Perceived emotional intelligence is impaired and associated with poor community functioning in schizophrenia and bipolar disorder

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Schizophrenia and bipolar disorder have been associated with shared and distinct emotion processing abnormalities. Initial findings indicate that these disorders differ with respect to the domain of emotional intelligence (EI). Individuals with schizophrenia display deficits on performance measures of EI, whereas those with bipolar disorder do not. However, no research has examined patients’ subjective beliefs about their own EI (referred to as “perceived EI”). This study examined perceived EI, assessed with the Trait Meta-Mood Scale (TMMS), and its clinical and functional correlates in outpatients with schizophrenia (n = 35) or bipolar disorder I (n = 38) and matched healthy controls (n = 35). The TMMS includes three subscales that assess beliefs about one’s ability to attend to (Attention to Feelings), understand (Clarity of Feelings), and repair emotions (Mood Repair). Participants in the clinical groups also completed community functioning and symptom assessments. Both clinical groups reported significantly lower perceived EI than controls, but did not differ from each other. Higher total TMMS correlated with higher levels of independent living in the schizophrenia group (r = .36) and better social functioning in the bipolar group (r = .61). In addition, although higher Attention to Feelings scores correlated with greater psychiatric symptoms in the schizophrenia group, higher scores across all subscales correlated with less manic symptoms in the bipolar group. The findings suggest that perceived EI is impaired and related to community functioning in both disorders.

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1. Introduction

Research from an affective science perspective has begun to specify differences and similarities in the emotion processing abnormalities associated with schizophrenia and bipolar disorder. On one hand, these disorders are associated with different patterns of in-the-moment responses to emotionally evocative stimuli. While schizophrenia patients demonstrate normal emotional responses to evocative stimuli (Kring and Ellis, 2013), bipolar patients demonstrate prolonged emotional responses to evocative stimuli through cognitive reappraisal in schizophrenia (Horan et al., 2011). However, both clinical groups show deficits in emotion regulation, including difficulty modulating neural responses to unpleasant stimuli through cognitive reappraisal in schizophrenia (Horan et al., 2013) and, in bipolar disorder, using more emotion regulation strategies, but with less success, than healthy people (Gruber et al., 2012).

Examining other aspects of emotion processing can further illuminate differences and similarities across these disorders. For example, an aspect of emotion processing that has received research attention in major mental illness is emotional intelligence (EI). Mayer et al. (2008) define EI as the capacity to process one’s own and others’ emotions (i.e. perceive, access, generate, and reflectively regulate emotions) to guide thinking about behavior. Accordingly, EI is viewed as a unique set of abilities that plays a critical role in adaptive socio-emotional functioning.

To date, nearly all research on EI in mental illness has focused on performance-based measures, particularly the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002). The MSCEIT assesses four “branches” of EI: emotion perception, using emotions, understanding, and managing emotions. Patients with schizophrenia demonstrate impairments on this measure across all four domains, and lower MSCEIT scores are related to greater positive and negative symptoms, low functional capacity, and poor functional outcome (Kee et al., 2009; Eack et al., 2010; Lin et al., 2012). We are aware of only two studies that used the MSCEIT in bipolar disorder and both found that performance was normal (Burdick et al., 2011; Lee et al., 2013).

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In addition to performance-based measures, affective scientists have assessed self-reported or “perceived EI.” While the MSCEIT measures one’s ability to identify and understand emotions in oneself and others, perceived EI measures the meta-experience of emotion, or one’s subjective beliefs about his or her emotional abilities. The most commonly-used measure of perceived EI is the Trait-Meta Mood Scale (TMMS; Salovey et al., 1995). It contains three subscales: (1) Attention to Feelings (Attention): the tendency to notice and value emotions; (2) Clarity of Feelings (Clarity): the tendency to experience and name feelings clearly; and (3) Mood Repair (Repair): one’s belief in his or her ability to repair negative emotions by fostering positive feelings. In healthy samples, TMMS scores are not strongly related to performance-based measures, such as the MSCEIT (Mayer et al., 2004), yet both are associated with mental and physical health and better social functioning (Schutte et al., 2007). Studies have demonstrated incremental validity for TMMS for outcomes; in healthy individuals, the TMMS predicts subjective well-being and adaptive functioning above and beyond factors such as current mood state, personality traits, and general intelligence (Palmer et al., 2002; Extremera and Fernández-Berrocal, 2005; Fernandez Berrocal and Extremera, 2008).

Higher scores on Clarity and Repair are consistently associated with positive outcomes, such as greater life satisfaction, interpersonal satisfaction, and less social anxiety and depression (Palmer et al., 2002; Salovey et al., 2002; Salguero et al., 2012). Higher scores on the third subscale, Attention, are sometimes associated with positive outcomes, such as empathy, self-esteem, and adaptive physiological responses to acute stress (Salovey et al., 2002), but have also been associated with greater anxiety and depression (Salovey et al., 1995; Salguero et al., 2012).

