Impact of Depressive Symptoms Compared With Manic Symptoms in Bipolar Disorder: Results of a U.S. Community-Based Sample

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Objective: In the present study, we assessed the functional impact of depressive versus manic symptoms in bipolar disorder.

Method: A survey comprising the Sheehan Disability Scale (SDS), the Social Adjustment Scale Self-Report (SAS-SR), the Mood Disorder Questionnaire (MDQ), and other questions was mailed to a representative subset of 4810 individuals (with or without bipolar disorder) from a U.S. population-based epidemiologic study conducted in 2001.

Results: Of the 3191 evaluable surveys returned, 593 respondents screened positive for bipolar disorder on the MDQ and/or reported a physician diagnosis of bipolar disorder. In the 4 weeks prior to the survey, subjects reported a mean of 12.4 days of depressive symptoms and 7.0 days of manic symptoms ($p < .0001$). The majority of days with depressive (79.8%) and manic (77.1%) symptoms were disruptive. Both total and mean scores on each domain of the SDS (work, social life, family life) reflect significantly greater impairment because of depressive versus manic symptoms during the 4 weeks prior to the survey ($p < .0001$). Among the 118 employed subjects who missed at least 1 day of work in the past month, more workdays were missed because of depressive versus manic symptoms (0.78 vs. 0.15, $p < .004$). For each domain of the SAS-SR, functional impairment was attributed significantly more often to depressive symptoms than manic symptoms ($p < .0001$). Similar results were observed for the 12 months preceding the survey.

Conclusions: Self-reported depressive symptoms are more frequent than manic symptoms and cause greater disruption of occupational, family, and social functioning. These findings underscore the need to improve the recognition and management of bipolar depression.

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Bipolar disorder is characterized by periods of clinical depression interposed with episodes of mania or hypomania and with "mixed" episodes having both depressive and manic features.[1] For many patients, depression is the predominant mood state in that it occurs earlier during the course of illness, recurs more often, and lasts longer than does mania.[2–4] Both during and between mood episodes, patients experience cognitive, emotional, and physical impairment that reduces their functional ability and impacts the lives of their families and caregivers.[5–7] Occupational and psychosocial morbidity are considerable. Approximately two thirds (64%) of those with bipolar disorder in a recent 2839-patient study, for example, were unemployed.[8] The vast majority of attempted or completed suicides occur during the depressive phase rather than the manic phase of the illness.[8–10]

Despite the predominance of depressive symptoms in bipolar disorder and their greater lethality than manic symptoms, depression has historically been neglected relative to mania in the diagnosis and management of bipolar illness.[4,11] This neglect has been attributed to the pathognomonic nature of mania, which often presents more dramatically than does depression, and to the lack of effective maintenance treatment for bipolar depressive symptoms.[11] As depressive symptoms are important determinants of morbidity and mortality, increased efforts to better understand the impact of bipolar depression, to improve recognition of bipolar depression, and to manage depressive symptoms more effectively, particularly over

the long term, are warranted.[4,11] This article reports the results of a U.S. community-based study conducted to assess the functional impact of depressive symptoms compared with the functional impact of manic symptoms in bipolar disorder.

METHOD

Data Source

Methods are fully described elsewhere[12,13] and are summarized briefly here. Subjects were sampled from the National Family Opinion nationwide panel of more than 600,000 households representative of the U.S. population with respect to age, sex, census region, population density, household size, and household income. The Mood Disorder Questionnaire (MDQ), a bipolar disorder screening tool that has been validated in both the psychiatric outpatient setting and the general U.S. population,[14–16] was mailed in January 2001 to 127,800 subjects at least 18 years of age. Evaluable surveys were returned by 85,358 respondents (66.8%). Similar to previous studies utilizing the MDQ, respondents were considered to have screened positive for bipolar disorder (i.e., to be MDQ-positive) if they reported the presence of 7 of 13 bipolar disorder symptoms, the co-occurrence of 2 or more symptoms, and moderate or severe symptom-related impairment.

Procedures

In March/April 2002, a sample of respondents to the January 2001 survey was stratified by MDQ score; balanced to reflect demography within each stratum based on age, sex, census region, population density, household size, and household income; and administered a second survey. The 2002 survey consisted of questions regarding symptom frequency and symptom disruptiveness, consultation patterns, and occupational and psychosocial impacts of symptoms.

Symptom frequency and disruptiveness were assessed with the question "How many days during the past 4 weeks did you experience hyper/energetic feelings and on how many days were they disruptive?" This question was repeated for sad/down feelings: "How many days during the past 4 weeks did you experience sad/down feelings and on how many days were they disruptive?" For each type of symptom (hyper/energetic and sad/down), answer boxes were provided for number of days experienced and number of days disruptive. This question was repeated with reference to symptoms during the past 12 months.

