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ABSTRACT

Background

An increasing number of Canadians are living with mental health problems, including mood disorders. However, few studies have examined the prevalence of, and factors associated with, mood disorders among older Canadians (65 years or older).

Data and methods

A pooled sample of 172,524 community-dwelling older Canadians from nine cycles of the annual Canadian Community Health Survey—2015 to 2023—was used to examine mood disorders and associated correlates. Multivariable logistic regression, stratified by sex, was implemented to identify factors associated with mood disorders.

Results

From 2015 to 2023, on average, 7.0% of older Canadians reported a diagnosis of a mood disorder, with females (8.3%) more likely than males (5.5%) to do so. In a multivariable analysis that adjusted for demographic, socioeconomic, geographic, and health-related factors, Indigenous people (males and females) had higher odds of having a mood disorder than non-Indigenous, non-racialized populations. South Asian and Chinese males, as well as females belonging to Black and Other racialized groups, had significantly lower odds compared with their non-Indigenous, non-racialized counterparts. Living alone, being a male immigrant, and having lower household income were associated with a higher likelihood of experiencing mood disorders among older Canadians.

Interpretation

The results of this study highlight the importance of considering racialized population groups, as well as socioeconomic, geographic, and health-related factors—separately for males and females—when examining mood disorders among older Canadians to inform screening and intervention programs.

Keywords

Mental disorders, racialized populations, living alone, immigrant status, COVID-19

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What is already known on this subject?

- An increasing number of Canadians are living with mental health problems, including mood disorders. Females are more likely to experience mood disorders than males.
- Mood disorders have a wide range of negative consequences on physical health, social functioning, and quality of life.
- Demographic, socioeconomic, geographic, and health-related factors are associated with mood disorders.

What does this study add?

- Among older Canadians, females had significantly higher odds of reporting mood disorders than males, even after adjusting for demographic, socioeconomic, geographic, and health-related factors.
- Indigenous people were more likely to experience mood disorders than non-Indigenous, non-racialized populations, for both males and females. Those belonging to Chinese, Black, and Other racialized groups were less likely to report a diagnosis of a mood disorder than non-Indigenous, non-racialized populations.
- Living alone was associated with a higher likelihood of experiencing mood disorders than living with family or others, for both males and females. Similarly, household income was inversely associated with mood disorders.
- Among males, immigrants were more likely to experience mood disorders than Canadian-born individuals. Female immigrants had slightly lower odds of reporting mood disorders.

An increasing number of Canadians are living with mental health problems, including mood disorders.[1-2] In 2022, an estimated 4.7 million Canadians aged 15 years or older (15.6%) reported a lifetime diagnosis of a mood disorder, with higher rates among women (18.4%) than men (12.6%).[3] However, this may be an underestimate since many individuals with symptoms remain undiagnosed or do not seek professional treatment[4-5] because of factors such as stigma, lack of awareness, and low mental health literacy.[4,6]

Mood disorders encompass a range of conditions that affect individuals' emotional state, including bipolar disorder, major depressive disorder, cyclothymic disorder, and mania.[7-8] In most cases, these conditions negatively impact physical health, social functioning, and quality of life.[9-11] For example, a meta-analysis of over 91 million people[12] found significantly higher odds of COVID-19 hospitalization and death among those with preexisting mood disorders. Parker and colleagues[9] found that individuals with bipolar disorder were 1.4 to 2.3 times more likely to struggle with debts, education, and risk of harm, while those with unipolar disorder were 1.1 to 1.7 times more likely to experience social withdrawal; lower life satisfaction, well-being, and ambition; and missed opportunities.

Previous studies on social determinants of mental health pointed to multiple factors influencing common mental disorders among individuals, including the social, economic, and physical environments they live in.[13-15] These studies documented that individuals with lower socioeconomic status are at higher risk of experiencing mental disorders stemming from everyday circumstances, insecure living conditions, and perceived lack of control.[16] Among other factors, living arrangements,[17] immigrant status,[18-19] living in urban areas,[13] and stress in life[20] have been found to be associated with mental disorders, including mood disorders.

While numerous studies have examined factors associated with mood disorders in the general population (12 years or older),[21-23] few have focused on older Canadians (65 years or older). Older people are becoming a larger proportion of the Canadian population, comprising 19.9% in 2024 and projected to reach between 21.9% (slow aging scenario) and 32.3% (fast aging scenario) in 2073.[24] Older adults are more susceptible than younger adults to the negative impacts of mood disorders, including medical comorbidities, cognitive decline, higher suicide risk, and increased mortality.[25-26] Further research is needed to examine variations in mood disorders among older Canadians, disaggregated by sex. Such insights may inform the development of gender-sensitive policies and prevention measures to support vulnerable older Canadians.

