

Screening for Bipolar Disorder and Finding Borderline Personality Disorder

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Objective: Bipolar disorder and borderline personality disorder share some clinical features and have similar correlates. It is, therefore, not surprising that differential diagnosis is sometimes difficult. The Mood Disorder Questionnaire (MDQ) is the most widely used screening scale for bipolar disorder. Prior studies found a high false-positive rate on the MDQ in a heterogeneous sample of psychiatric patients and primary care patients with a history of trauma. In the present report from the Rhode Island Methods to Improve Diagnostic Assessment and Services project, we examined whether psychiatric outpatients without bipolar disorder who screened positive on the MDQ would be significantly more often diagnosed with borderline personality disorder than patients who did not screen positive.

Method: The study was conducted from September 2005 to November 2008. Five hundred thirty-four psychiatric outpatients were interviewed with the Structured Clinical Interview for *DSM-IV* and Structured Interview for *DSM-IV* Personality Disorders and asked to complete the MDQ. Missing data on the MDQ reduced the sample size to 480. Approximately 10% of the study sample were diagnosed with a lifetime history of bipolar disorder ($n = 52$) and excluded from the initial analyses.

Results: Borderline personality disorder was 4 times more frequently diagnosed in the MDQ positive group than the MDQ negative group (21.5% vs 4.1%, $P < .001$). The results were essentially the same when the analysis was restricted to patients with a current diagnosis of major depressive disorder (27.6% vs 6.9%, $P = .001$). Of the 98 patients who screened positive on the MDQ in the entire sample of patients, including those diagnosed with bipolar disorder, 23.5% ($n = 23$) were diagnosed with bipolar disorder, and 27.6% ($n = 27$) were diagnosed with borderline personality disorder.

Conclusions: Positive results on the MDQ were as likely to indicate that a patient has borderline personality disorder as bipolar disorder. The clinical utility of the MDQ in routine clinical practice is uncertain.

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Bipolar disorder is a mood disorder characterized by distinct, encapsulated episodes of depression and mania or hypomania. Episodes of depression are more frequent than episodes of mania or hypomania. Sometimes the course of bipolar disorder is chronic and unremitting, but more often it is characterized by remissions and recurrences.

Personality disorders are long-standing patterns of affect, emotion regulation, behavior, motivation, self-perception, and interactions with others, present since adolescence or early adulthood, that are rigid and inflexible and cause significant distress or impairment in functioning.

Borderline personality disorder is characterized by emotional dysregulation, unstable interpersonal relationships, and unstable self-image.

The phenomenological features of borderline personality disorder and bipolar disorder overlap. Both are characterized by fluctuations in mood. However, the strong and intense emotions of individuals with borderline personality disorder are often time-limited reactions to how the individuals perceive and believe others are treating them, whereas the mood dysregulation in bipolar disorder is more often sustained. Individuals with borderline personality disorder may do impulsive things that can cause problems such as gambling, excessive spending of money, sexual promiscuity, excess drug and alcohol use, stealing, eating binges, or reckless driving. Individuals with bipolar disorder may engage in similar behaviors, though often these occur during distinct mood episodes.

Given the overlap in the features characteristic of these two disorders, it is not surprising that they frequently co-occur. Recently, Paris et al¹ comprehensively reviewed studies reporting the rates of comorbidity between bipolar disorder and borderline personality disorder. In 12 studies of the frequency of bipolar disorder in patients with borderline personality disorder, they found that approximately 10% of the patients with borderline personality disorder were diagnosed with bipolar I disorder, and approximately 10% were diagnosed with bipolar II disorder. In 16 studies of borderline personality disorder co-occurrence in patients with bipolar disorder, approximately 10% of the patients with bipolar I disorder and 16% of patients with bipolar II disorder were diagnosed with borderline personality disorder. Elevated rates of co-occurrence have likewise been found in community surveys.^{2,3} However, while there is statistical association, the vast majority of individuals with one of these disorders is not diagnosed with the other.

