

Canadian Post-Secondary Student Mental Health and Wellbeing:

A Descriptive Analysis

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ABSTRACT

Background: Post-secondary students are considered to be at risk of chronic stress and languishing mental health, but there has been little analysis of the available population-level data. The purpose of this study was to examine the overall and sex-specific prevalence of self-reported stress, distress, mental illness, and help seeking behaviours among Canadian post-secondary students.

Methods: Using the 2016 National College Health Assessment II dataset, we analyzed frequencies for each item of interest, stratified by sex. Chi-square analyses were conducted to test for statistical significance between groups.

Results: A large proportion of students self-reported high stress levels as well as diagnoses of depression and anxiety. More female students reported higher levels of stress and distress than did male students. Similarly, more female students reported having sought help for mental health related difficulties compared to male students. While all students demonstrated a willingness to seek help in the future, this was true for significantly more females than males.

Conclusions: Findings point to the need for increased upstream approaches, including mental health promotion and mental illness prevention to minimize stress and distress among post-secondary students.

Keywords: mental health, postsecondary, stress, mental illness, help seeking

BACKGROUND

Increasingly, post-secondary students are being acknowledged as an at-risk group for poor mental health and the development of mental illnesses. Research has demonstrated that students experience both high rates of stress (1,2) and mental illness (3–5). The 2012 cycle of the Canadian Community Health Survey revealed that young Canadians aged 15-24 years (largely capturing the majority of post-secondary students) were the most likely to report symptoms of a mental illness or an unmet need for mental health care (6,7). Data from the 2016 Global Burden of Disease Study suggests that mental illness was one of the top four leading causes of loss of disability-adjusted life-years (DALYs) in Canada (8).

Post-secondary students face a wide array of stressors, spanning the academic, financial, and social spheres, placing them at risk for languishing mental health, particularly if they lack effective coping strategies. Chronic stress is highly correlated with negative mental health outcomes (9,10) and has been shown to have a substantial impact on students' academic performance (11). Post-secondary students not only represent a large portion of the population, with post-secondary enrolment across Canada surpassing two million in 2016 (12), but are also the next generation of income earners in Canada. Ensuring that this substantial portion of the population is mentally healthy is imperative to alleviating the financial burden associated with mental illness and bolstering the economy moving forward.

Currently, there is no nationally coordinated effort to monitor mental health related data for post-secondary students, though one is currently in development at the University of British Columbia (13). This is an important gap to be filled, given that the design and implementation of interventions to alleviate stress and promote mentally healthy campuses should be informed by

the prevalence and correlates of languishing mental health. In the absence of a Canadian-made surveillance system, the National College Health Assessment Survey II (NCHA II), delivered by the American College Health Association, constitutes the most complete source of data on American and Canadian post-secondary student stress and mental health outcomes currently available. To our knowledge, there is currently no published paper detailing a descriptive analysis of the most recent prevalence estimates of Canadian post-secondary student stress and distress based on these findings. Therefore, the primary purpose of this study was to examine the overall and sex-specific prevalence of self-reported stress, distress, and mental illness, and help seeking behaviours among Canadian post-secondary students.

METHODS

We conducted a secondary analysis of the Canadian portion of the 2016 NCHA II data. Data were collected cross-sectionally from 41 Canadian postsecondary institutions that participated in the 2016 component (n=43,780). The overall response rate was 19.2% (11). The survey consists of over 300 questions relating to the overall health of post-secondary students. While the NCHA II is primarily concerned with physical health indicators, a number of questions pertain to students' emotional and mental health.

The NCHA II is administered confidentially through Qualtrics by the ACHA. Each participating institution provides the ACHA with a letter of information and informed consent, a subject line for the invitation, a copy of the institution's IRB approval, and a list of students' e-mail addresses. The sample size used is at the discretion of participating institutions. After the initial distribution of the survey, non-responders are sent up to three reminder e-mails.

Measures

Demographics

Demographic data was collected from participants, including: age, sex, sexual orientation, year in school, enrollment status, ethnicity, living arrangement, and grade point average (GPA). All demographic variables were categorical in nature, and recoded for ease of presentation (e.g., age).

