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The nature and evolution of insight in schizophrenia: A multi-informant longitudinal study of first-episode versus chronic patients

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ABSTRACT

Background and aims: This study investigated a novel distinction between two possible sources of poor insight in schizophrenia: *primary* unawareness, in which the ill person is not aware that other people think one has a problem, and *secondary* unawareness (or disagreement), in which a person does appreciate that other people think one has a problem. A secondary goal was to compare the evolution of insight in first-episode and chronic schizophrenia.
Methods: Sixty-eight first-episode and 51 chronic patients were administered two versions of the Scale of Unawareness of Mental Disorder (SUMD) at three time points: hospital admission, discharge, and 6-month post-discharge. In the first standard SUMD version, they were asked about their own opinions, whereas in the second modified version, they were asked about their best guess of their doctor's opinion.
Results: While overall level of unawareness remained stable within each single episode, there were significant Type of Unawareness (primary versus secondary) by Clinical Status (admission versus discharge versus 6-month post-discharge) and Type of Unawareness by Phase of Illness (first-episode versus chronic) interaction effects. More specifically, in the first-episode group, primary unawareness steadily decreased over time. In contrast, in the chronic group, primary unawareness decreased markedly during hospitalization and returned to baseline after discharge.
Conclusions: These results provide preliminary support for the notion that impaired insight is an additive outcome of primary unawareness and disagreement, and that change in insight over time occurs mostly at the level of their relative proportion as opposed to their overall sum. Implications for studying and treating poor insight in schizophrenia are discussed.

1. Introduction

From its earliest conceptualizations, poor insight has been regarded as a hallmark feature of schizophrenia (Kraepelin et al., 1919; Bleuler, 1950). Lack of insight into illness is a prominent deficit, largely independent of other symptoms, and among the most frequently observed symptoms in schizophrenia (Carpenter et al., 1976). Over the last two decades, there have been substantive advances in the way insight is conceptualized and measured, and in understanding its clinical and biological correlates. Most importantly, insight: 1) is not an 'all-or-nothing' or unitary construct, but rather an amalgam of modality-specific, overlapping dimensions or awareness systems (David, 1990; Arango and Amador, 2011), 2) is related to but not entirely reducible to psychopathology (David et al., 1992; Michalakeas et al., 1994; Peralta and Cuesta, 1994; Mintz et al., 2003), 3) accounts for meaningful variation in clinical and functional outcome (Lincoln et al., 2007; Saeedi et al., 2007), partly through the mediating effect of treatment engagement and medication adherence (Kemp and David, 1995), and 4) shows modest relationships with neurocognition, particularly memory, executive function, and meta-cognition (Koren et al., 2004; Aleman et al., 2006).

Nonetheless, important questions remain about the nature and longitudinal evolution of insight in schizophrenia. First, current definitions of insight lack sufficient consensual agreement on its essential components. Second, while improvement in insight is possible and has important prognostic value (Lewis, 1934), there is limited and inconclusive data about the temporal characteristics of insight over the illness course and during single episodes, especially in early illness phases (Keshavan et al., 2004).

Recent longitudinal and cross-sectional studies examining change in insight over time offer two intriguing observations: 1) global level of insight improves over the long course of the illness, but improvement is modest and mostly occurs in the early illness phase immediately after onset (Thompson et al., 2001; Parellada et al., 2011), and 2) insight fluctuates within single illness episodes, but is modest and mostly related to clinical features (e.g., symptom severity, treatment setting

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or adherence) in chronic phases of the illness (Quee et al., 2011). These observations suggest that insight into illness is largely a *trait characteristic* that modestly improves after the first-episode and slightly fluctuates with changes in clinical status thereafter.

These studies also highlight gaps that require study. First, no single study has examined short- (i.e., within one single episode) and long- (i.e., across multiple episodes) term changes in insight. Consequently, little is known about possible changes in insight in the early versus late phases of illness. Second, although recent metacognitive-neuropsychological theories of poor insight into illness in schizophrenia attribute it to a derailed "theory-of-mind" (ToM) capacity to reflect upon the self from the perspective of the other (Bora et al., 2007b; Pousa et al., 2008; Langdon and Ward, 2009; Wiffen and David, 2009; Lysaker et al., 2011), no study has directly assessed the degree to which poor insight patients are aware of how other people perceive their condition. As a result, little is known about the possibility and degree to which poor insight may reflect an unwillingness to accept (as opposed to an inability to appreciate) the perspective of others. Filling this lacuna in the literature has important theoretical and clinical implications. First, because recent social-cognitive formulations of psychosis (Kirmayer et al., 2004; Penn et al., 2006) suggest that unwillingness to take the perspective of others represents a less severe form of reality distortion (since it entails a preserved capacity for perspective-taking). And second, because recent studies suggest that "cognitive insight" (namely, the ability to distance oneself from one's anomalous experiences, reflect on them, and consider alterative perspectives and corrective feedback) (Beck et al., 2004) is a potent predictor of prognostic utility (Perivoliotis et al., 2009) and response to treatment of (Granholm et al., 2005; Bora et al., 2007a). Thus, the distinction between primary and secondary awareness has both theoretical and pragmatic (e.g., treatment) implications.

