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ORIGINAL PAPER

The psychosis continuum in the general population: findings from the São Paulo Epidemiologic Catchment Area Study

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Abstract The aim of the study was to examine the psychosis continuum in a Latin-American community setting. Data were from the Brazilian São Paulo Epidemiologic Catchment Area Study, a cross-sectional survey conducted in two boroughs of the city of São Paulo. The Composite International Diagnosis Interview (version 1.1) was applied to a probabilistic sample of 1,464 adults, who were interviewed in their household, in order to identify the presence of psychotic symptoms. A subsample was assessed with Schedules for Clinical Assessment in Neuropsychiatry interview. We described the occurrence of psychotic symptoms, categorized into subgroups according to their clinical impact, disability, and help-seeking behavior. The correlation of socio-demographic variables, depressive symptoms, and alcohol and substance use disorders with those psychotic subgroups was analyzed. Polychotomic logistic regression tested the associations between subgroups of psychosis (clinical and subclinical) and the correlates. Of the total sample, 38.0% presented at least one lifetime psychotic symptom, 1.9% met the criteria for an ICD-10 diagnosis of non-affective psychosis, 5.4% presented clinically relevant psychotic symptoms, and 30.7% endorsed clinically non-relevant symptoms. The most common psychotic symptom was delusion with a plausible explanation (in 18.6%). The presence of any psychiatric diagnosis was associated with the presence of psychotic symptoms (OR range, 1.9–8.9). Subclinical psychosis subgroups were found to be associated with the 18–24 year age bracket, chronic depressive mood, and alcohol use disorder. Our results support the concept of a psychosis continuum in Latin-American populations, suggesting that different risk factors influence their manifestation across the continuum.

Keywords Schizophrenia · Psychosis · Subclinical psychosis · Psychosis continuum · General population

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Introduction

Psychosis was once thought to be a disorder of low prevalence with distinct boundaries, having its psychopathological phenomena manifesting within well-defined dimensions [1, 2]. In the last two decades, new evidence has shown that the expression of psychosis can be observed below the threshold of its clinical detection, and a growing number of studies demonstrate that subclinical forms of the disorder occur in the general population, with symptom profiles that are intermediate between normality and full-blown psychosis [3, 4]. Assuming that there is a continuum of psychotic symptoms in the community [5–9], further research is aimed at determining whether this extended

psychotic phenotype is expressed across cultures and which aspects can influence its occurrence.

The presentation of psychotic symptoms in the general population can be characterized as a continuum with differing levels of severity and persistence. In the National Comorbidity Survey (NCS), Kendler et al. [10] reported the prevalence of psychotic disorders to be 0.7% in a community sample, although 28% of the individuals scored positive for psychotic symptoms. In the Netherlands Mental Health Survey and Incidence Study (NEMESIS), 17.5% of a general population sample endorsed at least one psychosis item and 2.1% received a DSM-III-R diagnosis of non-affective psychosis (NAP) [5]. Likewise, 17.5% of the adolescents and young adults in a community sample in Germany reported psychotic symptoms [11]. In the Zurich cohort study [12], as high as 36% of the sample presented psychotic symptoms. Several epidemiological studies conducted in developed countries have obtained similar results [9, 13]. In a recent meta-analytic review, Van Os et al. [14] revealed that subclinical psychotic experiences have a median prevalence rate of 5.3% and a median 1-year incidence rate of 3.1%.

Despite the fact that there is now good evidence for the existence of the psychosis continuum in the general population, some significant points still need to be addressed. First, the validity of the continuum across cultures—the overwhelming number of community surveys has been conducted in developed countries, considering populations within a specific socio-environmental setting, although there was one survey involving Mexican-Americans [15]. Second, peculiarities of a hypothetical continuum in a different culture are under-researched. Up to one-third of the incidence of psychosis might be related to unknown environmental factors, such as social adversity, operating in urban settings [16–18]. In developing countries, where there is greater social adversity, the rates of psychosis in urban populations would be expected to be higher. Finally, few population-based studies have dealt with the clinical impact of different psychotic experiences.

