Schizophrenia Research 145 (2013) 75–81

Contents lists available at SciVerse ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Impact of social anxiety on social cognition and functioning in patients with recent-onset schizophrenia spectrum disorders

Amélie M. Achim [a,b,*], Rosalie Ouellet [a,c], Marie-Audrey Lavoie [a,c], Chantal Vallières [a,d], Philip L. Jackson [a,c], Marc-André Roy [a,b,d]

[a] Centre de recherche de l'Institut Universitaire en Santé mentale de Québec, Canada
[b] Département de Psychiatrie et neurosciences, Université Laval, Canada
[c] École de Psychologie, Université Laval, Canada
[d] Clinique Notre-Dame-des-Victoires, Canada

ARTICLE INFO

Article history:
Received 17 September 2012
Received in revised form 16 January 2013
Accepted 18 January 2013
Available online 12 February 2013

Keywords:
First-episode
Mentalizing
Theory of mind
Social knowledge
Emotion recognition
Social phobia

ABSTRACT

Schizophrenia patients display important rates of comorbid social anxiety disorder (SAD) but few studies have directly examined how SAD affects the presentation of schizophrenia, notably social cognition deficits and functioning.

Aims: To compare social cognition performance of schizophrenia patients who meet the diagnostic criteria for a comorbid SAD (SZ+) relative to patients without such comorbidity (SZ−) and to determine if the impact of social cognition performance on functioning is moderated by that comorbidity.

Method: Social cognition performance (emotion recognition, social knowledge, and mentalizing), a control non-social reasoning task, as well as clinical symptoms and functioning were assessed in 26 patients with comorbid SAD (SZ+), 29 SZ− and 84 healthy controls.

Results: Patient groups significantly differed from each other on social knowledge performance, but not in levels of symptoms or overall functioning. Relative to healthy controls, SZ+ were impaired uniquely on mentalizing, whereas SZ− showed a more encompassing social cognition deficit that included mentalizing, social knowledge and non-social reasoning impairments. Mentalizing was the best predictor of functioning across both patient groups. Importantly, non-social reasoning negatively influenced mentalizing and in turn functioning only in the SZ− group.

Conclusions: The overall pattern of results indicates common mentalizing deficits in SZ+ and SZ−; however, these deficits appear linked to different underlying deficits and different pathways to functional impact in the two patient subgroups. This study highlights some distinctive characteristics of schizophrenia patients with comorbid SAD and signals a need for further investigations into the sources of the mentalizing and functioning impairments in SZ+ patients.

1. Introduction

People with schizophrenia (SZ) display important rates of comorbid anxiety disorders (Kendler et al., 1996; Cassano et al., 1998; Cosoff and Hafner, 1998; Pallanti et al., 2004; Voges and Addington, 2005) and yet we know little about the relationship of these comorbid disorders with other aspects of schizophrenia such as positive or negative symptoms, cognitive deficits, and functioning. Among anxiety disorders, social anxiety disorder (SAD) seems particularly important as it was identified as the most prevalent comorbid anxiety disorder in people with SZ in a recent meta-analysis (Achim et al., 2011a), with a pooled prevalence of 14.9%, a rate much higher than in the general population (3.6%) (Somers et al., 2006). Comorbid SAD appears early in the progression of SZ and can be detected with similar rates in first-episode psychosis (13.4%) as in more chronic SZ patient samples (15.2%) (Achim et al., 2011a). In addition, even higher rates of SAD (25.6%) have been observed in SZ in studies that relied on expanded clinical assessment tools, suggesting that SAD often goes undetected in SZ when standard diagnostic tools such as the Structured Clinical Interview for DSM Disorders (SCID) are used (Achim et al., 2011a). Another reason for studying SAD in SZ is the emerging evidence regarding the negative impacts of this comorbidity on SZ patients, including poorer levels of functioning and decreased self-esteem (Pallanti et al., 2004; Voges and Addington, 2005). Given that cognitive abilities and especially social cognition performance are recognized as the most important predictors of functioning in people with SZ (Brune et al., 2007; Fett et al., 2011), it opens the possibility of a relationship between social cognition deficits and comorbid SAD in these patients.

* Corresponding author at: Centre de recherche de l'Institut Universitaire en Santé mentale de Québec (F-4500), 2601 de la Canardière, Québec, PQ, Canada G1J 2G3. Tel.: +1 418 663 5741; fax: +1 418 663 9540.
E-mail address: amelie.achim@crulrg.ulaval.ca (A.M. Achim).

0920-9964/$ – see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.schres.2013.01.012

Social cognition can be defined as the collection of cognitive processes (e.g. mentalizing, social knowledge, emotion recognition) that allow us to understand others and that guide social interactions (Green et al., 2008). Social cognition deficits have been consistently observed in SZ and are now recognized to be at the core of the disorder (Sprong et al., 2007; Bora et al., 2009; Kohler et al., 2010). Impairments in social cognition may also give rise to high levels of social anxiety symptoms and increased risk of developing a comorbid SAD (Jacobs et al., 2008). In this case, social cognition deficits and social anxiety disorders would represent a common risk factor for poor functioning in SZ and worse social cognition performance would be expected in SZ patients that are affected with comorbid SAD. Though this hypothesis seems logical and has obvious implications for treatment, no study has yet looked at social cognition abilities or its impact on functioning as a function of comorbid SAD *diagnosis* in people with SZ. To be considered as meeting full diagnostic criteria for SAD, a patient with schizophrenia has to present with social anxiety symptoms that are not strictly dependent on psychotic symptoms (for instance ideas of reference or persecutory delusions). The few studies that have assessed the relationships between social cognition and social anxiety *symptoms* (Lysaker et al., 2010a,b; Achim et al., 2011b) have not made this distinction, which could explain the mixed results from these studies.

