 1921) research has increasingly supported the hypothesis of a dimensional approach to psychosis, suggesting a continuum of psychotic experiences between healthy individuals and patients with psychotic and other disorders (Hinterbuchinger & Mossaheb, 2021). Psychotic experiences show a wide range of phenomenological variations (Armando et al., 2012), with the most commonly reported being auditory and visual hallucinations and delusions (Rossell et al., 2019). Other types of hallucinations, such as olfactory and tactile ones, are likely to be under-reported. This dimensional model is further supported by etiological considerations suggesting that severe, frequent psychotic experiences and milder, less frequent manifestations share genetic and environmental influences (Zavos et al., 2014).

In fact, psychosis etiology is multifactorial, and the risk of developing psychosis increases with the accumulation of genetic risk variants and exposure to multiple adverse environmental factors (Zwicker et al., 2018) such as younger age, drug use, and family history of mental disorders (Kusztrits et al., 2021). Additionally, the impact of environmental exposures likely depends on genetic factors, through gene-environment interactions. Heritability may also varies by type of PE, being highest for paranoia and parent-rated negative symptoms and lowest for hallucinations (Zavos et al., 2014). Beyond epidemiological and genetic contributions, qualitative research has highlighted the importance of trauma-related mechanisms in shaping the onset and phenomenology of psychotic symptoms. Individuals with psychosis often report histories of interpersonal trauma, and describe direct links between traumatic experiences and the content, emotional tone, and persistence of their hallucinations and delusions (Campodonico et al., 2022; Zoromba et al., 2024).

According to this perspective, psychotic experiences (PEs) can be seen as transdiagnostic phenomena, such as hallucinations and delusions, that can range from subclinical manifestations in the general population to more severe and distressing forms in the psychiatric population (Bebbington & Freeman, 2017; Sommer et al., 2012; Staines et al., 2022). Kusztrits et al.'s findings further support the idea of a structural and phenomenological continuum of hallucinations and delusions. They showed that the mere presence of PLEs does not reliably distinguish between clinical and non-clinical individuals (Kusztrits et al., 2021). The estimated lifetime prevalence of psychotic experiences in the general population is 7.8%. Most people consider these to be transient phenomena; however, in some cases, they may be persistent or recurrent (Staines et al., 2022).

The highest rates of psychotic experiences can be observed in adolescence (Staines et al., 2023), when PEs are associated with an increased risk of affective disorders, anxiety disorders, behavioral disorders and substance-use disorders, as well as a four-fold increase risk of psychotic

disorder (Healy et al., 2019). Beyond psychopathological outcomes, psychotic experiences in adolescence have also been linked to important indicators of psychological vulnerability, including self-harm and suicidal behaviors (Hielscher et al., 2021; Steenkamp et al., 2023). Longitudinal evidence also suggests that hallucinations and delusion-like experiences in adolescents can follow different trajectories. These trajectories are identified as "paranormal" and "pathological" typologies. They are istinguished by cultural meaning-making, emotional impact, and appraisals (Coughlan et al., 2022).

Psychotic experiences are most commonly associated with diagnoses such as schizophrenia (Merrett et al., 2016), bipolar disorder (Aminoff et al., 2022), and major depressive disorder (Toh et al., 2015). However, they can also occur alongside neurological illnesses and medical conditions (Scarfo et al., 2024; Sommer et al., 2012), as well as borderline personality disorder (Niemantsverdriet et al., 2022). Some quantitative differences emerged between diagnostic groups. However, the overall phenomenology of hallucinations and delusions in BPD was comparable to that observed in schizophrenia. In fact, the BPD group reported higher levels of paranoia and guilt-related delusions (Merrett et al., 2022). Additionally, the presence of PEs in depression and anxiety predicts greater psychopathology (Staines et al., 2022). A recent systematic review found that delusions in schizophrenia, bipolar disorder, Alzheimer's disease, and Parkinson's disease share some common structural correlates, though they also show variability specific to each disorder (Rootes-Murdy et al., 2022).

Contemporary conceptualizations of psychotic experiences that adopt a dimensional and transdiagnostic perspective, focusing on symptoms rather than traditional categorical diagnoses, are well represented in the Hierarchical Taxonomy of Psychopathology (HiTOP) framework. HiTOP proposes a psychosis superspectrum, which captures the broad range of psychotic phenomena through empirically derived dimensions (Jonas et al., 2024). The psychosis superspectrum comprises two major spectra—psychoticism and detachment. These spectra are further subdivided into narrower components and supported by auxiliary domains, such as cognition and functional impairment. This model was developed to address the longstanding limitations of traditional diagnostic systems, including low reliability, arbitrary boundaries between normality and psychopathology, high symptom co-occurrence, and substantial heterogeneity within categories.

Contemporary diagnostic systems, such as the DSM-5-TR (APA, 2022) and the ICD-11 (Chute & Çelik, 2021), continue to predominantly adopt categorical approaches. However, there is a growing recognition of the need to integrate phenomenological detail in the evaluation of psychotic symptoms, as reflected in dimensional formulations, such as those included in the PDM-2 (Lingiardi & McWilliams, 2015), Contemporary research highlights the role of interpersonal and social dimensions in the broader phenotype of psychosis, beyond symptom

expression. Individuals with psychotic spectrum disorders often exhibit distinct attachment patterns, greater relationship insecurity, and dimished perceived social support compared to healthy individuals, which are not fully captured by traditional diagnostic manuals (Stang et al., 2024). Phenomenological research has in fact shown that all psychotic experiences involve profound disruptions in salience, self-experience, and the relationship with the world. However, these dimensions are insufficiently represented in traditional diagnostic frameworks (Fusar-Poli et al., 2022), and the subjective experience and meaning of delusions are often overlooked (Ritunnano et al., 2022).

Recent developments in computational psychopathology propose complementary, dimensional, and transdiagnostic frameworks that conceptualize symptoms as continuous parameters and emphasize measurable processes over categorical diagnoses. (Myles, 2021). These approaches align with contemporary dimensional frameworks and reinforce the need for assessment tools that can capture psychotic phenomena across multiple experiential domains.

Nevertheless, there is a lack of tools capable of capturing the diverse phenomenological modalities of PEs. Most existing tools are limited to assessing one modality at a time (Lee et al., 2016), while others only provide global scores that do not account for specific delusional themes or hallucination modalities (Rossell et al., 2019). Systematic reviews on multimodal hallucinations highlight the need for tools that assess multiple sensory modalities, which is consistent with the QPE approach (Montagnese et al., 2021; Pienkos et al., 2019). A major challenge in PE research is the lack of conceptual and methodological consensus. Definitions and assessment tools vary widely, leading to inconsistent findings regarding prevalence, persistence, and clinical significance. A recent review of PEs in the general population (2022) clearly states the need for a more in-depth analysis of different types of PEs to clarify their potentially divergent trajectories and psychopathological significance. The review also states that self-report measures without information on duration, frequency, or conviction risk misidentifying phenomena (Staines et al., 2022).

