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## A deeper view of insight in schizophrenia: Insight dimensions, unawareness and misattribution of particular symptoms and its relation with psychopathological factors

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#### ABSTRACT

Objective: 1. To describe insight in a large sample of schizophrenia subjects from a multidimensional point of view, including unawareness of general insight dimensions as well as unawareness and misattribution of particular symptoms. 2. To explore the relationship between unawareness and clinical and socio-demographic variables.

Methods: 248 schizophrenia patients were assessed with the Positive and Negative Syndrome Scale (PANSS, five factor model of Lindenmayer) and the full Scale of Unawareness of Mental Disorder (SUMD). Bivariate associations and multiple linear regression analyses were used to investigate the relationship between unawareness, symptoms and socio-demographic variables.

Results: Around 40% of the sample showed unawareness of mental disorder, of the need for medication and of the social consequences. Levels of unawareness and misattribution of particular symptoms varied considerably. General unawareness dimensions showed small significant correlations with positive, cognitive and excitement factors of psychopathology, whereas these symptom factors showed higher correlations with unawareness of particular symptoms. Similarly, regression models showed a small significant predictive value of positive symptoms in the three general unawareness dimensions while a moderate one in the prediction of particular symptoms. Misattribution showed no significant correlations with any symptom factors.

Conclusions: Results confirm that insight in schizophrenia is a multi-phased phenomenon and that unawareness into particular symptoms varies widely. The overlap between unawareness dimensions and psychopathology is small and seems to be restricted to positive and cognitive symptoms, supporting the accounts from cognitive neurosciences that suggest that besides basic cognition poor insight may be in part a failure of self-reflection or strategic metacognition.

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#### 1. Introduction

Schizophrenia and related psychoses are characterized by a striking unawareness of illness and symptoms, with a substantial proportion

(up to 80%) of affected individuals showing poor or absent insight into their mentally ill condition and their clinical manifestations. Such reduced insight illness unawareness has a crucial clinical relevance since it is associated to poor treatment compliance (Amador and

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Strauss, 1993; Bartkó et al., 1988; Kemp and David, 1996; Sanz et al., 1998); greater risk of relapse (David et al., 1995) as well as to other relevant social and interpersonal outcomes (Erickson et al., 2011; Lincoln et al., 2007).

Insight has been conceptualized as a dynamic and multidimensional phenomenon (David, 1990; Marková and Berrios, 1995) which may change over time and includes different dimensions that may be relatively independent. David (1990) defined three dimensions of awareness: awareness of illness, ability to re-label symptoms as pathological and treatment compliance. Similarly, Amador proposed three main dimensions -unawareness of illness, unawareness of the need for medication and unawareness of the social consequences of the disease- and he also pointed out the distinction between unawareness and misattribution of particular psychotic symptoms (Amador et al., 1993).

Over the years most efforts have been put in the biological understanding of the pathological nature of lack of awareness, with lots of attempts to examine its correlates with clinical and neuropsychological measures. The idea was to elucidate whether poor awareness may be considered an epiphenomenon of clinical symptoms or neurocognitive dysfunction or alternatively is a phenomenon with its own entity in schizophrenia. All these literature has been meta-analyzed (Belvederi Murri et al., 2015; Mintz et al., 2003) and reviewed (Boban et al., 2015) revealing small but significant mean effect sizes in cross sectional designs, indicating that higher awareness is associated with less global psychopathology as well as with less positive and negative symptoms. Mixed findings have characterized the literature focusing on insight and depression, with a recent meta-analysis concluding that better awareness is weakly but significantly associated with higher levels of depression. It was noted that several relevant moderators such as internalized stigma, illness perception, recovery attitudes, ruminative style and pre-morbid adjustment were operating in this relationship (Belvederi Murri et al., 2015). As for neurocognition, two reviews and meta-analyses have concluded that unawareness has small but significant correlations with total cognition, IQ, memory and executive functions (Aleman et al., 2006; Nair et al., 2014). Thus, the existing literature suggests that poor awareness is only slightly related to the severity of symptoms and neurocognitive dysfunction, so that it may be an independent phenomenological feature of schizophrenia (Boban et al., 2015; Mintz et al., 2003).

