Education Level, Income Level and Mental Health Services Use in Canada: Associations and Policy Implications

Niveau de scolarité, niveau de revenu et utilisation des services de santé mentale au Canada : répercussions sur les associations et les politiques

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Abstract

Background: Investigations of socio-economic gradients in mental health services use in Canada have used different measures of socio-economic status and have shown conflicting results. We explored the relationships between education level, income level and mental health services use among people with a mental illness using data from the Canadian Community Health Survey: Cycle 1.2.

Methods: We included adults who met the criteria for an anxiety or depressive disorder in the past 12 months (n=3,101). We calculated the likelihood of seeking mental healthcare from a psychiatrist, psychologist, family physician or social worker over a period of 12 months by education level.

Results: For each additional level of education, individuals were 15% more likely to see a psychiatrist, 12% more likely to see a family doctor, 16% more likely to see a psychologist and 16% more likely to see a social worker.

Discussion/Conclusion: We found marked inequity in mental health services use by education level that was consistent across service types. Programs aiming to deliver targeted services to consumers who have not completed high school should be developed and evaluated.

Résumé

Contexte : Les enquêtes sur les gradients socio-économiques dans l'utilisation des services de santé mentale au Canada ont utilisé différentes mesures du statut socio-économique et ont donné des résultats contradictoires. Nous avons exploré les relations entre le niveau de scolarité, le niveau de revenu et l'utilisation des services de santé mentale chez les personnes atteintes d'une maladie mentale en utilisant les données de l'Enquête sur la santé dans les collectivités canadiennes : Cycle 1.2.

Méthodes : Nous avons inclus des adultes qui répondaient aux critères de troubles anxieux ou dépressifs au cours des 12 derniers mois (n=3,101). Nous avons calculé la probabilité de chercher des soins de santé mentale auprès d'un psychiatre, d'un psychologue, d'un médecin de famille ou d'un travailleur social sur une période de douze mois, selon le niveau de scolarité.

Résultats : Pour chaque niveau de scolarité supplémentaire, les répondants étaient 15 % plus susceptibles de consulter un psychiatre, 12 % plus susceptibles de s'adresser à un médecin de famille, 16 % plus susceptibles de faire appel à un psychologue et 16 % plus susceptibles de recourir à un travailleur social.

*Discussion/Conclusio*n : Nous avons constaté d'importantes inégalités dans l'utilisation des services de santé mentale par niveau de scolarité, et ces inégalités étaient constantes dans tout le secteur des services. On devrait élaborer et évaluer des programmes visant à fournir des services ciblés aux consommateurs qui n'ont pas terminé leurs études secondaires.

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Background

Mental and behavioural disorders are common, universal and disabling. The economic burden of mental illness places it among the costliest conditions in Canada. Stephens and Joubert (2001) estimated the direct and indirect costs of depression and distress to be over 14 billion dollars. Recent Canadian data have shown that 4.9% of Canadians have met the criteria for an affective disorder in the past 12 months, and 4.7% have met the criteria for an anxiety disorder in the past 12 months (Statistics Canada 2003). Despite the availability of effective treatments, the majority of individuals with mental illness do not receive any mental healthcare. Of those individuals with a mental disorder in the past year, only 32% spoke to a health professional about their symptoms (Statistics Canada 2003). This low rate of symptom disclosure to mental health professionals illuminates an area of significant opportunity to improve the dissemination of effective treatments to those in need.

Mental health is not equally distributed across socio-economic strata. Decades of evidence has consistently shown that the lower one's socio-economic status the greater the likelihood of having a major psychiatric disorder (Dohwenrend 1990). In North America, anxiety and depressive disorders are about twice as common in low-income and low-education groups relative to high-income and high-education groups (Alegria et al. 2000; Wang 2000). If our universal healthcare coverage system were successful in distributing healthcare according to need, we would expect rates of mental healthcare use to be highest in the lowest socio-economic status groups. However, this does not appear to be the case. Data from self-reported community surveys have shown higher rates of specialty mental health services use in individuals with high education levels and no significant differences by income level (Starkes et al. 2005; Valiadis et al. 2005; Alegria et al. 2000; Katz et al. 1997). Administrative data have shown higher rates of use by residents in both higher-education and higher-income neighbourhoods

(Tataryn et al. 1994; Steele et al. 2005, 2006). This evidence supports the claim that the gap between need for mental health services and their use is greatest for individuals who belong to lower socio-economic groups. Moreover, this evidence indicates that income and education differ importantly in their associations with services use, particularly when these variables are measured at the individual level.