Stress and Distress

Participants were asked to rate their general stress level (*“Within the last 12 months, how would you rate the overall level of stress experienced?”*) on a 5-point Likert scale ranging from 1) *no stress* to 5) *tremendous stress*. Participants were also asked to indicate the frequency with which they had felt several symptoms of distress (*“Have you ever felt...?”*). Response categories were as yes or no within the past 12 months.

Mental Illness

Participants were asked *“Within the last 12 months, have you been diagnosed or treated by a professional for ...?”* several mental illnesses. We focused our analysis on responses pertaining to diagnosed anxiety and depression as these are typically the most prevalent problems reported by post-secondary students. Responses were categorized as: 1) *not diagnosed*, 2) *diagnosed, but not treated*, and 3) *diagnosed, and treated*. An additional question assessed lifetime prevalence of depression, asking participants whether they had *“ever been diagnosed with depression.”* Responses were dichotomized as yes or no.

Help Seeking

To assess previous help seeking, participants were asked whether they had “*ever received psychological or mental health services from...?*” Response categories included: *1) counselor, therapist, or psychologist, 2) psychiatrist, 3) other medical provider (e.g., physician, nurse practitioner, etc.), and 4) minister, priest, rabbi, or other clergy.* Responses were categorized dichotomously as yes or no. Participants were also asked whether they had “*ever received mental health services from your current college/university’s Counseling or Health Service?*”

Responses were categorized dichotomously as yes or no. To assess future intentions to seek help, participants were asked, “*In the future if you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional?*” Responses were categorized dichotomously as yes or no.

To meet the objectives of this paper, we conducted a descriptive analysis of the frequencies of these variables, stratifying by sex. Prevalences were calculated using the entire sample as the denominator (e.g., including missing responses). Chi-square analyses were conducted to test for statistical significance between groups. Ethics clearance was provided by the Queen’s Health Sciences and Affiliated Teaching Hospitals Research Ethics Board.

RESULTS

Table 1 describes the demographic characteristics of the participants. The majority of participants were full-time students (93%), single (83%), female (70%), and reported a GPA in the B range (46%). The majority of students were between 18 and 24 years of age (18-20 years 40.3%, 21-24 years 37.4%), with the sample slightly more heavily weighted towards students in

earlier years of study (i.e., 23% first years versus 15% fourth years). The largest proportion of students reported their race/ethnicity to be “white” (44.1%). Approximately 9% of participants were international students.

[INSERT TABLE 1 HERE]

Stress

Table 2 shows participants’ past 12-month level of stress, stratified by sex. A greater proportion of females than males reported “more than average” (49.2% vs. 38.9%) to “tremendous” (15.8% vs. 11.1%) stress, with more males reporting have experienced “no stress” to “average stress”.

This difference in self-reported stress levels by sex was statistically significant.

Table 2. Past 12-month Level of Stress, by Sex

| | Female (n= 30 313) | Male (n= 12 985) |
|--------------------------|------------------------------|----------------------------|
| No stress | 0.8% | 3.3% |
| Less than average stress | 4.3% | 11.4% |
| Average stress | 29.7% | 34.9% |
| More than average stress | 49.2% | 38.9% |
| Tremendous stress | 15.8% | 11.1% |

Note. $X^2_{(4)} = 1497.39$, $p < 0.001$.

Distress

Table 3 shows the differences in self-reported distress, stratifying responses by sex.

The relationship between reported distress and sex was statistically significant for all items, with the exception of the final item (“*Have you ever attempted suicide?*”). Across all categories, a

greater proportion of females than males reported that they had experienced distress within the past twelve months.

