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Factorial structure of the Hungarian version of Oxford-Liverpool Inventory of Feelings and Experiences and its applicability on the schizophrenia-schizotypy continuum

Krisztina Kocsis-Bogár [a,b], Zsófia Nemes [a], Dóra Perczel-Forintos [a,*,1]

[a] Department of Clinical Psychology, Semmelweis University, Budapest, Hungary
[b] Faculty of Psychology, University of Vienna, Austria

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ABSTRACT

The aim of our study was to test the original four factor structure of Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE) short version (Mason et al., 2005) on a healthy sample (Study 1). Our further aim was to examine if positive, negative and disorganised symptoms of schizophrenia are positively correlated with schizotypy dimensions in patients with schizophrenia spectrum disorders, as well as the difference of patients and matched healthy controls regarding schizotypy (Study 2). In Study 1 the Hungarian translation of O-LIFE short version was administered to an undergraduate sample (N = 406). In Study 2 Scales for Assessment of Negative Symptoms (SANS, Andreasen, 1983), Scales for Assessment of Positive Symptoms (SAPS, Andreasen, 1983) and O-LIFE short version were administered to inpatients (N = 65) and outpatients (N = 37) with a schizophrenia spectrum diagnosis as well as matched controls (N = 29). Factor analysis supported the four-factor model yielding positive, negative and disorganised schizotypy, as well as impulsivity factors. SAPS was found to correlate positively with positive schizotypy ($r = .338$ $p < .001$), SANS was found to correlate positively with negative schizotypy ($r = .231$, $p < .05$). No correlation was found between disorganised symptoms and Cognitive Disorganisation. Controls differed from patients on each dimensions of schizotypy.

1. Introduction

1.1. Dimensionality of schizotypy

The question whether psychotic experiences are – similarly to other personality traits – distributed in the whole population on a continuum between full-blown schizophrenia and healthy people with occasional psychotic experiences (fully dimensional model, Claridge, 1997) or only in the schizophrenia spectrum (quasi-dimensional model, Meehl, 1962) has been subject to a long discussion. The notion that psychotic symptoms in an attenuated form are widely distributed in the general population has gained significant support in the last two decades (Johns & van Os, 2001).

According to the definition of Pickering (2004) schizotypal personality traits are "tendencies to behave and think in ways that are qualitatively similar to features seen in schizophrenia" (p. 454). High schizotypy also means an increased vulnerability for schizophrenia (Catts et al., 2000). The prevalence of transition to schizophrenia among high schizotypes has been estimated to 12–45% in some longitudinal studies (Thompson et al., 2011). According to some further evidence, not the regularity of psychotic-like experiences predicts the risk of psychosis but the certainty of these experiences that is associated with higher levels of alexithymia and distress (Preti et al., 2012).

The advantage of using schizotypy to model symptoms of schizophrenia in healthy people is the opportunity to work with a sample free from the effects of long-term medication and hospitalisation (Siever & Davies, 2004).

1.2. Evidence of the dimensionality

There is significant support for phenomenological and genetic similarities of schizophrenia and schizotypy. The dysregulation of striatal dopamine release has been documented in both groups (Mohr & Ettinger, 2014). Similarities of structural abnormalities were also described (Raine et al., 1992), and COMT gene polymorphism typical of schizophrenia was also found in connection with schizotypy (Avramopoulos et al., 2002, Grant et al., 2013). Some common features concerning cognitive functioning have been explored, and thus reduced distractor cueing affect and consequentially dysfunction of associative learning (Steel et al., 2002); neurological soft signs such as abnormalities of gross and fine motor coordination, motor sequencing, eye-movement and memory recall (associated with negative schizotypy), and also a slight disorder of sensory integration (associated with

* Corresponding author.
E-mail addresses: kocsis.bogar.krisztina@gmail.com (K. Kocsis-Bogár), perczel-forintos.dora@med.semmelweis-univ.hu (D. Perczel-Forintos).
[1] Permanent address: 1083 Budapest Tömő u. 25–29.

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positive schizotypy) (Kaczorowski et al., 2009). In an fMRI study it was found that people reporting more magical ideation were likely to show similar neurological signals of frontal prediction error to people with clinical delusions (Corlett & Fletcher, 2012).

Further on, increased fluency has been associated with high positive schizotypy and reduced fluency associated with elevated negative schizotypy (Tsakanikos & Claridge, 2005, Cochrane et al., 2012). According to Cochrane et al. (2012) reduced negative priming was predicted by disorganised schizotypy in healthy participants and disorganised psychotic symptoms in schizophrenia patients.

The fully dimensional view of schizotypy has gained further support from studies showing the connections of schizotypy to such health-related phenomena as subjective well-being, creativity and diversity of problem solving strategies — especially in connection to positive schizotypy (for a review see Mohr & Claridge, 2015). However, there is some neurological evidence questioning fully dimensional view: according to the fMRI study of Corlett and Fletcher (2012) different brain areas may be responsible for subclinical (neurological signs of striatal prediction errors) and clinical psychotic (aberrant frontal responses) symptoms.

