Evaluating Mood and Anxiety Disorders in Canada:

A Population-Based Study

Master of Public Health Integrating Experience Project

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by

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List of Abbreviations

CCDSS	Canadian Chronic Disease Surveillance System
CCHS	Canadian Community Health Survey
CCHS - MH	Canadian Community Health Survey – Mental Health
CCTB	Canadian Child Tax Benefit
DSM-5	Diagnostic and Statistical Manual of Mental Disorders
GAD	Generalized Anxiety Disorder
GBA+	Gender-Based Analysis Plus
HiAP	Health in All Policies
K10	Kessler Psychological Distress scale
MDD	Major Depressive Disorder
OCD	Obsessive Compulsive Disorder
PD	Panic Disorder
PHQ-9	Patient Health Questionnaire scale
PUMF	Publicly accessible microdata file
ROC	Receiver operating characteristic
SAD	Social Anxiety Disorder
SDGs	Sustainable Development Goals
VIF	Variance inflation factor
WHO	World Health Organization

Abstract

Background: The prevalence of mental disorders continues to increase worldwide. We assessed the prevalence and associated factors of mood and anxiety disorders in the Canadian population using a Gender-Based Analysis Plus (GBA+) approach on a nationally representative survey.

Methods: A secondary analysis of the 2017-2018 Canadian Community Health Survey (CCHS) - Annual Component was conducted using a GBA+ approach, an analytical process to incorporate sex, gender, and other intersecting identity factors into research, programs and policies. Sampling and bootstrap weights were applied to account for complex sampling design. Chi-square test and multivariable logistic regression models were used to assess associated factors of mood and anxiety disorders.

Results: CCHS included 113,290 Canadians, representative of 98% of the Canadian population over the age of 12. Mood and anxiety disorders were more prevalent among females than males (11.0% vs 6.4% and 11.6% vs 6.3% respectively, p<0.001). Logistic regression analyses revealed higher odds for both disorders for those who were female, unemployed, smokers, homosexual or bisexual, had low education and income levels, suffered from food insecurity or had disabilities. Statistically significant interactions were observed between sex and factors such as age, income, employment and sexual orientation. Of those who had a mood or anxiety disorder, 5.0% reported having unmet mental health care needs compared to 1.0% of the general population (p<0.001). Those reporting unmet mental health care needs were more frequently younger, females, single parents, with disabilities, lower income and food insecurity.

Conclusions: Females in Canada continue to be affected by mood and anxiety disorders at higher rates than males. Strategies for preventing mental health disorders and improving mental health care must be tailored towards the needs of specific groups. GBA+ should guide both research and policymaking.

1. Introduction

1.1 *Mental health and mental disorders*

The World Health Organization (WHO) defines mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.[1]" Over the recent years, there has been an upsurge in the prevalence of mental disorders around the world, affecting around 971 million individuals in 2017, compared to 855 million in 2007.[2] According to the 2017 Global Burden of Disease Study, the most prevalent mental disorders worldwide are anxiety disorders, affecting 284 million individuals, and depressive disorders, affecting 264 million individuals.[2] There have been studies reporting that the presence of one disorder is associated with higher risk of developing another one.[3,4]

1.1.1 *Anxiety disorders*

Anxiety disorders are the most common group of mental disorders in the world.[5] They include social anxiety disorder (SAD), specific phobias, obsessive-compulsive disorder (OCD), generalized anxiety disorder (GAD), and panic disorder (PD).[6] The lifetime prevalence for having any anxiety disorder is 33.7%, meaning that around one-third of people are, at some point in life, affected by an anxiety disorder.[6] The prevalence estimates for anxiety disorders differ between different regions of the world, with higher rates in higher-income than in lower-income countries.[5] Among all anxiety disorders, specific phobias have the highest lifetime prevalence (12.5%).[7] Individuals with specific phobias often suffer from persistent excessive fear of certain stimuli, and try to avoid them at all costs.[8] Examples of stimuli could include heights, insects and small animals such as dogs, etc.[6] OCD affects 1.3% of the population and causes unwanted

intrusive thoughts, leading to the development of ritualistic behaviors performed to reduce distress regarding those thoughts. Common examples include the repeated switching of lights on and off, and distress regarding contamination which leads to obsessive handwashing.[7,9] Panic disorder affects 5% of the population at some point during their lifetime. It is characterized by sudden attacks of unexpected anxiety accompanied by physical symptoms such as palpitations and sweating.[10,11] It often presents with other physical illnesses such as asthma and Meniere's disease. Anxiety disorders are associated with marijuana and illicit drug use, as well as alcohol use disorder.[12,13] The presence of an anxiety disorder contributes to the development of alcohol dependence due to the short-term anxiety-relieving effect of alcohol, while chronic alcohol use induces longer-term anxiety.[14] Anxiety is also associated with loneliness, which in turn is associated with low self-esteem, lack of close relationships, and difficulties communicating.[15] Despite the deleterious effects of anxiety disorders on individuals' psychosocial aspects of life and increased risk of further psychiatric diagnoses, they remain underdiagnosed, and consequently, undertreated.[16,17]

1.1.2 Mood disorders

Mood disorders have a lifetime prevalence of 20.8% and include depressive disorders - namely major depressive disorder (MDD) and dysthymia, and bipolar disorders.[2,7] MDD is a chronic condition with a lifetime prevalence of 16.6%. It is characterized by episodic depression lasting from at least 2 weeks to multiple years and manifests with at least five of nine symptoms defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM–5), which include diminished interest, depressed mood, loss of weight, sleep disturbances, agitation or retardation of psychomotor processes, fatigue, feelings of worthlessness and guilt, difficulty concentrating,

and suicidal ideation.[18] Risk factors associated with mood disorders include smoking, childhood trauma, socioeconomic disadvantage, and low educational attainment.[19–22] Dysthymia, also known as persistent depressive disorder, is characterized by depressive episodes similarly to MDD and has a lifetime prevalence of 2.5%.[7] It is distinguished from MDD by the length of the its depressive episodes, lasting for at least 2 years, with no remission periods lasting for more than 2 months within the 2-year period.[23] Also, the presence of only two out of six DSM-5 symptoms (depressed mood, poor appetite, sleep disturbances, fatigue, low self-esteem, poor concentration and hopelessness), compared to five for MDD, is required for the diagnosis of Dysthymia.[18] Bipolar disorder is a psychiatric illness that describes mood swings between two states realized by biological and psychological processes: highs (mania) and lows (depression). Manic episodes are characterized by high energy, racing thoughts and engagement in risky behavior while depressive episodes are accompanied with extreme fatigue, loss of appetite, feelings of worthlessness and suicidal ideation.[24] It affects around 4% of the total population and has been associated with recent stressful life events as triggering factors.[7,25]

Mood disorders are particularly of importance due to their high suicide rates. It has been estimated that of all suicides completed, 50 to 66% are by individuals suffering from mood disorders.[26] Suicide attempt rates are especially higher in those with bipolar disorder, as up to 50% of those suffering from it attempt a suicide at least once in their lifetime, and 8-19% of them succeed.[27] Risk factors associated with increased suicide attempts include young age of onset, substance use, and most importantly, history of previous suicide attempts.[27] It is speculated that the high incidence of suicide attempts is not merely due to the severity of bipolar disorder itself, but due to the lengthy nature of its high-risk episodes compared to MDD.[28]

1.2   *Gender-Based Analysis Plus*

Gender-based Analysis Plus (GBA+) is a technique for assessing the effects of policies, programs, and other initiatives on women, men, and persons with other gender identities.[29] It is also part of the Canadian government's commitment of promoting diversity and inclusion throughout the public sector.[30] It is important to highlight the distinction between sex and gender. While sex is comprised of a set of biological characteristics related to chromosomal structure, hormone levels and reproductive anatomy, gender refers to a social concept that encompasses culture-bound customs, roles, and expressions and identities for women and men, as well as relationships between and among boys and girls.[31,32] The integration of sex and gender considerations is crucial in ensuring the production of precise, quality evidence in health research.[32–34] GBA+ underlines this difference and, in addition to that, considers a variety of other intersecting identity characteristics in addition to gender and sex, including age, ethnicity, religion, culture, geography, race, sexual orientation, disability, education, and income.[29] In the recent years, GBA+ has been included in the Government of Canada's considerations in various areas of policy development. One such example is Canada's 2018 to 2020 National Action Plan on Open Government, where it was used to identify the effects of different intersecting identity factors on the efficacy of the work of the Open Government, as well as identify opportunities to increase the involvement of under-represented groups in the engagement in government initiatives.[35] Furthermore, in 2010, the Canadian Institutes of Health Research, the major federal agency that funds research in Canada, endorsed the integration of sex- and gender-based considerations a mandatory component in grant applications.

1.3.1 Mood and anxiety disorders by sex and gender

Previous studies have explored the sex differences in the prevalence of anxiety disorders, showing that females have higher rates of GAD, OCD, and PD compared to males.[36–38] This disparity could be explained by genetic and hormonal factors, as well as social factors such as working conditions and marital status.[39–41] A study conducted by Plaisier et al. (2007) found that job security was a protective factor against depressive and anxiety disorders among women but not among men.[40] Similar to anxiety disorders, the rates for mood disorders, particularly MDD and Dysthymia are disproportionately higher among women.[42–45] Biological factors such as genetics, hormones and menopause have been identified as contributing factors.[46–49] It has also been reported that single mothers are more likely to have mood disorders compared to married mothers.[50] Beside biological sex, several studies have found that psychological gender (i.e., "intensity of male or female characteristics regardless of biological sex"), coping strategies and reactivity to stress play an important role in the development of anxiety and depression among women.[51–53] Although there are no recent studies focused on comparing anxiety disorders by gender and sex in Canada, results from the 2012 Canadian Community Health Survey – Mental Health (CCHS – MH) demonstrated higher rates of depression among females compared to males across different age groups.[54]

1.3.2 Mood and anxiety disorders among other vulnerable groups

Certain population groups are more susceptible to mood and anxiety disorders than others. Immigrants, for example, experience them at higher rates compared to non-Immigrants in the US and some European countries,[55–60] while the opposite has been reported for those in Canada.[61,62] Anxiety and depression rates have also been reported to be greater among

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Indigenous populations.[60,63,64] Mental health is also influenced by ethnicity. A study conducted by Wu et al. found that English Canadians had poorer mental health compared to other ethnic groups in Canada.[65] Regarding marital status, individuals who are married mostly have lower rates of depression compared to those who are single or divorced.[61,66] Mental disorder rates also differ between occupational groups, with higher rates among teachers and health care professionals and lower among those in the programming and business fields.[67] According to a study done by Pakula et al. in 2016, homosexual individuals in Canada are more likely to be suffering from mood and anxiety disorders compared to heterosexuals.[68]

1.3.3   Population based estimates of mood and anxiety disorders in Canada

Studies evaluating mental disorders in Canada have primarily focused on specific groups, and there is a scarcity of data for mood and anxiety disorders among the population as a whole. The most recent available nationwide estimate for mental health disorders was reported by Pearson et al. using the 2012 CCHS – MH survey, revealing that around 10% of the Canadian population above the age of 15 reported symptoms of mental or substance use disorders.[54] Other studies looking into specific mood or anxiety disorders have reported a prevalence of 8.2% for depression, 2.5% for GAD, and 0.93% for OCD.[69–71] The study by Dobson et al. assessed the prevalence trends of depression and anxiety disorders in Canadian adults over a period of 17 years and discovered that the prevalence of mood disorders remained stable while that of anxiety disorders increased over time.[72]

1.4 Study rationale

Over the past 20 years, reducing health inequity has been a priority for many Canadian jurisdictions, realized by efforts to improve health outcomes by tackling social determinants of health.[73] One such strategy was the Health in All Policies (HiAP) initiative, aiming to include the consideration of health outcomes in all sectors, including labor, housing, and migration, in hopes of targeting the socioeconomic health determinants from their roots and eliminating their harmful impacts on health.[74] The Government of Canada has committed to incorporating sex and gender considerations into programs and policies, and the Canadian Institutes of Health Research, which is the primary funding organization for health and medical research in Canada, has urged the use of 'sex- and gender-based plus' analyses in health research.[32,75,76]

To our knowledge, this was the first study assessing the prevalence and associated factors of mood and anxiety disorders in the Canadian population using GBA+ on a nationally representative sample. Considering the increasing burden of mental health disorders in the world, and the lack of research on mood and anxiety disorders in Canada nationwide, the findings of this study could help with the development of targeted strategies to improve health care in the Canadian population, reduce disparities and promote equity.

1.5 Study aim and objectives

The overall aim of this study is to evaluate the prevalence and associated factors of mood and anxiety disorders in the Canadian population using a GBA+ approach. Study-specific objectives are:

1. To evaluate the difference in prevalence of mood and anxiety disorders between the male and female Canadian populations (*primary*).

2. To evaluate associations of social determinants of mental health and GBA+ factors with mood and anxiety disorders (*secondary*).

