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The relative contributions of social cognition and self-reflectiveness to clinical insight in enduring schizophrenia

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ABSTRACT

Poor clinical insight represents a major barrier to recovery in schizophrenia. Research suggests that higher-order social cognitive abilities such as theory of mind (TOM) and metacognition contribute to levels of clinical insight. However, few studies have examined whether social cognitive abilities other than TOM are related to clinical insight. Moreover, to date, no investigation has attempted to determine whether the contribution of metacognitive ability to clinical insight can be differentiated from the contribution of higher-order social cognition, despite their conceptual similarity. Therefore, the purpose of this study was to examine the relative contribution of different social cognitive abilities, as well as metacognition, to clinical insight in a large sample of 139 enduring schizophrenia patients, and controlling for established predictors of clinical insight. Hierarchical regression analyses were used to evaluate the portion of variance explained by 3 social cognitive abilities: emotion recognition, TOM, and affective empathy, and the metacognitive ability of self-reflectiveness. Clinical insight levels were assessed using the Schedule for the Assessment of Insight-Expanded version. Results indicated that affective empathy and self-reflectiveness are the strongest predictors of clinical insight. These results provide insights on the development of targeted interventions for improving clinical insight in this population.

1. Introduction

Individuals with schizophrenia and other psychoses often exhibit a lack of awareness of their illness, a phenomenon termed poor clinical insight, and this is associated with an array of less favorable functional and clinical outcomes (Erol et al., 2015; Wittorf et al., 2009). Clinical insight is multidimensional and can include the awareness of having an illness, but also of consequences of the illness or need for treatment. However, clinical insight is not merely the acceptance that one is ill or needs treatment. Instead, achieving insight into one's illness entails the ability to make sense of one's present condition by creating an illness narrative, requiring the synthesis of information regarding the self and creation of links between experiences that led to the illness (Jacob, 2016; Vohs et al., 2016).

In line with this conceptualization of insight as a process rather than an all-or-none phenomenon, the literature indicates that multiple factors come into play in determining insight levels. This therefore poses a challenge to the development of clear understandings and definitions of this phenomenon. In particular, the complex etiology of insight poses a challenge because known predictors of clinical insight are often overlapping constructs or factors that influence each other, such as social cognition and neurocognition (Sergi et al., 2007), or positive symptoms and neurocognition (Ventura et al., 2010). Therefore, research that aims to identify the factors that independently and uniquely contribute to clinical insight has the potential to refine our understanding of the concept of clinical insight in schizophrenia, and thus, guide the development of therapeutic interventions.

One factor that could facilitate the process of developing an understanding of one's illness experiences, and thereby improve insight, is the use of other's perspectives. Accordingly, one promising avenue of research on clinical insight has been the study of its relationship with social cognition. Theories on the formation of one's self-concept have often revolved around that idea that self-knowledge is based in part on our social interactions, such as through comparison, or direct feedback (Carruthers, 2009; Decety and Sommerville, 2003; Markus and Wurf, 1987). Similarly, poor clinical insight has been conceptualized as an inaccurate or incomplete understanding of one's illness experiences that might arise from the inability to “see ourselves as others see us”, which may arise from deficits in social cognition (David, 1999). Therefore, clinical insight may be improved if one can more effectively recognize

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and make use of information derived from the social environment.

To date, there is substantial evidence supporting a link between social cognition and clinical insight in schizophrenia, irrespective of which dimension of insight is studied (Bora et al., 2007; Lysaker et al., 2011), the stage of illness (Vohs et al., 2015b), and independent of the shared variance with other predictors including neurocognition and symptomatology (Konstantakopoulos et al., 2014; Ng et al., 2015). Nevertheless, studies have so far largely focused on theory of mind (TOM) as an index of social cognitive ability. This can be attributed to the fact that deficits in TOM are the most pronounced social cognitive deficits in schizophrenia (Sprong et al., 2007), and that TOM involves the ability to take the perspective of the other, the latter having been proposed to be a psychological process that contributes to intact awareness of illness (David, 1999).

According to the socio-emotional processing stream, TOM relies on the output of more basic sociocognitive abilities, such as the perception and recognition of social-emotional stimuli (Ochsner, 2008). Yet, it is still unclear whether clinical insight is also related to more basic social cognitive abilities, including emotion recognition, or if this relationship is specific to the higher-order capacity to make inferences about others' thinking. Moreover, affective empathy represents another kind of higher-order social cognitive ability that requires perspective-taking through an affective route and that has also been associated with clinical insight (Pijnenborg et al., 2013). Nevertheless, few studies have examined how different social cognitive abilities, such as emotion recognition, TOM, and affective empathy, relate to clinical insight and whether their influence can be differentiated. To the best of our knowledge, only two studies have examined more than one level of social cognitive ability in relation to clinical insight (Quee et al., 2011; Vaskinn et al., 2013). However, the relative contribution of distinct social cognitive abilities was not explored. Therefore, it is still unknown whether clinical insight is specifically related to the non-affective perspective-taking aspect of TOM, or also to affective perspective-taking (i.e. affective empathy) and more basic social perception performance.

