Bipolar I disorder, social support and work

- *More than 400,000 people of working age (25 to 64) have experienced at least one manic episode that suggests bipolar I disorder.*
- *Despite the disruptive effects of the condition, about two-thirds of these people are employed.*
- *The perceived availability of someone to assist with the practical necessities of life increases the odds that people with bipolar I disorder will have a job.*

Abstract

Objectives

This article reports the estimated lifetime prevalence of bipolar I disorder in the household population and describes characteristics of people of working age (25 to 64) affected by this disorder. The relationship between social support and employment status is examined in people with the disorder.

Data source

Data are from the 2002 Canadian Community Health Survey: Mental Health and Well-being.

Analytical techniques

Weighted frequencies and cross-tabulations were used to estimate the prevalence of bipolar I disorder. Multiple logistic regression modeling was used to examine four dimensions of social support in relation to having a job, in people with bipolar I disorder.

Main results

An estimated 444,000 (2.6%) people aged 25 to 64 had lifetime bipolar I disorder. Alcohol dependence, asthma, migraine, obesity and panic disorder were far more prevalent among these people, compared with the general population. People with bipolar I disorder who reported readily accessible tangible support had higher odds of being employed, compared with those with less available tangible support.

Key words

mood disorder, social support, mental health, comorbidity, health surveys

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Bipolar I disorder is a chronic mood disorder characterized by at least one manic or mixed episode, with or without major depressive episodes (see *Annex*). The first episode may be manic or depressive, and high rates of recurrence are common.[1]

People with bipolar I disorder have characteristic symptoms.[2] The most common feature of a manic episode is elevated mood, causing euphoria or unusual cheerfulness. Close acquaintances of someone exhibiting such behaviour will recognize it as excessive, even though to others it may just seem especially friendly. The mood is also characterized by unceasing and indiscriminate enthusiasm for interpersonal, sexual, or occupational interactions. For example, the person may spontaneously start extensive conversations with strangers in public places, or make telephone calls at inappropriate times of the night. While elevation of mood is more typical, irritability—especially when the person's wishes

are not met—may also characterize a manic episode. Volatility of mood, alternating between euphoria and irritability, is common.

Bipolar I disorder interferes with normal daily activities and social roles. In 1990, the World Health Organization ranked it as the sixth most important cause of disability worldwide.[3] People who are affected may experience frequent relapses, and may not return to full function between episodes, resulting in lowered quality of family and social life.[4-10] The risk of suicide is also substantial.[11-13] Research in the United States indicates that over half of people with bipolar disorder have attempted or seriously thought about ending their own life.[12]

Aside from the adverse effects on physical and social functioning, bipolar disorder has indirect costs that include foregone earnings attributable to decreased employment and lower productivity. Research based on data from the National Comorbidity Study in the United States estimated the average cost per case in 1998 at $112,000 (US), amounting to total lifetime indirect costs of $10.7 billion (US).[16]

Nonetheless, the majority of people with biploar I disorder are employed. Although the work role is of major importance in contemporary society, little research has focused on characteristics that differentiate people with bipolar I disorder who succeed

Methods

Data sources

Data for this article are from the 2002 Canadian Community Health Survey (CCHS), cycle 1.2: Mental Health and Well-being. Data collection began in May 2002 and continued over eight months. The CCHS 1.2 covers people aged 15 or older living in private dwellings in the 10 provinces. Residents of the territories, Indian reserves, institutions, certain remote areas, and full-time members of the Canadian Armed Forces were not included.

The sample was selected using the area frame designed for the Canadian Labour Force Survey. A multi-stage stratified cluster design was used to sample dwellings within this area frame. One person aged 15 or older was randomly selected from the sampled households. Individual respondents were selected to over-represent young people (15 to 24) and seniors (65 or older), thus ensuring adequate sample sizes for these age groups. More detailed descriptions of the design, sample and interview procedures can be found in other published reports and on the Statistics Canada Web site.[14,15]

All interviews were conducted using a computer-assisted application. Most (86%) interviews were conducted in person; the rest, by telephone. People selected for the survey provided their own responses, and no proxy interviews were permitted. The responding sample totalled 36,984 people aged 15 or older, with a response rate of 77%.

Analytical techniques

Frequencies and cross-tabulations weighted to be representative of the population aged 15 or older who resided in the provinces in 2002 were produced to estimate the prevalence of bipolar I disorder in the household population, and to examine the characteristics of people with this disorder. Based on the definition of manic episode used for the CCHS (see *Annex*), a total of 938 respondents aged 15 or older were categorized as having experienced such an episode (and thus as having bipolar I disorder) sometime in their lives, and 35,848 had no history of the disorder. Another 198 (0.5%) were excluded from the analysis because their responses did not provide sufficient information to determine if they had bipolar I disorder.

Multiple logistic regression analysis was used to examine associations between selected variables related to social support and employment among people with bipolar I disorder. The model controlled for factors available in the CCHS data that have been shown to be related to bipolar disorder and that might affect the likelihood of employment: demographic and socio-economic characteristics, co-morbid conditions, treatment received, and age of onset of bipolar I disorder. Variables measuring four dimensions of social support availability were of particular interest: affection, emotional/informational support, social interaction, and tangible support. Preliminary analysis indicated high correlation among these four variables.

Pearson correlation coefficients among social support variables

	Affection	Emotional/ Informational support	Social interaction	Tangible support
Affection	1.00			
Emotional/Informational support	0.75	1.00		
Social interaction	0.79	0.83	1.00	
Tangible support	0.65	0.69	0.69	1.00

Because of the potential for multicollinearity, each social support variable was entered singly into the fully controlled model, the results were noted, and then all four were entered simultaneously.

All estimates and analyses were based on weighted data that reflect the age and sex distribution of the household population aged 15 or older in the 10 provinces in 2002. To account for survey design effects, standard errors and coefficients of variation were estimated using the bootstrap technique.[17-19]

in holding a job from those who do not. Furthermore, some previous studies have used small clinical samples, so the degree to which the findings can be generalized to the total population is unknown.[20,21]

The recent availability of data from the 2002 Canadian Community Health Survey (CCHS) cycle 1.2: Mental Health and Well-being provides the first opportunity to study bipolar I disorder in Canada with population-based data. This article focuses on factors associated with employment among those who have the disorder (see *Methods* and *Definitions*). In this analysis, the term "bipolar I disorder" refers to people who experienced at least one manic episode at some time in their life. Although the criteria in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV®-TR)*[2] exclude manic episodes due to the effects of drug abuse, medication, other treatment for depression, toxin exposure or the direct physiological effects of a medical condition, people whose episodes stemmed from these causes were included in this analysis (see *Limitations*).

Symptoms

To be classified as having bipolar I disorder, respondents to the CCHS had to have had a period of at least a week at sometime in their life during which their mood was abnormally and persistently elevated and expansive, or an equally long period when their mood was so irritable that they started arguments, shouted at, or actually hit, people. This behaviour had to be sufficiently pronounced to impair their normal daily activities, occupational functioning, social activities or relations with others, or to require hospitalization. They also had to exhibit at least three of the following symptoms (four if their mood was irritable only): inflated self-esteem or sense of grandiosity; decreased need for sleep; unusually talkative or pressure to keep talking; racing thoughts; distractibility; increased restlessness or gregariousness; and excessive involvement in pleasurable activities with a high potential for painful consequences such as spending sprees, casual or unsafe sex, and reckless driving (see *Annex*). People who met these criteria were considered to have had a "manic episode."

