A descriptive study of the prevalence of psychological distress and mental disorders in the Canadian population: comparison between low-income and non-low-income populations

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A descriptive study of the prevalence of psychological distress and mental disorders in the Canadian population: comparison between low-income and non-low-income populations

J. Caron, PhD (1, 2); A. Liu, MSc (2,3)

Abstract

Objective: This descriptive study compares rates of high psychological distress and mental disorders between low-income and non-low-income populations in Canada.

Methods: Data were collected through the Canadian Community Health Survey – Mental Health and Well-being (CCHS 1.2), which surveyed 36 984 Canadians aged 15 or over; 17.9% (n = 6620) was classified within the low-income population using the Low Income Measure. The K-10 was used to measure psychological distress and the CIDI for assessing mental disorders.

Results: One out of 5 Canadians reported high psychological distress, and 1 out of 10 reported at least one of the five mental disorders surveyed or substance abuse. Women, single, separated or divorced respondents, non-immigrants and Aboriginal Canadians were more likely to report suffering from psychological distress or from mental disorders and substance abuse. Rates of reported psychological distress and of mental disorders and substance abuse were much higher in low-income populations, and these differences were statistically consistent in most of the sociodemographic strata.

Conclusion: This study helps determine the vulnerable groups in mental health for which prevention and promotion programs could be designed.

Key words: psychological distress, mental disorders, poverty, community survey.

Introduction

For the past 40 years, evidence accumulating from epidemiological studies in several parts of the world[1-10] has demonstrated that economically disadvantaged populations have higher rates of psychiatric symptomatology and psychological distress. This larger vulnerability appears to result from the presence of an increased number of risk factors and a deficiency of certain protective factors.

Studies have clearly identified that the presence of stressful life events and persistent difficult living conditions related to income, housing, work and social relationships are significant forerunners of the onset of symptoms of depression in economically disadvantaged populations.[11-16] Moreover, these populations face stressful life events, such as the death of a loved one, accidents, illness, divorce and loss of employment, more frequently than more affluent populations.[16-18]

Added to this, economically disadvantaged populations are often lacking in one of the key protective factors for the development and maintenance of mental health, namely social support. A number of studies have established a link between social support and health in general and mental health in particular.[19] Specific studies on mental health have demonstrated a strong relationship between availability and adequacy of support and severity of mental illness,[19-21] and others have identified a significant deficiency of both these dimensions of social support in economically disadvantaged populations.[22-26]

Although the link between economic disadvantage and a greater prevalence of psychiatric symptomatology has been demonstrated, no literature has reported (1) how and to what extent economically disadvantaged populations across Canada suffer more than affluent ones, or (2) whether the difference in psychiatric symptomatology between low-income and more affluent populations in Canada relates to sociodemographic characteristics.

The objective of this study is to give an overview of how income level is related to mental health in the Canadian population. As many sociodemographic variables, e.g. age, gender, education, marital status, language, race, ethnicity, region of residence,[1,27-32] have been linked to mental health in previous studies, we will compare the prevalence of psychological distress and mental disorders in low-income

Author References

1. Department of Psychiatry, McGill University, Montreal, Quebec
2. Douglas Mental Health University Institute, Montreal, Quebec
3. Department of Epidemiology, Biostatistics, and Occupational Health, McGill University, Montreal, Quebec

Correspondence: Dr. Jean Caron, Psychosocial Division, Douglas Hospital Research Centre, 6875 LaSalle Blvd., Verdun, Montreal, Quebec H4H 1R3, Canada. Tel.: (514) 762-3445; Fax: (514) 762-3049; E-mail: jean.caron@douglas.mcgill.ca

and non-low-income populations of Canada based on these parameters.

Methods

Survey and sample

In 2002, Statistics Canada conducted the Canadian Community Health Survey – Mental Health and Well-being (CCHS 1.2),* a nationally representative cross-sectional survey that collected information on various aspects of Canadians' psychological well-being, mental disorders and mental health problems.

The survey targeted Canadians aged 15 and older living in private dwellings in the ten provinces, and excluded residents of institutions, Indian Reserves, Crown lands, and certain remote areas, as well as full-time members of the Canadian Forces. The survey sample totalled 36 984 people, or approximately 98% of the target population, and the response rate was 77%.

Measures

The measures were sociodemographic characteristics, psychological distress and selected mental disorders, and substance dependence (SMDSD).

Sociodemographic characteristics. The selected sociodemographic characteristics were age, gender, education, marital status, race/ethnicity, immigration status, first language, income, employment status, accommodation, and living region.

Low income measures (LIMs) were developed by Statistics Canada to identify the low income population. LIM was calculated as follows: (1) Obtain family income before tax by asking survey participants the question "What is your best estimate of the total income, before taxes and deductions, of all household members from all sources in the past 12 months?" (2) Calculate family-adjusted factors. These are based on the total number of persons in the family. For the first adult (≥ 16 years), the adjust factor equals 1; for the rest of adults, the adjust factor equals .4 multiplied by the number of persons; for the rest of children (< 16 years), the adjust factor equals .3 multiplied by the number of persons. The total family adjust factors is the sum of all family members' factors. (3) Calculate adjusted-family income, which equals "family income before tax" divided by "family-adjusted factors." (4) Calculate the median adjusted-family income for the total survey population. (5) Identify individuals with an adjusted-family income lower than 50% of the median level as "low-income population" and others as "non-low-income population."