Similar to the rationale behind studying the relationship between TOM and insight, it has been suggested that metacognition abilities may facilitate the development of clinical insight. Metacognition refers to the cognitive processes that individuals use to integrate information derived from thoughts, feelings and intentions into "larger more complex representations" (Lysaker and Dimaggio, 2014), and more broadly, to "thinking about thinking" (Lysaker et al., 2013a). Although many different acts have been coined as belonging to the metacognition spectrum of activities, one that has garnered much interest in the insight literature is self-reflectiveness. Self-reflectiveness involves the ability to reflect on one's own thoughts, to be critical vis-à-vis one's opinions or interpretations, and to flexibly integrate different perspectives into one's understanding of experiences or thoughts (Semerari et al., 2003).

Self-reflectiveness is relevant to the phenomenon of clinical insight because it has been suggested that individuals who have difficulty engaging in self-reflective processes may be unable to develop an objective and well-rounded perspective of their illness experiences, pausing at first interpretations of unusual experiences, leading to poor insight. Moreover, poor self-reflectiveness may render one less able to use knowledge of past and present mental states to make sense of their illness.

In line with this idea that poor clinical insight may be a result of difficulty engaging in higher-order psychological processes such as metacognition and self-reflectiveness, Beck et al. (2004) advanced the concept of cognitive insight. Cognitive insight provides an alternative to evaluate the phenomenon that may underlie poor clinical insight in schizophrenia. It refers not to the ability to recognize that one suffers from a mental illness, but as a general ability to engage in certain mental acts thought to contribute to the development of clinical insight. These latter mental acts include self-reflectiveness abilities, as described above, as well as the concept of self-certainty, which refers to one's tendency for resistance to correction of one's beliefs, and one's self-certainty in their judgments (Beck et al., 2004).

Research to date supports a relationship between self-reflectiveness and clinical insight both at the behavioral (David et al., 2012; Lysaker et al., 2005, 2011) and neurobiological level (Curcic-Blake et al., 2015; Morgan et al., 2010; van der Meer et al., 2010), although research also suggests they are separate constructs (Riggs et al., 2012). However, it is unclear whether the perspective-taking process involved in social cognitive abilities like empathy and TOM is the same aspect that relates self-reflectiveness to clinical insight. Indeed, an idea within "simulation theory" is that in order to infer other people's thoughts, we use the same thought processes we use as when we reflect about the self (Gallese and Goldman, 1998; Mitchell et al., 2005). This question of whether understanding other people's minds and self-reflectiveness engages similar cognitive processes has been a subject of debate in the social cognition literature (Carruthers, 2009; Decety and Sommerville, 2003; Mitchell et al., 2005). Nevertheless, recent evidence supports the idea that social cognition and metacognition, including self-reflectiveness, likely reflect distinct processes (Lysaker et al., 2013b). It therefore remains unanswered whether higher-order social cognition like empathy and TOM still contribute to clinical insight after controlling for the capacity for self-reflectiveness.

To address these gaps in the literature, the primary objective of this study was to investigate the independent and relative contribution of different social cognitive abilities to clinical insight, including TOM, emotion recognition, and affective empathy, in a large sample of enduring schizophrenia patients. By including these three different social cognitive abilities, we also aimed to differentiate the relative contribution of lower-order social cognitive ability (emotion recognition) compared to higher-order abilities that involve perspective-taking abilities, using cognitive (TOM) and affective routes (affective empathy).

The second objective of this study was to clarify whether the contribution of social cognitive abilities could be distinguished from the contribution of self-reflectiveness ability in explaining levels of clinical insight. Finally, we also aimed to examine the relative contribution of social cognition abilities and self-reflectiveness while controlling for known predictors of clinical insight. To answer these questions, we conducted separate exploratory hierarchical regression analyses to investigate the relative contribution of these factors in a large sample of enduring schizophrenia patients.

2. Methods

2.1. Participants

One hundred thirty-nine subjects (73% male) meeting diagnostic criteria for schizophrenia or schizoaffective disorder for a duration of at least 4 years, and aged between 18 and 50 years old, were recruited from inpatient and outpatient units of the Douglas Mental Health University Institute and affiliated community centers. Participants were recruited as part of a larger study examining the neurobiological and psychological determinants of insight in enduring schizophrenia. Information on diagnosis, antipsychotic dosage (converted to chlorpromazine equivalent), and duration of illness were collected by medical chart review, or confirmed with patients' treatment teams. An abbreviated version of the Structured Clinical Interview for DSM-IV Axis I Disorders was also administered to all patients to confirm patients' illness history. Moreover, full-scale IQ was assessed using the Weschler Abbreviated Scale for Intelligence (Wechsler, 1999) to determine participant's eligibility.

Exclusion criteria for the schizophrenia group included 1) very low neurocognitive performance defined as an IQ of less than 2 standard deviations below the group mean; 2) personal history of neurological conditions that affect cognition; 3) head injury with loss of consciousness; 4) diagnosis of substance dependence in the past 3 months.