More than half a million

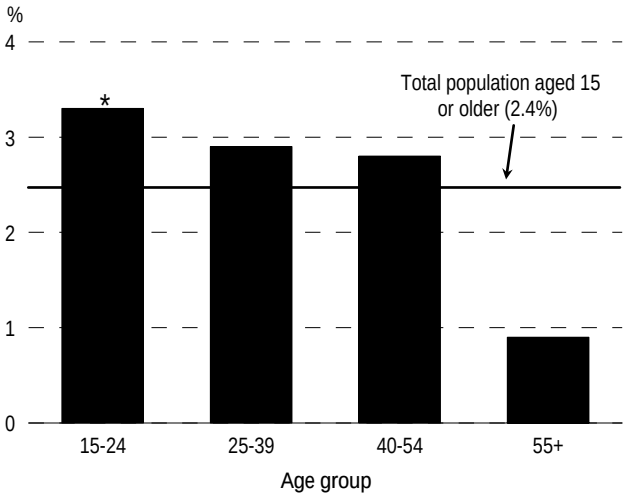
In 2002, an estimated 589,000 Canadians aged 15 or older (2.4%) reported that sometime in their life they had experienced symptoms consistent with a manic episode. In the United States, estimates of bipolar I disorder are lower, ranging from 1.0% to 1.6%, and in other countries, from 0.2% to 1.9%.[1,22,23] However, the Canadian estimate is slightly below that for Hungary (3%).[24] The inclusion of people whose manic episodes may have been due to substance use or to conditions other than bipolar I disorder (see *Annex* and *Limitations*) may partially explain the higher CCHS estimate. Excluding such cases yielded an estimate of 1.96% (data not shown), but even this figure exceeds most observations elsewhere. As suggested in a recent American report, the true prevalence of bipolar I disorder may be higher than previously estimated.[25]

The proportion of people affected did not differ significantly between men and women, a finding consistently observed in other populations.[1,26-29]

More common in early adulthood

Lifetime prevalence might be expected to accumulate with advancing age, and thus be highest in the oldest age group. However, younger people were far more likely than older people to report lifetime bipolar I disorder. About 3% of 15- to 24-year-olds had experienced symptoms consistent with the disorder, three times the percentage for people aged 55 or older (Chart 1). A similar pattern has been reported in other studies.[30] Those investigators speculated that the increased mortality risk associated with bipolar disorder might contribute to the phenomenon. Other possible explanations include an age-related reporting bias (younger people today may be less reticent to disclose behaviours consistent with a manic episode)

Chart 1
Prevalence of lifetime bipolar I disorder, by age group, household population aged 15 or older, Canada excluding territories, 2002



Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
** Significantly different from estimate for 55+ ($p < 0.05$)*

Definitions

See *Annex* for definitions of bipolar I disorder, major depressive disorder, panic disorder, alcohol dependence and illicit drug dependence.

Four *age groups* were defined for prevalence estimates, based on the respondent's age at the time of the interview: 15 to 24, 25 to 39, 40 to 54, and 55 or older. For cross-tabulations and multiple regression modeling using variables related to marital status, education, household income and employment, the analysis was restricted to respondents aged 25 to 64. In these cases, the age groups used were 25 to 39, 40 to 54, and 55 to 64.

Age of onset of symptoms was established by asking respondents how old they were when their first manic episode occurred. For people who had also experienced at least one major depressive episode, the age of onset of symptoms was defined as the age when the first depressive episode occurred, if that age was lower than the age of the first manic episode.

Marital status was categorized to distinguish people living in relationships from those who were not: married or living with a partner versus never married, separated, divorced or widowed.

Education was classified into four groups, based on the highest level attained: less than secondary graduation, secondary graduation, some postsecondary, and postsecondary graduation.

Respondents were categorized as *employed* if they worked at a job or business, or had a job from which they were absent in the week before the interview.

Cycle 1.2 of the Canadian Community Health Survey assesses four dimensions of the availability *of social support*, using an abridged version of measures used in the Medical Outcomes Study (MOS):[31]

- *Affection*: expressions of love and affection.
- *Emotional and informational support*: expression of positive affect, empathetic understanding, and encouragement of expressions of feelings; and offering of advice, information, guidance or feedback.
- *Positive social interaction*: availability of other people to do fun things with.
- *Tangible support*: provision of material aid or behavioural assistance.

All questionnaire items measuring social support used a standard preamble: "How often is each of the following kinds of support available to you if you need it?" Each item was scored according to the frequency with which support was available: "None of the time (score 0)," "A little of the time (1)," "Some of the time (2)," "Most of the time (3)," and "All of the time (4)."

Items used to measure *affection* were:

- someone who shows you love and affection
- someone who hugs you
- someone to love you and make you feel wanted

The maximum summed score for these items was 12.

Items used to measure *emotional and informational support* were:

- someone you can count on to listen to you when you need to talk
- someone to give you advice about a crisis
- someone to give you information in order to help you understand a situation
- someone to confide in or talk to about yourself or your problems
- someone whose advice you really want
- someone to share your most private worries and fears with
- someone to turn to for suggestions about how to deal with a personal problem
- someone who understands your problems

The maximum score for these items was 32.

Items used to measure *positive social interaction* were:

- someone to have a good time with
- someone to get together with for relaxation
- someone to do things with to help you get your mind off things
- someone to do something enjoyable with

The maximum score for these items was 16.

Items used to measure *tangible support* were:

- someone to help you if you were confined to bed
- someone to take you to the doctor if you needed it
- someone to prepare your meals if you were unable to do it yourself
- someone to help with daily chores if you were sick

The maximum score for these items was 16.

For each of the four dimensions of social support, a variable was derived based on the summed scores of responses to the individual items within each dimension. For ease of interpretation in univariate and bivariate analyses, each variable was dichotomized as follows: respondents who answered "none of the time" or "a little of the time" to an item were categorized as having a "low" level of social support in the dimension to which the item belonged. Respondents who answered "some of the time," "most of the time," or "all of the time" were categorized as having "high" social support. The social support variables were used in their continuous form (based on their summed scores) in multiple regression models.

To measure *asthma* and *migraine*, respondents were asked about "long-term conditions that had lasted or were expected to last six months or longer that had been diagnosed by a health care professional." Interviewers read a list of conditions that included asthma and migraine.

Obesity was assessed using the body mass index (BMI), based on self-reported data for height and weight. BMI is calculated by dividing weight in kilograms by the square of height in metres. Based on standards of the World Health Organization, respondents whose BMI was 30.0 or higher were categorized as obese.[32]

Activities of daily living (personal or *instrumental) dependence* was ascertained by asking respondents the following questions: "Because of any physical condition or mental condition or health problem, do you . . . need the help of another person with: Preparing meals? Getting to appointments and running errands such as shopping for groceries? Doing everyday housework? Doing heavy household chores such as spring cleaning or yard work? Personal care such as washing, dressing, eating or taking medication? Moving about inside the house? Looking after your personal finances such as making bank transactions or paying bills?" Respondents who answered "yes" to any of these items were categorized as dependent on others for help with activities of daily living.

Lifetime mental health consultations were assessed by the following 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?" A list was read to the respondent by the interviewer; "psychiatrist," "family doctor or general practitioner" and "psychologist" were used for this analysis.

Use of a mood stabilizer medication in the past year was ascertained by asking, "In the past 12 months, did you take mood stabilizers (such as lithium or Tegretol®)?"

Hospitalization within past year for mental health problems was established by asking, "Have you ever been hospitalized overnight or longer in any type of health care facility to receive help for problems with your emotions, mental health or use of alcohol or drugs?" Respondents who answered "yes" were asked, "How recently was that?"

and a cohort effect (for some reason, perhaps substance-induced, younger people are now at higher risk of manic episodes than were previous generations). Poor recall may also contribute to reporting differences.

The first episode signalling the disorder typically happens early in life. Forty-one percent of people with lifetime bipolar I disorder reported that their first manic episode (or first major depressive episode in those who had experienced both) occurred before they were 17; the median age of onset was 19 (data not shown). A similarly early age of onset has been reported in other research.[26,27,33,34]

Other mental disorders

At ages 25 to 64, the typical ages of labour force participation, the overall prevalence of lifetime bipolar I disorder in 2002 was 2.6%: an estimated 444,000 individuals. Bipolar I disorder was not the only mental/emotional problem with which many of these people had to cope. Similar to findings of earlier studies,[1,8,13,28,35-40] they were far more likely than their contemporaries without the disorder to have other psychiatric conditions.

Depression is a frequent feature of bipolar I disorder, so it was somewhat surprising that only 56% of those affected had had at least one major depressive episode in their life. However, this was far greater than the proportion (13%) for the rest of the population (Table 1). The corresponding figures for panic disorder were 22% and 4%. As well, significantly higher proportions of people with bipolar I disorder were dependent on alcohol or illicit drugs.

