Validity of the Mood Disorder Questionnaire in a Brazilian psychiatric population

Validação da versão em português do Questionário de Transtornos do Humor em uma população brasileira de pacientes psiquiátricos

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Abstract

Objective: Bipolar spectrum disorders are prevalent and frequently underdiagnosed and undertreated. This report describes the development and validation of the Brazilian version of the Mood Disorder Questionnaire, a screening instrument for bipolar spectrum disorders, in an adult psychiatric population. Method: A total of 114 consecutive patients attending an outpatient psychiatric clinic completed the Brazilian version of the Mood Disorder Questionnaire. A research psychiatrist, blind to the Mood Disorder Questionnaire results, interviewed patients by means of the mood module of the Structured Clinical Interview for DSM-IV ("gold standard").

Results: The internal consistency of the Brazilian Mood Disorder Questionnaire, evaluated with Cronbach’s alpha coefficient was 0.76 (95% CI: 0.69-0.92). Principal component analysis with varimax rotation indicated an ‘irritability-racing thoughts’ factor and ‘energized-activity’ factor, which explained 39.1% of variance. On the basis of the SCID, 69 (60.5%) individuals received a diagnosis of bipolar disorders. A Brazilian Mood Disorder Questionnaire screening score of 8 or more items yielded sensitivity of 0.91 (95% CI: 0.85-0.98), specificity of 0.70 (95% CI: 0.62-0.75), a positive predictive value of 0.82 (95% CI: 0.75-0.88) and a negative predictive value of 0.84 (95% CI: 0.77-0.90).

Conclusion: The present data demonstrate that the Brazilian Mood Disorder Questionnaire is a valid instrument for the screening of bipolar disorders. The instrument needs to be validated in other settings (e.g., in general practice).

Descriptors: Translating; Questionnaires; Bipolar disorder; Validation, studies; Population

Introduction

The USA National Comorbidity Survey Replication (n = 9,282), reported lifetime (and 12-month) prevalence estimates of 1.0% (0.6%) for type I bipolar disorder, 1.1% (0.8%) for type II bipolar disorder and 2.4% (1.4%) for subthreshold bipolar

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Bipolar disorders (BDs) are frequently unrecognized in various settings, often misdiagnosed as major depression, and inadequately treated.\textsuperscript{6,7} The results of a survey sponsored and conducted by the National Depressive and Manic-Depressive Association (DMDA), in the USA, showed that in patients with BD it was common to find a long delay between the onset of symptoms and appropriate diagnosis and treatment. Over one-third of patients took at least 10 years to receive a correct diagnosis after their first visit to the doctor. A large number of patients required intervention of more than one specialist (an average of 3.3 specialists) and only 53\% of patients surveyed declared that they had been correctly diagnosed.\textsuperscript{8} Several lines of evidence suggest that early interventions in BD might improve clinical outcomes.\textsuperscript{9} Screening instruments have the potential to improve the recognition and ultimate treatment of BDs.

Recently, Hirschfeld et al. developed a self-report screening instrument for BDs that can be quickly scored by any mental health professional, namely the ‘mood disorder questionnaire’ (MDQ).\textsuperscript{10} Thus far, the MDQ has satisfactory psychometric properties for screening of BD in various different languages, such as French,\textsuperscript{11} Italian,\textsuperscript{12} Finish,\textsuperscript{13} Spanish,\textsuperscript{14} and Chinese.\textsuperscript{15,16} There are more than 200 million Portuguese speakers all over the world, in locations including Portugal, Brazil, Cape Verde, Guinea-Bissau, Mozambique and the islands of Sao Tome and Principe. Portuguese ranks eighth among the most spoken languages in the world. The present research aims to develop and validate a Brazilian Portuguese version of the MDQ (B-MDQ) in a consecutive sample of psychiatric outpatients. This is part of a major effort to improve detection of bipolar disorders.

\section*{Method}

This study was conducted at the outpatient clinics of the Hospital de Saúde Mental de Messejana. This mental health care facility receives a large number of patients for diagnostic evaluation and treatment of mood disorders, mostly referred by primary care services.

The study protocol was approved by the Ethics Committee of the Hospital Universitário Walter Cantídio (Medical School/Universidade Federal do Ceará, process number 031.05.08). A signed informed consent was obtained for each subject before inclusion in the present study.

\subsection*{1. Instruments and procedures}

The MDQ was first translated into Portuguese by two bilingual authors of the present study (psychiatrists). To ensure that the connotative meaning of items was not altered in the translation, it was back translated into English by a third mental health professional of English mother tongue. The three approved a final version. For the evaluation of semantic equivalence, both the reference and general meanings of words and items were considered. The reference meaning underlies the ideas and objects of the world in which one or more words refer to. The general meaning take into account the impact these words assume in the cultural context of the target population. In other to evaluate if the initial translation was properly performed, a pilot analysis was done with five patients.