Psychological distress. Psychological distress was assessed using the Kessler Psychological Distress Scale (K-10)[33] which contains 10 questions that assess the frequencies of psychological distress symptoms in the previous month on a 5-point Likert scale. Scores ranged from 0 to 40. Although the K-10 is widely used to measure psychological distress, there is no standard cut-off point for determining high psychological distress. To obtain the optimal cut-off point, we conducted two approaches. In the first, logistic regression was used between continuous scores of psychological distress and mental disorders including depression, mania, panic disorder, social phobia, agoraphobia and substance dependence to compare the values of specificity and sensitivity for each possible cut-off point. The optimal cut-off point was 9 since it provides a sensitivity of 47.9% and a specificity of 91.7%; the area under the curve (AUC) was .836. The second approach, based on the criteria used in "Enquête Santé Québec,"[34] uses the upper statistical quintile of the distribution of the K-10 scale among the total study population as the optimum cut-off point. This also points to a cut-off point of 9. As a result, the cut-off point to identify high psychological distress was determined to be 9.

Mental disorders and substance dependence. Past-year prevalence of DSM-IV† mental disorders[35]—major depression, mania, panic attacks, social phobia, agoraphobia, alcohol dependence and drug dependence—was assessed using the Composite International Diagnostic Interview (CIDI).[36,37]

Statistical analysis

We calculated point estimates of prevalence using the sampling weights provided by Statistics Canada and estimates of variance and confidence interval (CI) by bootstrapping using Bootvar V20 program for SAS provided by Statistics Canada. The Bootstrap method was used to conduct comparison t-tests between different groups. When multiple comparisons between categories are presented in the text (not the tables), only the lowest values of the t-test (t_{min}) are presented, which means that the other t-test values are higher.

Results

Sociodemographic characteristics

The sociodemographic characteristics of Canadians aged 15 and older are shown in Table 1. The ratio of men to women is approximately 1. The average age of this population is 44, just over one-half (52.32%) are married, and a little over half (55.42%) have post-secondary education. New Canadians account for almost one-quarter (22.15%) of the respondents. The majority (83.76%) are White. The majority of the respondents live in Ontario (38.63%) and Quebec (24.17%). Together, they accounted for almost two-thirds of the total population.

The low-income population—a total of 6620 respondents (18%)—exhibits significantly different distributions of most of the sociodemographic variables compared with the non-low-income population. They are more likely to be women, younger than 25 years or older than 65, immigrants, and living in Quebec, Saskatchewan or Atlantic Canada; they are less likely to have completed post-secondary education, to live with a spouse or a common-law partner, or to be White Canadian (Table 1).

Psychological distress

Overall prevalence profile. The overall prevalence of high psychological distress in the 12 months prior to the survey is

* http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=5015&lang=en&db=imdb&adm=8&dis=2

† Diagnostic and Statistical Manual of Mental Disorders, 4th edition.

TABLE 1

Sociodemographic characteristics of low-income, non-low-income, and total population, household population aged 15 or older, Canada excluding territories, 2002 (CCHS 1.2)

Sociodemographic characteristics	Total population N = 36 984	Low-income population n = 6620	Non-low-income population n = 30 364	Comparison test[a]	
				t[499][b]	*p*
	%	%	%		
Gender					
Men	49.15	43.28	50.43	7.16	< .001
Women	50.85	56.72	49.57	7.16	< .001
Age					
15-24	16.55	20.03	15.79	5.45	< .001
25-44	38.03	33.14	39.10	5.82	< .001
45-64	30.51	25.26	31.65	7.14	< .001
65+	14.91	21.57	13.45	11.91	< .001
Education					
Lower than secondary school	25.50	42.16	21.86	21.15	< .001
Secondary school	19.08	17.71	19.38	2.12	.03
Post secondary school	55.42	40.13	58.76	18.74	< .001
Marital status					
Married	52.32	39.96	55.02	14.71	< .001
Common-law	9.33	7.65	9.70	3.90	< .001
Widowed	5.46	10.34	4.39	13.24	< .001
Separated	2.57	3.92	2.28	5.59	< .001
Divorced	4.80	7.89	4.13	7.63	< .001
Single	25.41	30.03	24.40	6.21	< .001
Immigrant					
Yes	22.15	28.59	20.74	7.75	< .001
No	77.85	71.41	79.26	7.75	< .001
First language					
English	57.23	48.95	59.04	9.77	< .001
French	23.85	25.62	23.47	2.39	.02
Allophone	19.54	25.83	18.16	6.77	< .001
Ethnic group					
White	83.76	75.52	85.56	9.56	< .001
Black	2.01	3.29	1.73	3.19	.001
Chinese	3.59	5.16	3.25	4.01	< .001
Aboriginal (Indian, Métis, Inuit)	1.08	2.14	.85	6.06	< .001
South Asian	3.34	4.56	3.08	2.63	.01
Latin American	.61	1.37[c]	.45	2.40	.02
Others	.78	1.45[c]	.64	2.97	.003
Province/region					
Alberta	9.72	8.76	9.92	2.27	.02
British Columbia	13.33	12.74	13.46	1.06	.29
Manitoba	3.46	3.71	3.41	1.20	.23
Atlantic Canada[d]	7.66	9.96	7.16	7.82	< .001
Ontario	38.63	32.58	39.95	7.53	< .001
Quebec	24.17	28.52	23.22	5.31	< .001
Saskatchewan	3.04	3.73	2.88	3.56	< .001

Abbreviations: CCHS 1.2, Canadian Community Health Survey – Mental Health and Well-being, Cycle 1.2; N, overall sample size; n, sub-sample size; *p*, p-value.

[a] Comparison tests were conducted between low-income population and non-low-income population with the bootstrapping method (500 bootstrap samples).

[b] t-value with degree freedom = 499, calculated from the 500 differences from bootstrap samples.

[c] Bootstrapping techniques were used to produce the coefficient of variation (CV). Data with a coefficient of variation (CV) from 16.6% to 33.3% are identified and should be interpreted with caution.

[d] Atlantic Canada includes Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick.

