Central East Health Information Partnership

The Geographic Variation of Depression and Health Service Utilization in Ontario

Survey Data Analysis: Prevalence & Service Utilization

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CEHIP

EXECUTIVE SUMMARY

The burden of mental illness within Ontario is explored using the Canadian Community Health Survey Cycle 1.2 (CCHS 1.2), on Mental Health and Well-Being. Patterns of prevalence, service use and access are described for three regions within Ontario that differ in the availability of specialized services and population density. The focus is on depression, which can pose a significant burden on individuals, families, and the health care system.

Geographic variations in mental health service utilization were described in an earlier CEHIP report using administrative databases; primary care was analyzed from the Ontario Health Insurance Program (OHIP) database, and hospitalization data was obtained through the Discharge Abstract Database (DAD). The report found unexplained variations in mental health service utilization across the province. This subsequent report analyzes the prevalence of depression and related service utilization using the CCHS 1.2, which may provide some socio-demographic or health status explanations for the findings from the administrative data.

Socio-demographic analyses showed that females were significantly more likely to have reported depression than males, as were individuals who were separated or divorced, fell into the low-income category, were not immigrants, and reported their ethnicity as White. There appears to be a gradient effect of immigrant status, with the percent reporting depression increasing as the time since immigration increases. The prevalence of depression varied across the regions defined, but statistical significance of the difference was not determined.

Service use, as reported in the CCHS 1.2 and revealed in the administrative analyses, was compared to prevalence patterns. It was shown that where you live in Ontario determines how likely you are to be diagnosed with mental illness or depression; areas with more physicians and with Health Sciences Centres (HSC) had the highest rates of physician diagnoses, even though self-reported prevalence tended to be lower. These areas (with HSCs) also had lower rates of hospitalization and longer lengths of stay, which suggests that effective diagnosis may ensure that only the most severe cases become hospitalized. It must be noted, however, that the rate of diagnosis is only a fraction of the prevalence. Most cases are, therefore, either undiagnosed, un-reported or both and the physician administrative records greatly underestimate the burden of mental illness in Ontario.

This study reveals patterns of prevalence and utilization that are somewhat troubling. It appears that the regions differ in prevalence and in the interaction of individuals with the service system. The pattern is not systematic and fails to show higher rates of service in areas of greater need. Unfortunately the primary care administrative data fails to adequately describe Ontarians with mental illness. The CCHS 1.2 shows us these limitations, and has allowed us to reveal a large gap between needs and services for Ontarians with serious depression.

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BACKGROUND

This is the second of two CEHIP reports describing depression in the province of Ontario. The first of the two reports looked at geographic variations in mental health-related service utilization using administrative databases – primary care was analyzed from the Ontario Health Insurance Program (OHIP) database, and hospitalization data was obtained through the Discharge Abstract Database (DAD). The initial report found unexplained variations in mental health service utilization across the province.[1] This second report analyzes the prevalence of self-reported depression and related service utilization using the Canadian Community Health Survey Cycle 1.2 (CCHS 1.2), on Mental Health and Well-Being, which may provide some socio-demographic or health status explanations for the findings from the administrative data.

Depression has traditionally been considered to have relatively low population health significance because its burden has been measured using mortality indicators.[2] Using mortality as a major health indicator reduces attention to prevalent and disabling, yet nonfatal, mental illnesses such as depression.[3] Untreated, they bring about unhealthy behaviour, non-compliance with prescribed medical regimens, diminished immune functioning, and poor prognosis.[4] This study is designed to improve understanding of the burden and distribution of mental illness in Ontario, with a specific focus on depression.

Mental illnesses like depression are more common in older populations, but are endemic throughout the age spectrum. Existing empirical literature suggests that depressive symptoms increase with age but longitudinal studies suggest the increase is not explained by declining physical health.[5,6] Lifetime prevalence of depression in adolescents has been reported as between 15-20%.[7-9] Early onset depression is a significant predictor of mood disorder and impairment in adulthood and the magnitude of this problem is expected to increase.[10] Gender differences in symptoms are similar in both adolescents and adults, with females reporting higher prevalence than males at all ages.[10]

Analysis of administrative information in the first report provided a fairly low estimate of physician and hospital utilization attributable to mental illness and depression.[1] The World Health Organization estimates that one in four patients visiting a health service has at least one mental, neurological or behavioural disorder but most of these disorders are neither diagnosed nor treated.[4] An initial focus of this report is to determine if Ontario's administrative records can capture the burden of depression in the province as identified in the CCHS 1.2.

Prevalence estimates from the survey will be used to help interpret regional variations in administrative utilization rates and suggest potential predictors that may be associated with depression prevalence and related health service utilization. Variables that were examined as possible predictors of depression-related service utilization were selected on the basis of previous research findings. They included age, gender, socio-economic status (SES), marital status, race/ethnicity, and self-perceived health. The primary SES variables examined in association with depression were income, education level, and job status.

Health status consistently predicts depressive symptoms in cross-sectional studies of older adults.[11] Both depressive disorders and depressive symptoms predict later development of specific medical conditions, particularly cardiovascular disease.[12] Total number of negative life events has little or no association with depressive symptoms in older adults (in cross-sectional studies), and in prospective studies have a time-limited effect, lasting 6 months or less.[11,13-15] While this study does not specifically explore co-morbidities or directional relationships between physical and mental illness, neither does it seek to exclude those with co-morbid conditions. Accordingly, the estimates are intended to capture and describe the overall burden of mental illness and depression, and to posit some explanations for observed patterns of prevalence and utilization.

OBJECTIVES

The specific objectives of this study were:

1. To describe geographic differences in the prevalence of self-reported depression;
2. To describe geographic differences in the use of health services for depression and mental illness;
3. To identify socio-demographic predictors of depression prevalence and service use for mental health;
4. To compare prevalence and reported service use to rates obtained from administrative data, and;
5. To posit some explanations for the patterns observed.

DATA SOURCES

Canadian Community Health Survey, Cycle 1.2, Mental Health & Well-Being

The Canadian Community Health Survey Cycle 1.2, Mental Health and Well-Being, was conducted in 2002 with information being collected between May and December. The CCHS 1.2 was designed to (1) provide timely and reliable cross-sectional estimates of mental health determinants, mental health status and mental health system utilization across Canada; (2) determine prevalence rates of selected mental disorders to assess the impact of burden of illness; (3) juxtapose access and utilization of mental health services with respect to perceived needs, and; (4) assess the disabilities associated with mental health problems for individuals and society.

The CCHS operates on a two-year collection cycle. The first year of the survey cycle, ".1", is a large, general population health survey, designed to provide reliable estimates at the health region level. The second year of the survey cycle ".2" is a smaller survey designed to provide provincial level results on specific focused health topics. The survey excludes from its target population those living in the three territories, on Indian Reserves and Crown lands, residents of institutions, full-time members of the Canadian Armed Forces and residents of some remote areas. This survey covers approximately 98% of the population aged 15 or older in the ten provinces.

To provide reliable estimates at the provincial level, and given the budget allocated to the Cycle 1.2 component, a sample of 30,000 respondents was desired. Because provinces vary greatly in population size and reliable estimates were required both at national and provincial levels, the sample was allocated among provinces proportionally to the square root of the estimated population in each province. Prior to the start of the data collection, the provinces of Ontario and Nova Scotia provided extra funds so that a larger sample of dwellings could be selected. The purpose of the buy-ins was to get sufficient sample size in order to provide reliable estimates for sub-provincial areas. Ontario added 7,702 sample units (in addition to the originally designated 6,720) while Nova Scotia added 790 units. Ontario was divided into the 7 Ministry of Health and Long-Term Care (MOHLTC)-defined health regions.

Topics on the survey included lifetime and past 12 month prevalence of various mental disorders (i.e. major depressive episode, manic episode, panic disorder, agoraphobia, and social phobia); mental health problems (i.e. alcohol and drug dependence, gambling, suicide, distress, and eating trouble); access to and use of mental health care services, and; disability associated with mental health. The survey also collected information on determinants and correlates of mental health such as socio-demographic factors, stress, medication use and social support.

The CCHS 1.2 used the area frame designed for the Canadian Labour Force Survey (LFS). The sampling plan of the LFS is a multistage stratified cluster design in which the dwelling is the final sampling unit. Selection of individual respondents was designed to ensure adequate representation of young persons (15 to 24) and seniors (65 or older). One person aged 15 or older was randomly selected from the sampled households. A survey weight is given to each person having responded to the survey. The bootstrap method is used in analyses to accommodate the sample design when calculating variance estimates.

Results are also reported from an administrative analysis using physicians' claims and hospitalization records. Methods used in this initial phase of the project are fully document in a previous report.[1]

METHODOLOGY

Geography

Early analysis of the CCHS 1.2 suggested redefining of some variables was required. The Ontario portion of the survey was designed to be analyzed at the level of the 7 MOHLTC regions. However, at this level, there was insufficient sample to carry out detailed analyses. Upon review of the available geographic data Ontario was divided into 3 regions based on District Health Council (DHC) boundaries; they depended on the presence of a major health science centre (HSC) and on population size. Region 1 included all DHCs with an HSC, regardless of its population[1]. Region 2 included DHCs with no HSC and populations greater than 500,000. Region 3 was the remaining DHCs,

