Schizophrenia Research xxx (2014) xxx–xxx

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

# Assessing sub-clinical psychosis phenotypes in the general population — A multidimensional approach

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ARTICLE INFO

*Article history:*
Received 12 June 2014
Received in revised form 31 October 2014
Accepted 3 November 2014
Available online xxxx

*Keywords:*
Sub-clinical psychosis
Psychotic-like experiences
Proneness to psychosis
Schizotypy
Epidemiology
Community sample
Risk factors

ABSTRACT

Several studies have demonstrated that expression of a psychosis phenotype can be observed below the threshold of its clinical detection. To date, however, no conceptual certainty has been reported for the validity and reliability of sub-clinical psychosis. Our main objectives were to assess the prevalence rates and severity of various psychosis symptoms in a representative community sample. Furthermore, we wanted to analyze which latent factors are depicted by several currently used psychosis questionnaires. We also examined how those latent factors for sub-clinical psychosis are linked to psychosocial factors, normal personality traits, and coping abilities related to chronic stress.

Most of the eight subscales from the Paranoia Checklist and the Structured Interview for Assessing Perceptual Anomalies had a very similar type of distribution, i.e., an inverse Gaussian (Wald) distribution. This supported the notion of a continuity of psychotic symptoms, which we would expect to find for continuously distributed symptoms within the general population. Sub-clinical psychosis can be reduced to two different factors — one representing odd beliefs about the world and odd behavior, and the other one representing anomalous perceptions (such as hallucinations). Persons with odd beliefs and behavior are under greater burden and more susceptible to psychosocial risks than are persons with anomalous perceptions. These sub-clinical psychosis syndromes are also related to stable personality traits.

In conclusion, we obtained strong support for the notion that there is no natural cut-off separating psychotic illness from good health. Sub-clinical psychosis of any kind is not trivial because it is associated with various types of social disability.



## 1. Introduction

For a long time, psychiatric research has lost sight of the initial stages, pre-clinical processes, and sub-clinical symptoms associated with psychosis. However, several studies in the past 20 years have demonstrated that the expression of a psychosis phenotype can be observed below the threshold of its clinical detection (van Os et al., 2000; Wiles et al., 2006; Rössler et al., 2007, 2013a, 2013c). This phenotype is commonly referred to as having psychotic-(like) experiences, proneness to psychosis, at-risk mental state, schizotypy, or exceptional experiences (Fach et al., 2013). The occurrence of a psychosis phenotype in the general population can be characterized as a continuum with differing levels of severity and persistence (Rössler et al., 2007).

van Os et al. (2009) have found in their systematic review that the median prevalence is approximately 5% for sub-clinical psychosis. This rate is at least five-fold higher than the prevalence for diagnosed schizophrenia (Rössler et al., 2005; Tandon et al., 2008), or three to four times higher than for non-affective psychosis in the general population (Kendler et al., 1996; Perala et al., 2007). However, significant variations can arise in those rates, partly because of the mode selected for assessments, i.e., whether based on self-reports, lay interviews, or professional clinical interviews. One assumes that using professional clinical interviews or professional observer ratings would reduce the frequency of false-positive answers rather than relying upon lay interviews or self-reports. Considerable variation can also be found in the instruments used in those surveys, e.g., the Paranoia Checklist (Freeman et al., 2005), the Schizotypal Personality Questionnaire (Raine and Benishay,

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http://dx.doi.org/10.1016/j.schres.2014.11.033
0920-9964/

1995), the psychosis subscales from the Symptom Checklist-90 (SCL-90-R) (Rössler et al., 2007), or the Composite International Diagnostic Interview (CIDI) (Loch et al., 2011). Thus, even if scientific publications concerning sub-clinical psychosis give the impression that the concept is consistently defined, in truth the kind of sub-clinical psychosis symptoms assessed by these instruments essentially determines the substance of those concepts.

These deficiencies in sub-clinical psychosis research became apparent when a new diagnostic entity was being considered for inclusion in the new DSM-5. Labeled "Attenuated Psychosis Syndrome", it described a condition "with recent onset of modest psychotic-like symptoms and clinically relevant distress and disability" (Tsuang et al., 2013). However, this new category did not possess any certainty of its validity or reliability. It was also unclear how one might delimit this syndrome from, for example, a schizotypal personality disorder (Tsuang et al., 2013).

Because no consistent description is yet available for what constitutes sub-clinical psychosis, we examined the data collected via different questionnaires about a variety of related symptoms that might exist within a community sample. Our aims were to: 1) assess the prevalence rates and severity of symptoms as uncovered via those assorted questionnaires; 2) compare those rates with results from previous assessments; 3) analyze, which latent factors are depicted by such questionnaires; and 4) investigate any associations between latent factors of sub-clinical psychosis and psychosocial factors, normal personality traits, and coping abilities related to chronic stress.