3. To assess the characteristics of the Canadian population with unmet mental health care needs (*secondary*).

2. Methods

2.1 Study design and population

This was a secondary analysis of a cross-sectional, population-based survey conducted in Canada. The target population for this study is the Canadian population aged 12 years and above. The study population included individuals who participated in the 2017-2018 Canadian Community Health Survey (CCHS). Communities living on reserves, institutionalized individuals, adolescents 12 to 17 years of age living in foster homes, full-time members of the Canadian Forces, and those living in the Terres-Cries-de-la-Baie-James and Nunavik health regions of Quebec were excluded from the survey.[77]

2.2 Data source: the Canadian Community Health Survey (CCHS)

The CCHS is a cross-sectional survey of the Canadian population carried out annually since the year 2000 across all Canadian provinces and territories, which collects data on various aspects of health, including determinants of health, presence of chronic conditions, and health care utilization. It covers approximately 98% of the Canadian population over 12 years of age.[77]

The 2017-2018 CCHS is the aggregated two-year data for the years of 2017 and 2018, which contains 113,290 respondents.

2.3   CCHS sampling and data collection

The CCHS followed a complex multistage probability sampling design and used two different sampling frames (for population ≥18 and 12-17 years of age) to select survey participants.[77] Each Canadian province is subdivided into health regions while each of the three territories represents a separate health region. The 2017-2018 CCHS included all health regions except the Terres-Cries-de-la-Baie-James and Nunavik health regions of Quebec. For individuals aged 18 and over, the sampling frame was stratified at the health region level. Each stratum contained clusters (primary sampling unit) of 100 to 600 households, and clusters were selected with a probability proportional to size. A household (secondary sampling unit) was selected through systematic random sampling from the list of all available households within a selected cluster, and a person over the age of 18 within that household was randomly selected to be surveyed.

For the selection of individuals between the ages of 12 and 17, the Canadian Child Tax Benefit (CCTB) records was used as the sampling frame. Children were first stratified into health regions based on their areas of residence, and after sorting for age and sex, they were selected by simple random sampling.[77]

Data collection was administrated by interviewers, either through telephone or in person. In case when the selected participant was not able to complete the interview because of a mental or physical health condition, another member of the same household was selected as a proxy interviewee to answer on behalf of the participant.

2.4   *CCHS 2017-2018 structure and measures*

This study used data from the Annual Component of the 2017-2018 CCHS. Its microdata file is available for public access and can be obtained through a request submitted to the data custodian, which is the national statistical office of Canada, Statistics Canada. It consists of different groups of questions, called modules, which explore demographics and different aspects of health, such as presence of chronic conditions (e.g., diabetes, asthma, depression), health behaviors (e.g., exercise, smoking, drug use), and healthcare service utilization (e.g., mammograms, consultations with mental health professionals, barriers to access), questions on food insecurity, health insurance, satisfaction with healthcare and others.

The presence of mood disorders was assessed by asking survey participants "*Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?*" The presence of anxiety disorders was assessed through the question "*Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?*" Both aforementioned questions utilized a 'Yes/No' binary response option.

Unmet mental health care needs were only evaluated in five Canadian provinces: Nova Scotia, New Brunswick, Ontario, Manitoba, and Alberta. They were assessed by asking participants "During the past 12 months, was there ever a time when you felt that you needed health care, but did not receive it?", and if affirmative, followed by "Thinking of the most recent time, what was the type of care that was needed?" The response options for the latter included "Treatment of a chronic mental health condition diagnosed by a health professional" and "Treatment of an acute mental health condition (e.g., acute stress reaction)." The variables for the latter two were combined to create one variable covering unmet mental health care needs.

2.5 *Conceptual framework*

The research questions were addressed using the GBA+ approach. As described in section 1.2, GBA+ considers the following domains: sex and gender, age, ethnicity, religion, culture, geography, race, sexual orientation, disability, education, and income.

To investigate social determinants of health and their intersection with GBA+ factors we used the 2015 United Nations set Sustainable Development Goals (SDGs), designed to be a "blueprint to achieve a better and more sustainable future for all.[78]" They represent a strategy for human development through the achievement of 17 interlinked global goals by the year 2030. In this study, the assessment of risk factors for anxiety and mood disorders among the Canadian population was guided by the conceptual framework proposed by Lund et al. in 2018 which explored social determinants of mental disorders in the context of the SDGs.[79] First, the study authors identified the main domains of social determinants of mental disorders through a systematic review of published literature, and then matched them with those present in the SDGs. The framework explains the determinants of mental disorders through <u>five domains</u>: demographic (includes age, ethnicity, and gender), economic (e.g., income, employment, food security), neighborhood (e.g., housing, overcrowding), environmental events (trauma and distress), and social and cultural factors (e.g., including education, social participation, and social support) (Figure 1). Another review by V. Patel et al. identified the SGDs pertaining to mental health, which included the reduction of smoking and the harmful use of alcohol and psychoactive drugs.[80]

2.6 *Sample size*

The survey sample was representative of the total Canadian population. All analyses were completed using relevant weighted estimates. Therefore, no sample size calculation was done to address the research questions.

2.7   *Study variables*

This study had two primary dependent variables: self-reported mood disorder and self-reported anxiety disorder (binary variables). To verify the accuracy of these self-reported variables, the responses were checked against the validated questionnaires that were also collected during the CCHS survey, hypothesizing that respondents who self-reported a mood or anxiety disorder will have higher scores in the questionnaires. More specifically, the variable for self-reported anxiety disorder was compared with the results of the Kessler Psychological Distress scale (K10), which is a validated 10-item screening tool used to detect anxiety and mood disorders.[81] The final score may vary from 0 to 40, with higher scores reflecting higher psychological distress levels. The variable for self-reported mood disorder was compared with the results of the 9-item Patient Health Questionnaire scale (PHQ-9), which is a validated tool for measuring depression levels. The PHQ-9 score ranges from 0 to 20, where a higher score indicates more severe depression.[82]

The outcome of interest for the primary objective was the unadjusted difference of mood and anxiety disorder rates between males and females.

The assessment of risk factors associated with mood and anxiety disorders among the Canadian population (Objective 2) followed the conceptual framework described in section 2.5 and included the following independent variables: age, sex, province of residence,

race/nativity/immigrant status, marital status, sexual orientation, education level, employment status, household income, food security, presence of disabilities, household size, perceived life stress, satisfaction with housing, neighborhood and relationships with friends, sense of belonging to a community, as well as smoking, alcohol use and marijuana use. The presence of disabilities was assessed through the Washington Group Short Set on Functioning (WG-SS) questionnaire, which consists of six items on difficulties seeing, hearing, walking or climbing steps, remembering or concentrating, communicating, and caring for self.[83] Response options include 'no difficulty', 'some difficulty', 'a lot of difficulty', and 'cannot do at all'. The latter three response options were combined into one value indicating the presence of the corresponding disability.

The dependent variable for Objective 3 was the presence of reported unmet mental health care needs in the previous 12 months. The independent variables included GBA+ characteristics such as age, sex, race, nativity, immigrant status, years passed since immigration, sexual orientation, marital status, single parent status, education level, employment status, household income, food insecurity, presence of disabilities, and presence of mood or anxiety disorders.

2.8   *Statistical analyses*

The CCHS uses a complex sampling design in contrast to simple random sampling, and thus inherits issues related to disproportionate sampling and non-independence of observations. The application of *sampling* weights would be required to correct for the unequal selection probabilities and to obtain meaningful results from the survey. Weights are given to each respondent included in a survey, and they correspond to the number of persons in the total population that a survey participant represents.[84] The weight for each respondent was presented

in the *[WTS_M]* variable within the microdata file and was taken into account during the analyses. To address non-independence between observations and to obtain accurate variance estimates, Statistics Canada provided *bootstrap* weights along with the microdata file, which were applied during data analysis. Bootstrapping is a method for variance estimation which uses a replicate-based technique. It calculates variance by creating repeated bootstrap samples from the existing data, re-computing the weighted estimates for each sample and calculating the variance between them.[85] Data analysis was done in R statistical software version 4.1.2 using the "*survey*" package and "*svrepdesign*" function, which accounts for the complex survey design.[86] Both weighted and unweighted analyses were performed.

Participant characteristics, as well as the prevalence of mood and anxiety disorders (primary objective) were summarized using frequencies and percentages and were compared between the sexes using chi-square test.

To evaluate associations between broader group of risk factors and mood disorders and anxiety disorders among the Canadian population (Objective 2) we fitted uni- and multivariable logistic regression models. The analyses were conducted on the complete dataset, with no imputation of missing data. Using forward stepwise selection, variables with p-value of less than 0.05 in the univariable analysis were added sequentially into the multivariable model. Variables added at current or previous stages were removed if the corresponding p-values were higher than 0.05. Age and sex variables were kept in the model regardless of their statistical significance, considering their prognostic relevance. Receiver operating characteristic (ROC) curves were generated for the final models and the area under the curves were measured to assess the diagnostic performances of the models. Variance inflation factors (VIF) were calculated to test

for collinearity between the variables in the final models. Interactions were tested between sex and GBA+ factors present in the final multivariable models, which included age, ethnicity, nativity, immigrant status, income, employment, sexual orientation, and disability status.

Lastly, we used chi-square test to compare the characteristics of individuals with and without unmet mental health care needs. Throughout the analyses, two-sided values of P<0.05 were considered significant.

3. Ethical considerations

The study protocol was submitted to the Institutional Review Board of the American University of Armenia for review and approval. The study did not involve any direct intervention or communication with human participants and relied solely on publicly available secondary data. Participation in the CCHS survey was voluntary and informed consent was obtained from the respondents prior to the start of the survey. The CCHS collects data under the authority of the Statistics Act, which is an act of the Parliament of Canada that sets a legal responsibility for Statistics Canada to preserve the confidentiality of survey respondents.[87,88] Prior to public release, the publicly accessible microdata file (PUMF) undergoes a formal review and approval by an executive committee of Statistics Canada to verify that it meets all the regulations and criteria. This study posed no direct risk to participants, as data had already been collected from them, and to ensure respondent confidentiality, variables containing identifiable information were either completely removed from the publicly available dataset or collapsed into broader categories prior to the release of the data.

4. Results

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4.1 Characteristics of the study population

The 2017-2018 Annual Component of the CCHS survey was completed by 113,290 participants total, 62,061 (54.8%) of whom were between the ages of 18 and 59 years and 60,888 (53.7%) were female, with a 60.8% response rate. Table S1 presents the unweighted demographic and socioeconomic characteristics of the sample population. After weighting, our survey sample was representative of 31,274,372 individuals as demonstrated in Table 1; 20,522,076 (65.6%) of the population was between the ages of 18 to 59, and 15,841,701 (50.6%) were females. All characteristics were significantly different between the sexes (p<0.001), except for race, nativity, immigrant status and time since immigration. The female population was slightly older, had lower levels of education, employment, and household income than the male population. Food insecurity rates were also significantly higher among the female population, although the absolute difference was less than 2%.

4.2 Prevalence of mood and anxiety disorders in Canada

The proportion of people suffering from anxiety disorders was significantly higher for the female population compared to the male (Table 1). About one-tenth (11.6%, N=1,829,773) of females indicated that they had an anxiety disorder compared to 6.3% (N=969,194) of males (absolute difference of 5.3%). The same was true for mood disorders, as 11.0% (N=1,737,564) of females reported having a mood disorder compared to 6.4% (N=993,699) of the male population (absolute difference of 4.6%). The proportion of people having both mood and anxiety disorders among females was almost twice that of among males (5.7% vs. 2.9%). These differences remained significant when comparing the prevalence of these disorders by sex, separately among adolescent (12-17 years old) and adult populations (≥18 years old) (Table S3).

The unpaired t-test for the comparison of K10 distress scores with self-reported presence of anxiety disorder revealed a significantly higher mean distress score for those who reported having an anxiety disorder compared those who reported not having it (12.71 vs. 5.06, p<0.001) (Table S2A). Similarly, the mean PHQ-9 was significantly higher in those with a self-reported mood disorder compared to those without (7.85 vs. 2.26, p<0.001) (Table S2B).

