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Research paper

Social cognition in bipolar disorder: Focus on emotional intelligence

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ABSTRACT

Background: The present study aims to characterize emotional intelligence (EI) variability in a sample of euthymic bipolar disorder (BD) patients through the Mayer- Salovey-Caruso Emotional Intelligence Test (MSCEIT).

Method: A total of 134 euthymic BD outpatients were recruited and divided into three groups according to the total Emotional Intelligence Quotient (EIQ) score of the MSCEIT, following a statistical criterion of scores 1.5 SDs above/below the normative group mean, as follows: a low performance (LP) group (EIQ < 85), a normal performance (NP) group (85 ≤ EIQ ≤ 115), and a high performance (HP) group (EIQ > 115). Afterwards, main sociodemographic, clinical, functional and neurocognitive variables were compared between the groups.

Results: Three groups were identified: 1) LP group (n = 16, **12%**), 2) NP group (n = 93, **69%**) and 3) HP group (n = 25, **19%**). There were significant differences between the groups in premorbid intelligence quotient (IQ) (p = 0.010), axis II comorbidity (p = 0.008), subthreshold depressive symptoms (p = 0.027), general functioning (p = 0.013) and in four specific functional domains: autonomy, occupation, interpersonal relations and leisure time. Significant differences in neurocognitive performance were found between groups with the LP group showing the lowest attainments.

Limitations: The cross-sectional design of the study.

Conclusion: Our results suggest that EI variability among BD patients, assessed through MSCEIT, is lower than expected. EI could be associated with premorbid IQ, subthreshold depressive symptoms, neurocognitive performance and general functioning. The identification of different profiles of SC may help guide specific interventions for distinct patient subgroups aimed at improving social cognition, neurocognitive performance and psychosocial functioning.

1. Introduction

Bipolar disorder (BD) is associated with cognitive dysfunctions even during remission (Martínez-Arán et al., 2004; Samamé et al., 2012). These deficits are, in turn, associated with poor psychosocial adjustment (Bonnín et al., 2014, 2010; Martino et al., 2009). Despite the large body of literature on nonsocial cognition in BD, little is known about social cognition (SC).

SC is a multidimensional psychological domain that encompasses a complex set of processes which allow for adaptive social interaction. These involve the representation of internal somatic states, knowledge about oneself and others, interpersonal motivations and appropriate response to socioemotional information (Amodio and Frith, 2006). The National Institute of Mental Health has identified five core dimensions within this construct: theory of mind (ToM), social perception, social knowledge, attribution bias, and emotion processing (EP) (Green et al., 2008). While these processes are increasingly implicated in BD, this broad field has not been studied enough to provide solid conclusions (Yatham et al., 2010).

Over the last decade, the EP domain has gained attention, and its influence has been conceptualized as emotional intelligence (EI) (Mayer et al., 2003). As an important component of SC, EI involves the ability to not only monitor, recognize, and reason about one's own and other people's emotions, but also to use this emotional information to guide one's thinking and actions (Salovey and Mayer, 1990). EI performance can be measured by means of the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) (Mayer et al., 2003). To date, the MSCEIT has shown excellent psychometric properties among healthy individuals (Mayer et al., 2004) and the clinical population (Eack et al., 2009; Kee et al., 2009).

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However, studies on patients with BD, have for the most part used only one of four branches of the MSCEIT (Managing Emotions) following the MATRICS (Measurement and Treatment Research to Improve Cognition in Schizophrenia) Consensus Cognitive Battery (MCCB; Nuechterlein et al., 2008; Matrics Assessment Inc., USA) recommendation for measuring SC. To date, only a few studies have administered the four branches of the MSCEIT in a sample of BD patients (Aparicio et al., in press; Frajo-Apor et al., 2016).

Regarding psychosocial functioning, the association between social cognitive deficits and functional impairment in BD has been described. These deficits are associated with poor psychological adjustment (Fulford et al., 2014; Hajnal et al., 2010; Hoertnagl et al., 2011; Lahera et al., 2012; Martino et al., 2011).

Impairments in SC have been increasingly documented in descriptions of the neuropsychological profile of BD (Bora et al., 2009; Van Rheenen and Rossell, 2014b).

Whereas the potential influence of clinical and neurocognitve variables on different domains of SC performance in BD remains to be ascertained, very few attempts have been made to assess the potential impact of neurocognitive variables on SC domains (Aparicio et al., in press; Bora and Pantelis, 2016a; Fanning et al., 2012; Samamé et al., 2012; Samamé, 2013; Ventura et al., 2013) and particularly on EI (Frajo-Apor et al., 2016).

Deficits in neurocognitive domains have been consistently reported in euthymic patients with BD. There is also large neurocognitive heterogeneity among patients (Burdick et al., 2014; Jensen et al., 2016; Solé et al., 2016). Likewise, heterogeneous SC performance among BD patients may exist. A recent study led by Bora et al. (2016b) found different subgroups based on both theory of mind (ToM) and executive functions in schizophrenia and BD using latent class analysis. However, the potential heterogeneity in other domains of SC among BD patients is not yet well understood.