In 2019, Rossell and Schutte developed a trans-diagnostic tool to address gaps in the assessment of psychotic experiences (PEs) and explore their diverse and nuanced phenomenology from a quali-quantitative perspective. The Questionnaire for Psychotic Experiences (QPE) evaluates auditory, visual, olfactory, and tactile hallucinations, as well as various delusional beliefs. It contains a total of 50 qualitative and quantitative items. Psychotic experiences are evaluated based on lifetime events and current experiences within the past seven days. The QPE provides an overall severity score (total QPE) and allows analyses of four subscales: auditory hallucinations (AH), visual hallucinations (VH), total hallucinations (TotH), and delusions (D).

The original English version demonstrated strong psychometric properties, with Cronbach's $\alpha > 0.7$, near-perfect inter-rater reliability (ranging from 0.99 to 1), and excellent test-retest

reliability (ranging from 0.70 to 0.92). Psychometric evaluations have been conducted on both clinical and general populations. Convergent validity was assessed by performing interscale correlations between the QPE and the PSYRATS (Haddock et al., 1999) (AH and delusions subscales), PANSS (Kay et al., 1987) (hallucination and delusion items), SAPS (Andreasen, 1989) (hallucinations and delusions subscale), and NEVHI (Mosimann et al., 2008) (total VH severity score). PANSS (negative and general subscales), BDI (Beck, 1961) (total score), and BAI (Beck et al., 1988) (total score) were used to assess discriminant validity. As a result, convergent and divergent validity were found to be adequate, supporting the utility of the QPE in assessing psychotic experiences in different contexts (Rossell et al., 2019).

In the absence of comprehensive instruments to measure psychotic experiences in Italy, this study aims to validate the Italian version of the Questionnaire for Psychotic Experiences (QPE-I). The validation will measure the questionnaire's psychometric properties in a general population sample. This will pave the way for its use in clinical contexts in Italy. It will also support a cross-cultural understanding of the construct. Furthermore, it will promote a broader, more nuanced, transdiagnostic perspective on psychotic experiences (McGrath et al., 2015; Yehya et al., 2023). Consistent with the original validation, we hypothesized that the QPE-I would demonstrate good internal consistency, a similar factorial structure, and significant correlations with measures of positive psychotic symptoms.

2. Methods

2.1 Participants

Participants (N = 87) were recruited from the general population by publicizing the research through social networks. The sample's age ranged from 18 to 60 years, with a mean age of 29.33 years (± 7.3). Inclusion criteria required both a good understanding of the Italian language and the absence of mental retardation. Participants were assessed for a) current use of alcohol, drugs, and medications (categorized as weekly, monthly, every 3-6 months, once a year); b) past use of alcohol, drugs, and medications (categorized as current); c) discontinued use of alcohol, drugs, and medications, with duration of cessation. Demographic information was also collected.

All participants gave informed consent before completing the protocol and completed the questionnaires under the investigator's supervision. Two participants were excluded from the study due to issues in finishing the test. The study was approved by the Human Research Ethics Committee of the University of Urbino Carlo Bo.

2.1 Measures

A total of 4 self-report instruments were administered to the participants.

2.1.1 Questionnaire for Psychotic Experiences (QPE-I)

The main instrument was the Italian version of the Questionnaire for Psychotic Experiences (QPE-I). Similar to the original version, the QPE-I comprises 50 qualitative and quantitative items assessing different types of hallucinations and delusions in the lifetime and as current experiences. The scale provides five total scores, including auditory hallucinations (AH), visual hallucinations (VH), total hallucinations (TotH), delusions (D), and overall severity of psychotic experiences (total QPE score). For AH and VH, severity is calculated by summing items rated on a 6-point scale (0-5) on frequency, duration, distress, and impact. For D, severity is based on conviction, preoccupation, distress, and impact. These scores do not include phenomenological features (e.g., specific descriptive features). To calculate total hallucinations (TotH) and total severity of psychotic experiences (Total QPE score), frequency of tactile hallucinations (THs), frequency of olfactory hallucinations (OHs), frequency of multimodal hallucinations, and frequency of sleep paralysis (SP) were also included. The QPE scores exclude distress and impact information for THs, OHs, multimodal hallucinations, and SP for brevity.

2.1.2 Community Assessment of Psychic Experience

In addition to QPE-I, three other self-reports were administered to evaluate the convergent and divergent validity of the scale, together with clinical dimensions in the sample. The Community Assessment of Psychic Experience (Daneluzzo et al., 2008; Stefanis et al., 2002) is a 42-item self-report questionnaire used to measure psychotic symptoms and as a screening tool to identify individuals at ultra-high risk for psychosis. It is derived from a combination of the Peters Delusions Inventory (PDI) (Peters et al., 1999), modified in the wording of some items with the addition of items from the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1989) and the Subjective Experience of Negative Symptoms Scale (SENS) (Selten et al., 1998). CAPE provides scores on three dimensions: positive (20 items), negative (14 items), and depressive (8 items). For each item, the frequency is indicated on a four-point Likert scale (never = 1, sometimes = 2, often = 3, always = 4) and, in the case of a positive response (score>1), the level of discomfort is also assessed on four possible levels: not at all = 1, a little = 2, quite a lot = 3, a lot = 4). For each dimension, it is, therefore, possible to calculate two different total scores: Frequency and Distress.

2.2.3 State-Trait Anxiety Inventory (STAY-X)

The State-Trait Anxiety Inventory (STAY-X; Lazzari & Pancheri, 1980; Spielberger et al., 1983) is a 40-item self-report measure of anxiety, rated on a four-point Likert scale (ranging from "not at all" to "very much") and divided into two subscales addressing state anxiety (20 items) and trait anxiety (20 items). STAY showed good internal consistency, with Cronbach's alpha typically ranging from 0.86 to 0.95 for both the state (A-State) and trait (A-Trait) scale and good retest reliability for the trait subscale (ranging from 0.73 to 0.86 over time). The Italian adaptation

shows similar properties, with Cronbach's alpha generally above 0.85 for both scales and factor analysis results are consistent with the original scale.

2.2.4 Symptom Checklist-90-Revised (SCL-90)

The Symptom Checklist-90-Revised (Prunas et al., 2012; Todd et al., 1997) is administered to investigate the various clinical dimensions within the sample. The SCL-90-R is a 90-item self-report questionnaire designed to assess symptom severity across several clinical dimensions. Each item is rated on a five-point Likert scale ranging from 0= not at all to 4= extremely. The questionnaire consists of nine primary dimensions: Somatization (SOM); Obsessive-Compulsivity (O-C); Interpersonal Sensitivity (I-S); Depression (DEP); Anxiety (ANX); Hostility (HOS); Phobic Anxiety (PHOB); Paranoid Ideation (PAR); Psychoticism (PSY). The SCL-90-R can also provide three global indices consisting of the Global Severity Index (GSI), Positive Symptom Total (PST), and Positive Symptom Distress Index (PSDI). The scale is widely used and has strong psychometric properties (Cronbach's alpha > 0.80 on most dimensions). The Italian version retained the nine-factor structure of the original questionnaire and showed strong internal consistency (Cronbach's alpha > 0.85 for most dimensions).