4.3 *Factors associated with anxiety disorders among the Canadian population, unadjusted and adjusted analysis*

Risk factors associated with anxiety disorders among the Canadian population were assessed using univariable and multivariable logistic regression (Table 2A). In univariable analysis, younger individuals were significantly more likely to have anxiety disorders compared to those over the age of 60. Female sex was significantly associated with higher odds of having an anxiety disorder (OR=1.95, 95% CI: 1.82-2.08). Non-whites, immigrants, and the non-Indigenous had lower odds of having anxiety disorders. Immigrants who had been in Canada for more than 10 years had higher odds of having anxiety disorders compared to those who had landed less than 10 years ago (OR=1.65, 95% CI: 1.22-2.24). Married and heterosexual individuals had lower odds of having an anxiety disorder compared to those who were single or were homosexual/bisexual, respectively. Single parents had higher odds of having an anxiety disorder compared to parents living with a spouse (OR=2.19, 95%CI: 1.88-2.55). Similarly, the odds were higher among individuals who had a disability (OR: 3.34, 95% CI: 3.11-3.58). Other factors that had significant association with anxiety disorders included having a post-secondary education level compared to secondary or lower education levels (OR=0.74, 95%CI: 0.68-0.81), being unemployed compared to being employed (OR=1.62, 95%CI: 1.51-1.74), and having

lower household income. Food insecurity was significantly associated with anxiety disorders as well. The ORs were 2.32 (95%CI: 2.07-2.61) for the moderately food insecure and 5.55 (95%CI: 4.88-6.28) for the severely food insecure compared to the food secure. Larger household size had a protective effect against anxiety disorders. Low perceived life stress, satisfaction with relationships with friends, and having a strong sense of belonging to a community were protective against anxiety disorders along with satisfaction with housing and neighborhood. The OR for having an anxiety disorder was 2.53 (95%CI: 2.33-2.74) for daily smokers compared to non-smokers, and 2.42 (95%CI: 2.13-2.75) for those who reported using marijuana more than once in the past year.

The multivariable regression model for anxiety disorders (N=26,254,672) included age, sex, race, immigrant status, marital status, sexual orientation, employment status, household income, food insecurity, disability status, sense of belonging to a community, perceived life stress, and smoking status (Table 2A). After the adjustment, the odds for having an anxiety disorder among individuals between the ages of 12 to 59 remained significantly higher compared to those over 60 years old. Among females, the adjusted OR (aOR) for having an anxiety disorder was 2.08 (95%CI: 1.92-2.26) compared to males. Non-white individuals (aOR=0.57, 95%CI: 0.47-0.68) and immigrants (aOR=0.57, 95%CI: 0.49-0.68) had significantly lower odds of having anxiety disorders. Those who were single had 1.39 times the odds of having anxiety disorders compared to those who were married (95%CI: 1.24-1.56). Individuals who were homosexual or bisexual also had higher odds compared to those who were heterosexual. Those who were unemployed had significantly higher odds of having anxiety disorders compared to those who were employed (aOR= 1.64, 95%CI 1.48-.1.81). Higher household income, although not significantly in all categories, had a protective effect against anxiety disorders. The adjusted

odds were higher for those who were severely food insecure (aOR=1.76, 95%CI: 1.48-2.09), compared to the food secure. Persons who had a disability had 2.65 (95%CI: 2.43-2.89) times higher odds of having an anxiety disorder than those who did not. For individuals with high perceived life stress the aOR was 3.45 (95%CI: 3.08-3.86) compared to those with low perceived life stress. The odds for having anxiety disorders were higher for individuals who had a weak sense of belonging to a community (aOR=1.17, 95%CI: 1.08-1.27). Daily smokers had 1.72 (95%CI: 1.55-1.91) times higher odds of having anxiety disorders compared to non-smokers. The area under the ROC curve of the model was equal to 0.777 (Figure 2), indicating a relatively adequate performance in discriminating between those who had an anxiety disorder and those who do not. The multicollinearity test showed no significant correlation between the covariates in the final model.

4.4   Factors associated with mood disorders among the Canadian population, unadjusted and adjusted analysis

The univariable analysis for risk factors associated with mood disorders (Table 2B) revealed higher odds for older individuals compared to adolescents aged 12 to 17 (aOR ranging from 1.76 to 2.33). The odds were lower among non-whites, immigrants and non-Indigenous persons. Immigrants who had landed more than 10 years ago had higher odds of having mood disorders compared to those who landed less than 10 years ago (OR=1.74, 95% CI: 1.29-2.34). As was the case with anxiety disorders, those who were female (OR=1.79, 95%CI: 1.67-1.92), single (OR=1.66, 95%CI: 1.53-1.80), or homosexual/bisexual (OR ranging from 2.22 to 4.68) had higher odds of having mood disorders. Single parents also had higher odds of having mood disorders (OR=2.33, 95%CI: 1.99-2.73) compared to those living with their spouses. The

unemployed (OR=1.76, 95%CI: 1.63-1.89) had higher odds for having mood disorders, and

those who lived in Central Canada and the Canadian Prairies had lower odds of having them,

compared to the rest of the country. Higher household income and larger household size had

protective effect against mood disorders. Food insecure individuals had significantly higher

odds, with an OR of 2.74 (95%CI: 2.46-3.07) for the moderate food insecure and 7.09 (95%CI:

6.27-8.03) for the severely food insecure, compared to those who were food secure. Persons with

a disability (OR=4.13, 95%CI: 3.84-4.44) and high perceived level of life stress (OR=5.26,

95%CI: 4.79-5.78) had higher odds of having mood disorders. Satisfaction with housing and

neighborhood were significantly associated with lower odds of having mood disorders.

Satisfaction with relationships with friends and strong sense of belonging to a community were

also protective against mood disorders. Daily smokers had 2.71 (95%CI: 2.49-2.95) times the

odds of having mood disorders compared to non-smokers, and marijuana users had 2.76 (95%CI:

2.40-3.17) times higher odds compared to non-users.

Variables included in the multivariable regression model for mood disorders

(N=26,263,651) were age, sex, race, immigrant status, marital status, sexual orientation,

employment status, household income, food insecurity, disability status, perceived life stress,

sense of belonging to a community, and smoking status (Table 2B). After the adjustment, older

age remained significantly associated with higher odds of mood disorders compared to

adolescents, and the odds remained higher for females than males (aOR=1.82, 95%CI: 1.67-

1.98). The aOR was lower for non-whites, immigrants, and those with higher household income.

It was higher for the unemployed compared to the employed (aOR= 1.68, 95%CI 1.51-1.88).

Food insecurity remained significantly associated with mood disorders, with the severely (aOR=

2.32, 95%CI 1.94-2.76) and moderately (aOR= 1.48, 95%CI 1.26-1.72) food insecure having

higher odds compared to those who were food secure. The aOR for having a mood disorder among those who reported having a disability (aOR=2.94, 95%CI 2.69-3.21) and high levels of stress (aOR= 3.39, 95%CI 3.03-3.81) compared to those who did not. Those who had a weak sense of belonging to a community had higher odds of having mood disorders (aOR: 1.47, 95%CI: 1.35-1.60). Daily smokers also had higher odds for having mood disorders (aOR: 1.65, 95%CI: 1.48-1.83) compared to non-smokers. The area under the ROC curve for the multivariable model was equal to 0.784 (Figure 3), suggesting that the model has adequate accuracy in comparing those who had a mood disorder and those who do not. The multicollinearity test did not reveal any significant correlation between the covariates in the final model.

Interactions between sex and GBA+ factors were assessed, revealing that income and employment had greater protective effect against having mood and anxiety disorders for males, compared to females (Table 2C). Younger age also had a greater protective effect against mood and anxiety disorders for males. While there was no significant interaction between sexual orientation and sex for mood disorders, heterosexuality had a greater protective effect against having anxiety disorders for males than females.

4.6   *Characteristics of the Canadian population with unmet mental health care needs*

Overall, 18,356,281 (58.7%) of the population was presented with questions regarding unmet health care needs, 1.02% (N=187,020) of which reported having unmet mental health care needs in the past 12 months. Among respondents who reported having an anxiety or a mood disorder, 5.0% (N=126,353) indicated having unmet mental health care needs in the past 12 months (Table 3A).

The description of the Canadian population with and without unmet mental health care needs is presented in Table 3. The population which reported having unmet mental health care needs in the past 12 months was younger (91.9% below the age of 60 vs 73.8%, p<0.001), more frequently female (58.4% vs 50.6%, p=0.04), and more frequently white (70.4% vs 68.9%, p=0.007) compared to the population which did not. It was also more frequently Indigenous (11.7% vs 3.6%, p<0.001), Canadian-born (86.8% vs 69.2%, p<0.001), currently unmarried (77.8% vs 49.6%, p<0.001), single parents (7.9% vs 4.2%, p<0.001), unemployed (39.5% vs 28.0%, p<0.001), homosexual or bisexual (14.0% vs 2.7%, p<0.001), and more frequently had income levels lower than 80,000CAD (52.1% vs 43.2%, p<0.001), education levels lower than post-secondary (50.1% vs 39.9%, p<0.001), and suffered from food insecurity (28.3% vs 8.3%, p<0.001). The proportion of persons with disabilities was also significantly higher among the population reporting unmet health care needs (76.2% vs 38.9%, p<0.001), with 62.1% (vs 17.8%, p<0.001) having difficulties remembering. Lastly, 67.6% (vs 13.4%, p<0.001) of those reporting unmet mental health care needs had either a mood or an anxiety disorder.

5. Discussion

5.1 *Mood and anxiety disorders among the Canadian population*

This is the first study assessing the prevalence and associated factors of mood and anxiety disorders among the population in Canada based on a nationally representative sample through a GBA+ approach. The prevalence rates for both mood and anxiety disorders were disproportionately higher among the female population compared to the male population. Factors associated with mood and anxiety disorders were mostly similar for the two groups of disorders and included age, sex, ethnicity, nativity, province of residence, immigrant status, time since

immigration, marital status, single parent status, sexual orientation, education, employment, income, food insecurity, presence of disabilities, perceived life stress, satisfaction with friends, housing and neighborhood, sense of community belonging, smoking and marijuana use. The main distinction between mood and anxiety disorders was the association of anxiety disorders with younger age, and mood disorders – with older age. The characterization of the population reporting unmet mental health care needs in the past 12 months revealed that several of the GBA+ factors played a significant role in access to mental health care.

The main finding of the study was consistent with past research on mental disorders, indicating that females in Canada suffer from disproportionately higher rates of mood and anxiety disorders.[36–38,42–45] In different countries, similar population-based studies have reported higher rates of different mental disorders among females compared to males. In 2015, 27.5% of females and 19.3% of males in Iran were estimated to have mental disorders, according to a nationwide survey.[89] A large cross-sectional study conducted in Europe found higher prevalence of anxiety disorder among women compared to men in most European countries, ranging from 24.3% vs. 11.9 in Italy, to 42.0% vs. 35.7% in Portugal.[90] Another cross-sectional study conducted in China in 2012 found higher prevalence of mood and anxiety disorders among females.[91]

Compared to those living in Central Canada, individuals living in Eastern Canada had higher odds of having anxiety disorders. Similarly, those living in Eastern Canada, Prairie provinces and British Columbia had higher odds of having mood disorders than residents of Central Canada. These findings are mostly consistent with previous literature, namely that Central Canadian provinces (Ontario and Quebec) have lower prevalence of mental disorders

than the national average.[92] Our findings on white and Canadian-born individuals having higher

odds of mood and anxiety disorders compared to their non-white and immigrant counterparts are

consistent with the results of prior studies conducted in Canada.[61,65] We also observed that the

odds of reported mood and anxiety disorders among immigrants increased with time since arrival

to Canada. This could be explained by the "healthy immigrant effect", which is a term that

describes the deterioration of immigrants' health with the passage of time since arrival and has

also been observed in multiple studies evaluating immigrant health in Canada.[62,93,94] Indigeneity

was also significantly associated with higher rates of mood and anxiety disorders in this study, as

reported by prior research.[60,64,95]

We found that marital status also had an association with mood and anxiety disorders,

with single, divorced, widowed or separated individuals having higher likelihood of having those

disorders compared to those who were married, in line with previous literature.[41] Single parents

had more than twice the odds of having mood or anxiety disorders compared to parents living

with their partners. Although there are not many studies on single parenting and mental

disorders, a study done by Subramaniam et al. found that single mothers had higher odds of

suffering from a mood disorder compared to married mothers.[50] Sexual orientation was also an

important aspect of this study as an identity factor. According to our findings, homosexual

individuals were more likely to have mood and anxiety disorders compared to heterosexuals, and

interestingly, those who were bisexuals were even more likely. Several systematic reviews and

meta-analyses have found similar results indicating high rates of depression and anxiety among

bisexuals.[96,97] With increasing household size, the odds of having mood or anxiety disorders

decreased among the sample population. This finding corroborated the results of previous studies

reporting positive associations between living alone and risk of different mental disorders among different population groups.[98–100]

As expected, lower income and unemployment were associated with higher rates of mood and anxiety disorders. This pattern is often observed in studies assessing mental disorders.[61,72,89] Education level was also an associated factor for both disorders, with a post-secondary education being protective against anxiety disorders. For mood disorders, however, secondary school graduation was associated with higher odds compared to post-secondary and less than secondary education levels. Interestingly, data from the 2002 CCHS had demonstrated higher odds for depression with increasing education level.[61] Nevertheless, most studies suggest that higher education level is protective against mental disorders.[36,89,101] Food insecurity was associated with significantly higher odds of having mood and anxiety disorders, which was consistent with prior research showing similar associations between food insecurity, distress, and depression in different groups.[102–104]