Consultation patterns were assessed with the following questions, asked with reference to both hyper/energetic and sad/down feelings: "Have you *ever* consulted a physician or other health professional about these [hyper/energetic or sad/down] feelings?" "What type of physician or health care professional have you *ever* talked with or consulted about these [hyper/energetic or sad/down] feelings?" and "What type of physician or health care professional do you speak with or consult *most often* about these [hyper/energetic or sad/down] feelings?" For the latter 2 questions, respondents chose from a list of categories of health care providers.

Occupational and psychosocial impacts of symptoms were assessed with the Sheehan Disability Scale (SDS) and the Social Adjustment Scale Self-Report (SAS-SR). The SDS measures the degree of perceived life disruption attributed to a given disorder or symptom[17] and was originally developed for use in psychiatric disorders but has also been widely used to assess the impact of a variety of nonpsychiatric conditions encountered in the primary care setting.[18] The scale encompasses 3 domains: work, social life, and family life/home responsibilities. Scores on each domain range from 0 to 10. Scores of 1 to 3, 4 to 6, 7 to 9, and 10 correspond to mild, moderate, marked, and extreme disruption, respectively. Total scores range from 0 to 30. Internal consistency reliability (Cronbach α) and validity are high for the total score as well as the scores for each domain.[19]

The SAS-SR is composed of questions assessing ability to adapt to and derive satisfaction from social roles.[20] The instrument includes items on work, work performance, work interest, and relationships. Subjects reported their current employment status and level of functioning over the past month for each domain on a 5-point scale on which higher scores reflect poorer functioning. SAS-SR questions addressed missing days of paid work, unpaid housework, and schoolwork; doing work poorly or being unable to do work, housework, and schoolwork; feeling ashamed of work, housework, and schoolwork; having arguments with people outside the home; feeling upset at work, school, and during housework; and feeling disinterested in work, housework, and schoolwork. For each domain on which impairment was reported, respondents were asked to attribute the impairment to hyper/energetic feelings, sad/down feelings, other health problems, or reasons not related to health.

Data Analysis

Data from MDQ-positive individuals and those who reported a physician diagnosis of bipolar disorder were analyzed. The original outgoing surveys were balanced to match U.S. demography. However, the surveys that were returned included a higher proportion of some demographic groups. Data were postweighted to correct for oversampling of low-incidence demographic groups; thus, the data analyzed more closely reflect the original sample and U.S. demographics. Statistical analyses were performed using the WesVar (Westat, Rockville, Md.) software package, which is designed to accommodate complex probability samples and weighted survey data. Paired t tests were used to assess within-subject differences in the functional impact of depressive symptoms versus manic

symptoms. The degrees of freedom, the number of values that are free to vary after certain restrictions are placed upon the data, are presented for each statistic.

RESULTS

Sample Characteristics

The survey was mailed to 4810 individuals, 3191 of whom returned evaluable surveys (66% response rate). Data from the 593 respondents who were MDQ-positive and/or who reported a physician diagnosis of bipolar disorder were analyzed (mean age = 37; SD = 12; 51% female). Most respondents were white (89%) and were not of Spanish/Hispanic descent (92%). Demographics for the sample are shown in Table 1.

Frequency and Disruption of Symptoms

In considering the 4 weeks prior to the survey, subjects reported depressive symptoms on a mean of 12.4 days and manic symptoms on 7.0 days ($t = 4.96$, $df = 443$, $p < .0001$). A mean of 9.9 days with depressive symptoms (79.8% of total depressive days) and 5.4 days with manic symptoms (77.1% of total manic days) were disruptive. In considering the 12 months prior to the survey, subjects reported depressive symptoms on a mean of 133.9 days and manic symptoms on 76.3 days ($t = 8.21$, $df = 474$, $p < .0001$). A mean of 103.3 days with depressive symptoms (77.2% of total depressive days) and 53.2 days with manic symptoms (69.7% of total manic days) were disruptive.

During the 4 weeks prior to the survey, subjects reported depressive symptoms on 44% of days and manic symptoms on 25% of days ($t = 4.96$, $df = 443$, $p < .0001$). (Both manic and depressive symptoms could have been reported for a given day.) Reporting on the 12 months prior to the survey, subjects reported depressive symptoms on 37% of days and manic symptoms on 21% of days ($t = 8.21$, $df = 474$, $p < .0001$).

