Validity of Persian Version of Mood Disorder Questionnaire in Diagnosis of Bipolar Mood Disorder in Depressive Phase

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Objective: The Mood disorder questionnaire (MDQ) has been designed as a screening self-report inventory for diagnosing bipolar mood disorders. This study investigated the validity and the optimal cut-off threshold of the Persian version of MDQ in a group of Iranian depressive patients.

Methods: One hundred and twenty patients with probable diagnosis of mood disorders attending psychiatric clinics were recruited to this cross-sectional study. The structured clinical interview for DSM-IV (SCID) was employed as the gold standard of diagnosis to discriminate between unipolar and bipolar depressions. Translated version of MDQ in Persian was completed by the patients and the final scores were summed up by a physician. The sensitivity and specificity of MDQ were calculated and compared with the diagnosis made by SCID. The ROC curve was used to determine the optimal cut-off point for diagnostic accuracy.

Results: Ninety patients with bipolar depression and 30 patients with unipolar depressive disorder completed the MDQ. Internal reliability of MDQ was good with a Cronbach's alpha coefficient of 0.773. Regarding the original scoring criteria (symptoms and supplementary questions), the sensitivity and specificity of MDQ for bipolar disorder were 70% and 100% respectively. In current study, the optimal cut-off score without applying the supplementary questions was calculated to be 6 or more, with a sensitivity of 80% and a specificity of 93.3%.

Conclusion: MDQ appears to be a useful screening tool for bipolar depression in Iranian psychiatric practice.

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Introduction

Bipolar mood disorder (BMD) is a serious and recurrent illness with a worldwide distribution. Epidemiological studies report a lifetime prevalence of 2.6 to 6.5% for bipolar I, bipolar II, bipolar not otherwise specified (NOS), and cyclothymic disorder (1). Considering the symptoms of hypomania, some difficulties occur in diagnosing bipolar NOS and cyclothymia. Most of the patients with bipolar disorder are diagnosed as unipolar depressive disorder patients (2). Some of previous studies have illustrated that 25-55% of the patients with diagnosis of unipolar depression suffer from bipolar II or bipolar NOS. Besides, 50% of outpatients with a diagnosis of major depressive disorder confirm to suffer from bipolar II disorder (3). The depression phase of the bipolar disorder is more intense compared with unipolar depression. It is associated with more impairment of social and family relations, more suicide attempts and referral to hospitals. On the other hand, unipolar and bipolar depressions need different treatments. Hence, if a patient with bipolar disorder in depression phase receives

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the treatment of unipolar disorder, the symptoms may deteriorate and shift to manic phase (1,2).

According to the diagnostic complications and the importance of appropriate treatment of bipolar patients in depressive phase, a tool for making a correct diagnosis would be useful. One of the best known tools for diagnosing the bipolar depression is mood disorder questionnaire (MDQ). MDQ was developed by a team of psychiatrists, researchers and consumer advocates led by Robert M.A. Hirschfeld, University of Texas, Medical Branch. It is a brief, self-report screening instrument that can be used easily in primary care settings to identify patients who are most likely to have BMD (4). In different studies MDQ showed both good sensitivity and good specificity. A Finnish study (5) showed that MDQ had an internal validity of 79% and its sensitivity and specificity were 85% and 47% respectively. Sensitivity and specificity of MDQ were 29% and 77% respectively in another study (6). However, a British study (7) reported the sensitivity and specificity of MDQ to be 76% and 86% while the same method in Australia (8) resulted in sensitivity and specificity of 78% and 71% respectively.

Such contrastive results in different studies and various countries may indicate the cultural and lingual dimensions of MDQ. Therefore, the present study aimed to determine the validity of MDQ in diagnosis of bipolar depression in Iranian depressive patients.

Materials and Methods

This cross-sectional diagnostic study was established in outpatient clinics of Tabriz, northwest of Iran. The method was approved by local ethics committee of Tabriz University of Medical Sciences, Tabriz, Iran. The participants were selected between June 2007 and 2008, from 300 consecutive outpatients of both genders with depressive symptoms after psychiatric interview using SCID. Finally, 120 patients who met our inclusion criteria were recruited after obtaining an informed written consent.