21% (Table 2). The highest prevalence of high psychological distress is found among the youngest age group (15 to 24 years), Aboriginal Canadians and individuals who are separated; among these groups, 3 out 10 Canadians report high psychological distress. Those over 65 years and married people report the lowest prevalence (approximately 15%) of high psychological distress.

Compared to men, women are more likely to suffer high psychological distress ($t = 4.75$, $p < .001$). The prevalence of high psychological distress decreases with increased age ($t_{min} = 3.96$; $p < .001$) and education level ($t_{min} = 2.10$; $p < .05$). Married, widowed or common-law spouses report lower rates of high psychological distress than separated, divorced or single individuals ($t_{min} = 2.17$; $p < .05$). Compared to immigrants, non-immigrants report higher rates of high psychological distress ($t = 3.01$; $p < .01$). High psychological distress is much more common among French-speakers ($t_{min} = 3.24$; $p < .01$). Canadians of Chinese descent report the lowest prevalence of psychological distress, and this is significantly lower than that for Aboriginal, South Asian, White or Black Canadians ($t_{min} = 2.58$; $p < .05$). High psychological distress is much more prevalent among Aboriginal Canadians than among the White population ($t = 3.39$; $p < .01$). Psychological distress is much more common in Quebec than in Atlantic Canada, Ontario, British Columbia and Alberta ($t_{min} = 2.38$; $p < .05$).

Effect of being in a low-income population. The prevalence of high psychological distress is 50% higher for low-income populations (28.5%) than for non-low-income populations (18.96%; $t = 10.30$; $p < .001$). Low-income populations report higher psychological distress for most of the sociodemographic variables; the prevalence ratios of the low-income groups to the non-low-income groups ranges from 1.2 to 2.22 ($t_{min} = 2.11$; $p < .05$) except for some analyses by ethnic origin. Specifically, there is no significant difference within the strata of Canadians of Black, Chinese, South Asian, Arab or Latin American ethnic origin.

Interaction of low-income status and sociodemographic characteristics. Significant gender and education differences in the prevalence of high psychological distress exist only among the non-low-income population ($t_{min} = 3.61$; $p < .001$). Black Canadians showed lower psychological distress than White Canadians in non-low-income populations ($t = -2.1$, $p < .05$) but not in low-income populations ($t = .79$, $p > .05$). Conversely, significant differences between immigrants and non-immigrants exist only in the low-income population ($t = 4.12$; $p < .001$). Among the low-income population, nearly half (45.49%) of those separated from their spouse report suffering from high psychological distress, and this prevalence is significantly higher than for most of the other marital status subgroups ($t_{min} = 2.83$; $p < .01$). However, this was not observed among the non-low-income population. Similarly, although the prevalence among low-income Aboriginal Canadians (45.17%) was significant and much higher than among most of the other low-income ethnic subgroups ($t_{min} = 2.28$; $p < .05$), non-low-income Aboriginal Canadians report a prevalence of high psychological distress quite similar to that for most of the other ethnic subgroups.

Mental disorders and substance dependence

Major depression (4.81%) is the most prevalent mental disorder in the Canadian population, followed by substance dependence (3.07%), social phobia (3.01%) and panic disorder (1.53%). Mania and agoraphobia affects less than 1% of the population. The same pattern of distribution of diagnoses is in both the low-income and the non-low-income populations, but the prevalence rates are significantly higher in the low-income group for all disorders, and double for mania and agoraphobia. The male to female prevalence ratio for mental disorders is much lower for men (depression = .63, panic attack = .66, social phobia = .74 and agoraphobia = .31) except for mania, where the rates are similar. However, the substance dependence ratio is more than double for men (2.75) (Table 3).

As describing the prevalence of each disorder in relation to each sociodemographic substratum would take too long to present, we have grouped together selected mental disorders and substance dependence (SMDSD).

Prevalence profile. The prevalence of SMDSD is based on cases involving at least one of the disorders or substance dependencies (including major depression, mania, panic attack, agoraphobia, social phobia, alcohol dependence and illicit drug dependence) in the 12 months prior to the survey. Nearly 11% of Canadians aged 15 and over report having at least one SMDSD. The overall prevalence of SMDSD decreases significantly with age ($t_{min} = 6.15$; $p < .001$); Canadians aged 15 to 24 are 5 times more likely to have SMDSD than those aged 65 and over. Canadians who are separated, divorced or single report a significantly higher prevalence of SMDSD than those who are married, living with a common-law spouse or widowed ($t_{min} = 2.20$; $p < .05$). Those living with a common-law spouse are twice more likely to suffer from SMDSD than married people ($t = 6.52$; $p < .001$). (Table 4).

Non-immigrants report twice as high a prevalence of SMDSD as immigrants ($t = 10.12$; $p = .001$). A similar prevalence exists for English-speakers compared to those whose first language is neither English nor French ($t = 10.17$; $p < .001$). Aboriginal Canadians are between 2 and 5 times more likely to experience SMDSD compared to other ethnic subgroups ($t_{min} = 4.12$; $p < .001$). The rates of SMDSD among Chinese and Black Canadians are approximately half that of White Canadians ($t_{min} = 3.24$; $p < .01$).

