Alcohol and illicit drug dependence

- *In 2002, more than 600,000 Canadians were dependent on alcohol, and nearly 200,000, on illicit drugs.*
- *Depression was common among people who were alcohol- or drug-dependent.*
- *Heavy drinking tended to lead to depression, but at the same time, depression led to heavy drinking.*

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Abstract

Objectives

This article estimates the prevalence of alcohol and illicit drug dependence among Canadians aged 15 or older. Comorbidity with depression is examined.

Data sources

The data are from the 2002 Canadian Community Health Survey: Mental Health and Well-being and the National Population Health Survey.

Analytical techniques

Cross-tabulations were used to estimate the prevalence of alcohol and illicit drug dependence by selected characteristics. Multiple logistic regression models were used to determine if associations persisted after controlling for potentially confounding factors, and to test temporal relationships between frequent heavy drinking and depression.

Main results

In 2002, an estimated 641,000 people (2.6% of the household population aged 15 or older) were dependent on alcohol, and 194,000 (0.8%), on illicit drugs. These people had elevated levels of depression compared with the general population. Heavy drinking more than once a week was a risk factor for a new episode of depression, and depression was a risk factor for new cases of frequent heavy drinking.

Key words

substance-related disorders, street drugs, alcoholism, social problems, depression, mental health,comorbidity

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A large majority of Canadians regularly drink alcohol,[1] and a considerable share have used illicit drugs.[2] For some of these people, substance use has become dependence. The social, emotional and economic disruption this dependence causes the individuals, their families and communities is well-documented.[3] Substance dependence also has medical consequences: higher morbidity[4] and shorter life expectancy[5-7] than the general population, due, in part, to more chronic conditions, injuries,[5,8] and suicide attempts.[9] As well, substance abuse often co-exists with mental disorders,[4,10-16] although it is not always clear which comes first.[17]

Based on data from the 2002 Canadian Community Health Survey: Mental Health and Well-being (CCHS) cycle 1.2, this article presents prevalence rates of alcohol and illicit drug dependence for the household population aged 15 or older (see *Data sources*, *Definitions*, *Analytical techniques* and *Limitations*). Comorbidity with depression is also examined.

Longitudinal data from the National Population Health Survey (NPHS) are used to investigate the temporal association between frequent heavy drinking and depression.

Most drink, many use drugs

According to the 2002 CCHS, about 19.3 million people—77% of the population aged 15 or older—had consumed alcohol in the past 12 months (Table 1). About 8.8 million, or 35% of the adult population, had engaged in at least one episode of heavy drinking (five or more drinks on a single occasion) in that time. Close to half (48%) of heavy drinkers reported that such episodes occurred at least once a month (Table 2).

In 2002, an estimated 3.1 million people, 13% of the population, reported that they had used illicit drugs in the past year. Cannabis alone was most commonly reported (10%); drugs such as cocaine, ecstasy and

Table 1
Alcohol and illicit drug use in past 12 months, by sex, household population aged 15 or older, Canada excluding territories, 2002

	Both sexes		Men		Women	
	Estimated number		Estimated number		Estimated number	
	'000	%	'000	%	'000	%
Any alcohol use	19,273	77.1	10,066	82.0	9,207	72.5*
Heavy drinking	8,775	35.3	5,692	46.6	3,083	24.3*
Any illicit drug	3,135	12.6	1,947	15.9	1,188	9.4*
Cannabis only	2,538	10.2	1,551	12.7	988	7.8*
At least one other drug†	593	2.4	393	3.2	199	1.6*

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
Note: Because of missing values for some illicit drugs, detail may not add to totals.
† Cocaine, speed, ecstacy, hallucinogens, heroin, sniffing solvents.
** Significantly lower than estimate for men ($p < 0.05$)*

Data sources

Canadian Community Health Survey

Data on substance use and dependence and associations with depression are from the 2002 Canadian Community Health Survey (CCHS) cycle 1.2: Mental Health and Well-being, which began in May 2002 and was conducted over eight months. The survey covered people aged 15 or older living in private dwellings in the 10 provinces. Residents of the three territories, Indian reserves, institutions, and certain remote areas, and full-time members of the Canadian Armed Forces were excluded.

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 reports and on the Statistics Canada Web site.[18,19]

All interviews were conducted using a computer-assisted application. Most (86%) were conducted in person; the remainder, by telephone. Selected respondents were required to provide their own information, as proxy responses were not accepted. The responding sample consisted of 36,984 people aged 15 or older; the response rate was 77%.

National Population Health Survey

The analysis of associations between heavy drinking more than once a week and depression is based on longitudinal data, representing five cycles (1994/95 to 2002/03) of the National Population Health Survey (NPHS). The NPHS, which began in 1994/95, collects information about the health of Canadians every two years. It covers household and institutional residents in all provinces and territories, except persons living on Indian reserves, on Canadian Forces bases, and in some remote areas. The NPHS data in this article pertain to household residents aged 15 or older in the 10 provinces.