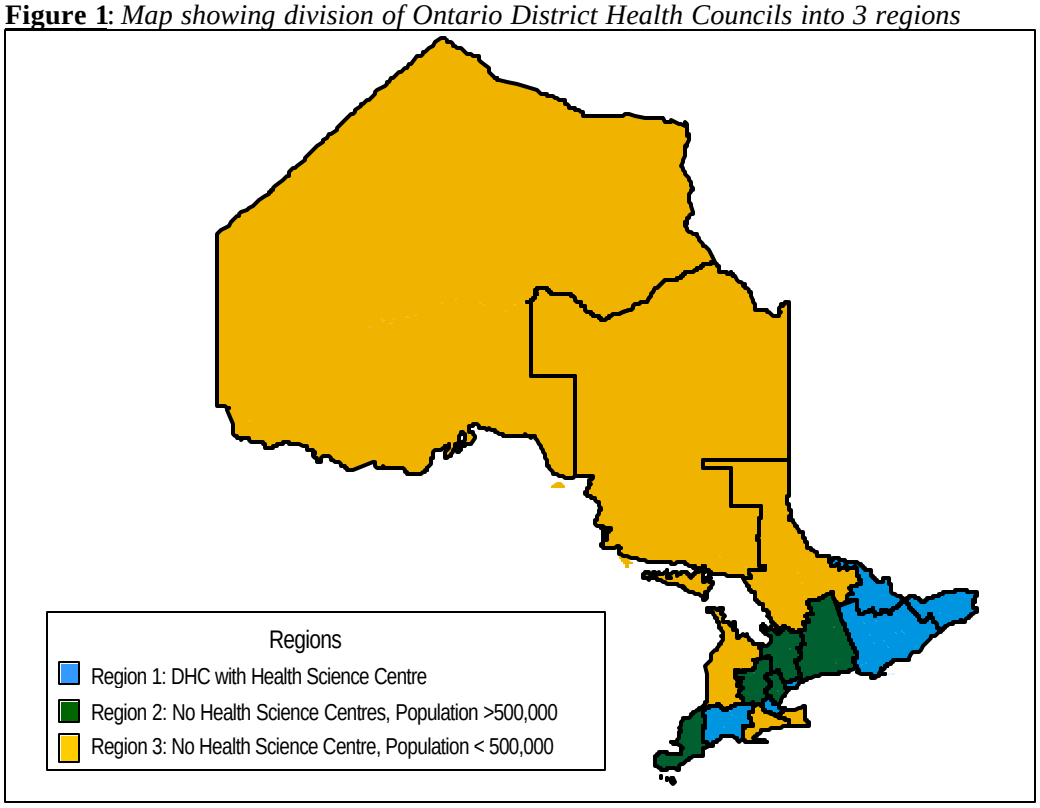
[1] The recently established Northern Ontario Medical School was not included in this group

which had no HSC and populations less than 500,000. The following table (Table 1) and map (Figure 1) provide some geographic details on the 3 regions.

Table 1: *District Health Councils by region, and location of medical schools included in analyses*

Region	District Health Councils	Medical Schools
Region 1	Champlain Hamilton Southeastern Thames Valley Toronto	University of Ottawa McMaster University Queens University University of Western Ontario University of Toronto
Region 2	Durham, Haliburton, Kawartha & Pine Ridge Essex Halton-Peel Simcoe-York Waterloo	
Region 3	Algoma Bruce-Grey Grand River Niagara Northern Northwestern	

Figure 1: *Map showing division of Ontario District Health Councils into 3 regions*



The following table (Table 2) shows the populations of each of the DHCs that compose the 3 regions of Ontario as well as the overall provincial population. These numbers are based on the CCHS 1.2 and therefore include only individuals aged 15 years and over who fell into the survey sampling frame.

Table 2: *Population of District Health Councils and combined totals for 3 regions and Ontario: residents 15 and over, CCHS 1.2, 2002*

Region	District Health Council	Population
Region 1	Thames Valley	470,568
	Toronto	2,130,531
	Champlain	901,591
	Southeastern	396,228
	Hamilton	378,426
	TOTAL	**4,277,344**
Region 2	Essex	530,193
	Waterloo	602,342
	DHKPR	660,625
	Halton-Peel	1,146,489
	Simcoe-York	969,092
	TOTAL	**3,908,741**
Region 3	Bruce-Grey	232763
	Grand River	227335
	Niagara	336481
	Algoma	238729
	Northern	181616
	Northwestern	252870
	TOTAL	**1,469,794**
ONTARIO		**9,655,879**

Profile of Depression

In the CCHS 1.2, 'major depression' was defined as respondents who had experienced the following:

1) A period of two weeks or more with depressed mood or loss of interest or pleasure AND at least five additional symptoms; **AND**
2) Clinically significant distress or social or occupational impairment; **AND**
3) The symptoms are not better accounted for by bereavement.

For the exact questions used to derive the major depression variable refer to Appendix A at the end of this report. The entire CCHS 1.2 questionnaire can be found at www.statcan.ca/English/concepts/health/cycle1.2/index.htm.

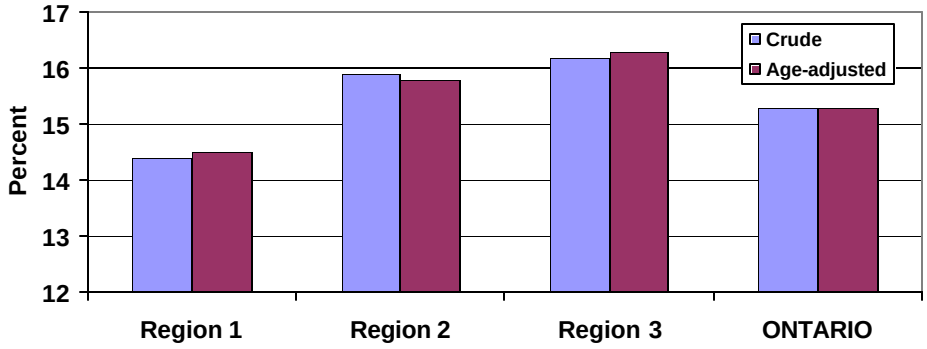
Since the focus of this research was on health care utilization for depression regardless of its cause, Criteria 3 was excluded from the revised definition of depression used in this report. As well, to increase sample size for the purpose of analysis, the definition of depression was broadened to include those who reported Criteria 1 *or* Criteria 2. This

increased the prevalence of depression by 40% for Ontario, going from 10.9% lifetime prevalence to 15.3%. The proportion of Ontarians in each region meeting CCHS 1.2 criteria and the revised criteria for depression is given in Table 3. Figure 2 shows the age-adjusted prevalence of depression for the 3 regions, which shows that very little difference in rates was seen following adjustment for age. As a result, further analyses were not age-adjusted.

Table 3: *Lifetime prevalence of depression for the 3 regions of Ontario, percent prevalence and 95% confidence limits, CCHS 1.2 and revised inclusion criteria, 2002*

	Region 1	Region 2	Region 3	Ontario
CCHS criteria	10.4% (9.3, 11.4)	11.2% (9.8, 12.5)	12.0% (10.5, 13.5)	10.9% (10.2, 11.7)
Revised criteria (crude rates)	14.4% (13.3, 15.6)	15.9% (14.3, 17.4)	16.2% (14.6, 17.9)	15.3% (14.4, 16.2)

Figure 2: *Crude and age-adjusted prevalence rates of depression for the 3 regions of Ontario, CCHS 1.2, 2002*



FINDINGS

Profile of Analytical Regions

The 3 regions were compared for differences in the proportion of individuals with various socio-demographic (Table 4a) and health characteristics (Table 4b). In Table 4a we see that the gender distribution was similar between all three regions. Individuals in Region 3 were older, with 50.5% of the population aged 45+, compared to 43.7% and 43.1% in Regions 1 and 2, respectively.

The proportion of Region 3 that was considered rural was more than double that of Region 1.[2] Educational attainment also varied by region, with the lowest percent with

[2] Urban areas are those continuously built-up areas having a population concentration of 1,000 or more and a population density of 400 or more per square kilometre based on the previous census. To be considered as continuous, the built-up area must not have a discontinuity exceeding two kilometres.

completed post-secondary education in Region 3. Low income and having one's main source of income as government assistance were also highest in Region 3. There were far fewer immigrants in Region 3 (11.0%) than Region 1 (38.9%) or Region 2 (32.1%).

Table 4a: *Socio-demographic profile of Ontario residents by region, CCHS 1.2, 2002*

	Region 1 (%)	**Region 2 (%)**	**Region 3 (%)**
Gender			
• Female	51.5	50.7	50.2
Age Group			
• 15-24	15.6	17.1	16.2
• 25-44	40.7	39.8	33.3
• 45-64	28.2	30.1	32.3
• 65+	15.5	13.0	18.2
Marital Status			
• Married/Common Law	60.5	65.3	63.9
• Widow	5.5	4.3	7.0
• Separated/Divorced	7.4	6.2	6.5
• Single	26.6	24.2	22.5
Highest Level of Education Achieved			
• Less than High School	23.5	22.4	28.6
• High School	18.7	20.8	19.9
• Some Post Secondary	8.6	9.1	8.6
• Post Secondary	49.3	47.8	42.9
Job Status in the past year			
• Employed	66.2	71.5	67.0
• Unemployed/looking for work	11.2	10.1	9.6
• Other	22.6	18.4	23.4
Income Adequacy			
• Low Income	8.9	5.7	10.1
Main income from Government Assistance			
• Yes	9.7	7.5	13.7
Immigration Status			
• Yes	38.9	32.1	11.0
Immigrant Status			
• <10 years	33.3	24.0	8.7
• 10-20 years	28.1	22.8	16.8
• 20+ years	38.6	53.2	74.5
Ethnicity			
• White	71.6	80.5	95.2
• Asian	18.9	12.7	1.0
• Aboriginal	0.8	0.8	2.6
• Other	8.7	6.0	1.2
Region of Residence			
• Rural	10.7	20.6	24.4

Table 4b compares the health status of individuals in the 3 regions of Ontario. Over 76% of the population in Region 3 reported a chronic condition; this is likely a function of the

older age of the population. Individuals in Region 1 were more likely to have reported their physical, mental, and overall health as 'Excellent'.

Table 4b: *Health status profile of Ontario residents by region, CCHS 1.2, 2002*

	Region 1 (%)	**Region 2 (%)**	**Region 3 (%)**
Chronic Condition			
• Yes	67.6	72.0	76.1
Self-perceived Health			
• Poor	2.5	2.7	4.3
• Fair	7.4	8.1	10.0
• Good	27.0	27.4	27.0
• Very Good	37.5	39.2	38.3
• Excellent	25.6	22.5	20.3
Self-perceived Physical Health			
• Poor	3.5	3.2	4.7
• Fair	9.7	10.0	12.1
• Good	31.6	32.4	32.2
• Very Good	35.3	37.2	35.1
• Excellent	19.9	17.3	15.9
Self-perceived Mental Health			
• Poor	1.2	1.3	2.2
• Fair	5.4	5.4	7.5
• Good	25.5	24.6	24.7
• Very Good	38.3	42.0	39.5
• Excellent	29.6	26.8	26.1

The three regions were primarily created to define areas where service profiles might be expected to vary. Since Health Sciences Centres are generally located in more affluent urban areas it is expected that Region 1 would tend to score higher on variables known to be associated with positive health status. Region 3 is the most rural, and exhibits scores more consistent with poorer health status such as more low income, more elderly, greater numbers with chronic health problems and lower self-perceived health. The next section will consider how these variables relate to the prevalence of serious depression in Ontario.

