Use of Treatment Services and Pharmacotherapy for Bipolar Disorder in a General Population–Based Mental Health Survey

Ayal Schaffer, M.D., F.R.C.P.C.; John Cairney, Ph.D.; Amy H. Cheung, M.D., F.R.C.P.C.; Scott Veldhuizen, B.A.; and Anthony J. Levitt, M.D., F.R.C.P.C.

Objective: This study examined characteristics of treatment utilization in a large general population–based sample of bipolar subjects.

Method: Data source was the Canadian Community Health Survey–Mental Health and Well-Being, a nationally representative, community mental health survey of over 36,000 individuals conducted from May to December 2002. Subjects who met study criteria for a current or past manic episode were classified as having bipolar disorder. Sociodemographic and illness-related factors influencing likelihood of accessing treatment, delay to contact with treatment services, and use of pharmacotherapy among bipolar subjects were determined.

Results: Among the 852 bipolar subjects, 45.2% had never accessed treatment services. Male gender ($p = .001$), lower level of education ($p = .003$), and immigrant status ($p < .001$) were each significantly negatively correlated with use of treatment services. Mean delay from illness onset to contact with any treatment services was 3.1 years. Sixty-six percent of bipolar subjects had not taken a mood stabilizer or antidepressant medication in the past year, and 22% used antidepressants without a mood stabilizer. Female bipolar subjects were significantly more likely than male subjects to be prescribed an antidepressant medication (OR = 1.99, $p = .01$), even in the absence of higher frequency of recent depressions.

Conclusion: Many individuals with bipolar disorder never receive any form of mental health treatment, and, among those that do, use of pharmacotherapy is not consistent with guideline-based recommendations. These findings reinforce the importance of continued efforts to better identify bipolar individuals early in their course of illness, and the need for further educational focus on bipolar disorder for all mental health treatment providers.

(J Clin Psychiatry 2006;67:386–393)

Received Sept. 14, 2005; accepted Jan. 3, 2006. *From the Department of Psychiatry, Sunnybrook & Women's College Health Sciences Centre, University of Toronto (Drs. Schaffer, Cheung, and Levitt); Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health, Departments of Psychiatry and Public Health Science, University of Toronto (Dr. Cairney); and Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health (Mr. Veldhuizen), Toronto, Canada.*

Fully supported by a grant from the Ontario Mental Health Foundation/Ministry of Health and Long-Term Care, Ontario, Canada.

Dr. Schaffer has received grant/research support from Sanofi-Aventis, has received honoraria from Eli Lilly Canada, and has served on the speakers or advisory boards of Eli Lilly Canada and AstraZeneca. Dr. Cheung has served on the speakers or advisory boards of Eli Lilly. Dr. Levitt has been a consultant to Janssen and Eli Lilly; has received grant/research support from Sanofi-Aventis; and has received honoraria from Eli Lilly, Janssen, and Lundbeck. Dr. Cairney and Mr. Veldhuizen report no additional financial or other relationships relevant to the subject of this article.

Corresponding author and reprints: Ayal Schaffer, M.D., F.R.C.P.C., Department of Psychiatry, Sunnybrook & Women's College Health Sciences Centre, 2075 Bayview Ave., Toronto, Ontario, Canada, M4N 3M5 (e-mail: ayal.schaffer@sw.ca).

Bipolar disorder is a chronic illness associated with significant functional impairment.[1,2] Despite the availability of effective pharmacologic and psychosocial treatments, 26% to 62% of individuals with bipolar disorder have never accessed health care specifically for a mental condition.[3–10] Other datasets[6,11–17] have shown that factors such as age, sex, ethnicity, and medical or psychiatric comorbidity are important predictors of treatment contact among bipolar subjects; however, there is a paucity of data on other illness-related factors such as number of manic or depressive episodes that may also play an important role in determining treatment utilization.[6,14,15]

Among individuals with bipolar disorder who do access care, there is often a substantial delay from illness onset to treatment.[18–20] This delay results in prolonged psychosocial impairment[21] and possibly poorer subsequent response to pharmacotherapy.[22,23] Data showing a longer duration of treatment delay for bipolar illness among women and those with an earlier age at onset have generally been limited to mood stabilizer medication use in specialized clinic populations.[19,23] An exception is the recent report on data from the National Comorbidity

  © Copyright 2006 Physicians Postgraduate Press, Inc.

Survey Replication (NCS-R) that did identify age, age at onset, sex, and ethnicity as important predictors of duration of delay to any treatment contact among bipolar subjects identified in a population survey[14]; however, the effect of other relevant illness-related variables has not been reported. Furthermore, we are not aware of epidemiologic data examining factors that specifically predict use of mood stabilizer or antidepressant medications. These data would be an important gauge of not only the likelihood of contact with treatment services, but also the nature of the pharmacotherapy being provided.