A convenience sample of 114 consecutive patients took part in this investigation. This sample size was estimated to detect a sensitivity of 0.90 with a minimal acceptable lower confidence limit of 0.75 for the MDQ.\textsuperscript{17} The MDQ is a short, single-page, paper and pencil self-report screening instrument for BD. It is divided into three sessions. The first session includes 13 Yes/No questions derived from the DSM-IV criteria and clinical experience. The second asks whether several symptoms have been experienced in the same period of time. The third part examines psychosocial impairment, classified as absent, minor, moderate or serious. In the original validation study,\textsuperscript{16} MDQ positive screening for BDs requires that seven or more positive symptoms are reported, with clustering within the same time period and causing moderate to severe problems.

A trained sixth-year medical student initially met each patient and completed a questionnaire with socio-demographic data and the B-MDQ. The participants of the study were then referred to a study psychiatrist in charge of conducting the diagnostic interview. The psychiatrist was trained to administer the mood module of the Structure Clinical Interview for the DSM-IV (SCID)\textsuperscript{18} and was blind to the initial B-MDQ results.

\section*{2. Statistical analyses}

Statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS) version 14.0 for Windows and the STATA version 10.0 for Windows. We used principal component analysis with orthogonal (Varimax) rotation to determine the construct validity of the B-MDQ. The factors were selected according to eigenvalues > 1 and Scree plot inspection. Rotated items with absolute values > 0.5 are reported. The area under the receiver operating characteristic (ROC) curve (with 95\% CI) was determined. Operating characteristics of the B-MDQ were calculated from 2x2 contingency tables and reported as estimates of sensitivity, specificity, positive predictive value and negative predictive value (criterion validity). For internal consistency reliability, the Cronbach’s alpha coefficient value (with 95\% CI) for the B-MDQ was determined.

\section*{Results}

The initial back-translated version of the MDQ was considered equivalent to the original version of the instrument (Appendix). The B-MDQ was well accepted by the patients during the pilot analysis, and no one mentioned difficulties understanding any of the items.

\subsection*{1. Description of the sample}

The study included 114 patients (34 males, 80 females). Mean age was 42.7 years (SD = 12.9). Sixty-nine individuals (60.5\%) received a diagnosis of bipolar spectrum disorder (bipolar type I:...
n = 55; bipolar type II: n = 6 and bipolar disorder not otherwise specified (NOS): n = 8). The marital status was as follows: 43 (37%) were married, 47 (41.2%) were single, 7 (6.1%) were widowed and 9 (7.9%) were divorced. Regarding education, 46 (40%) were illiterate and 68 (60%) had finished or were in high school.

2. Principal component analysis

Principal component analysis with Varimax rotation (with inspection of the scree plot) found two factors with eigenvalues > 1.0. The two factors explained 39.1% of rotated variance. The first factor explained 27.3% of variance and had high loadings on items of 'irritability' (0.76) and 'racing thoughts' (0.71). The second factor had high loadings on 'more energy' (0.75) and 'more active' (0.70) and accounted for 11.8% of variance.

3. Internal consistency reliability

The frequency of endorsement of MDQ items ranged from 38.6 to 93.9% (the highest item endorsements were “feeling so good or hyper”, “being more talkative or speaking faster than usual” and “being easily distracted”). Corrected item-total correlations were variable ranging from 0.18 to 0.68. Item-level analyses indicated that MDQ items assessing irritability (correlation coefficient - r = 0.68) and ‘racing thoughts’ (r = 0.62) were more highly correlated with total scores than were those evaluating elevated mood (r = 0.18) and ‘feeling more self-confident’ (r = 0.29). Cronbach’s alpha coefficient value was 0.76 (95% CI; 0.69-0.92).

4. Sensitivity, specificity and predictive values

The area under the ROC curve was 0.87 (95% CI; 0.80-0.93; p < 0.001). A MDQ screening score of 8 or higher was chosen as the optimal cutoff (Figure 1), since it provided good sensitivity (0.91, 95% CI = 0.85-0.98) and specificity (0.70; 95% CI = 0.62-0.75). The PPV was 0.82 (95% CI = 0.75-0.88) and the NPV was 0.84 (95% CI = 0.77-0.90). The operating parameters for the MDQ were also adequate for the correct classification of bipolar type II and bipolar NOS patients. For the optimal cutoff of 8, the MDQ had good sensitivity (0.91; 95% CI = 0.8-0.99) and specificity (0.66; 95% CI = 0.54-0.77).

Discussion

The present paper assessed the validity of the Portuguese version of the MDQ as a screen for bipolar spectrum disorders in a psychiatric outpatient setting in Brazil. The two-factor structure of the B-MDQ was comparable to an ‘irritability-racing thoughts’ factor and an ‘energized-activity’ factor. Similar factors were also obtained in factor analysis of mania. The rotated factor solution of the present study was similar to those obtained in other studies of the MDQ. The internal consistency of the B-MDQ was similar to those previously described for psychiatric samples in other cultures. The present paper assessed the sensitivity and specificity of the B-MDQ by using a face-to-face structured clinical interview for the DSM-IV as the ‘gold standard’ for diagnosis of bipolar spectrum disorders. The operating characteristics of the B-MDQ are adequate and are in the range of those of other instruments that are valid for screening of other psychiatric disorders. By using this 8-or-more item threshold, 9 out of 10 outpatients with a BD would be correctly identified by the B-MDQ, whereas 7 out of 10 who did not have a BD would be adequately screened out. The psychometric properties of the B-MDQ reported in this study mirrors that of the original validation study. Several other studies support the use of the MDQ for screening of BD in clinical samples.

