Personality dimensions in schizophrenia: A family study

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A R T I C L E   I N F O

Keywords:
Relatives
Genetic risk
Social functioning
Psychosis
Vulnerability marker

A B S T R A C T

Studies have demonstrated that personality traits differ in schizophrenia patients and family members compared to controls, suggesting familial risk. This study evaluated personality traits in a family study of schizophrenia, as well as the relationship between personality traits and symptoms and social functioning in schizophrenia patients. Thirty-two schizophrenia patients, 28 adult non-psychotic relatives, and 27 community controls completed the Dimensional Assessment of Personality Pathology—Basic Questionnaire (DAPP-BQ). Schizophrenia patients differed on many dimensions of the DAPP-BQ compared to controls and/or relatives: affective lability, anxiousness, callousness, conduct problems, cognitive dysregulation, identity problem, intimacy, insecure attachment, low affiliation, narcissism, oppositionalism, restricted expression, self-harm, submissiveness, and suspiciousness. No differences were found between relatives and controls. Furthermore, in schizophrenia patients, associations were found between personality and particularly general symptoms, as well as social functioning. Personality traits can be conceptualized as an extended phenotype in schizophrenia patients.

1. Introduction

Research in the field of psychopathology is moving towards having a unified understanding of the integration between personality and psychopathology. Four prominent models exist for detailing the inter-relationship between personality and psychopathology (reviewed in Andersen and Bienvenu, 2011). The vulnerability hypothesis suggests that certain personality traits predispose individuals to develop disorders. The scar hypothesis states that differences in personality are due to illness effects. The pathoplasty model focuses on the effects of premorbid personality on the course of the illness. Last, the common cause or spectrum hypothesis suggests personality and psychopathology are associated due to shared genetic and environmental effects between the two. There is support for all of these models in the literature (Andersen and Bienvenu, 2011). Understanding personality traits in relation to psychopathology is necessary to understand the disorder.

The current literature demonstrates the inter-relationship between personality disorders and traditional Axis I disorders, including psychosis. Kotov et al. (2011a) relaxed DSM-IV hierarchical rules and rated 11 syndromes in first-admission psychosis patients, and found evidence for three clusters: internalizing, externalizing, and schizophrenia, with schizotypy being better placed with schizophrenia, and antisocial personality with externalizing disorders, rather than the personality disorders being grouped together. In a second study, Kotov et al. (2011b), 2900 community-based outpatients underwent a comprehensive diagnostic assessment of Axis I and II disorders. This broader assessment of disorders led to five clusters being revealed: high negative affect (internalizing; anxiety and eating disorders, major depressive episode, and Cluster C, borderline, and paranoid personality disorders), extreme trait disinhibition (externalizing; substance use disorders and antisocial personality disorder), odd/eccentric cognition and behavior (thought disorder; psychosis, mania, and Cluster A personality disorders), callous antipathy (antagonism; Cluster B and paranoid personality disorders), and maladaptive responses to somatic symptoms (somatoform; somatoform disorders). Together this research demonstrates the integration between personality disorders and other mental health disorders.

Research has also demonstrated that normal personality traits map onto constructs such as externalizing and internalizing disorders (Kotov et al., 2010). However, research into the relationship between personality traits and more severe mental disorders is less well studied. A meta-analysis of literature using the Temperament and Character Inventory (TCI) found that schizophrenia patients scored higher on harm avoidance and self-transcendence and lower on reward dependence, persistence, self-directedness, and cooperativeness than controls (Ohi et al., 2012). A review of the literature in relation to affective traits has demonstrated that schizophrenia patients have greater negative emotionality and lower positive emotionality (Horan et al., 2008). Furthermore, these traits were stable across the course of the
disorder, including with changes in symptomatology, and greater negative and lower positive emotionality predicted the development of psychosis. Last, individuals with Cluster A disorders also demonstrated the same pattern of greater negative emotionality and lower positive emotionality as schizophrenia patients. Therefore, these traits may be a vulnerability marker for schizophrenia. Importantly, these personality features predicted functional outcome and quality of life in schizophrenia patients (Horan et al., 2008).

Researchers have also found a link to the familial risk for schizophrenia and personality by investigating family members of affected individuals. The review by Horan and colleagues (2008) also found that physical anhedonia and more variably social anhedonia were elevated in the relatives of schizophrenia patients. Studies using the TCI have demonstrated mixed findings, including that relatives of schizophrenia patients had lower scores on novelty seeking and higher scores on self-transcendence than controls (Margetic et al., 2011), relatives with schizophrenia with schizotypal features had higher harm avoidance and self-transcendence and relatives without schizotypal traits had higher self-directedness and cooperativeness traits (Bora and Veznedaroglou, 2007), as well as no differences between relatives and controls (Cortes et al., 2009). Studies investigating Axis II traits in relatives of schizophrenia patients have found that Axis II Cluster A disorders can be differentiated (Fogelson et al., 2007) and are related to cognition in their own right (Fogelson et al., 2010).