## 2. Methods

### 2.1. Study design and sampling

This study was conducted as part of the Zurich Programme for Sustainable Development of Mental Health Services (ZInEP), a research and mental health care program involving several mental health services for the canton of Zurich, Switzerland. The Epidemiology Survey, one of the nine ZInEP subprojects, comprised four components: 1) telephone screening, 2) comprehensive semi-structured, face-to-face interviews followed by self-report questionnaires, 3) tests in the socio-physiological laboratory, and 4) a longitudinal survey (Fig. 1). Start dates were August 2010 for screening and semi-structured interviews, February 2011 for laboratory tests, and April 2011 for the survey. Screening ended in May 2012 while all other components were completed in September 2012.

As a first step, we used a computer-assisted telephone interview (CATI) to screen 9829 Swiss male and female participants who were aged 20 to 41 years at the onset of the survey and were representative of the general population of the canton of Zurich. The Symptom Checklist-27 (SCL-27) (Hardt et al., 2004) served as our screening instrument. Participants were randomly chosen through the residents' registration offices of all municipalities within the canton. Residents without Swiss nationality were excluded. In accordance with detailed instructions from the research team, a renowned marketing and field research institute, GfK ("Growth for Knowledge"),

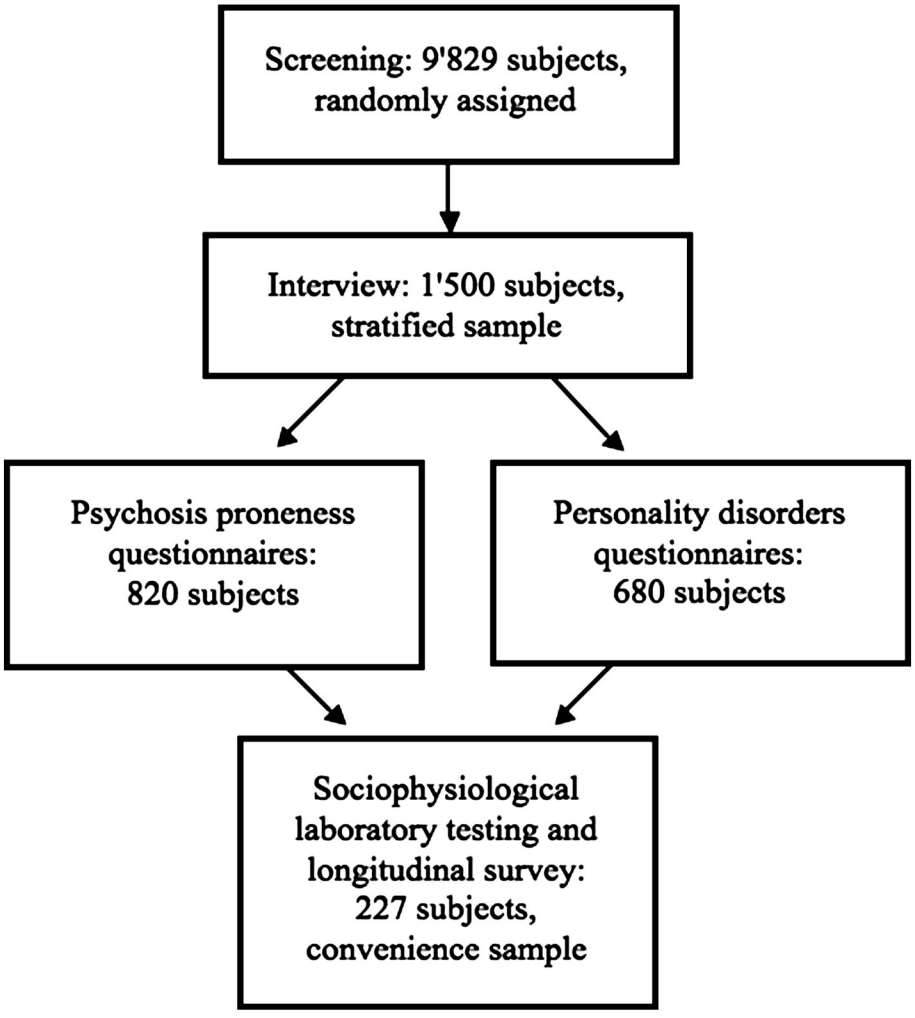


**Fig. 1.** Sampling procedure for ZInEP Epidemiology Survey.

Please cite this article as: Rössler, W., et al., Assessing sub-clinical psychosis phenotypes in the general population — A multidimensional approach, Schizophr. Res. (2014), http://dx.doi.org/10.1016/j.schres.2014.11.033