For Zimmerman et al., the inclusion of patients treated in specialized mood disorder clinics with particular expertise and offering psychoeducation allowing patients to be more aware of their diagnosis would artificially inflate the performance of the MDQ. In other settings, such as in the community, its power for detection might be poorer. Indeed, a general population study performed by Hirschfeld et al. demonstrated that the MDQ had good specificity (0.97), albeit lacking good sensitivity for the detection of BD (0.28). Similar data were obtained from a study performed by Dodd et al. involving Australian women recruited from the community. Thus, the MDQ might adequately rule out BD in the community. However, the use of the MDQ for screening studies involving general population samples might be compromised by the fact that many true cases of BD would be missed. There are evidences that BDs are highly prevalent among primary care patients. The psychometric properties of the MDQ for screening of BDs in primary care are yet to be determined.

There are limitations to the present study. Insight into illness was not assessed in the present study. However, a study by Miller et al. did not demonstrate an influence of insight level in screening properties of the MDQ. Furthermore we did not evaluate severity of current mood symptoms of participants through standard rating scales.
Conclusion

The Brazilian Portuguese version of the MDQ is a brief and feasible method for improving the recognition of bipolar spectrum disorders among psychiatric clinical samples. Additional studies are needed to determine the performance of this instrument in other populations (e.g., community and primary care). It should be emphasized that screening instruments are not a substitute for a comprehensive psychiatric evaluation. However, these data suggest that the B-MDQ might identify among psychiatric patients, those that need more careful investigation to detect bipolar spectrum disorders.

Disclosures

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<tr>
<th>Writing group member</th>
<th>Employment</th>
<th>Research grant</th>
<th>Other research grant or medical continuous education</th>
<th>Speaker’s honoraria</th>
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* Modest
** Significant
*** Significant: Amounts given to the author’s institution or to a colleague for research in which the author has participation, not directly to the author.

Note: UNIFOR = Universidade de Fortaleza; UFC = Universidade Federal do Ceará; FUNCAP = Fundação Cearense de Apoio ao Desenvolvimento Científico e Tecnológico; CNPq = Conselho Nacional de Desenvolvimento Científico e Tecnológico; CAPES = Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.

For more information, see instructions for Authors.

References


Appendix - Brazilian Portuguese Version of the Mood Disorder Questionnaire (Questionário de Transtornos do Humor)

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<tbody>
<tr>
<td>1</td>
<td>Já ocorreu algum período na sua vida em que seu jeito de ser mudou? E que...</td>
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<tr>
<td>2</td>
<td>... você se sentia tão bem ou tão para cima a ponto das outras pessoas pensarem que você não estava no seu jeito normal, ou você estava tão para cima a ponto de se envolver em problemas?</td>
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<tr>
<td>3</td>
<td>... você ficava tão irritado a ponto de gritar com as pessoas ou começava brigas ou discussões?</td>
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<tr>
<td>4</td>
<td>... você se sentia muito mais confiante em você mesmo do que o normal?</td>
<td></td>
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<tr>
<td>5</td>
<td>... você dormia menos que de costume e nem sequer sentia falta do sono?</td>
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<tr>
<td>6</td>
<td>... você falava muito mais ou falava mais rápido que o seu normal?</td>
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<td>7</td>
<td>... os pensamentos corriam rapidamente em sua cabeça ou você não conseguia acalmar sua mente?</td>
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<tr>
<td>8</td>
<td>... você se distraía com tanta facilidade com as coisas ao seu redor, a ponto de ter dificuldade em manter a concentração ou o foco em uma atividade?</td>
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<tr>
<td>9</td>
<td>... você se sentia com muito mais energia que o seu normal?</td>
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<td>10</td>
<td>... você ficava mais dado com as pessoas e mais expansivo que o seu normal, por exemplo, telefonava para os amigos no meio da noite?</td>
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<tr>
<td>11</td>
<td>... você ficava mais interessado em sexo que o normal?</td>
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<tr>
<td>12</td>
<td>... você fazia coisas que não eram comuns para você ou que faziam outras pessoas pensarem que você era exagerado, bobo ou se arriscava mais?</td>
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<tr>
<td>13</td>
<td>... gastar dinheiro causava problemas para você ou para sua família?</td>
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2. Se você marcou SIM em mais de uma das perguntas acima; várias delas ocorreram durante o mesmo período de tempo? Por favor, circule apenas uma resposta.

SIM | NÃO

3. Até que ponto o problema o afetou - como sentir-se incapaz de trabalhar, ter dificuldades com a família, com dinheiro ou problemas com a justiça, envolver-se em discussões ou brigas? Por favor, circule apenas uma resposta.

Nenhum problema | Problema pouco grave | Problema mais ou menos grave | Problema muito grave

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