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A latent profile analysis of schizotypal dimensions: Associations with psychopathology and personality

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ABSTRACT

The main goal of the present study was to explore the latent structure of schizotypal traits in non-clinical young adults, and compare the latent profiles in clinical and personality characteristics: mental distress, psychosis-proneness, hypomanic experiences, and anticipatory and consummatory pleasure. A large sample of college students (N =1002; mean age =21.11 years; *SD* =3.92) were administered the Schizotypal Personality Questionnaire-Brief Revised, the Mood Disorder Questionnaire, the short version of the Oxford-Liverpool Inventory of Feelings and Experiences, the General Health Questionnaire-12, and the Temporal Experience of Pleasure Scale. Using latent profile analysis, four latent classes (LC) were identified: "low schizotypy" (62.4%), "average schizotypy" (17.6%), "interpersonal schizotypy" (17.1%), and "high schizotypy" (2.9%). The "high schizotypy" class scored higher on most psychometric indicators of psychopathology and personality (i.e., mental distress, schizotypy, hypomanic experiences, and anticipatory and consummatory pleasure) relative to other three latent classes. The other three schizotypal latent profiles also varied in terms of these psychopathology and personality factors. The identification of homogeneous subgroups of individuals potentially at-risk for psychosis based on schizotypal latent profiles may improve early identification and prevention efforts aimed at reducing the burden associated with psychotic-spectrum disorders and mental health problems.

1. Introduction

Schizotypy is defined as the latent personality organization that harbours the liability for schizophrenia-spectrum disorders (Lenzenweger, 2010; Meehl, 1962), and captures the expression of psychosis symptoms and impairment from non-clinical and subclinical levels to full-blown psychosis (Kwapil and Barrantes-Vidal, 2015). Schizotypal traits are considered as one of the possible phenotypic indicators of the diathesis for psychosis. Previous research has shown that schizotypal traits may be useful as a valid putative phenotypic liability marker for psychosis-spectrum disorders (e.g., Fonseca-Pedrero and Debbané, 2017). For instance, prospective studies carried out in individuals from the general population as well as in genetic and clinical high risk samples have demonstrated that schizotypal traits are associated with a greater probability of psychiatric outcome, particularly schizophrenia-spectrum disorders (Debbané et al., 2015). Moreover, these set of traits share many of the same etiological risk factors found in patients with psychosis (e.g., urbanicity, cannabis, trauma) (Linscott and van Os, 2013). The phenotypic expression of schizoptypy, e.g., schizotypal traits, represents the behavioral expression of this latent vulnerability and could be considered as a clinical risk marker for psychosis (Kwapil and Barrantes-Vidal, 2015) and mental health disorders in general (e.g., depression) (Fisher et al., 2013).

During the last two decades, the identification of individuals potentially at-risk for psychotic-spectrum disorders, based in psychometric indices, has become an extensive focus of research and debate (Fusar-Poli et al., 2014). Early and reliable identification of classes of specific subgroups of individuals at high risk for psychotic-spectrum disorders may help us to elucidate risks and protective factors as well as etiological mechanisms and developmental pathways that mitigate, delay or even prevent the onset of the clinical disorder (Fonseca-

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Pedrero et al., 2016a; Fusar-Poli et al., 2014). As such, individuals with schizotypal traits are considered an important population for studying the etiology of psychosis and provide a platform for identifying participants at-risk for an adverse clinical outcome. A novel methodological framework named latent class analysis (LCA) (dichotomous outcome) or the latent profile analysis (LPA) (continuous outcome) (Muthén and Muthén, 1998–2012) is of potential use in identifying homogenous groups of individuals at risk based on the psychotic-spectrum phenomena reported. The idea of identify latent classes is congruent with Meehl's (1962) model and with the empirical evidence that discontinuous latent subpopulations may underlie the phenotypic continuum of psychosis phenotype (Linscott and van Os, 2010).

Previous studies have examined the latent structure of psychosis phenotype such as psychotic symptoms (Kendler et al., 1998), psychotic-like experiences (Cella et al., 2011; Gale et al., 2011; Ndetei et al., 2012; Shevlin et al., 2007), and schizotypal traits (Cella et al., 2013; Hori et al., 2014; Tabak and Weisman de Mamani, 2013). For instance, Shevlin et al. (2007), conducting an LCA, found that the best fitting latent class model was a four-class solution including a: psychosis class, hallucinatory class, intermediate class, and normative class. Cella et al. (2013), using a large sample of non-clinical adolescents completing the short version of the Oxford-Liverpool Inventory of Feelings and Experiences (sO-LIFE) (Mason et al., 2005), found a three-class solution: low schizotypy, unusual subjective experiences, and "true" schizotypy. Those individuals in the "true" schizotypy latent class reported more psychological distress and a family history of psychosis compared to the other classes. In another study, Tabak and Weisman de Mamani (2013) examined the latent structure of the O-LIFE (Mason et al., 1995) in 450 participants, and found six latent profiles named: Low Schizotypy, Average, High Schizotypy, High Unusual Experiences, High Introvertive Anhedonia, and High Introvertive Anhedonia/Cognitive Disorganization. These latent classes were differentially associated with other psychological variables, such us psychological well-being. In sum, the extant literature on LPA suggests that it is possible to identify a homogenous subgroup of schizotypal subjects from the general population and that individuals at putative high-risk for psychosis and related conditions report greater psychopathological symptoms, severity and degree of mental distress, and impartment.