In 1994/95, 20,095 respondents were selected for the longitudinal panel. The response rate for this panel in 1994/95 was 86.0%. These 17,276 respondents were re-interviewed every two years. The response rates for subsequent cycles, based on these 17,276 individuals, are: 92.8% for cycle 2 (1996/97); 88.2% for cycle 3 (1998/99); 84.8% for cycle 4 (2000/01); and 80.6% for cycle 5 (2002/03). More detailed descriptions of the NPHS design, sample and interview procedures can be found in published reports.[20,21]

This analysis uses the cycle 5 (2002/03) longitudinal "square" file, which contains records for all responding members of the original panel (17,276), regardless of whether information about them was obtained in all subsequent cycles.

Table 2
Frequency of heavy drinking among heavy drinkers and frequency of illicit drug use among drug users, by sex, household population aged 15 or older, Canada excluding territories, 2002

	Both sexes		Men		Women	
	Estimated number		Estimated number		Estimated number	
	'000	%	'000	%	'000	%
Heavy drinking	8,775	100.0	5,692	100.0	3,083	100.0
Less than once a month	4,553	51.9	2,549	44.8	2,004	65.0*
1 to 3 times a month	2,591	29.5	1,831	32.2	759	24.6*
Once a week	1,034	11.8	802	14.1	232	7.5*
More than once a week	597	6.8	509	8.9	88	2.8*
Illicit drug use	3,135	100.0	1,947	100.0	1,188	100.0
Less than once a month	1,614	51.5	881	45.2	734	61.8*
1 to 3 times a month	528	16.8	340	17.5	188	15.8
Once a week	276	8.8	202	10.4	75	6.3*
More than once a week	436	13.9	326	16.7	110	9.2*
Daily	281	9.0	199	10.2	82	6.9*

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
Note: Because of missing values for frequency of use, subtotals may not add to totals.
** Significantly different from estimate for men (p < 0.05)*

hallucinogens were used by slightly over 2% of the population, an estimated 590,000 individuals. Almost half of those who used drugs (49%) had done so at least monthly, and 9% acknowledged daily use.

More common among men

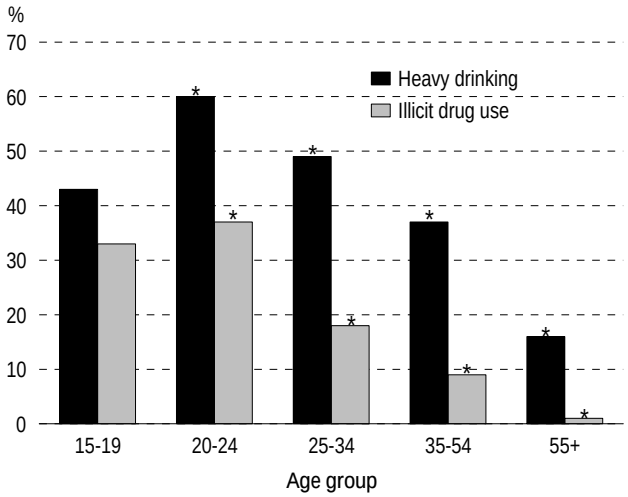
Men are more likely than women to drink heavily and to use illicit drugs.[1,22-24] According to the results of the CCHS, 47% of men had engaged in heavy drinking in the past year, compared with 24% of women (Table 1). Well over half (55%) of men who reported heavy drinking said that such episodes had occurred at least monthly; the comparable figure for women was 35% (Table 2).

The pattern was the same for illicit drugs: 16% of men and 9% of women had used them in the past year. For more than half of these men (55%), use had been at least monthly, compared with 38% of the women. Daily users represented 10% and 7% of the two groups, respectively.

Twentysomething

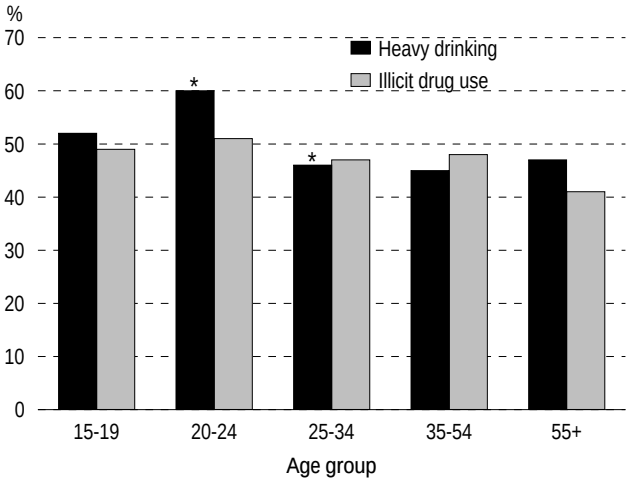
Both heavy drinking and illicit drug use peaked in the early twenties, and dropped with advancing age (Chart 1). Fully 60% of 20- to 24-year-olds reported at least one episode of heavy drinking in the past year; by age 55 or older, the percentage was 16%. Among those who had an episode of heavy drinking, doing so at least monthly was most common at ages 20 to 24 (60%). At age 55 or older, the figure was 47% (Chart 2).