This study addresses these gaps by examining the prevalence and correlates of mood disorders among older Canadians (65 years or older). Data from multiple years (2015 to 2023) of the Canadian Community Health Survey (CCHS) were pooled to create a large enough sample for sex-disaggregated analysis and subgroup comparisons. The study draws on the literature on social determinants of mental health[13-15] to examine demographic, socioeconomic, and geographic factors associated with mood disorders.

Methods

Data sources

The CCHS is a nationally representative cross-sectional survey that collects information from people living in Canada aged 12 years or older (from 2015 to 2022) living in private dwellings covering all provinces and territories. In the 2023 CCHS, information was collected from the population aged 18 years or older. Individuals living on Indigenous reserves and other Indigenous settlements in the provinces, full-time members of the Canadian Forces, institutionalized populations, and residents of certain remote regions are excluded from the surveys.

For the 2015 to 2020 cycles of the CCHS, data were collected using computer-assisted telephone interviewing (CATI) and computer-assisted personal interviewing (CAPI). In the 2021 CCHS, data were collected using only CATI because of the COVID-19 pandemic. From 2022 onward, CCHS data were collected using an electronic questionnaire (EQ) with CATI and CAPI follow-up for non-response. A detailed description of sampling frames and data collection strategies used in the CCHS is available at https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=1383236#a2. The response rates in the CCHS were from a range of 62.8% in 2017 to a low of 24.1% in 2021. Detailed documentation for the most recent survey is available at https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=1496481.

Study sample

The study sample was restricted to those aged 65 years or older. Missing cases (not stated) for the variable on mood disorders (n=412) were excluded from the analysis. Respondents from the three territories were also excluded because those data were not available in the single-year data files. Thus, the final sample size for the study was 172,524 respondents aged 65 years or older (76,238 males and 96,286 females) living in the community in the 10 provinces from 2015 to 2023.

Definitions

Mood disorders

Respondents were asked: "Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?" They were instructed to respond "yes" if their condition had been diagnosed by a health professional and had lasted, or was expected to last, at least six months.

Covariates

The selection of demographic, socioeconomic, geographic, and health-related covariates for the multivariable analyses was guided by the literature on social determinants of mental health[13-15] and data availability in the CCHS.

The CCHS collected information on whether respondents were First Nations people (including Status and Non-Status Indians), Métis, or Inuk (Inuit), and, if not, whether they belonged to one or more racialized or cultural groups. Using this information and the available sample size, six population groups were created: Indigenous; South Asian; Chinese; Black; Other racialized; and non-Indigenous, non-racialized. The Other racialized category includes population groups for which the sample was too small for separate analysis (Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, racialized group not included elsewhere and multiple racialized groups).

Information on gender was available only for part of the study period (2019 to 2023). Thus, sex at birth (male and female) was used in this analysis. Respondents' ages were grouped into three categories (in years): 65 to 74, 75 to 84, and 85 years or older. Living arrangement was derived as living alone, or living with family or others.

Respondents' level of education was dichotomized into less than postsecondary education or postsecondary education. Household income was divided into five categories: lowest (deciles 1 and 2), low-middle (deciles 3 and 4), middle (deciles 5 and 6), high-middle (deciles 7 and 8), and highest (deciles 9 and 10). Immigrant status was coded as immigrant or Canadian-born individual.

Information on eight chronic conditions was consistently available in the nine cycles of the CCHS used in this analysis: arthritis, high blood pressure, high blood cholesterol/lipids, heart disease, stroke, diabetes, cancer, and Alzheimer's disease or any other dementia. Multimorbidity was defined as having two or more of these chronic conditions diagnosed by a health professional that had lasted or were expected to last at least six months.

Perceived life stress was based on the question "Thinking about the amount of stress in your life, would you say that most of your days are: not at all stressful, not very stressful, a bit stressful, quite a bit stressful, extremely stressful?" In 2022 and 2023, the question wording was changed slightly to: "Thinking about the amount of stress in your life, how would you describe most of your days?" This variable was dichotomized into stressful (not very stressful, a bit stressful, quite a bit stressful, or extremely stressful) versus not at all stressful.

Place of residence was coded as rural (population less than 1,000) or urban (population of 1,000 or more). Timing of the survey was classified as before the COVID-19 pandemic (January 2015 to March 2020) or during the pandemic (September 2020 to December 2023).