The prevalence of any type of disability was 39.4% (N=12,327,979) based on CCHS 2017/2018. We found that individuals with disabilities, including difficulties seeing, hearing, walking, remembering, communicating, and caring for themselves, had higher likelihood of having mood and anxiety disorders, with the odds being highest for those with difficulties remembering compared to those without (OR=5.39 for mood disorders, OR=4.78 for anxiety disorders). Few past studies demonstrated links between disabilities and mental disorders.[105–108] Others have shown associations between memory disorders and depression.[109,110]

Those who were dissatisfied with their housing and neighborhood had higher odds of having mood and anxiety disorders. Similar links have been identified in prior research on

housing, neighborhood, and mental disorders.[111,112] Satisfaction with relationships with friends and the presence of a strong sense of belonging to a community were both protective factors against mood and anxiety disorders. These findings were unsurprising, given the extensive literature on the importance of social support systems and their protective effects against anxiety and depression.[113–116] Perceived life stress was also significantly associated with mood and anxiety disorders among the study population, in line with previous literature.[25,117–119]

Daily smokers and marijuana users were significantly more likely to have mood and anxiety disorders than those who did not smoke or use marijuana. Previous studies on the adverse effects of smoking and marijuana use have identified similar patterns in the development of various mental disorders.[120–125] Though unexpected, regular drinking was not associated with the presence of either mood or anxiety disorders. Rather, occasional drinkers had higher odds of having either disorder. Previous research has also revealed non-linear relationships between alcohol consumption and mental disorders,[126,127] although most agree that alcohol use disorders (dependence) had high comorbidity with anxiety and depression.[128,129]

Lack of access to mental health care in our study was defined as having needed but not received health care within the past year for an acute mental health condition or chronic mental health condition diagnosed by a health care professional. The Canadian Health Act, passed in 1985, states that the aim of the Canadian health care policy is 'to facilitate reasonable access to health services without financial or other barriers'.[130] However, based on past studies[131,132] and our current study there is evidence that certain population groups in Canada still experience barriers to health care. Only 1% of the general population reported having unmet mental health care needs in the past year, compared to 5% of those who reported having a mood or anxiety

disorder. Our findings suggest that GBA+ factors play a role in mental health care access, as those who reported unmet mental health care needs had significantly different characteristics than those who did not. They were younger, more frequently female, Indigenous, Canadian-born, homosexual or bisexual, unmarried, single parents, and had lower education and income levels, food insecurity, disabilities, and mood or anxiety disorders.

5.2   *Study limitations*

The use of self-reported diagnosis of mood and anxiety disorders as opposed to medically established diagnosis could be considered as a limitation. It has been argued that self-reporting of disorders is not always consistent with clinical diagnosis, resulting in over- or underestimation of prevalence rates.[133–135] However, a study conducted by O'Donnell et al. compared self-reported cases of mood and anxiety disorders in CCHS surveys with administrative data obtained from the Canadian Chronic Disease Surveillance System (CCDSS), finding that the prevalence rates of mood and/or anxiety disorders reported by survey participants was consistent with the prevalence identified in administrative data in 2009 (9.4% for self-reported vs. 11.3% for CCDSS records).[136] The 2017-2018 CCHS used validated tools for screening of mood and anxiety disorders among a subset of the sample. Based on our findings, 67% of participants with a self-reported mood disorder had mild to severe depression in past two weeks as evaluated through PHQ-9 questionnaire, compared to only 18% in those without. Similarly, based on the K10 questionnaire, 20% of those who reported having an anxiety disorder reported having more stress than usual in the past month compared to 10.7% of those who did not

Although the CCHS survey covers a comprehensive range of GBA+ factors, certain factors such as participant gender identity were not assessed, which could have added an

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important dimension to the study. Next, we applied sampling and bootstrap weights to ensure the survey sample represents the general Canadian population. While the use of weights for analysis addresses sampling and non-response error, it implies that those not selected for the survey and non-responders would have replied similarly to participants included in the survey. Coverage error is another limitation of CCHS as certain populations such as those living on reserves, full-time members of the Canadian Forces and institutionalized individuals were not included in the survey sampling frame. Finally, due to the cross-sectional nature of the survey, this study could not assess causal relationship between the included factors.

5.3   *Conclusions and recommendations*

This study revealed that females continue to be affected by mood and anxiety disorders, as well as unmet mental health care needs, at higher rates compared to males in Canada. GBA+ factors and the interactions are important determinants of mood and anxiety disorders and access to mental health care services. Healthcare policy strategies targeting prevention of mental disorders and improvement of mental health care must recognize the complex links between different identity factors and be tailored to the needs of specific groups. Our findings support the inclusion of gender and other identity variables in future research to provide deeper insights into existing disparities in health.

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Tables

Table 1. Demographic and socioeconomic characteristics of the study population, weighted

	Total, N (%) N = 31,274,372	Females, N (%) N = 15,841,701	Males, N (%) N = 15,432,671	P-value
Age, years				
12 to 17	2,251,068 (7.2)	1,097,181 (6.9)	1,153,886 (7.5)	
18 to 39	10,711,951 (34.3)	5,340,638 (33.7)	5,371,314 (34.8)	
40 to 59	9,810,125 (31.4)	4,907,456 (31.0)	4,902,669 (31.8)	<0.001
60+	8,501,228 (27.2)	4,496,426 (28.4)	4,004,802 (26.0)	
Province of residence				
East (NL/PE/NS/NB)	2,059,473 (6.6)	1,054,762 (6.7)	1,004,711 (6.5)	
Central (QC/ON)	19,408,373 (62.1)	9,873,689 (62.3)	9,534,684 (61.8)	
Prairies (MB/SK/AB)	5,568,508 (17.8)	2,765,850 (17.5)	2,802,658 (18.2)	<0.001
North (YT/NT/NU)	96,698 (0.3)	47,362 (0.3)	49,336 (0.3)	
West (BC)	4,141,320 (13.2)	2,100,038 (13.3)	2,041,282 (13.2)	
Race/Ethnicity				
White	22,410,627 (71.7)	11,379,502 (71.8)	11,031,125 (71.5)	
Non-White	7,098,887 (22.7)	3,583,775 (22.6)	3,515,112 (22.8)	0.647
NA*	1,764,858 (5.6)	878,424 (5.5)	886,434 (5.7)	
Nativity				
Indigenous	1,173,872 (3.8)	592,656 (3.7)	581,216 (3.8)	
Non-Indigenous	21,809,226 (69.7)	11,013,392 (69.5)	10,795,834 (70.0)	0.992
NA	8,291,274 (26.5)	4,235,653 (26.7)	4,055,621 (26.3)	
Immigrant status				
Immigrant	8,098,045 (25.9)	4,159,345 (26.3)	3,938,701 (25.5)	
Canadian-born	22,633,153 (72.4)	11,403,626 (72.0)	11,229,528 (72.8)	0.106
NA	543,174 (1.7)	278,731 (1.8)	264,442 (1.7)	
Time since immigration				
0-9 years	1,965,667 (6.3)	1,041,761 (6.6)	923,907 (6.0)	
10+ years	5,158,639 (16.5)	2,618,209 (16.5)	2,540,431 (16.5)	0.118
NA	24,150,065 (77.2)	12,181,732 (76.9)	11,968,333 (77.6)	
Sexual orientation				
Heterosexual	27,356,883 (87.5)	13,896,356 (87.7)	13,460,527 (87.2)	
Homosexual	410,567 (1.3)	150,795 (1.0)	259,773 (1.7)	
Bisexual	536,471 (1.7)	358,590 (2.3)	177,881 (1.2)	<0.001
NA	2,970,451 (9.5)	1,435,961 (9.1)	1,534,490 (9.9)	
Marital status				
Married	14,451,999 (46.2)	7,078,281 (44.7)	7,373,718 (47.8)	
Common-law	3,703,751 (11.8)	1,818,030 (11.5)	1,885,721 (12.2)	
Widowed/divorced/separated	3,682,578 (11.8)	2,510,396 (15.8)	1,172,182 (7.6)	<0.001
Single	9,383,556 (30.0)	4,406,677 (27.8)	4,976,879 (32.2)	

	Total, N (%) N = 31,274,372	Females, N (%) N = 15,841,701	Males, N (%) N = 15,432,671	P-value
NA	52,489 (0.2)	28,317 (0.2)	24,171 (0.2)	
Living/Family arrangement				
Unattached individual living alone	4,633,107 (14.8)	2,504,766 (15.8)	2,128,341 (13.8)	
Unattached individual living with others	1,512,094 (4.8)	677,696 (4.3)	834,399 (5.4)	
Individual living with spouse/partner	8,274,725 (26.5)	4,037,756 (25.5)	4,236,969 (27.5)	
Parent living with spouse/partner and child(ren)	7,891,306 (25.2)	3,856,489 (24.3)	4,034,817 (26.1)	<0.001
Single parent living with children	1,340,751 (4.3)	1,043,464 (6.6)	297,286 (1.9)	
Child living with a single parent with or without siblings	1,296,932 (4.1)	596,626 (3.8)	700,306 (4.5)	
Child living with two parents with or without siblings	3,705,586 (11.8)	1,691,349 (10.7)	2,014,237 (13.1)	
Other	2,516,604 (8.0)	1,381,902 (8.7)	1,134,702 (7.4)	
NA	103,267 (0.3)	51,654 (0.3)	51,614 (0.3)	
Education				
Less than secondary school graduation	5,411,503 (17.3)	2,649,493 (16.7)	2,762,009 (17.9)	
Secondary school graduation	7,096,433 (22.7)	3,551,508 (22.4)	3,544,925 (23.0)	<0.001
Post-secondary certificate diploma or university degree	18,235,544 (58.3)	9,372,821 (59.2)	8,862,724 (57.4)	
NA	530,892 (1.7)	267,880 (1.7)	263,012 (1.7)	
Employment status				
Employed	18,717,086 (59.8)	8,858,864 (55.9)	9,858,222 (63.9)	
Not employed	8,751,511 (28.0)	4,961,897 (31.3)	3,789,614 (24.6)	<0.001
Not working age (<15 or >75)	3,504,971 (11.2)	1,858,927 (11.7)	1,646,045 (10.7)	
NA	300,803 (1.0)	162,013 (1.0)	138,790 (0.9)	
Household income (in CAD)				
No income or less than $20,000	2,041,158 (6.5)	1,170,532 (7.4)	870,626 (5.6)	
$20,000 to $39,999	4,028,103 (12.9)	2,294,081 (14.5)	1,734,022 (11.2)	
$40,000 to $59,999	4,446,406 (14.2)	2,313,238 (14.6)	2,133,168 (13.8)	<0.001
$60,000 to $79,999	4,015,076 (12.8)	1,984,317 (12.5)	2,030,759 (13.2)	
$80,000 or more	16,723,965 (53.5)	8,069,645 (50.9)	8,654,320 (56.1)	
NA	19,665 (0.1)	9,888 (0.1)	9,777 (0.1)	
Food security				
Food secure	28,087,605 (89.8)	14,090,225 (88.9)	13,997,380 (90.7)	
Moderately food insecure	1,728,886 (5.5)	987,598 (6.2)	741,288 (4.8)	<0.001
Severely food insecure	796,210 (2.5)	441,622 (2.8)	354,587 (2.3)	
NA	661,672 (2.1)	322,256 (2.0)	339,415 (2.2)	
Disability[¶]				

	Total, N (%) N = 31,274,372	Females, N (%) N = 15,841,701	Males, N (%) N = 15,432,671	P-value
Any disability	12,327,979 (39.4)	6,471,326 (40.8)	5,856,653 (37.9)	
No disability	18,896,232 (60.4)	9,341,188 (59.0)	9,555,044 (61.9)	<0.001
NA	50,162 (0.2)	29,188 (0.2)	20,974 (0.1)	
Anxiety disorder				
Yes	2,798,967 (8.9)	1,829,773 (11.6)	969,194 (6.3)	
No	28,385,797 (90.8)	13,966,089 (88.2)	14,419,708 (93.4)	<0.001
NA	89,608 (0.3)	45,839 (0.3)	43,769 (0.3)	
Mood disorder				
Yes	2,731,263 (8.7)	1,737,564 (11.0)	993,699 (6.4)	
No	28,471,686 (91.0)	14,070,615 (88.8)	14,401,071 (93.3)	<0.001
NA	71,423 (0.2)	33,522 (0.2)	37,901 (0.2)	
Mood or anxiety disorder				
Yes	4,144,627 (13.3)	2,647,425 (16.7)	1,497,203 (9.7)	
No	26,997,492 (86.3)	13,129,181 (82.9)	13,868,311 (89.9)	<0.001
NA	132,253 (0.4)	65,096 (0.4)	67,157 (0.4)	
Mood and anxiety disorders				
Yes	1,353,833 (4.3)	906,891 (5.7)	446,942 (2.9)	
No	29,788,286 (95.2)	14,869,715 (93.9)	14,918,571 (96.7)	<0.001
NA	132,253 (0.4)	65,096 (0.4)	67,157 (0.4)	

NL: Newfoundland and Labrador; PE: Prince Edward Island; NS: Nova Scotia; NB: New Brunswick; QC: Quebec; ON: Ontario; MB: Manitoba; SK: Saskatchewan; AB: Alberta; YT: Yukon; NT: Northwest Territories; NU: Nunavut; BC: British Columbia; CAD: Canadian dollar.
* NA indicates not applicable, and includes "don't know", "refusal" answer options, missing information, and valid skips. P-values were calculated after excluding NA.
¶ Disability was assessed using the Washington Group Short Set on Functioning questionnaire.