We analyzed data from the São Paulo Epidemiologic Catchment Area Study [19], a household survey conducted in the city of São Paulo, a Brazilian metropolis. We described the occurrence of psychotic symptoms and their clinical significance in order to investigate the psychosis continuum in a different socio-cultural environment. These diverse psychotic manifestations were categorized into subgroups according to their clinical impact, and associations with the rating of psychotic symptoms, disability, and treatment-seeking behavior were also investigated. The influence that socio-demographic variables and depressive symptoms, as well as alcohol and substance use disorders, have on these psychosis subgroups was estimated.

Methods

Sampling

Data are from the São Paulo Epidemiologic Catchment Area Study, a cross-sectional household survey [19, 20] intended to help improving public health services. The survey was conducted in 1995 in two boroughs of the city of São Paulo, encompassing 29,169 households, with 91,276 residents. Although it is classified as a middle-to-upper socio-economic class area, these neighborhoods are quite heterogeneous, comprising a number of slums [21]. Over the last decade, the various socio-economic indices, such as the violence index, have improved in the city, and the area has maintained its heterogeneous composition, still being classified as a middle-to-upper socio-economic borough [22]. There were 70,743 eligible individuals (18 years of age or older), accounting for 77.1% of the population of the catchment area (the environs of the University of São Paulo, School of Medicine, *Hospital das Clínicas*). Sampling involved the use of an area probability design, including stratification by age and multiple respondents per household. In order to improve the probability of observing psychosis and psychiatric morbidity in young adults and in the elderly, all persons aged 18–24 years and 60 or older were interviewed. Moreover, in each household, one individual in the 25–59 year age bracket, if present, was randomly chosen for interview. Of the 1,626 households selected, 950 participated in the study (response rate, 65.2%). In those households, a total of 1,906 individuals were selected for interview; 442 declined to participate, resulting in a final sample of 1,464 subjects (response rate, 76.8%). The study design was approved by the Research Ethics Committee of the University of São Paulo, School of Medicine, *Hospital das Clínicas*, and all participants gave written informed consent.

Instrument

The Composite International Diagnostic Interview (CIDI) version 1.1 [23], which is designed to assess psychiatric symptoms, was applied in face-to-face interviews. Lay interviewers were trained and certified in the use of the CIDI during a 7-day training program at a WHO-accredited training center in the city of São Paulo. The CIDI algorithm provides lifetime, 12-month, and 1-month prevalence estimates for ICD-10 diagnoses [24]. The 17 core items for psychosis, comprising hallucinations (4 items) and delusional symptoms (13 items), were presented to each respondent (G1–G12, G15–G17, G20, and G21). For each symptom, the possible ratings were: (1) not present; (2) clinically relevant psychiatric symptom; (3) symptom was present but in a such mild form that the individual felt it did