Analytical approach

Following the pooled approach, nine cycles of the CCHS, 2015 to 2023, were combined. Sample data were combined at the individual level so that the resulting dataset can be treated as if it were a sample from one population.[27] Original sampling weights and bootstrap weights were rescaled by a factor of nine;

the resulting estimates are interpreted as representing the characteristics of the average population from 2015 to 2023. A detailed description of the pooled approach for combining the CCHS cycles is available in Thomas and Wannell.[27]

The pooled approach can conceal cycle-to-cycle trends in mood disorders, but this does not preclude pooling of the data.[27] Nonetheless, changes in mood disorder prevalence over the study period were assessed. In this case, the prevalence of mood disorders remained stable over the study period except for a few modest increases for males and overall in 2017, and for both males and females in 2022 and 2023 (Table 1). After the 2017 increase, the prevalence returned to a stable pattern. The survey response rate was highest in 2017, but the impact of the response rate on the prevalence of mood disorders is unknown. To evaluate whether the higher prevalence in 2017 impacted the results, additional analyses were carried out excluding the 2017 CCHS cycle. Results were unchanged (data not shown).

The increase in mood disorder prevalence in 2022 and 2023 may be a result of the pandemic, which has been associated with increased prevalence of mental disorders among Canadians.[28] Additionally, the transition to an EQ in 2022 may have influenced estimates. A survey timing variable (before the pandemic and during the pandemic) was included in the multivariable model to adjust for a potential cycle effect.

The composition of the study population was also compared between 2015 and 2023 (data not shown) to assess shifts in the variables included in the study. Results indicated significant increases in the proportion of Chinese females, South Asian males, individuals aged 75 to 84, those living alone, those in higher income quintiles, those living with multimorbidity, and those reporting life stress. Conversely, there were declines among Black males, females from other racialized groups, those aged 65 to 74, and female immigrants. Some of the observed changes—such as increasing age, multimorbidity, and number of those living alone—may reflect population aging[24] over the course of the study period. Although Canada's immigrant population has grown, most new immigrants are younger than 65.[29]

Weighted percentages and cross-tabulations of mood disorders among older Canadians were estimated. Multivariable logistic regression evaluated associations between mood disorders and selected demographic, socioeconomic, geographic, and health-related covariates. The percentages of missing cases in the covariates were relatively low, ranging from 0.04% (living arrangements) to 1.9% (population groups). List-wise deletion of missing cases was applied in the regression analysis.

Sampling weights were used in the analyses to account for the survey design and non-response. Bootstrap weights were also included in the analyses using SAS-callable SUDAAN 11.0.3 to account for the underestimation of standard errors.[30] The significance level was set at $p < 0.05$. Differences between reference groups and sexes were calculated using t-tests.

Results

Characteristics of the study population

The study population included older Canadians living in private dwellings in the 10 provinces from 2015 to 2023 (46.5% males, 53.5% females). The majority (60.1%) were 65 to 74 years old, and 86.5% were non-Indigenous, non-racialized. Further details are provided in Appendix A.

Table 1
Percentage reporting mood disorder, household population aged 65 years or older, Canada, excluding territories, 2015 to 2023

	Both sexes			Males			Females		
		95% confidence interval			95% confidence interval			95% confidence interval	
Year	%	from	to	%	from	to	%	from	to
2015†	6.1	5.5	6.7	4.5	3.8	5.3	7.4	6.6	8.3
2016	6.2	5.7	6.8	4.5	3.9	5.2	7.7	6.8	8.6
2017	7.3 *	6.7	7.9	6.0 *	5.1	6.9	8.4	7.6	9.3
2018	6.3	5.8	6.9	5.1	4.3	5.9	7.4	6.6	8.3
2019	6.4	5.9	6.9	5.3	4.7	6.0	7.3	6.6	8.0
2020	6.6	6.1	7.2	5.1	4.4	5.9	7.9	7.2	8.8
2021	6.8	6.2	7.4	4.8	4.1	5.6	8.5	7.6	9.5
2022	8.1 *	7.5	8.7	6.8 *	6.1	7.6	9.2 *	8.4	10.1
2023	8.5 *	8.0	9.1	6.9 *	6.2	7.6	10.0 *	9.2	10.9

† reference category

* significantly different from reference category ($p < 0.05$)

Source: Canadian Community Health Survey, 2015 to 2023.