Effect of being in a low-income population. The overall prevalence of SMDSD for the low-income population is 13.47%, which is 37% higher than for non-low-income Canadians (10.02%; $t = 5.890$; $p < .001$). This significant difference exists in almost all the stratified analyses, with prevalence ratios ranging from 1.3 to 2.2. Nonetheless, there are some exceptions: there is no significant difference in the prevalence of SMDSD among those aged 15 to 24; who have less than a high school education; who are married, widowed or single; who are immigrants or of Black, Chinese, South Asian or Latin American

TABLE 2

Prevalence of high psychological distress among low-income, non-low-income, and total population, household population aged 15 or older, Canada excluding territories, 2002 (CCHS 1.2)

	Total population N = 36 984	Low-income population n = 6620	Non-low-income population n = 30 364	Prevalence ratio[a]	Comparison test[b]	
					t[499][c]	*p*
	%	%	%			
	20.74	28.50	18.96	1.50	10.30	< .001
Gender						
Men	19.23	26.84	17.80	1.51	6.36	< .001
Women	22.20	29.89	20.28	1.47	7.98	< .001
Age						
15-24	29.20	32.95	28.16	1.17	2.31	.02
25-44	21.28	31.00	19.47	1.59	6.98	< .001
45-64	18.40	29.42	16.48	1.79	7.35	< .001
65+	14.74	19.76	12.99	1.52	4.35	< .001
Education						
Lower than secondary school	25.58	29.50	23.93	1.23	3.80	< .001
Secondary school	20.44	30.54	18.42	1.66	5.91	< .001
Post secondary school	18.62	26.72	17.42	1.53	6.89	< .001
Marital status						
Married	15.94	22.28	14.93	1.49	5.05	< .001
Common-law	23.28	32.45	21.70	1.50	3.85	< .001
Widowed	19.53	23.27	17.60	1.32	2.80	.005
Separated	30.67	45.49	25.14	1.81	4.59	< .001
Divorced	26.98	37.28	22.71	1.64	3.96	< .001
Single	27.79	33.38	26.29	1.27	4.18	< .001
Immigrant						
Yes	18.85	22.88	17.63	1.30	2.75	.006
No	21.13	30.56	19.27	1.59	11.56	< .001
First language						
English	19.76	29.49	18.00	1.64	10.40	< .001
French	23.32	31.64	21.31	1.48	5.27	< .001
Allophone	19.90	23.14	18.89	1.22	2.11	.04
Ethnic group						
White	20.48	29.35	18.77	1.56	10.73	< .001
Black	17.41	24.94	14.28	1.75	1.79	.07
Chinese	16.39	17.79	15.90	1.12	.45	.65
Aboriginal (Indian, Métis, Inuit)	29.17	45.17	20.35	2.22	4.83	< .001
South Asian	23.72	21.50	24.46	.88	.54	.59
Arab	25.86	23.04	27.75	.83	.37	.71
Latin American	22.64	15.43	26.21	.59	1.54	.12
Province/region						
Alberta	20.61	26.50	19.36	1.37	3.00	.003
British Columbia	20.01	27.90	18.20	1.53	4.26	< .001
Manitoba	20.89	29.20	18.78	1.55	3.99	< .001
Atlantic Canada[d]	19.41	26.32	17.25	1.53	6.43	< .001
Ontario	19.64	27.61	18.15	1.52	6.61	< .001
Quebec	23.35	31.32	21.16	1.48	4.39	< .001
Saskatchewan	20.78	26.55	19.07	1.39	2.94	.003

Abbreviations: CCHS 1.2, Canadian Community Health Survey – Mental Health and Well-being, Cycle 1.2; N, overall sample size; n, sub-sample size; *p*, p-value.

[a] Comparison tests were conducted between low-income population and non-low-income population with the bootstrapping method (500 bootstrap samples).

[b] Bootstrapping techniques were used to produce the coefficient of variation (CV). Data with a coefficient of variation (CV) from 16.6% to 33.3% are identified and should be interpreted with caution.

[c] t-value with degree freedom = 499, calculated from the 500 differences from bootstrap samples.

[d] Atlantic Canada includes Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick.

TABLE 3

Prevalence of selected mental disorders and substance dependance (SMDSD) among low-income, non-low-income, and total population, over the previous 12 months, household population aged 15 or older, Canada excluding territories, 2002 (CCHS 1.2)

Mental disorders	Total population N = 36 984	Low Income population n = 6620	Non-low Income population n = 30 364	Prevalence ratio[a]	Comparison test[b]	
					t[499][c]	*P*
	%	%	%			
Major depression	4.81	6.51	4.41	1.48	5.36	< .001
Mania	.96	1.64	.81	2.02	4.57	< .001
Panic Disorder	1.53	2.13	1.37	1.55	3.11	.002
Social phobia	3.01	3.57	2.86	1.25	2.51	.01
Agoraphobia	.74	1.30	.61	2.13	2.52	.01
Substance dependence	3.07	3.86	2.87	1.34	2.66	.01

Abbreviations: CCHS 1.2, Canadian Community Health Survey – Mental Health and Well-being, Cycle 1.2; N, overall sample size; n, sub-sample size; *p*, p-value.

[a] Prevalence ratio: prevalence in low-income population / prevalence in non-low-income population.

[b] Comparison test of the prevalence between Low income and Non-low-income population using bootstrapping technique (500 bootstrap samples).

[c] t-value with degree freedom = 499, calculated from the 500 differences from bootstrap samples.

ethnic origin; whose first language is neither English nor French; and who live in Alberta or Manitoba.

Interaction with low-income status. We identified similar associations between sociodemographic variables and the prevalence of SMDSD among both low-income and non-low-income populations within the age, marital status, immigrant status and first language strata. However, among the non-low-income population, the prevalence of SMDSD among Aboriginal Canadians is 1.5 times that of White Canadians ($t = 2.07$; $p = .0434$), while this ratio is 2.2 among the low-income population ($t = 4.42$; $p < .001$).

Discussion

Rates of psychological distress and of any selected mental disorder and substance abuse (SMDSD) are much higher in the low-income population, and these differences are statistically consistent in most of the sociodemographic strata: region/province, gender, age, marital status, immigration, first language and ethnic origin. This confirms most of the epidemiological studies conducted around the world: the poorest individuals are the most vulnerable to mental health problems.[1-10]

One out of five Canadians report high psychological distress, a rate that concurs with the results of an analysis of the National Population Health Survey.[27] However, in the low-income population the rate of high level of distress is 50% higher than for the population living above the low-income threshold. Almost 14% of the low-income population has been diagnosed with a mental disorder or substance dependence, a rate 37% higher than for other Canadians.