A relatively large share of people with bipolar I disorder sought professional help for their emotional or mental health, or for an alcohol or drug use problem. Over two-thirds (69%) had consulted a family doctor, a psychiatrist or psychologist, compared with just over one-fifth of people without the disorder (data not shown). Many had seen more than one type of professional: 59% had consulted a family doctor, 46% a psychiatrist, and 33% a psychologist.

However, nearly a third of people with symptoms consistent with a manic episode had not sought professional help. It is possible that those who had not sought treatment had symptoms that did not meet the full criteria for a manic episode. Yet even when people whose manic episodes had stemmed from another cause (alcohol or drug abuse, medication, other treatment for depression, toxin exposure or the direct physiological effects of a medical condition) were excluded from the analysis, the estimate of the proportion who had consulted a medical professional was almost unchanged (data not shown).

Table 1
Selected characteristics of household population aged 25 to 64, by presence of lifetime bipolar I disorder, Canada excluding territories, 2002

	Total population aged 25 to 64	Lifetime bipolar I disorder	
		Yes	No
	%	%	%
Lifetime major depressive episode	13.8	56.3*	12.6
Lifetime panic disorder	4.4	22.2*	3.9
Alcohol-dependent	2.0	11.8*	1.8
Illicit drug-dependent	0.5	5.3*E1	0.4
Lifetime mental health consultations			
Family doctor	17.2	58.6*	16.1
Psychiatrist	9.1	46.0*	8.1
Psychologist	9.5	33.4*	8.9
Took mood stabilizer in past year	1.3	13.6*	0.9
Hospitalized for mental health problems in past year	0.5	4.4*E1	0.4
Asthma	7.8	15.4*E1	7.6
Migraine	12.1	25.1*	11.8
Obese	17.5	23.7*	17.4
ADL-/IADL-dependent	10.0	22.7*	9.7
Social support			
Low affection	7.5	20.3*	7.2
Low emotional and informational	13.9	29.6*	13.5
Low positive social interaction	7.5	18.2*	7.3
Low tangible	12.9	25.9*	12.5
Married/Living with partner	74.5	50.1*	75.2
Never married/Separated/Divorced	23.9	47.3*	23.3
Some postsecondary education	6.6	10.4*	6.5
Postsecondary graduation	56.4	49.0*	56.6
Employed in previous week	77.6	68.8*	77.8

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
** Significantly different from estimate for those without bipolar I disorder ($p < 0.05$)*
E1 Coefficient of variation between 16.6% and 25.0%

Of course, people with bipolar I disorder were also more likely than those who did not have the disorder to have taken mood stabilizers. Hospitalization was rare; about 1 in 25 were hospitalized for mental health problems in the past year.

Chronic conditions

Not only were mental/emotional problems more common, but the prevalence of physical conditions was strikingly high among people with bipolar I disorder. For instance, 15% had asthma, almost double the figure for those without the disorder (8%). They were twice as likely to suffer from migraine (25% versus 12%) and were significantly more likely to be

obese (24% versus 17%). These findings are consistent with the results of earlier studies.[8,30,41-47]

Relying on others for assistance with personal care (bathing or dressing) or instrumental activities of daily living (preparing meals, shopping for groceries or other necessities, housework, paying bills) was more common in people with bipolar I disorder. Close to a quarter (23%) depended on others for such help, compared with 10% of people without the disorder.

Social support less available

Despite their greater need for assistance, people with bipolar I disorder had comparatively little social support. For each of the four dimensions that were measured—affection, emotional and informational support, positive social interaction, and tangible support—the proportion who reported that support was "never" available or available "only a little of the time" was over twice the corresponding figure for people without the disorder (Table 1).

Table 2
Percentage of people aged 25 to 64 with bipolar I disorder employed in previous week, by availability of social support and other selected characteristics, household population, Canada excluding territories, 2002

	%
Total	68.8
Men†	76.1
Women	60.9*
Availability of social support	
Affection	
Low	51.3*
High†	73.0
Emotional and informational	
Low	55.4*
High†	73.9
Positive social interaction	
Low	50.2*
High†	72.8
Tangible	
Low	51.3*
High†	74.7
Age group	
25-39†	71.4
40-54	71.4
55-64	48.9*
Onset of symptoms before age 17	
Yes	65.8
No†	69.9
Lifetime major depressive episode	
Yes	60.5*
No†	78.8
Lifetime panic disorder	
Yes	65.3
No†	70.8
Alcohol-dependent	
Yes	65.5
No†	69.3
Illicit drug-dependent	
Yes	49.1*E1
No†	70.0
Consulted family doctor about emotional/mental problems‡	
Yes	64.4*
No†	74.8
Consulted psychiatrist about emotional/mental problems‡	
Yes	63.6
No†	73.0
Consulted psychologist about emotional/mental problems‡	
Yes	70.7
No†	67.7
Took mood-stabilizing medication in past year	
Yes	54.3*
No†	71.0
Hospitalized for emotional/mental problems in past year	
Yes	F
No†	70.8
Asthma	
Yes	56.3*
No†	71.0
Migraine	
Yes	57.7*
No†	72.9
Obese	
Yes	69.2
No†	68.6
ADL-/IADL-dependent	
Yes	45.0*
No†	75.6
Marital status	
Never married/Divorced/Separated	64.4
Married/Living with partner†	73.1
Education	
Less than secondary graduation	47.5*
Secondary graduation	75.9
Some postsecondary	69.9
Postsecondary graduation†	74.9

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
† Reference category
‡ Lifetime
** Significantly different from estimate for reference category ($p < 0.05$)*
E1 Coefficient of variation between 16.6% and 25.0%
F Coefficient of variation greater than 33.3%

Low availability of social support may partially relate to marital status. The likelihood of never marrying, separation or divorce was substantially higher for people with bipolar I disorder than for those who were not affected. This probably reflects the adverse effects the disorder has on intimate relationships.

While about half (49%) of people aged 25 to 64 with bipolar I disorder had completed a postsecondary degree or diploma, this was below the proportion for their contemporaries who did not have the disorder (57%). As well, 10% of people with bipolar I disorder had begun but had not completed postsecondary studies, compared with 7% of those who were not affected. Again, these findings may indicate the disorder's disruptive effects.

Majority employed

Difficulty with employment is another negative consequence of bipolar I disorder.[8] According to the results of the CCHS, people aged 25 to 64 with the disorder were less likely to be employed than those without it: 69% versus 78%. But perhaps the more important finding, considering the impact on behaviour and normal activities, as well as the adverse effects of the co-morbid conditions that are so much more prevalent, is that a substantial majority of people with bipolar I disorder were employed. What distinguishes those who work from those who do not? When social, psychological, physical, and health care variables were considered together, relatively few factors emerged as having an independent association with employment—notable among them was social support.