Prevalence of mood disorders

From 2015 to 2023, on average, 7.0% of older Canadians reported a diagnosis of a mood disorder. Females (8.3%) were more likely than males (5.5%) to report a diagnosis. Indigenous people had a higher prevalence (10.4%) than their non-Indigenous, non-racialized counterparts (7.2%), with similar patterns for both males and females (Table 2).

Table 2
Percentage reporting mood disorder by background characteristics among older Canadians (65 years or older), Canada, excluding territories, 2015 to 2023

	Both sexes			Males			Females		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristics	%	from	to	%	from	to	%	from	to
Overall	7.0	6.8	7.2	5.5	5.3	5.8	8.3 ‡	8.0	8.6
Population group									
Indigenous	10.4 *	9.1	11.7	8.8 *	7.0	10.9	11.8 *‡	10.2	13.6
South Asian	5.5 E	4.1	7.5	4.2 E	3.0	6.0	7.0	4.5	10.8
Chinese	4.0 *	3.1	5.1	2.5 *E	1.7	3.9	5.5 *E‡	4.0	7.6
Black	5.0 *E	3.4	7.3	4.6 E	2.5	8.5	5.3 *E	3.3	8.5
Other racialized	6.0 *	5.0	7.2	6.1	4.6	8.1	5.9 *E	4.6	7.6
Non-Indigenous, non-racialized†	7.2	7.0	7.4	5.6	5.3	5.9	8.5 ‡	8.2	8.8
Age group									
65 to 74†	7.9	7.6	8.1	6.0	5.7	6.3	9.6 ‡	9.2	10.0
75 to 84	5.7 *	5.4	6.0	4.5	4.1	5.0	6.7 *‡	6.2	7.1
85 or older	5.5 *	5.0	6.2	5.3	4.4	6.3	5.7 *	5.0	6.5
Living arrangements									
Living alone	8.4 *	8.1	8.7	7.2 *	6.7	7.6	9.0 *‡	8.7	9.4
Living with family or others†	6.4	6.1	6.6	5.0	4.8	5.3	7.8 ‡	7.5	8.2
Education									
Less than postsecondary	7.0	6.7	7.2	5.5	5.1	5.8	8.0 ‡	7.7	8.4
Postsecondary†	7.0	6.8	7.3	5.5	5.2	5.9	8.5 ‡	8.1	8.9
Household income									
Lowest (deciles 1 and 2)	8.8 *	8.4	9.2	7.1 *	6.5	7.7	9.9 *‡	9.3	10.4
Low-middle (deciles 3 and 4)	7.1 *	6.7	7.5	6.1 *	5.6	6.7	7.9 *‡	7.4	8.4
Middle (deciles 5 and 6)	6.5 *	6.0	6.9	5.0 *	4.5	5.6	7.8 ‡	7.2	8.5
High-middle (deciles 7 and 8)	6.2 *	5.7	6.6	4.8 *	4.3	5.4	7.5 ‡	6.9	8.3
Highest (deciles 9 and 10)†	5.3	4.8	5.8	3.8	3.3	4.4	6.9 ‡	6.2	7.8
Immigrant status									
Immigrant	6.3 *	5.9	6.7	5.5	5.0	6.1	7.0 *‡	6.4	7.6
Canadian-born†	7.3	7.1	7.5	5.5	5.2	5.8	8.8 ‡	8.5	9.1
Living with multimorbidity									
Yes	9.0 *	8.7	9.3	7.3 *	6.9	7.7	10.6 *‡	10.1	11.0
No†	4.9	4.7	5.1	3.6	3.4	3.9	5.9 ‡	5.6	6.2
Perceived stress in life									
Stressful	8.5 *	8.2	8.7	6.8 *	6.5	7.1	9.8 *	9.5	10.2
Not at all stressful†	2.5	2.3	2.8	2.2	1.9	2.6	2.9 ‡	2.6	3.2
Place of residence									
Urban	7.1 *	6.9	7.4	5.7 *	5.4	6.0	8.4 ‡	8.0	8.7
Rural†	6.3	6.0	6.7	4.8	4.4	5.2	7.9 ‡	7.4	8.5
Timing of the survey									
Before COVID-19 pandemic†	6.5	6.2	6.7	5.1	4.8	5.4	7.7 ‡	7.3	8.0
During COVID-19 pnademic	7.6 *	7.3	7.9	6.0 *	5.6	6.4	9.0 *‡	8.6	9.4

† reference category

* significantly different from reference category ($p < 0.05$)

‡ significantly different from males ($p < 0.05$)

E use with caution

Notes: "Other racialized" group includes Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, racialized group not included elsewhere, and multiple racialized groups. Indigenous identities include First Nations, Métis, and Inuk (Inuit).