2.2.5 Cross-cultural adaptation process of the QPE-I

The QPE was translated into Italian according to the guidelines for cross-cultural adaptation of self-report instruments (Beaton et al., 2000). First, two native speakers of the target language (Italian) with different backgrounds (one clinical, the other non-clinical) translated the QPE from English to Italian (forward translation). Working independently, the translators noted ambiguous or problematic phrases and produced two versions: T1 and T2. Secondly, the two translators compared their translations in the presence of an observer to reach a consensus and thus produce a synthesis of the translations: T12. Third, two native speakers of the original language (English) independently translated the T12 version back into English. The translators were blind to the original QPE; they had no theoretical knowledge of what the instrument measured and no background in clinical psychology. They produced two independent versions: BT1 and BT2 (back translations). Fourth, a committee of experts reviewed all the translated versions to achieve semantic, idiomatic, and conceptual equivalence, thus creating a pre-final version (committee review). Finally, the pre-final version was administered to a group of 30 participants (mean age = 28.32), who were invited to leave comments and answers to additional comprehensibility questions (pre-testing). Then, in the final approval phase, after careful consideration of the comments, the final version (QPE-I) was produced, and approval was obtained from the author of the original version. The cultural adaptation process of other related scales confirms the feasibility of adapting phenomenological instruments in different linguistic contexts (Tamayo-Agudelo et al., 2019).

Due to the preliminary nature of this study, the sample size was deemed sufficient for an initial assessment of the QPE-I's feasibility and psychometric properties. According to guidelines for cross-cultural adaptation, early validation phases, including pilot testing and initial psychometric screening, can be conducted with relatively small samples (Beaton et al., 2000). While larger samples are necessary for full validation and stable factor solutions (Kline, 2015), preliminary exploratory analyses with smaller non-clinical samples are typically performed in the early stages of scale adaptation, before advancing to larger clinical populations. Furthermore, the mixed nature of the questionnaire, which provides both qualitative and quantitative information, enables evaluation of the test's usefulness and gathering of valuable insights into the phenomenology of psychotic experiences, regardless of sample size.

2.2.5.1 Establishing psychometric properties

To assess the psychometric properties of the QPE-I, six principal component analyses (PCA) were conducted to replicate the procedure used in the original study (including the AH, VH, and D subscales, both lifetime and current). PCA was conducted as an exploratory and preliminary procedure to align with the original QPE validation. For each subscale, all items, 15 each for AH and VH and 5 for D, were included in the analyses. As in the original study, promax rotations were used, considering the ordinal nature of the items and the expected correlations between them. Eigenvalues greater than one and factor loadings greater than 0.4 were retained and considered satisfactory.

For convergent validity, correlations were performed with the two positive subscales of the CAPE (Frequency and Distress), which were predicted to show a significant positive correlation. The SCL-90-R paranoid ideation subscale was expected to show a positive correlation with the QPE-I delusions subscales (current and lifetime), and the psychoticism subscale was expected to show a positive correlation with the QPE-I total.

For discriminant validity, we used STAY-X, which was not expected to show a significant strong correlation with the QPE-I (at $P < .001$ with $r > .55$). Internal consistency was assessed for each subscale and dimension using Cronbach's alpha. Cronbach's alpha values > .70 were considered acceptable. Interscale correlations were conducted with the expectation that they would be low and nonsignificant between subscales (i.e., AH, VH, and D), while individual subscales were expected to correlate with the total.

3. Results

3.1 Cross-cultural adaptation process

No significant disagreements or problems arose during the cross-cultural adaptation process. Only one issue arose after an exchange with the authors: they informed us of the existence of a second, newer, but longer version of the test (more detailed in the delusions section) in addition

to the original version developed two years earlier. After extensive analysis of the second version, it was decided to continue with the validation of the original version, as it was considered easier to administer to a wide range of people, from healthy to patients with psychotic and other disorders in our mental health services.

3.2 Descriptive analyses

Descriptive analyses are presented in Tables 1 and 2. 19.5% of the sample have a history of substance use, and 9.2% of the sample are current users. In addition, 47.1% of the sample used alcohol, including 53.2% weekly. The SCL-90-R Depression subscale was the clinical dimension most represented in the sample (27.6%), followed by OCD (26.4%).

Table 1

History of alcohol and substance use; hallucinations, delusions

Alcohol use		
Current	N %	*Lifetime* N%
Use	41 (47.1%)	42 (48.3%)
Weekly	21 (53.2%)	24 (57.1%)
Monthly	12 (29.3%)	10 (23.8%)
Every 3-6 months	5 (12.2%)	6 (14.3%)
Yearly	3 (7.3%)	2 (4.8%)
Stopped Use (<6 months)	2 (50%)	
Stopped Use (<1 year, >6 months)	1 (25%)	
Stopped Use (>1 year)	1 (25%)	
Substance use		
Use	8 (9.2%)	17(19.5%)
Weekly	2 (25%)	4 (23.5%)
Monthly	1 (12.5)	4 (23.5%)
Every 3-6 months	4 (50%)	4 (23.5%)
Yearly	1 (12.5)	5 (29.4%)
Cannabis	8 (100%)	14 (87.5%)
Polyabuse	0	1 (6.3%)
Other substances	0	1 (6.3%)
Stopped Use (<1 year, >6 months)	4 (28.6%)	
Stopped Use (>1 year)	10 (71.4%)	
Hallucinations		
Auditory	9 (10.3%)	17 (19.5%)
Visual	6 (6.9%)	15 (17.2%)
Tactile	6 (6.9%)	18 (20.7%)
Olfactory	8 (9.1%)	21 (24.1%)
Delusions		
Ideation	20 (23%)	32 (36.8%)
Delusion	2 (2.3%)	3 (3.4%)

Table 2

Clinical characteristics of the sample

SCL-90 Subscale	N. scores >1	%
(SOM)	14	16.09
(O-C)	23	26.43
(I-S)	16	18.39
(DEP)	24	27.58
(ANX)	12	13.79
(HOS)	6	6.89
(PHOB)	7	8.04
(PAR)	13	14.94
(PSY)	6	6.89
(GSI)	15	17.24
(SLEEP)	12	13.79

Note. Somatization (SOM); Obsessive-Compulsive (O-C); Interpersonal Sensitivity (I-S); Depression (DEP); Anxiety (ANX); Hostility (HOS); Phobic Anxiety (PHOB); Paranoid Ideation (PAR); Psychoticism (PSY). SCL-90-R can also provide three global indices consisting of Global Severity Index (GSI); Impaired Sleep (SLEEP).