Support and work

Among people with lifetime bipolar I disorder, the likelihood of employment was significantly greater for those with higher levels of each of the four dimensions of social support (Table 2). These findings are similar to those of the few studies that have focused on the relationship between work and social support in bipolar patients.[20,21]

When each social support variable was included singly in a multiple regression model controlling for socio-demographic characteristics, co-morbid conditions, age of onset and treatment, the association with employment persisted (data not shown). However, when all four variables were considered simultaneously, only the relationship with tangible support—the perceived availability of someone to help if one was confined to bed or needed transportation to the doctor, help preparing meals or doing daily chores—was significant (Table 3). This suggests that

Table 3
Adjusted odds ratios relating social support and other selected characteristics to employment in previous week, household population aged 25 to 64 with bipolar I disorder, Canada excluding territories, 2002

	Odds ratio	95% confidence interval
Sex		
Men	2.0*	1.0, 3.8
Women†	1.0	...
Social support		
Affection‡	1.0	0.9, 1.2
Emotional and informational‡	1.0	0.9, 1.1
Positive social interaction‡	1.0	0.9, 1.2
Tangible‡	1.2*	1.0, 1.3
Age group		
25-39†	1.0	...
40-54	1.0	0.5, 2.1
55-64	0.3*	0.1, 0.7
Psychiatric features		
Onset of symptoms before age 17	0.8	0.4, 1.7
Lifetime major depressive episode	0.5*	0.2, 1.0
Lifetime panic disorder	1.5	0.7, 3.2
Alcohol-dependent	1.1	0.3, 3.9
Illicit drug-dependent	0.4	0.1, 1.4
Lifetime mental health consultations		
Family doctor	0.8	0.3, 1.8
Psychiatrist	1.2	0.5, 3.0
Psychologist	1.9	0.9, 3.8
Took mood stabilizer in past year	0.5	0.2, 1.3
Hospitalized for mental health in past year	0.2*	0.0, 0.8
Chronic conditions		
Asthma	0.6	0.3, 1.4
Migraine	0.4*	0.2, 0.9
Obesity	1.6	0.8, 3.5
ADL-/IADL-dependent	0.5	0.2, 1.1
Marital status		
Never married/Separated/Divorced†	1.0	...
Married/Living with a partner	1.3	0.6, 2.7
Education		
Less than secondary graduation	0.2*	0.1, 0.5
Secondary graduation	1.0	0.4, 2.3
Some postsecondary	0.5	0.2, 1.5
Postsecondary graduation†	1.0	...

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
Notes: Model based on records for 620 respondents meeting criteria for bipolar I disorder (defined as lifetime major depressive episode and lifetime manic episode) and for whom data on variables included in model were available. Because of rounding, some odds ratios for which the upper or lower confidence limit is 1.0 are statistically significant.
† Reference category. When not noted, reference category is absence of characteristic; for example, reference category for "alcohol-dependent" is not alcohol-dependent.
‡ Used as continuous variable in model
**Significantly different from estimate for reference category ($p < 0.05$)*
··· Not applicable

Limitations

Although previous versions of the Composite International Diagnostic Interview (CIDI) have been validated for use in community-based surveys, a new version of this instrument was used by the Canadian Community Health Survey (CCHS), and its validation has not been completed. Therefore, the extent to which assessments made by trained clinicians would correspond with CCHS findings is unknown.

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV®-TR)*[2] specifies that people whose manic episodes are due to alcohol or drug abuse, medication, other treatment for depression, toxin exposure or the direct physiological effects of a general medical condition should not be counted among those with bipolar I disorder.[2] Those exclusions were not applied in this analysis, based on advice received by Statistics Canada from clinical experts, who suggested that external causes of affective episodes can be assessed only by trained diagnosticians in face-to-face interviews, not by lay interviewers. The inclusion of people who would have been excluded by the DSM-IV criteria inflated the prevalence estimate of bipolar I disorder to an unknown degree, and limits its international comparability.

Because of a skip pattern applied during the CCHS interview, the derived variable used for manic episode excludes some people whose episode was characterized by "irritable mood," as specified in criterion A of the DSM-IV (see *Annex*).[2] The algorithm for the CCHS excludes respondents who were screened into the questions on manic episode based on having experienced a distinct period of feeling "excited and full of energy" *and* a period of feeling irritable, grumpy or in a bad mood, but who then denied having felt specific symptoms of mania ("being more talkative, needing very little sleep, being very restless, going on buying sprees, and behaving in ways that they would normally think are inappropriate. . ."), even though they might have had symptoms consistent with extreme irritability. The effect of this exclusion is to limit the external validity of the findings of the analysis.

From the data collected in the CCHS interview, it was not possible to differentiate a manic from a "mixed" episode (characterized by a period—usually a week—in which the criteria are met for both a manic and a major depressive episode).[2] However, because the criteria for bipolar I disorder include either a manic or a mixed episode, this limitation of the survey instrument probably did not affect the prevalence estimate.

Previous research indicates that bipolar disorder may be misdiagnosed as depression because of the long interval (up to 15 years) until the onset of a manic episode.[25,48] Therefore, some respondents who met only the criteria for major depressive episode may have been misclassified. Such misclassification would weaken associations between the dependent and independent variables.

Several previous studies have noted that people with bipolar I disorder experience impairment or deterioration over time in their ability to function at work, even if they are able to remain employed.[5,8-10,21,25] However, job performance measures were not available from the CCHS. As well, data were not collected on other factors that influence the probability of being employed. For instance, cognitive ability, which may deteriorate as a result of bipolar I disorder,[49,50] and the number of previous manic or depressive episodes could not be considered. The effects of such omissions are unknown.

The impact of excluding 198 respondents (0.5% of the total) who did not provide information about manic episodes is unknown. Bias would result if the prevalence of bipolar I disorder was higher in this group than among respondents from whom complete information was obtained, but the effect would be minimal because of the small numbers involved.

The reference periods differed for some of the variables that were considered together. For example, current social support and employment were examined in relation to a lifetime history of bipolar disorder. Although strong negative associations with bipolar disorder emerged, many other factors may account for the relationships observed.

The analysis is based on cross-sectional data, which permit the observation of associations between variables at one point in time. Neither causality nor the temporal ordering of events can be inferred from the data. For example, it is not possible to establish if tangible social support precedes or follows employment among people who have experienced a manic episode.

some aspects of emotional, social and interpersonal support are implicit in tangible support (evident in the strong correlations among the four variables—see *Methods*), but that tangible support offers an additional independent benefit. Tangible support was measured on a scale scored from 0 to 16. On average, an increase of one in the tangible support score is associated with a rise of 15% in the odds of having a job.

Obstacles

A number of other variables were related to employment among people with bipolar I disorder. Those who had migraine, asthma, illicit drug dependence, or who needed help with activities of daily living were less likely to be employed (Table 2). However, when controlling for other influences in multiple regression analysis, only the negative association with migraine persisted (Table 3).

People whose bipolar I disorder involved major depressive episodes were less likely to be employed. Such a history may indicate a greater severity of symptoms, as well as longer time to recover between episodes.[51]

Hospitalization within the previous 12 months for treatment of mental or emotional problems also reduced the odds of employment. This is consistent with previous research.[49] Admission to hospital may have been necessitated by a severe manic or depressive episode, so the negative association with current employment was not surprising.

As well, people with bipolar I disorder who had not graduated from high school had significantly low odds of employment.

While the early appearance of bipolar I disorder—during childhood or adolescence—has been linked to social problems,[52] results from the CCHS showed no relationship between an early age of onset and employment. And when all the factors were taken into account, people with bipolar I disorder who had consulted medical professionals or who had taken mood stabilizers were no more or less likely to be employed than those who had not.

Concluding remarks

According to data from the first survey to measure mental health in the Canadian household population, an estimated 24 in every 1,000 people reported that they have experienced at least one manic episode, and more than half of these people also suffered a major depressive episode. In some cases, the episodes may have resulted from drug or alcohol abuse, or the effects of medical conditions. For a substantial proportion, however, it is likely that their symptoms arose from bipolar I disorder.

Previous research suggests that bipolar I disorder exerts a negative impact on social roles and interpersonal relationships,[5,8] although the causal directions have not been well established and may be reciprocal.[53] The symptoms appear early in life and disrupt social and vocational functioning. People with bipolar I disorder are less likely to have completed postsecondary education. They are more likely to depend on others for help with activities of daily living, and are at dramatically higher risk of other mental and physical problems.

Despite these obstacles, most people of working age with bipolar I disorder are employed. In this regard, those who perceive that someone is available to help with the practical necessities of life may have an advantage. However, about one in four people with the disorder reported that such assistance was available infrequently or not at all. Thus, the provision of mental health support services that include access to tangible assistance might help to reduce the serious negative impact that bipolar symptoms can have on finding and keeping a job.

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Annex


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Definitions of mental disorders in the Canadian Community Health Survey: Mental Health and Well-being

The Canadian Community Health Survey (CCHS) cycle 1.2: Mental Health and Well-being was conducted in the 10 provinces in 2002. The survey used the World Mental Health version of the Composite International Diagnostic Interview (WMH-CIDI) to estimate the prevalence of various mental disorders in the Canadian household population aged 15 or older. The WMH-CIDI was designed to be administered by lay interviewers and is generally based on diagnostic criteria outlined in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV®-TR).[1] Based on the advice of experts in the field of mental health, the WMH-CIDI and the algorithms used to identify mental disorders were revised over a period of time. The questionnaire used for the CCHS is available at www.statcan.ca/English/concepts/health/cycle1.2/index.htm. This Annex provides the details of the specific algorithms used to define mental disorders for the CCHS.