Source: Canadian Community Health Survey, 2015 to 2023.

Among Chinese individuals, the prevalence of mood disorders was lower than among non-Indigenous, non-racialized populations for both sexes. However, Black and other racialized populations exhibited lower prevalence among females but not males, compared with non-Indigenous, non-racialized populations.

The prevalence of mood disorders was higher among those living alone than among those living with family or others, for both males and females. Older Canadians with lower household income had a higher prevalence of mood disorders than those in the highest household income quintile. Overall, immigrants had a lower prevalence of reporting mood disorders than Canadian-born individuals, but this was significant for females only. Prevalences across other covariates are shown in Table 2.

Factors associated with mood disorders

Females had 1.4 times higher odds of having mood disorders than males, even after accounting for demographic, socioeconomic, geographic, and health-related factors. Indigenous people were also 1.4 times more likely to report mood disorders than the non-Indigenous, non-racialized population (1.6 times for males and 1.2 times for females) (Table 3).

Among South Asians, no overall difference in the odds of reporting mood disorders was found, but South Asian males (0.6 times) were significantly less likely than non-Indigenous, non-racialized males to report mood disorders. Among Chinese individuals, this lower likelihood persisted for males only.

In contrast, Black and other racialized females had lower odds of reporting mood disorders overall (0.6 and 0.8 times, respectively) compared with their non-Indigenous, non-racialized counterparts after controlling for all other factors. This difference persisted for females only.

Older age groups had lower odds of reporting mood disorders compared with those aged 65 to 74 years, for both males and females. Individuals living alone had higher odds (1.2 times) of reporting mood disorders compared with those living with family or others, with the higher odds significant for both sexes (1.3 times for males and 1.2 times for females).

Overall, older Canadians with less than a postsecondary education were less likely to report a diagnosis of mood disorders—but this was significant only for males. Lower household income was inversely associated with reporting mood disorders. For instance, individuals in the lowest-income households had 1.7 times higher odds of reporting mood disorders than those in the highest-income households (2.0 times for males and 1.6 times for females).

Male immigrants had higher odds of reporting mood disorders than Canadian-born individuals (1.2 times). In contrast, female immigrants had lower odds of reporting mood disorders than Canadian-born individuals. For both males and females, older Canadians living with multimorbidity had 1.9 times higher odds of having mood disorders than those without multimorbidity. Similarly, those who rated their lives as stressful had 3.1 times higher odds of having mood disorders than those who rated their lives as not at all stressful (3.0 times for males and 3.3 times for females).

Older Canadians living in urban areas had higher odds of reporting mood disorders than those living in rural areas. Those surveyed during the pandemic had higher odds of having mood disorders compared with those surveyed before the pandemic, though this was significant for females only.

Discussion

According to data from the combined CCHS cycles (2015 to 2023), on average, an estimated 7.0% of older people in Canada reported being diagnosed with a mood disorder, with females being significantly more likely than males to do so, even after accounting for demographic, socioeconomic, geographic, and health-related factors. The sex difference in mood disorders is one of the most consistently observed findings in mental health literature.[4,23,31-33] This literature suggests that both individual and societal factors contribute to the higher prevalence of mood disorders in females. Societal factors, such as gender inequality and discrimination, may also contribute to the higher rates observed among females.[32,34] However, future research could examine whether these factors apply equally to females across the age range.

Consistent with previous studies,[35-36] this study found that Indigenous people were more likely to experience mood disorders than the non-Indigenous, non-racialized population, for both males and females. A similar study using comparable methodology also found that Indigenous males were more likely to report a diagnosis of anxiety disorders compared with their non-Indigenous, non-racialized counterparts.[18] It should be noted that the exclusion of the territories and the on-reserve population from the analytical sample means that these results are not representative of the full Indigenous population. Among Indigenous people, poor mental health outcomes may be attributable to factors such as historical and intergenerational trauma, socioeconomic disparities, geographical barriers to health care, and persistent inequities in access to health care services.[37-38]

Among racialized population groups, South Asian males, Chinese males, Black females, and females in other racialized groups had lower odds of reporting a mood disorder diagnosis than non-Indigenous, non-racialized populations. This partially aligns with the Black–White paradox in mental health, which refers to the observation that Black adults report lower or similar rates of mental disorders compared with White adults, despite greater exposure to adversity such as discrimination and socioeconomic disadvantage.[39] This paradox challenges the assumption that greater adversity leads to higher rates of mental health problems and has been primarily studied in the United States, although findings are mixed.[39-40] An earlier study based on the CCHS similarly found that Black women, but not Black men, were less likely to report fair or poor mental health

compared with their White counterparts.[41] Other Canadian studies found a lower prevalence of diagnosed mood disorders among South Asian, Chinese, and Black populations compared with non-racialized groups.[2,42]