Chart 1
Percentage of people reporting heavy drinking or illicit drug use in past 12 months, 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 next younger age group (p < 0.05)*

Chart 2
Percentage of heavy drinkers and illicit drug users reporting at least monthly episodes/use in past year, 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 next younger age group (p < 0.05)*

Definitions

See the *Annex* for Canadian Community Health Survey (CCHS) technical definitions of *alcohol dependence* and *illicit drug dependence*.

Alcohol use in the past year was determined by asking respondents to the CCHS and the National Population Health Survey (NPHS) if they had had a drink of beer, wine, liquor or any other alcoholic beverage in the past year. Respondents were told that a "drink" meant one bottle or can of beer or glass of draft; one glass of wine or wine cooler; or one drink or cocktail with 1 1/2 ounces of liquor.

Heavy drinking was determined by asking respondents how often in the past 12 months they had had 5 or more drinks on one occasion. *Alcohol dependence* was determined for respondents who reported that they drank heavily at least once a month.

To determine *illicit drug use*, CCHS respondents were asked if they had ever in their life used an illicit drug. Those who said "yes" were asked how often they had done so in the past 12 months: less than once a month, 1 to 3 times a month, once a week, more than once a week, or every day. This was asked separately for the following drugs: marijuana, cannabis or hashish; cocaine or crack; speed (amphetamines); ecstacy (MDMA) or similar drugs; hallucinogens, PCP or LSD (acid); glue, gasoline or other solvents (sniffing); or heroin. Respondents were assigned a frequency for the drug they used most often. For example, someone who used cannabis once a week and cocaine 1 to 3 times a month was assigned a frequency of illicit drug use of once a week. *Drug dependence* was determined for respondents who reported that they used illicit drugs at least once a month.

The NPHS and CCHS differ in how they measure a *major depressive episode* (see *Annex* for CCHS definition). The NPHS uses a subset of questions from the *Composite International Diagnostic Interview*, according to the method of Kessler et al.[25] The questions cover a cluster of symptoms listed in the *Diagnostic and Statistical Manual of Mental Disorders*, third revised edition.[26] Responses to these questions were scored and transformed into a probability estimate of a diagnosis of a major depressive episode. If the estimate was 0.9 or greater (90% certainty of a positive diagnosis), the respondent was considered to have experienced a major depressive episode in the previous 12 months.

Five *age groups* were established for the analysis of CCHS data: 15 to 19, 20 to 24, 25 to 34, 35 to 54, and 55 or older.

Four categories were established for current *marital status*: married or living common-law; divorced or separated; widowed; and never married.

Respondents were grouped into four *education* categories based on the highest level attained: less than secondary graduation, secondary graduation, some postsecondary, and postsecondary graduation.

Household income was based on the number of people in the household and total household income from all sources in the 12 months before the interview.

Household income group	People in household	Total household income
Lowest	1 to 4	Less than $10,000
	5 or more	Less than $15,000
Lower-middle	1 or 2	$10,000 to $14,999
	3 or 4	$10,000 to $19,999
	5 or more	$15,000 to $29,999
Middle	1 or 2	$15,000 to $29,999
	3 or 4	$20,000 to $39,999
	5 or more	$30,000 to $59,999
Upper-middle	1 or 2	$30,000 to $59,999
	3 or 4	$40,000 to $79,999
	5 or more	$60,000 to $79,999
Highest	1 or 2	$60,000 or more
	3 or more	$80,000 or more

Place of residence was determined from the following classifications:

- Urban core is a large urban area around which a census metropolitan area (CMA) or a census agglomeration (CA) is delineated. The urban core must have had a 1996 population of at least 100,000 in the case of a CMA, or 10,000 to 99,999 in the case of a CA.
- Urban fringe is all small urban areas (with less than 10,000 population) within a CMA or CA that are not contiguous to the urban core.
- Rural fringe is sparsely populated areas within a CMA or CA.
- Urban areas outside a CMA/CA have a population of at least 1,000 and no fewer than 400 persons per square kilometre.
- All other areas are classified as rural.

Three categories were used for the CCHS data: urban core; urban area outside urban core (urban fringe, rural fringe and urban areas outside a CMA/CA); and rural area. For the NPHS data, two categories were used: urban area (population of at least 1,000 and at least 400 people per square kilometre), and rural area (all other areas).

Immigrant status was determined by asking respondents whether they were born in or outside of Canada.