For the first five symptoms of distress (*“Felt things were hopeless,” “Felt overwhelmed by all you had to do,” “Felt exhausted,” Felt very lonely,” “Felt very sad”*), as well as item 7 (*“Felt overwhelming anxiety”*), more participants (male and female) reported having experienced these feelings than not. For item 6 (*“Have you ever felt so depressed that it was difficult to function?”*) the opposite pattern was observed, with more participants (male and female) reporting not experiencing this in the past twelve months. For item 8 (*“Have you ever felt overwhelming anger?”*), results varied by sex. An approximately equal proportion of females reported having experienced this or not, while more males reported not having experienced this in the past 12 months. The lowest frequencies for both sexes were observed in the final three items, which are symptomatic of the most extreme manifestations of distress (including intentional self-harm, suicidal ideation, and previous suicide attempts).

1 **Table 3. Prevalence of Past 12-month Distress, by Sex**

| Have you ever... | Female | Male | X ² |
|--|--------|-------|--|
| 1. Felt things were hopeless | 62.7% | 51.4% | X ² ₍₁₎ = 484.20, p<0.001 |
| 2. Felt overwhelmed by all you had to do | 92.9% | 80.0% | X ² ₍₁₎ = 1580.18, p<0.001 |
| 3. Felt exhausted (not from physical activity) | 91.1% | 79.9% | X ² ₍₁₎ = 1096.88, p<0.001 |
| 4. Felt very lonely | 69.3% | 58.8% | X ² ₍₁₎ = 439.57, p<0.001 |
| 5. Felt very sad | 78.0% | 62.3% | X ² ₍₁₎ = 1153.03, p<0.001 |
| 6. Felt so depressed that it was difficult to function | 46.7% | 38.1% | X ² ₍₁₎ = 273.48, p<0.001 |
| 7. Felt overwhelming anxiety | 69.5% | 51.4% | X ² ₍₁₎ = 1292.12, p<0.001 |
| 8. Felt overwhelming anger | 49.5% | 40.9% | X ² ₍₁₎ = 267.56, p<0.001 |
| 9. Intentionally self-harmed | 9.8% | 5.8% | X ² ₍₁₎ = 183.17, p<0.001 |
| 10. Seriously considered suicide | 13.4% | 11.9% | X ² ₍₁₎ = 17.80, p<0.001 |
| 11. Attempted suicide | 2.1% | 1.9% | X ² ₍₁₎ = 1.68, =0.195 |

2

Mental Illness

Table 4 describes self-reported diagnoses (and treatment) of anxiety and depression, stratified by sex. Differences in past 12-month diagnosis and treatment of both anxiety and depression were statistically significant by sex. A greater proportion of females than males reported being diagnosed (treated and untreated) for both anxiety and depression. While more females reported a diagnosis for anxiety than for depression, prevalence estimates for both mental illnesses were fairly equal for male participants (particularly among those who were diagnosed and receiving treatment). The proportion of participants who reported being diagnosed, but untreated, for either depression or anxiety across sexes was noticeably smaller than the proportion that reported being both diagnosed and treated. The difference in proportions for self-reported lifetime diagnosis of depression was also statistically significant by sex. Again, more female participants reported a lifetime diagnosis of depression (22.8%) compared to males (14.2%). It is worth noting that 20% of students who provided a response to this question (n= 43 305) reported receiving a diagnosis of depression at some point in their lives.

Table 4. Prevalence of Diagnosis or Treatment for Mental Illness, by Sex

| | Depression | | Anxiety | |
|------------------------|------------|-------|---------|-------|
| | Female | Male | Female | Male |
| Past 12 months | | | | |
| Not Diagnosed | 82.8% | 89.0% | 77.9% | 88.4% |
| Diagnosed, not treated | 3.9% | 2.7% | 6.3% | 3.3% |
| Diagnosed and treated | 12.6% | 7.3% | 15.2% | 7.4% |
| Lifetime | | | | |
| Not Diagnosed | 76.6% | 84.9% | -- | -- |
| Diagnosed | 22.8% | 14.2% | -- | -- |

Note. Anxiety (past 12 months) $X^2_{(2)} = 701.22$, $p < 0.001$
 Depression (past 12 months) $X^2_{(2)} = 313.83$, $p < 0.001$
 Depression (lifetime) $X^2_{(1)} = 410.78$, $p < 0.001$

Help Seeking

Table 5 shows help seeking behaviour among this sample of students by sex. Participants were asked about their previous help seeking experiences, as well as their intentions to seek help in the future. In nearly all cases, a greater proportion of females than males sought professional help for mental health-related problems. One exception appeared, where a roughly equal proportion of males and females reported seeking help from a “*minister, priest, rabbi, or other clergy*.” The difference in help seeking by sex was statistically significant for all care providers except clergy. Additionally, a greater proportion of females (80.1%) than males (71.3%) reported that they would seek help from a professional in the future if they had a mental health related problem. This difference was statistically significant.