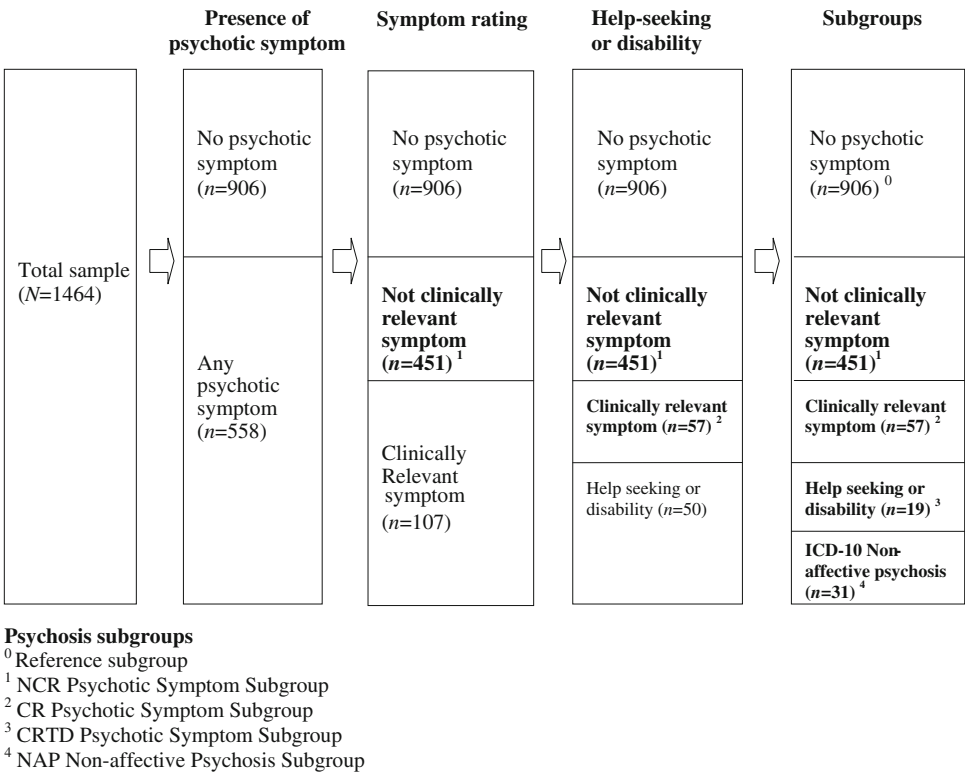

Fig. 1 Psychosis subgroups, according with the presence of psychotic symptoms. São Paulo Epidemiologic Catchment Area Study, Brazil ($N = 1464$)

not interfere with his life (clinically non-relevant symptom); (4) secondary symptom due to somatic disease or ingestion of drugs (secondary rating); and (5) symptom might not really be a symptom because there appears to be a plausible explanation for it (plausible rating). "Plausible" means that the indicated symptom can be explained by the environment the person lives (e.g., thoughts of persecution in an unsafe area) or might be culturally appropriate (e.g., attributable to supernatural religious beliefs).

Psychosis subgroups

The individuals reporting any symptoms classified as CIDI lifetime psychotic symptoms ($n = 558$) were initially divided into two groups: those presenting at least one clinically relevant symptom, regardless of other ratings ($n = 107$); and those presenting only symptoms that received one of the remaining ratings (with a plausible explanation, secondary, or clinically non-relevant; $n = 451$). In order to identify disabled or treatment-seeking individuals with major psychopathologies other than psychosis, the first group was further divided into three subsets, based on clinical significance and severity: (1) individuals with an ICD-10 diagnosis of Non-Affective Psychosis (NAP subgroup; $n = 31$, 1.9%); (2) individuals without such a diagnosis but with Clinically Relevant psychotic symptoms who sought treatment (G14 and G22) or reported functional disability (G28–G30) related to those symptoms (CRTD subgroup; $n = 19$, 1.4%); (3) individuals who had Clinically Relevant psychotic symptoms but did not seek treatment, report disability, or receive a diagnosis of psychosis (CR subgroup; $n = 57$, 4.0%); and (4) the remaining 451 individuals (30.7%) comprised a fourth subgroup consisting of individuals whose symptoms were deemed to be Not Clinically Relevant (NCR subgroup; presenting only clinically non-relevant symptoms, secondary symptoms, or symptoms with plausible explanations). Accordingly, these four psychosis subgroups were mutually exclusive (Fig. 1).

Correlated factors

Several socio-demographic variables with evidence of an association with psychosis [10, 28] were considered: gender, age, marital status, annual family income (in US dollars), level of education (years of education), and employment status. Socio-demographic variables were coded categorically: male or female; 18–24, 25–59 or ≥60 years of age; single or with a steady partner; employed or unemployed; and low level of education (0–8 years of schooling) or high level of education (≥9 years of schooling). Income was calculated as the average annual net income per family and was coded as low (<US$ 13,500/year) or middle-to-upper (≥US$ 13,500/year). Also, the association of depressive symptoms lasting 2 weeks or that were continuous along the past 2 years [26, 27], as well as alcohol use disorder (AUD)

and substance use disorder (SUD) [28–30], with psychosis was examined. The "use of cannabis" (CIDI L1A) was considered for analysis in those individuals who reported consumption at least 5 times in their lives. Depressive moods (for the last 2 weeks and in the last 2 years), AUD, SUD, and use of cannabis were evaluated according to the CIDI responses.