Table 2A. Uni- and multivariable analysis of GBA+ factors associated with anxiety disorders, weighted

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,254,672)	
	Anxiety disorder N = 2,798,967	No anxiety disorder N = 28,385,797	OR (95% CI)	P-value	OR (95% CI)	P-value
Age, years						
12 to 17	205,046 (7.3)	2,037,476 (7.2)	1.51 (1.32-1.73)	*<0.001*	1.33 (1.04-1.71)	*0.025*
18 to 39	1,214,312 (43.4)	9,478,042 (33.4)	1.92 (1.76-2.10)	*<0.001*	2.04 (1.79-2.33)	*<0.001*
40 to 59	850,729 (30.4)	8,930,824 (31.5)	1.43 (1.31-2.56)	*<0.001*	1.55 (1.38-1.75)	*<0.001*
60+	528,880 (18.9)	7,939,455 (28.0)	1.00		1.00	
Sex						
Male	969,194 (34.6)	14,419,708 (50.8)	1.00		1.00	
Female	1,829,773 (65.4)	13,966,089 (49.2)	1.95 (1.82-2.08)	*<0.001*	2.08 (1.92-2.26)	*<0.001*
Province of residence						
East (NL/PE/NS/NB)	250,170 (8.9)	1,805,872 (6.4)	1.46 (1.34-1.59)	*<0.001*	-	
Central (QC/ON)	1,675,689 (59.9)	17,679,936 (62.3)	1.00		-	
Prairies (MB/SK/AB)	481,641 (17.2)	5,074,931 (17.9)	1.00 (0.92-1.09)	*0.975*	-	
North (YT/NT/NU)	8,266 (0.3)	88,099 (0.3)	0.99 (0.86-1.14)	*0.887*	-	
West (BC)	383,201 (13.7)	3,736,959 (13.2)	1.08 (0.98-1.19)	*0.121*	-	
Race/Ethnicity						
White	2,211,314 (87.1)	20,147,910 (74.9)	1.00		1.00	
Non-white	326,754 (12.9)	6,746,723 (25.1)	0.44 (0.39-0.50)	*<0.001*	0.57 (0.47-0.68)	*<0.001*
Nativity						
Non-Indigenous	2,219,933 (91.1)	19,538,486 (95.3)	1.00		-	
Indigenous	216,361 (8.9)	953,915 (4.7)	2.00 (1.77-2.25)	*<0.001*	-	
Immigrant status						
Canadian-born	2,419,961 (87.6)	20,157,773 (72.3)	1.00		1.00	
Immigrant	342,713 (12.4)	7,728,494 (27.7)	0.37 (0.33-0.41)	*<0.001*	0.57 (0.49-0.68)	*<0.001*
Time since immigration						
0-9 years	54,113 (18.3)	1,909,644 (28.0)	1.00		-	
10+ years	241,490 (81.7)	4,898,404 (72.0)	1.65 (1.22-2.24)	*0.001*	-	
Marital status						
Married	881,228 (31.5)	13,544,085 (47.8)	1.00		1.00	
Common-law	359,369 (12.9)	3,333,609 (11.8)	1.66 (1.48-1.85)	*<0.001*	1.02 (0.89-1.17)	*0.761*
Widowed/divorced/separated	376,600 (13.5)	3,292,342 (11.6)	1.76 (1.60-1.93)	*<0.001*	1.21 (1.08-1.35)	*0.001*
Single	1,177,579 (42.1)	8,167,774 (28.8)	2.22 (2.03-2.41)	*<0.001*	1.39 (1.24-1.56)	*<0.001*

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,254,672)	
	Anxiety disorder N = 2,798,967	No anxiety disorder N = 28,385,797	OR (95% CI)	P-value	OR (95% CI)	P-value
Single parent status						
No (parent living with spouse)	522,623 (74.4)	7,361,019 (86.4)	1.00		-	
Yes	179,469 (25.6)	1,154,400 (13.6)	2.19 (1.88-2.55)	*<0.001*	-	
Sexual orientation						
Heterosexual	2,240,281 (91.6)	25,063,036 (97.1)	1.00		1.00	
Homosexual	63,399 (2.6)	347,039 (1.3)	2.04 (1.61-2.60)	*<0.001*	1.66 (1.27-2.17)	*<0.001*
Bisexual	142,903 (5.8)	392,492 (1.5)	4.07 (3.38-4.91)	*<0.001*	2.02 (1.61-2.54)	*<0.001*
Education						
Less than secondary school graduation	558,607 (20.3)	4,822,322 (17.3)	1.00		-	
Secondary school graduation	748,108 (27.2)	6,328,576 (22.7)	1.02 (0.93-1.12)	*0.680*	-	
Post-secondary certificate diploma or university degree	1,445,836 (52.5)	16,755,542 (60.0)	0.74 (0.68-0.81)	*<0.001*	-	
Employment status						
Employed	1,493,795 (53.9)	17,188,386 (61.1)	1.00		1.00	
Not employed	1,077,250 (38.9)	7,637,870 (27.2)	1.62 (1.51-1.74)	*<0.001*	1.64 (1.48-1.81)	*<0.001*
Not working age (<15 or >75)	200,278 (7.2)	3,288,967 (11.7)	0.70 (0.62-0.79)	*<0.001*	0.73 (0.61-0.89)	*0.001*
Household income (in CAD)						
No income or less than $20,000	332,595 (11.9)	1,703,165 (6.0)	1.00		1.00	
$20,000 to $39,999	444,419 (15.9)	3,569,639 (12.6)	0.64 (0.57-0.71)	*<0.001*	0.89 (0.77-1.03)	*0.127*
$40,000 to $59,999	435,328 (15.6)	3,997,071 (14.1)	0.56 (0.49-0.63)	*<0.001*	0.87 (0.74-1.02)	*0.090*
$60,000 to $79,999	357,633 (12.8)	3,643,604 (12.8)	0.50 (0.44-0.57)	*<0.001*	0.82 (0.70-0.98)	*0.025*
$80,000 or more	1,226,060 (43.8)	15,455,806 (54.4)	0.41 (0.37-0.45)	*<0.001*	0.75 (0.64-0.88)	*<0.001*
Household size						
Living alone	505,434 (18.1)	4,118,115 (14.5)	1.00		-	
Household size: 2	877,128 (31.4)	9,610,979 (33.9)	0.74 (0.69-0.80)	*<0.001*	-	
Household size: 3	550,488 (19.7)	5,230,842 (18.4)	0.86 (0.78-0.94)	*0.002*	-	
Household size: 4	507,459 (18.1)	5,604,062 (19.7)	0.74 (0.66-0.82)	*<0.001*	-	
Household size: 5 or more	356,927 (12.8)	3,811,849 (13.4)	0.76 (0.66-0.88)	*<0.001*	-	
Food security						
Food secure	2,188,031 (80.3)	25,829,486 (92.9)	1.00		1.00	
Moderately food insecure	283,331 (10.4)	1,438,542 (5.2)	2.32 (2.07-2.61)	*<0.001*	1.21 (1.03-1.41)	*0.017*
Severely food insecure	252,421 (9.3)	538,146 (1.9)	5.55 (4.88-6.28)	*<0.001*	1.76 (1.48-2.09)	*<0.001*
Disability[¶]						
Any disabilities						

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,254,672)	
	Anxiety disorder N = 2,798,967	No anxiety disorder N = 28,385,797	OR (95% CI)	P-value	OR (95% CI)	P-value
None	949,888 (34.0)	17,920,303 (63.2)	1.00		1.00	
Yes	1,844,494 (66.0)	10,423,028 (36.8)	3.34 (3.11-3.58)	*<0.001*	2.65 (2.43-2.89)	*<0.001*
Seeing						
No	2,153,927 (77.1)	24,677,702 (87.0)	1.00		-	
Yes	639,888 (22.9)	3,683,852 (13.0)	1.99 (1.84-2.15)	*<0.001*	-	
Hearing						
No	2,306,703 (82.5)	25,191,469 (88.8)	1.00		-	
Yes	488,349 (17.5)	3,178,154 (11.2)	1.68 (1.54-1.83)	*<0.001*	-	
Walking						
No	2,124,093 (76.0)	24,672,849 (87.0)	1.00		-	
Yes	671,192 (24.0)	3,687,554 (13.0)	2.11 (1.96-2.28)	*<0.001*	-	
Remembering						
No	1,481,671 (53.0)	23,921,546 (84.4)	1.00		-	
Yes	1,312,982 (47.0)	4,431,683 (15.6)	4.78 (4.46-5.13)	*<0.001*	-	
Communicating						
No	2,431,853 (87.1)	27,281,518 (96.1)	1.00		-	
Yes	359,921 (12.9)	1,092,588 (3.9)	3.70 (3.32-4.12)	*<0.001*	-	
Caring for self						
No	2,535,563 (90.7)	27,611,213 (97.3)	1.00		-	
Yes	260,730 (9.3)	771,299 (2.7)	3.68 (3.27-4.15)	*<0.001*	-	
Perceived life stress						
Not stressful	471,726 (16.9)	11,253,709 (39.8)	1.00		1.00	
A bit stressful	1,134,550 (40.8)	11,578,243 (41.0)	2.34 (2.14-2.56)	*<0.001*	1.99 (1.80-2.21)	*<0.001*
Stressful	1,177,444 (42.3)	5,437,952 (19.2)	5.16 (4.72-5.65)	*<0.001*	3.45 (3.08-3.86)	*<0.001*
Satisfaction with housing*†*						
Satisfied	753,404 (83.6)	9,538,003 (91.9)	1.00		-	
Neither satisfied nor dissatisfied	61,631 (6.8)	475,801 (4.6)	1.64 (1.35-1.99)	*<0.001*	-	
Dissatisfied	85,802 (9.5)	367,461 (3.5)	2.96 (2.42-3.60)	*<0.001*	-	
Satisfaction with neighborhood*†*						
Satisfied	750,972 (83.5)	9,482,453 (91.5)	1.00		-	
Neither satisfied nor dissatisfied	84,983 (9.5)	596,714 (5.8)	1.80 (1.52-2.13)	*<0.001*	-	
Dissatisfied	63,090 (7.0)	281,791 (2.7)	2.83 (2.28-3.51)	*<0.001*	-	
Satisfaction with relationships with friends*†*						
Satisfied	750,415 (83.7)	9,732,039 (94.1)	1.00		-	

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,254,672)	
	Anxiety disorder N = 2,798,967	No anxiety disorder N = 28,385,797	OR (95% CI)	P-value	OR (95% CI)	P-value
Neither satisfied nor dissatisfied	73,439 (8.2)	409,631 (4.0)	2.32 (1.87-2.89)	*<0.001*	-	
Dissatisfied	72,317 (8.1)	203,729 (2.0)	4.60 (3.76-5.63)	*<0.001*	-	
Sense of belonging to a community						
Strong	1,499,904 (58.2)	19,064,725 (69.9)	1.00		1.00	
Weak	1,077,729 (41.8)	8,192,612 (30.1)	1.67 (1.56-1.79)	*<0.001*	1.17 (1.08-1.27)	*<0.001*
Smoking status						
Non-smoker	1,999,624 (71.5)	24,188,829 (85.2)	1.00		1.00	
Occasional smoker	193,182 (6.9)	1,291,605 (4.6)	1.81 (1.57-2.08)	*<0.001*	1.44 (1.21-1.71)	*<0.001*
Daily smoker	605,412 (21.6)	2,897,383 (10.2)	2.53 (2.33-2.74)	*<0.001*	1.72 (1.55-1.91)	*<0.001*
Alcohol consumption§						
Non-drinker	666,430 (23.9)	6,841,468 (24.2)	1.00		-	
Occasional drinker	570,983 (20.5)	4,451,933 (15.8)	1.32 (1.20-1.44)	*<0.001*	-	
Regular drinker	1,550,697 (55.6)	16,967,173 (60.0)	0.94 (0.87-1.02)	*0.120*	-	
Marijuana use‡						
No	889,507 (74.2)	10,655,891 (87.4)	1.00		-	
Yes	309,477 (25.8)	1,530,865 (12.6)	2.42 (2.13-2.75)	*<0.001*	-	

Participants with missing values were excluded from these analyses.