1.1. Aims and hypotheses

The central goal of this study was to explore the notion that impaired insight reflects two hierarchical yet qualitatively different types of unawareness. The first, termed *primary unawareness* (PU) is when one *incorrectly* believes that other people share the same view as she does, that she does not have a condition. The second type, termed *secondary unawareness* (SU) *or disagreement* is when one *correctly* appreciates that others have a different view than they do of their illness experiences. More specifically, the study had two goals: 1) to develop and validate a new method to distinguish between PU ("I don't have any problem" and "my doctor doesn't think I have one either") and SU ("I don't have a problem" but "my doctor thinks I have one") among patients with poor insight, and 2) to document change in these two types of unawareness within a single episode and across episodes from first episode to chronic schizophrenia.

Based on theoretical considerations and preliminary empirical data, we hypothesized that fractionation of poor insight into PU and SU will improve the theoretical precision and clinical utility of the concept. More specifically, we hypothesized that: 1) although the majority of patients will show poor insight into their illness, a subgroup will show varying degrees of ability to take the perspective of their clinicians (suggesting that poor insight is an additive outcome of PU and SU and not solely of PU), and 2) while overall level of insight will largely remain stable across both the short (within episode) and long term of the illness (trait), the relative contribution of PU versus SU to poor insight will fluctuate modestly within episodes in accord with clinical status (state).

2. Method

2.1. Participants

Participants included 68 first-episode and 51 chronic patients at Tirat Ha'carmel Mental Health Center and Rambam Medical Center (Israel) with a DSM-IV diagnosis of schizophrenia, schizoaffective or schizophreniform disorder. Consensus research diagnoses were made by psychiatrists and research staff based on clinical observations, chart reviews, and a structured interview. Exclusion criteria included the presence of: a) neurologic disorders; b) substance abuse in the past six months or lifetime history of substance dependence; c) history of head injury; d) intellectual disability; and e) medical illnesses associated with neurocognitive impairment.

The sample included 75 males and 44 females with an average age of 27.3 (SD = 6.7) years and 12.2 (SD = 1.8) years of education. All patients were receiving antipsychotics: 51 Haloperidol (mean = 14.4 mg/day), 6 Perphenazine (mean = 24.3 mg/day), 39 Olanzapine (mean = 11.1 mg/day), 11 Risperidal (mean = 2.5 mg/day), 4 Clozapine (mean = 125.0 mg/day), 2 injectable Haldol Decanoate (mean = 150 mg/month), 1 Modecate (25 mg/month), and 5 unknown.

The groups had similar socio-demographic and clinical characteristics (see Table 1). Expected exceptions included age, illness duration, hospitalization frequency, voluntary admission status, and negative symptoms, each of which was significantly higher in the chronic group. Although these differences are linked to early versus chronic schizophrenia, their potential confounding effect was monitored in the analyses. The study was approved by the Institutional Review Boards of the two institutes. All patients provided written informed consent after study explanation and their treating clinician's assessment of capacity to consent to participate in this study.

2.2. Measures

2.2.1. Diagnosis and symptoms

DSM-IV diagnosis was made using the SCID-I/P for DSM-IV Axis I disorders. Symptoms were assessed with the Scale for the Assessment of Positive Symptoms (SAPS) and the Scale for the Assessment of Negative Symptoms (SANS). The SANS and SAPS were scored according to the classical three-dimensional model of positive, negative and disorganized symptoms (Andreasen et al., 1995; Toomey et al., 1997).

2.2.2. Insight into illness

The Scale to Assess Unawareness of Mental Disorder (SUMD) (Amador et al., 1993), a semi-structured interview, was used to assess several dimensions of insight into illness. It is comprised of three general items: a) global awareness of mental disorder; b) awareness of medication effects; and c) awareness of the social consequences of having a mental illness, and two subscales that evaluate awareness and attribution of 17 specific signs and symptoms of severe mental disorder. The scores on all scales range from a "1" (full awareness) to "5" (unawareness). To deconstruct poor insight into PU and SU, the SUMD was administered three times (twice to the patients and once to their doctors). In the first standard administration, patients were asked about their own opinion; in the second modified administration, they were asked about their best guess of their doctor's opinion; and in the third, doctors were asked about their actual view. To ensure correct understanding of the difference between the standard and modified versions of the SUMD, we asked all patients to describe how the second set of instructions is different from the first. None of the patients had difficulty providing a correct description of the difference between the two instructional sets, suggesting that the modified SUMD has high face validity. Importantly, the modified SUMD assesses a different dimension of poor insight than the Attribution subscale of the non-modified SUMD. While the latter evaluates one's ability to appropriately attribute one's symptoms to a mental illness, the former assesses one's ability to correctly appreciate that others do so.

2.2.3. Intelligence (IQ)

The Wechsler Adult Intelligence Scale-Revised (WAIS-R) Similarities and Block Design subtests provided an IQ estimate. The Similarities