Statistical analysis

Overall and specific lifetime prevalence rates were calculated for each type of psychotic symptom and for each psychosis subgroup. Data were weighted to adjust for the differential effect of complex sampling design [19]. Crude bivariate logistic regression models tested the association of these variables with any ICD-10 psychiatric diagnosis. Following, models were adjusted for gender and age. Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) were calculated for each type of psychotic symptom and for each psychosis subgroup. We performed polychotomous multivariate logistic regression with the four psychosis subgroups as outcome variable. The reference population of the model was composed of individuals without CIDI-confirmed psychotic symptoms. The first multivariate model studied the influence of correlates on each subgroup. The independent variables were gender, age, marital status, income, level of education, employment, 2-week depressive mood, 2-year depressive mood, AUD, SUD, and use of cannabis. The final model was adjusted through stepwise backward deletion. Only significant variables at the 0.05 level were retained in the model. We used the statistical analysis system (SAS), version 9.1 [31] for all analysis.

Results

Psychotic symptoms

Of the sample as a whole ($N = 1464$), 558 individuals (38.0%, weighted prevalence) endorsed at least one lifetime psychotic symptom (Table 1). About half of the individuals who showed any psychotic symptom met the criteria for a lifetime ICD-10 diagnosis, and the association was significant (OR 2.3, 95% CI 1.8–2.9).

Individuals with clinically relevant delusions and hallucinations accounted for small proportions of the sample (4.4 and 4.9%, respectively). Delusions with a plausible explanation, non-clinically relevant delusions, and non-clinically relevant hallucinations were the most frequently observed symptoms (in 18.6, 13.7, and 13.2%, respectively), whereas secondary hallucinations, hallucinations

Table 1 Lifetime prevalence of CIDI psychosis ratings and subgroups in the general population by the presence of any ICD-10 psychiatric diagnosis (weighted data). Crude and adjusted association between psychiatric diagnosis and psychosis ratings and subgroups. São Paulo Epidemiologic Catchment Area Study, Brazil ($N = 1464$)

	Total $n = 1{,}464$ n (%)[a]	Any diagnosis $n = 491$ n (%)[a]	No diagnosis $n = 973$ n (%)[a]	Crude model OR (95% CI)	P	Adjusted model[b] OR (95% CI)	P
Psychotic symptom							
Clinically relevant delusion	63 (4.4%)	50 (10.5%)	13 (1.4%)	8.4 (4.5–15.6)	<0.0001	8.9 (4.8–16.6)	<0.0001
Clinically non-relevant delusion	209 (13.7%)	97 (19.6%)	112 (10.8%)	1.9 (1.4–2.5)	<0.0001	1.9 (1.4–2.6)	<0.0001
Secondary delusion	19 (1.7%)	10 (3.2%)	9 (1.0%)	2.2 (0.9–5.5)	0.0837	2.4 (1.0–6.0)	0.0611
Plausible delusion	263 (18.6%)	128 (26.4%)	135 (14.8%)	2.2 (1.7–2.9)	<0.0001	2.3 (1.7–3.0)	<0.001
Clinically relevant hallucination	71 (4.9%)	45 (9.1%)	26 (2.7%)	3.7 (2.2–6.0)	<0.0001	3.7 (2.3–6.2)	<0.001
Clinically non-relevant hallucination	204 (13.2%)	98 (19.9%)	106 (9.9%)	2.0 (1.5–2.8)	<0.0001	2.0 (1.5–2.7)	<0.001
Secondary hallucination	16 (1.0%)	10 (1.7%)	6 (0.7%)	3.4 (1.2–9.3)	0.0199	3.6 (1.3–9.9)	0.0151
Plausible hallucination	18 (1.5%)	12 (3.1%)	6 (0.7%)	4.0 (1.5–10.8)	0.0055	4.1 (1.5–11.0)	0.0053
Psychosis subgroup							
NAP	31 (1.9%)	31 (5.7%)	0 (0%)	–	–	–	–
CRTD	19 (1.4%)	15 (3.3%)	4 (0.5%)	7.6 (2.5–23.1)	0.0003	8.0 (2.6–24.3)	0.0003
CR	57 (4.0%)	23 (5.0%)	34 (3.5%)	1.4 (0.8–2.3)	0.2679	1.4 (0.8–2.4)	0.2109
NCR	451 (30.7%)	181 (37.8%)	270 (27.2%)	1.5 (1.2–1.9)	0.0004	1.5 (1.2–1.9)	0.0003

