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Self-assessment of social cognitive ability in schizophrenia: Association with social cognitive test performance, informant assessments of social cognitive ability, and everyday outcomes

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ABSTRACT

Background: Impairments in self-assessment are common in people with schizophrenia and impairments in self-assessment of cognitive ability have been found to predict impaired functional outcome. In this study, we examined self-assessment of social cognitive ability and related them to assessments of social cognition provided by informants, to performance on tests of social cognition, and to everyday outcomes. The difference between self-reported social cognition and informant ratings was used to predict everyday functioning.
Methods: People with schizophrenia ($n = 135$) performed 8 different tests of social cognition. They were asked to rate their social cognitive abilities on the Observable Social Cognition Rating Scale (OSCARs). High contact informants also rated social cognitive ability and everyday outcomes, while unaware of the patients' social cognitive performance and self-assessments. Social competence was measured with a performance-based assessment and clinical ratings of negative symptoms were also performed.
Results: Patient reports of their social cognitive abilities were uncorrelated with performance on social cognitive tests and with three of the four domains of functional outcomes. Differences between self-reported and informant rated social cognitive ability predicted impaired everyday functioning across all four functional domains. This difference score predicted disability even when the influences of social cognitive performance, social competence, and negative symptoms were considered.
Implications: Mis-estimation of social cognitive ability was an important predictor of social and nonsocial outcomes in schizophrenia compared to performance on social cognitive tests. These results suggest that consideration of self-assessment is critical when attempting to evaluate the causes of disability and when trying to implement interventions targeting disability reduction.

1. Introduction

Everyday disability remains a reality for the majority of individuals with schizophrenia despite marked improvements in the treatment of positive symptoms with antipsychotic medications. Functional deficits are present across objective (e.g. living independently, maintaining employment, and building relationships) and subjective domains (e.g. quality of life, perceived illness burden; Brekke et al., 1993). Several factors have emerged as significant predictors of functional status in people with schizophrenia. Neurocognition, social cognition, the ability to perform everyday functional skills (i.e., functional capacity), and negative symptoms appear to be globally related to functioning and are more strongly correlated with outcomes than the severity of psychosis in most studies (Bowie et al., 2010; Bowie et al., 2008; Bowie et al., 2006; Fett et al., 2011; Green et al., 2000; Harvey et al., 2011; Tabares-Seisdedos et al., 2008). Yet, studies of the determinants of everyday functional deficits in schizophrenia have stalled at accounting for 50% or less of the variance in real world functioning (Bowie et al., 2010; Bowie et al., 2008; Bowie et al., 2006; Harvey et al., 2011). Improved life outcomes for individuals with schizophrenia, including work performance and independent living skills, hinges on furthering our understanding of the determinants of real world disability and identification of new treatment targets.

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Meta-analyses suggest that social cognition more strongly predicts social outcomes than everyday activities (e.g. living independently), and neurocognition is often found to provide a minimal prediction of social outcomes (e.g. interpersonal relationships; Depp et al., 2012; Fett et al., 2011). Ultimately, understanding the association between different features of the illness and outcome domains will improve the ability of clinicians and clinical researchers to personalize treatment targets, such that the treatment of a person with social deficits may differ from treatments for a person with problems in vocational functioning.

A promising new lead in the search for transdiagnostic determinants of real-world functional outcome has emerged, introspective accuracy (IA). We define IA as the ability to accurately self-assess adequacy of performance on cognitive or social cognitive tasks (Fleming et al., 2010), to evaluate the general level of neurocognitive or social cognitive ability (Medalia and Thysen, 2010), and to evaluate the level of competence in the performance of functional skills (Hur et al., 2014; Metcalfe and Greene, 2007). In our view, IA overlaps with metacognition, defined as *thinking about thinking*, but is also distinct. IA can describe impairments that result from errors in the metacognitive process but can also be applied to many different domains in addition to cognitive performance, such as judgments of performance in social or other adaptively relevant situations (Harvey and Pinkham, 2015). IA is separable from metacognitive constructs such as clinical and cognitive insight in that both latter constructs focus on understanding clinical phenomena such as anomalous experiences and erroneous inferences (Beck et al., 2004; Riggs et al., 2012), whereas IA focuses on the self-awareness of levels of specific skills and abilities. IA is also distinct from the metacognitive domain of the Theory of Mind (ToM), the ability to infer the thoughts and emotions of others, in that Theory of Mind is other-focused (Dimaggio and Lysaker, 2010; Nelson et al., 1999). In contrast IA is self-focused (Koren et al., 2006). To provide an example, someone who inaccurately believes that they recognize emotions well might incorrectly perceive someone as angry (poor IA and poor ToM) and act accordingly. Conversely, an individual who acknowledges they have poor emotional recognition might first ask the person if they are angry before responding (good IA and poor ToM).