To measure *chronic conditions*, respondents were asked about long-term physical conditions that had lasted or were expected to last six months or longer and that had been diagnosed by a health care professional. For the CCHS, interviewers read a list of conditions. For this analysis, 18 chronic conditions were considered: asthma, fibromyalgia, arthritis or rheumatism, back problems, high blood pressure, migraine, chronic bronchitis, emphysema, diabetes, epilepsy, heart disease, cancer, ulcers, the effects of a stroke, bowel disorder, thyroid disorder, chronic fatigue syndrome and multiple chemical sensitivities. The NPHS had a different list of conditions: in cycles 1 to 4, chronic fatigue syndrome and multiple chemical sensitivities were not included; cycles 1 to 3 excluded fibromyalgia; cycles 1 and 2, bowel disorders; and cycle 1, thyroid disorders.

Similarly, 20- to 24-year-olds had the highest rate of illicit drug use: 37%. At ages 25 to 34, the rate was 18%, and at 55 or older, just 1%. However, the frequency of consumption among those who used drugs varied little by age. From ages 15 to 54, about half of illicit drug users reported at least monthly use; at age 55 or older, the proportion was 41%.

Dependence

The CCHS measured seven symptoms of dependence among respondents who drank heavily at least once a month, and six symptoms of dependence among respondents who used illicit drugs at least once a month. Those with three or more symptoms were considered to be dependent (see *Annex*).

The most common symptoms of alcohol dependence reported by heavy monthly drinkers were being drunk or hungover at work or school or while taking care of children (27%) and drinking much more or for a longer period than intended (26%) (Table 3). The symptoms of dependence most commonly reported by monthly illicit drug users were taking the drug in larger amounts or over a longer period than originally intended (39%), increased tolerance (18%), and withdrawal (17%).

According to the CCHS, about 641,000 people, representing 2.6% of the household population aged 15 or older, were dependent on alcohol, and an estimated 194,000 (0.8%) were dependent on illicit

Provincial differences

In 2002, the rate of alcohol dependence varied from 1.9% in Québec to 4.1% in Saskatchewan. Compared with the national level (2.6%), rates were significantly low in Québec and Ontario and significantly high in the Prairie Provinces and British Columbia. Rates of illicit drug dependence did not differ greatly among the provinces, but because of small sample sizes, these estimates should be regarded with caution.

Prevalence of alcohol and illicit drug dependence, by province, household population aged 15 or older

	Alcohol	Illicit drugs
Canada†	2.6	0.8
Newfoundland and Labrador	3.2E1	0.6E2
Prince Edward Island	2.9E1	F
Nova Scotia	3.2	0.6E2
New Brunswick	2.0E1	F
Québec	1.9*	0.9E1
Ontario	2.1*	0.6*
Manitoba	3.6*	0.6E2
Saskatchewan	4.1*	0.8E1
Alberta	3.5*	1.0E1
British Columbia	3.6*	1.1E1

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
† Excludes territories.
** Significantly different from estimate for Canada (p < 0.05)*
E1 Coefficient of variation between 16.6% and 25.0%
E2 Coefficient of variation between 25.1% and 33.3%
F Coefficient of variation greater than 33.3%

Table 3
Dependence symptoms among people who drank heavily or used illicit drugs at least monthly in previous year, by sex, household population aged 15 or older, Canada excluding territories, 2002

	Both sexes		Men		Women	
	Estimated number		Estimated number		Estimated number	
	'000	%	'000	%	'000	%
Heavy drinking at least monthly						
Drunk/Hungover at work, school or while caring for children	1,132	26.9	816	26.0	317	29.3*
Alcohol taken in larger amounts or over longer period than intended	1,103	26.2	823	26.3	280	26.0
In situation while drunk/hungover that increased chance of injury	707	16.8	597	19.0	110	10.2*
Increased tolerance	686	16.3	506	16.2	180	16.7
Month or more when great deal of time spent getting drunk/hungover	358	8.5	261	8.3	97	9.0
Emotional/Psychological problems because of alcohol use	327	7.8	236	7.5	92	8.5
Strong desire or urge to drink could not be resisted	324	7.7	237	7.6	87	8.1
Illicit drug use at least monthly						
Drug taken in larger amounts than intended	590	38.8	429	40.3	161	35.5
Increased tolerance	278	18.3	190	17.8	88	19.4
Withdrawal	260	17.2	178	16.7	82	18.2
Continued drug use despite ill health effects	143	9.4	96	9.0	47	10.4
Great deal of time spent obtaining drug	127	8.4	88	8.2	40E1	8.8E1
Important activities given up because of drug use	108	7.1	75	7.0	33E1	7.3E1

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
** Significantly different than estimate for men (p < 0.05)*
E1 Coefficient of variation between 16.6% and 25.0%

drugs (Table 4). Canadian dependence rates appear similar to those reported in Australia and the United States,[14,27-29] however, the data are not directly comparable because of differences in survey methodology (see *Provincial differences)*.