For some disorders, a set of screening questions was asked to determine if it would be appropriate to ask the respondent the more detailed questions designed to assess a particular disorder. This was done to reduce the number of questions posed to respondents without mental disorders. In some cases, these screening questions were also used in the algorithm to categorize respondents as having a disorder.

Alcohol dependence

Alcohol dependence, past 12 months

Alcohol dependence was determined using a *short-form measure* containing a series of questions measuring seven different symptoms. CCHS respondents who had *five or more drinks during one occasion at least once a month during the past 12 months* were asked the following seven questions to determine how their drinking affected everyday activities:

"During the past 12 months:

- have you ever been drunk or hung-over while at work, school or while taking care of children?"
- were you ever in a situation while drunk or hung-over which increased your chances of getting hurt? (for example, driving a boat, using guns, crossing against traffic, or during sports)?"
- have you had any emotional or psychological problems because of alcohol use, such as feeling uninterested in things, depressed or suspicious of people?"
- have you had such a strong desire or urge to drink alcohol that you could not resist it or could not think of anything else?"
- have you had a period of a month or more when you spent a great deal of time getting drunk or being hung-over?"
- did you ever drink much more or for a longer period of time than you intended?"
- did you ever find that you had to drink more alcohol than usual to get the same effect or that the same amount of alcohol had less effect on you than usual?"

This short-form was developed to reproduce a measure that operationalized both Criteria A and B of the DSM-III-R diagnosis for psychoactive substance use disorder.[2] Respondents who reported three or more symptoms were considered to have ***alcohol dependence***.[3]

Bipolar I disorder

Screening questions:

Respondents were "screened in" before they were asked detailed questions about ***bipolar I disorder***. To be screened in, the following responses were required:

YES to: **Question 1**
"Some people have periods lasting several days or longer when they feel much more excited and full of energy than usual. Their minds go too fast. They talk a lot. They are very restless or unable to sit still and they sometimes do things that are unusual for them. For example, they may drive too fast or spend too much money. During your life, have you ever had a period like this lasting several days or longer?"

OR

YES to: **Question 2**
"Have you ever had a period lasting several days or longer when most of the time you were very irritable, grumpy or in a bad mood?"

AND

Question 3
"Have you ever had a period lasting several days or longer when most of the time you were so irritable that you either started arguments, shouted at people or hit people?"

Respondents who answered "yes" to Question 1 or "yes" to Questions 2 and 3 were asked the more detailed questions in the "mania" section of the questionnaire.

Manic episode, lifetime history

Criterion 1, lifetime

To meet the criteria for ***lifetime manic episode***, respondents must have had: (1A) a distinct period of abnormally and persistently elevated, expansive or irritable mood lasting at least one week; (1B) three or more of seven symptoms (or four or more if mood is irritable only) present during the mood disturbance; and (1C) marked impairment in normal daily activities, occupational functioning or usual social activities or relationships with others (1Ci), or mood disturbance including psychotic features (1Cii), or mood disturbance serious enough to require hospitalization (1Ciii).

1A

Respondents who answered "yes" to Screening Question 1 were asked:

> "Earlier you mentioned having a period lasting several days or longer when you felt much more excited and full of energy than usual. During this same period, your mind also went too fast. People who have periods like this often have changes in their thinking and behaviour at the same time, like being more talkative, needing very little sleep, being very restless, going on buying sprees, and behaving in ways they would normally think are inappropriate. Tell me, did you ever have any of these changes during the period when you were excited and full of energy?"

Respondents who answered "no" were not asked any more questions in the mania section, regardless of their response to Screening Questions 2 and 3.

Those who said "no" to Screening Question 1, but "yes" to Screening Questions 2 and 3 were asked:

> "Earlier you mentioned having a period lasting several days or longer when you became so irritable or grouchy that you either started arguments, shouted at people or hit people. People who have periods of irritability like this often have changes in their thinking and behaviour at the same time, like being more talkative, needing very little sleep, being very restless, going on buying sprees, and behaving in ways they would normally think are inappropriate. Tell me, did you ever have any of these changes during the periods when you were very irritable or grouchy?"

Respondents who answered "no" were not asked any more questions in the mania section.

For both questions in 1A, duration of at least one week was established by asking: "How long did that episode last (in terms of hours, days, weeks, months or years)?"

1B

At least three of the following seven symptoms were required to meet this criterion (or at least four of seven if mood was irritable/grouchy only):

1. *Inflated self-esteem or sense of grandiosity*
   - "Did you have a greatly exaggerated sense of self-confidence or believe that you could do things that you really couldn't do?"

   or

   - "Did you have the idea that you were actually someone else, or that you had a special connection with a famous person that you really didn't have?"

2. *Decreased need for sleep*
   - "Did you sleep far less than usual and still not get tired or sleepy?"

3. *More talkative than usual or pressure to keep talking*
   - "Did you talk a lot more than usual or feel a need to keep talking all the time?"

4. *Flight of ideas or subjective experience that thoughts are racing*
   - "Did your thoughts seem to jump from one thing to another or race through your head so fast that you couldn't keep track of them?"

5. *Distractibility*
   - "Did you constantly keep changing your plans or activities?"

   or

   - "Were you so easily distracted that any little interruption could get your thinking 'off track'?"

6. *Increase in goal-oriented activity or psychomotor agitation*
   - "Did you become so restless or fidgety that you paced up and down or couldn't stand still?"
   - "Did you become overly friendly or outgoing with people?"
   - "Were you a lot more interested in sex than usual, or did you want to have sexual encounters with people you wouldn't ordinarily be interested in?"
   - "Did you try to do things that were impossible to do, like taking on large amounts of work?"

7. *Excessive involvement in pleasurable activities that have a high potential for painful consequences*
   - "Did you get involved in foolish investments or schemes for making money?"

   or

   - "Did you spend so much more money than usual that it caused you to have financial trouble?"

   or

   - "Were you interested in seeking pleasure in ways that you would usually consider risky, like having casual or unsafe sex, going on buying sprees or driving recklessly?"

1C

There were three ways to meet this sub-criterion: 1Ci, 1Cii or 1Ciii.

1Ci: *To be considered as having marked impairment in normal activities, occupational functioning or usual social activities or relationships with others, respondents had to meet one of the following:*

- "You just mentioned that you had an episode/ episodes when you were very excited and full of energy/irritable or grouchy . . . . How much did that episode/these episodes ever interfere with either your work, your social life or your personal relationships?"

  Respondents who answered "not at all," or "a little" were asked no further questions in the mania section. Those who replied with "a lot" or "extremely" were considered to meet this criterion.

  or

- "During that episode/these episodes, how often were you unable to carry out your normal daily activities?"

  Response categories were: "often," "sometimes," "rarely" and "never"; responses of "often" or "sometimes" met this criterion.

or

- A high level of interference with activities (a score between 7 and 10):
  - "How much did your episode interfere with your home responsibilities, like cleaning, shopping and taking care of the house or apartment?"
  - "How much did your episode interfere with your ability to attend school?"
  - "How much did it interfere with your ability to work at a job?"
  - "Again thinking about that period of time lasting one month or longer when your episode(s) was/were most severe, how much did it/they interfere with your ability to form and maintain close relationships with other people?"
  - "How much did it/they interfere with your social life?"

Scores had to fall in the 7-to-10 range, scored on an 11-point scale, with 0 representing "no interference" and 10, "very severe interference."

or

Respondents who gave a number between 5 and 365 in response to, "In the past 12 months, about how many days out of 365 were you totally unable to work or carry out your normal activities because of your episode(s) of being very excited and full of energy/irritable or grouchy?" were considered to have marked impairment in occupational functioning.

or

A response of "yes" to: "Did you ever in your life see, or talk on the telephone to, a medical doctor or other professional about your episode(s) of being very excited and full of energy/irritable or grouchy? (By other professional, we mean psychologists, psychiatrists, social workers, counsellors, spiritual advisors, homeopaths, acupuncturists, self-help groups or other health professionals.)