Cross-tabular analyses were carried out to determine if there were differences in the prevalence of mental health disorders or related health care use, stratified by socio-demographic variables (Table 5a) and health status characteristics (Table 5b). Results were not released if the estimate was based on fewer than 30 respondents. All other results were bootstrapped and their release was dependent on the coefficient of variation (CV). Further details on CCHS methodology can be found through Statistics Canada.[16] The confidence intervals in the following tables indicate a 95% certainty that the value is within the range provided. Two estimates for the same variable that do not have overlapping confidence intervals can be considered different on statistical grounds. Figures marked with the letter 'm' are considered marginal estimates, as they have CV values greater than 16.6 and should only be accepted with caution. Values that are statistically significant from the reference category *(r)* are marked with an asterisk (*).

Table 5a: *Socio-demographic profile of Ontario residents with lifetime report of depression, CCHS 1.2, 2002*

Variable	With lifetime depression (%)	Confidence Intervals
Gender		
• Male *(r)*	12.2	(11.1, 13.4)
• Female	18.2*	(16.9, 19.5)
Age Group		
• 15-24	13.9	(11.8, 16.0)
• 25-44	15.8*	(14.5, 17.2)
• 45-64	17.3*	(15.5, 19.2)
• 65+ *(r)*	11.3	(9.8, 12.9)
Marital Status		
• Married/Common Law *(r)*	13.9	(12.7, 15.0)
• Widow	18.0	(14.9, 21.2)
• Separated/Divorced	29.5*	(26.2, 32.8)
• Single	14.5	(12.8, 16.1)
Highest Level of Education Achieved		
• Less than High School *(r)*	13.5	(11.8, 15.2)
• High School	14.7	(12.7, 16.7)
• Some Post Secondary Education	17.6	(14.4, 20.9)
• Post Secondary Education	15.8	(14.6, 17.1)
Job Status in the Past Year		
• Employed *(r)*	15.1	(14.0, 16.2)
• Unemployed and looking for work	16.1	(13.2, 19.1)
• Other	16.6	(14.7, 18.4)
Income Adequacy		
• Low Income *(r)*	20.2	(17.3, 23.1)
• Middle or High Income	14.9*	(14.0, 15.8)
Main income is Government Assistance		
• No*(r)*	15.0	(14.1, 16.0)
• Yes	18.0	(15.8, 20.3)
Immigration Status		
• No*(r)*	17.0	(16.0, 18.0)
• Yes	11.6*	(9.9, 13.4)
Immigrant Status		
• <10 years*(r)*	8.9	(6.1, 11.6)
• 10-20 years	11.8	(8.5, 15.1)
• 20+ years	13.2	(10.6, 15.7)
Ethnicity		
• White*(r)*	16.8	(15.9, 17.8)
• Asian	9.0*	(6.5, 11.6)
• Aboriginal	25.1[m]	(16.9, 33.3)
• Other	7.7[m]	(5.2, 10.2)
Residence		
• Urban*(r)*	15.3	(14.4, 16.2)
• Rural	15.2	(12.8, 17.6)

(r) Reference category

**- Significantly difference from reference category*

Table 5a shows that females were significantly more likely to have reported depression than males, as were individuals who were separated or divorced, fell into the low-income category, were not immigrants, and reported their ethnicity as White. There appears to be a gradient effect of immigrant status, with the percent reporting depression increasing as the time since immigration increases.

Table 5b: *Health status profile of Ontario residents with lifetime report of depression, CCHS 1.2, 2002*

Variable	Percent with depression (%)	Confidence Intervals
Self-perceived Health		
• Poor	31.2*	(25.0, 37.4)
• Fair	22.2*	(18.4, 26.0)
• Good	16.8*	(15.1, 18.5)
• Very Good	13.8	(12.5, 15.1)
• Excellent *(r)*	11.6	(9.8, 13.3)
Self-perceived Physical Health		
• Poor	34.6*	(28.9, 40.3)
• Fair	21.3*	(18.2, 24.4)
• Good	16.8*	(15.3, 18.4)
• Very Good	12.3	(11.0, 13.7)
• Excellent *(r)*	11.4	(9.4, 13.4)
Self-perceived Mental Health		
• Poor	73.9*	(65.2, 82.6)
• Fair	37.7*	(33.1, 42.4)
• Good	18.7*	(16.8, 20.5)
• Very Good	12.9*	(11.5, 14.3)
• Excellent *(r)*	8.1	(6.9, 9.4)
Has a Chronic Condition		
• No *(r)*	8.2	(7.0, 9.5)
• Yes	18.2*	(17.2, 19.3)

(r) Reference category
** Significantly difference from reference category*

Of the health status variables, individuals who had poor self-perceived health (compared to those who reported good, very good, or excellent health) and those who had a chronic condition had more than double the rate of depression than those without. Reporting self-perceived physical and overall health as good, fair, or poor (as opposed to 'excellent'), made an individual significantly more likely to meet the criteria for depression.

Both socio-demographic and health status variables varied by region, as illustrated in Figure 3. While the intent of this report is not to understand the aetiology of depression it is worth noting that the prevalence may be driven by different factors in the regions under study. The profiles of depression for the three populations studied are not the same.

Figure 3: *Lifetime prevalence of depression and percent of population reporting associated variables by region, CCHS 1.2, 2002*

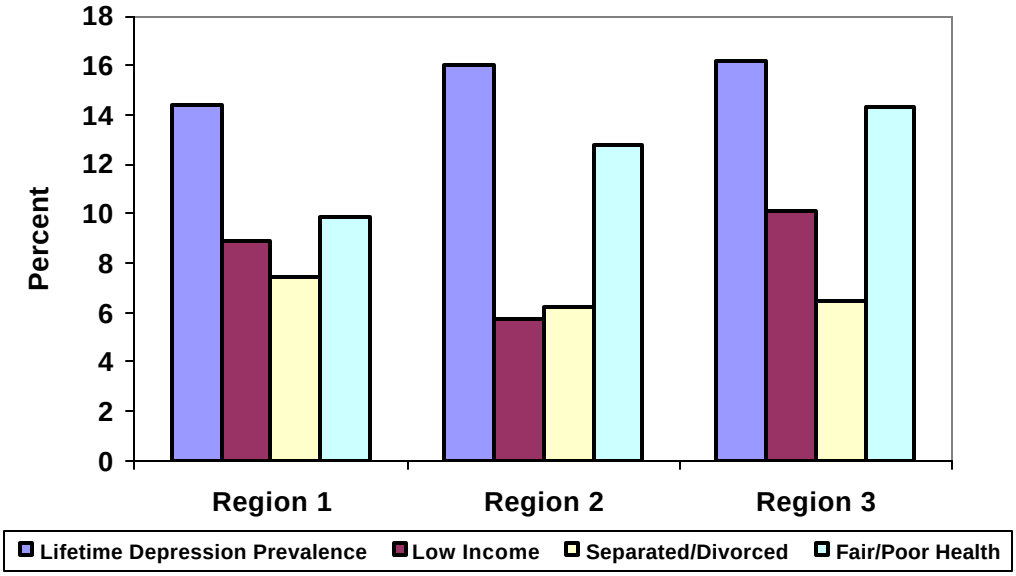


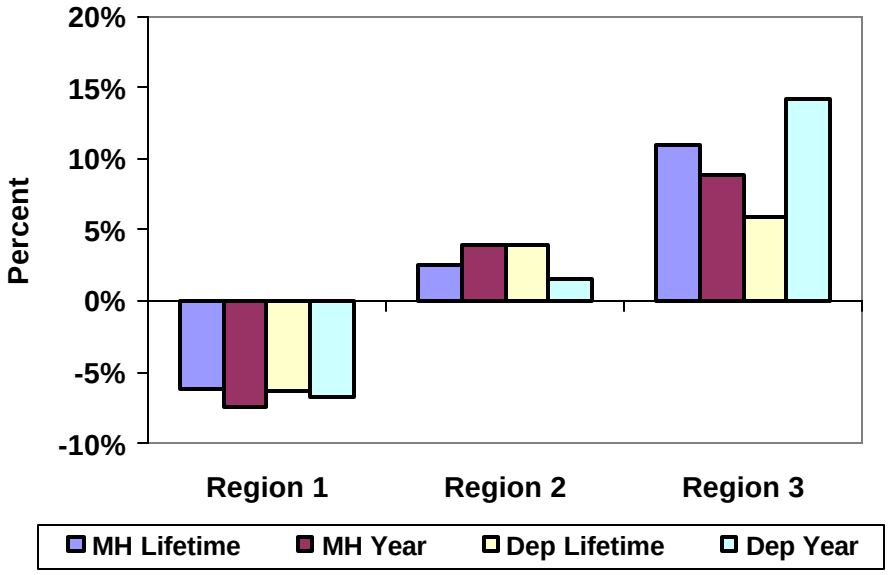
Table 6 shows the lifetime and 12-month estimates for both depression and mental illness (MI). The MI estimates are not designed to capture all mental illnesses, but only those that could be identified using survey instruments (i.e. depression, manic depression, panic disorder, social phobia, and agoraphobia). Illnesses such as schizophrenia are not included in the estimate. A pattern of lower prevalence in Region 1 is evident for all measures, while Region 3 tends to have the highest prevalence estimates.

Table 6: *Prevalence estimates for self-reported mental illness and depression in lifetime and the past year by region, CCHS 1.2, 2002*

	Region 1	Region 2	Region 3	Ontario
Mental Illness: Lifetime	22.5%	24.5%	26.5%	23.9%
Mental Illness: Past Year	9.5%	10.6%	11.1%	10.2%
Depression: Lifetime	14.4%	15.9%	16.2%	15.3%
Depression: Past Year	6.0%	6.5%	7.3%	6.4%

To illustrate the geographic variation, difference scores have been calculated and graphed (Figure 4). Estimates were calculated for each region by subtracting regional values from the Ontario average and then determining the percentage difference. Figure 4 clearly shows that Region 1 has lower rates, and that rates are substantially higher in Region 3. Region 2 rates are intermediary in most cases, but like Region 3 are higher than the Ontario average. Note that since Region 1 has the highest population, this region is the greatest contributor to the average.