Earlier studies have shown that the risk of becoming dependent varies with the type of drug, and that cannabis users have the lowest risk.[11,29] Analysis of the CCHS data also reveals a much lower level of dependence among people who had used only cannabis in the past year (3.4%), compared with those who had used other illicit drugs (18.1%).

At risk

Men were more likely than women to be dependent on alcohol (3.9% versus 1.3%) or illicit drugs (1.1% versus 0.5%) (Table 4).

Being young, single or born in Canada, living in a low-income household, and having relatively little education were also associated with elevated risks of dependence. For example, the rate of alcohol dependence was 8.6% at ages 20 to 24, compared with less than 2% at ages 35 or older. The corresponding figures for illicit drug dependence were 2.6% and 0.3%. About 6% of people who had never

Analytical techniques

Cross-tabulations based on data from the 2002 Canadian Community Health Survey: Mental Health and Well-being (CCHS) were used to estimate the prevalence of heavy drinking, alcohol dependence, illicit drug use and illicit drug dependence, according to selected personal characteristics. Two multiple logistic regressions were used to model the association between these variables and reporting alcohol or illicit drug dependence.

Cross-tabulations of 2002 CCHS data were used to estimate the prevalence of depression by four levels of heavy drinking/alcohol dependence and four levels of illicit drug use/dependence. Multiple logistic regressions were used to model the association between these variables while controlling for sex, age, marital status, education, household income, place of residence, immigrant status, and chronic conditions. Alcohol use/dependence and illicit drug use/dependence were first entered separately into different logistic models to determine baseline odds ratios (model 1). Both heavy drinking and illicit drug use were then included in the same model to determine the impact on the odds ratios. Although this lowered the odds ratios, they remained statistically significant. Therefore, only model 2, which contains both substance use variables, is presented in this article.

	Odds ratios for depression	
	Model 1	Model 2
Heavy drinking in past year		
None	1.0	1.0
Less than once a month	1.2	1.1
Monthly, but not dependent	1.1	1.0
Dependent	3.1*	2.1*
Illicit drug use in past year		
None	1.0	1.0
Less than once a month	1.8*	1.7*
Monthly, but not dependent	1.6*	1.4*
Dependent	6.0*	4.5*

** Significantly different from estimate for "none" ($p < 0.05$)*

Two multivariate logistic regression models were used to examine the temporal association between heavy drinking more than once a week and a major depressive episode using longitudinal data from the National Population Health Survey. The first model examined the two-year incidence of heavy drinking more than once a week (new cases in a two-year period) among people who reported a major depressive episode in the baseline year. The second model examined the two-year incidence of a major depressive episode (new cases) among people who had engaged in heavy drinking more than once a week in the baseline year. Each model controlled for sex, age, marital status, education, household income, place of residence, immigrant status, and chronic conditions. All regressions were run on the 1994/95 to 2002/03 NPHS longitudinal square file. An incident case was defined as either a major depressive episode or heavy drinking more than once a week in cycle 2, 3, 4 or 5 from a respondent who had not reported the problem in the previous cycle. For every two-year interval (1994/95-to-1996/97, 1996/97-to-1998/99, 1998/99-to-2000/01, 2000/01-to-2002/03), a new record was created for each respondent who had not reported the condition in the previous cycle. Consequently, one respondent could contribute up to four records to the analyses for each condition: one for every two-year interval. Some 42,189 records were used in the model that measured the two-year incidence of depression, and 44,372 records were used in the model that measured the two-year incidence of heavy drinking more than once a week.

To account for the effects of survey design, the variance on prevalence, on differences between prevalence rates, and on odds ratios was calculated using the bootstrap technique.[30-32]

been married were alcohol-dependent, and 2% were dependent on illicit drugs; the corresponding percentages for married people were 1% or less. As well, rates of alcohol and drug dependence for people who had not graduated from high school or who lived in low-income households were significantly higher than those for people who had postsecondary credentials or lived in high-income households. People born in Canada were three times more likely than immigrants to be dependent on alcohol or illicit drugs. By contrast, urban or rural residence was not associated with substance dependence—urban dwellers were no more or less likely than rural residents to be alcohol- or drug-dependent.

However, these factors are not isolated from each other; for instance, young people are more likely than older people to be single and to have comparatively low incomes. Nonetheless, when the variables were

Table 4
Prevalence of and adjusted odds ratios for alcohol dependence and illicit drug dependence, by selected characteristics, household population aged 15 or older, Canada excluding territories, 2002