1Cii: *A "yes" response to: "Did you have the idea that you were actually someone else, or that you had a special connection with a famous person that you really didn't have?" established a psychotic feature.*

1Ciii: *To establish mood disturbance severe enough to require hospitalization, an answer of "yes" to "Were you ever hospitalized overnight for your episode(s) of being very excited and full of energy/irritable or grouchy?"*

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Illicit drug dependence

Illicit drug dependence, past 12 months

The CCHS 1.2 asked about use of the following illicit drugs: cannabis, cocaine, speed (amphetamines), ecstasy (MDMA) or other similar drugs, hallucinogens, heroin, and sniffing solvents such as gasoline or glue. Follow-up questions measuring symptoms of dependence were posed to respondents who had used such illicit drugs at least monthly in the past year.

Individuals were considered to have an ***illicit drug dependence*** if they experienced at least three symptoms related to aspects of tolerance, withdrawal, loss of control and social or physical problems related to their illicit drug use in the past 12 months. Six symptoms were measured:

1. *Tolerance, meaning a need for markedly increased amounts of the drug to achieve intoxication or desired effect or by markedly diminished effect with continued use of the same amount of drug.*

   - "During the past 12 months, did you ever need to use more drugs than usual in order to get high, or did you ever find that you could no longer get high on the amount you usually took?"

2. *Withdrawal manifested by withdrawal syndrome or by taking the same (or a closely related) substance to relieve or avoid withdrawal symptoms.*

   Interviewers read the following:
   - "People who cut down their substance use or stop using drugs altogether may not feel well if they have been using steadily for some time. These feelings are more intense and can last longer than the usual hangover."

   Then respondents were asked:
   - "During the past 12 months, did you ever have times when you stopped, cut down or went without drugs and then experienced symptoms like fatigue, headaches, diarrhea, the shakes or emotional problems?"

   or

   - "During the past 12 months, did you ever have times when you used drugs to *keep* from having such symptoms?"

3. *The drug is often taken in larger amounts or over a longer period than was intended, or drugs are used even though respondent promised not to use them.*

   - "During the past 12 months, did you ever have times when you used drugs even though you promised yourself you wouldn't, or times when you used a lot more drugs than you intended?"

   and

   - "During the past 12 months, were there ever times when you used drugs more frequently, or for more days in a row than you intended?"

4. *A great deal of time is spent obtaining the drug (for example, visiting multiple doctors or driving long distances), using the drug, or recovering from its effects.*

   - "During the past 12 months, did you ever have periods of several days or more when you spent so much time using drugs or recovering from the effects of using drugs that you had little time for anything else?"

5. *Important social, occupational, or recreational activities are given up because of drug use.*

   - "During the past 12 months, did you ever have periods of a month or longer when you gave up or greatly reduced important activities because of your use of drugs?"

6. *Drug use continues despite recognizing a persistent or recurrent physical or psychological problem likely caused or exacerbated by the drug.*

   - "During the past 12 months, did you ever continue to use drugs when you knew you had a serious physical or emotional problem that might have been caused by or made worse by your use?"

Major depressive disorder

Screening questions:

Respondents were "screened in" to (or out of) the module on ***major depressive disorder*** based on their replies to the following three questions. At least one "yes" response was required:

Yes to: **Question 1**
"Have you ever in your life had a period lasting several days or longer when most of the day you felt sad, empty or depressed?"

OR

Question 2
"Have you ever had a period lasting several days or longer when most of the day you were very discouraged about how things were going in your life?"

OR

Question 3
"Have you ever had a period lasting several days or longer when you lost interest in most things you usually enjoy, like work, hobbies and personal relationships."

CCHS respondents were accepted for the module as soon as they answered "yes" to a question in this series.

Major depressive disorder, lifetime history

Criterion 1, lifetime

To meet this criterion, respondents must have had the following symptoms during the same two-week period: depressed mood or loss of interest or pleasure in most things usually enjoyed (1A) and five of nine additional symptoms associated with depression that represented a change from previous functioning (1B).

1A

Note: The questions asked in this section depended on how the screening questions were answered.

At least one "yes" to the following series of questions:

1. 'Earlier, you mentioned having periods that lasted several days or longer when you lost interest in most things like work, hobbies or other things you usually enjoy. Did you ever have such a period that lasted for most of the day, nearly every day, for two weeks or longer?"
2. "Did you ever have a period of being sad or discouraged that lasted for most of the day, nearly every day, for two weeks or longer?"
3. "Did you feel sad, empty or depressed most of the day, nearly every day, during that period of two weeks?"
4. "Nearly every day, did you feel so sad that nothing could cheer you up?"
5. "During that period of two weeks, did you feel discouraged most of the day, nearly every day, about how things were going in your life?"
6. "Did you feel hopeless about the future nearly every day?"
7. "During that period of two weeks, did you lose interest in almost all things like work, hobbies and things you like to do for fun?"
8. "Did you feel like nothing was fun even when good things were happening?"

1B

Five of nine symptoms were required to meet this criterion:

1. *Depressed mood*
   - "Did you feel sad, empty or depressed most of the day, nearly every day, during that period of two weeks?"
   - "Nearly every day, did you feel so sad that nothing could cheer you up?"
   - "During that period of two weeks, did you feel discouraged most of the day, nearly every day, about how things were going in your life?"
   - "Did you feel hopeless about the future nearly every day?"
2. *Diminished interest/pleasure in most activities*
   - "During that period of two weeks, did you lose interest in almost all things like work, hobbies and things you like to do for fun?"
   - "Did you feel like nothing was fun even when good things were happening?"

3. *Significant weight loss/gain or change in appetite*

   - "During that period of two weeks, did you, nearly every day, have a *much smaller* appetite than usual?"
   - "Did you have a *much larger* appetite than usual nearly every day?"
   - "During that period of two weeks, did you gain weight without trying to?"
   - "Was this weight gain due to a physical growth or a pregnancy?"
   - "Did you *lose* weight without trying to?"
   - "Was this weight loss a result of a diet or a physical illness?"
   - "How much did you lose?"

4. *Insomnia/Hypersomnia*

   - "During that period of two weeks, did you have a lot more trouble than usual either falling asleep, staying asleep or waking up too early *nearly every night*?"
   - "During that period of two weeks, did you sleep a lot more than usual *nearly every night*?"

5. *Psychomotor agitation/retardation*

   - "Did you talk or move more slowly than is normal for you nearly every day?"
   - "Did anyone else notice that you were talking or moving slowly?"
   - "Were you so restless or jittery nearly every day that you paced up and down or couldn't sit still?"
   - "Did anyone else notice that you were restless?"

6. *Fatigue/Loss of energy*

   - "During that period of two weeks, did you feel tired or low in energy nearly every day, even when you had not been working very hard?"

7. *Feelings of worthlessness*

   - "Did you feel totally worthless nearly every day?"

8. *Diminished ability to think/concentrate*

   - "During that period of two weeks, did your thoughts come much more slowly than usual or seem mixed up nearly every day?"
   - "Nearly every day, did you have a lot more trouble concentrating than is normal for you?"
   - "Were you unable to make up your mind about things you ordinarily have no trouble deciding about?"

9. *Recurrent thoughts of death*

   - "During that period, did you ever think that it would be better if you were dead?"
   - "Three experiences are listed, EXPERIENCE A, B and C. Think of the period of *two weeks or longer* [when your feelings of being sad or discouraged or when you lost interest in most things you usually enjoy] and other problems were most severe and frequent. During that time, did Experience A happen to you? (You seriously thought about committing suicide or taking your own life.)
     Now, look at the second experience on the list, Experience B. Did Experience B happen to you? (You made a plan for committing suicide.)
     Now, look at the third experience on the list, Experience C. During that period of *two weeks or longer*, did Experience C happen to you? (You attempted suicide or tried to take your own life.)"