Figure 4: *Prevalence estimates for mental illness and depression: percent difference from Ontario, CCHS 1.2, 2002*



Self-reported diagnoses of depression were fairly close between the 3 regions (Table 6). When compared to rates obtained from Hay's report[1] using administrative data a number of differences are seen. Prevalence estimates of depression in this section are for the past 12 months in order to be consistent with administrative results that are based on the same time period. While direct comparisons of estimates cannot be made due to differences in diagnostic criteria/methodology, the regional variation shows an interesting pattern (Figure 5); Region 1 residents had the lowest self-reported prevalence of depression, but they had the highest rate of diagnosis according to physician billing data. What is most striking, however, is the 5-fold difference between the prevalence rate and the diagnoses. This suggests that primary care physicians are not diagnosing the majority of those identifying serious depressive symptoms when surveyed.

Physician's claim data was used to identify both individuals provided with a diagnosis of depression and with any mental illness. Both these indicators showed higher prevalence rates in Region 1 than either of the other two Regions (data not shown). This occurred despite lower self-reported prevalence rates in this Region. The pattern is clearly evident in Figure 6, which plots the difference scores for these primary care diagnoses alongside the self-reported prevalence from the CCHS compared to the provincial rates. Region 1 has more physician diagnoses for both depression and mental illness than Ontario, although the self-reported rates in this region are lower than the provincial average. The other 2 regions show the opposite pattern, with fewer diagnoses than the province but higher self-reported prevalence rates.

Figure 5: *Diagnoses of depression by physicians and self-reported prevalence in past year by Ontario region, OHIP & CCHS 1.2, 2002*

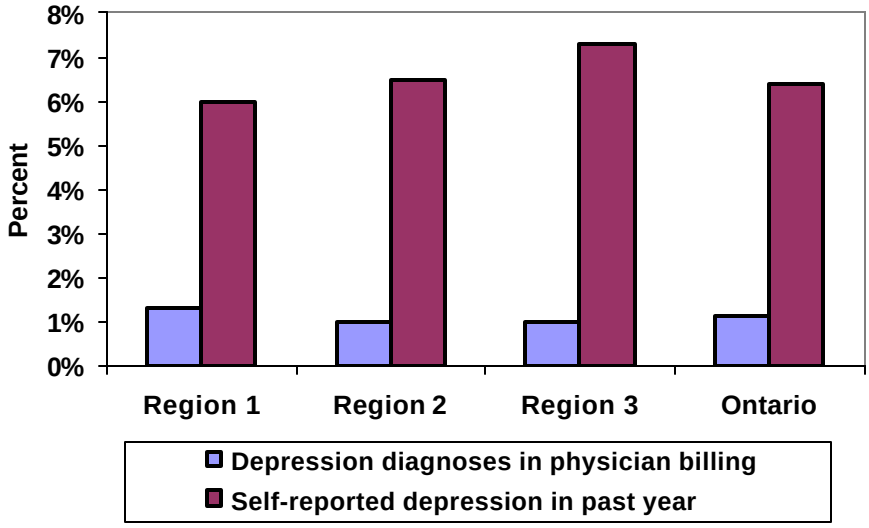
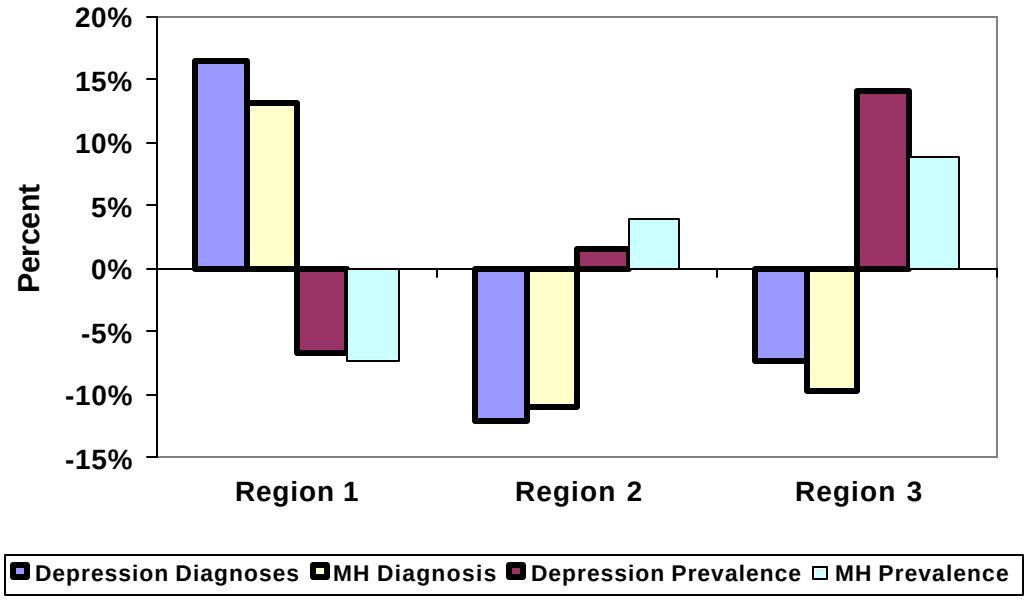


Figure 6: *Rates of diagnoses and prevalence estimates for individuals with depression and mental illness: percent difference from Ontario, CCHS 1.2, and Physician Claims Database, 2002*

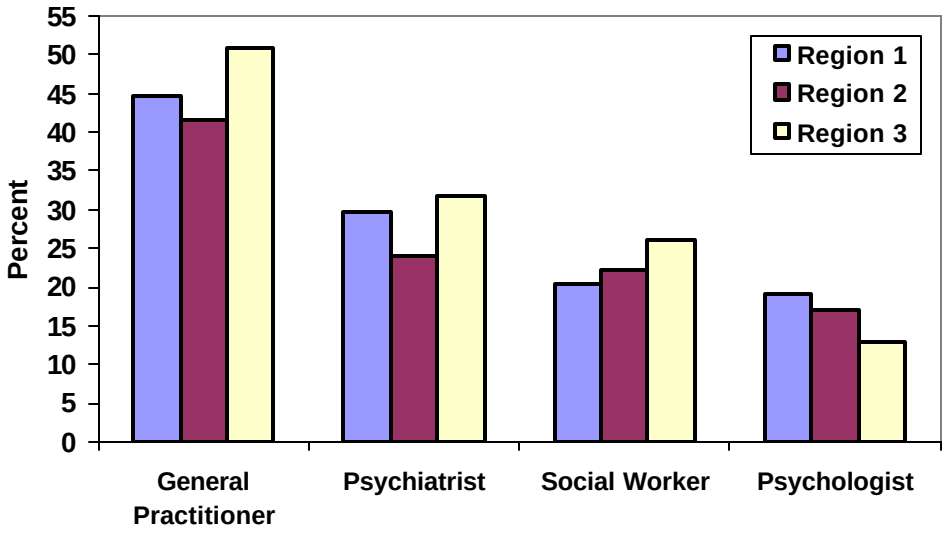


Depression & Health Service Utilization

Individuals who were classified as depressed – according to the original CCHS 1.2 definition - were subsequently asked a number of questions about health care utilization (refer to Appendix B for exact questions):

1. Did you ever in your life see, or talk on the telephone, to a medical doctor or other professional about your feelings? (By other professional, we mean psychologists, psychiatrists, social workers, counselors, spiritual advisors, homeopaths, acupuncturists, self-help groups or other health professionals.)
2. Did you ever get treatment for your feelings that you considered helpful or effective?
3. During the past 12 months, did you receive professional treatment for your feelings?
4. During your life, were you ever hospitalized overnight for your feelings?
5. Up to and including the first time you got helpful treatment, how many professionals did you see, or talk to about your feelings?

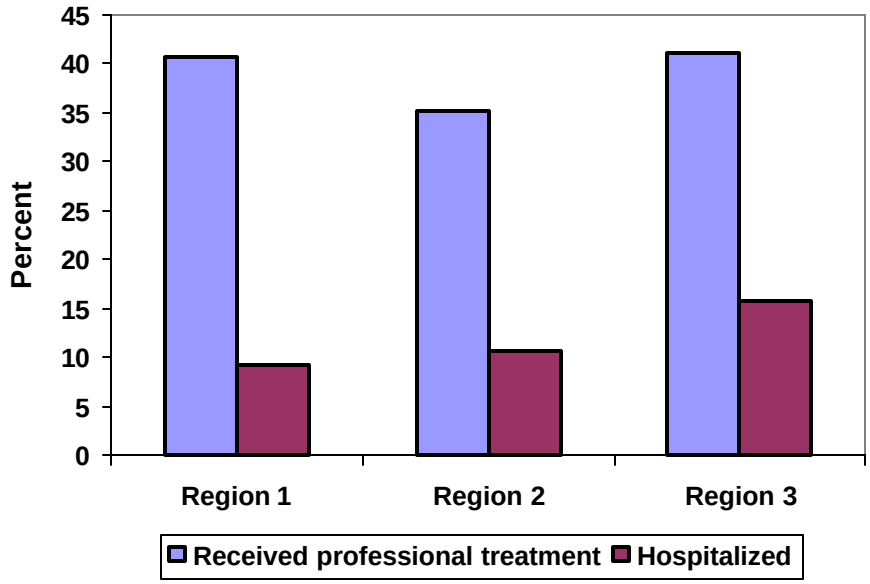
Figure 7*: Self-reported rates of consultation with providers for individuals with depression by region, CCHS 1.2, 2002*



Individuals who live in the most rural areas (Region 3) were more likely to have consulted with a family doctor or social worker (Figure 7). Residents of Region 1 and Region 3 consulted psychiatrists at approximately equal rates (29.7 and 31.8, respectively). However, for psychologists - who are not covered under general health insurance in Ontario - Region 3 showed the lowest rate of consultation and Region 1 the highest. Referring back to Table 3a, the lower economic status of Region 3 residents may be the reason for their higher use of services that are covered by provincial health insurance.

When asked if they had received any profession treatment in the past 12 months only about 40% of those identified with depression responded affirmatively. Rates were similar for Regions 1 and 3, and slightly lower in Region 2. Hospitalization, however, was highest in Region 3 where 16% reported being hospitalized, while this was reported by only 9% in Region 1 (Figure 8).

