



Metacognitive and social cognition approaches to understanding the impact of schizophrenia on social quality of life



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ARTICLE INFO

Article history:

Received 2 July 2014

Received in revised form 28 October 2014

Accepted 9 November 2014

Available online 8 December 2014

Keywords:

Metacognition

Social cognition schizophrenia

Social quality of life

ABSTRACT

While some studies view metacognition and social cognition as representing the same phenomenon, others suggest that they represent distinctive sets of abilities that are related to different outcomes. The current study used a cross-sectional design that includes samples of persons with schizophrenia ($N = 39$) and healthy individuals ($N = 60$) to further explore the distinction between social cognition and metacognition and their associations with social quality of life. The Face Emotion Identification Task (FEIT), Faux-Pas Task, Indiana Psychiatric Illness Interview (IPII), Metacognition Assessment Scale – Abbreviated (MAS-A), and Social Quality of Life Scale were administered to all participants. Correlations, *t*-tests and regressions were conducted. Results showed that persons with schizophrenia performed more poorly on all measures than healthy controls. Social cognition and metacognition measures were related for the combined total sample, but only a few associations were found among both sub-samples. A diagnosis of schizophrenia and metacognitive capacity, but not social cognition, predicted social quality of life. Self-reflectivity had a negative relationship to social quality of life while understanding of others' minds had a positive relation to social quality of life. The current study provides evidence that many with schizophrenia experience deficits in both social cognition and metacognition and that those deficits may be distinct and have different kinds of relationships with social quality of life. Clinical implications include the need to emphasize narrative aspects of psychotherapy in order to promote metacognition.

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1. Introduction

Recent conceptualizations of schizophrenia suggest that one of the greatest barriers to psychosocial functioning is deficits in metacognition, which limits a person's abilities to make sense of the social, psychological, and biological challenges presented by their condition (Semerari et al., 2003; Lysaker & Hasson-Ohayon, 2014; Lysaker et al., 2014a). Metacognition is a psychological function that includes a spectrum of mental activities. These activities involve thinking about thinking and range from more discrete acts, in which people recognize specific thoughts and feelings, to more synthetic acts in which an array of intentions, thoughts, feelings, and connections between events are integrated into larger complex representations. Metacognition allows persons to capture what others think and feel, and ultimately supplies the mentalistic knowledge that allows decisions to be made about how to more

effectively respond to social and psychological challenges (Semerari et al., 2003; Lysaker et al., 2013a, 2013b; Lysaker & Dimaggio, 2014; Lysaker & Hasson-Ohayon, 2014).

Impairments in metacognition have been found in both early and later phases of schizophrenia (Brune et al., 2011; Lysaker et al., 2014b; Macbeth et al., 2014; Vohs et al., 2014) and are linked with both objective and subjective indicators of wellness, independent of symptom severity (Lysaker et al., 2010, 2011b; Kukla et al., 2013; Lysaker et al., 2013a, 2013b; Rabin et al., 2014). While a variety of definitions of metacognition have been used in connection with schizophrenia (cf. Brüne, 2014), recent research and theoretical discussions provide the basis for using the term metacognition to capture the organization of increasingly complex and coherent representations of the self and others. It has been also suggested that metacognitive functions may be distinguished upon the basis of their focus and include self-reflectivity, understanding of others' minds, decentration (the ability to see the world as understandable from a number of different perspectives), and mastery (the ability to use knowledge of mental states to solve psychological problems) (cf. Lysaker et al., 2014a).

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As the literature on metacognition has grown, one issue that remains unclear is the extent and manner in which metacognition is related to social cognition. Whereas some of the literature treats metacognition as a form of social cognition (Pinkham et al., 2014), other literature regards these constructs as distinct in several ways (Lysaker et al., 2013b; Lysaker & Dimaggio, 2014; Vohs et al., 2014). Viewing metacognition and social cognition as representing a similar set of abilities, Brüne (2014) has suggested that metacognition and social cognition both refer to reflections about social processes (Green & Leitman, 2008; Brüne et al., 2011). He notes that one difference between these terms concerns the persons who use them; while metacognition is generally employed by clinicians, social cognition is more often used by neuroscientists and assessed in laboratory tasks. Indeed, both share a concern with regard to how persons form ideas about social exchanges.

Concerning how the terms differ conceptually, social cognition has been used to refer to a range of different cognitive, affective, automatic and voluntary processes (Green & Leitman, 2008). It is generally used to refer to specific representations that are assessed by the accuracy or flexibility of judgments regarding these representations (Brüne, 2014; Lysaker & Hasson-Ohayon, 2014). By contrast, metacognition has been used to describe the complex ongoing processes of constructing holistic and integrative representations of self and other (Lysaker & Dimaggio, 2014). As such, the term metacognition is used to refer to interrelated sets of representations of events and situations often assessed within discourse. Theoretically, investigations of metacognition may also diverge from investigations of social cognition in that metacognition includes the complex ability to shift back and forth from one's own perspective to the valid and differing perspectives of others, rather than accurately detecting a particular fact (Lysaker & Dimaggio, 2014; Lysaker et al., 2014a). Of note, some aspects of metacognition do seem more similar to social cognition than others, such as understanding the minds of others.