Table 5. Prevalence of Help Seeking, by Sex

| Previous Help Seeking | Female | Male | X ² |
|--|--------|-------|---|
| 1. Counselor, therapist, or psychologist | 41.0% | 26.8% | X ² ₍₁₎ = 778.44, p<0.001 |
| 2. Psychiatrist | 12.6% | 9.9% | X ² ₍₁₎ = 63.68, p<0.001 |
| 3. Other medical provider (i.e., physician, nurse) | 23.1% | 13.5% | X ² ₍₁₎ = 508.63, p<0.001 |
| 4. Minister, priest, rabbi, or other clergy | 4.5% | 4.9% | X ² ₍₁₎ = 3.50, p=0.061 |
| 5. University health/counselling centre | 21.0% | 14.3% | X ² ₍₁₎ = 265.92, p<0.001 |
| Future Help Seeking | Female | Male | X ² |
| Intend to seek help in future | 79.8% | 70.8% | X ² ₍₁₎ = 400.17, p<0.001 |

DISCUSSION

In this secondary analysis, we explored the self-reported prevalence estimates for stress, symptoms of distress, diagnosed and/or treated mental illness, and help seeking in Canadian post-secondary students. We also observed sex-specific effects.

As expected, a significantly larger proportion of female students reported high stress levels over the course of the previous academic term as compared to male students. Few students reported “no stress” or “less than average stress.” Similarly, significantly more female students reported experiencing symptoms of distress across almost all symptoms, with the exception of self-reporting a previous suicide attempt. These observed differences by sex are consistent with the literature, which has shown females to report symptoms of stress and distress at a higher level than males (14). Importantly, nearly 50% of female respondents reported feeling “so depressed it was difficult to function” with 70% reporting feeling “overwhelming anxiety.” These proportions were approximately 10-20% lower among male students. As depression and anxiety are some of the most frequent mental illnesses known to affect post-secondary student populations (15), these findings are not necessarily surprising. However, these prevalence estimates are high, and certainly cause for concern. Even more concerning, about 10% of female respondents and 6% of male respondents reported engaging in intentional self-harm. Furthermore, approximately 13% of female respondents and 12% of male respondents reported having “seriously considered suicide,” with about 2% of males and females reporting a previous suicide attempt. This is cause for great concern, particularly given that suicide is a leading cause of death among young Canadians (16).

With respect to formal mental illnesses, more female than male students reported being diagnosed (in both the treated and untreated groups) with depression and anxiety in the past 12-

month period, with anxiety diagnoses slightly more prevalent than depression diagnoses. This is consistent with existing sex-based knowledge of the diagnoses for these illnesses (6). In total, 13% of students (both male and female) reported being both diagnosed and treated for anxiety within the past 12 months, while 5.5% reported being diagnosed only (not treated). For depression, 11% of students reported being diagnosed and treated in the past 12 months, while nearly 4% reported being diagnosed only (not treated). Depression was also assessed for lifetime occurrence. Significantly more female participants reported a lifetime diagnosis of depression compared to male students. In total, approximately 20% of students who provided a response to this question reported receiving a diagnosis of depression at some point in their lives, constituting over 8,500 individual students. This is consistent with the most recent data from Statistics Canada, indicating that the prevalence of depression is highest among youth aged 15 to 24, an age bracket that captures the majority of post-secondary students (6).