During the past few years, a series of research reports, reviews, and commentaries have suggested that bipolar

disorder is underrecognized and that many patients, particularly those with major depressive disorder, in fact have bipolar disorder.⁴⁻¹³ One of the recommendations for improving the detection of bipolar disorder has been the use of screening questionnaires.^{4,10,11,14}

Several self-report screening questionnaires have been developed to improve the detection of bipolar disorder,¹⁵⁻¹⁸ the most widely studied being the Mood Disorder Questionnaire (MDQ).^{15,19} Studies of the operating characteristics of the MDQ in psychiatric patients have often been limited to preselected patients with mood disorders who have been in ongoing treatment and have well-established diagnoses.^{15,20-23} While these studies are useful in establishing the validity of the MDQ, the performance of the scale in clinically stabilized patients who have maintained a therapeutic relationship has limited clinical relevance. We are aware of only 1 study that examined the performance of the MDQ in a consecutive series of psychiatric outpatients presenting for treatment. Konuk et al²⁴ interviewed 309 patients presenting to 2 psychiatry practices in Turkey with the Structured Clinical Interview for *DSM-IV* (SCID)²⁵ after completion of a Turkish translation of the MDQ. On the basis of the cutoff recommended by Hirschfeld and colleagues¹⁹ to identify cases on the MDQ, the sensitivity of the scale was 63.9%, and its specificity was 76.9%. The authors did not examine the diagnoses responsible for false-positive results. In a study of 228 primary care patients with a history of trauma, Graves and colleagues²⁶ found that the MDQ's specificity was only 69.1%. Again, the diagnoses in patients who were false positive on the MDQ were not examined, though, because the patients had a history of trauma, it is possible that some had borderline personality disorder.

In contrast to the studies showing that bipolar disorder is underdiagnosed, some reports have recently found that bipolar disorder is also overdiagnosed at times.^{27,28} The largest of these studies was conducted by our research group as part of the Rhode Island Methods to Improve Diagnostic Assessment and Services (MIDAS) project. Zimmerman and colleagues²⁹ used the SCID to interview 700 psychiatric outpatients presenting for treatment. Prior to the interview, the patients completed a self-administered questionnaire that asked them whether they had been previously diagnosed with bipolar or manic-depressive disorder by a health care professional. More than half of 145 patients (56.6%, $n = 82$) who reported that they had been previously diagnosed with bipolar disorder were not diagnosed with bipolar disorder based on the SCID. Family history analyses supported the validity of the diagnostic procedures. In a subsequent analysis examining whether there was a particular diagnostic profile associated with bipolar disorder overdiagnoses, we found that the patients overdiagnosed with bipolar disorder were 4 times more likely to be diagnosed with borderline personality disorder compared to patients who were not diagnosed with bipolar disorder.³⁰

In summary, bipolar disorder and borderline personality disorder share some clinical features, individuals with borderline personality disorder are sometimes overdiagnosed

with bipolar disorder, and there is a high false-positive rate on a screening measure for bipolar disorder in a heterogeneous sample of psychiatric patients and primary care patients with a history of trauma. These findings are the basis for the current report from the MIDAS project on the relationship between borderline personality disorder and a screening test for bipolar disorder. We hypothesized that psychiatric outpatients without bipolar disorder who screened positive on the MDQ would be significantly more often diagnosed with borderline personality disorder than patients who did not screen positive. Moreover, when looking at the individual criteria for borderline personality disorder, we predicted that the difference between patients who did and did not screen positive on the MDQ would be greatest for the criteria reflecting impulsivity and affective instability because these features overlap with bipolar disorder.

METHOD

The Rhode Island MIDAS project represents an integration of research methodology into a community-based outpatient practice affiliated with an academic medical center.³¹ A comprehensive diagnostic evaluation is conducted upon presentation for treatment. This private practice group predominantly treats individuals with medical insurance (including Medicare but not Medicaid) on a fee-for-service basis, and it is distinct from the hospital's outpatient residency training clinic that predominantly serves lower income, uninsured, and medical assistance patients.

