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Disintegration: A reconceptualization of psychosis proneness as a personality trait separate from the Big Five

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ABSTRACT

A nine-facet hierarchical taxonomy of "Disintegration", a trait-like disposition that causes variations in psychotic-like behavior, is proposed, along with the scales to assess it. Strong correlations were demonstrated in students (n = 466) between lower-level dimensions, independent of the assessment method. Disintegration lay beyond the Five-Factor Model (FFM) space. This finding was replicated across informant types (self, mother, and father), samples (students and a national representative sample, n = 1001), and units of analyses (facets and items). The most frequent approach to preserve the FFM taxonomy of both normal and non-normal personality variants – mapping psychotic-like phenomena onto the Openness domain – found little support in our data. Disintegration was normally distributed in the general population.

1. Introduction

There is compelling empirical evidence supporting the existence of a continuous distribution of psychotic-like experiences in the general population. For example, studies on nonclinical populations, using either structured clinical interviews or self-report measures, have demonstrated that psychotic experiences and beliefs are common in such samples (Barret & Etheridge, 1992; Johns & van Os, 2001). Factor analytic studies have found dimensions of variably labeled subclinical psychotic phenotypes to be parallel to those found in schizophrenia (Mata et al., 2003). A summary of the additional empirical evidence on continual variations of psychotic-like phenomena can be found in Hanssen, Krabbendam, Vollema, Delespaul, and Van Os (2006), while equally persuasive arguments based on quantitative genetic research, can be found in Ronald (2015). Moreover, there were several attempts to conceptualize dispositional roots of psychotic-like phenomena as a personality trait (e.g., Claridge, 1997; Eysenck & Eysenck, 1976; Watson, Clark, & Chmielewski, 2008). If the domain[2] is indeed best conceptualized as a continuum, i.e., a universal, trait-like structure one of the first concerns is to locate its position within personality space, in other words to investigate its relations with the basic personality traits.

It has been persuasively argued that normal and abnormal personality variations may be represented by a single structural model (O'Connor, 2005; Widiger, 2011). What remains to be determined is which of these structural models most adequately account for both types of variations. Although some studies (Markon, Krueger, & Watson, 2005), have found support for the Big Five model (John, Naumann, & Soto, 2008) meta-analytic findings about the structure of personality disorders indicate that abnormal personality possesses a four-factor structure, similar to the four factors from the Big Five: Neuroticism (N), Extraversion (E), Agreeableness (A), and Conscientiousness (C) (O'Connor & Dyce, 1998). Some recent evidence suggests that abnormal personality processes are best captured by factors that most closely resemble the aforementioned four factors, but with the addition of a novel

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[2] Labeling the domain may depend on whether one wants to highlight the predominant behavioral content (e.g., Psychosis Proneness, Psychoticism, Schizotypy), to emphasize a layman's description of the given behavior (e.g., Peculiarity, Oddity), or the process contributing to the manifest behavior (e.g., Disintegration, Apophenia).

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fifth factor, Psychoticism (Krueger, Derringer, Markon, Watson, & Skodol, 2012), instead of Openness (O) factor from the Big Five model. One of the most intriguing questions is whether the original Big Five model is sufficient to account for both normal and abnormal personality variations. Those favoring the view that the Big Five model can explain both normal and abnormal personality variations conceptualize psychotic-like phenomena as the manifestation of a high level of Openness (DeYoung, Grazioplene, & Peterson, 2012; Widiger, 2011).

Furthermore, the content and the optimal number of components of this domain remain yet to be determined. There has been an increasing number of its subcomponents being identified, from 2 suggested by Kay, Fiszbein, and Opler (1987), to 12 proposed by van Kampen (2006), with almost all possible factor solutions in-between also proposed. Recently, some researchers have argued that the boundaries of this domain have been too narrowly defined (Andresen, 2000; Markon, 2010). The purpose of the current study is two-fold, (1) to contribute to the proper conceptualization of the domain (by identyfing its content, boundaries, and trait-like characteristics), and (2) to investigate whether this new conceptualization represents a domain not already represented by the Big Five traits (defined here by the Five-Factor Model, FFM, Costa & McCrae, 1992).

1.1. Previous evidence on the relationship between the FFM and psychotic-like phenomena

The results of two meta-analytic studies suggested basic independence of psychotic-like phenomena from the FFM. Samuel and Widiger (2008) found that estimated correlations between schizotypal personality disorder and N, E, O, A, and C, were 0.38, −0.28, 0.09, −0.17, and −0.14, respectively, while Saulsman and Page (2004) found somewhat different correlations (i.e., 0.36, −0.28, −0.01, −0.23, and −0.13). More recent studies have reported similar findings (Ashton & Lee, 2012; Ashton, Lee, de Vries, Hendrickse, & Born, 2012; Watson et al., 2008). Watson et al. (2008) concluded that the schizotypy factor they extracted (and labeled Oddity) reflected a trait-like disposition outside of the FFM.