Two frameworks have been proposed to explain this relationship.[38,39] First, there could be an indirect association between poverty and mental illness through a selection and drift process. The concept of selection holds that certain individuals may be predisposed both to a mental illness and to lower expectations in life that may result in lower levels of educational and occupational achievement and poverty. The drift hypothesis refers to the likelihood that those with a mental illness may drift into poverty as they have difficulty attaining and maintaining regular employment. There is some evidence supporting the drift hypothesis in the case of psychosis.[40] On the other hand, the social fragility hypothesis states a more direct association between poverty and mental illness; it posits that the living conditions prevalent within socio-economically disadvantaged populations would generate additional psychiatric symptomatology. There is considerable evidence that poor populations face more chronic stress and life events,[1,15-18] and cannot count on the reliable social networks that the higher-income population can.[22-26] When combined with a genetic predisposition, such factors may contribute to the development of mental illnesses. In another study on CCHS1.2, Caron and Liu[41] found that coping skills, social support and sources of stress were the best predictors of psychological distress in Canada's low-income population.

Women, people who are single, separated or divorced, non-immigrants and Aboriginal Canadians are more likely to suffer from psychological distress or from SMDSD. People over 65, those who are married, immigrants, those whoes first language is neither French nor English, and Chinese Canadians report the lowest prevalence of psychological distress or SMDSD. Women, people with less than high-school education, French speakers and Quebec residents show higher rates of psychological distress, but their rate of prevalence of SMDSD is no higher than other groups in their sociodemographic strata.

Stephens et al.[27] found that the probability of experiencing a heightened sense of coherence significantly increases with age, and self-esteem and a feeling of happiness reach a peak between the ages of 40 and 59 years. This could explain our findings that age is associated with lower levels of psychological distress and SMDSD, which is also consistent with the literature.[27,42-46]

TABLE 4

Prevalence of selected mental disorders and substance dependence (SMDSD) among low-income, non-low-income, and total population, household population aged 15 or older, Canada excluding territories, 2002 (CCHS 1.2)

	Total population N = 36 984	Low-income population n = 6620	Non-low-income population n = 30 364	Prevalence ratio[a]	Comparison test[b]	
					t[499][c]	*p*
	%	%	%			
	10.99	13.47	10.02	1.34	5.89	< .001
Gender						
Men	10.23	12.86	9.74	1.32	3.31	.001
Women	11.71	14.77	10.95	1.35	4.52	< .001
Age						
15-24	18.61	19.78	18.28	1.08	.99	.32
25-44	12.23	15.76	11.58	1.36	3.57	.001
45-64	8.84	14.74	7.82	1.88	4.72	<.001
65 +	3.40	4.54	3.00	1.51	2.17	.03
Education						
Lower than secondary school	11.54	12.75	11.03	1.16	1.64	.10
Secondary school	11.78	16.11	10.92	1.48	2.90	.004
Post secondary school	10.46	14.24	9.89	1.44	4.52	< .001
Marital status						
Married	6.59	6.88	6.55	1.05	.39	.70
Common-law	13.96	18.54	13.18	1.41	2.26	.02
Widowed	6.60	7.73	6.03	1.28	1.07	.29
Separated	20.75	29.95	17.30	1.73	3.21	.001
Divorced	17.48	23.43	14.95	1.57	2.63	.009
Single	17.59	19.62	17.04	1.15	1.95	.05
Immigrant						
Yes	6.66	7.05	6.55	1.08	.47	.64
No	12.17	16.66	11.29	1.48	7.29	< .001
First language						
English	12.58	17.76	11.65	1.52	6.90	< .001
French	10.56	14.39	9.64	1.49	3.51	.001
Allophone	6.63	6.31	6.74	.94	.32	.75
Ethnic group						
White	11.38	15.19	10.64	1.43	6.52	< .001
Black	6.82	9.96	5.47	1.82	1.34	.18
Chinese	4.16	3.51	4.39	.80	.47	.64
Aboriginal (Indian, Métis, Inuit)	22.18	33.51	15.95	2.10	3.62	< .001
South Asian	9.59	4.89	11.10	.44	1.94	.05
Arab	-	-	-	-	-	-
Latin American	6.92	4.75	8.04	.59	.74	.46
Province/region						
Alberta	12.19	14.82	11.69	1.27	1.47	.14
British Columbia	12.41	16.78	11.51	1.46	2.61	.01
Manitoba	11.28	14.06	10.63	1.32	1.47	.14
Atlantic Canada[d]	10.21	12.39	9.56	1.30	2.35	.02
Ontario	10.70	13.05	10.29	1.27	3.12	.002
Quebec	10.27	13.71	9.35	1.47	2.84	.005
Saskatchewan	11.94	16.06	10.77	1.49	2.25	.03

Abbreviations: CCHS 1.2, Canadian Community Health Survey – Mental Health and Well-being, Cycle 1.2; N, overall sample size; n, sub-sample size; *p*, p-value.

[a] Prevalence ratio: prevalence in low-income population / prevalence in non-low-income population.

[b] Comparison test of the prevalence between low- income and non-low-income population using bootstrapping technique (500 bootstrap samples).

[c] t-value with degree freedom = 499, calculated from the 500 differences from bootstrap samples.

[d] Atlantic Canada includes Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick.

Consistent with many studies,[27,44,46-54] women in the non-low-income population report higher rates of psychological distress than do men, and they also report higher rates of depression and anxiety disorders independently of their economic status. On the hand, men report substance abuse rates twice that of women. Some research has found no gender difference.[43,47] The higher rates of psychological distress but not SMDSD among women may indicate that the measure of psychological distress detects depression and anxiety disorders more efficiently than substance dependence.