NAP ICD-10 diagnosis of non-affective psychosis, *CRTD* clinically relevant hallucinations or delusions (with treatment seeking and/or disability), *CR* clinically relevant hallucinations or delusions (without treatment seeking and/or disability), *NCR* non-clinically relevant hallucinations or delusions

[a] The proportion may be different of the expected number of subjects, as data were weighted

[b] OR adjusted for age and gender

with a plausible explanation, and secondary delusions were quite rare (in only 1.0, 1.5, and 1.7%, respectively). The association of psychotic symptoms with psychiatric morbidities varied according to the symptom rating and clinical relevance. The presence of any psychiatric diagnosis was associated with positive psychosis ratings (OR range, 1.9–8.9); clinically relevant delusions yielded the highest effect of association (OR 8.9, 95% CI 4.8–16.6). Secondary delusion was marginally associated with psychiatric morbidity ($P = 0.06$).

There were 192 individuals who reported lifetime use of cannabis, but only 5 and 7 individuals were diagnosed as case of ICD-10 cannabis abuse and dependence, respectively. Cannabis use, abuse, and dependence showed no significant association with psychotic symptoms (data not shown).

Psychosis subgroups

Although a high prevalence of psychotic symptoms was observed in this sample (Table 1), only 31 individuals (1.9%) met the criteria for an ICD-10 diagnosis of non-affective psychosis (NAP subgroup). Disregarding this subgroup, we found that 5.4% of the sample presented salient psychotic symptoms, with 1.4% presenting some kind of functional disability or treatment seeking because of the symptom (CRTD subgroup) and 4.0% reporting psychotic symptoms but not reporting disability or seeking treatment (CR subgroup). The remaining 30.7% ($n = 451$) were individuals with only non-clinically relevant symptoms, secondary symptoms, or symptoms with a plausible explanation (NCR subgroup). The subgroups were associated with the presence of psychiatric morbidity, with ORs ranging from 1.5 (NCR subgroup) to 8.0 (CRTD subgroup), the only exception being the CR subgroup (OR 1.4, 95% CI 0.8–2.4, $P = 0.21$).

Correlates of psychotic experiences

Table 2 shows the initial and final polychotomous logistic regression models for each psychosis subgroup. In the NAP subgroup, being single was the only independent variable that emerged as significant in the initial model (OR 2.7, 95% CI 1.1–6.5), although it did not remain so after adjustment. In the CRTD subgroup, the final model revealed significant associations for 2-year depressive mood (OR 4.4, 95% CI 1.4–13.6) and for AUD (OR 8.0, 95% CI 2.4–26.9), although low income was a protective factor (OR 0.3, 95% CI 0.1–1.0). The final model for the CR subgroup showed significant associations for the 18–24 year age bracket (OR 2.4, 95% CI 1.3–4.4) and for AUD (OR 4.8, 95% CI 1.9–11.8), low income again being protective (OR 0.5, 95% CI 0.3–0.8). SUD and cannabis use were correlates for CR subgroup in the initial model, being of OR 7.0 0 (95% CI 1.4–36.7) and 2.2 (95% CI 1.1–4.4), respectively. However, the effects did not remain in the adjusted model. In the final model for the NCR subgroup, we observed significant associations for the 18–24 year age bracket (OR 1.5, 95% CI 1.2–2.0), 2-week depressive mood (OR 1.7, 95% CI 1.4–2.2), and AUD (OR 2.7, 95% CI 1.6–4.6).