3.3 Factor analysis

Our study partially confirmed the original structure. The three-factor model was confirmed for the AH subscales (current and lifetime) and (VH lifetime), as well as a one-factor model for the D subscales (current and lifetime). The VH current subscale showed a better fit with a two-factor model. For the current AH subscale, current experience analyses yielded the following dimensions: level of functioning, pervasiveness, and impact. These factors accounted for 87% of the variance. The lifetime AH subscale is composed of the same dimensions, and these factors accounted for 85% of the variance. In this case, the item "frequency" did not load on any of the 3 factors. The current VH subscale was found to be composed of the following dimensions: level of functioning and impact, and these factors accounted for 85% of the variance. For the Lifetime VH subscale, past experience analyses yielded the following dimensions: level of functioning, pervasiveness, passage, which accounted for 87% of the variance. In this case, the item "illusions" did not load clearly on any of the 3 factors, indicating a complex structure. When considering the D subscales, the unidimensional model was labeled Impact on Functioning, as in the original study. It accounted for 60% of the variance in the current data and 49% of the variance in the lifetime data. Table 3 shows the extended results.

Table 3

Principal Component Analysis with Promax Rotations

Auditory Hallucinations					Visual Hallucinations					Delusions		
No	Item	1	2	3	No	item	1	2	3	No	Item	1
	Current Experience											
A11	Insight	1.06			V8	Complexity	.99			D12	Distress	.86
A12	Interaction	1.04			V13	Commands	.99			D10	Preoccupation	.80
A9	Location	1.01			V10	Time day	.98			D11	Conviction	.80
A13	Commands	.97			V9	Location	.97			D13	Impact	.72
A8	Complexity	.95			V5	Distress	.96			D14	Impact ha	.67
A10	Time Day	.94			V11	Insight	.92					
A2	Past event	.94			V4	Emotional	.92					
A14	Illusions	.86			V7	Repetition	.92					
A15	Music	.82			V2	Past event	.88					
A1	Frequency	.53		.49	V12	Interaction	.86					
A3	Duration		.94		V3	Duration	.86					
A4	Emotional		.92		V1	Frequency		.91				
A5	Distress		.69		V6	Impact		.86				
A6	Impact			1.01	V15	Passage		.83				
A7	Repetition	.44		.55	V14	Illusions		.73				
Lifetime Experience												
A11	Insight	1.09			V7	Repetition	.97	.70		D12	Distress	.81
A9	Location	1.07			V11	Insight	.97	.70		D11	Conviction	.75
A12	Interaction	.99			V13	Commands	.97			D10	Preoccupation	.73
A10	Time Day	.90			V12	Interaction	.96			D14	Impact ha	.63
A14	Illusions	.88			V8	Complexity	.94			D13	Impact	.54
A13	Commands	.88			V1	Frequency	.94					
A8	Complexity	.85			V10	Time day	.92					
A2	Past event	.66	.52		V9	Location	.83					
A15	Music	.57		.48	V14	Illusions	.56	.51	.50			
A4	Emotional		1.04		V4	Emotional		.97				
A3	Duration		.95		V5	Distress		.95				
A5	Distress		.59		V3	Duration		.94				
A6	Impact			1.07	V2	Past event		.90				
A7	Repetition			.64	V6	Impact		.81				
A1	Frequency	.39	.29	.38	V15	Passage			.92			

3.4 Convergent and divergent validity

Table 4 shows the convergent and divergent validity. The results confirm our previous hypothesis, except for the lack of correlation between the CAPE positive subscale and the VH lifetime subscale. In addition, the SCL-90-R Psychoticism subscale shows a strong correlation with the Delusions Lifetime subscale.

Table 4

Convergent and divergent validity

		QPE-I Subscales							
Alternate		AH		VH		D		QPE-I	
Measures	Subscale	L	C	L	C	L	C	L	C
Convergent Validity Inter-scale Correlations									
CAPE	Positive	.11	.19 *	.13	.20*	.23**	.32***	.19*	.33***
	Pos Distress	.18*	.19*	.19*	.21*	.20*	.30**	.20*	.32***
SCL-90	(PAR)	.14	.14	.02	.14	.30***	.41***	.20*	.33***
	(PSY)	.13	.07	.16	.15	.28**	.47***	.22**	.36***
Discriminant Validity Inter-scale Correlations									
STAY-X	A-State	.01	-.02	.09	.05	.09	.20*	.02	.11
	A-Trait	.12	.07	.17*	.14	.14	.27**	.11	.21*

Note. AH, auditory hallucination total score; VH, visual hallucination total score; D, delusions; QPE-I, total severity psychotic experiences on the Questionnaire for Psychotic Experiences; L, lifetime; C, current.

***P < .0001.

3.5 Reliability

Reliability data are presented in Table 5, showing internal consistency and interscale correlations. The QPE-I subscales showed internal consistency ranging from excellent to good, with Cronbach's α ranging from .73 to .93 for lifetime experiences and 0.72 to 0.96 for current experiences. The TotH is an exception, showing just acceptable internal consistency with Cronbach's α of .62 and .69 for lifetime and current experiences, respectively. In this scale, the item-total correlations for certain items appear to be low, as in the case of O1 (.063) and O3 (.067) for lifetime experiences and A3 (.185), O1 (.126) for current experiences.

The QPE-I scale also shows some low item-total correlations, as observed in the case of O1 (.167) and O3 (.067) for lifetime experiences and A3 (.065), A6 (.091) for current experiences. The interscale correlations were mostly low and no significant across the subscales (i.e., AH,

VH, and D), except AH with D in lifetime experiences, which was already significant in the original study. Individual subscales were correlated with total subscale scores (i.e., AH with TotH and QPE). Overall, these data indicate good internal consistency, especially for the AH, VH, and D subscales and for the assessment of different dimensions of psychotic experiences.

Table 5

Internal consistency and inter-scale correlations

		AH	VH	TotH	D	QPE-I
AH	L	**.92**				
	C	**.93**				
VH	L	.21*	**.93**			
	C	.19	**.96**			
TotH	L	.65***	.44***	**.62**		
	C	.65***	.53***	**.69**		
D	L	.34***	.20*	.33***	**.73**	
	C	.16	.15	.30**	**.81**	
QPE-I	L	.57***	.38***	.72***	.71***	**.71**
	C	.51***	.41***	.72***	.72***	**.73**

Note. AH, auditory hallucination total score; VH, visual hallucination total score; TotH, total hallucinations; D, delusions; QPE-I, total severity psychotic experiences on the Questionnaire for Psychotic Experiences; L, lifetime; C, current; Internal consistency is represented in bold on the diagonal and are reported as Cronbach's; Inter-subscale correlations ** significant at .01;***significant at .001 using Kendall's Tau.

4. Discussion

The aim of this study was to validate the Italian version of the Questionnaire for Psychotic Experiences (QPE-I) and to measure its psychometric properties in a general population sample. The QPE-I was able to collect data on a wide range of psychotic experiences in participants selected from the general population and unlikely to be familiar to health professionals. A growing body of research underscores the importance of developing a questionnaire that evaluate unusual sensory experiences across different modalities (MUSEQ), emphasizing the necessity of multimodal instruments (Mitchell et al., 2017).