NL: Newfoundland and Labrador; PE: Prince Edward Island; NS: Nova Scotia; NB: New Brunswick; QC: Quebec; ON: Ontario; MB: Manitoba; SK: Saskatchewan; AB: Alberta; YT: Yukon; NT: Northwest Territories; NU: Nunavut; BC: British Columbia; CAD: Canadian dollar.

* NA indicates not applicable, and includes "don't know", "refusal" answer options, missing information, and valid skips. P-values were calculated after excluding NA.

¶ Disability was assessed using the Washington Group Short Set on Functioning questionnaire.

† Data was not asked for 69,912 (61.7%) participants. Percentages were calculated after excluding missing values.

§ Nondrinker = did not drink alcohol in the past 12 months. Occasional drinker = drank alcohol less than once a month in the past 12 months. Regular drinker = drank alcohol from at least once a month to every day in the past 12 months.

‡ Used marijuana more than once in the past 12 months; Data was not asked for 68,656 (60.6%) participants.

Table 2B. Uni- and multivariable analysis of GBA+ factors associated with mood disorders, weighted

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,263,651)	
	Mood disorder N = 2,731,263	No mood disorder N = 28,471,686	OR (95% CI)	P-value	OR (95% CI)	P-value
Age, years						
12 to 17	101,115 (3.7)	2,139,093 (7.5)	1.00		1.00	
18 to 39	1,007,497 (36.9)	9,685,908 (34.0)	2.20 (1.86-2.60)	*<0.001*	1.96 (1.49-2.59)	*<0.001*
40 to 59	970,947 (35.5)	8,822,129 (31.0)	2.33 (1.97-2.75)	*<0.001*	2.17 (1.63-2.89)	*<0.001*
60+	651,704 (23.9)	7,824,555 (27.5)	1.76 (1.50-2.08)	*<0.001*	1.44 (1.09-1.91)	*0.012*
Sex						
Male	993,699 (36.4)	14,401,071 (50.6)	1.00		1.00	
Female	1,737,564 (63.6)	14,070,615 (49.4)	1.79 (1.67-1.92)	*<0.001*	1.82 (1.67-1.98)	*<0.001*
Province of residence						
East (NL/PE/NS/NB)	215,042 (7.9)	1,840,838 (6.5)	1.32 (1.21-1.44)	*<0.001*	-	
Central (QC/ON)	1,573,543 (57.6)	17,797,072 (62.5)	1.00		-	
Prairies (MB/SK/AB)	539,892 (19.8)	5,018,659 (17.6)	1.22 (1.12-1.32)	*<0.001*	-	
North (YT/NT/NU)	8,040 (0.3)	88,137 (0.3)	1.03 (0.89-1.19)	*0.670*	-	
West (BC)	394,747 (14.5)	3,726,979 (13.1)	1.20 (1.10-1.31)	*<0.001*	-	
Race/Ethnicity						
White	2,150,044 (86.2)	20,222,336 (75.0)	1.00		1.00	
Non-white	344,650 (13.8)	6,730,343 (25.0)	0.48 (0.42-0.55)	*<0.001*	0.61 (0.51-0.73)	*<0.001*
Nativity						
Non-Indigenous	2,111,406 (91.8)	19,659,809 (95.3)	1.00		-	
Indigenous	189,732 (8.2)	980,090 (4.7)	1.80 (1.59-2.05)	*<0.001*	-	
Immigrant status						
Canadian-born	431,525 (16.0)	7,642,308 (27.3)	1.00		1.00	
Immigrant	2,262,903 (84.0)	20,328,063 (72.7)	0.51 (0.46-0.56)	*<0.001*	0.70 (0.60-0.82)	*<0.001*
Time since immigration						
0-9 years	71,907 (19.1)	1,887,173 (28.1)	1.00		-	
10+ years	304,765 (80.9)	4,840,218 (71.9)	1.74 (1.29-2.34)	*<0.001*	-	
Marital status						
Married	951,048 (34.9)	13,477,587 (47.4)	1.00		1.00	
Common-law	338,603 (12.4)	3,361,473 (11.8)	1.43 (1.25-1.63)	*<0.001*	0.98 (0.84-1.15)	*0.818*
Widowed/divorced/separated	455,721 (16.7)	3,214,283 (11.3)	2.01 (1.84-2.20)	*<0.001*	1.33 (1.19-1.49)	*<0.001*
Single	979,864 (36.0)	8,372,238 (29.5)	1.66 (1.53-1.80)	*<0.001*	1.34 (1.19-1.50)	*<0.001*
Single parent status						

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,263,651)	
	Mood disorder N = 2,731,263	No mood disorder N = 28,471,686	OR (95% CI)	P-value	OR (95% CI)	P-value
No (parent living with spouse)	510,402 (73.3)	7,374,605 (86.5)	1.00		-	
Yes	185,877 (26.7)	1,150,885 (13.5)	2.33 (1.99-2.73)	*<0.001*	-	
Sexual orientation						
Heterosexual	2,232,301 (90.8)	25,084,726 (97.2)	1.00		1.00	
Homosexual	67,591 (2.8)	341,961 (1.3)	2.22 (1.74-2.84)	*<0.001*	1.93 (1.44-2.58)	*<0.001*
Bisexual	157,416 (6.4)	378,087 (1.5)	4.68 (3.87-5.65)	*<0.001*	2.61 (2.04-3.35)	*<0.001*
Education						
Less than secondary school graduation	440,105 (16.5)	4,946,927 (17.7)	1.00		-	
Secondary school graduation	747,439 (28.0)	6,334,230 (22.6)	1.33 (1.19-1.47)	*<0.001*	-	
Post-secondary certificate diploma or university degree	1,486,451 (55.6)	16,720,511 (59.7)	1.00 (0.91-1.09)	*0.987*	-	
Employment status						
Employed	1,436,703 (53.1)	17,252,681 (61.2)	1.00		1.00	
Not employed	1,113,800 (41.2)	7,609,496 (27.0)	1.76 (1.63-1.89)	*<0.001*	1.68 (1.51-1.88)	*<0.001*
Not working age (<15 or >75)	152,891 (5.7)	3,337,008 (11.8)	0.55 (0.48-0.62)	*<0.001*	0.67 (0.56-0.80)	*<0.001*
Household income (in CAD)						
No income or less than $20,000	353,908 (13.0)	1,678,457 (5.9)	1.00		1.00	
$20,000 to $39,999	473,402 (17.3)	3,544,218 (12.5)	0.63 (0.56-0.71)	*<0.001*	0.94 (0.81-1.09)	*0.420*
$40,000 to $59,999	414,408 (15.2)	4,024,028 (14.1)	0.49 (0.43-0.55)	*<0.001*	0.81 (0.69-0.95)	*0.011*
$60,000 to $79,999	348,844 (12.8)	3,648,277 (12.8)	0.45 (0.40-0.51)	*<0.001*	0.82 (0.70-0.98)	*0.025*
$80,000 or more	1,138,703 (41.7)	15,559,039 (54.7)	0.35 (0.31-0.38)	*<0.001*	0.75 (0.64-0.88)	*<0.001*
Household size						
Living alone	580,884 (21.3)	4,041,987 (14.2)	1.00		-	
Household size: 2	931,739 (34.1)	9,569,767 (33.6)	0.68 (0.63-0.73)	*<0.001*	-	
Household size: 3	526,642 (19.3)	5,261,939 (18.5)	0.70 (0.63-0.77)	*<0.001*	-	
Household size: 4	427,874 (15.7)	5,683,600 (20.0)	0.52 (0.47-0.59)	*<0.001*	-	
Household size: 5 or more	262,855 (9.6)	3,904,181 (13.7)	0.47 (0.41-0.54)	*<0.001*	-	
Food security						
Food secure	2,074,721 (77.6)	25,955,455 (93.1)	1.00		1.00	
Moderately food insecure	310,083 (11.6)	1,413,179 (5.1)	2.74 (2.46-3.07)	*<0.001*	1.48 (1.26-1.72)	*<0.001*
Severely food insecure	287,403 (10.8)	506,746 (1.8)	7.09 (6.27-8.03)	*<0.001*	2.32 (1.94-2.76)	*<0.001*
Disability¶						
Any disabilities						
None	810,202 (29.7)	18,061,038 (63.5)	1.00		1.00	

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,263,651)	
	Mood disorder N = 2,731,263	No mood disorder N = 28,471,686	OR (95% CI)	P-value	OR (95% CI)	P-value
Yes	1,918,385 (70.3)	10,363,791 (36.5)	4.13 (3.84-4.44)	*<0.001*	2.94 (2.69-3.21)	*<0.001*
Seeing						
No	2,025,716 (74.4)	24,819,026 (87.2)	1.00		-	
Yes	698,541 (25.6)	3,629,182 (12.8)	2.36 (2.17-2.56)	*<0.001*	-	
Hearing						
No	2,210,795 (81.1)	25,303,523 (88.9)	1.00		-	
Yes	516,387 (18.9)	3,152,907 (11.1)	1.87 (1.73-2.03)	*<0.001*	-	
Walking						
No	1,922,492 (70.5)	24,876,601 (87.5)	1.00		-	
Yes	803,706 (29.5)	3,569,464 (12.5)	2.91 (2.70-3.14)	*<0.001*	-	
Remembering						
No	1,372,971 (50.4)	24,039,450 (84.5)	1.00		-	
Yes	1,353,258 (49.6)	4,398,241 (15.5)	5.39 (5.03-5.77)	*<0.001*	-	
Communicating						
No	2,373,709 (87.0)	27,352,793 (96.1)	1.00		-	
Yes	353,171 (13.0)	1,103,500 (3.9)	3.69 (3.30-4.12)	*<0.001*	-	
Caring for self						
No	2,435,929 (89.3)	27,723,886 (97.4)	1.00		-	
Yes	292,381 (10.7)	743,339 (2.6)	4.48 (3.98-5.04)	*<0.001*	-	
Perceived life stress						
Not stressful	475,591 (17.5)	11,253,692 (39.7)	1.00		1.00	
A bit stressful	1,033,485 (38.1)	11,679,972 (41.2)	2.09 (1.91-2.29)	*<0.001*	1.82 (1.63-2.02)	*<0.001*
Stressful	1,205,632 (44.4)	5,421,438 (19.1)	5.26 (4.79-5.78)	*<0.001*	3.39 (3.03-3.81)	*<0.001*
Satisfaction with housing						
Satisfied	695,399 (81.0)	9,594,347 (92.1)	1.00		-	
Neither satisfied nor dissatisfied	76,442 (8.9)	460,367 (4.4)	2.29 (1.86-2.82)	*<0.001*	-	
Dissatisfied	86,535 (10.1)	366,781 (3.5)	3.25 (2.62-4.04)	*<0.001*	-	
Satisfaction with neighborhood						
Satisfied	716,222 (83.6)	9,516,000 (91.5)	1.00		-	
Neither satisfied nor dissatisfied	82,653 (9.6)	598,804 (5.8)	1.83 (1.53-2.20)	*<0.001*	-	
Dissatisfied	58,312 (6.8)	285,584 (2.7)	2.71 (2.17-3.40)	*<0.001*	-	
Satisfaction with relationships with friends						
Satisfied	695,751 (81.4)	9,786,269 (94.2)	1.00		-	
Neither satisfied nor dissatisfied	78,905 (9.2)	404,557 (3.9)	2.74 (2.22-3.39)	*<0.001*	-	

	Total, N (%)		Univariable analysis		Multivariable analysis (N = 26,263,651)	
	Mood disorder N = 2,731,263	No mood disorder N = 28,471,686	OR (95% CI)	P-value	OR (95% CI)	P-value
Dissatisfied	79,829 (9.3)	195,583 (1.9)	5.74 (4.67-7.05)	*<0.001*	-	
Sense of belonging to a community						
Strong	1,360,609 (53.5)	19,205,557 (70.3)	1.00		1.00	
Weak	1,180,787 (46.5)	8,096,401 (29.7)	2.06 (1.92-2.21)	*<0.001*	1.47 (1.35-1.60)	*<0.001*
Smoking status						
Non-smoker	1,913,583 (70.1)	24,289,544 (85.3)	1.00		1.00	
Occasional smoker	199,254 (7.3)	1,287,078 (4.5)	1.96 (1.68-2.29)	*<0.001*	1.50 (1.24-1.82)	*<0.001*
Daily smoker	617,213 (22.6)	2,886,411 (10.1)	2.71 (2.49-2.95)	*<0.001*	1.65 (1.48-1.83)	*<0.001*
Alcohol consumption§						
Non-drinker	619,042 (22.8)	6,891,905 (24.3)	1.00		-	
Occasional drinker	585,002 (21.5)	4,441,286 (15.7)	1.47 (1.33-1.62)	*<0.001*	-	
Regular drinker	1,514,104 (55.7)	17,014,583 (60.0)	0.99 (0.91-1.08)	*0.831*	-	
Marijuana use‡						
No	866,863 (72.0)	10,684,927 (87.6)	1.00		-	
Yes	337,780 (28.0)	1,509,895 (12.4)	2.76 (2.40-3.17)	*<0.001*	-	

Participants with missing values were excluded from these analyses.