Regarding living arrangements, the study found that those living alone were more likely to experience mood disorders than those living with family members or others. This finding aligns with earlier studies showing higher risks of mood disorders

Table 3
Odds ratios of mood disorder among older Canadians (65 years or older), Canada, excluding territories, 2015 to 2023

	Sex at birth								
	Both sexes			Males			Females		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristics	AOR	from	to	AOR	from	to	AOR	from	to
Population group									
Indigenous	1.4 *	1.2	1.6	1.6 *	1.3	2.1	1.2 *	1.0	1.5
South Asian	0.7	0.5	1.1	0.6 *	0.4	1.0	0.8	0.5	1.4
Chinese	0.5 *	0.4	0.7	0.3 *	0.2	0.5	0.7	0.5	1.0
Black	0.6 *	0.4	0.9	0.6	0.3	1.4	0.5 *	0.3	0.9
Other racialized	0.8 *	0.6	1.0	0.9	0.7	1.3	0.7 *	0.5	0.9
Non-Indigenous, non-racialized†	1.0	…	…	1.0	…	…	1.0	…	…
Sex at birth									
Female	1.4 *	1.3	1.5	…	…	…		…	…
Male†	1.0	…	…	…	…	…		…	…
Age group									
65 to 74†	1.0	…	…	1.0	…	…	1.0	…	…
75 to 84	0.6 *	0.6	0.7	0.7 *	0.6	0.7	0.6 *	0.6	0.7
85 or older	0.6 *	0.5	0.6	0.7 *	0.6	0.9	0.5 *	0.4	0.6
Living arrangement									
Living alone	1.2 *	1.1	1.3	1.3 *	1.2	1.5	1.2 *	1.1	1.2
Living with family or others†	1.0	…	…	1.0	…	…	1.0	…	…
Education									
Less than postsecondary	0.9 *	0.9	1.0	0.9 *	0.8	1.0	0.9	0.9	1.0
Postsecondary†	1.0	…	…	1.0	…	…	1.0	…	…
Household income									
Lowest (deciles 1 and 2)	1.7 *	1.5	1.9	2.0 *	1.6	2.4	1.6 *	1.4	1.8
Low-middle (deciles 3 and 4)	1.4 *	1.3	1.6	1.7 *	1.4	2.0	1.2 *	1.1	1.4
Middle (deciles 5 and 6)	1.3 *	1.1	1.4	1.4 *	1.2	1.7	1.2	1.0	1.4
High-middle (deciles 7 and 8)	1.2 *	1.0	1.3	1.3 *	1.1	1.6	1.1	0.9	1.3
Highest (deciles 9 and 10)†	1.0	…	…	1.0	…	…	1.0	…	…
Immigrant status									
Immigrant	1.0	0.9	1.1	1.2 *	1.1	1.4	0.9 *	0.8	1.0
Canadian-born†	1.0	…	…	1.0	…	…	1.0	…	…
Living with multimorbidity									
Yes	1.9 *	1.8	2.0	1.9 *	1.7	2.2	1.9 *	1.8	2.1
No†	1.0	…	…	1.0	…	…	1.0	…	…
Perceived stress in life									
Stressful	3.1 *	2.8	3.5	3.0 *	2.5	3.5	3.3 *	2.9	3.7
Not at all stressful†	1.0	…	…	1.0	…	…	1.0	…	…
Place of residence									
Urban	1.1 *	1.0	1.2	1.2 *	1.1	1.3	1.1 *	1.0	1.2
Rural†	1.0	…	…	1.0	…	…	1.0	…	…
Timing of the survey									
Before COVID-19 pandemic†	1.0	…	…	1.0	…	…	1.0	…	…
During COVID-19 pandemic	1.1 *	1.0	1.2	1.1	1.0	1.2	1.1 *	1.0	1.2

… not applicable

† reference category

* significantly different from reference category ($p < 0.05$)

Notes: AOR = adjusted odds ratio. The model sample size is 73,184 for males and 92,478 for females. "Other racialized" group includes Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, racialized group not included elsewhere, and multiple racialized groups. Indigenous identities include First Nations, Métis, and Inuk (Inuit).