In this study, the Dimensional Assessment of Personality Pathology- Basic Questionnaire (DAPP-BQ) was used. The DAPP-BQ was developed to measure dimensions of personality disorders, as well as clinically-relevant personality traits (Livesley and Jackson, 2009). It measures 18 dimensions of personality that are organized in four high order factors. The DAPP-BQ has been shown to measure dimensions of normal personality and be useful across healthy and clinical samples (Livesley and Jackson, 2009). The questionnaire shows some correspondence with the five factor model of personality (Livesley and Jackson, 2009). Importantly, the DAPP-BQ has been found to be heritable (Yang and Livesley, 1999; Livesley et al., 1998). Two studies have used the DAPP-BQ in family studies of schizophrenia. Silberschmidt and Sponheim (2008) compared relatives to controls, and found relatives of schizophrenia patients had elevated scores on anxiousness, restricted expression, social avoidance and submissiveness, and lower scores on stimulus seeking. A schizophrenia group was not included in this study. In the second study, Samaniego and colleagues (2011) compared schizophrenia patients to relatives high and low on schizotypy, and found that relatives higher on schizotypy facets displayed a DAPP-BQ profile more similar to schizophrenia patients and had higher scores on affective liability, anxiousness, submissiveness, social avoidance, identity problems, oppositionality, narcissism, and restricted expression compared to relatives lower on schizotypy facets. A control group was not included in this study.

The present study investigated personality dimensions in a family study of schizophrenia. Given the inter-relationship between personality and the disorder, this study investigated the relationship between personality and symptoms, social functioning, estimated intelligence, and education level in schizophrenia patients. This is the first study to use the DAPP-BQ in a family study of schizophrenia and controls, which allowed a better understanding of familial risk and disease-specific effects on personality. We hypothesized schizophrenia patients would demonstrate greater scores on all factors compared to controls, compulsiveness, emotional dysregulation, dissocial behavior, and social avoidance. We hypothesized that relatives would show more nuanced differences compared to controls, which would be the most notable as higher scores for the social avoidance factor.

2. Methods

2.1. Participants

Thirty-two schizophrenia or schizoaffective patients (25 schizophrenia, 7 schizoaffective; hereafter referred to as schizophrenia patients), 28 adult non-psychotic first-degree biological relatives, and 27 community controls participated in this study. Patients were recruited through schizophrenia and psychosis outpatient clinics at Foothills Medical Centre and community support programs in Calgary, Canada. Relatives were identified by completion of a family pedigree with the proband. We allowed both probands and relatives to participate in the study regardless of whether the other did to increase our sample size. Nine relatives had a proband participate in the sample. Community controls were recruited from the community through flyers and advertisements across Calgary. The Conjoint Health Research Ethics Board (CHREB) at the University of Calgary approved the study protocol. All participants gave written informed consent.

Inclusion criteria for all participants included: (1) age 18–65, (2) minimum IQ of 70, (3) no current diagnosis of drug or alcohol dependence or abuse, (4) no history of head injury or loss of consciousness for more than 20 minutes, (5) no history of electroconvulsive therapy, and (6) no history of stroke or other neurological condition. Additional inclusion criteria for relatives and controls were no lifetime diagnosis of a psychotic disorder or bipolar disorder, or history of anti-psychotic medication use. Last, a further criterion for inclusion of community controls was no family history of a psychotic disorder or bipolar disorder.

2.2. Diagnosis and assessment

Participants were interviewed with the Structured Clinical Interview for the Diagnostic and Statistical Manual-IV-TR Axis I Disorders (SCID-I; First et al., 1996). The Structured Interview for Schizotypy, with supplemental questions, was used to measure Axis II Cluster A disorders in relatives and controls (Kendler et al., 1989). Diagnoses were assigned according to DSM-IV-TR criteria via case conferences (APA, 1994). The Positive and Negative Syndrome Scale was used to assess symptom severity in all participants (PANSS; Kay et al., 1987; Kay and Opler, 1987). All raters completed training with the PANSS Institute and were reliable with the Institute gold standard. Overall functioning was assessed with the Global Assessment of Functioning (GAF), and social functioning was assessed using the Social Functioning Scale (SFS; Birchwood et al., 1990). SFS was only conducted on schizophrenia patients, given the high level of functioning of controls and relatives. Last, the vocabulary and matrix reasoning subtests of the Wechsler Abbreviated Scale of Intelligence (WASI) were used to estimate IQ (Wechsler, 2011).

2.3. Personality questionnaire

The DAPP-BQ was administered in paper form. Full information regarding the DAPP-BQ is provided in the technical manual (Livesley and Jackson, 2009). Briefly, the inventory consists of 290 items and was developed in a multi-step process. First, the clinical literature on DSM-III personality disorders was reviewed and descriptive features were identified. After, descriptive features were organized into trait descriptions of each disorder using clinical judgment and rational methods, producing 79 traits. Following that, systematic definitions of each trait were developed using the most prototypical descriptors. Pools of approximately 50 self-report items were generated per trait. Next, the psychometric properties of the trait scales were evaluated in the normal population. At this stage, items related to social desirability and general psychopathology were eliminated, and the revision increased the number of traits being evaluated to 100. Next, the factor
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