According to SCID as the gold standard of diagnosis, 120 patients including 30 patients with unipolar depression and 90 patients with bipolar depression were recruited. Patients with a clinical diagnosis of depression of any type, with 18-65 years of age and the ability of reading and writing Persian were included. A diagnosis of accompanied personality disorder, mental retardation, substance abuse or physical illness resulted in exclusion.

Patients were asked about demographical indicators such as age, gender, level of education, employment, residence, illness records, record of mood disorders in the family and hospitalization records through interview.

Structured clinical interview for DSM-IV(SCID)

SCID is a widely-used clinical tool for classification of psychiatric disorders based on DSM-IV criteria. Reliability and feasibility of the Persian version of this diagnostic instrument have already been determined as fair to good considering most diagnostic categories (kappa > 0.6) (9). SCID was used in this study for diagnosis of psychiatric disorders.

MDQ questionnaire

MDQ comprises of three parts: the first part includes 13 yes/no questions which evaluate the history of mania and hypomania in patient's life according to DSM-IV criteria. The second part measures the existence of several signs of hypomania or mania or other experienced behaviors by the patients simultaneously. The third part evaluates the functional level of these symptoms (ranging from lack of problem to problematic point). In cases of seven or more YES responses to the first part and the second part and the responses of middle or intense to the third part, the existence of bipolar disorder is confirmed (1).

The translation and back-translation method was used to make the Persian translation of MDQ valid. MDQ was translated by two psychiatrists to Persian and then two other psychiatrists translated the same text to first language. Translated texts were evaluated by the translation team for final decision.

The data were analyzed by SPSS software version 13. Descriptive statistics, t-test, chi-

square test and Fisher's exact test were used to analyze the data. The significant p-value was set at 0.05.

Results

The unipolar group included 7 men (23%) and 23 women (77%) and the bipolar group included 39 men (43.33%) and 51 women (56.66%). The Mean±SD age of patients was 33.8 ± 10.55 years in the unipolar group and 30.47 ± 9.25 years in the bipolar group (p=0.100). Table 1 describes demographic characteristics of these two groups. According to the table, bipolar patients were more employed, and more of them were from urban areas. These differences between characteristics of unipolar and bipolar patients were statistically significant.

The history of a previous treatment trial was observed in 12 (40%) patients in unipolar group and in 21 (23.3%) patients in bipolar group (p= 0.08). The family history of the mood disorder was not significantly different between two groups and was reported from 13 (43.3%) patients in unipolar group to 37 (41.1%) patients in bipolar group (p= 0.83). Besides, five patients (16.7%) with unipolar depression and 15 patients (16.7%) with bipolar depression had a previous history of hospitalization (p= 1.00).

The average score of MDQ was significantly higher (p<0.001) in the bipolar group (7.69±2.71) compared with the unipolar group (2.83±1.95).

A satisfactory reliability was reported for the MDQ (Alpha coefficient: 0.773). The true positivity of MDQ for diagnosis of bipolar depression was 63 (52.5%), its true negativity was 30 (25%) and its false negativity was 27 (22.5%), which resulted in a sensitivity of 70% (CI95%: 0.59-0.79) and a specificity of 100%.

Using ROC curves for determining the best cut-off point for diagnostic accuracy of MDQ for bipolar disorder, the area under the curve (AUC) was calculated as 0.923 (CI95%: 0.87-0.97, p<0.001) and the best cut-off point was set at 6 (Figure 1). Hence, sensitivity and specificity of 80 and 93.3 were observed respectively (Table 2).

Table 2. The highest sensitivity and specificity of different cut-off values of mood disorder questionnaire

The distance of MDQ grades	Sensitivity % [CI 95%]	Specificity % [CI 95%]
4	93.3 [85.5-97.3]	66.7 [47.1-82.1]
5	86.7 [77.5-92.6]	76.7 [57.3-89.4]
6	80 [70.0-87.4]	93.3 [76.5-98.8]
7	71.1 [60.5-79.9]	93.3 [76.5-98.8]
8	49 [38.3- 59.6]	100 [85.9-100]