The patients were interviewed by a diagnostic rater who administered the SCID²⁵ and the Structured Interview of *DSM-IV* Personality (SIDP-IV).³² As described previously, the diagnostic raters were highly trained and monitored throughout the project to minimize rater drift. Reliability was examined in 48 patients. A joint-interview design was used in which one rater observed another conducting the interview, and both raters independently made their ratings. Of relevance to the present report, the reliability of diagnosing bipolar disorder was $\kappa = 0.85$. Too few patients were diagnosed with borderline personality disorder to calculate the κ coefficient for presence or absence of the disorder. However, the intraclass correlation coefficient of the dimensional borderline scores on the SIDP-IV was high (0.96). The interviewers were blind to the questionnaire data. The Rhode Island Hospital institutional review committee approved the research protocol, and all patients provided informed, written consent. The study was conducted from September 2005 to November 2008.

As described in our previous reports, as part of the initial evaluation, patients were also asked to complete several questionnaires. During the course of the project, we have changed the questionnaires administered. The focus of the present report is the 534 patients who were asked to complete the MDQ. Forty-seven patients did not complete the scale, and 7 of the 487 patients who completed the scale omitted 2 or more of the symptom items and were excluded from the analyses. There were no significant differences in

Table 1. Demographic Characteristics of 534 Psychiatric Outpatients

Characteristic	n	%
Gender		
Female	331	62.0
Male	203	38.0
Education		
Less than high school	30	5.6
Graduated high school	308	57.7
Graduated college or greater	196	36.7
Marital status		
Married	232	43.4
Living with someone	32	6.0
Widowed	10	1.9
Separated	20	3.7
Divorced	64	12.0
Never married	176	33.0
Race		
White	467	87.5
Black	24	4.5
Hispanic	15	2.8
Asian	7	1.3
Other	21	3.9
Age, y	mean = 39.8	SD = 13.7

demographic characteristics between the patients with and without missing data. The patients in this sample were most frequently referred from primary care physicians (29.0%), family members or friends (21.2%), and psychotherapists (17.0%).

The MDQ screens for a lifetime history of mania or hypomania with 13 yes/no symptom questions reflecting the *DSM-IV* inclusion criteria.¹⁵ The symptom questions are followed by a single yes/no question about whether the symptoms clustered during the same period of time. The respondent is instructed to answer this question only if more than 1 symptom was checked off. The final question evaluates the level of impairment resulting from the symptoms. This item is rated on a 4-point scale (no problem, minor problem, moderate problem, serious problem). Based on the results of the initial validation study by Hirschfeld and colleagues,¹⁵ a positive case requires the presence of 7 or more symptom items that cluster within the same time period and cause either moderate or serious problems.

We used the χ^2 statistic to compare the patients who did and did not screen positive on the MDQ in the frequency of *DSM-IV* borderline personality disorder diagnoses and individual criteria. We also computed odds ratios with 95% CIs.

RESULTS

The data in Table 1 show the demographic characteristics of the sample. The majority of the subjects were white, female, married or single, and high school graduates. The mean age of the sample was 39.8 years (SD = 13.7). The data in Table 2 show that the most frequent current diagnoses were major depressive disorder, social phobia, and generalized anxiety disorder.

In the sample of 480 patients who completed the MDQ, 10.8% (n = 52) were diagnosed with a lifetime history of

Table 2. Current *DSM-IV* Axis I Diagnoses of 534 Psychiatric Outpatients

<i>DSM-IV</i> Diagnosis	n	%
Major depressive disorder	215	40.3
Bipolar disorder	28	5.2
Dysthymic disorder	51	9.6
Generalized anxiety disorder	101	18.9
Panic disorder	94	17.6
Social phobia	134	25.1
Specific phobia	63	11.8
Obsessive-compulsive disorder	27	5.1
Posttraumatic stress disorder	52	9.7
Adjustment disorder	53	9.9
Schizophrenia	1	0.2
Eating disorder	34	6.4
Alcohol abuse/dependence	89	16.7
Drug abuse/dependence	60	11.2
Somatoform disorder	56	10.5
Attention deficit disorder	80	15.0
Impulse control disorder	83	15.5