The purpose of this study was to use epidemiologic data to determine the effect of sociodemographic and illness-related variables on (1) likelihood of accessing treatment for bipolar disorder, (2) delay from illness onset to contact with treatment services, and (3) use of mood stabilizers or antidepressant medications among subjects with bipolar disorder. The study utilized data from the Canadian Community Health Survey–Mental Health and Well-Being (CCHS 1.2),[24] a large, representative, community survey of mental health.

METHOD

Survey

The Canadian Community Health Survey–Mental Health and Well-Being (CCHS 1.2)[24] is a nationally representative, community mental health survey conducted by Statistics Canada (the national statistical agency) from May 2002 to December 2002. Target population included persons aged 15 years or older living in private occupied dwellings (98% of the population). Excluded were full-time members of the armed forces and individuals living in health care institutions, on Indian reserves, on government-owned land, in 1 of the 3 northern territories, or in remote regions of the country where privacy could not be ensured. One person aged 15 years or older was randomly selected from eligible, sampled households. In 86% of cases, respondents were interviewed face-to-face at their place of residence. Interviews were conducted in English, French, Chinese, or Punjabi (as required). From the initially selected 48,047 households, there was an 86.5% household-level response rate, and, among responding households, there was an 89.0% person-level response rate. The overall response rate was thus 77.0%, i.e., the product of the household-level and person-level response rates, resulting in a total of 36,984 respondents.

The CCHS 1.2 interview is based on the World Mental Health Composite International Diagnostic Interview (WMH-CIDI).[25] Well-trained lay interviewers using computer-assisted interviewing administered the survey. Study respondents were assessed for demographic variables, psychiatric diagnoses, illness history, service utilization, and past 12-month medication use.

Description of Variables

Bipolar disorder diagnostic criteria. Subjects who met study criteria for a current or past manic episode were classified as having bipolar disorder. The study criteria for a manic episode were similar, but not identical, to DSM-IV criteria, in that manic symptoms need only have lasted "several days or longer" as opposed to the 7-day requirement (unless hospitalization is necessary) in DSM-IV. In order for the event to be classified a manic episode, all other criteria had to have been simultaneously met, including (1) elevated or irritable mood, (2) ≥ 3 additional DSM-IV–defined manic symptoms, (3) significant functional impairment, and (4) manic symptoms could not be due to medications, drugs, alcohol, or physical causes.

Illness history and psychiatric comorbidity. Major depressive episodes were defined according to DSM-IV criteria. Age at onset of bipolar disorder was defined as the age at first manic or depressive episode, whichever occurred earlier. A lifetime history of comorbid anxiety disorder was established by the presence of a DSM-IV diagnosis of panic disorder, agoraphobia, or social phobia. Other anxiety disorders were not assessed in the interview. A past 12-month history of comorbid substance use disorder was defined as alcohol use associated with 1 or more DSM-IV–defined alcohol abuse or dependence criteria, or drug use associated with 1 or more DSM-IV–defined drug abuse or dependence criteria.

Demographic variables. Age, sex, marital status, education, and immigrant status (defined as country of birth outside of Canada) were collected for each respondent. Income adequacy was used as a measure of economic status that accounted for number of household residents. Low income adequacy was defined as a household income of < $15,000 for 1 to 2 residents, < $20,000 for 3 to 4 residents, or < $30,000 for 5+ residents.

Contact with treatment services. Self-reported lifetime contact with treatment services was determined with the question "During your lifetime, have you ever seen, or talked on the telephone, to any of the following professionals about your emotions, mental health, or use of alcohol or drugs?" followed by the interviewer reading categories of treatment providers. These included psychiatrist, primary care physician, psychologist, social worker/counselor/psychotherapist, religious or spiritual advisor, and other professional.

Delay to contact with treatment services. The delay to contact with treatment services was defined as the time period from the age at onset of bipolar disorder to first contact with any treatment provider. The delay to contact with a physician was also calculated based on first contact with a psychiatrist or primary care physician.

Medication use. Respondents were asked about any use of medications in the 12 months prior to interview. Mood stabilizer and antidepressant categories were specifically queried, and common examples of medications

within each of these classes were given. Valid information on other classes of psychotropic medications, including antipsychotics, was not available.