NL: Newfoundland and Labrador; PE: Prince Edward Island; NS: Nova Scotia; NB: New Brunswick; QC: Quebec; ON: Ontario; MB: Manitoba; SK: Saskatchewan; AB: Alberta; YT: Yukon; NT: Northwest Territories; NU: Nunavut; BC: British Columbia; CAD: Canadian dollar.

* NA indicates not applicable, and includes "don't know", "refusal" answer options, missing information, and valid skips. P-values were calculated after excluding NA.

¶ Disability was assessed using the Washington Group Short Set on Functioning questionnaire.

† Data was not asked for 69,912 (61.7%) participants. Percentages were calculated after excluding missing values.

§ Nondrinker = did not drink alcohol in the past 12 months. Occasional drinker = drank alcohol less than once a month in the past 12 months. Regular drinker = drank alcohol from at least once a month to every day in the past 12 months.

‡ Used marijuana more than once in the past 12 months; Data was not asked for 68,656 (60.6%) participants.

Table 2C. Interactions between sex and other GBA+ factors for mood and anxiety disorders, weighted

Interaction term	Categories	Adjusted odds ratios (95%CI)	
		Anxiety disorder	**Mood disorder**
Sex*Age	Female	1.70 (1.46-1.99)	2.90 (1.62-5.20)
	Male	1.00	1.00
	Males		
	Age 12 to 17	0.91 (0.61-1.36) *	1.00
	Age 18-39	1.77 (1.46-2.14) *	2.63 (1.67-4.15)
	Age 40-59	1.31 (1.09-1.57) *	2.92 (1.83-4.67)
	Age 60+	1.00	2.27 (1.43-3.60) *
	Females		
	Age 12 to 17	1.59 (1.18-2.13)	1.00
	Age 18-39	2.19 (1.90-2.54)	1.74 (1.23-2.45)
	Age 40-59	1.70 (1.48-1.95)	1.92 (1.36-2.70)
	Age 60+	1.00	1.16 (0.83-1.62)
Sex*Income	Female	1.59 (1.27-1.99)	1.22 (0.98-1.53)
	Male	1.00	1.00
	Males		
	Income $20,000 to $39,999	0.86 (0.68-1.08)	0.77 (0.61-0.97) *
	Income $40,000 to $59,999	0.82 (0.64-1.06)	0.67 (0.53-0.86)
	Income $60,000 to $79,999	0.72 (0.55-0.94)	0.70 (0.54-0.90)
	Income $80,000 or more	0.55 (0.44-0.69) *	0.52 (0.41-0.65) *
	No income or less than $20,000	1.00	1.00
	Females		
	Income $20,000 to $39,999	0.91 (0.76-1.10)	1.06 (0.88-1.28)
	Income $40,000 to $59,999	0.89 (0.73-1.09)	0.90 (0.74-1.10)
	Income $60,000 to $79,999	0.88 (0.72-1.09)	0.91 (0.74-1.11)
	Income $80,000 or more	0.88 (0.73-1.06)	0.93 (0.77-1.12)
	No income or less than $20,000	1.00	1.00
Sex*Employment	Female	2.50 (2.24-2.79)	2.17 (1.93-2.44)
	Male	1.00	1.00
	Males		
	Unemployed	2.24 (1.91-2.63) *	2.23 (1.89-2.62) *
	Not working age	1.09 (0.78-1.53) *	0.94 (0.72-1.22) *
	Employed	1.00	1.00
	Females		
	Unemployed	1.39 (1.24-1.56)	1.44 (1.27-1.63)

	Not working age	0.61 (0.50-0.75)	0.56 (0.46-0.70)
	Employed	1.00	1.00
Sex*Sexual orientation	Female	2.11 (1.93-2.31)	-
	Male	1.00	
	Male		
	Homosexual	1.58 (1.06-2.36)	
	Bisexual	2.98 (1.99-4.45) *	
	Heterosexual	1.00	
	Female		
	Homosexual	1.75 (1.25-2.46)	
	Bisexual	1.77 (1.35-2.31)	
	Heterosexual	1.00	

* Categories where interaction was statistically significant

All interactions were assessed within the final models for anxiety and mood disorders, which included covariates for age, sex, race, immigrant status, marital status, sexual orientation, employment status, household income, food insecurity, disability status, sense of belonging to a community, perceived life stress, and smoking status.

Interactions were also tested between sex and each covariate for ethnicity, nativity, immigrant status and disability status but were found to be not significant.

Table 3. Characteristics of the Canadian population reporting unmet mental health care needs in the past 12 months, weighted

	Total, N (%) N = 18,356,281†	Unmet mental health care needs, N (%) N = 187,020	No Unmet mental health care needs, N (%) N = 17,902,424	P-value
Age, years				
12 to 17	1,372,808 (7.5)	15,190 (8.1)	1,334,913 (7.5)	
18 to 39	6,391,811 (34.8)	98,067 (52.4)	6,209,345 (34.7)	<0.001
40 to 59	5,818,350 (31.7)	58,579 (31.3)	5,669,295 (31.7)	
60+	4,773,312 (26.0)	15,183 (8.1)	4,688,871 (26.2)	
Sex				
Male	9,035,310 (49.2)	77,743 (41.6)	8,838,625 (49.4)	0.040
Female	9,320,971 (50.8)	109,277 (58.4)	9,063,799 (50.6)	
Race/Ethnicity				
White	12,496,319 (68.1)	131,741 (70.4)	12,335,470 (68.9)	0.007
Non-White	4,760,409 (25.9)	30,633 (16.4)	4,708,378 (26.3)	
NA*	1,099,553 (6.0)	24,646 (13.2)	858,576 (4.8)	
Nativity				
Indigenous	668,379 (3.6)	21,959 (11.7)	644,928 (3.6)	
Non-Indigenous	12,130,569 (66.1)	141,072 (75.4)	11,957,380 (66.8)	<0.001
NA	5,557,333 (30.3)	23,988 (12.8)	5,300,116 (29.6)	
Immigrant status				
Immigrant	5,398,004 (29.4)	23,612 (12.6)	5,357,128 (29.9)	
Canadian-born	12,578,482 (68.5)	162,393 (86.8)	12,381,193 (69.2)	<0.001
NA	379,796 (2.1)	1,015 (0.5)	164,103 (0.9)	
Time since immigration				
0-9 years	1,257,445 (6.9)	4,667 (2.5)	1,247,740 (7.0)	
10+ years	3,503,256 (19.1)	15,079 (8.1)	3,481,781 (19.4)	0.805
NA	13,595,580 (74.1)	167,275 (89.4)	13,172,903 (73.6)	
Sexual orientation				
Heterosexual	15,950,927 (86.9)	131,853 (70.5)	15,787,726 (88.2)	
Homosexual	204,231 (1.1)	6,952 (3.7)	196,860 (1.1)	<0.001
Bisexual	314,042 (1.7)	19,310 (10.3)	293,951 (1.6)	
NA	1,887,082 (10.3)	28,905 (15.5)	1,623,886 (9.1)	
Marital status				
Married	9,205,990 (50.2)	41,458 (22.2)	9,021,616 (50.4)	
Common-law	1,469,092 (8.0)	23,865 (12.8)	1,430,974 (8.0)	
Widowed/divorced/separated	2,105,168 (11.5)	21,657 (11.6)	2,046,273 (11.4)	<0.001
Single	5,542,015 (30.2)	98,788 (52.8)	5,371,164 (30.0)	
NA	34,017 (0.2)	1,251 (0.7)	32,397 (0.2)	
Single parent status				
Yes	777,424 (4.2)	14,735 (7.9)	748,196 (4.2)	<0.001

	Total, N (%) N = 18,356,281†	Unmet mental health care needs, N (%) N = 187,020	No Unmet mental health care needs, N (%) N = 17,902,424	P-value
No	4,791,930 (26.1)	31,653 (16.9)	4,688,268 (26.2)	
NA	12,786,928 (69.7)	140,632 (75.2)	12,465,961 (69.6)	
Education				
Less than secondary school graduation	3,031,677 (16.5)	28,086 (15.0)	2,946,561 (16.5)	
Secondary school graduation	4,317,111 (23.5)	65,595 (35.1)	4,194,124 (23.4)	*0.001*
Post-secondary certificate diploma or university degree	10,713,661 (58.4)	90,963 (48.6)	10,483,521 (58.6)	
NA	293,832 (1.6)	2,376 (1.3)	278,218 (1.6)	
Employment status				
Employed	10,997,345 (59.9)	103,026 (55.1)	10,876,468 (60.8)	
Not employed	5,109,663 (27.8)	73,939 (39.5)	5,015,632 (28.0)	*<0.001*
Not working age (<15 or >75)	2,028,751 (11.1)	9,463 (5.1)	1,980,195 (11.1)	
NA	220,523 (1.2)	592 (0.3)	30,129 (0.2)	
Household income (in CAD)				
No income or less than $20,000	1,078,760 (5.9)	22,321 (11.9)	1,030,084 (5.8)	
$20,000 to $39,999	2,161,309 (11.8)	25,716 (13.8)	2,079,571 (11.6)	
$40,000 to $59,999	2,510,766 (13.7)	29,168 (15.6)	2,424,813 (13.5)	*<0.001*
$60,000 to $79,999	2,254,849 (12.3)	20,310 (10.9)	2,203,671 (12.3)	
$80,000 or more	10,339,367 (56.3)	89,505 (47.9)	10,153,101 (56.7)	
NA	11,230 (0.1)	0 (0.0)	11,184 (0.1)	
Food security				
Food secure	16,358,550 (89.1)	131,613 (70.4)	16,188,000 (90.4)	
Moderately food insecure	1,043,429 (5.7)	18,287 (9.8)	1,020,076 (5.7)	*<0.001*
Severely food insecure	506,290 (2.8)	34,734 (18.6)	468,373 (2.6)	
NA	448,011 (2.4)	2,386 (1.3)	225,975 (1.3)	
Disability¶				
Any disability				
Yes	7,234,116 (39.4)	142,501 (76.2)	6,962,912 (38.9)	
No	11,092,248 (60.4)	44,519 (23.8)	10,912,679 (61.0)	*<0.001*
NA	29,917 (0.2)	0 (0.0)	26,832 (0.1)	
Seeing				
Yes	2,597,371 (14.1)	58,940 (31.5)	2,483,090 (13.9)	
No	15,740,776 (85.8)	127,993 (68.4)	15,404,233 (86.0)	*<0.001*
NA	18,134 (0.1)	87 (0.0)	15,101 (0.1)	
Hearing				
Yes	2,119,149 (11.5)	27,382 (14.6)	2,061,763 (11.5)	
No	16,225,759 (88.4)	159,638 (85.4)	15,831,226 (88.4)	*0.123*
NA	11,373 (0.1)	0 (0.0)	9,435 (0.1)	
Walking				
Yes	2,682,611 (14.6)	46,783 (25.0)	2,576,537 (14.4)	*<0.001*

	Total, N (%) N = 18,356,281†	Unmet mental health care needs, N (%) N = 187,020	No Unmet mental health care needs, N (%) N = 17,902,424	P-value
No	15,656,373 (85.3)	140,150 (74.9)	15,309,257 (85.5)	
NA	17,297 (0.1)	87 (0.0)	16,629 (0.1)	
Remembering				
Yes	3,376,975 (18.4)	116,133 (62.1)	3,189,691 (17.8)	
No	14,953,693 (81.5)	70,776 (37.8)	14,687,898 (82.0)	*<0.001*
NA	25,614 (0.1)	111 (0.1)	24,835 (0.1)	
Communicating				
Yes	892,631 (4.9)	33,308 (17.8)	836,787 (4.7)	
No	17,450,625 (95.1)	153,712 (82.2)	17,056,250 (95.3)	*<0.001*
NA	13,025 (0.1)	0 (0.0)	9,386 (0.1)	
Caring for self				
Yes	659,079 (3.6)	28,502 (15.2)	612,597 (3.4)	
No	17,692,537 (96.4)	156,747 (83.8)	17,287,425 (96.6)	*<0.001*
NA	4,665 (0.0)	1,770 (0.9)	2,402 (0.0)	
Anxiety disorder				
Yes	1,720,286 (9.4)	95,679 (51.2)	1,598,845 (8.9)	
No	16,580,366 (90.3)	83,373 (44.6)	16,259,975 (90.8)	*<0.001*
NA	55,629 (0.3)	7,967 (4.3)	43,603 (0.2)	
Mood disorder				
Yes	1,740,501 (9.5)	112,153 (60.0)	1,603,955 (9.0)	
No	16,576,666 (90.3)	73,912 (39.5)	16,263,378 (90.8)	*<0.001*
NA	39,114 (0.2)	955 (0.5)	35,091 (0.2)	
Mood or anxiety disorder				
Yes	2,550,570 (13.9)	126,353 (67.6)	2,391,587 (13.4)	
No	15,726,057 (85.7)	51,772 (27.7)	15,446,761 (86.3)	*<0.001*
NA	79,654 (0.4)	8,895 (4.8)	64,075 (0.4)	
Mood and anxiety disorders				
Yes	885,747 (4.8)	72,753 (38.9)	797,056 (4.5)	
No	17,390,880 (94.7)	105,372 (56.3)	17,041,292 (95.2)	*<0.001*
NA	79,654 (0.4)	8,895 (4.8)	64,075 (0.4)	

† This table only includes population in Nova scotia, New Brunswick, Ontario, Manitoba and Alberta
* NA indicates not applicable, and includes "don't know", "refusal" answer options, missing information, and valid skips. P-values were calculated after excluding NA.
¶ Disability was assessed using the Washington Group Short Set on Functioning questionnaire.