As in the original study, auditory hallucinations were the most commonly reported phenomenon (Rossell et al., 2019). Rates of delusional ideation, but not of delusions, were high, likely reflecting the non-clinical nature of the sample (Bebbington & Freeman, 2017). Olfactory

and tactile hallucinations were present, with olfactory hallucinations showing even higher rates than visual hallucinations, although this phenomenon is usually overlooked in the literature (Langdon et al., 2011; Rubert, 1961). Our findings regarding the prevalence of olfactory hallucinations in the general population align with recent epidemiological evidence (Wehling et al., 2021) which also revealed higher rates among younger adults and women. Olfactory hallucinations frequently co-occur with hallucinations in other sensory modalities and are associated with anxiety and stressful life events. Our observation that olfactory hallucinations were reported more frequently than visual hallucinations in our sample, when considering the lifespan, aligns with these results and suggests that such experiences may be more common—and more clinically relevant—than traditionally assumed.

Statistical analysis revealed that the interview measures different dimensions of psychotic experiences. This finding is consistent with recent literature advocating for a more complex, dimensional approach to assessing psychotic experiences (Heilskov et al., 2020; Hinterbuchinger & Mossaheb, 2021; Rossell et al., 2019; Staines et al., 2022). Good internal consistency and a good ability to discriminate psychotic experiences from other psychological phenomena were shown. The total hallucinations subscale (TotH) was the only one that did not show high internal consistency (Cronbach's α of .62 and .69 for lifetime and current experiences, respectively), with low item-total correlations, especially for items measuring "other" hallucinations, which in fact have less space in the interview. It will be useful to replicate this data in a clinical sample and examine these items and the scales that contain them.

The structural analysis of the QPE-I didn't exactly match that of the original interview. Our study confirms the original with a three-factor structure for the auditory hallucinations (AH) subscales and the visual hallucinations (VH) lifetime subscale and a one-factor model for the delusions (D) subscales. The VH current subscale was the only exception, showing a better fit with a two-factor model, including the level of functioning and impact, whereas the original study found three dimensions (impact on functioning, incidence, and illusions). In addition, the underlying dimensions of the other subscales do not fully overlap. While both studies found a 3-factor solution for the AH subscales, the specific dimensions underlying the subscales differed. For the current subscale, "incidence" and "illusions" in the original study are replaced by "pervasiveness" and "impact" in our study. The same happens with the "insight" and "illusions" dimensions in the lifetime subscale. Moreover, the variance explained is significantly higher in the QPE-I version (63% in the original study, 87% in our study for current, 49% vs. 85% for lifetime). The lack of clinical representation in the sample may have led to redefinitions of the dimensions, and differences in factor interpretation, translation nuances, or cultural

differences in how item are perceived. Therefore, it is important to continue studying the QPE-I psychometric properties in clinical samples to facilitate comparison of the results.

The delusion results are consistent between the two studies, which supports the robustness of the unidimensional structure across cultures. This is an important finding, as recent literature has highlighted significant methodological challenges in assessing delusions in the general population (Heilskov et al., 2020).

5. Strengths and limitations

The present study makes a preliminary contribution to the validation of the Italian version of the Questionnaire for Psychotic Experiences (QPE-I) and add to the growing body of literature that supports the use of dimensional and transdiagnostic approaches to assessing psychotic experiences. Initial evidence gathered showed good feasibility, comprehensibility, and psychometric properties in a general population sample. A key strength of this work is the cross-cultural adaptation process, which was conducted in accordance with established guidelines and is supported by initial reliability and validity indicators that align with those of the original instrument. The qualitative data collected also provides interesting information on the phenomenology of psychotic experiences, suggesting the usefulness of the questionnaire in this regard.

However, several limitations must be acknowledged. First, the sample size was modest, so the findings should be interpreted as preliminary. A larger sample size is required for more stable factor solutions and full validation, especially since PCA with Promax rotation requires a larger sample size to capture complex structures. Second, the study relied exclusively on non-clinical participants. While this approach is appropriate for the initial stages of adaptation, it limits the generalizability of the results to clinical populations, in which psychotic experiences are more frequent and severe. Third, future studies should examine additional psychometric properties, including test–retest reliability and inter-rater agreement. Moreover, from a qualitative and theoretical standpoint, the questionnaire lacks some relevant information. For instance, studies on latent inhibition suggest that abnormalities in salience assignment could lead to hallucinations and unusual beliefs (Myles et al., 2023). The QPE-I primarily focuses on the phenomenological characteristics of hallucinations and delusions, so it is beyond its scope to assess the cognitive mechanisms implicated in psychosis.

Overall, despite these limitations, the current work provides a foundation for continued QPE-I validation. Including clinical samples and larger cohorts in future research will be essential to confirm the factorial structure, enhance the generalizability of the findings, and fully establish the clinical utility of the instrument in the Italian context.

6. Conclusions

The Italian version of the Questionnaire for Psychotic Experiences (QPE-I) provides a detailed picture of both qualitative and quantitative aspects of psychotic phenomena, offering valuable insights into the nuanced dimensions of these experiences. This makes it particularly useful for transdiagnostic assessment, examining qualitative differences in psychotic experiences among individuals with different psychiatric disorders, such as schizophrenia and borderline personality disorder, where the phenomenological quality of the experience rather than its quantity is crucial for a deeper understanding.

QPE-I has demonstrated its applicability to non-clinical populations, providing insight into common, often overlooked symptoms. The QPE-I could be very useful for application in psychotherapy settings, allowing clinicians to monitor symptomatology improvements over therapeutic interventions, providing a structured framework for assessing changes in the phenomenology of psychotic symptoms and providing an outcome measure for intervention research.

Further studies are needed to confirm and extend the psychometric properties of the QPE-I and to ensure its robustness and applicability across different populations. Nonetheless, the QPE-I stands as a useful tool that significantly enriches the understanding and assessment of psychotic experiences in our country.

List of abbreviations

QPE - Questionnaire for Psychotic Experiences

QPE-I - Italian version of the Questionnaire for Psychotic Experiences

AH - Auditory Hallucinations

VH - Visual Hallucinations

TotH - Total Hallucinations

D - Delusions

PANSS - Positive and Negative Syndrome Scale

PSYRATS - Psychotic Symptom Rating Scales

SAPS - Scale for the Assessment of Positive Symptoms

NEVHI - North East Visual Hallucinations Interview

BDI - Beck Depression Inventory

BAI - Beck Anxiety Inventory

CAPE - Community Assessment of Psychic Experience

PDI - Peters Delusions Inventory

SANS - Scale for the Assessment of Negative Symptoms

SENS - Subjective Experience of Negative Symptoms Scale

STAY-X - State-Trait Anxiety Inventory

SCL-90-R - Symptom Checklist-90-Revised

SOM - Somatization

O-C - Obsessive-Compulsivity

I-S - Interpersonal Sensitivity

DEP - Depression

ANX - Anxiety

HOS - Hostility

PHOB - Phobic Anxiety

PAR - Paranoid Ideation

PSY - Psychoticism

GSI - Global Severity Index

PST - Positive Symptom Total

PSDI - Positive Symptom Distress Index

SP - Sleep Paralysis

Ethical approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval for the study was obtained from the Ethics Committee for Human Experimentation (CESU) of the University of Urbino Carlo Bo (Minutes 50 of October 28 2021). The committee reviewed and approved the study protocol, ensuring compliance with ethical standards for research involving human participants.