Source: Canadian Community Health Survey, 2015 to 2023.

among older adults living alone.[43-44] A lack of intergenerational relationships and family support[45-46] may partly explain the higher risk of mood disorders among those living alone. Consistent with this, Li and colleagues[44] found that intergenerational relationships and family social support were negatively associated with depression among older adults.

Consistent with previous studies, low levels of household income were found to be associated with higher odds of having mood disorders.[47-48] This pattern may be explained with the hypothesis of social causation, which is based on the premise that stress, lower social support, and reduced capacity to cope with adversities trigger mental illness.[18,47-48]

In this study, male immigrants had slightly higher odds of reporting diagnosed mood disorders, while female immigrants had slightly lower odds, compared with their respective Canadian-born counterparts. Potential explanations for lower odds include strong social networks, religious affiliations, community support, resilience and coping mechanisms, and the "healthy immigrant effect."[39-42] The higher likelihood of reporting mood disorders among male immigrants may be attributable to the cumulative effect of life trajectories, including stress associated with moving to a new country, disruptions in social networks, lower satisfaction in life, and perceived discrimination in the host society.[49]

Lower reported rates of mood disorder diagnosis among immigrants may reflect underdiagnosis rather than true differences in prevalence, driven by barriers such as limited access to culturally competent care, stigma, and diagnostic tools that may not capture culturally diverse expressions of distress—alongside methodological issues such as selection bias.[8,40] Stigma may vary by nativity, influencing help-seeking and symptom recognition among immigrant versus Canadian-born racialized individuals.[42] As such, future research could examine how structural and cultural factors, as well as sex and nativity, influence the identification and reporting of mood disorders within diverse racialized and immigrant populations in Canada.

In terms of physical and psychosocial factors, the study found strong evidence that both multimorbidity and stress were associated with a higher likelihood of mood disorders among older Canadians, for both males and females. While the association between multimorbidity and mood disorders can be bidirectional,[50] earlier studies have consistently documented higher risk of common mental disorders among those living with multimorbidity.[51-52] Similarly, life stress has consistently been associated with increased risk of mental disorders.[53-54]

Strengths and limitations

Key strengths of the study include the separate analysis by sex, made possible by the large sample size, and the examination of a wide range of covariates. However, the sample was not large enough to further disaggregate by population group (e.g., First Nations, Métis, and Inuit), explore the length of time in Canada or the country of origin of immigrants, or explore intersectionality and diversity within groups.

In 2022, the CCHS transitioned from CATI and CAPI to an EQ format, with CATI and CAPI follow-up for non-response. As a result, effect estimates from CCHS data before 2022 may differ from those based on the 2022 and 2023 data. To assess this, a separate analysis was conducted using combined CCHS data from 2015 to 2021. The effect estimates were similar to those based on the 2015 to 2023 data (data not shown).

Province was not included as a covariate in the multivariable analysis. However, an additional analysis including province yielded very similar odds ratio estimates (data not shown). To further examine the robustness of the findings, multilevel logistic regression nesting individuals in provinces at level 2 was calibrated. Results showed very low intraclass correlations—0.009 for both sexes, 0.008 for males, and 0.011 for females—and identical fixed effect estimates of odds ratios at level 1. Hence, in the interest of model parsimony, the final logistic regression model without province as a covariate was retained.

Because of survey constraints, it was not possible to explore the relationship between gender (versus sex at birth) and mood disorders, nor was it possible to examine mood disorder types (e.g., bipolar disorder, major depression, mania). Sexual orientation was excluded because of inconsistent categorization across CCHS cycles. Information on marital status was not available in the 2022 and 2023 cycles of the CCHS. Limited cases also precluded exploring interaction effects between racialized and immigrant status, as well as the interaction between racialized status and other selected covariates of demographic, socioeconomic, and geographic characteristics. The study covers about a decade (2015 to 2023), during which many things might have changed, such as perceptions of mental health, source countries of immigrants, and the effects of the pandemic. Some shifts in the composition of the analytical sample were noted over the study period, but it is unknown whether these changes could influence associations with reports of mood disorder diagnosis. For this reason, the timing of the survey was included in the analysis as a control covariate.

The outcome variable was measured based on one question on whether respondents have a mood disorder that was diagnosed by a health professional. Respondents with undiagnosed mood disorders or those who chose not to disclose a diagnosis may have been overlooked in this study. Further research using validated screening or diagnostic survey instruments to detect mood disorders is needed to confirm the results of this study.[55] Lastly, since the CCHS is cross-sectional, causality cannot be inferred.