Consulting Patterns

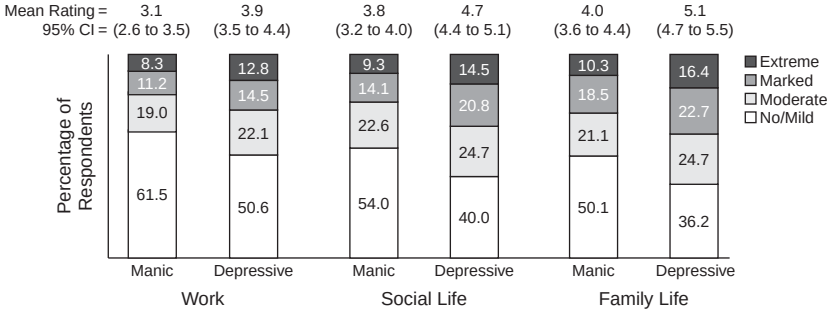
Depressive symptoms were significantly more likely than manic symptoms to be a reason for *ever* consulting a physician or other health professional (59% of subjects vs. 46% of subjects; $t = 3.79$, $df = 592$, $p < .0001$), a psychiatrist (51% of subjects vs. 43% of subjects; $t = 2.00$, $df = 592$, $p < .048$), a primary care provider (59% of subjects vs. 40% of subjects; $t = 4.70$, $df = 592$, $p < .0001$), and a psychologist/counselor (60% of subjects vs. 47% of subjects; $t = 3.15$, $df = 592$, $p < .002$). A primary care provider was reported as the health professional consulted *most often* for depressive symptoms by 32% of subjects and for manic symptoms by 21% of subjects ($t = 3.35$, $df = 592$, $p < .001$). No statistically significant differences were observed between symptom types (depressive vs. manic) for other categories of health care providers con-

Table 1. Demographics of 593 Survey Respondents Who Were MDQ-Positive and/or Reported a Physician Diagnosis of Bipolar Disorder[a]

Variable	N (%)
Sex	
Female	302 (51)
Ethnicity	
White	528 (89)
Black	18 (3)
Asian/Pacific Islander	12 (2)
American Indian Aleut, Eskimo	6 (1)
Other	6 (1)
Unknown	23 (4)
Spanish/Hispanic descent	
Yes	18 (3)
No	545 (92)
Unknown	30 (5)
Age, y	
18–24	101 (17)
25–34	184 (31)
35–44	148 (25)
45–54	107 (18)
55–64	41 (7)
≥ 65	12 (2)
Region	
New England	18 (3)
Middle Atlantic	65 (11)
East North Central	113 (19)
West North Central	47 (8)
South Atlantic	95 (16)
East South Central	47 (8)
West South Central	77 (13)
Mountain	36 (6)
Pacific	95 (16)
Population density	
≤ 100,000 (rural)	142 (24)
100,000 to 499,999	95 (16)
500,000 to 2,000,000	125 (21)
> 2,000,000	231 (39)
No. of residents in household	
1	113 (19)
2	172 (29)
3	118 (20)
4	101 (17)
≥ 5	89 (15)
Annual household income	
< $20,000	184 (31)
$20,000 to $34,999	136 (24)
$35,000 to $54,999	119 (20)
$55,000 to $84,999	101 (17)
≥ $85,000	53 (9)
Comorbid psychiatric conditions	
Depression	394 (54)
Anxiety	310 (45)
Panic attacks	181 (27)
Nervous breakdown	108 (11)
Behavioral problem	73 (10)
Eating disorder	62 (7)
Other comorbid conditions	
Allergies	277 (39)
Arthritis	215 (24)
High blood pressure	184 (24)
High cholesterol	177 (19)
Migraine	174 (26)
Chronic pain	173 (21)
Obesity	158 (19)
Asthma	117 (16)
Alcohol problems	99 (16)
Diabetes	79 (10)
Chronic fatigue	56 (7)
Heart attack	42 (4)
Emphysema or chronic obstructive pulmonary disease	33 (2)
Epilepsy/seizure disease	20 (3)

[a]Percents are based on weighted data and therefore will not be calculable based on unweighted Ns.
Abbreviation: MDQ = Mood Disorder Questionnaire.

Figure 1. Mean Sheehan Disability Scale (SDS) Domain Scores (95% CI) and Percentages of 593 Survey Respondents Reporting Varying Degrees of Disruption in the SDS Domains of Work, Social Life, and Family Life[a]



[a]$p < .0001$ for depressive symptoms versus manic symptoms in each domain.

sulted *most often* (psychologists/counselors [27% for depressive symptoms, 24% for manic symptoms], psychiatrists [25% for depressive symptoms, 25% for manic symptoms]).