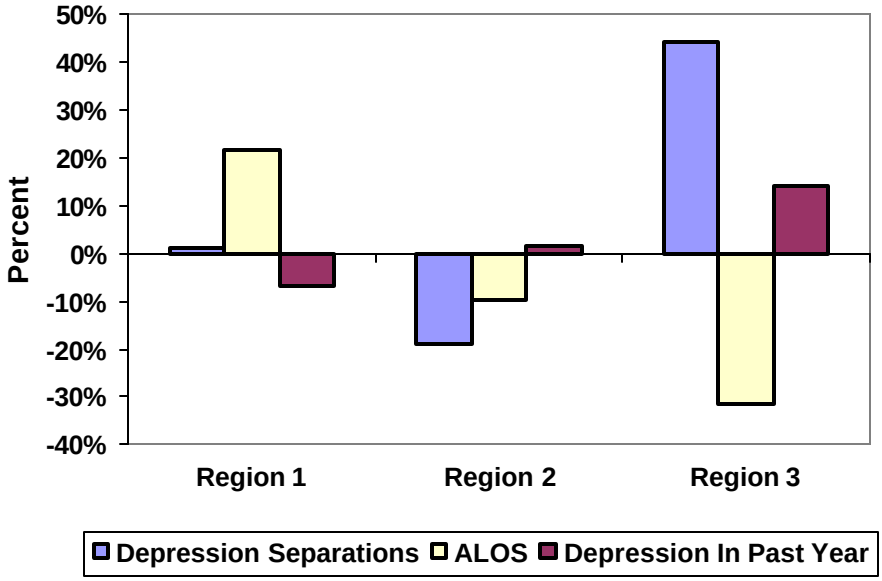
Figure 8: *Self-reported rates of treatment and hospitalization for individuals with depression by region, CCHS 1.2, 2002*



Hospitalization was also explored using administrative data, and is more fully described in the first report.[1] Based on the administrative data, the rate of hospitalization for depression in Ontario was just over 2 per thousand in 2002; and for the three regions the rates were, in order, 2.5, 2.0 and 3.7 per 1000 (data not shown). The separation rates are about ¼ higher than the number of individuals since people are often hospitalized more than once for depression. While residents in Region 3 were more likely to be hospitalized with a diagnosis of depression, they also had a shorter length of stay in hospital, averaging about 11 days. Regions 1 and 2 had fewer depression-related hospitalizations but the lengths of stay were far longer, at 20 and 15 days, respectively.

The percent difference from the Ontario average is shown in Figure 9 for hospital separations, average length of stay and depression diagnoses in past 12 months, based on administrative data. One possible explanation for the differing length of stay values is that hospitalizations in Region 3 may included less severe cases resulting in shorter stays, but this does not explain the difference in length of stay between Regions 1 and 2 where separation rates are virtually identical.

Figure 9: *Hospital separations, average length of stay (ALOS) per separation and depression in past 12 Months by region: difference from Ontario average, Discharge Abstract Database, 2002*



Health Human Resources

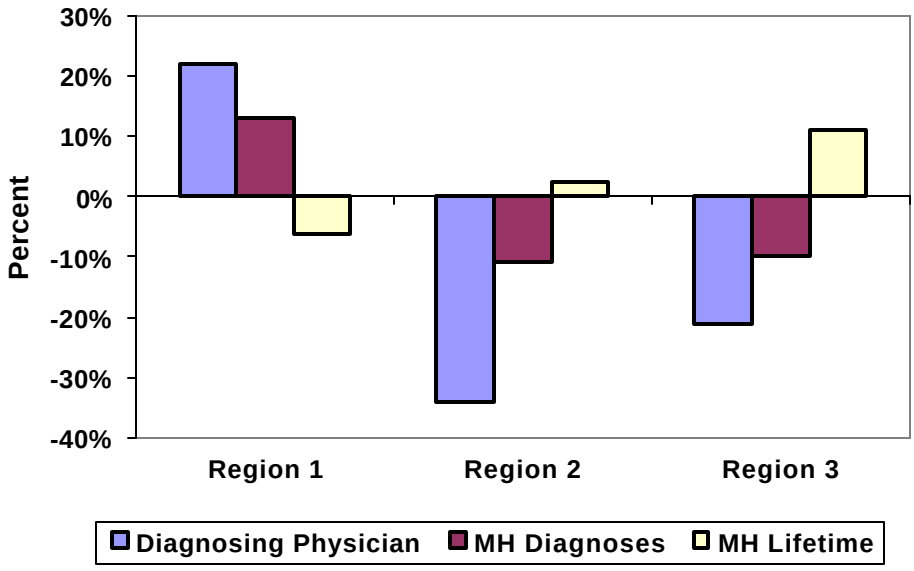
The overall patterns so far tend to suggest that there is a marginally higher "need" in Region 3, but that physician diagnoses are lowest in this area. One reason may be a difference in the availability of physicians. Since both general practitioners (GPs) and psychiatrics contributed to our diagnostic data we have combined them to show the number of residents per "diagnosing" physician. The following table shows the number of GPs, the number of psychiatrists, and the total number of actively practicing diagnosing physician (i.e. GPs and psychiatrists combined) in 2003 within each of the 3 regions of Ontario. Region 1 has the most GPs and psychiatrists with one for every 642 residents, suggesting that the number may indeed increase the likelihood of diagnoses. For Region 2 the number is 1147 per person and there is one diagnosing physician for each 990 residents in Region 3. The Ontario average is 836 residents per diagnosing physician.

Table 7: *Number of general practitioners (GPs), psychiatrists, and overall diagnosing physicians per population by region in Ontario, Ontario Physician Human Resources Data Centre, 2003*

	Number of GPs	Number of psychiatrists	Number of diagnosing physicians per person
Region 1	5,232	1,426	642
Region 2	3,118	290	1147
Region 3	1,380	105	990
Ontario	9,730	1,821	836

Figure 10 compares the regional differences in the number of diagnosing physicians per person, the rate of physician diagnoses of mental illness, and the lifetime prevalence of self-reported mental illness. While physician diagnoses are directly correlated with where the physicians are located, self-reported mental illness shows the opposite pattern.

Figure 10: *Physician supply and mental health diagnoses: differences from Ontario average, The Ontario Physician Human Resources Data Centre, Physician Claims Database and CCHS 1.2, 2002*

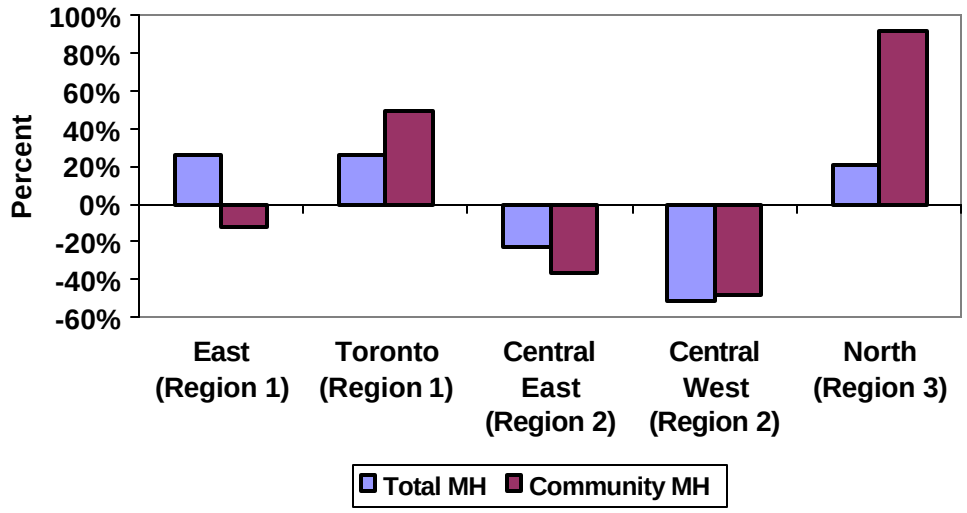


Community Mental Health Services

It is possible that some of the differences in hospitalization and physician utilization patterns may be partly explained by looking at other community mental health services. Our first report included information on mental health spending overall, and identified spending specifically targeted through community-based programs for Ministry of Health Regional Office areas. Areas that fit within the region boundaries used here account for

most of the Ontario population and are listed in Figure 11, revealing that per capita spending on Mental Health is highest in Region 3 and lowest in Region 2.

Figure 11: *Mental health spending: differences from Ontario average, Ontario Ministry of Health and Long-Term Care*



DISCUSSION

Findings from the CCHS Cycle 1.2 show that the overall rate of depression in Ontario ranges from 11%-15%, depending on the stringency of diagnosis. The prevalence rate of depression within Ontario varied slightly between our 3 devised regions (14.4%-16.2%). Differences in the prevalence of depression by region could be explained by variations in the demographic composition of the 3 regions; differences were seen in the socio-demographics factors of percent low income, recipients of government assistance, immigration status, and ethnicity.

A number of the findings from this report raise issues concerning depression and related health care utilization in Ontario. Region 3 consulted GPs, psychiatrists, and social workers far more than they consulted psychologists. In Ontario, psychologists are not covered by the provincial health insurance. Therefore individuals from Region 3 – the most disadvantaged of the regions – are more likely to use services that are available free of charge. The majority of individuals with depression in all regions had consulted with a family physician, followed by psychiatrist and social worker. Less than 20% had consulted with a psychologist, perhaps because of the cost involved.

Individuals from Region 3 were also most likely to report having been hospitalized for depression. This was also found in the previous report using administrative data. It is possible that this is a result of less services being available in these communities. The

shorter lengths of stay could mean that less severe episodes result in hospitalization in this Region. Community health spending rates are highest in Region 3 suggesting that the increased hospitalization rate is not simply explained by lower access to services. In fact, self-reported visits to physicians and psychiatrists for these residents were much higher that would be expected based on the relatively low rates of physician diagnoses. The survey findings are at odds with the picture portrayed in physician administrative records.

According to the survey data, the prevalence of depression in individuals in Region 1 was lower than others, however, according to previously reported administrative data Region 1 had the highest rate of physician reported depression diagnoses. This may be a result of different definition of depression between survey and administrative data. Or, individuals from the more affluent regions may be less likely to report depression due to associated stigma. It may also occur because of differences in prescribing patterns, which were not explored in this study. If there is a greater propensity to prescriptions related to mental illness in Region 1, then there may be a greater tendency to provide diagnostic information. Given the relatively low rate of diagnoses reported it is likely that most individuals presenting with symptoms of depression and mental illness may be diagnosed, but these diagnoses may not be systematically recorded.