1.3. Schizotypy as a multifactorial trait

The number of schizotypy factors greatly depends on the measures and the samples used in the different studies; two (e.g. Kwapil et al., 2008), three (e.g. Raine, 1991; Raine and Benishay, 1995; Venables et al., 1990; Venables & Rector, 2000) and four-factor models (Mason et al., 1995) are known. There is an agreement across a wide range of different models that two factors, positive schizotypy (characterised by magical thinking, unusual experiences) and negative schizotypy (characterised by anhedonia, asociality and avolition) play an essential role in the schizotypy concept (Vollema & van den Bosch, 1995). The third factor is either considered to be disorganisation (Raine, 1991; Raine and Benishay, 1995) or social anxiety (Venables et al., 1990; Venables & Rector, 2000), whereas the fourth factor is mostly assumed to be impulsive nonconformity (e.g. Kendler & Hewitt, 1992, Mason et al., 1995, Mason & Claridge, 2006, Vollema & van den Bosch, 1995).

1.4. History and description of the O-LIFE and O-LIFE short version

The original Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE, Mason et al., 1995) has been constructed by exploratory factor analysis and contained four subscales, each with a high internal consistency (Cronbach's $\alpha = 0.77–0.89$): Unusual Experiences (UE), Introvertive Anhedonia (IA), Cognitive Disorganisation (CD) and Impulsive Nonconformity (IN) (Mason et al., 1995; Mason & Claridge, 2006). Unlike some other scales of schizotypy (e.g. Schizotypal Personality Questionnaire, SPQ, Raine, 1991) it has been developed on the basis of personality theory with the intention to measure subclinical schizotypal traits in healthy people (Mason & Claridge, 2006). Short (43 item) version of O-LIFE has been developed using concordance estimates from monozygotic and dizygotic pairs; both hereditability and a possibly broad cover of each trait domain were considered (Mason et al., 2005).

In the first factor analytic study of O-LIFE short version in an ultrahigh-risk sample Lin et al. (2013) failed to confirm the four-factor structure, UE, IA and CD factors were confirmed. Consistent with previous results showing a lower internal consistency for IN (e.g. Cochrane et al., 2010), this subscale was found not to be a robust dimension in this study (Lin et al., 2013). Previously, Mason & Claridge (2006) also declared that in a narrower sense of schizotypy than their original, the other 3 factors can stand on their own without IN.

In the German version of O-LIFE and O-LIFE short version (Grant et al., 2013) again four scales were found and they were associated with gene-polymorphisms typical of schizophrenia.

These findings raise the question of the best fit factor structure of O-LIFE short version in a healthy sample.

1.5. Previous findings concerning factor structure of O-LIFE short version and relationships of schizotypy dimensions with schizophrenia

The continuity of schizophrenia and schizotypy on a psychometrical level was previously addressed by Cochrane et al. (2010) in a study of 20 schizophrenia patients and two control groups where UE subscale seemed to be analogous with subscales of Scale for the Assessment of Positive Symptoms (SAPS, Andreasen, 1984) measuring hallucinations and delusions, whereas IA subscale did not seem analogous with Scale for Assessment of Negative Symptoms (SANS, Andreasen, 1983). CD subscale was not analogous with subscales of SAPS measuring disorganised symptomatology. The patient group in this study scored significantly higher on these three schizotypy subscales than either of the two control groups.

Lin et al. (2013) explored the relationship of schizotypal traits and schizophrenia symptoms in an ultra high risk sample and found positive schizotypy to be associated with positive psychotic symptoms measured by BPRS and negative schizotypy to be associated with negative psychotic symptoms measured by SANS.

1.6. Aims and hypotheses

The aim of our investigation was twofold. On the one hand we intended to examine whether the original four factor structure of O-LIFE short version can be confirmed in a healthy sample using the Hungarian translation this scale. On the other hand we were seeking evidence for a continuity of schizotypy in psychometrical terms between groups of schizophrenia patients and healthy controls using O-LIFE short version. Our further aim was to examine the relationships between the three different symptom groups and dimensions of schizotypy — previously investigated by the studies mentioned above.

Our hypotheses were the following:

- Study 1:
  We expected the four-factor structure of schizotypy (UE, IA, CD and IN) of the Hungarian version of shortened O-LIFE scale to be confirmed by factor analysis in our healthy sample (H1).
- Study 2:
  We expected schizotypy scores as they measure an underlying personality trait not to be significantly different in our inpatient and outpatient sample (H2).

Matched controls were expected to score significantly lower on O-LIFE short version and subscales than both groups of patients (H3).

Higher scores of positive (H4), negative (H5) and disorganised (H6) schizotypy were expected to correlate with higher levels of positive, negative and disorganised symptoms of schizophrenia.

Our hypotheses were tested in two different studies. In Study 1, 406 university students filled in the Hungarian O-LIFE short version and on this database confirmatory factor analysis was conducted. In Study 2, 65 inpatients and 37 outpatients with schizophrenia as well as a control group of 29 healthy volunteers were reached and all groups were matched regarding gender, age and education.

2. Methods

2.1. Ethics

Ethical permission for Study 1 and Study 2 was obtained. (Permission numbers are respectively: 194/2012 and 151–4/2011) All participants provided an informed consent.