bipolar disorder. The majority of the 52 patients with bipolar disorder were diagnosed with bipolar I (n = 18) or bipolar II (n = 21) disorder. In addition, 8 patients were diagnosed with bipolar disorder not otherwise specified, and 5 were diagnosed with cyclothymia. The prevalence of borderline personality disorder (9.2%, n = 44) was slightly lower than the prevalence of bipolar disorder. Twelve patients were diagnosed with both bipolar disorder and borderline personality disorder. One-fifth of the patients (20.4%, n = 98) screened positive on the MDQ. Approximately an equal number of patients who screened positive on the MDQ were diagnosed with bipolar disorder (23.5%, n = 23) and borderline personality disorder (27.6%, n = 27).

We compared the patients who did and did not screen positive on the MDQ in their frequency of *DSM-IV* borderline personality disorder diagnoses and individual criteria. Because of the comorbidity between bipolar disorder and borderline personality disorder, we conducted the analysis on the 428 patients without a lifetime history of bipolar disorder, 65 (15.2%) of whom screened positive on the MDQ. Borderline personality disorder was 4 times more frequently diagnosed in the MDQ positive group (21.5% vs 4.1%; OR = 6.4; 95% CI, 2.9–13.9; $P < .001$). The results were essentially the same when the analysis was restricted to the 188 patients with a current diagnosis of major depressive disorder (27.6% vs 6.9%; OR = 5.1; 95% CI, 1.9–14.2; $P = .001$). Eight of the 9 *DSM-IV* borderline personality disorder criteria were significantly more frequent in the patients who screened positive for bipolar disorder than patients who screened negative (Table 3). The largest differences were for the affective instability and impulsivity criteria.

DISCUSSION

Bipolar disorder is usually a historical diagnosis based on a retrospective report of a prior manic or hypomanic episode. Unless specific inquiry is made for such a history, it is likely to go undetected, and patients presenting for

Table 3. DSM-IV Borderline Personality Disorder Criteria in Psychiatric Outpatients Who Did and Did Not Screen Positive for Bipolar Disorder on the Mood Disorder Questionnaire (MDQ)

Borderline Personality Disorder Criterion	MDQ Positive (n = 65) ^a		MDQ Negative (n = 363)		OR	CI	P Value
	%	n	%	n			
Abandonment fear	11.1	7	3.0	11	4.0	1.5–10.8	.003
Unstable interpersonal relationships	25.4	16	8.0	29	3.9	1.9–7.8	.000
Identity disturbance	20.6	13	8.8	32	2.7	1.3–5.5	.005
Impulsivity	50.8	32	11.8	43	7.7	4.3–13.8	.000
Self-injurious or suicidal behavior	9.7	6	5.2	19	1.9	0.7–5.1	NS
Affective instability	46.0	29	14.0	51	5.2	2.9–9.2	.000
Chronic emptiness	41.3	26	19.8	72	2.8	1.6–5.0	.000
Excessive anger	36.5	23	15.2	55	3.2	1.8–5.8	.000
Transient paranoia or dissociation	15.9	10	5.2	19	3.4	1.5–7.7	.002

^aBorderline Personality Disorder was not evaluated in 2 subjects.

Abbreviation: NS = not significant.

the treatment of depression will be diagnosed with major depressive disorder rather than bipolar disorder. It is therefore not surprising that bipolar disorder is often underdiagnosed,^{4–13} or diagnosed only after the patient has been in treatment over a long period of time.^{33,34} As a result of such findings, several experts have called for efforts to improve diagnostic recognition, including the use of screening measures for bipolar disorder.^{4,9,11,35–39}

Upon presentation for treatment, it is sometimes difficult to distinguish between bipolar disorder and borderline personality disorder. Patients with either of these disorders are frequently depressed, have an early age at onset, abuse substances, have comorbid anxiety disorders, engage in impulsive and risky behaviors, report strong swings in their mood, and attempt suicide. The similarities in clinical and diagnostic correlates can result in diagnostic confusion and uncertainty. In the face of such uncertainty, clinicians may benefit from the use of a standardized, validated tool to assist with diagnosis.

