What does the Managing Emotions branch of the MSCEIT add to the MATRICS consensus cognitive battery?

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A B S T R A C T

The Managing Emotions branch of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT-ME) was included within the MATRICS Consensus Cognitive Battery (MCCB) as the measure of social cognition, although limited research has examined its associations with psychosocial functioning in people with schizophrenia or other severe mental illnesses. This secondary analysis with 107 participants examined what the MSCEIT-ME contributes to our understanding of functioning in this population, and whether it uniquely predicts psychosocial functioning after controlling for performance on the other MCCB tests and negative symptoms. Performance on the MSCEIT-ME was significantly correlated with all three MCCP factors (processing speed, attention/working memory, learning) within schizophrenia-schizoaffective disorder, bipolar disorder, and other mixed diagnoses groups. Better performance on MSCEIT-ME was associated with better psychosocial functioning on the Quality of Life Scale (QLS) in the schizophrenia-schizoaffective disorder group, but not in the bipolar or other mixed diagnoses groups. In addition, in the schizophrenia-schizoaffective disorder group, after controlling for demographic characteristics in stepwise multiple regression analyses, MSCEIT-ME was the only significant predictor of the QLS total score and the QLS interpersonal relations and intrapsychic foundations subscales, with none of the MCCB factors entering any of the regression models. The MSCEIT-ME may reflect a unique aspect of social cognition that is related to impaired psychosocial functioning in schizophrenia and is not tapped by the other cognitive tests on the MCCB. Further research on the MSCEIT-ME could provide unique insights into the social functioning problems in schizophrenia.

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1. Introduction

There is a growing recognition of the importance of social cognition in understanding psychosocial functioning in persons with schizophrenia. Social cognition is broadly defined as comprising a range of functions thought to be critical to effective interpersonal interactions, including the ability to recognize other people’s feelings, to perceive their intentions from interpersonal and situational cues, and knowledge of social and cultural norms governing appropriate social behavior (Green and Leitman, 2008; Penn et al., 2008). Research has shown that impairments in social cognition have a similar onset, course, and severity as cognitive impairments in schizophrenia (Green et al., 2012), but are distinct from both neurocognitive impairment and negative symptoms (Sergi et al., 2007).

Multiple studies have shown that different measures of social cognition, including emotion recognition, social perception, theory of mind, and emotional intelligence, are related to the quality of psychosocial functioning in persons with schizophrenia (Brekke et al., 2007; Couture et al., 2006; Horan et al., 2012; Kee et al., 2003; Mueser et al., 1996; Pijnenborg et al., 2009; Vauth et al., 2004). Some research has supported the hypothesis that social cognition mediates the relationship between cognitive functioning and psychosocial adjustment (Addington et al., 2010; Addington et al., 2006; Bell et al., 2009; Hoe et al., 2012; Horan et al., 2012). Furthermore, a meta-analysis of 52 studies found social cognition is more strongly related to community functioning than overall neurocognition (Fett et al., 2011).

The MATRICS Consensus Cognitive Battery (MCCB) was created in order to establish a well-validated, standardized battery of neurocognitive tests for research in schizophrenia (Nuechterlein et al., 2008). The MCCB includes 10 tests covering a range of neuropsychological areas. In addition, the MCCB includes one measure of social cognition, a subtest of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2003) which was developed to measure emotion self-regulation: the Managing Emotions branch. This subtest was included in the MCCB based on findings that it was more strongly correlated with areas of community functioning than the other three branches of the MSCEIT and other measures of social cognition, such as the Awareness of Social Inference Test (McDonald et al., 2003) and
the Emotion Recognition-40 (Gur et al., 2002; Nuechterlein et al., 2008). The MSCEIT is a performance-based measure of social cognition designed to measure the accuracy and skill of individuals engaged in a social cognitive task, which has been shown to be more strongly associated with psychosocial functioning than measures of cognitive bias (Pinkham et al., 2016), such as the Ambiguous Intentions and Hostility Questionnaire (Combs et al., 2007).

