Chronic Condition Prevalence in Ontario: Patterns of Inequity and Comparison with Canada

Canadian Community Health Survey (CCHS) 2019–2020

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Disclaimer: This report uses self-reported data from the Canadian Community Health Survey (CCHS) 2019–2020. The survey includes people aged ≥ 12 years and is designed to be representative at the provincial level. Because data are self-reported and cross-sectional, prevalence estimates may be subject to recall bias and cannot establish causality.

Abstract

Background: Chronic diseases are leading causes of death and disability in Canada; approximately 44 % of adults live with at least one chronic disease and these conditions account for two-thirds of all deaths[1]. Health equity principles emphasize that individuals should have the fair opportunity to reach their full health potential; this requires reducing avoidable differences related to income, social status and other social determinants[3].

Objective: To describe chronic condition prevalence in Ontario using CCHS 2019–2020 data, compare Ontario's prevalence with the national average, and examine inequities by age and income.

Methods: Four CCHS-derived datasets were analysed. Significance tests evaluated whether chronic condition prevalence varied by age, sex and income. Effect sizes were assessed with **Cramer's V**, and prevalence differences were summarised. Graphs depict (a) age-specific prevalence for the condition with the strongest association (high blood pressure), (b) age-specific provincial–national comparisons for the condition with the highest prevalence (musculoskeletal conditions), (c) prevalence of all conditions in Ontario and Canada, and (d) an income gradient for musculoskeletal conditions.

Results: Ten chronic conditions were studied. Ontario's overall prevalence closely mirrored national estimates; differences were ≤ 1 percentage point for all conditions. **Musculoskeletal conditions** had the highest prevalence in Ontario (21.23 %), followed by **high blood pressure** (18.37 %) and **sleep apnea** (17.55 %). Age was the dominant driver of disparities: prevalence of high blood pressure rose from 0.1 % among adolescents to 52 % among older adults (Cramer's V = 0.499). Income gradients were also apparent—for musculoskeletal conditions, prevalence declined from ~32 % in lower-income groups to 17 % among those earning ≥ $80 000. Sex differences were minimal.

Conclusions: Ontario's chronic condition burden is typical of Canada, but its internal disparities are profound. Age and income strongly shape who experiences chronic

conditions, while differences between Ontario and Canada are negligible. Policies should focus on age-friendly and income-sensitive interventions and address social determinants of health rather than inter-provincial comparisons.

Introduction

Chronic diseases—including cardiovascular disease, cancer, diabetes and chronic respiratory illnesses—are the **leading causes of death and disability in Canada**[1]. Approximately 44 % of Canadian adults live with at least one chronic disease, and these conditions account for **67 % of deaths**[1]. The burden is not evenly distributed: structurally disadvantaged populations such as Indigenous peoples, low-income individuals and racialized groups experience disproportionately high rates of chronic disease due to inequities in access to health-promoting resources[2]. Health equity requires that everyone has a fair opportunity to achieve their full health potential; achieving equity demands reducing unnecessary and unjust differences associated with income, social status, race, gender, education and the physical environment[3].

The **Canadian Community Health Survey (CCHS)** is a cross-sectional survey conducted by Statistics Canada that collects information on health status, health care utilization and health determinants for Canadians aged 12 years and older[4]. Data from the 2019–2020 CCHS cycle offer an opportunity to examine chronic condition prevalence in Ontario relative to the national average and to explore disparities within Ontario by key socio-demographic factors. This report analyses CCHS 2019–2020 data to answer two questions: **(1)** Does Ontario's prevalence of chronic conditions differ from the national average? **(2)** Within Ontario, which conditions and socio-demographic groups show the largest disparities, indicating potential health equity concerns?

Methods

Data sources

We analysed outputs derived from CCHS 2019–2020 microdata. These outputs included significance tests summarising whether chronic condition prevalence varied by age group, sex and income group; effect-size calculations (Cramer's V) and measures of absolute differences and relative risk comparing the highest and lowest prevalence groups; aggregated prevalence estimates for Ontario and the rest of Canada; and detailed stratified prevalence tables showing age-, sex- and income-specific prevalence for each condition. The CCHS uses a complex sampling design and weights results to be representative of the population aged ≥ 12 years.