All participants provided informed consent prior to their inclusion in the study. They were fully informed about the purpose, procedures, potential risks, and benefits of the research. Participation was voluntary, and participants were free to withdraw from the study at any time without any consequences. Confidentiality and data protection were maintained in accordance with applicable regulations.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Conflict of interest statement

The authors declare that they have no competing interests.

Author Contributions * **:** CG conceptualized the study and conducted data collection; MM assisted with data collection and performed data analysis; AQ supported the data analysis; AA supervised the entire project. All authors contributed to drafting the manuscript.

References

1. Aminoff, S. R., Onyeka, I. N., Ødegaard, M., Simonsen, C., Lagerberg, T. V., Andreassen, O. A., Romm, K. L., & Melle, I. (2022). Lifetime and point prevalence of psychotic symptoms in adults with bipolar disorders: A systematic review and meta-analysis. *Psychological Medicine*, *52*(13), 2413–2425. https://doi.org/10.1017/S003329172200201X
2. Andreasen, N. C. (1989). The Scale for the Assessment of Negative Symptoms (SANS): Conceptual and Theoretical Foundations. *British Journal of Psychiatry*, *155*(S7), 49–52. https://doi.org/10.1192/S0007125000291496
3. American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.). *American Psychiatric Publishing*. https://doi.org/10.1176/appi.books.9780890425787
4. Armando, M., Nelson, B., Yung, A. R., Saba, R., Monducci, E., Dario, C., Righetti, V., Birchwood, M., Fiori Nastro, P., & Girardi, P. (2012). Psychotic experience subtypes, poor mental health status and help-seeking behaviour in a community sample of young adults. *Early Intervention in Psychiatry*, *6*(3), 300–308. https://doi.org/10.1111/j.1751-7893.2011.00303.x
5. Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures. *Spine*, *25*(24), 3186–3191. https://doi.org/10.1097/00007632-200012150-00014
6. Bebbington, P., & Freeman, D. (2017). Transdiagnostic Extension of Delusions: Schizophrenia and Beyond. *Schizophrenia Bulletin*, *43*(2), 273–282. https://doi.org/10.1093/schbul/sbw191
7. Beck, A. T. (1961). An Inventory for Measuring Depression. *Archives of General Psychiatry*, *4*(6), 561. https://doi.org/10.1001/archpsyc.1961.01710120031004
8. Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, *56*(6), 893–897. https://doi.org/10.1037/0022-006X.56.6.893
9. Campodonico, C., Varese, F., & Berry, K. (2022). Trauma and psychosis: A qualitative study exploring the perspectives of people with psychosis on the influence of traumatic experiences on psychotic symptoms and quality of life. *BMC Psychiatry*, *22*(1), 213. https://doi.org/10.1186/s12888-022-03808-3
10. Chute, C. G., & Çelik, C. (2021). Overview of ICD-11 architecture and structure. *BMC Medical Informatics and Decision Making*, *21*(S6), 378. https://doi.org/10.1186/s12911-021-01539-1
11. Coughlan, H., Humphries, N., Clarke, M. C., Healy, C., & Cannon, M. (2022). Psychotic-like experiences? Trajectories and typologies of hallucinations and delusions from early adolescence to early adulthood in a population-based sample of Irish youth. *Irish Journal of Psychological Medicine*, *39*(2), 207–222. https://doi.org/10.1017/ipm.2021.31
12. Daneluzzo, E., Tommaso, S. D., Tempesta, D., Cerroni, G., Stratta, P., & Rossi, A. (2008). The Community Assessment Psychic Experience (CAPE): Evaluation study of the Italian version. *Epidemiologia e Psichiatria Sociale*, *17*(3), 242–247. https://doi.org/10.1017/S1121189X00001342

13. Fusar-Poli, P., Estradé, A., Stanghellini, G., Venables, J., Onwumere, J., Messas, G., Gilardi, L., Nelson, B., Patel, V., Bonoldi, I., Aragona, M., Cabrera, A., Rico, J., Hoque, A., Otaiku, J., Hunter, N., Tamelini, M. G., Maschião, L. F., Puchivailo, M. C., … Maj, M. (2022). The lived experience of psychosis: A bottom-up review co-written by experts by experience and academics. *World Psychiatry*, *21*(2), 168–188. https://doi.org/10.1002/wps.20959
14. Haddock, G., McCARRON, J., Tarrier, N., & Faragher, E. B. (1999). Scales to measure dimensions of hallucinations and delusions: The psychotic symptom rating scales (PSYRATS). *Psychological Medicine*, *29*(4), 879–889. https://doi.org/10.1017/S0033291799008661
15. Healy, C., Brannigan, R., Dooley, N., Coughlan, H., Clarke, M., Kelleher, I., & Cannon, M. (2019). Childhood and adolescent psychotic experiences and risk of mental disorder: A systematic review and meta-analysis. *Psychological Medicine*, *49*(10), 1589–1599. https://doi.org/10.1017/S0033291719000485
16. Heilskov, S. E. R., Urfer-Parnas, A., & Nordgaard, J. (2020). Delusions in the general population: A systematic review with emphasis on methodology. *Schizophrenia Research*, *216*, 48–55. https://doi.org/10.1016/j.schres.2019.10.043
17. Hielscher, E., DeVylder, J., Hasking, P., Connell, M., Martin, G., & Scott, J. G. (2021). Mediators of the association between psychotic experiences and future non-suicidal self-injury and suicide attempts: Results from a three-wave, prospective adolescent cohort study. *European Child & Adolescent Psychiatry*, *30*(9), 1351–1365. https://doi.org/10.1007/s00787-020-01593-6
18. Hinterbuchinger, B., & Mossaheb, N. (2021). Psychotic-Like Experiences: A Challenge in Definition and Assessment. *Frontiers in Psychiatry*, *12*, 582392. https://doi.org/10.3389/fpsyt.2021.582392
19. Jonas, K. G., Cannon, T. D., Docherty, A. R., Dwyer, D., Gur, R. C., Gur, R. E., Nelson, B., Reininghaus, U., & Kotov, R. (2024). Psychosis superspectrum I: Nosology, etiology, and lifespan development. *Molecular Psychiatry*, *29*(4), 1005–1019. https://doi.org/10.1038/s41380-023-02388-2
20. Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The Positive and Negative Syndrome Scale (PANSS) for Schizophrenia. *Schizophrenia Bulletin*, *13*(2), 261–276. https://doi.org/10.1093/schbul/13.2.261
21. Kline, P. (2015). *A Handbook of Test Construction (Psychology Revivals)* (0 edn). Routledge. https://doi.org/10.4324/9781315695990
22. Kraepelin, E. (1921). Manic Depressive Insanity and Paranoia: *The Journal of Nervous and Mental Disease*, *53*(4), 350. https://doi.org/10.1097/00005053-192104000-00057
23. Kusztrits, I., Larøi, F., Laloyaux, J., Marquardt, L., Sinkeviciute, I., Kjelby, E., Johnsen, E., Sommer, I. E., Hugdahl, K., & Hirnstein, M. (2021). Mapping psychotic-like experiences: Results from an online survey. *Scandinavian Journal of Psychology*, *62*(2), 237–248. https://doi.org/10.1111/sjop.12683
24. Langdon, R., McGuire, J., Stevenson, R., & Catts, S. V. (2011). Clinical correlates of olfactory hallucinations in schizophrenia. *British Journal of Clinical Psychology*, *50*(2), 145–163. https://doi.org/10.1348/014466510X500837
25. Lazzari, R., & Pancheri, P. (1980). *Questionario di Valutazione dell'Ansia di Stato e di Tratto (State-Trait Anxiety Inventory).*