One possible explanation for regional differences in the prevalence of depression and in depression-related health care utilization is that services are not offered uniformly across the province. The Ontario Physician Human Resources Data Centre provides the number of physicians by specialty according to their location of practice. According to a report by M.J.L. Kirby[17], the ideal psychiatrist to population ratio is 1:8,400. Region 1 is well within this number, however, both Regions 2 and 3 have more than 13,000 individuals for every psychiatrist. This outlines a serious lack of specialists practicing outside of major urban centres with Health Sciences Centres. Therefore, the higher rates of consultation with psychiatrists and GPs in Region 1 may, at least in part, be a reflection of the larger number of physicians in practice.

This supports findings from the previous report looking at administrative data. When comparing results from the 3 regions to the provincial average for the rate of hospitalizations, diagnoses, and visits, Region 1 was higher than the provincial average for both diagnoses and physician visits, but was lower in hospitalizations. Both Regions 2 and 3 were quite a bit lower for diagnoses and visits but far higher for hospitalizations.

Conclusion

Serious depression has been experienced by approximately one in six Ontarians, with half of those experiencing an episode within the past year. This is a serious chronic affliction that has significant costs to the individual, the health system, and society. The CCHS 1.2 provides extensive information on mental illness, addictions and depression, and allows sub-provincial estimates. Though estimates were to be available for MOHLTC regions, the sample estimates were not considered reliable at this geography. By redefining Ontario's geography into three areas it was possible to consider the relationships between services, utilization, demographics and prevalence. Persistent, though non-significant,

differences exist in Ontario. Areas with Health Sciences Centres have lower prevalence than more sparsely populated areas without these medical facilities.

People reporting depression saw various health professionals, and one in ten were hospitalized within the past year. Most often they reported seeing family physicians or psychiatrists, but more than half received no professional treatment. The majority of those with serious depression were therefore not under professional care. How much of this is related to access and how much may related to individual choice is unclear, but the pattern of utilization suggests that access issues may indeed be a factor.

Where you live in Ontario determines how likely you are to be diagnosed with mental illness or depression. Areas with more physicians and with Health Sciences Centres had the highest rates of diagnoses, even though self-reported prevalence tended to be lower. Having a correct diagnosis of depression may lead to more effective treatment, and perhaps has the effect of reducing the prevalence rates. It may also explain why hospitalization rates are lower and lengths of stay are longer since more effective diagnosis may ensure that only the most severe cases become hospitalized. It must be noted, however, that the rate of diagnosis is only a fraction of the prevalence. Most cases, are therefore either undiagnosed, un-reported, or both. The physician administrative records are woefully inadequate for analysis of the burden of mental illness in Ontario.

This study reveals patterns of prevalence and utilization that are suggestive and somewhat troubling. It appears that the regions differ in prevalence and in the interaction of individuals with the service system. The pattern is not systematic and fails to show higher rates of service in areas of greater need. Unfortunately the primary care administrative data fails to adequately describe Ontarians with mental illness. The CCHS 1.2 shows us these limitations, and has allowed us to reveal a large gap between needs and services for Ontarians with serious depression.

Limitations

The cross-sectional design of the CCHS 1.2 precludes assumptions related to temporality and causality. As well, all information was self-report, and the sensitive nature of some questions may have resulted in inaccurate responses. Relationships between depression and potential mediators are complex and may be bi-directional.

Due to some technical problems in certain skip patterns of the suicide module, some respondents were not asked the questions required for the calculation of the derived variables "12-month suicidal thought" and "12-month suicidal attempt". Consequently, important information was missing for those individuals (this represented around 5% of all respondents for the "12-month suicidal thought" and around 1% of all respondents for the "12-month suicidal attempt"). To fill in these missing responses, values were imputed using either a deterministic imputation method or a logistic regression imputation. The deterministic imputation method was used for all missing values for the 12-month suicidal attempt and for about one fourth of the missing values for the 12-month suicidal thought. For the remaining missing values of the 12-month suicidal thought, the logistic

method was used. The method consisted in fitting a logistic regression model between the variable to impute (the 12-month suicidal thought) and correlated characteristics using respondents without missing values who were similar to those to impute. Using the fitted model, a probability of response (yes or no) was calculated for each respondent who needed imputation; a response was then imputed based on that probability.

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APPENDICES

APPENDIX A: Derived Major Depressive Episode

For the purpose of CCHS 1.2 – Mental Health and Well-being, major depressive episode is a period of 2 weeks or more with persistent depressed mood and loss of interest or pleasure in normal activities, accompanied by symptoms such as decreased energy, changes in sleep and appetite, impaired concentration, and feelings of guilt, hopelessness, or suicidal thoughts.

The questions on major depressive episode are based on a recognized World Mental Health version of the Composite International Diagnostic Interview (WMH-CIDI) modified for the needs of CCHS 1.2. The WMH-CIDI instrument, as part of the WMH2000 Project (World Mental Health 2000) is a World Health Organization worldwide initiative to assess the prevalence rates of various mental disorders in multiple countries.

As part of its support documentation, CCHS 1.2 is providing information on all temporary and interim derived variables used to compute the final derived variables of lifetime and past 12-month profiled conditions. For most users, the final derived variables in addition to the derived variables pertaining to recency, duration, onset and interference will be sufficient to conduct analyses.

Major Depressive Episode - Lifetime

1) Major Depressive Episode - Lifetime Criterion A, Part 1
Description: This variable identifies respondents who reported lifetime depressive symptoms that have been present during the same two-week period and at least one of the symptoms is either:

1. Depressed mood or
2. Loss of interest or pleasure.

2) Major Depressive Episode - Lifetime Criterion A, Part 2
Description: This variable identifies whether respondents reported at least five of nine symptoms associated with depression. These symptoms need to represent a change from previous functioning. The symptoms are:
1. Depressed mood;
2. Diminished interest in hobbies or activities;
3. Significant weight loss/gain or change in appetite;
4. Insomnia or hypersomnia;
5. Psychomotor agitation or retardation;
6. Fatigue or loss of energy;
7. Feelings of worthlessness;
8. Diminished ability to think or concentrate; and
9. Recurrent thoughts of death.

2a) Symptom 1 – Depressed Mood
Description: This variable identifies respondents who reported depressed mood most of the day.

2b) Symptom 2 – Diminished Interest or Pleasure in Most Activities
Description: This variable identifies respondents who reported markedly diminished interest or pleasure in all, or almost all, activities or hobbies most of the day, nearly every day.

2c) Symptom 3 – Significant Weight Loss/Gain or Change in Appetite
Description: This variable identifies respondents who reported a significant weight loss (when not dieting) or weight gain, or a decrease or increase in appetite nearly every day. A significant weight change is defined a 10 pounds/4 kg. Weight gain due to pregnancy and weight loss due to illness are excluded.

2d) Symptom 4 – Insomnia or Hypersomnia
Description: This variable identifies respondents who reported insomnia (trouble falling asleep, staying asleep or waking too early) or hypersomnia (sleeping more than usual) associated with depression.

2e) Symptom 5 – Psychomotor Agitation or Retardation
Description: This variable identifies respondents who reported psychomotor agitation (e.g. restlessness) or retardation (e.g. talking or moving slowly) that is observable by others.

2f) Symptom 6 – Fatigue or Loss of Energy
Description: This variable identifies respondents who reported fatigue or loss of energy nearly every day.

2g) Symptom 7 – Feelings of Worthlessness
Description: This variable identifies respondents who reported feelings of worthlessness nearly every day.

2h) Symptom 8 – Diminished Ability to Think or Concentrate
Description: This variable identifies respondents who reported diminished ability to think or concentrate nearly every day.

2i) Symptom 9 – Recurrent Thoughts of Death
Description: This variable identifies respondents who reported recurrent thoughts of death.

3) Major Depressive Episode - Lifetime Criterion A (Parts 1 and 2 Combined)
Description: This variable identifies whether the respondent meets lifetime Criterion A of the CCHS1.2/WMHCIDI algorithm. The criterion is met if the respondent reported:
1. A period of two weeks or longer of depressed mood or loss of interest or pleasure; and
2. At least five symptoms associated with depression, which represents a change in functioning.

4) Major Depressive Episode - Lifetime Criterion C, Part 1
Description: This variable identifies respondents who reported that their lifetime depressive symptoms caused clinically significant distress.

5) Major Depressive Episode - Lifetime Criterion C, Part 2
Description: This variable identifies respondents who reported that their lifetime depressive symptoms caused impairment in social, occupational or other important areas of functioning.

5a) Social and Occupational Interference
Description: This variable identifies whether, during the period of a month of longer in the 12 months prior to the interview when the symptoms were most severe, the respondent's depressive feelings significantly interfered with their home responsibilities,

responsibilities at school or work, his/her ability to form and maintain close relationships, or his/her social life.

6) Major Depressive Episode - Lifetime Criterion C (Parts 1 and 2 Combined)
Description: This variable identifies whether the respondent meets Criterion C of the CCHS 1.2/WMH-CIDI algorithm for lifetime episode. The criterion is met if the respondent reported:
1. the symptoms caused clinically significant distress; or
2. the symptoms caused impairment in social, occupational or other important areas of functioning.

7) Major Depressive Episode - Lifetime Criterion E, Part 1
Description: Criterion E, part 1 is that the lifetime major depressive episodes were not always accounted for by bereavement (e.g. preceded by the death of someone close). This variable identifies respondents who reported that their symptoms were not always preceded by the death of someone close.

8) Major Depressive Episode - Lifetime Criterion E, Part 2
Description: Criterion E, part 2 is that if a bereavement exists, people who are suffering from a major depressive episode (and not bereavement) will have the symptoms last longer than two months. This variable identifies respondents who reported a lifetime depressive episode that lasted more than two months. To assess this, a variable is first created for each episode (e.g. worst, first, 12-month, most recent, longest) to determine whether it exceeded two months.

8a) Worst Depressive Episode Longer Than Two Months
Description: This variable identifies respondents who reported a worst depressive episode that lasted longer than two months.

8b) Most Recent Depressive Episode Longer Than Two Months
Description: This variable identifies respondents who reported a most recent depressive episode lasting longer than two months.