The first aim of the current study is to compare the pattern of social cognition performance in patients with SZ spectrum psychotic disorders that also meet full criteria for a comorbid social anxiety disorder (SZ+) relative to schizophrenia patients that do not (SZ−) and healthy controls. Given the established relationship between social cognition and functioning (Brune et al., 2007; Fett et al., 2011), a second aim is to assess the potential moderating influence of comorbid SAD on cognitive pathways to functioning impairments in people with schizophrenia. The first aim was tested using between group comparisons whereas the second aim was tested using moderation analyses that allowed us to determine whether social cognition performance has a greater impact on functioning in SZ+ relative to SZ− patients. We initially hypothesized that meeting criteria for a comorbid SAD would be associated with poorer social cognition performance (Jacobs et al., 2008) and that these deficits would affect functioning to a greater extent in SZ+ patients given that cognitive models of social anxiety (Clark and Wells, 1995; Wells et al., 1998; Spurr and Stopa, 2002) emphasize the biased assessments of others' thoughts in this population, with a recognized impact on social behavior and social interactions (Spurr and Stopa, 2002, 2003).

2. Materials and methods

2.1. Participants

Fifty-nine patients with recent-onset SZ spectrum disorders (mean age = 25.7, 51 males) were recruited from the Clinique Notre-Dame-des-Victoires of the Institut Universitaire en Santé Mentale de Québec. Diagnoses included SZ (n = 41), schizoaffective disorder (n = 10), delusional disorder (n = 6) and psychosis not otherwise specified (n = 2). Our decision to include patients with this range of early diagnoses was based on previous reports that these diagnoses fall within the SZ spectrum when diagnoses are reassessed later in the course of the illness or based on family studies (Kendler et al., 1995; Schimmelmann et al., 2005; Malla et al., 2006). Patients were excluded from the study if they presented with mental retardation (estimated IQ below 70) or with a neurological disorder, or if their treating psychiatrist judged that they were not stable enough to provide informed consent for the study. All patients but one were taking a second-generation antipsychotic. In addition, 16 received antidepressants and 8 received benzodiazepines either on a daily basis or as needed. The duration of psychosis since first antipsychotic treatment ranged from 1 to 68 months, with a mean of 22 months.

Eighty-seven (87) healthy control subjects were recruited from ads in local media or public places. They were excluded if they presented with a psychosis, mood disorder or neurological disorder, had a first-degree relative with psychosis, or were taking a psychoactive medication according to our screening or SCID-NP (First et al., 1998). This led to the exclusion of three participants with a simple phobia, one of whom additionally showed agoraphobia. The 84 remaining healthy participants were included in our analyses (mean age = 24.0, 58 men).

2.2. Clinical assessment of comorbidities

Clinical assessments were performed with a comprehensive semi-structured interview based on the SCID-IV (First et al., 1998), which includes all the SCID questions further supplemented with questions from several other instruments that provide a detailed coverage of the full range of symptoms that the patients present with and the relationships between these symptoms and the conditions being considered. All the added instruments (see Supplementary material for a complete list) have been validated. The resulting semi-structured interview (Roy et al., 2011) notably includes all the questions from the Liebowitz Social Anxiety Scale (LSAS) inserted in the SCID module on social anxiety disorder to further assess social anxiety symptoms (Liebowitz, 1987). All interviews were conducted by a trained research assistant and were subsequently reviewed by one of the authors (MAR) who is an experienced psychiatrist.

2.3. Assessment of symptoms and functioning

Positive symptoms, negative symptoms and general psychopathology symptoms were assessed using the PANSS (Kay et al., 1987), a 30-item scale widely used to assess symptoms of schizophrenia. Global level of functioning was assessed with the SOFAS (American Psychiatric Association, 2000), which produces a single score reflecting current levels of social and occupational functioning. The treating psychiatrists rated these scales based on all available information including interviews with the patients, information from the clinical interview used for the current project (it includes all the PANSS questions as well as a module on functioning), information from family members or from other members of the staff at the Clinique Notre-Dame-des-Victoires.

2.4. Social cognition assessment

Social cognition was assessed with the Batterie Intégrée de Cognition Sociale (BICS), a social cognition test battery with good psychometric properties that includes three main measures of social cognition (Achim et al., 2012):

1) The *mentalizing test* relies on written scenarios. Open questions test the ability to infer the target character's mental states (26 mentalizing questions).
2) The *social knowledge task* also presents hypothetical situations, but no specific character is presented and nothing is being expressed. Instead, participants have to determine how people in general would feel or react in 14 different situations.
3) The *emotion recognition* task consists of consecutive presentations of 14 standardized facial affect stimuli (Ekman and Friesen, 1976). For each item, participants select the corresponding emotion from a given list of labels (happy, surprise, sad, angry, disgust, fear or neutral).

In addition, the BICS includes a control task that assesses *non-social reasoning* from 6 stories that are interspersed within the mentalizing test.