Study Population

Among the 36,984 survey respondents, 467 females and 385 males met diagnostic criteria for bipolar disorder. Bipolar respondents had a mean age of 37.3 years (SD = 13.7), 42.4% were married, 46.0% had high school completion as their highest level of education, and 16.5% were in the low-income-adequacy category. Females with bipolar disorder were significantly more likely than males with bipolar disorder to be in the low-income-adequacy group (18.9% vs. 11.6%, $\chi^2 = 9.0$, p = .003). There were no other significant gender differences in sociodemographic variables. Fifty-seven percent of bipolar respondents reported a manic episode in the past 12 months, with 48% reporting 5 or fewer lifetime manic episodes, 26% reporting 6 to 19 lifetime manic episodes, and 27% reporting 20 or more lifetime manic episodes. Sixty-two percent of bipolar respondents reported a depressive episode in the past 12 months, with 58% reporting 5 or fewer lifetime depressive episodes, 12% reporting 6 to 19 lifetime depressive episodes, and 29% reporting 20 or more lifetime depressive episodes. There were no significant gender differences in number of lifetime depressive or manic episodes, or in likelihood of experiencing a depressive or manic episode in the previous 12 months.

Statistical Analysis

CCHS 1.2 used a multistage, stratified cluster design to select eligible households. In order to address potential bias as a result of the complex survey design, all results were bootstrapped using a set of replicate weights supplied by Statistics Canada. In addition to providing correct standard errors, this procedure produces results that are representative of the target population. All results (except sample sizes) are reported as weighted estimates. Data for this study were obtained from the CCHS 1.2 Master File maintained at the Statistics Canada Research Data Centre, Toronto, Canada. The analysis was conducted using SPSS 12.0 (SPSS Inc., Chicago, Ill.), Stata 8.0 (StataCorp., College Station, Tex.), WesVar 4.2 (Westat, Rockville, Md.), and MPlus 3.1 (Muthén & Muthén, Los Angeles, Calif.). This study was approved by the research ethics board at Sunnybrook & Women's College Health Sciences Centre, University of Toronto, Toronto, Canada.

First, rates of contact with treatment services were calculated. Correlates of contact with any treatment provider were identified using logistic regression. In order to avoid the necessity of substantial listwise deletions, missing variable indicators were included for income and for counts of lifetime depressive and manic episodes in this and subsequent models. Within the group of respondents who reported seeking treatment, independent sex differences in types of treatment providers consulted were then examined using a logistic regression model designed to discriminate between male and female respondents based on the types of services they reported using. The duration of delay to contact with treatment services was then calculated, and factors correlated with a longer or shorter delay were determined using Cox regressions, with individuals reporting no treatment use treated as right-censored. Finally, rates of past-year use of antidepressants and mood stabilizers were calculated, and correlates of use of each medication class were determined using logistic regression analysis.

Table 1. Correlates of Lifetime Contact With Any Treatment Services for Subjects With Bipolar Disorder Who Responded to the Canadian Community Health Survey–Mental Health and Well-Being (N = 852)

Variable	Odds Ratio	95% CI	p Value
Sociodemographic			
Female gender	1.85	1.06 to 3.23	.03
Age (per year)[a]	1.05	1.02 to 1.08	.002
Marital status (married vs unmarried)	0.73	0.37 to 1.43	NS
Immigrant status[b]	0.24	0.11 to 0.54	< .001
Level of education (high school or below)	0.42	0.23 to 0.74	.003
Income adequacy (low)[c]	1.36	0.68 to 2.70	NS
Illness-related			
Onset prior to age 21 years[d]	1.77	0.92 to 3.43	NS
No. of manic episodes (lifetime)	1.00	0.98 to 1.02	NS
No. of depressive episodes (lifetime)	1.05	1.01 to 1.09	.02
Comorbid anxiety disorder (lifetime)	1.22	0.71 to 2.09	NS
Comorbid substance use disorder (12-month)	1.62	0.90 to 2.89	NS

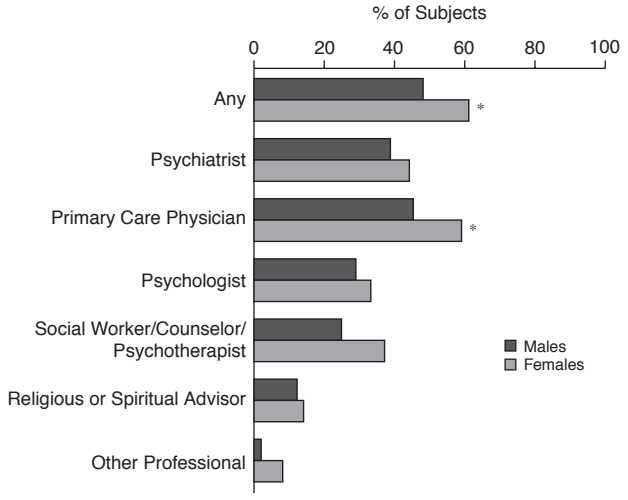
[a]Odds ratio relates to each year of increasing age.
[b]Immigrant status defined as being born outside of Canada.
[c]Low income adequacy defined as a household income of < $15,000 for 1 to 2 residents, < $20,000 for 3 to 4 residents, or < $30,000 for 5+ residents.
[d]Age at onset defined as age at first manic or depressive episode, whichever occurred earlier.
Abbreviation: NS = nonsignificant.