	Alcohol dependence				Illicit drug dependence			
	Estimated number	Prev-alence	Odds ratio	95% confidence interval	Estimated number	Prev-alence	Odds ratio	95% confidence interval
	'000	%			'000	%		
Total	641	2.6	...	...	194	0.8	...	...
Sex								
Men	472	3.9*	2.9*	2.4, 3.4	135	1.1*	2.3*	1.7, 3.2
Women†	168	1.3	1.0	...	59	0.5	1.0	...
Age group								
15-19†	125	5.6	1.0	...	61E1	2.7E1	1.0	...
20-24	164	8.6*	1.9*	1.4, 2.6	50	2.6	1.3	0.7, 2.3
25-34	146	3.6*	1.2	0.9, 1.6	41	1.0*	0.9	0.5, 1.5
35-54	172	1.7*	0.6*	0.4, 0.9	42E1‡	0.3*‡	0.3*‡	0.1, 0.5
55+	34E2	0.5*E2	0.2*	0.1, 0.4	...	...	...	...
Marital status								
Married/Common-law†	197	1.3	1.0	...	42E1	0.3E1	1.0	...
Separated/Divorced	52	2.8*	2.6*	1.9, 3.6	13E2	0.7*E2	2.5*	1.2, 5.3
Never married	387	6.1*	2.3*	1.8, 3.0	139	2.2*	2.7*	1.5, 4.8
Education								
Less than secondary graduation	164	2.6*	1.4*	1.0, 1.8	76	1.2*	2.2*	1.3, 3.6
Secondary graduation	152	3.3*	1.6*	1.3, 2.1	32E1	0.7*E1	1.5	0.9, 2.3
Some postsecondary	100	4.8*	1.6*	1.2, 2.1	41E1	2.0*E1	2.5*	1.4, 4.7
Postsecondary graduation†	215	1.8	1.0	...	44	0.4	1.0	...
Household income								
Low	36	5.1*	1.7*	1.2, 2.5	20E1	2.8*E1	3.6*	1.8, 7.5
Lower-middle	42	2.7	1.1	0.8, 1.7	24E2	1.5*E2	2.5*	1.1, 5.3
Middle	92	2.0*	0.8	0.6, 1.2	28E1	0.6E1	0.9	0.5, 1.8
Upper-middle	206	2.5	1.0	0.8, 1.2	51	0.6	1.0	0.6, 1.7
High†	198	2.7	1.0	...	47E1	0.6E1	1.0	...
Place of residence								
Urban core	458	2.6	1.2	1.0, 1.6	146	0.8	1.1	0.6, 2.2
Urban area outside core	122	2.6	1.2	0.9, 1.6	27E1	0.6E1	0.7	0.3, 1.6
Rural area†	61	2.2	1.0	...	21E2	0.8E2	1.0	...
Immigrant status								
Born in Canada	597	3.1*	3.6*	2.3, 5.7	178	0.9	3.1*	1.2, 8.4
Born outside Canada†	42E1	0.8E1	1.0	...	F	F	1.0	...

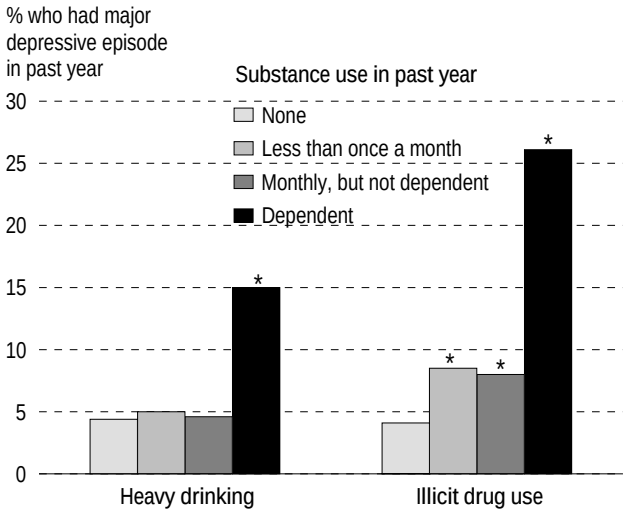
Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
Note: Because missing values are not shown, detail may not add to totals. Odds ratios for "not stated" household income and "missing/widowed" marital status were included in the models, but are not shown.
† Reference category
‡ Aged 35 or older
** Significantly different from estimate for reference category ($p < 0.05$)*
E1 Coefficient of variation between 16.6% and 25.0%
E2 Coefficient of variation between 25.1% and 33.3%
F Coefficient of variation greater than 33.3%
··· Not applicable

considered together in a multivariate model, the associations between substance dependence and age, marital status, household income, education and country of birth remained significant.

High rate of depression

Mental health problems often occur in conjunction with substance abuse.[10-16,33,34] According to the 2002 CCHS, 15.0% of people who were alcohol-dependent had had a major depressive episode in the previous year, compared with 4.4% of people who had not engaged in heavy drinking in that period (Chart 3).

Chart 3
Prevalence of depression, by frequency of heavy drinking and illicit drug use in past year, 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 estimates for "none" ($p < 0.05$)*

When the effects of socio-demographic characteristics and the presence of physical chronic conditions were taken into account, alcohol dependence remained associated with depression (Appendix Table A).