Many studies have reported the protective effect of higher education on psychological distress,[49,51] which is consistent with our finding for the whole population. However, further analyses on education level according to economic status shows that lower education is related to higher psychological distress only in non-low-income populations. Caron et al.[1] found that higher education was related to an increase in psychological distress in poor populations in Montreal, and explained it as a result of higher expectations for a better quality of life among people who had completed a higher level of education but were nevertheless economically disadvantaged. Surprisingly, no relationships were found between SMDSD and level of education.

Our result concurs with the studies that suggest a protective function of marriage on mental health.[45,49,51,54] Other investigations have found interactions between age, gender and marital status; McDonough and Strohschein[54] reported that the significant association between marital status and distress was limited to those less than 44 years old, while Banhadur and Hauff[47] and Caron and Liu[41] reported that living without a partner increased the level of distress only among females. In low-income populations nearly half of those separated report suffering from psychological distress, but the magnitude of this effect was not observed among non-low-income populations. On the other hand, the rate of SMDSD is the lowest among married people, but doubles for people living common-law in non-low-income populations and nearly triples in low-income populations. Many hypotheses could be formulated for these phenomena, but specific research is necessary to understand these.

Our results show that psychological distress is much more common in Quebec than in Alberta, British Columbia, Atlantic Canada or Ontario. Similarly, Stephens et al. found that the populations of Newfoundland and Prince Edward Island report the lowest level of psychological distress in Canada and Quebeckers report the highest.[27] However, some differences were noted between the prevalence of psychological distress and the prevalence of SMDSD according to first language and province. French-speakers report a higher rate of psychological distress than English-speakers, but have the lowest rate of mental disorders. The same phenomenon occurs for Quebec residents, where most of the population is French-speaking: a higher rate of psychological distress but one of the lowest rates of mental disorders in Canada. One possible explanation could be formulated using the stress/coping/social support models.[12-14] These models view psychological distress as a transient state generated by chronic stressful situations or life events that could be alleviated by coping strategies and social support. One possible hypothesis for explaining these results is that French-speakers and Quebec residents experience more stress and distress, but may use better coping strategies or have better social support to prevent their distress from turning into a chronic condition resulting in mental disorders or drug dependency. Future research is needed to verify this hypothesis.

Being an immigrant is associated with a lower level of psychological distress and lower rate of SMDSD. In the Ethnic Diversity Survey,[55] immigrants were more likely to report a strong sense of belonging to their ethnic or cultural group than individuals born in Canada. Regardless of when they arrived in Canada, immigrants are also more likely to participate in ethnic or immigrant associations than are Canadian-born individuals. A sense of belonging to community is a predictor of lower psychological distress.[1,27,41,56] Lower psychological distress and lower rates of SMDSD among immigrants could also be explained by the immigration selection criteria, which excludes potential immigrants with chronic disease such as mental illness.

The prevalence of high psychological distress was 42% more frequent in the Aboriginal Canadians living off-reserve than among White Canadians, and was the highest of all ethnic groups. Aboriginal Canadians were also approximately 2 to 5 times more likely to experience SMDSD, compared to other ethnic subgroups. Although the prevalence of high psychological distress among low-income Aboriginal Canadians was significant and much higher than among most of the other low-income subgroups, non-low-income Aboriginal Canadians reported a level of psychological distress quite similar to most of the other subgroups. In the low-income Aboriginal subgroup, one person in three reported SMDSD. This seems to be a clear indication of the effect of poverty on the mental health of Aboriginal Canadians. Kirmayer et al.[57] also found a high rate of psychological distress in a community survey of the Cree of James Bay and found many risk factors; however, having a good relationship with others in the community and spending more time in the bush were associated with less distress. In Australia, researchers found higher rates of psychological distress and mental disorders among Aboriginal people and Torres Strait Islanders living in urban areas.[58,59] However, those who had grown up with their families and had a strong sense of their identity and culture appeared to be less likely to show psychological distress.

Compared with White Canadians, Chinese Canadians indicated a significantly lower level of distress in both the low-income and the non-low-income populations. This group also showed a lower rate of SMDSD, nearly half that of the White subgroup. A protective effect of Asian ancestry has been reported in the literature in the USA[44] and Finland.[37] However, the cultural norms and reluctance to disclose distress because of perceptions of stigma might partly explain these lower rates.[60] It is also possible that the majority of instruments used in population surveys are designed in western countries and are not culturally

suited to detect psychological distress in an Asian population.

Black Canadians declared lower psychological distress than White Canadians in non-low-income populations but not in low-income populations and rates of SMDSD nearly half that of the White subgroup. However, the rate of mental disorders in the low-income group was almost double that of the non-low-income group. Black Canadians are more likely to report feeling that they had been discriminated against or treated unfairly by others because of their ethno-cultural characteristics.[55] Having a better income may mitigate the sense of discrimination experienced in this group and reduce stressful experiences.

Limitations

The CCHS 1.2 survey had several limitations. Underestimation of the prevalence of mental disorders and substance dependence is likely. First the survey does not measure all mental illnesses. Second, survey respondents were likely to answer questions in a way that was more socially accepted; those with illicit drug dependence may have underreported the frequency of their drug use or not reported their history of drug use at all. Third, homeless and institutionalized populations, both known to have a higher prevalence of mental disorders and substance dependence than the household population, were not included in the CCHS1.2.

Although the sample size and design was representative of the Canadian population and enabled us to identify many sociodemographic variables related to high psychological distress and mental disorders, its cross-sectional character did not allow us to infer causal relationships for the variables identified. Longitudinal studies will be necessary to assess the directional pathways.

We used crude proportions of high psychological distress for the comparison between low-income and non-low-income population. The results might be biased due to confounding by age and other factors. However, given that age distribution does not differ much between the income groups (average age is 45.31 and 43.66 for low-income and non-low-income population, respectively), we believe that our results would not be seriously biased. However, analysis adjusting for age and other potential confounding variables would result in more accurate results.