8c) First Depressive Episode Longer Than Two Months
Description: This variable identifies respondents who reported a very first depressive episode lasting longer than two months.

8d) Single 12-Month Depressive Episode Longer Than Two Months
Description: This variable identifies respondents who reported a single 12-month depressive episode lasting longer than two months.

8e) Most Recent 12 Month Depressive Episode Longer Than Two Months
Description: This variable identifies respondents who reported a most recent 12-month depressive episode lasting longer than two months.

8f) Longest Depressive Episode Longer Than Two Months
Description: This variable identifies respondents who reported a longest major depressive episode lasting longer than two months.

9) Major Depressive Episode - Lifetime Criterion E, Part 3

Description: Criterion E, part 3 is that if bereavement exists, people who are suffering from a major depressive episode (and not bereavement) will have lifetime symptoms that are characterized by:
1. A marked functional impairment;
2. A morbid preoccupation with worthlessness;
3. Suicidal ideation; and
4. Psychomotor retardation.
To assess this, variables are first created for the different components.

9a) Social and Occupational Interference
Description: This variable identifies respondents who reported that feelings associated with depression significantly interfered with home, school or work responsibilities, his/her ability to form and maintain close relationships, or his/her social life

9b) Functional Impairment
Description: This variable identifies respondents who reported a marked functional impairment associated with depression.

9c) Preoccupation With Worthlessness
Description: This variable identifies respondents who reported preoccupation with worthlessness associated with depression.

9d) Suicidal Ideation
Description: This variable identifies respondents who reported suicidal ideation.

9e) Psychomotor Retardation
Description: This variable identifies respondents who reported psychomotor retardation associated with depression.

10) Major Depressive Episode - Lifetime Criterion E (Parts 1, 2, 3 Combined)
Description: This variable identifies whether the respondent meets lifetime Criterion E of the CCHS 1.2/WMHCIDI algorithm. The criterion is met if the respondent reported:
1. That their depressive episodes were not all associated with bereavement (e.g. occurred just after someone close died); or
2. They experienced a depressive episode lasting longer than two months; or
3. An episode was characterized by a marked functional impairment, a preoccupation with worthlessness, suicidal ideation, or psychomotor retardation.

11) Major Depressive Episode - Lifetime Algorithm
Description: This is the final variable that identifies whether respondents meet or fail to meet the CCHS 1.2/WMH-CIDI criteria for lifetime major depressive episode. Respondents who meet the criteria reported:
1. Two weeks or longer of depressed mood or loss of interest or pleasure and at least five symptoms associated with depression which represent a change in functioning;
2. That symptoms cause clinically significant distress or impairment in social, occupational or other important areas of functioning; and
3. That symptoms are not better accounted for by bereavement or symptoms last more than two months or the symptoms are characterized by a marked functional impairment, preoccupation with worthlessness, suicidal ideation, or psychomotor retardation.

12) Duration of Worst Depressive Episode (In Years)

Description: This variable identifies the length of the respondent's worst depressive episode (in years).

13) Duration of Most Recent Depressive Episode (In Years)
Description: This variable identifies the length of the respondent's most recent major depressive episode (in years).

14) Duration of First Depressive Episode (In Years)
Description: This variable identifies the length of the respondent's first depressive episode (in years).

15) Duration of Single 12-Month Depressive Episode (In Years)
Description: This variable identifies the length of the respondent's single major depressive episode occurring in the 12 months prior to interview.

16) Duration of First of Several 12-Month Depressive Episodes (In Years)
Description: This variable identifies the length of the respondent's first of several depressive episode occurring in the 12 months prior to interview.

17) Duration of Longest Depressive Episode (In Years)
Description: This variable calculates the longest depressive episode. Note that not all respondents are asked this question (e.g. those who reported only one lifetime depressive episode were not asked the question).

18) Major Depressive Episode – Age of Onset
Description: The age of onset for major depressive episode is the respondent's age at the start of their first reported major depressive episode. The variable is calculated only for respondents who meet the criteria for major depressive episode.

19) Major Depressive Episode – Recency Age
Description: This variable identifies the respondent's age at their most recent major depressive episode. The variable is calculated only for respondents who meet the criteria for major depressive episode.

20) Major Depressive Episode – Persistence of Major Depressive Episode (In Years)
Description: This variable identifies the longest episode associated with a major depressive episode experienced by the respondent. It is calculated only for respondents who meet the criteria for major depressive episode.

Major Depressive Episode – Past 12 Months

21) Major Depressive Episode, Past 12 Months - Criterion A
Description: This variable identifies respondents who meet the criteria for lifetime major depressive episode.

22) Major Depressive Episode, Past 12 Months - Criterion B
Description: This variable identifies respondents who reported having a major depressive episode in the 12 months prior to the interview.

23) Major Depressive Episode, Past 12 Months - Criterion C

Description: This variable identifies respondents who reported symptoms that cause clinically significant distress or impairment in social, occupational or other important areas of functioning in the 12 months prior to interview.

24) Major Depressive Episode, Past 12-Months Algorithm
Description: This is the final variable that identifies whether respondents meet or fail to meet the CCHS 1.2/WMH-CIDI criteria for major depressive episode in the 12 months prior to the interview. Respondents who meet the criteria reported:
1. Meeting the criteria for lifetime major depressive episode;
2. Having a major depressive episode in the 12 months prior to the interview; and
3. Clinically significant distress or impairment in social, occupational or other important areas of functioning.

25) Suicide – Lifetime Thought
Description: This variable classifies the respondent based on whether he/she ever thought about committing suicide or taking his/her own life.

26) Suicide – Past 12-Months Thought
Description: This variable classifies the respondent based on whether he/she thought about committing suicide or taking his/her own life in the past 12 months.
Note: In the questionnaire, some respondents were not asked the appropriate question to determine past 12-month suicidal thought. For these respondents, an imputation strategy was used to assign values for 12-month suicide thought. The variable that identifies which respondents were imputed is IMPBFSYT. For more information, see the User Guide.

27) Suicide – Lifetime Attempt
Description: This variable classifies the respondent based on whether he/she ever attempted suicide.

28) Suicide – Attempt in Past 12 Months
Description: This variable classifies the respondent based whether he/she attempted suicide in the past 12 months.
Note: In the questionnaire, some respondents were not asked the appropriate question to determine past 12-month suicide attempt. For these respondents, an imputation strategy was used to assign values for 12-month suicide attempt. The variable that identifies which respondents were imputed is IMPBFSYA. For more information, see the User Guide.

29) Major Depressive Episode Interference - Mean
Description: This variable describes the interference that the major depressive episode had on daily activities and responsibilities in the past 12 months. This is a mean of the five items. This variable is calculated only for respondents who meet the criteria for the past 12-month major depressive episode.

30) Flag for Major Depressive Episode Interference
Description: This variable describes the interference that the major depressive episode had on daily activities and responsibilities in the past 12 months. This is a classification that indicates whether the major depressive episode interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships. This question is calculated only for respondents who meet the criteria for the past 12-month major depressive episode.

APPENDIX B: Depression Questionnaire

Earlier, you mentioned having periods that lasted several days or longer when you felt sad, empty or depressed most of the day. During such episodes, did you ever feel discouraged about how things were going in your life?

During the episodes of being sad, empty or depressed, did you ever lose interest in most things like work, hobbies or other things you usually enjoyed?

Earlier, you mentioned having periods that lasted several days or longer when you felt discouraged about how things were going in your life. During such episodes, did you ever lose interest in most things like work, hobbies or other things you usually enjoy?

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 2 weeks or longer?

Did you ever have an period of being sad/discouraged/uninterested in things that lasted for most of the day, nearly every day, for 2 weeks or longer?

Think of periods lasting 2 weeks or longer these problems with your mood were most severe and frequent. During those periods, did your feelings of being sad/discouraged/uninterested in things usually last....

During those periods, how severe was your emotional distress?

During those periods, how often was your emotional distress so severe that nothing could cheer you up?

During those periods, how often was your emotional distress so severe that you could not carry out your daily activities?

> People with episodes of being sad/discouraged/uninterested in things often have other problems at the same time. These include things like feelings of low self-worth and changes in sleep, appetite, energy and ability to concentrate and remember.

Did you ever have problems like this during one of your episodes of being sad/discouraged/uninterested in things?

Please think of an episode of being sad/discouraged/uninterested in things that lasted 2 weeks or longer when, at the same time, you also had the largest number of these other problems. Is there one particular episode that stands out as the worst one you ever had?

How old were you when that worst episode started?
How long did it last (in terms of days, weeks, months or years)?

Think of the last time you had a bad episode of being {PHRASE} like this. How old were you when that last episode occurred?

How long did that episode last?

In answering the next questions, think about the period of 2 weeks or longer when your feelings of being sad/discouraged/uninterested in things and other problems were most severe and frequent. During that period, tell me which of the following problems you had for most of the day, nearly every day.

Did you feel sad, empty or depressed most of the day, nearly every day, during that period of 2 weeks?

Nearly every day, did you feel so sad that nothing could cheer you up?

During that period of 2 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?

During that period of 2 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?

During that period of 2 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 2 weeks, did you gain weight without trying to?

Was this weight gain due to a physical growth or a pregnancy?

How much did you gain?

Was that in pounds or kilograms?

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?

Was that in pounds or kilograms?

During that period of 2 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 2 weeks, did you sleep a lot more than usual nearly every night?

Did you sleep much less than usual and still not feel tired or sleepy?

During that period of 2 weeks, did you feel tired or low in energy nearly every day, even when you had not been working very hard?

During that period of 2 weeks, did you have a lot more energy than usual nearly every day?

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?

During that period of 2 weeks, did your thoughts come much more slowly than usual or seem mixed up nearly every day?

Did your thoughts seem to jump from one thing to another or race through your head so fast you couldn't keep track of them?

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?

Did you lose your self-confidence?

Nearly every day, did you feel that you were not as good as other people?

Did you feel totally worthless nearly every day?

Did you feel guilty nearly every day?

Did you feel irritable, grouchy or in a bad mood nearly every day?

Did you feel nervous or anxious most days?
During that period of 2 weeks, did you have any sudden attacks of intense fear or panic?

Did you feel that you could not cope with your everyday responsibilities?

Did you feel like you wanted to be alone rather than spend time with friends or relatives?