Criterion 2, lifetime

Respondents were asked four questions to establish that their lifetime depressive symptoms caused clinically significant distress. This criterion was fulfilled by meeting one of these four items (2A or 2B or 2C or 2D).

2A

A response of "moderate," "severe" or "very severe" to: "During those periods, how severe was your emotional distress?"

2B

A response of "often" or "sometimes" to: "During those periods, how often was your emotional distress so severe that nothing could cheer you up?"

2C

A response of "often" or "sometimes" to: "During those periods, how often was your emotional distress so severe that you could not carry out your daily activities?"

2D

A "yes" to: "Nearly every day, did you feel so sad that nothing could cheer you up?"

Criterion 3, lifetime

To meet this final criterion, the lifetime depressive episodes were *not* always accounted for by bereavement (i.e., preceded by the death of someone close), as established by a "no" response to 3A or 3B.

3A

A "no" to: "Did your episodes of feeling sad or discouraged ever occur just after someone close to you died?"

3B

A "no" to: "Did your episodes of feeling a loss of interest in most things you usually enjoy always occur just after someone close to you died?

Major depressive disorder, Current (past 12 months)

The following three criteria were used to assess ***current major depressive episode***; that is, whether the respondent had had symptoms in the 12 months before the CCHS interview. All three had to be met for a respondent to be categorized as having a major depressive episode in the past year.

Criterion 1, current

The respondent had to meet the criteria for a lifetime history of major depressive disorder.

Criterion 2, current

A report of a major depressive episode within the past 12 months was required.

Criterion 3, current

This criterion assessed clinically significant distress or impairment in social, occupational or other important areas of functioning. Respondents were asked to think about a period *during the past 12 months* when their feelings of being sad or discouraged or losing interest in things usually enjoyed were *most severe and frequent*. They were then asked a series of questions:

"During this period [two weeks or longer]*, how often:*

- did you feel cheerful?"
- did you feel as if you were slowed down?"
- could you enjoy a good book or radio or TV program?"

Response options: often, sometimes, occasionally, never; at least one response of "occasionally" or "never" required.

"During this period [two weeks or longer]*, how often:*

- did you still enjoy the things you used to enjoy?"
- could you laugh and see the bright side of things?"
- did you take interest in your physical appearance?"
- did you look forward to enjoying things?"

Response options: as much as usual, not quite as much as usual, only a little, not at all; at least one response of "only a little" or "not at all" required.

"Please tell me what number best describes how much these feelings interfered with each of the following activities [period of one month or longer]*:*

- your home responsibilities, like cleaning, shopping and taking care of the house or apartment?"
- your ability to attend school?"
- your ability to work at a job?"
- your ability to form and maintain *close* relationships with other people?"
- your social life?"

Responses: 0 = no interference; 10 = very severe interference. A score in the 4-to-10 range was required.

"How many days out of 365 were you totally unable to work or carry out your normal activities because of your feelings?"

Response: Any number between 0 and 365; a reply between 5 and 365 required.

"During the past 12 months, did you receive professional treatment for your feelings?"

Response: A "yes" response was required.

Panic disorder

Screening questions:

CCHS respondents were either "screened in" to (or out of) the ***panic disorder*** module of the questionnaire based on their replies to the following two questions:

YES to: "During your life, have you ever had an attack of fear or panic when all of a sudden you felt very frightened, anxious or uneasy?"

OR

"Have you ever had an attack when all of a sudden, you became very uncomfortable, you either became short of breath, dizzy, nauseous or your heart pounded, or you thought that you might lose control, die or go crazy?"

These questions established the presence of ***panic attacks***; that is, whether respondents had ever experienced a discrete period of intense fear or discomfort. Those who answered "yes" to one of them were then asked the more detailed questions in the panic disorder module about the symptoms they experienced during their attacks of fear or panic.

1. *Heart pounding/racing*
   - "Did your heart pound or race?"
2. *Shortness of breath*
   - "Were you short of breath?"
3. *Nauseous/Abdominal distress*
   - "Did you feel nauseous or sick to your stomach?"
4. *Dizzy, unsteady, light-headed or faint*
   - "Did you feel dizzy or faint?"
   - "Were you afraid that you might pass out?"
5. *Sweating*
   - "Did you sweat?"
6. *Trembling/Shaking*
   - "Did you tremble or shake?"
7. *Dry mouth*
   - "Did you have a dry mouth?"
8. *Feeling of choking*
   - "Did you feel like you were choking?"
9. *Chest pain/discomfort*
   - "Did you have pain or discomfort in your chest?"
10. *Fear of losing control/going crazy*
    - "Were you afraid that you might lose control of yourself or go crazy?"
11. *Derealization/Depersonalization*
    - "Did you feel that you were 'not really there', like you were watching a movie of yourself?"
    - "Did you feel that things around you were not real or like a dream?"
12. *Fear of dying*
    - "Were you afraid that you might die?"
13. *Hot flushes/Chills*
    - "Did you have hot flushes or chills?"
14. *Numbness/Tingling sensations*
    - "Did you feel numbness or have tingling sensations?"

Respondents who had at least four "yes" responses and four symptoms were then asked if the symptoms they identified began suddenly and reached their peak within 10 minutes after the attack(s) began. If they said "yes," they were considered to meet the criteria for ***lifetime panic attacks***.

Panic disorder, lifetime history

Respondents who were screened in and met the more detailed criteria for lifetime panic attacks were further assessed to determine if they met the following two criteria, establishing a ***lifetime history of panic disorder***.

Criterion 1

To meet this criterion, a respondent must have had at least four recurrent and unexpected panic attacks. Respondents who had stated that their attacks began suddenly and peaked within 10 minutes (criterion 3

for panic attacks) were asked how many of these sudden attacks they had had in their "entire lifetime." Those who had had at least four were then asked if they ever had "an attack that occurred unexpectedly, 'out of the blue'." If they said "yes," they were asked about the number of such attacks.

Criterion 2
Respondents were asked a series of questions about worrying, behaviour changes, and physical associations related to attacks. Either 1A or 1B was required to meet this criterion for lifetime panic disorder.

1A
At least one "yes" response when asked if, after one of these attacks, "you ever had any of the following experiences":

- "A *month or more* when you often worried that you might have another attack?"
- "A *month or more* when you worried that something terrible might happen because of the attacks, like having a car accident, having a heart attack, or losing control?"
- "A *month or more* when you changed your everyday activities because of the attacks?"
- "A *month or more* when you avoided certain situations because of fear about having another attack?"

1B
A "yes" response to: "In the *past 12 months*, did you get upset by any physical sensations that reminded you of your attacks?"

and

A response of "all of the time" or "most of the time" to: "In the *past 12 months*, how often did you avoid situations or activities that might cause these physical sensations?"

Panic disorder, current (past 12 months)

The following three criteria were used to assess ***current panic disorder***; that is, whether the respondent had had symptoms in the 12 months before the CCHS interview. All three had to be met for a respondent to be categorized as having panic disorder in the past year.

Criterion 1
The respondent had to meet the criteria for a lifetime history of panic disorder.

Criterion 2
Respondents who said they had had a sudden and unexpected panic attack that peaked within 10 minutes "at any time in the *past 12 months*"

or

who said their age at the time of their first or most recent panic attack was the same as their age at the time of the interview met this criterion.

Criterion 3
For this criterion, respondents were asked to think about an attack during the past 12 months and define the level of emotional distress they experienced. Responses of "moderate," "severe" or "so severe that you were unable to concentrate and had to stop what you were doing" met this third criterion.

Social anxiety disorder

Screening questions:

Respondents were "screened in" to (or out of) the ***social anxiety disorder*** module of the CCHS based on their replies to the following five "yes"/"no" questions:

YES to: **Question 1**
"Was there ever a time in your life when you felt very afraid or *really, really* shy with people; for example, meeting new people, going to parties, going on a date or using a public bathroom?"

OR

Question 2
"Was there *ever* a time in your life when you felt very afraid or uncomfortable when you had to do something in front of a group of people, like giving a speech or speaking in class?"

AND

YES to: **Question 3**
"Was there *ever* a time in your life when you became *very upset or nervous* whenever you were in social situations or when you had to do something in front of a group?"

