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ABSTRACT

Background: The Mood Disorder Questionnaire (MDQ), a screening instrument for Bipolar I and Bipolar II Disorders was previously validated in a psychiatric outpatient population.

Objective: To test the utility of the MDQ in the general United States (US) population.

Method: 695 subjects were selected from a nationally representative sample of 85,358 participants in a US epidemiology study (The Prevalence Study). The sample was balanced for MDQ score (0 - 13) and 2000 US Census data. Subjects were contacted by telephone from January to August 2001 and completed a SCID diagnostic interview with a researcher blinded to MDQ scores. Sensitivity and specificity, relative to SCID diagnosis, were calculated for each MDQ score and were plotted as a Receiver Operating Characteristics Curve. Sensitivity equaled the percent of criterion standard diagnoses correctly diagnosed by the MDQ, and specificity equaled the percent of criterion standard non-cases correctly identified by the MDQ.

Results: MDQ sensitivity was 0.81 and specificity was 0.65.

Conclusion: The MDQ may be a useful screening instrument for Bipolar I and II Disorders in the general US population.

INTRODUCTION

Bipolar I and II Disorders have prevalence rates ranging from 3% to 6.5%, significantly higher than the 1% prevalence reported for Bipolar I disorder alone.¹ Many authorities have suggested that milder forms of bipolar disorder occur more frequently than Bipolar I Disorder. As a result, Bipolar I and II often go unrecognized and under-diagnosed, resulting in substantial delays in appropriate medical treatment.²

A report in the *American Journal of Psychiatry* recently described a screening instrument for bipolar disorder, the Mood Disorder Questionnaire (MDQ).³ In that report, the MDQ was validated using a patient sample drawn from psychiatric outpatient clinics, indicating 0.73 sensitivity and 0.90 specificity against a SCID research interview.

The goal of the present study was to determine the MDQ's operating characteristics in a general population sample in the US.

METHODS

Sample

A randomly-selected subset of adults from a large general population epidemiology study (The Prevalence Study) participated. Subjects were stratified by MDQ score (0 to 13), with approximately 50 subjects at each individual score.

Measures

Mood Disorder Questionnaire A self-report inventory of 13 yes/no items derived from DSM-IV criteria and clinical experience.³ A positive MDQ screen was defined as 7 or more symptoms/behaviors, co-occurrence of at least two symptoms, and symptoms that caused at least moderate psychosocial impairment.

Structured Clinical Interview for DSM-IV An abbreviated SCID included the mood disorder, substance abuse, and dependence modules as well as selected background information.

Study Procedures

12 experienced psychiatric research interviewers conducted the study at one site. Each interviewer was trained in the abbreviated form of the Structured Clinical Interview for DSM-IV (SCID).⁴ Subjects were contacted by telephone and given the SCID interview by an interviewer blinded to the MDQ results. Interviews were performed from January to August, 2001. An institutional review board approved the study protocol.

Statistical Analysis

Data were captured directly from the SCID interviews into Microsoft Access using an Active Server Page application and analyzed using SAS 8.0 for Windows (SAS Institute Inc., Cary, NC).

Sensitivity and specificity relative to the SCID diagnosis of BD, as a diagnostic standard, were calculated for each possible MDQ symptom cutoff score and were plotted as a Receiver Operating Characteristics (ROC) Curve. Sensitivity is defined as the percent of criterion standard diagnoses correctly diagnosed by the MDQ, and specificity is defined as the percent of criterion standard non-cases correctly identified as non-cases by the MDQ.

RESULTS

Population Demographic Characteristics

N=695	
Gender, n (%)	389 (56)
Male	
Ethnicity, n (%)	619 (89)
White	35 (5)
Black	21 (3)
Hispanic	20 (3)
Other	
Age, Years	56 (8)
18 - 24	125 (18)
25 - 34	167 (24)
35 - 44	146 (21)
45 - 54	83 (12)
55 - 64	
65+	118 (17)

Mood Disorder Questionnaire

- Frequency of MDQ endorsement: 29.9% - 68.6%
- Highest MDQ Endorsements:
 - "irritable" 68.6%
 - "easily distracted" 66.6
 - "thoughts raced" 60.9%
- Cronbach's alpha: 0.87 (MDQ symptom items)
- Individual MDQ item correlation with the total symptom score: 0.40 - 0.63

Structured Clinical Interview

- 78 subjects met criteria for lifetime BD: 70 Bipolar I, 8 Bipolar II
- 25% Lifetime incidence of substance abuse:
 - 22% alcohol, 12% drugs
 - 4.5% Current diagnosis of substance abuse:
 - 2.5% alcohol, 2.8% drugs

MDQ versus SCID Dx

- Sensitivity = 0.81 (95% CI = 0.72 - 0.90)
- Specificity = 0.65 (95% CI = 0.61 - 0.68)

The Effect of Case Definition on Sensitivity & Specificity of Positive Cases

MDQ Positive Definition	Sensitivity	Specificity
7 + MDQ items Only	0.89	0.49
7 + MDQ items & Co-occurrence	0.85	0.54
7 + MDQ items & Impairment	0.82	0.64
7 + MDQ items & Co-occurrence & Impairment	0.81	0.65

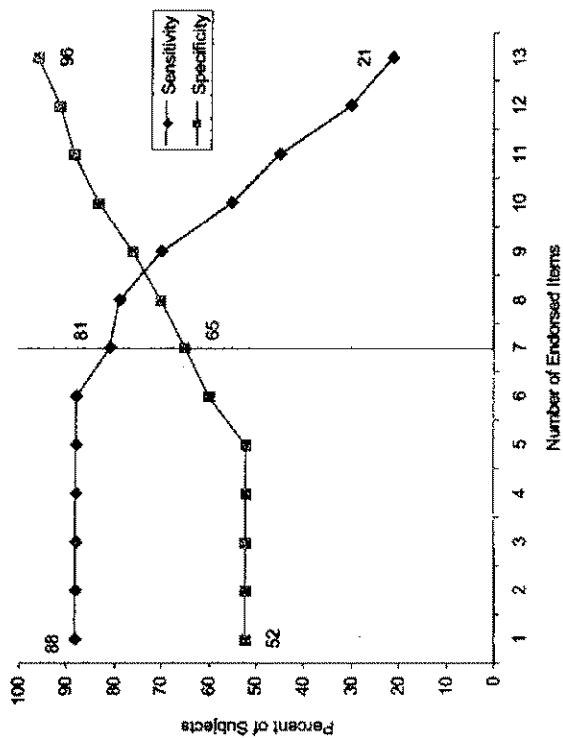


Figure 1. Operating characteristics of the Mood Disorder Questionnaire in a general population. A positive case was defined as a score of 7 or higher (vertical line), a "yes" to the question of symptom co-occurrence and symptoms that caused moderate or severe impairment.

CONCLUSIONS

- The MDQ had a sensitivity of 0.81 and specificity of 0.65 versus a SCID diagnosis.
- Sensitivity compared favorably to that measured in a psychiatric outpatient population (0.79).
- Specificity was lower in a general population, compared with a psychiatric outpatient population (0.90). Differences may be attributable to co-morbid substance abuse without mood disorder resulting in a false positive screen.
- The co-occurrence MDQ question adds little to the sensitivity and specificity. However, the impairment question on the MDQ adds substantially to the sensitivity.
- The relatively low frequency of SCID-diagnosed Bipolar II subjects compared with Bipolar I was unexpected, and may reflect poor sensitivity of the SCID for Bipolar II.
- The MDQ may be a useful screening tool to assist practitioners in identifying Bipolar I & II Disorder in the general US population.

REFERENCES

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