Psychosocial and Occupational Impairment

Mean scores on each domain of the SDS reflect significantly greater impairment because of depressive symptoms compared with manic symptoms during the 4 weeks prior to the survey ($p < .0001$ for work [$t = 5.27$, $df = 549$], social life [$t = 56.72$, $df = 576$], and family life [$t = 5.43$, $df = 583$]; Figure 1). The percentages of subjects attributing moderate or greater impairment (SDS score of ≥ 4) to depressive symptoms were 49% for work, 60% for social life, and 64% for family life. The percentages of subjects attributing moderate or greater impairment to manic symptoms were 39% for work, 46% for social life, and 50% for family life. Total SDS score for all respondents for the 4 weeks prior to the survey was 13.6 (95% CI = 12.4 to 14.7) for depressive symptoms and 10.5 (95% CI = 9.3 to 11.7) for manic symptoms ($t = 6.52$, $df = 574$, $p < .0001$).

The same pattern of SDS results was observed for the 12 months prior to the survey ($p < .0001$) for mean scores for manic symptoms versus depressive symptoms for work ($t = 5.17$, $df = 550$), social life ($t = 7.24$, $df = 570$), and family life ($t = 6.63$, $df = 575$). Total SDS score for all respondents for the 12 months prior to the survey was 13.1 (95% CI = 12.2 to 13.9) for depressive symptoms and 9.8 (95% CI = 8.8 to 10.8) for manic symptoms ($t = 6.72$, $df = 549$, $p < .0001$).

Current employment status was recorded on the SAS-SR by 579 subjects. Approximately half of respondents reported having full-time employment (50.1%) or part-time employment (3.3%). The remainder of respondents reported that they were unpaid homemakers (12.2%), students (3.6%), retired (5.6%), actively seeking employment (6.4%), unemployed because of a diagnosed emotional disability (13.7%), and unemployed because of a diagnosed physical disability (5.3%).

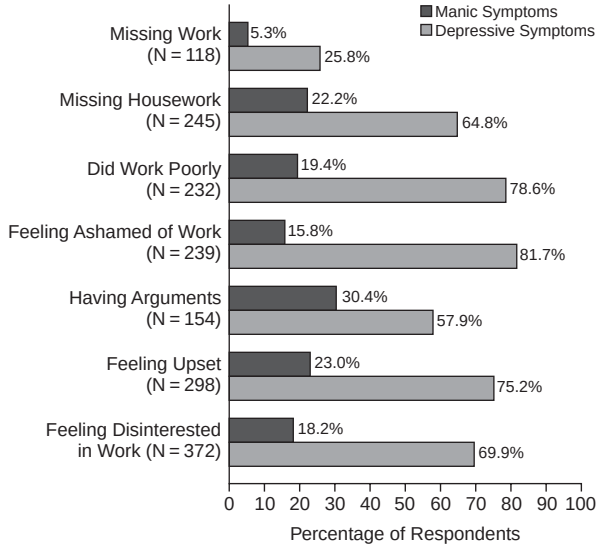
A total of 118 subjects (50.4% of those employed full-time or part-time) reported missing at least 1 day of work in the month before the survey. The mean number of workdays missed was 0.78 (95% CI = 0.33 to 1.22) because of depressive symptoms and 0.15 (95% CI = 0.02 to 0.29) because of manic symptoms ($t = 2.98$, $df = 117$, $p < .004$). A total of 245 subjects (53.2% of those reporting that unpaid housework was a significant activity) were unable to do housework on at least 1 day in the month before the survey. The mean number of housework days missed was 5.78 (95% CI = 4.89 to 6.67) because of depressive symptoms and 1.85 (95% CI = 1.14 to 2.55) because of manic symptoms ($t = 10.63$, $df = 244$, $p < .0001$). Because of the small number of respondents attending school, meaningful estimates of days missed and impairment attributed to manic or depressive symptoms could not be calculated.

Subjects also reported impairment on the other SAS-SR domains. The percentage of all respondents reporting impairment was 33.4% for "did work poorly," 33.3% for "feeling ashamed of work," 27.2% for "having arguments," 49.9% for "feeling upset," and 59.9% for "feeling disinterest in work." For each of these domains, functional impairment was attributed significantly more often to depressive symptoms than manic symptoms (Figure 2; $p < .0001$ for each domain).