Discussion

To our knowledge, this is the first study in which the presence of a psychosis continuum was confirmed in a Latin-American population. In comparison with what has been reported in other epidemiological studies using similar or different instruments to interview populations in developed countries [5, 10, 12, 15, 32, 33], the prevalence of psychotic symptoms was high in the general population of São Paulo, which is one of the largest cities in the world. However, in psychopathological terms, these manifestations were not homogeneous and had varying degrees of clinical impact. Underlying socio-cultural factors might account for the variation in the expression of the continuum by geographic area.

Psychotic symptoms were characterized by differing levels of psychopathological relevance: most individuals (62.0%) displayed no psychotic symptoms, many (30.7%) reported symptoms with questionable or no clinical relevance, and few (5.4%) presented clinically relevant symptoms; a lesser proportion (1.9%) received a diagnosis of NAP. This half-normal distribution [6] lends support to the model of the psychosis continuum [7, 14, 34–36]. Although clinically relevant psychotic symptoms were displayed by 7.3% of our sample ($n = 107$), only approximately half ($n = 50$; NAP plus CRTD subgroups) reported any consequent impairment or sought treatment for those symptoms. These data are in agreement with those reported in the meta-analytic review conducted by Van Os et al. [14].

Correlating with various psychopathologies, psychotic symptoms were widespread among the different types of psychiatric disorders [28, 29, 37–40] and were found to be associated with lifetime psychiatric diagnoses, as in previous studies [5, 41]. Because they are observed in the general population and in other diagnoses, positive symptoms are thought to constitute a non-specific marker of mental suffering [7], in which greater psychological distress would predispose to psychosis and impairment. Therefore, excluding individuals categorized as having NAP, 2-year depressive mood appeared to be related to being more psychotic and disabled (CRTD subgroup), whereas 2-week depressive mood was related to being less

Table 2 Polychotomous regression model of associations between psychosis subgroups and socio-demographic correlates, psychiatric symptoms, and alcohol/substance use disorders

Variable	NAP		CRTD		CR		NCR	
	$n = 31$		$n = 19$		$n = 57$		$n = 451$	
	Initial model OR (95% CI)	Final model OR (95% CI)	Initial model OR (95% CI)	Final model OR (95% CI)	Initial model OR (95% CI)	Final model OR (95% CI)	Initial model OR (95% CI)	Final model OR (95% CI)
Female	1.0 (0.4–2.3)		0.8 (0.3–2.2)		0.8 (0.5–1.5)		1.0 (0.7–1.2)	
Age 18–24 years	0.5 (0.1–1.8)		4.2 (0.6–30.2)		2.2 (0.8–6.1)	2.4 (1.3–4.4)*	1.7 (1.1–2.6)	1.5 (1.2–2.0)***
Age 25–59 years	0.7 (0.3–1.8)		2.6 (0.5–12.9)		0.9 (0.4–2.0)		1.2 (0.9–1.6)	
Single status	2.7 (1.1–6.5)*		1.5 (0.5–4.7)		1.0 (0.5–2.1)		1.0 (0.8–1.4)	
Low income	0.8 (0.4–1.7)		0.3 (0.1–0.9)	0.3 (0.1–1.0)*	0.6 (0.3–1.0)	0.5 (0.3–0.8)*	1.0 (0.8–1.3)	
0–8 years of education	2.2 (0.9–5.1)		1.9 (0.6–6.4)		0.5 (0.2–1.1)		1.0 (0.8–1.4)	
Unemployment	0.7 (0.1–7.1)		0.8 (0.1–7.1)		0.6 (0.1–3.1)		0.9 (0.5–1.8)	
CIDI 2-week depression	1.8 (0.8–4.0)		1.8 (0.6–5.8)		1.3 (0.7–2.3)		1.7 (1.3–2.2)***	1.7 (1.4–2.2)***
CIDI 2-year depression	1.5 (0.5–4.4)		4.8 (1.5–14.9)**	4.4 (1.4–13.6)**	2.3 (1.0–5.2)*		1.1 (0.7–1.6)	
Alcohol use disorder	3.0 (0.8–11.8)		6.2 (1.7–23.2)**	8.0 (2.4–26.9)***	3.6 (1.4–9.6)*	4.8 (1.9–11.8)***	2.5 (1.4–4.3)***	2.7 (1.6–4.6)***
Substance use disorder	4.9 (0.5–53.4)		4.8 (0.4–57.4)		7.0 (1.4–36.7)*		2.0 (0.5–7.4)	
Cannabis use	1.1 (0.3–3.7)		2.3 (0.7–7.3)		2.2 (1.1–4.4)*		1.2 (0.8–1.7)	