The link between illicit drug dependence and depression seemed even stronger: 26.1% of people who were dependent on an illicit drug had had a major depressive episode in the previous year, well above the rate of 4.1% among people who had not used such drugs. Even people who had used illicit drugs less than once a month had elevated rates of depression. And when the effects of other potentially confounding variables were taken into account, these associations generally persisted. The relationship between depression and all levels of drug use suggests greater comorbidity for drugs than for alcohol, a finding that agrees with previous research.[13]

A complex relationship

Debate has centered on whether substance dependence precedes or follows a mental disorder.[17] This is evident in the three main theories that have been advanced to account for comorbidity between substance use/dependence and mental disorders: common or correlated causes; causal effects of substance use; and self-medication.[11,35]

While analysis of CCHS data reveals associations between alcohol/illicit drug dependence and depression, the direction of this relationship cannot be determined because the data are cross-sectional and so pertain to only one point in time. However, longitudinal data from the National Population Health Survey (NPHS) can reveal temporal relationships. The NPHS did not contain questions about illicit drug use, and alcohol dependence was collected in only two

Limitations

Dependence captures only a small and very specific aspect of alcohol- and drug-related problems. This analysis does not cover the vast array of other difficulties that can result from alcohol and illicit drug consumption.

The version of the Composite International Diagnostic Interview (CIDI) used in the Canadian Community Health Survey: Mental Health and Well-being (CCHS) has yet to be validated. Therefore, the extent to which clinical assessments made by health care professionals would agree with assessments based on CCHS data is not known.

For several reasons, this analysis likely underestimates substance dependence rates. Survey respondents may provide answers that are socially acceptable. Some who had used alcohol or drugs may not have reported doing so, or may have underreported the frequency. As well, homeless and institutionalized populations, both of whom are known to have higher rates of substance dependence than the household population,[14] were not covered by the CCHS.

Illicit drug dependence was determined based on several drugs combined, not for specific drugs. This grouping may mask important differences, as different drugs may result in different levels of dependence.[29]

Associations between substance use and depression may reflect sources of confounding that could not be taken into account.[36] For instance, the analysis of NPHS longitudinal data does not completely control for temporal causality, because information was not available about episodes of depression and heavy drinking in the respondents' past.

Table 5
Adjusted odds ratios relating selected characteristics to two-year incidence of depression and to two-year incidence of heavy drinking more than once a week, household population aged 15 or older, Canada excluding territories, 1994/95 to 2002/03

	Incidence of major depressive episode		Incidence of heavy drinking more than once a week	
	Odds ratio	95% confidence interval	Odds ratio	95% confidence interval
Heavy drinking more than once a week				
No†	1.0	...	...	...
Yes	2.0*	1.0, 3.9	...	...
Major depressive episode				
No†	...	...	1.0	...
Yes	...	...	1.8*	1.1, 3.1
Sex				
Men	0.6*	0.5, 0.7	4.3*	3.1, 5.8
Women†	1.0	...	1.0	...
Age‡	1.0*	1.0, 1.0	1.0*	1.0, 1.0
Marital status				
Married/Common-law†	1.0	...	1.0	...
Widowed	0.6*	0.4, 0.9	0.5	0.2, 1.3
Separated/Divorced	1.4*	1.2, 1.7	1.3	0.9, 2.0
Never married	0.9	0.7, 1.1	1.2	0.9, 1.7
Education				
Less than secondary graduation†	1.0	...	1.0	...
Secondary graduation	0.8	0.6, 1.0	1.1	0.7, 1.6
Some postsecondary	0.9	0.7, 1.1	0.7*	0.6, 1.0
Postsecondary graduation	0.9	0.7, 1.1	0.6*	0.5, 0.8
Household income				
Low	1.6*	1.1, 2.4	0.8	0.5, 1.5
Lower-middle	1.2	0.9, 1.6	0.7	0.4, 1.2
Middle	1.2	0.9, 1.5	0.7	0.5, 1.1
Upper-middle	1.1	0.9, 1.4	0.8	0.6, 1.2
High†	1.0	...	1.0	...
Place of residence				
Urban	1.1	1.0, 1.4	0.9	0.7, 1.3
Rural†	1.0	...	1.0	...
Immigrant status				
Born in Canada	1.1	0.9, 1.4	2.1*	1.4, 3.3
Born outside Canada†	1.0	...	1.0	...
Chronic conditions				
None†	1.0	...	1.0	...
At least one	1.7*	1.5, 2.0	1.3	1.0, 1.7

Data source: 1994/95 to 2002/03 National Population Health Survey, longitudinal "square" file
Note: An incident case of depression/heavy drinking was defined as not having the condition in one cycle but reporting it in the subsequent cycle. The following NPHS cycles were examined: 1 and 2 (1994/95 to 1996/97), 2 and 3 (1996/97 to 1998/99), 3 and 4 (1998/99 to 2000/01), 4 and 5 (2000/01 to 2002/03). Not stated household income was included in the models, but the odds ratios are not shown.
† Reference category
‡ Treated as continuous variable
** Significantly different from estimate for reference category ($p < 0.05$)*
··· Not applicable

cycles. Nonetheless, information about depression and about heavy episodic drinking has been collected in every cycle since 1994/95. For this analysis, heavy drinking more than once a week was used as a proxy for alcohol dependence. (According to the 2002 CCHS, 35% of people who drank heavily more than once a week—33% of men and 48% of women—were classified as alcohol-dependent; data not shown.)