We are unaware of any studies of perceived EI in schizophrenia or bipolar disorder using the TMMS. Research has been conducted on concepts related to perceived EI, such as mindfulness and alexithymia (related to the Attention and Clarity subscales) and emotion regulation (related to Repair). Schizophrenia patients display low levels of dispositional mindfulness (Chadwick et al., 2008), while bipolar patients and healthy controls do not differ on mindfulness (Perich et al., 2011). Also, schizophrenia patients report increased alexithymia (van’t Wout et al., 2007), which has been associated with increased positive (Serper and Berenbaum, 2008) and negative symptoms (van’t Wout et al., 2007). Individuals with schizophrenia additionally report abnormal emotion regulation styles and show impairment on performance-based and neurophysiological tasks (Kee et al., 2009; Kimhy et al., 2012; Horan et al., 2013). Although individuals with bipolar disorder also report abnormal emotion regulation styles (Gruber et al., 2012; Wolkenstein et al., 2014), they do not consistently show impairments on performance-based assessments (Burdick et al., 2011; Lee et al., 2013; Gruber et al., 2014).

There were three objectives for the current study. The first was to compare levels of perceived EI across schizophrenia, bipolar, and control participants. Based on prior research, we expected schizophrenia patients to report lower scores on all TMMS subscales, but we did not have clear directional predictions for the bipolar group. The second objective was to examine the correlations among perceived EI, characteristic symptoms for the two disorders (positive and negative symptoms, mania, and depression), and community functioning within each clinical group. The third objective was to determine whether perceived EI accounted for unique variance in functional outcome for each clinical group, above and beyond any contribution of symptoms.

2. Methods

2.1. Participants

Participants were 73 outpatients with schizophrenia (n = 35) or bipolar disorder (n = 38) and 35 healthy control subjects. Patients were recruited from outpatient clinics at University of California, Los Angeles (UCLA), the Veterans Affairs Greater Los Angeles Healthcare System (VAGLAHS), and from local clinics and board and care facilities. Patients met criteria for schizophrenia or bipolar I disorder based on the Structured Clinical Interview for DSM-IV (SCID) Axis I Disorders (First et al., 1996). Most of the bipolar patients (n = 28) had a history of psychotic symptoms and the majority of bipolar patients were euthymic at the time of the study (n = 29). Following consensus nomenclature, participants were considered euthymic if they had a score of <7 on the Young Mania Rating Scale (Tohen et al., 2009). Patients were excluded if they had substance dependence in the past six months, substance abuse in the past month, or IQ < 70. All patients were clinically stable as defined by: no mood episodes in the past month, no hospitalizations in the past 3 months, no changes in living situation in the past 2 months, and no medication changes in the past 6 weeks. Thirty-three of the schizophrenia patients and twenty-three of the bipolar patients were taking antipsychotic medications. Twelve bipolar patients were taking lithium.

Control participants were recruited through advertisements posted on websites. Controls were excluded if they had a history of schizophrenia, other psychotic disorder, bipolar disorder, recurrent major depressive disorder, substance dependence disorder, or substance abuse in the past month based on the SCID. Controls were also administered portions of the SCID for Axis II Disorders (First et al., 1994) and excluded if they met criteria for avoidant, paranoid, schizoid, schizotypal, or borderline personality disorder. They were also excluded for family history of psychotic or bipolar disorders among first-degree relatives. Additional exclusion criteria for all participants were: history of loss of consciousness for more than one hour, significant neurological disorder, or insufficient fluency in English.

All interviewers were trained through the Treatment Unit of the VA VISN 22 Mental Illness Research, Education, and Clinical Center. Interviewers were trained to a minimum kappa of 0.75 for key psychotic and mood items on the SCID and to a minimum kappa of 0.75–0.80 for other symptom measures (Ventura et al., 1998). All participants had the capacity to give informed consent and provided written informed consent after procedures were fully explained, in line with procedures approved by the institutional review board at VAGLAHS.

2.2. Measures

2.2.1. Perceived emotional intelligence

All participants completed the TMMS, a 30-item self-report measure comprised of three subscales. The Attention subscale includes 13 items that measure the amount of attention one pays to subjective feelings (e.g. “I often think about my feelings”). The Clarity subscale includes 11 items that measure one’s ability to understand and differentiate between feelings (e.g. “I am rarely confused about what my feelings are”). The Repair subscale includes six items that measure one’s ability to regulate mood by repairing negative feelings (e.g. “I try to think good thoughts no matter how badly I feel”). Each item is rated on a scale from one (strongly disagree) to five (strongly agree). The TMMS has demonstrated good internal reliability and convergent and discriminant validity in healthy samples (Salovey et al., 1995). Although few studies have utilized the TMMS in clinical populations, the scale has demonstrated good reliability in samples of individuals at clinical and genetic high risk for schizophrenia (Lee et al., 2008). In the current study, the Total score and three subscale scores demonstrated acceptable to good reliability (Cronbach’s alpha) in all three groups (Supplementary Table 1). Scores for each scale range from 30 to 150 (Total), 13 to 65 (Attention), 11 to 55 (Clarity), and 6 to 30 (Repair).

2.2.2. Symptom ratings

All three groups completed the Clinical Assessment Interview for Negative Symptoms (CAINS; Kring et al., 2013), which is comprised of two subscales. The Motivation and Pleasure (MAP) subscale includes nine items based on motivation, interest, and reported engagement in
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