To our knowledge, no previously published studies have examined the variability of EI by means of the four branches of the MSCEIT in a sample of BD patients.

Based on the aforementioned results, the main objective of this study was to characterize three different groups of euthymic BD patients allocated according to the Emotional Intelligence Quotient (EIQ) score obtained after administration of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): Low Performance (LP), Normal Performance (NP) and High Performance (HP). We hypothesized that the three groups would differ in terms of sociodemographic, clinical, functional and neurocognitive variables. We also hypothesized that patients belonging to the LP group would exhibit a poorer psychosocial functioning and would display poor performance on neurocognitive measures than the other two groups.

2. Methods

2.1. Patients

One hundred thirty-four euthymic BD outpatients were recruited from mental health services in the Bipolar Disorder Program of the Hospital Clinic of Barcelona. Inclusion criteria were as follows: (i) diagnosis of BD type I or II according to DSM-IV-TR, (ii) age over 18, (iii) fulfillment of criteria for euthymia defined as a score of ≤ 8 on the Hamilton Depression Rating Scale (HDRS) (Hamilton, 1960; Ramos-Brieva and Cordero, 1988) or a score of ≤ 6 on the Montgomery Asberg Depression Rating Scale (MADRS) (Lobo et al., 2002; Montgomery and Asberg, 1979), and a score of ≤ 6 on the Young Mania Rating Scale (YMRS) (Colom et al., 2002; Young et al., 1978), and (iv) capacity to provide written informed consent. Exclusion criteria were the presence of (i) mental retardation (defined as IQ < 70) and (ii) severe organic disease. Patients were informed of the purpose of the trial and had to give their signed consent before being enrolled. Approval from Hospital Clinic ethics committee was obtained.

2.2. Assessments

In order to gather sociodemographic and clinical information, all patients were assessed with a semistructured interview based on the Structured Clinical Interview for DSM Disorders (SCID), which also considered data from medical records. Collected data were: age, gender, educational level, marital status, occupation, diagnosis, number and type of episodes, age at onset, age at first hospitalization, number of hospitalizations, chronicity (years of illness), history of prior suicide attempts, lifetime history of psychotic symptoms, axis I, II and III comorbidity, family history of affective disorders, lifetime substance misuse and pharmacological treatment.

Presence of depressive and manic features was evaluated using the HDRS, the MADRS and the YMRS, respectively. Fifteen out of one hundred thirty-four patients recruited were evaluated with the MADRS. In order to homogenize the scores for the statistical analyses, the total score obtained with the MADRS was transformed into the total HDRS score following Carmody et al. (2006) conversion tables.

The overall functional outcome was assessed by means of the Functioning Assessment Short Test (FAST) (Rosa et al., 2007). This valid and reliable instrument is relatively easy to apply. It was developed to identify the main difficulties experienced by mentally ill patients including those with BD. It comprises 24 items which evaluate six specific functional domains: autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships and leisure time. The higher scores indicate poorer functioning, that is, greater disability (Rosa et al., 2007).

EI was evaluated using the Spanish version of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), V2.0 (Extremera et al., 2006; Sanchez-Garcia et al., 2016; Mayer et al., 2002a, 2002b). This instrument consists of 141 items and provides eight task scores that measure the four branches of EI: perceiving, using, understanding, and managing emotions. (Salovey and Mayer, 1990). Perceiving emotions is assessed with the faces and pictures tasks; using emotions is tested with the sensations and facilitation tasks; understanding emotions is measured with blends and changes tasks; and managing emotions is measured with emotion management blends and changes tasks and emotional relationships tasks. These branches can be assigned to the areas of emotional experience (perceiving and using emotions) and emotional strategic (understanding and managing emotions). The test provides a total score, scores in two areas: experiential and strategic, scores in the four branches and in each of the specific tasks that the test includes. Scores of the four branches and overall performance are based on a scale of a large normative sample with a mean value of 100 (SD = 15). Lower scores indicate poorer performance in EI.

The neuropsychological assessment was rated by means of a comprehensive neuropsychological battery in order to cover different cognitive domains.

- Premorbid IQ was estimated with the Wechsler Adult Intelligence Scale (WAIS-III) vocabulary subtest (Weschler, 1997).
- The processing speed domain consisted of two subtests of the WAIS-III: the Digit-symbol Coding and the Symbol Search subtests (Weschler, 1997), as well as the Trail Making Test–Part A (TMT-A) (Reitan, 1958).
- Verbal fluency was measured with the Phonemic (F-A-S) and categorical (Animal naming) components of the Controlled Oral Word Association Test (COWAT) (Benton and Hamsher, 1976).
- The working memory (WM) index comprised Arithmetic, Digits, and Letter-Number sequencing subtests of the WAIS-III (Weschler, 1997).
- Verbal memory and learning were assessed with the California Verbal Learning Test (CVLT) (Delis, 1987).
- Executive functions were tested with the computerized version of the Wisconsin Card Sorting Test (WCST) (Heaton, 1981), the Stroop Color-Word Interference Test (Golden, 1978), and the Trail Making