A number of sociodemographic variables such as age, gender, level of education, marital status, poverty and ethnic background are linked to more powerful predictors of mental disorders and psychological distress, such as sources of stress, coping strategies and social support.[1,41] Thus, in order to evaluate the relative contribution of sociodemographics, it is important to test multivariate models including many other powerful variables. This has been done for psychological distress among the Canadian population.[41]

In conclusion, even if the prevalence is underestimated, this study has helped portray the vulnerable groups in mental health for which prevention and promotion programs could be designed.

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References

1. Caron J, Latimer E, Tousignant M. Predictors of psychological distress in low income populations of Montreal. Can J Public Health. 2007;98 Suppl 1:S35-44.

2. Dohrenwend BP. Socioeconomic status (SES) and psychiatric disorders. Are the issues still compelling? Soc Psychiatry Psychiatr Epidemiol. 1990 Jan;25(1):41-7.

3. Légaré G, Préville M, Massé R, Poulin C, St-Laurent D, Boyer R. Santé Mentale. Rapport de l'enquête Santé Québec, Chapter 16. Ministère de la santé et des services sociaux du Québec. 1998. French.

4. Caron J, Martel F, Vitaro F. Les groupes vulnérables en santé mentale: études d'archives. Can J Commun Ment Health. 1988;7(10):99-116. French.

5. Catalano, R. Health, behaviour and the community: an ecological perspective. New York: Pergamon Press; 1979.

6. Aber JL, Jones S, Cohen J. The impact of poverty on the mental health and development of very young children. In: Zeanah CH Jr, editor. Handbook of infant mental health. 2nd ed. New York: Guilford Press; 1988. p. 113-28.

7. Dore MM. Family preservation and poor families: when "homebuilding" is not enough. Families in Society. 1993;74(9): 545-56.

8. McLeod JD, Shanahan, MJ. Poverty, parenting, and children's mental health. American Sociological Review. 1993;58(3):351-66.

9. McLoyd VC, Wilson L. The strain of living poor: parenting, social support, and child mental health. In: Huston AC, editor. Children in poverty: child development and public policy. Cambridge (UK): Cambridge University Press; 1993. p. 105-35.

10. Sameroff AJ, Seifer R. Accumulation of environmental risk and child mental health. In: Fitzgerald HE, Lester, BM, Zuckerman B, editors. Children of poverty: research, health, and policy issues. Cambridge (MA): Garland, 1995. p. 233–58.

11. Selye H. Stress sans détresse. Montréal (QU): La Presse; 1974.

12. Dohrenwend BS, Dohwenrend BP. Some issues in research on stressful life events. J Nerv Ment Dis. 1978;166:7-15.

13. Caron, J. Una teoria ecologica de la intervencion comunitaria: acceso y conservacion de los recursos. Intervencion psicosocial: revista sobre igualdad y calidad de vida. 1996;5(14):53-68. Spanish.

14. Lazarus RS. Stress and emotion: a new synthesis. New York: Springer; 1999.

15. Brown GW, Bifulco A, Harris TO. Life events, vulnerability and onset of depression: some refinements. Br J Psychiatry. 1987;150:30-42.

16. Dohrenwend, BP, Dohrenwend BS. Social status and psychological disorder, a causal inquiry. New York:Wiley; 1969.

17. Dohrenwend BP, Dohrenwend BS. Social and cultural influences on psychopathology. Annu Rev Psychol. 1974;25:417-51.

18. Brunelle Y, Tremblay D. Environnement social. Et la Santé, ça va? Rapport d'enquête de Santé Québec. Québec (QU): Les publications du Québec. 1988:67-86.

19. Cohen S, Gottlieb BH, Underwood LG. Social relationships and health. In: Cohen S, Underwood LG, Gottlieb BH, editors. Social support measurement and intervention: a guide for health and social scientists. New York: Oxford University Press; 2000. p. 3-28.

20. Andrews G, Tennant D, Hewson DM, Vaillant GE. Life event stress, social support, coping style, and risk of psychological impairment. J Nerv Ment Dis. 1978; 166:307-16.

21. Caplan G, Killilea M. Support system and mutual help: multidisciplinary explorations. New York: Grune & Stanton; 1976.

22. Kessler RC. A disaggregation of the relationship between socioeconomic status and psychological distress. Am Sociol Rev. 1982;47(6):752-64.

23. Biegel D E, Naparstek A J, Khan MM. Social support and mental health in ethnic neighbourhoods. In: Biegel DE, Naparstek A, editors. Community support systems and mental health. New York: Springer; 1982. p. 395-402.

24. Brennan T. Loneliness at adolescence. In: Pepleau L A, Perlman D, editors. Loneliness: a sourcebook of current theory, research and therapy. New York: John Wiley and Sons; 1982. p. 269-91.

25. Ouellet F. Enquête promotion de la santé à Montréal: Le réseau social. Montréal (QU): DSC Sacré-Coeur. 1988.

26. Bouchard C. Lutter contre la pauvreté ou ses effets? Les programmes d'intervention précoce. Sante Ment Que. 1989;14:138-49.

27. Stephens T, Dulberg C, Joubert N. Mental health of the Canadian population: a comprehensive analysis. Chronic Dis Can. 2000; 20(3):118-26.

28. Ross CE, Van Willigen M. Education and the subjective quality of life. J Health Soc Behav. 1997;38(3):275-97.

29. Park J, Turnbull AP, Turnbull III HR. Impacts of poverty on quality of life in families of children with disabilities. Except Children. 2002;68(2):151-72.

30. Defrances CJ. The effects of racial ecological segregation on quality of life: a comparison of middle-class blacks and middle-class whites. Urban Aff Rev. 1996;31(6):799-809.