RESULTS

Contact With Treatment Services

Among all bipolar subjects (N = 852), 45.2% (95% CI = 39.8 to 50.7) had never accessed treatment services for their mental condition. Males with bipolar disorder were significantly more likely than females with bipolar disorder to have never accessed such services (52.2% vs. 38.5%, respectively; $\chi^2 = 11.6$, df = 1, p = .001). Correlates of use of any treatment services are shown in Table 1. Female gender (p = .03), older age (p = .002), and greater number of lifetime depressive episodes (p = .02) were each significantly positively associated with use of treatment services. Lower level of education (p = .003) and immigrant status (p < .001) were each

Figure 1. Rates of Lifetime Contact With Specific Treatment Providers Among Subjects With Bipolar Disorder Who Responded to the Canadian Community Health Survey–Mental Health and Well-Being



*p < .001.

significantly negatively associated with use of treatment services. Figure 1 displays the likelihood of subjects with bipolar disorder ever having accessed specific treatment providers.

Delay to Contact With Treatment Services

Among subjects with bipolar disorder who had any contact with treatment services, the mean duration from first episode of bipolar illness to first contact with any treatment services was 3.1 years (SD = 10.6), with no significant gender difference (2.9 years [SD = 11.2] for males and 3.2 years [SD = 10.1] for females, p = .10). The mean duration from first episode of bipolar illness to first physician contact was 3.8 years (SD = 9.3), again with no significant gender difference (3.7 years [SD = 9.0] for males and 4.0 years [SD = 9.5] for females, p = .16).

For the entire bipolar sample, factors influencing the duration of time before contact with any treatment services, or a physician, were determined (Table 2). Female gender (p = .02), comorbid lifetime anxiety disorder (p = .04), and greater number of lifetime depressive episodes (p = .01) were each significantly correlated with shorter delay to contact with any treatment services. Older age (p < .01), illness onset prior to age 21 years (p < .01), and immigrant status (p = .02) were each significantly correlated with longer delay to contact with any treatment services. When the dependent variable was changed to contact specifically with a physician, low income adequacy (p = .05) and comorbid 12-month substance use disorder (p = .01) emerged as being significantly associated with shorter delay to contact, and number of lifetime depressive episodes was no longer significantly associated with duration of delay.

Medication Use

Use of antidepressant and/or mood stabilizer medication in the year prior to interview was determined for all bipolar subjects. Overall, 66% of all bipolar subjects had not taken either class of medication in the past year, and males were significantly more likely than females to fall into this category (males = 72% vs. females = 59%, $\chi^2 = 14.8$, df = 1, p < .001). Antidepressants without mood stabilizer medications were taken by 22% of subjects, mood stabilizers without antidepressant medications were taken by 4% of subjects, and both antidepressant and mood stabilizer medications were taken by 8% of subjects. Figure 2 displays the gender differences in likelihood of past-year use of antidepressant and/or mood stabilizer medications. Females were significantly more likely than males to have taken an antidepressant medication either alone or in combination with a mood stabilizer (females = 36% vs. males = 24%, $\chi^2 = 12.6$, df = 1, p < .001), but there were no significant gender differences in likelihood of taking a mood stabilizer medication.

Factors correlated with antidepressant or mood stabilizer use are shown in Table 3. Variables coding for the presence of a depressive or manic episode in the past 12 months were included in this model since they are of relevance when examining past 12-month use of medications. Female gender (p = .01), older age (p = .05), comorbid lifetime anxiety disorder (p < .01), and recent depression (p = .001) were each significantly associated with an increased likelihood of use of antidepressant medications. Lower level of education (p = .05) was significantly associated with a decreased likelihood of use of antidepressant medications. Low income adequacy (p = .04) was the only factor significantly associated with increased use of mood stabilizer medications.