To date, very little is known about the latent structure of schizotypal traits in young adults. Likewise, there has been no in-depth examination about the relationship between schizotypal latent profiles and its link with personality and clinical indicators. For instance, no previous studies have performed a LPA with the Schizotypal Personality Questionnaire-Brief-Revised (SPQ-BR; Cohen et al., 2010) and validate them with clinical variables. Within this research framework, the main goal of the present study was to explore the latent structure of schizotypal traits in non-clinical young adults. Moreover, associations with mental distress, schizotypy, hypomanic experiences, and anticipatory and consummatory pleasure across latent profiles of schizotypal traits were compared in order to validate the latent classes.

2. Method

2.1. Participants

The sample consisted of a total of 1002 university students, 268 were males (26.7%), from the University of La Rioja. Participants mean age was 21.11 years (*SD* =3.92), ranging from 17 to 35. Participants were asked if they had any psychological disorder. If so, they were removed from the sample. A small percentage (i.e., 1.1%) of the sample reported having a first-degree relative who had been diagnosed with a psychotic disorder or schizophrenia, while 9.5% reported having a first-degree relative with antecedents of some other psychological disorder. With regard to marital status, 57.6% were single, 36.9% lived in common-law relationships, 2.9% were married, 0.2% were divorced, and 2.4% did not report their status.

2.2. Instruments

2.2.1. Schizotypal Personality Questionnaire-Brief-Revised (SPQ-BR) (Cohen et al., 2010)

The SPQ-BR contains 32 items and is scored on a five-point Likert-based response format (1= *strongly disagree* to 5= *strongly agree*). There are seven trait subscales: (1) Odd Beliefs or Magical Thinking, (2) Unusual Perceptual Experiences, (3) Excessive Social Anxiety, (4) Odd or Eccentric Behavior, (5) Odd Speech, (6) No Close Friends and Constricted Affect, and (7) Ideas of Reference and Suspiciousness. This instrument measures the schizotypal traits according to DMS-III-R Schizotypal Personality Disorder criteria (American Psychiatric Association, 1987). The psychometric properties of the SPQ-BR scores have been analyzed in a number of published studies (e.g., Callaway et al., 2014; Cohen et al., 2010). The Spanish version of the SPQ-BR was used (Fonseca-Pedrero et al., 2014b, in press).

2.2.2. Oxford-Liverpool Inventory of Feelings and Experiences short version (sO-LIFE) (Mason et al., 2005)

The sO-LIFE is an instrument for schizotypy assessment that includes 43 items (yes/no format) assessing Positive schizotypy (12 unusual experiences items, e.g., "Are your thoughts sometimes so strong that you can almost hear them?"), Negative schizotypy (10 introvertive anhedonia items, e.g., "Do you prefer watching television to going out with people?"), Cognitive Disorganization (11 items, e.g., "Are you easily confused if too much happens at the same time?"), and Impulsive Nonconformity (10 items, e.g., "Do you at times have an urge to do something harmful or shocking?"). The sO-LIFE has been validated in previous studies (e.g., Cella et al., 2013; Sierro et al., 2016). The Spanish version of the sO-LIFE, which shows adequate psychometric properties in nonclinical population, was used (Fonseca-Pedrero et al., 2015).

2.2.3. Mood Disorder Questionnaire (MDQ) (Hirschfeld et al., 2000)

The MDQ consists of 13 yes/no items based on the DSM-IV criteria for bipolar disorder. Participant responding affirmatively to seven or more items of the 13 possible (Criterion 1) occurring within the same time period (Criterion 2) and represent moderate or severe problems (Criterion 3) are considered to have had a manic episode. The MDQ is also used as a screening tool for mania, for which categorical determination is made based on Criterion 1 and 2 only. This has improved sensitivity and specificity in some studies (Gervasoni et al., 2009; Miller et al., 2011). In our study, we used a Spanish-translated version that has been validated in both patients and non-clinical young adults (Fonseca-Pedrero et al., 2016c; Sanchez-Moreno et al., 2008).

2.2.4. General Health Questionnaire-12 (GHQ-12) (Goldberg and Williams, 1988)

The 12-item version of the GHQ is a widely used self-report screening instrument for identifying symptoms of mental distress. Each item is rated on a 4-point Likert-typed format; the positively worded items are rated from 0 (always) to 3 (never) and the negative items are rated from 3 (always) to 0 (never). Thus, the total score range from 0 to 36, with higher scores indicating higher levels of psychological distress. The psychometric properties of the GHQ-12 are well established (Hankins, 2008; Romppel et al., 2013). We used the Spanish version of the GHQ-12 in the present study (López-Castedo and Fernández, 2005; Rey et al., 2014).

2.2.5. Temporal Experience of Pleasure Scale (TEPS) (Gard et al., 2006)

The TEPS is an instrument designed to assess anticipatory and consummatory components of pleasure. It has also been used as a measure of anhedonia. It consists of 18 items divided into 2 subscales that assess anticipatory pleasure (10 items) and consummatory pleasure (8 items). The TEPS uses a 6-point Likert scale response format