In the majority of aforementioned studies, small or non-significant correlations between schizotypy and O were found (while the same studies reported correlations ranging from 0.30 to 0.40 between schizotypy and N). Despite this fact, there is a persistent effort among some scholars to conceptualize schizotypy-like phenomena as extreme levels of O.

There are several reasons that at first glance this approach might seem appropriate. First, extreme O has some "flavor" of schizotypy, leading researchers to equate them and postulate a possible common mechanism responsible for both phenomena, such as experiential permeability (Piedmont, Sherman, & Sherman, 2012).

Second, as previously discussed, the O factor extracted in the domain of normal variations appears to lack representation within abnormal personality variations. Likewise, the schizotypy/psychoticism factor, extracted in the domain of abnormal personality variations seems to lack adequate representation within normal personality variations, i.e. FFM (Watson et al., 2008). The attempt to equate the only two "unpaired" entities recovered from normal and maladaptive personality variations (Piedmont, Sherman, Sherman, Dy-Liacco, & Williams, 2009) appears to be a reasonable strategy. Thus, a typical proposal articulates positive symptoms of schizotypy (i.e., perceptual and cognitive distortions) as high O (Widiger, 2011), and negative phenomena (i.e., social and physical anhedonia) as low O (Kwapil, Barrantes-Vidal, & Silvia, 2008).

Third, the low correlations between the O factor and indices of schizotypy might be attributed to the way the O factor is assessed within the NEO Personality Inventory - Revised (NEO PI-R, Costa & McCrae, 1992) which does not include items capturing extreme levels of the O factor. Haigler and Widiger (2001) proposed that if such items had been included in the NEO PI-R, the expected correlations would have been more similar to expected levels as supported by some evidence in their study. Other studies have found that by including "bridging" instruments which contain extreme O items, such as the Experiential Permeability Inventory, higher correlations between schizotypy and the O factor were detected (EPI; Piedmont et al., 2009, 2012).

The lack of a strong and consistent relationship between the O factor and schizotypy might also be due to the heterogeneity of schizotypy-like constructs (Chmielewski & Watson, 2008; Mason, Claridge, & Williams, 1997; van der Gaag et al., 2006). The opposite relationships between positive and negative schizotypy symptoms and the O factor have been repeatedly demonstrated (Chmielewski & Watson, 2008; Kwapil et al., 2008; Ross, Lutz, & Bailley, 2002), with the former being positively related to O, and the latter negatively. It has also been argued that when the assessment of schizotypy includes both positive and negative components, a correlation with O was not found, i.e., these opposite relationships appear to nullify each other (Piedmont et al., 2012; Ross et al., 2002). Moreover, an alternative explanation might be that the O domain, as operationalized in the NEO PI-R inventory, is overly broad, blending two distinct subfactors – Pure Openness (PO), which is positively related to psychotic-like phenomena, and Pure Intellect (PI), which is negatively related. These two aspects appear at the level of NEO PI-R O facet scales (i.e., Fantasy, Aesthetics, and Emotions as indices of PO; Actions, Ideas, and Values as indices of PI), and produce zero correlations with psychosis measures when the total O score is used (Chmielewski, Bagby, Markon, Ring, & Ryder, 2014).

There are several reasons that psychotic-like phenomena should not be conceptualized as being part of the Openness factor. First, although high O and Disintegration may at first glance appear to reflect similar phenomena, this may not be the case. Rather, while O reflects receptivity to new experiences (i.e., experiential permeability), which, on its positive pole, can result in preoccupation with fantasy, daydreaming, and absorption, an entirely different mechanism might be reflected in psychotic-like, schizotypal, apophenic[3] tendencies, such as disturbances in internal representations of contextual information (Cohen & Servan-Schreiber, 1992; Philips & Silverstein, 2003). Although it is possible that both are necessary ingredients of certain phenomena, such as enhanced awareness, eccentricity, and creativity, it does not imply that they are the same.

Second, a linear continuum assumes inverse relations between its poles. Conceptualization of positive symptoms of schizotypy as the positive pole of O, and negative symptoms as the negative pole of O (Piedmont et al., 2009), leads to the expectation of high negative correlations between positive and negative symptoms. This contradicts empirical evidence of substantive positive correlations between the two (Bailey, West, Widiger, & Freiman, 1993; Ross et al., 2002). Thus, it seems that attempts to organize positive and negative symptoms of schizotypy around the construct of the O factor (Piedmont et al., 2012) may produce more confusion than clarification.

Third and the most important, the results interpreted as evidence supporting the conceptual unification of O and Disintegration, are not persuasive. Even after including more extreme items of O in the NEO PI-R inventory, correlations between O and three measures of schizotypy remained comparatively low, at 0.28, 0.24, and 0.33, as reported by Haigler and Widiger (2001). Furthermore, meta-analytic findings (Samuel & Widiger, 2008) did not show expected stronger correlations of Schizotypal Personality Disorder with PO than with PI facets (i.e., the highest correlation was 0.14, and the remaining below 0.10). In Study 1 of DeYoung et al. (2012), correlations between two measures of apophenia

[3] Seeing patterns or connections in random, causally unrelated data