However, several methodological limitations may have confused and limited this line of research. First, the majority of studies have been conducted with relatively small samples of psychotic patients, focusing only on total insight scores or on the three general unawareness dimensions (Dumas et al., 2013). A few studies have explored total measures of unawareness and misattribution of particular symptoms (Mintz et al., 2003), but a detailed picture of what happens with each symptom in particular is lacking. Given the heterogeneity of psychotic phenomenology the study of awareness into each symptom is indeed justified on the basis that symptoms are different in nature and might be influenced by different cultural, neurobiological, psychological factors (Bedford and David, 2014; David et al., 2012; Gilleen et al., 2011). It may also have a clinical relevance, since gaining a wider understanding of symptom specific characteristics may in turn enable the development of more precise therapeutic strategies.

Second, samples in most studies have included different psychosis diagnosis other than schizophrenia, which may have confused results. For example, it was found that the relationship of unawareness with cognitive measures was stronger in a schizophrenia group than in the rest of psychosis diagnosis (Nair et al., 2014).

Third, most existing studies have explored the correlates of lack of awareness and psychopathology by clustering symptoms into the three dimensions of the PANSS (positive, negative, general). Although classification of symptoms in clusters is based on the psychobiology of the illness, using a more detailed classification may be more appropriate to disentangle the insight-psychopathology relationship. To our

knowledge, only two previous studies have used a five factor approach (Sevy et al., 2004; Zhou et al., 2015).

With the purpose of extending our understanding of the phenomenon of lack of awareness in psychosis and on the basis of the aforementioned limitations, the present study was based on a large sample of subjects with a diagnosis of schizophrenia only, with the following two aims:

- To describe lack of awareness from a multidimensional point of view, including unawareness of general insight dimensions as well as unawareness and misattribution of particular symptoms.
- To explore the relationship between different dimensions of unawareness and psychopathology, using the five factor model of Lindenmayer.

As a secondary aim, predictive models of clinical and socio-demographic variables on different unawareness dimensions were also explored.

#### 2. Methods

#### 2.1. Design

This was a prospective multicenter study of patients with schizophrenia a attended in four Mental Health Departments of the Area of Barcelona (Catalonia), which constituted the "Insight Barcelona Research Group" (Institute of Neuropsychiatry and Addiction - Parc de Salut Mar; Parc Sanitari Sant Joan de Déu; Benito Menni Hospital; and Corporació Sanitària i Universitària Parc Taulí).

#### 2.2. Subjects

248 patients with a diagnosis of schizophrenia following DSM-IV criteria (APA, 1994) who were at different stages of the illness were recruited from in-patient units and community mental health services. Diagnosis was confirmed by the administration of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID, clinical version) (First et al., 1997). All patients were symptomatically stable at the time of evaluation. They were all taking antipsychotic medication. Exclusion criteria included severe neurological illness, severe traumatic brain injury, inability for the comprehension of the language and IQ < 65.

#### 2.3. Assessment

Psychopathology was assessed using the Positive and Negative Syndrome Scale for Schizophrenia (PANSS) (Kay and Fiszbein, 1987; Peralta and Cuesta, 1994). PANSS data were analyzed based on a five-factor model defined by Lindenmayer et al. (1995) and described in Table 1. Recent studies have widely supported the relevance of PANSS Five-factor model, mainly because of the relevance of the cognitive factor (Rodriguez-Jimenez et al., 2012). For the purposes of this study, the original positive factor was modified to exclude the insight item of the PANSS (G12) so as to eliminate co-variability of the positive factor with insight measures. Lack of awareness was assessed by means of the complete version of the Scale of Unawareness of Mental Disorder (SUMD) (Amador and Strauss, 1993; Ruiz Ripoll et al., 2008). This is a standardized scale on which ratings are made on the basis of a direct patient interview. The SUMD has three general unawareness dimensions that explore unawareness of having a mental disorder (SUMD 1), unawareness of the effects of medication (SUMD 2) and unawareness of the social consequences of the disease (SUMD 3), as well as 17 items that assess both unawareness and misattribution of each particular symptom of the disease. Scores in each dimension of unawareness and in unawareness and misattribution of particular symptoms go from 1 to 5, with higher scores indicating worse awareness and

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