DISCUSSION

In this community sample of 852 bipolar subjects, 45.2% had never obtained treatment services for a mental condition. The results replicate findings from other community surveys that identified a significant proportion of individuals with bipolar disorder who were never treated.[3,5–8,14] In addition, we report findings on the significant predictors of contact with treatment services. Female gender, older age, and greater number of lifetime depressive episodes were each correlated with increased likelihood of contact with treatment services, and lower level of education and immigrant status were each correlated with decreased likelihood of contact with treatment services. Although the specific explanation for the gender difference cannot be elucidated from this dataset, these

Table 2. Correlates of Delay to Contact With Any Health Care Services or to Physician Contact Among Subjects With Bipolar Disorder Who Responded to the Canadian Community Health Survey–Mental Health and Well-Being

	Duration of Delay to Contact With Any Treatment Services			Duration of Delay to Physician Contact		
Variable	Hazard Ratio[a]	z	p Value	Hazard Ratio[a]	z	p Value
Sociodemographic						
Female gender	1.41	2.32	.02	1.58	2.30	.02
Age (per year)	0.98	–2.82	< .01	0.96	–4.21	< .01
Marital status (married vs unmarried)	0.84	–1.04	NS	1.03	0.14	NS
Immigrant status[b]	0.54	–2.27	.02	0.53	–1.97	.05
Level of education (high school or below)	0.85	–1.11	NS	0.74	–1.60	NS
Income adequacy (low)[c]	1.06	0.42	NS	1.60	1.99	.05
Illness-related						
Onset prior to age 21 years[d]	0.54	–3.92	< .01	0.57	–2.38	.02
No. of manic episodes (lifetime)	1.00	–0.23	NS	1.00	–0.09	NS
No. of depressive episodes (lifetime)	1.01	2.80	.01	1.01	1.31	NS
Comorbid anxiety disorder (lifetime)	1.34	2.08	.04	1.80	2.86	< .01
Comorbid substance use disorder (12-month)	1.16	1.16	NS	1.71	2.64	.01

[a]Hazard ratios above 1.0 indicate shorter delay and below 1.0 indicate longer delay.
[b]Immigrant status defined as being born outside of Canada.
[c]Low income adequacy defined as a household income of < $15,000 for 1 to 2 residents, < $20,000 for 3 to 4 residents, or < $30,000 for 5+ residents.
[d]Age at onset defined as age at first manic or depressive episode, whichever occurred earlier.
Abbreviation: NS = nonsignificant.

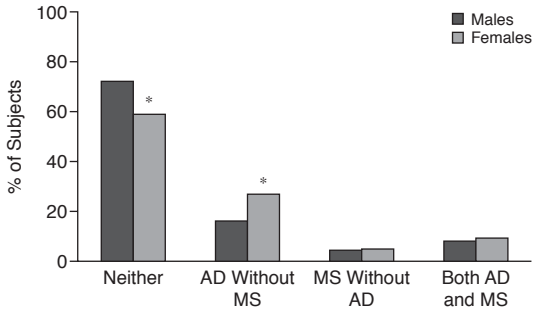
results may indicate that, even in the absence of greater number of episodes, females may be more apt to seek out care from mental health treatment services.[14,26] The unanticipated finding that only greater number of lifetime depressive episodes, and not also greater number of lifetime manic episodes, was a predictor of contact with treatment services suggests that patients experiencing depressive symptoms may be more likely to seek treatment, whereas manic symptoms, especially if mild, may not necessarily lead to contact with the health care system.

Level of education and immigrant status also appear to be important predictors of who does and does not access care. Since Canada provides universal health coverage for physician services, this finding is unlikely to reflect pure economic barriers, but rather may be evidence of other unknown factors at play such as greater fear of stigma, denial of illness, or language barriers.[27]

Over 90% of subjects who had contact with any form of treatment services had seen their primary care physician. This is noteworthy, especially given the recent study by Das et al.,[28] which found very low rates of a documented bipolar disorder diagnosis among individuals seeking primary care services at an urban general medical clinic who screened positive for bipolar disorder. Efforts to increase awareness of bipolar disorder among primary care physicians are clearly warranted, since these clinicians appear to have the greatest access to patients with this illness who may be undiagnosed or inadequately treated.

Of the bipolar subjects that did seek care, there was a mean delay of 3.1 years from first episode of illness to first contact with any treatment services, and 3.8 years before first physician contact. Wang et al.[14] have reported data from the NCS-R that found an estimated 6-year median duration of delay to contact with treatment services among 224 bipolar subjects, with 39% having contact with treatment services in the first year of illness, suggesting similar duration of treatment delay for bipolar disorder across both the United States and Canada. The similarity in results between the NCS-R and CCHS 1.2 on predictors of accessing care and delay to treatment for bipolar disorder suggests that the difference in how the 2 health care systems are structured does not appear to have a large impact on treatment utilization for bipolar disorder.