31. DeVorezt DJ. Diminishing returns: the economics of Canada's immigration policy Toronto (ON): University of Toronto Press; 1995.

32. Beiser M, Hou F, Hyman I, Tousignant M. Poverty, family process, and mental health of immigrant children in Canada. Am J Public Health. 2002;92(2):220-7.

33. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, Howes MJ, Normand SL, Manderscheid RW, Walters EE, Zalavsky, AM. Screening for serious mental illness in the general population. Arch Gen Psychiatry. 2003;60:184-9.

34. Boyer R, Préville M, Légaré G, Valois P. La détresse psychologique dans la population du Québec non institutionalisée: résultats normatifs de l'enquête santé Québec. Revue canadienne de psychiatrie. 1993;38:339-43.

35. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington (DC): American Psychiatric Association Press; 1994.

36. Kessler RC, Wittchen HU, Abelson JM, Mcgonagle K, Schwarz N, Kendler KS, Knauper B, Zhao S. Methodological studies of the Composite International Diagnostic Interview (CIDI) in the US national comorbidity survey (NCS). Int J Meth Psych Res. 1998;7:33-5.

37. Wittchen HU. Reliability and validity studies of the WHO--Composite International Diagnostic Interview (CIDI): a critical review. J Psychiatr Res. 1994;28:57-84.

38. Eaton WW, Muntaner C. Socioeconomic stratification and mental disorder. In: Horwitz AV, Sheid TL, editors. A handbook for the study of mental health: social context, theories, and systems. Cambridge University Press (UK); 1999. p. 259-83.

39. Fortin D. La pauvreté et la maladie mentale: est-ce que les pauvres sont plus malades et si oui, pourquoi? Santé mentale au Québec. 1989;14(2):104-113.

40. Dohrenwend BP, Levav I, Shrout PE, Schwarz S, Naveh G, Link BG, Skodol AE, Stueve A. Socioeconomic status and psychiatric disorders: the causation-selection issue. Science. 1992 Feb 21;255(5047); 946-52.

41. Caron J, Liu A. Predictors of psychological distress in the Canadian population: comparison between low income and non-low income. Community Ment Hlt J. Forthcoming 2010.

42. Jorm AF, Windsor TD, Dear KB, Anstey KJ, Christensen H, Rodgers B. Age group differences in psychological distress: the role of psychosocial risk factors that vary with age. Psychol Med. 2005;35:1253-63.

43. Marchand A, Demers A, Durand P. Does work really cause distress? The contribution of occupational structure and work organization to the experience of psychological distress. Soc Sci Med. 2005;61:1-14.

44. Centers for Disease Control and Prevention (CDC). Self-reported frequent mental distress among adults--United States, 1993-2001. MMWR Morb Mortal Wkly Rep. 2004;53(41):963-6.

45. McDonough P, Strohschein L. Age and the gender gap in distress. Women Health. 2003;38:1-20.

46. Bijl A, Ravelli G, van Zessen. Prevalence of psychiatric disorder in the general population: results of the Netherlands Mental Health Survey and Incidence Study (NEMESIS). Soc Psychiatry Psychiatr Epidemiol. 1998;33(12):587-95.

47. Thapa SB, Hauff E. Gender differences in factors associated with psychological distress among immigrants from low- and middle-income countries—findings from the Oslo Health Study. Soc Psychiatry Psychiatr Epidemiol. 2005;40:78-84.

48. Jacobi F, Wittchen HU, Holting C, Hofler M, Pfister H, Muller N, Lieb R. Prevalence, co-morbidity and correlates of mental disorders in the general population: results from the German Health Interview and Examination Survey (GHS). Psychol Med. 2004;34:597-611.

49. Harford TC, Grant BF. Prevalence and population validity of DSM-III-R alcohol abuse and dependence: the 1989 National Longitudinal Survey on Youth. J Subst Abuse. 1994;6:37-44.

50. Hughes TL, Day LE, Marcantonio RJ, Torpy E. Gender differences in alcohol and other drug use among young adults. Subst Use Misuse. 1997;32:317-42.

51. Kessler RC. McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen HU, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Study. Arch Gen Psychiatry. 1994;51:8-19.

52. Piccinelli M, Wilkinson G. Gender differences in depression. Critical review. Br J Psychiatry. 2000;177:486-92.

53. McCallum J, Shadbolt B. Ethnicity and stress among older Australians. J Gerontol. 1989;44(3):S89-96.

54. Matthews S, Manor O, Power C. Social inequalities in health: are there gender differences? Social Sci Med. 1999;48:49-60.

55. Statistics Canada. Ethnic diversity survey: portrait of a multicultural society. Ottawa (ON): Statistics Canada; 2003 Sep. Catalogue no.: 89-593-XIE.

56. Brissette I, Cohen S, Seeman TE. Measuring social integration and social networks. In: Cohen S, Underwood LG, Gottlieb BH, editors. Social support measurement and intervention: a guide for health and social scientists. New York: Oxford University Press; 2000. p. 53-85.

57. Kirmayer LJ, Boothroyd LJ, Tanner A, Adelson N, Robinson E. Psychological Distress among the Cree of James Bay. Transcult Psychiatry. 2000;37:35-56.

58. McKendrick J H, Cutter T, Mackenzie A, Chiu E. The pattern of psychiatric morbidity in a Victorian urban aboriginal general practice population. Aust N Z J Psychiatry 26:40-7.

59. Trewin D, Madden R. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples. Canberra (AU): Australian Bureau of Statistics & Australian Institute of Health Welfare; 2005. ABS Catalogue no.: 4704.0, AIHW Cat. no.: IHW14.

60. US public health service. Mental health: culture, race, and ethnicity. A supplement to mental health: a report to the surgeon general. Rockville (MD): US department of health and human services, office of the surgeon general. 2001.