The MDQ is the most widely studied screening scale for bipolar disorder. The operating characteristics of the MDQ have been examined in general population community settings, general psychiatric outpatient clinics, specialty mood disorder programs, and primary care patients. Based on the scoring guidelines suggested by Hirschfeld and colleagues,¹⁵ the sensitivity of the scale has ranged from 0.0%⁴⁰ to 91.4%,^{41,42} and its specificity has ranged from 47.1%⁴³ to 97.2%.¹⁹ We are not aware of any studies that have examined diagnoses in patients who are false positive on the MDQ. In the present study, we found that among patients who screened positive on the MDQ, as many patients were diagnosed with borderline personality disorder as were diagnosed with bipolar disorder. There was a 5- to 6-fold increase in the frequency of borderline personality disorder in the MDQ positive group compared to the MDQ negative group. The nonspecificity of the MDQ is not surprising in light of the overlap of features between bipolar disorder and borderline personality disorder. It is readily understandable how patients with borderline personality disorder would respond positively to many of the MDQ items.

The failure of the MDQ to adequately distinguish between borderline personality disorder and bipolar disorder is a clinically important issue only if the distinction

between these 2 disorders has treatment implications. The efficacy of pharmacologic interventions is well established for treating bipolar disorder, particularly bipolar I disorder,⁴⁴ whereas no medications have been approved for the treatment of borderline personality disorder. However, some of the same medications used in the treatment of bipolar disorder have been found to be of some benefit for different aspects of borderline personality disorder,¹ though not for the syndrome as a whole. Evidence continues to emerge establishing the efficacy of certain forms of psychotherapy for borderline personality disorder,^{45–47} whereas other forms of psychotherapy are of benefit for bipolar disorder.^{48,49} Therefore, distinguishing between borderline personality disorder and bipolar disorder has important treatment implications, and reliance on the MDQ to detect bipolar disorder could be problematic because of the possibility of diagnostic misclassification.

The MDQ has been widely promoted as a screening measure for bipolar disorder. Several review articles and commentaries have recommended its use to improve the detection of bipolar disorder.^{4,9,11,35–39} The MDQ is available for individuals to self-administer on the Web sites of some pharmaceutical companies. The risk associated with such wide promotion of a scale that has more false positives than true positives is that some individuals will be overdiagnosed with bipolar disorder. While the MDQ is intended and described as a screening questionnaire and not a diagnostic tool, some studies have, nonetheless, used the scale as a case-finding measure and discussed problems with the recognition of bipolar disorder on the basis of MDQ results.^{50,51}

Before concluding, it is important to consider an alternative explanation of our findings—that the diagnosticians incorrectly diagnosed some patients with bipolar disorder as having borderline personality disorder. The performance of a screening test can only be as good as the validity of the standard to which it is compared. While we were able to diagnose each condition reliably, that does not ensure each was diagnosed validly. However, in our previous article on problems with the diagnosis of bipolar disorder, we validated our diagnostic methodology by demonstrating an increased morbid risk for bipolar disorder in the first-degree relatives of probands with bipolar disorder compared to probands without bipolar disorder.²⁹ In addition, in an article on

borderline personality disorder from our group, we found predicted clinical differences between patients with and without the disorder.⁵² In a more recent analysis, we found that while differences between depressed patients with and without borderline personality disorder were similar to differences typically found between bipolar and nonbipolar depressives, the one important exception was with regards to a family history of bipolar disorder. That is, depressed patients with and without borderline personality disorder did not significantly differ in their morbid risk for bipolar disorder in first-degree relatives.⁵³

In conclusion, positive results on the MDQ are as likely to indicate that a patient has borderline personality disorder as bipolar disorder. Routine use of the scale in clinical practice could result in some patients with borderline personality disorder being incorrectly diagnosed with bipolar disorder and, thus, not receive appropriate treatment. A limitation of the present study is that it was conducted in a single outpatient practice in which the majority of the patients were white and female and had health insurance. Replication of the results in samples with different demographic characteristics is warranted. Strengths of the study are the large sample size and the use of highly trained diagnostic interviewers to reliably administer semistructured diagnostic interviews.

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