Figure 2. Gender Differences in Past-Year Use of Antidepressant and/or Mood Stabilizer Medications Among Subjects With Bipolar Disorder Who Responded to the Canadian Community Health Survey–Mental Health and Well-Being



*p < .001.
Abbreviations: AD = antidepressant, MS = mood stabilizer.

Table 3. Correlates of Past-Year Antidepressant or Mood Stabilizer Use Among Subjects With Bipolar Disorder Who Responded to the Canadian Community Health Survey–Mental Health and Well-Being

	Antidepressant Use			Mood Stabilizer Use		
Variable	Odds Ratio	95% CI	p Value	Odds Ratio	95% CI	p Value
Sociodemographic						
Female gender	1.99	1.21 to 3.28	.01	1.16	0.58 to 2.35	NS
Age (per year)	1.02	1.00 to 1.04	.05	1.02	0.99 to 1.04	NS
Marital status (married vs unmarried)	1.08	0.64 to 1.83	NS	0.92	0.46 to 1.82	NS
Immigrant status[a]	0.53	0.24 to 1.17	NS	0.50	0.12 to 2.19	NS
Level of education (high school or below)	0.63	0.40 to 0.99	.05	0.80	0.43 to 1.49	NS
Income adequacy (low)[b]	1.40	0.77 to 2.55	NS	2.26	1.03 to 4.96	.04
Illness-related						
Onset prior to age 21 years[c]	0.83	0.46 to 1.52	NS	0.73	0.34 to 1.58	NS
Recent depression (12-month)	3.16	1.79 to 5.56	.001	1.80	0.84 to 3.87	NS
Recent mania (12-month)	0.96	0.54 to 1.68	NS	0.98	0.46 to 2.09	NS
No. of manic episodes (lifetime)	1.01	0.99 to 1.02	NS	1.01	0.99 to 1.03	NS
No. of depressive episodes (lifetime)	1.00	0.98 to 1.02	NS	1.01	0.99 to 1.03	NS
Comorbid anxiety disorder (lifetime)	2.35	1.40 to 3.96	< .01	1.23	0.62 to 2.44	NS
Comorbid substance use disorder (12-month)	1.41	0.76 to 2.62	NS	0.66	0.29 to 1.49	NS

[a]Immigrant status defined as being born outside of Canada.
[b]Low income adequacy defined as a household income of < $15,000 for 1 to 2 residents, < $20,000 for 3 to 4 residents, or < $30,000 for 5+ residents.
[c]Age at onset defined as age at first manic or depressive episode, whichever occurred earlier.
Abbreviation: NS = nonsignificant.

We found that the presence of a comorbid anxiety disorder or comorbid substance use disorder each significantly shortened the delay before contact with a physician. This finding hints at the importance of factors other than symptoms of depression or mania in driving treatment utilization for bipolar disorder.

A majority of subjects with bipolar disorder (66%) had not taken a mood stabilizer or antidepressant medication in the past year. The most frequent pharmacotherapy category was antidepressant use without a mood stabilizer (22%), and the least frequent category was mood stabilizer use without an antidepressant (4%). These results illuminate the gap that exists between treatment guidelines that recommend maintenance pharmacotherapy based primarily on mood stabilizer medications[29,30] and the actual care that is being provided to individuals with this illness living in the community.

Females with bipolar disorder were significantly more likely than males with bipolar disorder to receive an antidepressant medication in the past year (OR = 1.99). In order to rule out illness factors accounting for this finding, we examined for potential gender differences in number of lifetime depressive episodes or likelihood of experiencing a depressive episode in the past year, but no gender differences were found. Thus, female patients with bipolar disorder were more likely than male patients to be prescribed an antidepressant medication, even in the absence of higher frequency of depressions. Whether this finding reflects a greater likelihood of females in this sample being misdiagnosed with unipolar depressions by their treating physician is not known; however, given the concern regarding antidepressant use in bipolar disorder,[31,32] this finding raises the possibility that females are being placed at disproportionately greater risk of antidepressant-induced mania or rapid cycling. The presence of a lifetime comorbid anxiety disorder also significantly increased (OR = 2.35) the likelihood of an individual receiving an antidepressant medication in the past year, indicating that a sizable proportion of antidepressant use in bipolar disorder may in fact be targeting anxiety symptoms.

There are a number of study limitations that must be taken into account. First, the study definition of bipolar disorder did not exactly match DSM-IV criteria; thus, we are unable to determine the proportion of subjects with bipolar I, bipolar II, or bipolar spectrum disorders. However, the requirement for significant functional impairment should have excluded most subjects with a history of only subsyndromal manic symptoms.