Table 3A. Unmet mental health care needs among the Canadian population with a mood or anxiety disorder, weighted

Unmet mental health care needs	Total, N (%)	Mood or anxiety disorder, N (%)		p-value
		Yes	No	
Yes	187,020 (1.0)	126,353 (5.0)	51,772 (0.3)	*<0.001*
No	17,902,424 (99.0)	2,391,587 (95.0)	15,446,761 (99.7)	

Appendices

Table S1. Demographic and socioeconomic characteristics of the study population, unweighted

	Total, N (%) N = 113,290	Females, N (%) N = 60,888	Males, N (%) N = 52,402	P-value
Age, years				
12 to 17	8,654 (7.6)	4,219 (6.9)	4,435 (8.5)	
18 to 39	29,711 (26.2)	16,009 (26.3)	13,702 (26.1)	<0.001
40 to 59	32,350 (28.6)	17,120 (28.1)	15,230 (29.1)	
60+	42,575 (37.6)	23,540 (38.7)	19,035 (36.3)	
Province of residence				
East (NL/PE/NS/NB)	13,736 (12.1)	7,580 (12.4)	6,156 (11.7)	
Central (QC/ON)	57,636 (50.9)	30,972 (50.9)	26,664 (50.9)	
Prairies (MB/SK/AB)	23,802 (21.0)	12,705 (20.9)	11,097 (21.2)	0.003
North (YT/NT/NU)	2,706 (2.4)	1,420 (2.3)	1,286 (2.5)	
West (BC)	15,410 (13.6)	8,211 (13.5)	7,199 (13.7)	
Race/Ethnicity				
White	91,319 (80.6)	49,222 (80.8)	42,097 (80.3)	0.006
Non-White	13,745 (12.1)	7,238 (11.9)	6,507 (12.4)	
NA*	8,226 (7.3)	4,428 (7.3)	3,798 (7.2)	
Nativity				
Indigenous	6,689 (5.9)	3,638 (6.0)	3,051 (5.8)	0.355
Non-Indigenous	87,414 (77.2)	47,024 (77.2)	40,390 (77.1)	
NA	19,187 (16.9)	10,226 (16.8)	8,961 (17.1)	
Immigrant status				
Immigrant	18,683 (16.5)	10,034 (16.5)	8,649 (16.5)	0.940
Canadian-born	92,879 (82.0)	49,913 (82.0)	42,966 (82.0)	
NA	1,728 (1.5)	941 (1.5)	787 (1.5)	
Time since immigration				
0-9 years	3,877 (3.4)	2,086 (3.4)	1,791 (3.4)	
10+ years	12,421 (11.0)	6,676 (11.0)	5,745 (11.0)	0.965
NA	96,992 (85.6)	52,126 (85.6)	44,866 (85.6)	
Sexual orientation				
Heterosexual	100,069 (88.3)	54,215 (89.0)	45,854 (87.5)	
Homosexual	1,413 (1.2)	606 (1.0)	807 (1.5)	<0.001
Bisexual	1,735 (1.5)	1,202 (2.0)	533 (1.0)	
NA	10,073 (8.9)	4,865 (8.0)	5,208 (9.9)	
Marital status				
Married	45,945 (40.6)	23,499 (38.6)	22,446 (42.8)	
Common-law	11,470 (10.1)	5,978 (9.8)	5,492 (10.5)	<0.001
Widowed/divorced/separated	23,075 (20.4)	15,627 (25.7)	7,448 (14.2)	
Single	32,540 (28.7)	15,638 (25.7)	16,902 (32.3)	

	Total, N (%) N = 113,290	Females, N (%) N = 60,888	Males, N (%) N = 52,402	P-value
NA	260 (0.2)	146 (0.2)	114 (0.2)	
Living/Family arrangement				
Unattached individual living alone	32,315 (28.5)	18,248 (30.0)	14,067 (26.8)	
Unattached individual living with others	3,704 (3.3)	1,805 (3.0)	1,899 (3.6)	
Individual living with spouse/partner	32,670 (28.8)	16,286 (26.7)	16,384 (31.3)	
Parent living with spouse/partner and child(ren)	20,105 (17.7)	10,749 (17.7)	9,356 (17.9)	*<0.001*
Single parent living with children	5,676 (5.0)	4,426 (7.3)	1,250 (2.4)	
Child living with a single parent with or without siblings	3,492 (3.1)	1,634 (2.7)	1,858 (3.5)	
Child living with two parents with or without siblings	10,115 (8.9)	4,777 (7.8)	5,338 (10.2)	
Other	4,807 (4.2)	2,746 (4.5)	2,061 (3.9)	
NA	406 (0.4)	217 (0.4)	189 (0.4)	
Education				
Less than secondary school graduation	24,322 (21.5)	12,397 (20.4)	11,925 (22.8)	
Secondary school graduation	24,975 (22.0)	13,545 (22.2)	11,430 (21.8)	*<0.001*
Post-secondary certificate diploma or university degree	62,415 (55.1)	34,085 (56.0)	28,330 (54.1)	
NA	1,578 (1.4)	861 (1.4)	717 (1.4)	
Employment status				
Employed	58,808 (51.9)	29,651 (48.7)	29,157 (55.6)	
Not employed	36,081 (31.8)	20,744 (34.1)	15,337 (29.3)	*<0.001*
Not working age (<15 or >75)	17,821 (15.7)	10,179 (16.7)	7,642 (14.6)	
NA	580 (0.5)	314 (0.5)	266 (0.5)	
Household income (in CAD)				
No income or less than $20,000	9,890 (8.7)	5,902 (9.7)	3,988 (7.6)	
$20,000 to $39,999	19,260 (17.0)	11,464 (18.8)	7,796 (14.9)	
$40,000 to $59,999	17,985 (15.9)	9,857 (16.2)	8,128 (15.5)	*<0.001*
$60,000 to $79,999	15,085 (13.3)	7,851 (12.9)	7,234 (13.8)	
$80,000 or more	50,911 (44.9)	25,727 (42.3)	25,184 (48.1)	
NA	159 (0.1)	87 (0.1)	72 (0.1)	
Food security				
Food secure	101,499 (89.6)	54,110 (88.9)	47,389 (90.4)	
Moderately food insecure	6,378 (5.6)	3,761 (6.2)	2,617 (5.0)	*<0.001*
Severely food insecure	3,677 (3.2)	2,111 (3.5)	1,566 (3.0)	
NA	1,736 (1.5)	906 (1.5)	830 (1.6)	
Disability[¶]				

	Total, N (%) N = 113,290	Females, N (%) N = 60,888	Males, N (%) N = 52,402	P-value
Any disability	51,374 (45.3)	28,121 (46.2)	23,253 (44.4)	
No disability	61,745 (54.5)	32,678 (53.7)	29,067 (55.5)	*<0.001*
NA	171 (0.2)	89 (0.1)	82 (0.2)	
Anxiety disorder				
Yes	10,882 (9.6)	7,347 (12.1)	3,535 (6.7)	
No	102,132 (90.2)	53,397 (87.7)	48,735 (93.0)	*<0.001*
NA	276 (0.2)	144 (0.2)	132 (0.3)	
Mood disorder				
Yes	11,034 (9.7)	7,261 (11.9)	3,773 (7.2)	
No	102,007 (90.0)	53,503 (87.9)	48,504 (92.6)	*<0.001*
NA	249 (0.2)	124 (0.2)	125 (0.2)	
Mood or anxiety disorder				
Yes	16,429 (14.5)	10,840 (17.8)	5,589 (10.7)	
No	96,425 (85.1)	49,826 (81.8)	46,599 (88.9)	*<0.001*
NA	436 (0.4)	222 (0.4)	214 (0.4)	
Mood and anxiety disorders				
Yes	5,394 (4.8)	3,725 (6.1)	1,669 (3.2)	
No	107,460 (94.9)	56,941 (93.5)	50,519 (96.4)	*<0.001*
NA	436 (0.4)	222 (0.4)	214 (0.4)	

NL: Newfoundland and Labrador; PE: Prince Edward Island; NS: Nova Scotia; NB: New Brunswick; QC: Quebec; ON: Ontario; MB: Manitoba; SK: Saskatchewan; AB: Alberta; YT: Yukon; NT: Northwest Territories; NU: Nunavut; BC: British Columbia; CAD: Canadian dollar.
* NA indicates not applicable, and includes "don't know", "refusal" answer options, missing information, and valid skips. P-values were calculated after excluding NA.
¶ Disability was assessed using the Washington Group Short Set on Functioning questionnaire.

Table S2A. Correspondence between self-reported anxiety disorder and results of the 10-item Kessler Psychological Distress Scale (K10)

	Anxiety disorder		
	Yes	**No**	**p-value**
Mean K10 score (CI)	12.71 (11.38-14.01)	5.06 (4.83-5.30)	<0.001
Frequency of distress in the past month			
Never had any distress	1 (0.7%)	27 (2.1%)	
Less distress than usual	25 (16.7%)	126 (9.7%)	<0.001
About the same distress as usual	94 (62.7%)	1,004 (77.5%)	
More distress than usual	30 (20.0%)	139 (10.7%)	

CI: confidence interval

Table S2B. Correspondence between self-reported mood disorder and results of the 9-item Patient Health Questionnaire (PHQ-9) scores

	Mood disorder		
	Yes	**No**	**p-value**
Mean PHQ-9 score (CI)	7.85 (7.12-8.58)	2.26 (2.14-2.39)	<0.001
Severity of respondent depression			
No depression	17 (6.5%)	1,068 (43.4%)	
Minimal depression	69 (26.5%)	950 (38.6%)	
Mild depression	93 (35.8%)	348 (14.2%)	<0.001
Moderate depression	36 (13.8%)	64 (2.6%)	
Moderately severe depression	34 (13.1%)	22 (0.9%)	
Severe depression	11 (4.2%)	6 (0.2%)	

CI: confidence interval

**Table S3. Anxiety and mood disorders by age group, weighted**

	12-17 years, N (%)				+18 years, N (%)			
	Total	**Female**	**Male**	**p-value**	**Total**	**Female**	**Male**	**p-value**
Anxiety disorder	205,046 (9.1)	131,310 (12.0)	73,736 (6.4)	<0.001	2,593,921 (9.0)	1,698,464 (11.6)	895,458 (6.3)	<0.001
Mood disorder	101,115 (4.5)	65,932 (6.0)	35,183 (3.1)	<0.001	2,630,148 (9.1)	1,671,632 (11.4)	958,516 (6.7)	<0.001

Figure 1. Social and cultural determinants of mental disorders and the Sustainable Development Goals: conceptual framework proposed by Lund et al.

Figure 2. Receiver operating characteristic (ROC) curve and Area under the curve (AUC) for multivariable regression model for anxiety disorder
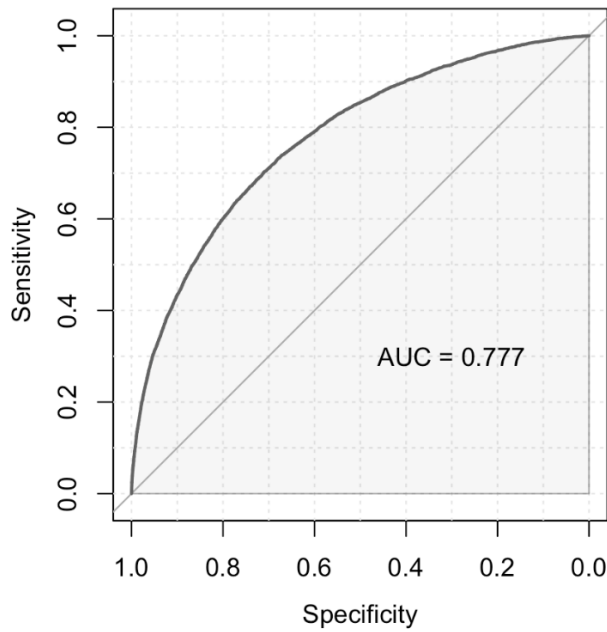
Figure 3. Receiver operating characteristic (ROC) curve and Area under the curve (AUC) for multivariable regression model for mood disorder