IA is not global by definition, meaning a patient might have insight in one domain and lack it in another (Yahav et al., 2011). Similar to other symptom domains, not every individual with schizophrenia presents with impaired self-assessment. Our initial work with individuals with schizophrenia has found IA impairments in about 50% of patients in the domains of neurocognitive performance, and functional abilities (Bowie et al., 2007; Durand et al., 2015; Gould et al., 2015; Harvey et al., 2012; Keefe et al., 2015; Riggs et al., 2012; Sabbag et al., 2011). Importantly, IA deficits across various domains have previously shown significant correlations with medication adherence, suicidality, everyday activities, vocational functioning, and social outcomes (Green et al., 2011; Holshausen et al., 2014; McKibbin et al., 2004; Patterson et al., 1997). Research from the VALERO II study suggested that impaired IA of neurocognitive ability was a more potent predictor of everyday functional deficits in social, vocational, and everyday activities domains than scores on performance-based measures of neurocognitive cognitive abilities and functional capacity (Gould et al., 2015). These findings are even more meaningful because of previous research suggesting that deficits in self-assessment can be targeted via psychotherapeutic interventions (Moritz et al., 2011; Moritz et al., 2014).

The current data comes from the final phase of the SCOPE study, which aimed to identify the best methods for assessing social cognition in individuals with schizophrenia (Pinkham et al., in press). This study expands the evaluation of IA and its functional significance to the domain of social cognition and everyday social functioning by examining the predictive association of discrepancies between informant ratings and self-reports of social cognitive abilities and four different domains of real-world everyday functioning: vocational functioning, everyday activities, interpersonal functioning, and socially acceptable behavior. We validated informant vs. self-reports of social cognitive ability by correlating both of these reports and their differnce with performance on 8 different social cognitive tests. We also examined the convergence between self-assessment of social cognition and self-assessment of everyday functioning. Our predictions were straightforward: we hypothesized that social cognitive IA, indexed by the difference between self-reported and informant rated social cognitive ability, would be a substantial predictor of impairments in interpersonal relationships and socially acceptable behavior. We expected that self-reports of social cognitive ability and everyday functioning would be correlated with each other to a greater extent than these self-reports were correlated with objective information obtained from social cognitive test performance and informant judgments of everyday functioning.

2. Method

2.1. Participants

Data collection occurred at three sites in this final phase of the SCOPE study (Pinkham et al., in press): The University of Texas at Dallas (UTD), The University of Miami Miller School of Medicine (UM), and The University of North Carolina at Chapel Hill (UNC). Participants were stable outpatients with diagnoses of schizophrenia or schizoaffective disorder ($n = 135$). Only patients with a high contact informant were included in this study because previous evidence from earlier studies shows that such informants generate ratings with adequate validity (Sabbag et al., 2011). All informants whose data were used reported that they knew the patient "very well". This leads to the exclusion of 73 patients who were reported on in the previous paper whose community informants indicated knowing the patient less than "very well".

UTD patients were recruited from Metrocare Services, a non-profit mental health services provider organization in Dallas County, TX, and other area clinics. UM patient recruitment occurred at the Miami VA Medical Center and the Jackson Memorial Hospital-University of Miami Medical Center, and UNC patients were recruited from the Schizophrenia Treatment and Evaluation Program (STEP) in Carrboro, NC and the Clinical Research Unit (CRU) in Raleigh, NC. To be eligible, patients required a DSM-IV diagnosis of schizophrenia or schizoaffective disorder. Patients could not have any hospitalizations within the last two months and had to be on a stable medication regimen for a minimum of six weeks with no dose changes for a minimum of two weeks.

2.2. Clinical symptom ratings

The severity of positive and negative symptoms was rated with Positive and Negative Symptom Scale, a 30-item scale (Kay et al., 1987).

2.3. Social cognition measures

2.3.1. Observable social cognition rating scale (OSCARS)

Both patients and high contact informants completed the OSCARS. The OSCARS is an 8-item assessment of social cognition. Each OSCARS item is comprised of a question probing a social cognitive domain (theory of mind, emotional perception, cognitive rigidity, jumping to conclusions, and attributional style) followed by general example behaviors that reflect impairment in that domain. Participants ranked their abilities in each item on a 7-point scale with higher ratings indicating greater impairment. An additional question assessed the impression of global social cognitive impairment. The global ratings utilized a 10-point scale, again higher ratings indicated greater impairment (range 1–10). The patient was asked the questions in a standard interview format. Informants completed the form by themselves using the same instructions that the interviewer provided to the patients to rate the patient's level of impairment. The OSCARS was administered at the baseline assessment only.

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