Second, despite the accepted methodology of using CIDI-based interviews in epidemiologic surveys of bipolar disorder,[3–6,8,33] the accuracy of the study interview in properly diagnosing bipolar disorder could not be guaranteed. The WMH-CIDI version is undergoing testing to determine calibration with the Structured Clinical Interview for DSM-IV[34]; however, results are not yet available.[35] Reliability studies using older versions of the CIDI have identified good test-retest agreement ($\kappa = 0.64$)[36] and interrater agreement ($\kappa = 0.92$)[37] for the diagnosis of bipolar disorder, as well as for substance use and anxiety disorders.[37,38] However, even with the extensive interviewer training and standardized techniques, some patients with other diagnoses such as schizoaffective disorder or unipolar depressive illnesses may have been inadvertently included.

Another limitation is that the exact nature of the treatment services provided was not known. Treatment adequacy or specificity to bipolar disorder could not be directly examined, and the rates of contact with treatment services may actually overestimate the percentage of those who receive treatment specifically for bipolar disorder. Further studies in this area would be enhanced by the linkage of prescription and health care utilization databases with community surveys.

Finally, each subject's mood state at the time of the interview was not known, and there is a potential that current mood episodes may have influenced the accuracy of the gathered data. Conversely, however, the use of a population-based sample may have limited the influence of acute illness factors as compared to data gathered from a clinical population.

In conclusion, this large community study of bipolar disorder identified a number of sociodemographic and illness-related factors that influence not only the likelihood of bipolar subjects having contact with treatment services, but also the delay to seeking treatment and the type of medication provided. The significant delay from illness onset to any form of treatment, and the marked discrepancy between treatment guidelines and the rates and type of pharmacotherapy used in this bipolar sample, reinforces the importance of continued efforts to better identify bipolar individuals early in their course of illness, and the need for further educational focus on bipolar disorder for all providers of mental health treatment services.