26. Lee, K., Chan, K., Chang, W., Lee, E. H., Hui, C. L., & Chen, E. Y. (2016). A systematic review on definitions and assessments of psychotic-like experiences. *Early Intervention in Psychiatry*, *10*(1), 3–16. https://doi.org/10.1111/eip.12228
27. Lingiardi, V., & McWilliams, N. (2015). The psychodynamic diagnostic manual—2nd edition (PDM-2). *World Psychiatry*, *14*(2), 237–239. https://doi.org/10.1002/wps.20233
28. McGrath, J. J., Saha, S., Al-Hamzawi, A., Alonso, J., Bromet, E. J., Bruffaerts, R., Caldas-de-Almeida, J. M., Chiu, W. T., De Jonge, P., Fayyad, J., Florescu, S., Gureje, O., Haro, J. M., Hu, C., Kovess-Masfety, V., Lepine, J. P., Lim, C. C. W., Mora, M. E. M., Navarro-Mateu, F., … Kessler, R. C. (2015). Psychotic Experiences in the General Population: A Cross-National Analysis Based on 31 261 Respondents From 18 Countries. *JAMA Psychiatry*, *72*(7), 697. https://doi.org/10.1001/jamapsychiatry.2015.0575
29. Merrett, Z., Castle, D. J., Thomas, N., Toh, W. L., Beatson, J., Broadbear, J., Rao, S., & Rossell, S. L. (2022). Comparison of the Phenomenology of Hallucination and Delusion Characteristics in People Diagnosed With Borderline Personality Disorder and Schizophrenia. *Journal of Personality Disorders*, *36*(4), 413–430. https://doi.org/10.1521/pedi.2022.36.4.413
30. Merrett, Z., Rossell, S. L., & Castle, D. J. (2016). Comparing the experience of voices in borderline personality disorder with the experience of voices in a psychotic disorder: A systematic review. *Australian & New Zealand Journal of Psychiatry*, *50*(7), 640–648. https://doi.org/10.1177/0004867416632595
31. Mitchell, C. A. A., Maybery, M. T., Russell-Smith, S. N., Collerton, D., Gignac, G. E., & Waters, F. (2017). The Structure and Measurement of Unusual Sensory Experiences in Different Modalities: The Multi-Modality Unusual Sensory Experiences Questionnaire (MUSEQ). *Frontiers in Psychology*, *8*, 1363. https://doi.org/10.3389/fpsyg.2017.01363
32. Montagnese, M., Leptourgos, P., Fernyhough, C., Waters, F., Larøi, F., Jardri, R., McCarthy-Jones, S., Thomas, N., Dudley, R., Taylor, J.-P., Collerton, D., & Urwyler, P. (2021). A Review of Multimodal Hallucinations: Categorization, Assessment, Theoretical Perspectives, and Clinical Recommendations. *Schizophrenia Bulletin*, *47*(1), 237–248. https://doi.org/10.1093/schbul/sbaa101
33. Mosimann, U. P., Collerton, D., Dudley, R., Meyer, T. D., Graham, G., Dean, J. L., Bearn, D., Killen, A., Dickinson, L., Clarke, M. P., & McKeith, I. G. (2008). A semi-structured interview to assess visual hallucinations in older people. *International Journal of Geriatric Psychiatry*, *23*(7), 712–718. https://doi.org/10.1002/gps.1965
34. Myles, L. A. M. (2021). Opinion Article: The Emerging Role of Computational Psychopathology in Clinical Psychology. *Mediterranean Journal of Clinical Psychology*, *9*(1). https://doi.org/10.6092/2282-1619/mjcp-2895
35. Myles, L. A. M., Garrison, J., & Cheke, L. (2023). Latent Inhibition in Schizophrenia and Schizotypy. *Schizophrenia Bulletin Open*, *4*(1), sgad026. https://doi.org/10.1093/schizbullopen/sgad026