Did you feel less talkative than usual?

Were you often in tears?

Did you often think a lot about death, either your own, someone else's or death in general?

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:
> EXPERIENCE A is "You seriously thought about committing suicide or taking your own life."
> EXPERIENCE B is "You made a plan for committing suicide."
> EXPERIENCE C is "You attempted suicide or tried to take your own life."

Think of the period of 2 weeks or longer when your feelings and other problems were most severe and frequent. During that time, did EXPERIENCE A happen to you?

Has EXPERIENCE A ever happened to you?

In the past 12 months, did EXPERIENCE A happen to you?

How old were you the last time this experience happened to you?

Think of the period of 2 weeks or longer when your feelings and other problems were most severe and frequent. During that period of 2 weeks or longer did EXPERIENCE B happen to you?

Think of the period of 2 weeks or longer when your feelings and other problems were most severe and frequent. During that period of 2 weeks or longer, did EXPERIENCE C happen to you?

Has there been a more recent time when EXPERIENCE C happened to you?

Has EXPERIENCE C ever happened to you?

During the last 12 months, did EXPERIENCE C happen to you?

During the last 12 months, did EXPERIENCE A happen to you?

Did EXPERIENCE B happen to you?

How old were you the last time EXPERIENCE C happened to you?

How old were you when EXPERIENCE C happened to you?

Did it result in injury or poisoning?

Did you receive medical attention (following the most recent time EXPERIENCE C happened to you)?

Were you hospitalized overnight or longer (following this most recent time since EXPERIENCE C happened to you)?

During the past 12 months, have you seen, or talked on the telephone, to a professional about EXPERIENCE A?

Whom did you see or talk to? Please read the numbers of all that apply.

Where did the contact(s) take place?

During the past 12 months, have you seen, or talked on the telephone, to a professional about EXPERIENCE A or EXPERIENCE C?

Whom did you see or talk to? Please read the numbers of all that apply.

Where did the contact(s) take place?

You mentioned having a number of the problems that I just asked you about. During that episode, how much did your feelings and having these other problems interfere with either your work, your social life or your personal relationships?

Earlier, you mentioned having a number of problems during the period of 2 weeks or longer when your feelings were most frequent and severe. During that episode, how much did your feelings and having these other problems interfere with either your work, your social life or your personal relationships?

During that episode, how often were you unable to carry out your daily activities because of your feelings?

Episodes of this sort sometimes occur as a result of a physical illness or injury or the use of medication, drugs or alcohol. Do you think your episodes ever occurred as the result of physical causes, medication, drugs or alcohol?

Do you think your episodes were always the result of physical causes, medication, drugs or alcohol?

What were the causes?

Did your episodes ever occur just after someone close to you died?

Did your episodes always occur just after someone close to you died?

During your life, how many episodes with some other problems lasting two weeks or longer have you ever had?

> Think of the very first time in your life when you had an episode lasting 2 weeks or longer when most of the day, nearly every day, you felt sad/discouraged/uninterested and also had some of the other problems we talked about.

Can you remember exactly how old you were the very first time you had such an episode?

How old were you?

About how old were you (the first time you had such an episode)?

Would you say that the very first time you had an episode of this sort was:
1 … before you first started school?
2 … before you were a teenager?
3 … once you were a teenager or an adult?

Was that episode brought on by some stressful experience or did it happen out of the blue?

About how long did that episode go on?

At any time in the past 12 months, did you have an episode lasting 2 weeks or longer where you felt sad/discouraged/uninterested and also had some of the other problems already mentioned?

How recently was it?

> In the next questions, the word "episode" means a period lasting 2 weeks or longer when, nearly every day, you were sad/discouraged/uninterested and you also had some of the other problems we just mentioned. The end of an episode is when you no longer have the problems for two weeks in a row.

With this definition in mind, how many different episodes did you have in the past 12 months?

In what month and year did that episode start?

Enter the year.

How long did that episode last?

Has this episode ended or is it still going on?

How long did the first of these episodes last?

Has the most recent episode ended or is it still going on?

During the past 12 months, about how many days out of 365 were you in such an episode?

How old were you the last time you had one of these episodes?

What is the longest episode you ever had when, most of the day, nearly everyday, you were feeling sad/discouraged/uninterested and you also had some of the other problems we just mentioned?

Earlier, you mentioned that you had several episode(s) of feeling sad/discouraged/uninterested with some other problems lasting 2 weeks or longer in your life. How many of these episodes were brought on by some stressful experience?

How many different years in your life did you have at least one episode?

What is the longest number of years in a row in which you had at least one episode per year?

Did you ever have a period lasting a full year or longer when you were in an episode most days?

During your life, about how many years were you in an episode most days?

How old were you the first time you had such a year (when you were in an episode most days)?

What is the longest number of years in a row in which you were in an episode most days?

> For the next questions, think about the period of 2 weeks or longer during the past 12 months when your feelings of being sad/discouraged/uninterested were most severe and frequent.

During this period, how often did you feel cheerful?

How often did you feel as if you were slowed down?

How often could you enjoy a good book or radio or TV program?

During this period, how often did youstill enjoy the things you used to enjoy?

How often could you laugh and see the bright side of things?

How often did you take interest in your physical appearance?

How often did you look forward to enjoying things?

> Think about the period of time that lasted one month or longer when your feelings of being sad/discouraged/uninterested were most severe in the past 12 months. Please tell me what number best describes how much these feelings interfered with each of the following activities. For each activity, answer with a number between 0 and 10; 0 means "no interference" while 10 means "very severe interference".

In the past 12 months, how much did your feelings of being sad/discouraged/uninterested interfere with your home responsibilities, like cleaning, shopping and taking care of the house or apartment?

How much did your feelings interfere with your ability to attend school?

How much did they interfere with your ability to work at a job?

Again thinking about that period of time lasting one month or longer during the past 12 months when your feelings of being sad/discouraged/uninterested were most severe, how much did they interfere with your ability to form and maintain close relationships with other people? (Remember that 0 means "no interference" and 10 "very severe interference".)

How much did they interfere with your social life?

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 feelings of being sad/discouraged/uninterested?

Did you ever in your life see, or talk on the telephone, to a medical doctor or other professional about your feelings of being sad/discouraged/uninterested? (By other professional, we mean psychologists, psychiatrists, social workers, counsellors, spiritual advisors, homeopaths, acupuncturists, self-help groups or other health professionals.)

> Earlier, you mentioned that you consulted a professional. Think of the first time you saw, or talked to a medical doctor or other professional about your feelings of being sad/discouraged/uninterested. (By other professional, we mean psychologists, psychiatrists, social workers, counsellors, spiritual advisors, homeopaths, acupuncturists, self-help groups or other health professionals.)

How old were you the first time you saw, or talked to a professional about your feelings of being sad/discouraged/uninterested?

How old were you the first time you saw, or talked to a professional about your feelings of being sad/discouraged/uninterested?

Did you ever get treatment for your feelings of being sad/discouraged/uninterested that you considered helpful or effective?

How old were you the first time you got helpful treatment for your feelings of being sad/discouraged/uninterested?

Up to and including the first time you got helpful treatment, how many professionals did you see, or talk to about your feelings of being sad/discouraged/uninterested?

In total, how many professionals did you ever see, or talk to about your feelings of being sad/discouraged/uninterested?

During the past 12 months, did you receive professional treatment for your feelings of being sad/discouraged/uninterested?

During your life, were you ever hospitalized overnight for your feelings of being sad/discouraged/uninterested?

Earlier, you mentioned that you had been hospitalized overnight or longer (following the most recent time EXPERIENCE C happened to you). How old were you the first time you were hospitalized overnight because of your feelings of being sad/discouraged/uninterested?

How old were you the first time you were hospitalized overnight (because of your feelings of being sad/discouraged/uninterested)?

How many of your close relatives – including your biological parents, brothers, sisters and children – ever had one or several episodes of being sad, depressed, discouraged or uninterested most of the day, for several days, weeks and longer?

What is respondent's date of birth?

What is respondent's age?

Is respondent male or female?

What is respondent's marital status?

Did respondent graduate from high school (secondary school)?

Has respondent received any other education that could be counted towards a degree, certificate or diploma from an educational institution?

What is the highest degree, certificate or diploma respondent has respondent obtained?

In general, would you say your health is:

1 excellent?
2 very good?
3 good?
4 fair?
5 poor?

Does the respondent have any chronic health conditions (listed below), which were diagnosed by a health professional.
Do you have:
food allergies?
any other allergies?
asthma?
fibromyalgia?
arthritis or rheumatism, excluding fibromyalgia?
back problems, excluding fibromyalgia and arthritis?
high blood pressure?
migraine headaches?
chronic bronchitis?
emphysema or chronic obstructive pulmonary disease
diabetes?
epilepsy?
heart disease?
cancer?
stomach or intestinal ulcers?
suffer from the effects of a stroke?
bowel disorder such as Crohn's Disease or colitis?
Alzheimer's disease or any other dementia?
cataracts?
glaucoma?
thyroid condition?
chronic fatigue syndrome?
suffer from multiple chemical sensitivities?
schizophrenia?
any other psychosis?
obsessive-compulsive disorder?
dysthymia?
suffer from post-traumatic stress disorder?
autism or any other developmental disorder such as Asperger's syndrome or Rett syndrome?
a learning disability?
an eating disorder such as anorexia or bulimia?
any other long-term physical or mental health condition that has been diagnosed by a health professional?

Respondent is not an immigrant.
Respondent is an immigrant.

Length of Time in Canada Since Immigration

Respondent has had a job throughout the past year.
Respondent was without a job and looking for work throughout the past year.
Respondent was without a job and not looking for work throughout past year.

Respondent has had a job part of the year – was without a job and looking for other part of the year.
Respondent has had a job part of the year – was without a job and not looking for other part of the year.
Respondent was without a job and looking for part of the year – was without a job and not looking for other part of the year.
Respondent has had a job part of the year – was without a job and looking for part of the year – was without a job and not looking for other part of year.

This variable classifies the total household income into 2 categories based on total household income and the number of people living in the household.

Low income
< $15,000 if 1 or 2 people;
< $20,000 if 3 or 4 people;
< $30,000 if 5+ people

Middle or High Income
>= $15,000 if 1 or 2 people;
>= $20,000 if 3 or 4 people;
>= $30,000 if 5+ people

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