To date, little work has tested empirically whether these constructs can be distinguished from one another. One study (Lysaker et al., 2013b) has subjected scores related to metacognition and social cognition to a factor analysis and uncovered two orthogonal factors: a metacognitive factor related to the complexity of mental states, and a social cognitive factor related to the discrete abilities of emotion identification and theory of mind tasks. Importantly, each factor appeared to have different pattern of correlates: the social cognition factor was uniquely related to negative symptoms, while the metacognition factor was uniquely related to social function (Lysaker et al., 2013b). Recent studies have shown, however, that the links of both social cognition and metacognition with neurocognition are moderated by disorganized symptoms (Minor & Lysaker, 2014), and that both social cognition and metacognition can contribute to the predication of anhedonia in the absence of depression (Buck et al., 2014). Thus, further research is needed in order to trace similarities and differences between the two constructs.

Accordingly, the current study has explored whether assessments of metacognition and social cognition possessed different kinds of association with social outcome. The current study also used a control group of healthy individuals in order to first determine whether the associations of metacognition and social cognition are specific to individuals with schizophrenia or merely a general phenomenon. Additionally, we were interested in whether a different relationship between social cognition and metacognition exists among persons with schizophrenia versus healthy individuals. A similar phenomenon to metacognition, emotional intelligence, has been found in one study to have a different factorial structure among persons with schizophrenia (two factors) when compared to healthy individuals (four factors; Eack et al., 2009).

We made three hypotheses: 1) persons with schizophrenia would perform more poorly on tests of metacognition and social cognition than persons from the healthy control group 2) metacognition and

social cognition would be moderately related with each other in both groups, but stronger associations would be found among the group of persons with schizophrenia; 3) metacognition would be more closely related than social cognition with social quality of life. This third prediction is consistent with the finding of Lysaker et al. (2013b) that metacognition was more closely related to social functioning than to social cognition.

2. Method

2.1. Participants

Two groups of research participants took part in the present study. The first group included 39 persons with a diagnosis of schizophrenia, based on data obtained from their medical files. To be included in the group of persons with schizophrenia, a person had to meet the following criteria: 1) have no other psychiatric diagnosis and 2) to have had the diagnosis of schizophrenia for at least one year. These participants were either being treated by the psychiatric unit of Soroka University Medical Center or the Beer Yaakov Mental Health Center. The second group consisted of 60 persons who did not have psychiatric diagnosis (based on self-report). For both groups, exclusion were a substance use disorder, mental retardation, dementia, and being older than 70 years (in order to avoid possible confounders of cognitive deficits due to aging). Significant differences in age, and gender were observed between the two groups (see Table 1). Among the sub-sample of persons with schizophrenia, the majority were men (59%) who had never been married (64%), whose ages ranged from 19 to 67 years ($M = 39.4$; $SD = 12.4$). Most had completed high school (72%). Among the control group the majority were woman (73%), who had never been married (88%), whose ages ranged from 19 to 28 years ($M = 22.3$; $SD = 2.2$). All participants in the control group had graduated high school. Due to age and gender differences between groups, these two variables were treated as covariates in the below reported regression model.

2.2. Instruments

2.2.1. Face Emotion Identification Task

The Face Emotion Identification Task (Kerr & Neale, 1993) is a widely used measure of emotion perception. Performance is indexed by the total number of correctly identified emotions out of 19 pictures of faces. Emotions include happiness, anger, sadness, fear, surprise, and shame. The FEIT has demonstrated good reliability (Cronbach's alpha range: .42–.64) in previous studies on schizophrenia (Mueser et al.,

Table 1
Comparison of characteristics between the two groups.

	Schizophrenia group (N = 39)		Healthy group (N = 60)		<i>p</i> ^a
	N	%	N	%	
Gender					.001
Man	23	59%	16	27%	
Woman	16	41%	44	73%	
Marital status					^b
Single	25	64%	53	88%	
Married	2	5%	7	12%	
Divorced	12	31%	0	0%	
	Mean ± SD		Mean ± SD		
Age (years)	39.4 ± 12.4		22.3 ± 2.2		.000
min–max	19–67		19–28		
Education (years)	11.5 ± 3.5		12.1 ± 0.5		.243
min–max	0–19		12–15		

^a Differences between the groups were tested with Chi-square test for categorical variables and with two sample *t*-test for continuous variables.

^b For this variable, due to sample size it is not possible to present the Chi-square *p* value.

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