DISCUSSION

The results of this study show that, compared with manic symptoms, depressive symptoms are more frequent and debilitating and are more often reasons for consulting a psychiatrist or physician. In this U.S. community-based sample, depressive symptoms were experienced 1½ times more frequently than manic symptoms. These data, obtained via patient self-report, corroborate results of a 2002 clinic-based study of 146 patients with bipolar I disorder

Figure 2. Percentage of 593 Survey Respondents Attributing Disruption in Social Adjustment Scale Self-Report Domains to Depressive Symptoms Versus Manic Symptoms[a,b]



[a]$p < .0001$ for each domain.
[b]Percents are based on weighted data and therefore will not be calculable based on unweighted Ns.

assessed weekly for their symptoms over a mean follow-up period of 12.8 years[2] and the results of a 2003 report of a clinic-based study of 86 patients with bipolar II disorder assessed weekly over a mean follow-up period of 13.4 years.[21] In the former study, for example, patients experienced mood symptoms approximately half (47%) of the time. Depressive symptoms, present during 68% of the total weeks with symptoms, were 3 times more frequent than manic symptoms and 5 times more frequent than mixed symptoms.

The high frequency of depressive symptoms in that clinic-based study and the current community-based study is of concern in the context of the recent demonstration that length of time spent depressed predicts long-term outcome in bipolar disorder. In a study of 113 patients with bipolar disorder followed for 15 years, the total number of weeks of depressive symptoms during the first 2 years of follow-up predicted the presence of depressive symptoms 15 years later.[22] Furthermore, severity and persistence of depressive symptoms, but not manic symptoms, during the first 2 years of follow-up independently predicted poor long-term prognosis, which was defined as presence of at least moderately severe symptoms of depression, mania, or schizoaffective disorder throughout the 15th year of follow-up. These findings underscore the importance of effective prevention and treatment of depressive episodes.

Mood symptoms disrupted all aspects of daily functioning including work, social life, and family life in this U.S. community-based sample. Both mania- and depression-associated functional impairment were reported, but respondents consistently attributed functional impairment more often to depressive symptoms than to manic symptoms. These findings suggest that the historic focus, in research and in the clinic, on treatment of mania may be misguided and highlight the importance of increased efforts to treat depression among patients with bipolar disorder.

The respondents in the current study were more likely to consult a physician or psychiatrist for depression than for mania, a finding that may be attributed to the greater frequency and impact of depressive symptoms relative to manic symptoms. The lower consultation rates for mania may also be attributed to the feeling of well-being that often accompanies hypomanic or manic states and to patients' lack of awareness that their manic or hypomanic symptoms warrant medical attention. On the other hand, recent data contradict the impression that mania and hypomania are associated with a sense of improved well-being by showing that patient-reported quality of life is impaired during hypomanic or manic episodes.[23]

The data from this study should be interpreted in the context of the limitations of the study. Despite the broad range of symptoms that are encompassed by manic or depressive symptoms, this study looked specifically at hyper/energetic feelings and sad/down feelings. These terms were used instead of mania and depression because they were considered more patient-friendly terms. The diagnosis of bipolar disorder was not verified through a clinical interview, the gold standard for valid diagnoses within psychiatry; patients either screened positive for bipolar disorder on the MDQ, a validated screening tool and not a diagnostic instrument, and/or self-reported a physician diagnosis of bipolar disorder. Additionally, because patients were asked to complete the survey based on their experience in the 4 weeks and 1 year prior to the survey, results may be subject to recall bias, particularly for the data collected for the 1 year prior to the survey because "the accuracy of reporting is threatened as the length of the recall period increases."[24(pS20)]

The degree to which patients evaluating current or past mood episodes can accurately judge the extent of mood-associated functional impairment has not been determined. While some research suggests that patients can accurately self-judge the functional impact of mood,[25] it is possible that respondents' self-assessments of the functional impact of mood are not wholly reliable. For example, because of the sense of well-being that may accompany manic or hypomanic, but not depressive, episodes, patients may be more likely to perceive depressive symptoms than manic symptoms as being debilitating regardless of the objective level of mood-associated functional impairment. In the same vein, respondents may underreport the occurrence of manic symptoms compared with depressive symptoms. Therefore, the study may be subject to bias, which would favor the result that depressive symptoms are associated

with greater burden than manic symptoms. The use of respondents' self-reports as a primary data source thus constitutes a limitation of this study. However, the consistency of the data from the current study with findings of studies in which clinicians, rather than patients, assessed mood symptoms lends credence to the results.[2,22] Overall, the use of such a survey allows a low-cost method to assess the impact of manic and depressive symptoms in a large nationally representative sample.

In conclusion, this U.S. community-based study shows that, according to patients' self-reports, bipolar depressive symptoms compared with manic symptoms are more frequent and cause significantly greater disruption of occupational, family, and social functioning. Considered in the context of the high mortality rates associated with the depressive pole of bipolar illness, these findings underscore the need to improve the recognition and management of depression in bipolar disorder.

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