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Impact of axis-I comorbidity and suicidal behavior disorders on sensitivity and specificity of the Mood Disorder Questionnaire in complex depressed inpatients

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Abstract

Objective: This study assessed the psychometric performance of the Mood Disorder Questionnaire (MDQ) and its modified MDQ7 version, to screen for bipolar disorders (BD) in depressive inpatients according to depression severity, number of current axis I psychiatric comorbidities and suicidal behavior disorders.

Methods: Depressed adult inpatients (n = 195) were consecutively enrolled. Psychiatric diagnoses were made using the standardized DSM-IV-TR structured interview MINI 5.0.0 and medical case notes. Depression severity was assessed with the Beck Depression Inventory and the Hamilton Depression Scale. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of each MDQ version were evaluated in the whole sample and according to depression severity, current axis I psychiatric comorbidities and suicidal behavior.

Results: The occurrence and the number of axis I disorders affected performance of both versions. Among depressed patients with two or more comorbidities, PPV and NPV of the MDQ were 65% and 80%, respectively, and they were respectively 56.2% and 87.9% with MDQ7.

Current suicidal behavior disorders also dramatically reduced the PPV of MDQ (from 81.2% to 63.3%) and MDQ7 (from 72.2% to 52.6%) but the NPV remained above 80%.

The performance of both versions of the MDQ tended to improve with the severity of depression.

Conclusion: The MDQ is not a suitable screening instrument to diagnose BD in subjects with a complex major depressive episode and/or a current history of suicidal behavior. Nevertheless MDQ particularly in its modified version may be useful for ruling out the presence of BD among these complex patients.

1. Introduction

Bipolar disorders (BD) are one of the worldwide leading causes of disability, measured in Disability Adjusted Life Years (DALYs), in the 15–44 age group [1]. Indeed, BD are associated with an increased risk of morbidity [2–5], mortality by suicide [6,7], as well as somatic diseases [8] and social impairment [9]. However, patients with BD are often unrecognized or misdiagnosed, mainly due to the difficulty differentiating between BD and major depressive disorder (MDD) in depressed patients [10]. Moreover,

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lifetime or current axis I comorbidities are very common in patients with BD, further complicating the diagnostic process [11].

In this context, reliable screening instruments for detecting the various forms of BD in depressed subjects, especially those with multiple axis I disorders are needed. The Mood Disorder Questionnaire (MDQ) is a short self-assessment screening instrument for bipolar spectrum disorders developed by Hirschfeld et al [12]. It has shown good sensitivity (73%; 95% CI: 65–81) and very good specificity (90%; 95% CI: 84–96) in psychiatric outpatients [12,13]. It is probably the most used screening tool for BD and versions in different languages have been validated for the general population and for psychiatric adult outpatients [13–21].

However, more recently the usefulness of MDQ has been challenged: 1) despite its high specificity (97.2%), MDQ has shown very low sensitivity levels (28.1%) in the general population [22]; 2) some conditions, such as primary substance use disorders or comorbid anxiety, may decrease the psychometric properties of the MDQ [23–25]; and 3) the MDQ seems to be better at screening for BD I (90.3% sensitivity) than BD II (52.4%) [26]. Furthermore, some other conditions may impact the MDQ performance. Thus, the effect of comorbid conditions or the severity of the current depressive episode on the screening performance of MDQ has not been sufficiently evaluated yet. Also, as suicidal behavior has been linked to BD among patients with MDD [27] we have no idea of how it can impact the validity of the test.

Some authors suggested modifications of the MDQ to increase its psychometric and screening properties [28], such as ignoring the last two items in the MDQ7 version [29–32] or lowering the level of impairment required for positive screening [14,23]. These modifications seem to yield higher sensitivity, particularly for bipolar II subtype, but lower specificity [14,28,29,32] than the standard MDQ.

This work investigated the psychometric performance of the original MDQ and the modified MDQ7 version in screening depressive inpatients for bipolar spectrum disorders according to the severity of depression, the number of co-occurring axis I psychiatric disorders, and suicidal behavior disorder.

2. Materials and methods

2.1. Subjects

The study was conducted in a inpatient unit specialized in the management of mood disorders, in the Psychiatric Emergency and Post Emergency Department, at the Montpellier University Hospital Centre (CHU), France. During 6 months, every newly admitted inpatient meeting the inclusion criteria was invited to participate. Inclusion criteria were defined as follows: i) age over 18 years; ii) current major depressive episode according to the DSM-IV-TR criteria; and iii) French speaking. Subjects with schizophrenia or other psychotic disorders according to the DSM-IV-TR criteria were excluded. Two hundred eighteen subjects were eligible. Twenty-three subjects were not included in the study due to refusal or inadequate completion/loss of data. Thus, 195 participants were finally analyzed. The study protocol was reviewed and approved by the Local Research Ethics Committee and all participants signed an informed consent.

2.2. Diagnostic assessment

Bipolar disorder, major depressive disorders and other current and lifetime axis I psychiatric disorders were diagnosed according to the DSM-IV criteria and using a best-estimate procedure. Diagnoses were based on the information obtained during the patient's clinical examination and from the French version of the Mini International Neuropsychiatric Interview (MINI 5.0.0) [33] during hospitalization. Moreover, when possible, the family doctor, family members or close relatives were also contacted for supplementary information. The diagnoses were then rated by one designated senior psychiatrist (FC) blinded to MDQ results. "Anxiety disorders" included agoraphobia, panic disorder, social phobia, obsessive-compulsive disorder and generalized anxiety as described by Parker [24]. Substance abuse and substance dependence were grouped under "substance use disorders".

Depression severity was evaluated with the French version of: 1) the 13-item self-reported Beck Depression Inventory (BDI), which scores 0–3 for minimal depression, 4–7 for mild depression, 8–15 for moderate depression, and >15 for severe depression [34]; and 2) the observer-rated 17-item Hamilton Depression Scale (HAMD-17), which scores 0–7 for minimal depression, 8–17 for mild depression, 18–25 for moderate depression, and >25 for severe depression [35].

Finally, suicidal behavior history was assessed in accordance with the new DSM-V criteria for suicidal behavior disorders: 1) a self-initiated sequence of behavior by an individual who expected that the set of actions would lead to his/her own death. 2) This attempt has occurred within the last 24 months. The suicidal behavior disorder has two specifications: a current suicidal behavior referring to a suicide attempt within the last 12 months and early remission referring to a suicide attempt 12–24 months earlier.

2.3. MDQ and MDQ7 scores

Patients were asked to complete the French version of the MDQ within the first 4 days of hospitalisation. The MDQ is a validated self-report, single page, paper and pencil inventory in three parts that can be quickly and easily scored by a physician, nurse or any trained medical staff assistant. The first part screens for lifetime history of manic or hypomanic symptoms using 13 yes/no questions based on DSM-IV-TR criteria and clinical experience [12]. The