Income and education may act differently upon rates of service use by the type of mental health services examined. Across Canada, physician-provided mental healthcare is fully covered by our universal healthcare coverage system. This is not the case for psychologists, social workers or other mental health counsellors. While some psychologists are employed in hospitals or other specialized programs, almost 80% of consultations with psychologists occur within the private rather than the public system (Romanow 2003). On the other hand, social workers are primarily employed by public institutions, with only a minority working in private practice (CASW 2000). It is possible that our current mental health system mitigates income barriers for MD-provided healthcare and care provided by social workers, but not for psychologists. We would not expect universal healthcare coverage to mitigate barriers that are associated with low education levels.

Despite the complex relationship between income, education and service use, many health services studies use income level alone as a proxy for socio-economic status (Krieger et al. 1997). The current study aims to update and explore the question of socio-economic disparities in mental health services use by sector, with particular emphasis on the relationships between individual educational attainment, income level and services use. These relationships have importance for policy makers and program planners who seek to improve equity in mental health services delivery by targeting services to specific high-risk groups.

Methods

Data were drawn from the Canadian Community Health Survey (CCHS) 1.2, a national population-based survey of 33,000 Canadians conducted in 2002 that was designed to gather cross-sectional health data on a representative sample of Canadians (Gravel and Beland 2005). Sampling for the CCHS was based on the standard area probability frame that Statistics Canada employs for the majority of its population surveys. The frame includes the entire country with the exception of the northern territories, individuals living on Indian Reserves or in institutions and full-time Canadian Armed Forces personnel (Gravel and Beland 2005). Provinces and regions within provinces were stratified, and household clusters within strata were identified. Sample selection was based on the random selection of one individual from randomly selected households within these household clusters (Gravel and Beland 2005). The sample we used was composed of CCHS respondents over the age of 17 years. Structured inter-

view modules were drawn from the most recent Composite International Diagnostic Interview (Gravel and Beland 2005). Two broad categories of psychiatric disorders were assessed: anxiety disorders (panic disorder, social phobia and agoraphobia) and affective disorders (manic episode and major depressive episode). In the current analysis, we limited our sample to those 3,101 adult respondents (8.3%) who met the criteria for any anxiety or affective disorder in the past 12 months.

Mental health services use

Our primary dependent variables described whether there was any service use in the past 12 months. Respondents were asked "think of the psychiatrist (a) / family doctor (b) / psychologist (c) /social worker, counsellor or psychotherapist (d) you talked to the most often during the past 12 months. How many times did you see, or talk on the telephone to, this person (about your emotions, mental health or use of alcohol or drugs)?" The dichotomous variables (a–d) were coded "yes" if the response was "1 or more," "no" if the response was "not applicable" and "missing" if the response was "don't know," "refusal" or "not stated." We conducted separate analyses for the following four service sectors: (a) psychiatrists, (b) family doctors, (c) psychologists and (d) counsellors, including social workers and psychotherapists.

Independent variables

We used a 10-level education variable as a proxy for a continuous number of years of education variable. The scale ranged from 1 (grade 8 education or less) to 10 (postgraduate degree or certificate). A score of three or less indicated less than a high school education. We created a continuous income variable that we adjusted for household size using the indirect method of standardization (Kelsey 1996). We included other independent variables based on their potential to confound the relationship between income, education and services use. We created dummy variables for respondents' sex, marital status (married/common-law vs. widowed/separated/divorced/single), immigration status (country of birth other than Canada) and place of residence (rural vs. urban). We used a continuous age variable. A binary employment variable indicated whether the respondent had worked at a job or business at any time in the past year. We used respondents' scores on the Kessler Psychological Distress (K10) scale for a continuous measure of symptom severity ranging from 0 to 40. This scale consists of 10 items related to levels of anxiety or depressive symptoms that an individual may have experienced in the most recent four-week period (Kessler et al. 2003).

Because our initial analyses found that place of residence was not significant for any analysis in any sector, we have excluded that variable from the final analyses.