Despite the inclusion of the Managing Emotions branch in the MCCB battery, limited additional research has examined its associations with community functioning in people with schizophrenia or other severe mental illnesses. Kee et al. (2009) evaluated the associations between the four branches of the MSCEIT and five dimensions of psychosocial functioning (work productivity, independent living/self-care, family relationships, social relationships, social adjustment) measured with the Role Functioning Scale (McPheeters, 1984) and the UCLA Social Attainment Scale (Goldstein, 1978) in 50 persons with schizophrenia. Although performance on the Managing Emotions branch was positively correlated with all the dimensions of psychosocial functioning, only the correlation with independent living/self-care was statistically significant. In contrast, identifying Emotions on the MSCEIT was the branch most strongly associated with functioning, with four of the five correlations with different dimensions of psychosocial functioning being significant.

Eack et al. (2010) also examined the associations between the four MSCEIT branches with several measures of community functioning, including the Social Adjustment Scale-II (SAS-II; Schooler et al., 1979), the Global Assessment Scale (Endicott et al., 1976) and the Performance Potential Inventory (PPI; Hogarty et al., 2004), in 64 persons with schizophrenia-spectrum disorders. Performance on all four MSCEIT branches was significantly correlated with a composite measure of neurocognition. However, in general the MSCEIT branches were only weakly associated with psychosocial functioning. Significant ($p < .05$) or marginally significant ($p < .1$) correlations were found between the Managing Emotions branch and only two of the 12 psychosocial variables (social functioning and global work potential on the PPI), while the Emotion Facilitation branch was associated with only three psychosocial variables (interpersonal anguish and major role functioning on the SAS-II, global work potential on the PPI).

Considering the inclusion of the Managing Emotions branch of MSCEIT in the MCCB, and the limited research on its associations with psychosocial functioning in schizophrenia, more research is needed to determine what it contributes to the understanding of functioning in this population. Of particular interest is whether the Managing Emotions branch is uniquely predictive of psychosocial functioning after controlling for performance on the other cognitive tests in the MCCB. In addition, because of the strong association between negative symptoms and functional outcome in schizophrenia (Stiecken et al., 2017; Ventura et al., 2009), it would be important to determine whether the Managing Emotions branch predicts psychosocial functioning when statistically controlling for negative symptoms. Of related interest is whether any observed associations between the Managing Emotions branch and psychosocial functioning are specific to schizophrenia, or whether they are found in the broader population of persons with a severe mental illness not within the schizophrenia spectrum. The aim of this study was to address these questions.

Our primary hypotheses were that performance on the MSCEIT Managing Emotions branch would be significantly related to overall cognition and more strongly associated with psychosocial functioning than the other cognitive tests in this sample of persons with severe mental illness.

2. Method

A secondary analysis was conducted of a previously published randomized controlled trial conducted at two large community mental health programs for people with severe mental illnesses. This trial examined the effects of adding cognitive remediation to vocational services for persons who had previously not benefited from supported employment (IPS; Becker and Drake, 2003). All study participants received comprehensive cognitive, symptom, and quality of life evaluations at baseline (McGurk et al., 2015).

2.1. Participants

This study included 107 participants who met the following inclusion criteria: 1) diagnosed with a DSM-IV axis I diagnosis using the SCID-I (First et al., 1997) by trained interviewers and currently receiving services at one of two community mental health agencies serving persons with severe mental illness located in Manchester, NH and Chicago, IL; 2) failure to benefit from participation in at least three months of supported employment program, defined as a minimum of three consecutive months without working in a competitive job, or quitting or being fired from a competitive job that lasted less than three months; 3) stated desire to work; and 4) no evidence of a traumatic brain injury or medical condition affecting brain functioning. See Table 1 for participant characteristics.

2.2. Measures

2.2.1. Cognitive functioning

The MCCB was administered. It includes ten tests examining speed of processing, attention/vigilance, working memory, verbal learning, visual learning, reasoning and problem solving, and social cognition. The three-factor model of the MCCB described by Burton et al. (2013), which excludes the MSCEIT Managing Emotions branch, was used to create summary scores corresponding to processing speed, attention/working memory, and learning.

The MSCEIT Managing Emotions branch includes two subtests assessing social and emotion management. A total of eight brief

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