Heavy drinking and depression

Even when other potentially confounding variables were taken into account, people who drank heavily more than once a week had significantly high odds of reporting a new case of depression when they were re-interviewed two years later (Table 5). That is, they had not reported symptoms of depression in the baseline interview, but did so in the follow-up interview. Although this supports the theory that substance use/dependence is associated with a future mental disorder,[37] it is possible that risk factors not measured in the NPHS, but common to both heavy drinking and depression, could be driving this association. Furthermore, someone with a new case of depression might have had a history of the disorder, so the temporal association with alcohol use was not fully controlled (see *Limitations*).

The self-medication theory suggests that people with a mental disorder may use a substance to deal with their symptoms.[11] With NPHS data it was possible to show that people who had a major depressive episode were more likely than those who had not to have become frequent heavy drinkers by the time they were re-interviewed two years later, even when other potentially confounding variables were taken into account (again, the above-noted limitations apply).

Thus, depression is both a precursor and an outcome of drinking heavily more than once a week. However, the relationship between alcohol and depression is complex. The link between substance use and mental health involves neurological and biological factors that influence an individual's susceptibility or resistance,[10] and which are beyond the scope of this analysis.

Concluding remarks

According to the results of the 2002 Canadian Community Health Survey, 641,000 Canadians reported symptoms that indicated they were dependent on alcohol, and 194,000 had symptoms that suggested dependence on illicit drugs. These numbers represented 2.6% and 0.8%, respectively, of the population aged 15 or older. Alcohol and drug

dependence were more common among men than women, and tended to disproportionately affect young adults.

Mental health problems often co-exist with substance dependence. The CCHS showed that 15% of people who were alcohol-dependent had also been depressed in the previous year. For those who were dependent on illicit drugs, the prevalence of depression was even higher: 26%.

However, it is difficult to disentangle the relationship between substance dependence and psychological problems. The mental disorder may promote or sustain substance dependence, and substance use may exacerbate the mental disorder. In fact, the results of the analysis of longitudinal data from the National Population Health Survey suggest a reciprocal influence, at least with regard to frequent heavy drinking and depression. However, it is possible that factors that were not available from the survey might be driving this relationship.

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Appendix

Table A

Prevalence of and adjusted odds ratios for depression in past year, by frequency of heavy drinking and illicit drug use, household population aged 15 or older, Canada excluding territories, 2002

	Both sexes				Men				Women			
	Estimated population	Prev-alence	Odds ratio‡	95% confidence interval	Estimated population	Prev-alence	Odds ratio‡	95% confidence interval	Estimated population	Prev-alence	Odds ratio‡	95% confidence interval
	'000	%			'000	%			'000	%		
Total	1,196	4.8	...	...	452	3.7		...	744	5.9	...	...
Heavy drinking in past year												
None†	701	4.4	1.0	...	211	3.2	1.0	...	491	5.1	1.0	...
Less than once a month	227	5.0	1.1	0.9, 1.3	80	3.1	0.9	0.7, 1.2	147	7.4*	1.2	0.9, 1.5
Monthly, but not dependent	164	4.6	1.0	0.8, 1.3	97	3.7	0.9	0.6, 1.4	67	7.4*	1.0	0.7, 1.3
Dependent	96	15.0*	2.1*	1.6, 2.9	60	12.7*	2.0*	1.3, 3.2	36	21.4*	2.1*	1.4, 3.3
Illicit drug use in past year												
None†	898	4.1	1.0	...	310	3.0	1.0	...	588	5.1	1.0	...
Less than once a month	137	8.5*	1.7*	1.3, 2.3	53	6.1*	1.8*	1.2, 2.6	84	11.5*	1.6*	1.1, 2.5
Monthly, but not dependent	105	8.0*	1.4*	1.1, 1.9	53	5.7*	1.3	0.9, 1.9	52	13.3*	1.7*	1.1, 2.5
Dependent	50	26.1*	4.5*	3.0, 6.8	32E1	23.5*E1	5.4*	3.1, 9.5	19E1	32.0*E1	3.7*	2.0, 6.7

Data source: 2002 Canadian Community Health Survey: Mental Health and Well-being
† Reference category
‡ Adjusted for sex, age group, marital status, education, household income, place of residence, immigrant status and number of physical chronic conditions
** Significantly different from estimate for reference category (p < 0.05)*
E1 Coefficient of variation between 16.6% and 25.0%
··· Not applicable


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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?"*

.

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?"

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