Analyses

We used logistic regression to determine the relationships between income, education and mental health services use adjusting for age, sex, employment status, marital status, immigration status and distress level. Separate regressions were conducted for service use from each of the four service sectors. To further explore the interrelationships between education level, income level and mental health services use, we added an education-income interaction term to our original analyses.

The confidence intervals (CI) for our estimates were determined using the bootstrap re-sampling program that is employed by Statistics Canada (Statistics Canada 2003). This method involves the repeated selection with replacement of simple random samples from each stratum and the recalculation and post-stratification of weights (to demographic information) for each stratum. The bootstrap variance estimator is the standard deviation of the point estimates calculated for each of 500 samples using the bootstrap weights.

Results

Demographic characteristics are described in Table 1. Compared to the entire Canadian sample of the CCHS 1.2, individuals with an anxiety or affective disorder were less likely to be immigrants and were more likely to be younger, female, lower-income and not partnered than Canadians in general. In the past 12 months, 14.8% of the study sample had visited a psychiatrist, 33.2% had visited a family doctor, 10.1% had visited a psychologist and 11.3% had visited a social worker to discuss a mental health issue.

The results of the logistic regression are shown in Table 2. For each additional level of education, individuals were 15% more likely to see a psychiatrist, 12% more likely to see a family doctor, 16% more likely to see a psychologist and 16% more likely to see a social worker. When we repeated these analyses with an income–education interaction term, the interaction term was not significant for any sector.

Discussion

Among people with a diagnosis of an anxiety or affective disorder during the past year, we have found a marked association between educational status and the likelihood of having sought mental health services. In every service sector, individuals with higher education levels were more likely to receive services than individuals with lower education levels. Household income did not independently predict mental health services use.

The data from this study were derived from the first national Canadian survey to conduct structured diagnostic interviews on a large representative sample of Canadians. The psychiatric measures have been well validated and widely used internationally. One

limitation of the study relates to the accuracy of self-reported mental health services use. Past studies comparing self-reported mental health services use to administrative data have shown that in depressed individuals, higher levels of distress are associated with overreporting of psychiatric services (Rhodes et al. 2004). Since distress levels were highest in the groups that reported the least care, we would expect any recall bias to be towards the null hypothesis. Moreover, overreporting is much more likely to occur in analyses that report the number of visits. We have limited our analyses to a binary outcome (did or did not see a service provider), which is less likely to be inaccurately reported than a continuous measure of visit frequency (Rhodes et al. 2004).

TABLE 1. Demographic characteristics

	Total population of Canadian adults % or mean (95% CI)	Sample of Canadians with an affective or anxiety disorder % or mean (95% CI)
Mean age	45.6 (45.4–45.7)	40.3 (39.6–41.0)
% female	51.0 (50.9–51.1)	62.1 (59.6–64.4)
% married/common-law	65.3 (64.7–65.9)	50.0 (47.4–52.6)
% immigrant	22.8 (22.1–23.5)	15.6 (13.5–17.7)
Mean distress score	5.3 (5.2–5.3)	13.4 (13.0–13.8)
% not employed	23.4 (22.8–24.0)	25.5 (23.3–27.6)
% no high school diploma	21.9 (21.3–22.6)	22.2 (20.1–24.4)
Mean education level (1–10)	5.4 (5.4–5.4)	5.3 (5.2–5.4)
Mean adjusted income ($1,000)	64.1 (63.3–65.0)	56.6 (54.2–59.0)
% had psychiatrist visit	2.0 (1.8–2.2)	14.8 (13.1–16.5)
% had FP/GP mental health visit	5.4 (5.0–5.7)	33.2 (30.6–35.8)
% had psychologist visit	1.9 (1.7–2.1)	10.1 (8.6–11.6)
% had social worker visit	2.1 (1.9–2.4)	11.3 (9.7–12.9)
Affective disorder	5.2 (4.9–5.5)	63.1 (60.5–65.7)
Anxiety disorder	4.6 (4.3–4.9)	57.4 (54.7–60.0)
Either an affective or an anxiety disorder	8.5 (8.1–8.9)	100.00

We limited our analyses to individuals who met criteria for an anxiety or affective disorder. These individuals are different from the general population in that they are

more likely to be female, single, Canadian-born and low-income. Consequently, our results should not be generalized to individuals without an anxiety or affective disorder.

