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Insight in inpatients with schizophrenia: Relationship to symptoms and neuropsychological functioning

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ABSTRACT

Objective: Lack of insight into illness has long been recognized as a central characteristic of schizophrenia. Although recent theories have emphasized neurocognitive dysfunction as a central impairment in schizophrenia it remains unclear whether the lack of insight in schizophrenia is more strongly associated with measures of symptom severity or neuropsychological dysfunction.
Methods: Seventy-four consecutive inpatients with chronic schizophrenia were enrolled in a cross-sectional study. All subjects were assessed with the Positive and Negative Syndrome Scale (PANSS, five-factor model), the Insight and Treatment Attitudes Questionnaire (ITAQ), and the Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS) Consensus Cognitive Battery (MCCB). Bivariate association and multiple linear regression analyses were used to investigate the relationship between insight and both symptoms and neurocognition.
Results: On bivariate correlation, the positive, negative, disorganized and excited factors of the PANSS showed a negative correlation with insight but there was no significant association between the MCCB total score or any component subscale and insight. Multiple regression analysis showed that positive symptoms, disorganized/concrete symptoms and excited symptoms contributed to awareness of mental illness; positive and disorganized/concrete symptoms were significant contributors to awareness of the need for treatment; but there were no significant associations with the MCCB.
Conclusions: Insight in this sample of patients with chronic schizophrenia is significantly associated with clinical symptoms but not with neuropsychological functioning.

1. Introduction

Poor insight, or lack of awareness of one's illness, is a common symptom among patients with schizophrenia. The World Health Organization (WHO) International Pilot Study of Schizophrenia in different cultures found that 'lack of insight' was an almost invariable feature of acute and chronic schizophrenia, which found that 50–80% of patients lacked, either partially or totally, insight into their mental disorder (Carpenter and Bartko, 1973). Poor insight in schizophrenia has been found to be associated with poor medication compliance (McEvoy et al., 1989; Kemp and David, 1996; Sanz et al., 1998; Pini et al., 2001; Buckley et al., 2007; Lincoln et al., 2007), poor social and interpersonal functioning (Lysaker et al., 1998; Pyne et al., 2001), and a generally poor prognosis (Amador et al., 1993; Schwartz, 1998), as well as with higher risk of relapse and readmission (David et al., 1995; Drake et al., 2007). Poor insight may also be associated with co-morbid depression, hopelessness, low self-esteem (Karow and Pajonk, 2006; Cooke et al., 2007; Mohamed et al., 2009; Staring et al., 2009) and a poor quality of life (Pyne et al., 2001; Schwartz, 2001). Over the past decade there has been an increase in research on the correlates and consequences of poor insight, but its etiology remains poorly understood and the primary approach to deepening our understanding of it has been to further evaluate various correlates of lack of insight.

This research has focused on two principal types of measure: clinical symptom measures and neuropsychological measures. Clinical measures address the possibility that poor insight is a primary symptom of the illness of schizophrenia itself (Collins et al., 1997), intimately linked with other symptoms like delusions and hallucinations. Studies that have examined the relationship between insight and symptoms in schizophrenia have demonstrated significant negative correlations between insight and the severity of positive symptoms (Amador et al., 1993; Mintz et al., 2003) and/or negative symptoms (Carroll et al., 1999; Smith et al., 2000; Mintz et al., 2003; Mingrone et al., 2013). Some studies have also noted a negative relationship, more specifically,

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between symptoms of disorganization and insight (Dickerson et al., 1997; Baier et al., 2000; Smith et al., 2000). Studies examining the associations between impaired insight and depression, not one of the principal symptoms of schizophrenia, have been less consistent, with some investigators finding no significant relationships (Amador et al., 1994), while some more recent research has found a positive relationship between the degree of insight and depressive symptoms (Kim et al., 2003; Buchy et al., 2009).

Studies that have relied on neuropsychological measures have explored the relationship between that lack of insight and neurocognitive deficits, presumably secondary to the cerebral disease process in schizophrenia (Lysaker and Bell, 1994). In recent years a growing number of researchers have suggested that schizophrenia is fundamentally a disease of neuropsychological dysfunction and that previous research has over-emphasized clinical symptomotology (Gold and Harvey, 1993; Mohamed et al., 1999a, 1999b; Keefe et al., 2003). Some studies have reported a significant association between impaired insight and executive functioning (Drake and Lewis, 2003; Simon et al., 2006; Monteiro et al., 2008), memory (Smith et al., 2000; Rossell et al., 2003; Keshavan et al., 2004) or attention (Lysaker and Bell, 1995). Imaging studies have found dysfunction in cortical areas, which are believed to support these neurocognitive functions, and are also potentially linked with deficits in insight (Raij et al., 2012). However, other studies have failed to detect a relationship between insight and neurocognitive functioning (Cuesta et al., 1995; Collins et al., 1997; Freudenreich et al., 2004; Goodman et al., 2005), thus undermining the view that the lack of insight in schizophrenia reflects neuropsychological impairment.