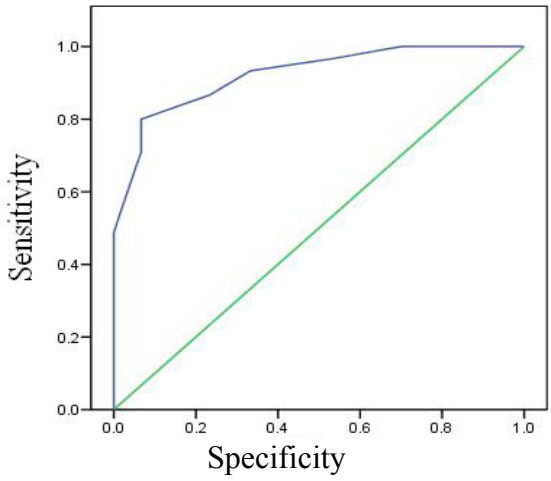

Figure1. ROC curves for determining the best cut-off point for diagnostic accuracy of MDQ for bipolar disorder

Table 1. Demographic characteristics of patients with depression

		Unipolar Mood Disorder N (%)	Bipolar Mood Disorder N (%)	P
Education	Primary	4(13.3)	13(14.4)	0.6
	Guidance	5(16.7)	10(11.1)	
	High school	16(53.3)	36(40)	
	Diploma	5(16.7)	11(12.2)	
	Bachelor & higher	0	20(22.2)	
Employment	Unemployed	7(23.3)	15(16.7)	0.03
	Employed	19(63.3)	73(81.1)	
	Retired	4(13.3)	2(2.2)	
Marital status	Married	19(63.3)	52(57.8)	0.81
	Single	10(33.3)	33(36.7)	
	Separated	1(3.3)	5(5.6)	
Place of residence	Rural	7(23.3)	5(5.6)	0.01
	Urban	23(76.7)	85(94.4)	

Discussion

The present study was performed to evaluate the validity of Persian version of MDQ in differentiating depressive phase of bipolar and unipolar mood disorder in comparison with SCID, and showed a satisfactory diagnostic accuracy for this questionnaire in clinical settings.Thirty percent of consecutive patients recruited to this study had bipolar depressive disorder. Our findings are in accordance with similar previous researches performed by Manning et al (10), Hounche et al (11) and Benazzi et al (12) in which the rate of BMD was reported to be 26%, 28%, and 49% respectively.

The cultural and social differences and different economic conditions between societies may result in some differences between the results of studies. A significant difference between ages of the two groups was reported by Hirschfeid et al (13), showing a higher rate of bipolar disorder in younger patients. This could be a result of selecting the study sample from outpatients referring to the clinics. Besides, differences between the methods of diagnosis could justify inharmonious findings.

The present study showed the internal validity of MDQ to be 0.77 using the Cronbach's alpha coefficient while the internal validity of the MDQ was reported to be between 0.79 and 0.90 in different studies (4,14,15). The sensitivity and specificity of the MDQ was 70% and 100% respectively. Different researches have reported the sensitivity of MDQ ranging from 29 to 85% and its specificity to be from 47 to 98% (4-7,13-15). Accordingly, the sensitivity and specificity of MDQ in Iranian patients with depression is high with a satisfactory internal reliability. Hence, it can be inferred that the function of this questionnaire and its translation is different in various societies and is compatible with the main principles of the producers. The current study suggests a cut-off point of 6 for the MDQ for diagnosing bipolar depression, in which the sensitivity and specificity are 80 and 93.3% respectively. Similarly, different studies have determined the best cut-off point of MDQ to be from 5 to 9, in which the sensitivity was between 64 and 90% and the specificity was from 77 to 88% (6,7,16-19). The cut-off point of 6 for Iranian patients seems to have a higher sensitivity and specificity compared with other populations. Another survey of the structure of the MDQ in Iran showed the presence of two important and independent factors: an energized-activity factor and an elevated mood-thought racing factor (20).

Existence of bipolar disorder must be evaluated in all patients with the symptoms of depression (4) to prevent from the incorrect treatment and imposing high costs on patients, society and health care system (21-27). It is important to consider that psychiatric illnesses should not be diagnosed only according to the questionnaire. Indeed, MDQ can be used only as a device along with clinical interview for screening and scoring (28). Considering the results of the researches in different countries, it seems that determining cut-off point of MDQ in each society is necessary. In this regard, our study showed that Persian version of MDQ is valid in diagnosis of bipolar depression in Iranian patients with mood disorders.

Conclusion

Persian version of MDQ has a high validity in diagnosis of bipolar depression. The best cut-off point is suggested to be at 6 with 70% of sensitivity and 100% of specificity.

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