While it is clear that the prevalence of mental illnesses and poor mental health among post-secondary students is high, another important component to consider is help seeking. We evaluated current help seeking behaviour for mental health related problems, in addition to students' intentions to seek help in the future. Again, we observed significant differences by sex. Consistent with the literature, a greater proportion of females reported seeking help from nearly every resource (6,17). For both female and male students, the most frequently reported resource used was a counselor, therapist, or psychologist. Use of the university health or counselling services was reported by about 20% of female students and 14% of male students. One component not evaluated in this dataset was students' use of informal supports, such as reaching out to friends or family. This may be an important gap, as an estimated one-fifth of young Canadians have reported reaching out to friends and family for mental health difficulties (17).

A greater proportion of females than males reported that they would seek help from a professional in the future if they had a mental health related problem. In total, more than three quarters of students indicated that they intended to seek help, were it needed in the future. This may suggest that post-secondary institutions are making progress in reducing the stigma surrounding mental illnesses and making students feel more comfortable with reaching out for help. However, it should be noted that while expressing the intention to seek help if needed is a positive sentiment, it is by no means a guarantee of future help seeking behaviour. Post-secondary institutions should continue to work towards normalizing discussions around mental health and self-care within their student communities to foster caring campuses and mentally healthy environments.

There are some limitations to this study. These findings are based on self-reported data which is subject to social desirability bias, particularly given the sensitivity of the topic. It is possible that some participants may have distorted their responses in order to abide by social convention or failed to report a mental illness diagnoses due to perceived stigma. Several of the questions asked participants to recall how they felt over the past 12-month period. The length of this timeframe may have resulted in some degree of recall bias, resulting in misclassification. Additionally, many of the mental health measures within the NCHA II are less than optimal. While a well-established survey instrument, there is limited information available regarding the validity of the measures used on the NCHA II, and in particular, those related to mental health (18). The ACHA reports that the survey has been systematically evaluated for both reliability and validity (www.acha.org). However, validation analyses have not been conducted since the late 1990s. Furthermore, there is no mention of comparison to established mental health measures. While it is useful to capture students' overall feelings of stress through the use of a

global stress measure, the survey does not currently include a validated method of assessing specific sources of student stress. As stress as a key predictor of the development of mental health difficulties, and understanding the sources of student stress is key to adequately targeting mental health promotion efforts, this is an important gap to highlight. Finally, no sample weights were applied to the NCHA II dataset, so it is difficult to evaluate the representativeness of the data to the broader Canadian post-secondary population. However, the age and sex breakdown of the sample is similar to that of the wider Canadian post-secondary population, according to Statistics Canada's Post-Secondary Information System for the 2016 academic year (19).

It is important to note that while students in this study expressed a willingness to seek help should the need arise, institutions increasingly report resource limitations when it comes to meeting the demand for mental health counselling. In response to these resource limitations, we suggest that the focus should be placed on the development and improvement of upstream services, such as health promotion and mental illness prevention, in order to give students the tools they need to mediate excess stress and distress before developing serious mental health problems. Conley, Durlak and Dickson have provided a comprehensive review promotion and prevention efforts in higher education, identifying cognitive behavioural techniques (34%), psychoeducational programs (21%), relaxation strategies (16%), meditation techniques (10%), and mindfulness training (8%) as the most common methods of intervention (20). It is unclear, at this time, how many post-secondary institutions in Canada provide comprehensive programs including these elements. Thus, while these discrete interventions are generally well-received by students, there remains a need for a nationally coordinated, holistic effort to address post-secondary mental health and wellbeing. In 2017, De Somma, Jaworska, Heck and MacQueen reviewed mental health policies across 274 publicly funded post-secondary institutions in

Canada, noting a scarcity of comprehensive mental health strategies inclusive of both upstream and downstream approaches to student mental health (21). Since this review, work has begun across Canada to develop comprehensive frameworks to support students' mental and emotional wellbeing, including the development of holistic campus wellness strategies (e.g., 22-23), the signing of the Okanagan Charter (24), and the preliminary development of the Canadian National Standard for the Psychological Health and Safety of Post-Secondary Students (25). Each of these represent important steps towards understanding and improving upon the mental health of post-secondary students across Canada.