Conclusion

This study found that mood disorder diagnosis is prevalent among older Canadians and associated with several demographic, socioeconomic, and health-related factors. Notably, Indigenous people were more likely to report mood

disorders than non-Indigenous, non-racialized populations, while South Asian and Chinese males, and females belonging to other racialized groups were less likely to do so. Living alone, being a male immigrant, having lower household income, living with multimorbidity, and experiencing perceived life stress were associated with higher risk of reporting mood disorders among older Canadians. These findings underscore the need to consider racialized population groups—separately for males and females—in addition to other covariates when developing programs and interventions focused on mood disorders in older Canadians. Future research could explore mental health care service use and unmet mental health care needs among older Canadians living with mood disorders.

Appendix A

Percentage distribution of older Canadians (65 years or older) by selected background characteristics, Canada, excluding territories, 2015 to 2023

	Both sexes			Males			Females		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristics	%	from	to	%	from	to	%	from	to
Population group									
Indigenous	2.0	1.9	2.0	2.0	1.9	2.1	1.9	1.8	2.0
South Asian	2.8	2.6	3.0	3.2	2.9	3.5	2.4 *	2.2	2.6
Chinese	2.9	2.7	3.1	3.3	3.0	3.6	2.6 *	2.4	2.9
Black	1.5	1.4	1.7	1.5	1.3	1.7	1.6	1.4	1.8
Other racialized	4.3	4.1	4.6	4.3	4.0	4.7	4.3	4.0	4.6
Non-Indigenous, non-racialized	86.5	86.0	86.9	85.7	85.1	86.3	87.1 *	86.6	87.6
Age group									
65 to 74	60.1	59.8	60.3	61.9	61.5	62.3	58.5 *	58.1	58.9
75 to 84	30.5	30.2	30.8	29.9	29.5	30.3	31.0 *	30.6	31.4
85 or older	9.4	9.2	9.7	8.2	7.9	8.5	10.5 *	10.2	10.8
Living arrangements									
Living alone	30.6	29.7	31.6	22.5	21.7	23.4	37.6 *	36.6	38.7
Living with family or others	69.4	68.4	70.3	77.5	76.6	78.3	62.4 *	61.3	63.4
Education									
Less than postsecondary	46.6	46.2	47.1	42.0	41.4	42.6	50.7 *	50.1	51.3
Postsecondary	53.4	52.9	53.8	58.0	57.4	58.6	49.3 *	48.7	49.9
Household income									
Lowest (deciles 1 and 2)	24.8	24.4	25.1	20.7	20.2	21.2	28.3 *	27.8	28.8
Low-middle (deciles 3 and 4)	25.7	25.3	26.0	25.0	24.5	25.6	26.2 *	25.7	26.7
Middle (deciles 5 and 6)	19.9	19.6	20.2	20.9	20.4	21.3	19.0 *	18.6	19.5
High-middle (deciles 7 and 8)	15.7	15.4	16.0	17.3	16.9	17.8	14.3 *	14.0	14.7
Highest (deciles 9 and 10)	14.0	13.7	14.3	16.1	15.6	16.5	12.2 *	11.8	12.5
Immigrant status									
Immigrant	27.1	26.6	27.5	28.0	27.4	28.6	26.3 *	25.8	26.8
Canadian-born	72.9	72.5	73.4	72.0	71.4	72.6	73.7 *	73.2	74.2
Living with multimorbidity									
Yes	50.6	50.3	51.0	51.0	50.4	51.6	50.3	49.8	50.8
No	49.4	49.0	49.7	49.0	48.4	49.6	49.7	49.2	50.2
Perceived stress in life									
Stressful	74.4	74.1	74.8	70.7	70.1	71.2	77.7 *	77.2	78.1
Not at all stressful	25.6	25.2	25.9	29.3	28.8	29.9	22.3 *	21.9	22.8
Place of residence									
Urban	79.5	79.1	79.9	77.7	77.2	78.2	81.0 *	80.6	81.5
Rural	20.5	20.1	20.9	22.3	21.8	22.8	19.0 *	18.5	19.4
Timing of the survey									
Before COVID-19 pandemic	53.9	53.7	54.0	53.6	53.4	53.8	54.2 *	54.0	54.4
During COVID-19 pandemic	46.1	46.0	46.3	46.4	46.2	46.6	45.8 *	45.6	46.0

* significantly different from males ($p < 0.05$)

Notes: "Other racialized" group includes Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, racialized group not included elsewhere, and multiple racialized groups. Indigenous identities include First Nations, Métis, and Inuk (Inuit).

Source: Canadian Community Health Survey, 2015 to 2023.

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