36. Niemantsverdriet, M. B. A., Van Veen, R. J. B., Slotema, C. W., Franken, I. H. A., Verbraak, M. J. P. M., Deen, M., & Van Der Gaag, M. (2022). Characteristics and stability of hallucinations and delusions in patients with borderline personality disorder. *Comprehensive Psychiatry*, *113*, 152290. https://doi.org/10.1016/j.comppsych.2021.152290
37. Peters, E. R., Joseph, S. A., & Garety, P. A. (1999). Measurement of Delusional Ideation in the Normal Population: Introducing the PDI (Peters et al. Delusions Inventory). *Schizophrenia Bulletin*, *25*(3), 553–576. https://doi.org/10.1093/oxfordjournals.schbul.a033401
38. Pienkos, E., Giersch, A., Hansen, M., Humpston, C., McCarthy-Jones, S., Mishara, A., Nelson, B., Park, S., Raballo, A., Sharma, R., Thomas, N., & Rosen, C. (2019). Hallucinations Beyond Voices: A Conceptual Review of the Phenomenology of Altered Perception in Psychosis. *Schizophrenia Bulletin*, *45*(Supplement_1), S67–S77. https://doi.org/10.1093/schbul/sby057
39. Prunas, A., Sarno, I., Preti, E., Madeddu, F., & Perugini, M. (2012). Psychometric properties of the Italian version of the SCL-90-R: A study on a large community sample. *European Psychiatry*, *27*(8), 591–597. https://doi.org/10.1016/j.eurpsy.2010.12.006
40. Ritunnano, R., Kleinman, J., Whyte Oshodi, D., Michail, M., Nelson, B., Humpston, C. S., & Broome, M. R. (2022). Subjective experience and meaning of delusions in psychosis: A systematic review and qualitative evidence synthesis. *The Lancet Psychiatry*, *9*(6), 458–476. https://doi.org/10.1016/S2215-0366(22)00104-3
41. Rootes-Murdy, K., Goldsmith, D. R., & Turner, J. A. (2022). Clinical and Structural Differences in Delusions Across Diagnoses: A Systematic Review. *Frontiers in Integrative Neuroscience*, *15*, 726321. https://doi.org/10.3389/fnint.2021.726321
42. Rossell, S. L., Schutte, M. J. L., Toh, W. L., Thomas, N., Strauss, C., Linszen, M. M. J., Van Dellen, E., Heringa, S. M., Teunisse, R., Slotema, C. W., & Sommer, I. E. C. (2019). The Questionnaire for Psychotic Experiences: An Examination of the Validity and Reliability. *Schizophrenia Bulletin*, *45*(Supplement_1), S78–S87. https://doi.org/10.1093/schbul/sby148
43. Rubert, S. L. (1961). Olfactory Hallucinations. *Archives of General Psychiatry*, *5*(3), 313. https://doi.org/10.1001/archpsyc.1961.01710150095014
44. Scarfo, S., Marsella, A. M. A., Grigoriadou, L., Moshfeghi, Y., & McGeown, W. J. (2024). Neuroanatomical correlates and predictors of psychotic symptoms in Alzheimer's disease: A systematic review and meta-analysis. *Neuropsychologia*, *204*, 109006. https://doi.org/10.1016/j.neuropsychologia.2024.109006
45. Selten, J.-P., Gernaat, H. B. P. E., Nolen, W. A., Wiersma, D., & Van Den Bosch, R. J. (1998). Experience of Negative Symptoms: Comparison of Schizophrenic Patients to Patients With a Depressive Disorder and to Normal Subjects. *American Journal of Psychiatry*, *155*(3), 350–354. https://doi.org/10.1176/ajp.155.3.350
46. Sommer, I. E., Koops, S., & Blom, J. D. (2012). Comparison of auditory hallucinations across different disorders and syndromes. *Neuropsychiatry*, *2*(1), 57–68. https://doi.org/10.2217/npy.12.2
47. Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. (Consulting Psychologists Press).

48. Staines, L., Healy, C., Coughlan, H., Clarke, M., Kelleher, I., Cotter, D., & Cannon, M. (2022). Psychotic experiences in the general population, a review; definition, risk factors, outcomes and interventions. *Psychological Medicine*, *52*(15), 3297–3308. https://doi.org/10.1017/S0033291722002550

49. Staines, L., Healy, C., Murphy, F., Byrne, J., Murphy, J., Kelleher, I., Cotter, D., & Cannon, M. (2023). Incidence and Persistence of Psychotic Experiences in the General Population: Systematic Review and Meta-Analysis. *Schizophrenia Bulletin*, *49*(4), 1007–1021. https://doi.org/10.1093/schbul/sbad056

50. Stang, P., Köllner, M., & Weiss, M. (2024). Social support and attachment in persons diagnosed with psychotic spectrum disorders. *Mediterranean Journal of Clinical Psychology*, *12*(1). https://doi.org/10.13129/2282-1619/mjcp-4055

51. Steenkamp, L. R., De Neve-Enthoven, N. G. M., João, A. M., Bouter, D. C., Hillegers, M. H. J., Hoogendijk, W. J. G., Blanken, L. M. E., Kushner, S. A., Tiemeier, H., Grootendorst-van Mil, N. H., & Bolhuis, K. (2023). Psychotic experiences, suicidality and non-suicidal self-injury in adolescents: Independent findings from two cohorts. *Schizophrenia Research*, *257*, 50–57. https://doi.org/10.1016/j.schres.2023.05.006

52. Stefanis, N. C., Hanssen, M., Smirnis, N. K., Avramopoulos, D. A., Evdokimidis, I. K., Stefanis, C. N., Verdoux, H., & Van Os, J. (2002). Evidence that three dimensions of psychosis have a distribution in the general population. *Psychological Medicine*, *32*(2), 347–358. https://doi.org/10.1017/S0033291701005141

53. Tamayo-Agudelo, W., Jaén-Moreno, M. J., León-Campos, M. O., Holguín-Lew, J., Luque-Luque, R., & Bell, V. (2019). Validation of the Spanish-language Cardiff Anomalous Perception Scale. *PLOS ONE*, *14*(3), e0213425. https://doi.org/10.1371/journal.pone.0213425

54. Todd, D. M., Deane, F. P., & McKenna, P. A. (1997). Appropriateness of SCL-90-R adolescent and adult norms for outpatient and nonpatient college students. *Journal of Counseling Psychology*, *44*(3), 294–301. https://doi.org/10.1037/0022-0167.44.3.294

55. Toh, W. L., Thomas, N., & Rossell, S. L. (2015). Auditory verbal hallucinations in bipolar disorder (BD) and major depressive disorder (MDD): A systematic review. *Journal of Affective Disorders*, *184*, 18–28. https://doi.org/10.1016/j.jad.2015.05.040

56. Wehling, E., Bless, J. J., Hirnstein, M., Kråkvik, B., Vedul-Kjelsås, E., Hugdahl, K., Kalhovde, A. M., & Larøi, F. (2021). Olfactory hallucinations in a population-based sample. *Psychiatry Research*, *304*, 114117. https://doi.org/10.1016/j.psychres.2021.114117

57. Yehya, A., Khaled, S. M., Sommer, I. E. C., Elhag, S. F., Hassan, M. H. M. O., Woodruff, P., & Alabdalla, M. (2023). The Arabic Questionnaire for Psychotic Experiences in patients with psychotic disorders: A clinical validation. *BMC Psychiatry*, *23*(1), 141. https://doi.org/10.1186/s12888-023-04649-4

58. Zavos, H. M. S., Freeman, D., Haworth, C. M. A., McGuire, P., Plomin, R., Cardno, A. G., & Ronald, A. (2014). Consistent Etiology of Severe, Frequent Psychotic Experiences and Milder, Less Frequent Manifestations: A Twin Study of Specific Psychotic Experiences in Adolescence. *JAMA Psychiatry*, *71*(9), 1049. https://doi.org/10.1001/jamapsychiatry.2014.994

59. Zoromba, M. A., EL-Gazar, H. E., Elkalla, I. H. R., Amr, M., & Ibrahim, N. (2024). Association between cumulative trauma and severity of psychotic symptoms among patients experiencing psychosis. *Archives of Psychiatric Nursing*, *51*, 54–61. https://doi.org/10.1016/j.apnu.2024.05.008

60. Zwicker, A., Denovan-Wright, E. M., & Uher, R. (2018). Gene–environment interplay in the etiology of psychosis. *Psychological Medicine*, *48*(12), 1925–1936. https://doi.org/10.1017/S003329171700383X

DOI: 10.13129/2282-1619/mjcp-4952