CONCLUSION

This secondary analysis provides a high-level overview of the available population-level data on the prevalence of stress and distress among Canadian post-secondary students. The substantial prevalence of mental health related challenges among students revealed in these findings point to the need for holistic frameworks for the support of post-secondary students' mental health and wellness, with emphasis on the development and improvement of upstream services, such as health promotion and mental illness prevention, in order to alleviate the demand for downstream services (e.g., counselling).

LIST OF ABBREVIATIONS

| | |
|---------|---------------------------------------|
| ACHA | American College Health Association |
| NCHA II | National College Health Assessment II |

149 **DECLARATIONS**

150

151 **Ethics approval and consent to participate**

152 The authors received approval from the American College Health Association to conduct
153 analyses with the Spring 2016 NCHA II Canadian data, and ethics approval from the Queen's
154 University Health Sciences and Affiliated Teaching Hospitals Research Ethics Board (HSREB).

155

156 **Consent for publication**

157 Not applicable.

158

159 **Availability of data and material**

160 The data that support the findings of this study are available from The American College Health
161 Association, but restrictions apply to the availability of these data, which were used under license
162 for the current study, and so are not publicly available. The data can be requested from the
163 American College Health Association (www.acha.org).

164

165 **Competing interests**

166 The authors declare that they have no competing interests.

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Authors' contributions

BL submitted the request for data to the ACHA, analyzed and interpreted the data, and was a major contributor in writing the manuscript. HS contributed toward the conceptualization of the research, and was a contributor in writing the manuscript. All authors read and approved the final manuscript.

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275 **Table 1. Demographic Characteristics of Participants**

| Variable | Count (n) | Percent (%) |
|--|----------------------|------------------------|
| Age | | |
| 18-20 years | 17 418 | 40.3% |
| 21-24 years | 16 186 | 37.4% |
| 25-29 years | 5 397 | 12.5% |
| 30 years and older | 4 241 | 9.8% |
| Sex | | |
| Female | 30 373 | 70.0% |
| Male | 13 035 | 30.0% |
| Marital Status | | |
| Single | 35 966 | 83.0% |
| Married/Partnered | 5 498 | 12.7% |
| Other ^a | 1 874 | 4.3% |
| Race or Ethnicity | | |
| White | 15 155 | 44.1% |
| Black | 1 677 | 4.9% |
| Aboriginal | 1 908 | 5.6% |
| Chinese | 3 937 | 11.5% |
| South Asian | 3 472 | 10.1% |
| Southeast Asian | 895 | 2.6% |
| Other Asian (Japanese, Korean) | 785 | 2.3% |
| Filipino | 1 122 | 3.3% |
| Latin American | 1 069 | 3.1% |
| Arab or West Asian | 1 442 | 4.2% |
| Multiracial | 1 597 | 4.7% |
| Other | 1 283 | 3.7% |
| Year of Study | | |
| 1 st year undergraduate | 9 949 | 23.0% |
| 2 nd year undergraduate | 8 843 | 20.4% |
| 3 rd year undergraduate | 8 040 | 18.6% |
| 4 th year undergraduate | 6 331 | 14.6% |
| 5 th year or more undergraduate | 2 858 | 6.6% |
| Graduate or professional | 6 026 | 13.9% |
| Other ^b | 1 228 | 2.8% |
| Enrollment Status | | |
| Full-time | 40 528 | 93.3% |
| Part-time | 2 454 | 5.6% |
| Other | 478 | 1.1% |

International Student

| | | |
|-----|--------|-------|
| Yes | 4 094 | 9.4% |
| No | 39 284 | 90.6% |

Grade Point Average

| | | |
|-----|--------|-------|
| A | 15 799 | 37.1% |
| B | 19 562 | 45.9% |
| C | 6 619 | 15.5% |
| D/F | 626 | 1.5% |

Notes:

Valid percent reported.

^a Includes combined responses of “Other”, “Separated”, and “Divorced”^b Includes combined responses of “Other” and “Not seeking a degree”