AND

YES to: **Question 4**
"Because of your fear, did you *ever* stay away from social situations or situations where you had to do something in front of a group whenever you could?"

OR

Question 5
"Do you think your fear was *ever* much stronger than it should have been?"

Respondents who answered "yes" to Questions 1 or 2 and then "yes" to 3 and "yes" to 4 or 5 were asked the questions in the ***social anxiety disorder*** section of the questionnaire. Otherwise, they were defined as having no history of social anxiety disorder.

Social anxiety disorder, lifetime history

Respondents who met the screening criteria and met all six of the following criteria were considered to have a ***lifetime history of social anxiety disorder***.

Criterion 1, lifetime
Criteria 1A and 1B indicate a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The respondent fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. In the CCHS, both 1A and 1B were required.

1A
At least one "yes" when respondents were asked if there was ever a time in their life when they felt "very shy, afraid or uncomfortable" with the following situations:

1. Meeting new people.
2. Talking to people in authority.
3. Speaking up in a meeting or class.
4. Going to parties or other social gatherings.
5. Performing or giving a talk in front of an audience.
6. Taking an important exam or interviewing for a job, even though you were well prepared.
7. Working while someone watches you.
8. Entering a room when others are already present.
9. Talking with people you don't know very well.
10. Expressing disagreement to people you don't know very well.
11. Writing, eating or drinking while someone watches.
12. Using a public bathroom or a bathroom away from home.
13. When going on a date.
14. In any *other* social or performance situation where you could be the centre of attention or where something *embarrassing* might happen.

1B
At least one "yes" response to the following:

1. "When you were in this/these situation(s), were you afraid you might do something *embarrassing* or *humiliating*?"
2. "Were you afraid that you might embarrass other people?"
3. "Were you afraid that people might *look* at you, *talk* about you or think negative things about you?"
4. "Were you afraid that you might be the focus of attention?"

Criterion 2, lifetime
A "yes" response to: "Was there *ever* a time in your life when you became *very upset or nervous* whenever you were in social situations or when you had to do something in front of a group?" (Screening Question 3.)

Criterion 3, lifetime
A "yes" response to: "Do you think your fear was *ever* much stronger than it should have been?" (Screening Question 5.)

Criterion 4, lifetime
At least one of the following requirements—4A, 4B, 4C, 4D or 4E must have been met:

4A
A "yes" response to: "Because of your fear, did you *ever* stay away from social situations or situations where you had to do something in front of a group whenever you could?" (Screening Question 4.)

4B
A response of "all of the time," "most of the time" or "sometimes" to: "During the *past 12 months*, how often did you avoid any of these situations?"

4C
A "yes" response to at least two of the following reactions when faced with feared situations:

1. "Did your heart ever pound or race?"
2. "Did you sweat?"
3. "Did you tremble?"
4. "Did you feel sick to your stomach?"
5. "Did you have a dry mouth?"
6. "Did you have hot flushes or chills?"
7. "Did you feel numbness or have tingling sensations?"
8. "Did you have trouble breathing normally?"
9. "Did you feel like you were choking?"
10. "Did you have pain or discomfort in your chest?"
11. "Did you feel dizzy or faint?"
12. "Were you afraid that you might die?"
13. "Did you ever fear that you might lose control, go crazy or pass out?"
14. "Did you feel like you were "not really there," like you were watching a movie of yourself or did you feel that things around you were not real or like a dream?"

4D
A response of "severe" or "very severe" to: "What if you were faced with *this/one of these situation(s) today*—how strong would your fear be?"

4E
A "yes" response to: "When you were in this/these situation(s), were you ever afraid that you might have a panic attack?"

Criterion 5, lifetime
This criterion stipulates that the fear or avoidance of social or performance situations must interfere significantly with the individual's normal routine, occupational or academic functioning, or social activities or relationships. At least one of four conditions—5A, 5B, 5C or 5D—had to be true.

5A
Respondents who had experienced symptoms in the past 12 months were asked to indicate how much their fear or avoidance of situations had interfered with various activities. They were asked to think about the period of time over the last year that had lasted one *month or longer* when their fear or avoidance of social or performance situations was most severe. Responses were coded on an 11-point scale, with 0 meaning "no interference" and 10, "very severe interference." A score of 5 or higher for at least one of these situations was required:

1. "How much did your fear or avoidance of social or performance situations interfere with your home responsibilities, like cleaning, shopping and taking care of the house or apartment?"
2. "How much did it interfere with your ability to attend school?"
3. "How much did it interfere with your ability to work at a job?"
4. "How much did this fear or avoidance interfere with your ability to form and maintain *close* relationships with other people?"
5. "How much did it interfere with your social life?"

5B
A response of "some," "a lot" or "extremely" when respondents were asked how much their fear or avoidance of social or performance situations *ever* interfered with their work, social life or personal relationships.

5C
A response of five or more days when asked: "In the past 12 months, about how many days out of 365 were

you totally unable to work or carry out normal activities because of your fear or avoidance of situations?"

5D

A "yes" response to: "Did you *ever* in your life see, or talk on the telephone to, a medical doctor or other professional about your fear or avoidance of social or performance situations?"

Note: Respondents were told that "other professional" meant psychologist, psychiatrist, social worker, counsellor, spiritual advisor, homeopath, acupuncturist, self-help group or other health professionals.

Criterion 6

For people younger than 18 or for people whose symptoms all occurred before they were 18, symptoms must have persisted for at least six months. There is no minimum duration for respondents who experienced symptoms after age 18. Duration of symptoms was calculated by subtracting the age at which the respondent reported strongly fearing or avoiding social or performance situations for the first time from the age this last occurred (or current age for those who still had the disorder).

Social anxiety disorder, current (past 12 months)

Three criteria were used to assess ***current social anxiety disorder***; that is, whether the respondent had had symptoms in the 12 months before the survey interview. All three had to be met for a respondent to be categorized as having social anxiety disorder in the past year.

Criterion 1, current

The respondent had to meet the criteria for a lifetime history of social anxiety disorder.

Criterion 2, current

Respondents who said that the last time they had strongly feared or avoided social or performance situations occurred in the 12 months before the survey interview. Respondents were also asked the ages at which they first and last had fear of or avoided a social or performance situation. If they reported their age at the time of the interview, this was also accepted as evidence of the disorder in the past year.

Criterion 3, current

The fear or avoidance of social or performance situations must have interfered significantly with the individual's normal routine, occupational or academic functioning, or social activities or relationships in the 12 months before the interview. (This criterion is quite similar to criterion 5 for lifetime and, in some cases, exactly the same conditions were used; i.e., the conditions involving items with a 12-month reference period.) At least one of the four conditions considered (3A, 3B, 3C or 3D) had to be true.

3A

(Identical to criterion 5A, lifetime.)

Respondents who had experienced symptoms in the past 12 months were asked to indicate how much their fear or avoidance of situations interfered with five separate activities. They were asked to think about the period of time over the last year that lasted *one month or longer* when their fear or avoidance of social and performance situations was most severe. Responses were coded on an 11-point scale, with 0 meaning "no interference," and 10, "very severe interference."

1. "How much did your fear or avoidance of social or performance situations interfere with your home responsibilities, like cleaning, shopping and taking care of the house or apartment?"
2. "How much did it interfere with your ability to attend school?"
3. "How much did it interfere with your ability to work at a job?"
4. "How much did this fear or avoidance interfere with your ability to form and maintain close relationships with other people?"
5. "How much did it interfere with your social life?"

A score of 5 or higher for at least one of these situations was required, indicating that symptoms of social anxiety disorder interfered with activities over the past 12 months.

3B

A response of "all of the time," "most of the time" or "sometimes" when respondents were asked how often they avoided social or performance situations *in the past 12 months.*

3C

(Identical to criterion 5C, lifetime.)

A response of "five or more days" when asked: "In the past 12 months, about how many days out of 365 were you totally unable to work or carry out normal activities because of your fear or avoidance of situations?"

3D

A "yes" response to: "At any time in the *past 12 months*, did you receive professional treatment for your fear?"

References

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