São Paulo Epidemiologic Catchment Area Study, Brazil ($N = 1464$)

NAP ICD-10 diagnosis of non-affective psychosis, *CRTD* clinically relevant hallucinations or delusions (with treatment seeking and/or disability), *CR* Clinically Relevant hallucinations or delusions (without treatment seeking and/or disability), *NCR* Non-Clinically Relevant

* $P < 0.05$; ** $P < 0.005$; *** $P < 0.0005$

psychotic (NCR subgroup), suggesting that chronic suffering is related to a disabling psychotic response, whereas acute suffering is related to milder and transient forms of psychosis. A dimensional overlap between psychosis and depression is also conceivable [42–45].

Specifically addressing treatment-seeking behavior and disability, we found that the extent of the depressive manifestation might also have an important function in the disease concept, because the CRTD subgroup differed from the rest of the individuals with clinically relevant psychotic symptoms in showing a relationship with the 2-year depression score. This leads us to wonder why some individuals seek treatment and become disabled, whereas others do not [46], even when their symptoms have the same degree of clinical relevance. Although a causal effect cannot be established, we hypothesize that depression play a role, most likely by affecting the ability to cope with symptoms, thus influencing disability [47].

The higher overall frequency of psychotic symptoms observed in the present study might be partially attributable to a characteristically higher rate of delusion with a plausible explanation. Although the related literature shows that psychotic symptoms are prevalent in the general population, having delusions with a plausible explanation rarely reaches the first tier in terms of frequency. This could be a reflection of regional peculiarities, such as a pronounced religiosity. Supernatural experiences characterized by dissociative and psychosis-like states [48, 49] are fueled by spiritual theories, producing an array of beliefs resembling a culture-bound syndrome. In this context, these beliefs could gain the status of "delusions with a plausible explanation" and predispose the population to such experiences [50, 51]. In addition, the city of São Paulo had a high homicide rate in the 1990s [52], constituting a place-related risk factor for psychosis [53, 54]. This could skew the overall expression of psychotic symptoms in the sample [55]. Furthermore, violence and feelings of living in an unsafe area would increase the rate of delusions with a plausible explanation by raising the anxiety level of the population [56] and by decreasing the "social capital" of the neighborhood [16, 57, 58].

Our study has several limitations. The first is selection bias; because the study was conducted in two middle-to-upper class boroughs, there might have been interactions between psychotic symptoms and socio-economic status. Low income, for instance, might have been a protective factor, if we think that people of lower socio-economic status would stay in the neighborhood only if their work capacity was not affected, that is, if they were not disabled. In addition, because an assessment of non-responders was not available, participation bias could have influenced the prevalence rates reported here. Another caveat is the coverage of clinical assessment; the study was designed to investigate common mental disorders for public health planning [19] and not specifically for the investigation of psychosis. Finally, we had not included ethnicity as an independent variable to investigate the psychosis proneness. Due to high level of racial miscegenation in Brazil, meaningful categorization of ethnic background is very difficult to define in our culture.

In summary, because a psychosis continuum is also expressed in other cultural settings, psychotic symptoms should be considered a common pathway for psychic suffering. The identification of a large population of individuals with psychotic symptoms below the threshold of clinical detection should prompt the evaluation of symptom stability, as well as the predisposition or resistance of such individuals to a psychotic disorder. Longitudinal studies of individuals with subclinical psychosis are warranted. Such studies could identify predictors of progression to full-blown psychosis and of outcomes.

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Conflict of interest None of the authors has any conflict of interest.

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