TABLE 2. Logistic regression for mental health services use by individuals with an anxiety or depressive disorder (odds ratio and 95% CIs)

Variables	Psychiatrist	Family doctor	Psychologist	Social worker
High school diploma	**1.15 (1.08–1.23)**	**1.12 (1.06–1.19)**	**1.16 (1.07–1.26)**	**1.16 (1.07–1.26)**
Higher income	1.00 (1.00–1.00)	1.00 (1.00–1.00)	1.00 (1.00–1.00)	1.00 (1.00–1.00)
Female	0.82 (0.58–1.17)	**1.50 (1.16–1.93)**	0.86 (0.57–1.30)	1.40 (0.98–2.00)
Age	1.01 (1.00–1.02)	**1.02 (1.01–1.03)**	1.00 (0.98–1.02)	1.00 (0.991–1.02)
Immigrant	0.75 (0.45–1.23)	0.66 (0.43–1.00)	**0.39 (0.17–0.88)**	0.61 (0.30–1.24)
Distress	**1.09 (1.07–1.12)**	**1.06 (1.05–1.08)**	**1.05 (1.02–1.07)**	**1.03 (1.01–1.05)**
Employed	**0.63 (0.42–0.94)**	1.03 (0.74–1.44)	0.86 (0.52–1.43)	0.97 (0.62–1.53)
Married/ Common-law	**0.80 (0.42–0.94)**	0.84 (0.66–1.08)	**0.61 (0.42–0.88)**	**0.66 (0.46–0.97)**

Bolded results are significant at p<0.05.

Our finding that individual income level is not independently associated with mental health services use is consistent with the results of previous Canadian studies that have used community survey data. However, this finding does not replicate the income–use associations that have been seen in studies that have used administrative data. The reason for this difference may be that income level has importance at the neighbourhood level only, or that neighbourhood income is a proxy for another variable that we do not capture with individual-level income, such as social capital. A multi-level approach to the question of income gradients in mental health services use would be a valuable next step.

This study supports the primacy of education among the socio-economic factors that might enable mental healthcare use. From this study, we cannot ascertain whether these gradients are patient-driven, with more highly educated individuals more likely to seek care, or provider-driven, with more highly educated individuals being considered more suitable for mental healthcare. Indeed, the causes of inequity are likely to be multi-faceted and may differ by sector. For example, visits to family physicians are usually patient-initiated, so barriers to mental healthcare service use from this sector might be largely patient-based. In a growing literature on mental health literacy, educa-

tion has been identified as a significant factor associated with insight into symptoms of mental disorders and attitudes towards treatment (Yen et al. 2005). Lower levels of insight into the significance of emotional symptoms may make less well-educated individuals less likely than educated individuals to bring up mental health issues with their family physicians. Initial appointments with mental health specialists often require referrals from family physicians. In the specialty sector, inequitable access to care might be influenced by disparities in rates of referral by family physicians for patients with different levels of educational attainment. Patient factors that might be correlated with low education could affect family physicians' propensity to refer to psychiatric care. For example, family physicians may question the benefit of counselling therapies for patients who lack verbal communication skills or who do not demonstrate a high level of mental health literacy. It might also be the case that family physicians have difficulty finding appropriate psychiatric care for marginalized groups, such as those with low literacy (Craven et al. 1997).

> **Depressed or anxious individuals without high school diplomas have lower rates of mental health services use than individuals who have finished high school.**

In sum, this study provides clear evidence that the Canadian system of universal healthcare coverage for MD-provided mental healthcare and the fragmented system of allied mental health services provision are inadequate for the equitable distribution of mental health services to those in need. Depressed or anxious individuals without high school diplomas have lower rates of mental health services use than individuals who have finished high school. While educational attainment is often adjusted for in evaluations of mental health interventions, variation in the effectiveness of mental health service interventions (such as cognitive behavioural therapy) by education level has not been examined. This is an area that could be of interest to clinicians who seek to expand their delivery of services to lower-education groups. Programs that are meant to improve the delivery of services to marginalized groups should be aware of the importance of clients' education levels in predicting the receipt of mental health services.

Future studies on the appropriateness of mental health treatment and outreach services for low-education groups would be helpful. Similarly, research on the mechanisms through which education level mediates help-seeking and services use might illuminate the best approach for improving the dissemination of effective treatments.

Future research will help reveal whether adaptations to our approach to services delivery for low-education groups should occur in clinical practice, in our outreach and education efforts at the broader health system level or using a multi-level approach.

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