REFERENCES

1. Judd LL, Akiskal HS, Schettler PJ, et al. The long-term natural history of the weekly symptomatic status of bipolar I disorder. Arch Gen Psychiatry 2002;59:530–537
2. MacQueen GM, Young LT, Joffe RT. A review of psychosocial outcome in patients with bipolar disorder. Acta Psychiatr Scand 2001;103: 163–170
3. Kessler RC, Rubinow DR, Holmes C, et al. The epidemiology of DSM-III-R bipolar I disorder in a general population survey. Psychol Med 1997;27:1079–1089
4. Parikh SV, Wasylenki D, Goering P, et al. Mood disorders: rural/urban differences in prevalence, health care utilization, and disability in Ontario. J Affect Disord 1996;38:57–65
5. Katz SJ, Kessler RC, Frank RG, et al. The use of outpatient mental health services in the United States and Ontario: the impact of mental morbidity and perceived need for care. Am J Public Health 1997;87: 1136–1143
6. ten Have M, Vollebergh W, Bijl R, et al. Bipolar disorder in the general population in The Netherlands (prevalence, consequences and care utilisation): results from The Netherlands Mental Health Survey and Incidence Study (NEMESIS). J Affect Disord 2002;68:203–213
7. Regier DA, Narrow WE, Rae DS, et al. The de facto US mental and addictive disorders service system: epidemiologic catchment area prospective 1-year prevalence rates of disorders and services. Arch Gen Psychiatry 1993;50:85–94
8. Mitchell PB, Slade T, Andrews G. Twelve-month prevalence and disability of DSM-IV bipolar disorder in an Australian general population survey. Psychol Med 2004;34:777–785
9. Wang PS, Lane M, Olfson M, et al. Twelve-month use of mental health services in the United States. Arch Gen Psychiatry 2005;62:629–640
10. Vasiliadis H-M, Lesage A, Adair C, et al. Service use for mental health reasons: cross-provincial differences in rates, determinants, and equity of access. Can J Psychiatry 2005;50:614–619
11. Wells KB, Miranda J, Bauer MS, et al. Overcoming barriers to reducing the burden of affective disorders. Biol Psychiatry 2002;52:655–675
12. Bland RC, Newman SC, Orn H. Health care utilization for emotional problems: results from a community survey. Can J Psychiatry 1990;35: 397–400
13. Commander MJ, Odell SM, Surtees PG, et al. Characteristics of patients and patterns of psychiatric service use in ethnic minorities. Int J Soc Psychiatry 2003;49:216–224
14. Wang PS, Berglund P, Olfson M, et al. Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62:603–613
15. Kessler RC, Frank RG, Edlund M, et al. Differences in the use of psychiatric outpatient services between the United States and Ontario. N Engl J Med 1997;336:551–557
16. Lembke A, Miklowitz DJ, Otto MW, et al. Psychosocial service utilization by patients with bipolar disorders: data from the first 500 participants in the Systematic Treatment Enhancement Program. J Psychiatr Pract 2004;10:81–87
17. Wang J, Patten SB, Williams JVA, et al. Help-seeking behaviours of individuals with mood disorders. Can J Psychiatry 2005;50:652–659
18. Lish JD, Dime-Meenan S, Whybrow PC, et al. The National Depressive and Manic-Depressive Association (DMDA) survey of bipolar members. J Affect Disord 1994;31:281–294
19. Goldberg JF, Ernst CL. Features associated with the delayed initiation of mood stabilizers at illness onset in bipolar disorder. J Clin Psychiatry 2002;63:985–991
20. Post RM, Denicoff KD, Leverich GS, et al. Morbidity in 258 bipolar outpatients followed for 1 year with daily prospective ratings on the NIMH Life Chart Method. J Clin Psychiatry 2003;64:680–690
21. Hirschfeld RMA, Lewis L, Vornik LA. Perceptions and impact of bipolar disorder: how far have we really come? results of the National Depressive and Manic-Depressive Association 2000 survey of individuals with bipolar disorder. J Clin Psychiatry 2003;64:161–174
22. Franchini L, Zanardi R, Smeraldi E, et al. Early onset of lithium prophylaxis as a predictor of good long-term outcome. Eur Arch Psychiatry Clin Neurosci 1999;249:227–230
23. Baldessarini RJ, Tondo L, Hennen J. Treatment-latency and previous episodes: relationships to pretreatment morbidity and response to maintenance treatment in bipolar I and II disorders. Bipolar Disord 2003;5: 169–179
24. Statistics Canada. Canadian Community Health Survey, Mental Health and Well-Being 2002. Available at: http://statcan.ca/english/freepub/82-617-XIE/index.htm. Accessed Jan 25, 2006
25. Kessler RC, Ustun TB. The World Mental Health (WMH) Survey Initiative Version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). Int J Methods Psychiatr Res 2004;13:93–121
23. Kessler RC, Brown RL, Broman CL. Sex differences in psychiatric help-seeking: evidence from four large-scale surveys. J Health Soc Behav 1981;22:49–64
24. Alegría M, Canino G, Ríos R, et al. Inequalities in use of specialty mental health services among Latinos, African Americans, and Non-Latino Whites. Psychiatr Serv 2002;53:1547–1555
25. Das AK, Olfson M, Gameroff MJ, et al. Screening for bipolar disorder in a primary care practice. JAMA 2005;293:956–963
26. American Psychiatric Association. Practice Guideline for the Treatment of Patients With Bipolar Disorder (Revision). Am J Psychiatry 2002; 159(suppl 4):1–50
27. Yatham LN, Kennedy SH, O'Donovan C, et al. Canadian Network for Mood and Anxiety Treatments (CANMAT) guidelines for the management of patients with bipolar disorder: consensus and controversies. Bipolar Disord 2005;7(suppl 3):5–69
28. Henry C, Sorbara F, Lacoste J, et al. Antidepressant-induced mania in bipolar patients: identification of risk factors. J Clin Psychiatry 2001;62: 249–255
29. Ghaemi SN, Hsu DJ, Soldani F, et al. Antidepressant in bipolar disorder: the case for caution. Bipolar Disord 2003;5:421–433
30. Kessler RC, Berglund P, Demler O, et al. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62:593–602

31. First MB, Spitzer RL, Gibbon M, et al. Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Non-patient Edition (SCID-I/NP). New York: Biometrics Research, New York State Psychiatric Institute, 2002
32. Kessler RC, Abelson J, Demler O, et al. Clinical calibration of DSM-IV diagnoses in the World Mental Health (WMH) version of the World Health Organization (WHO) Composite International Diagnostic Interview (WMH-CIDI). Int J Methods Psychiatr Res 2004;13:122–139
33. Wittchen HU, Lachner G, Wunderlich U, et al. Test-retest reliability of the computerized DSM-IV version of the Munich-Composite International Diagnostic Interview (M-CIDI). Soc Psychiatry Psychiatr Epidemiol 1998;33:568–578
34. Wittchen HU. Reliability and validity studies of the WHO-Composite International Diagnostic Interview (CIDI): a critical review. J Psychiatr Res 1994;28:57–84
35. Compton WM, Cottler LB, Dorsey KB, et al. Comparing assessments of DSM-IV substance dependence disorders using CIDI-SAM and SCAN. Drug Alcohol Depend 1996;41:179–187