The reasons for these discrepancies are not clear. They may be due to methodological differences, such as the use of different measures of insight and/or neurocognitive functioning, differences in the reliability with which the measures are used, failure to assess or control for global cognitive status or intelligence, and diagnostic and psychopathological variability between subjects in different studies (Shad et al., 2006). Another possible explanation for inconsistent results is the complexity of insight construct. Insight is a multidimensional construct that can include recognition of the presence of mental illness, understanding the consequences of the disorder, and appreciating the need for treatment. Therefore studying insight with a focus on these different dimensions may reveal a different relationship between insight and neurocognition and symptoms. It is also possible that the variability in studies of the relationship between neurocognitive measures and insight reflects a true lack of any robust relationship between the two.

In order to further examine these relationships in a new cultural context, the current study aims to explore the relationship between different dimensions of insight and both clinical measures and neurocognitive functions among a single sample of patients with chronic schizophrenia hospitalized in a large psychiatric hospital in Southern China. In this study, neurocognitive functioning is measured by the Chinese translation of the MATRICS (Measurement and Treatment Research to Improve Cognition in Schizophrenia) Consensus Cognitive Battery (MCCB), which has been accepted as a standard measure of cognitive functioning by the U.S. Food and Drug Administration for use in clinical trials of medications intended to improve neurocognition (Marder and Fenton, 2004).

2. Methods

2.1. Participants

The Guangzhou Psychiatric Hospital is a 1900-bed psychiatric hospital in Guangzhou, China. Two wards with 100 beds each participated in the study. One of the wards was at the division housing long-stay patients (N = 22) and the other at the acute care division (N = 52).

Between December 2012 and October 2013 seventy-four inpatients who had been diagnosed with schizophrenia by two senior psychiatrists based on ICD-10 diagnostic criteria were recruited for the study. Entry criteria were a) a primary clinical diagnosis of schizophrenia, confirmed by two senior psychiatrists, b) symptomatic stability for at least 2 weeks as judged by the treating psychiatrist and c) stable medication and dosage for at least two weeks. All patients were medicated with oral antipsychotics: about half of the sample with olanzapine, and others with risperidone, quetiapine or clozapine. Exclusion criteria included: (a) current dependence on any addictive substance, b) a primary psychiatric diagnosis other than schizophrenia, (c) a history of traumatic brain injury and/or other central nervous system disorder or (d) imminent risk of suicidal or violent behavior. Among patients who met study eligible criteria, the psychiatrist in charge of each ward informed those deemed clinically capable of completing a 3–4 hour study protocol of their eligibility for the study. Patients expressing willingness to participate were introduced to the study coordinator to review study procedures and give consent if they agreed to participate. Of the 76 patients who were informed about the study only two refused to participate.

Data on socio-demographic characteristics (e.g. age, gender, and years of education) and self-reported duration of illness were documented. Medical records were used to document the current length of hospital stay. All participants signed written informed consent and the study was approved by the Hospital Ethics Committee (equivalent to an Internal Review Board, elsewhere).

2.2. Psychopathology assessment

Symptoms were assessed using the Positive and Negative Syndrome Scale (PANSS) with scores ranging from 30 to 210, with higher scores indicating more severe symptoms. We used the five-factor model of the PANSS as proposed by Wallwork et al. (2012), which includes subscales reflecting positive, negative, disorganized/concrete, excited and depressed symptoms. The Chinese translation of the PANSS has been previously validated by the back translation method (Phillips et al., 1991).

Insight was assessed using the Insight and Treatment Attitudes Questionnaire (ITAQ). This is a well-validated, structured interview (McEvoy et al., 1989), whose concurrent validity has been demonstrated through significant and high correlations with other measures of insight (Cuesta et al., 2000). The ITAQ includes 11 questions: five assessing the first dimension of insight, awareness of mental disorder (first 5 questions, ITAQ 1), and 6 assessing the second dimension of insight, awareness of the need for treatment (last 6 questions, ITAQ 2). Responses to each question are scored as 0 = no insight, 1 = partial insight, and 2 = good insight, giving a possible range between 0 and 22. The Chinese translation of the ITAQ has also been previously validated by the back translation method (Zhang, 1994).

Two psychiatrists with 5 years of clinical experience each were responsible for the administration of the PANSS and the ITAQ. Before the study, an inter-rater reliability exercise of all of the clinical rating instruments was conducted on 20 patients with symptomatic schizophrenia. Assessment of inter-rater reliability for raters in this study was in the excellent to good range for all the scales used, with intra-class correlations ranging from 0.90 to 0.96.

2.3. Cognitive assessment

All subjects were administered the MATRICS (Measurement and Treatment Research to Improve Cognition in Schizophrenia) Consensus Cognitive Battery (MCCB) (Nuechterlein et al., 2008). The original English version included seven domains and 10 subtests: (1) speed of processing (SIP), consisting of three tests: Category Fluency, Trail Making A, and Brief Assessment of Cognition in Schizophrenia (BACS), symbol coding subtest; (2) attention/vigilance using the Continuous Performance Test-Identical Pairs version (CPT-IP); (3) working memory, verbal (WAIS-III, letter–number sequencing (LNS) subtest) and