Analytical approach

For each condition, we identified the group with the highest and lowest prevalence and calculated absolute differences and relative risks. **Cramer's V** was used to assess the strength of association between a condition and each stratifier. We focused on the conditions with the highest prevalence and the largest Cramer's V values. Aggregate prevalence differences between Ontario and the national average were summarised to

assess whether Ontario is an outlier. Bar charts were created to compare Ontario and national prevalence across conditions and within specific groups.

Overall prevalence and comparison with Canada

Ontario's overall prevalence of chronic conditions closely matched the national average, with no meaningful differences across the ten conditions studied (Figure 1). The **musculoskeletal condition** has the highest prevalence (21.23 % in Ontario), followed by **high blood pressure** (18.37 %) and **sleep apnea** (17.55 %). Differences between Ontario and national prevalence were ≤ 1 percentage point for all conditions, and Ontario's rates were slightly higher than the national average for six conditions (high blood cholesterol, diabetes, mood disorder, anxiety disorder, high blood pressure and sleep apnea) but lower for the others. These small differences indicate that Ontario is not an outlier nationally.

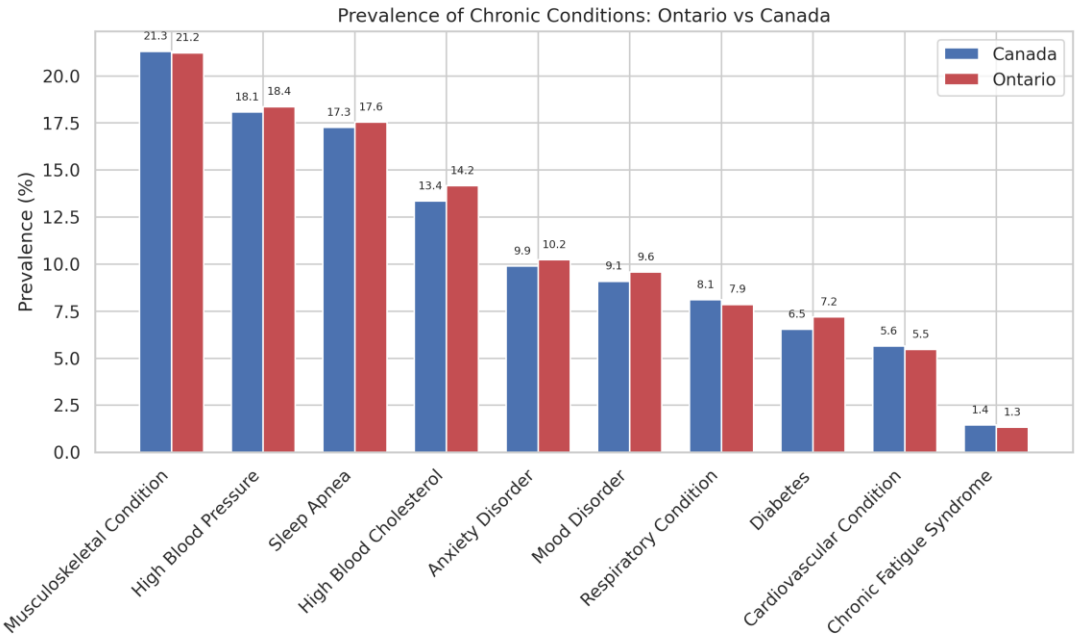

Figure 1. Prevalence of chronic conditions: Ontario vs Canada.

Table 1. Top three conditions by prevalence in Ontario (CCHS 2019–2020).

Condition	Ontario prevalence (%)	Interpretation
Musculoskeletal condition	21.23	The most common chronic condition, affecting roughly one in five Ontarians.
High blood pressure	18.37	Hypertension is widespread and closely linked to age; prevalence increases substantially with age.
Sleep apnea	17.55	Sleep apnea affects nearly one in six adults; prevalence is higher among men and individuals aged ≥ 50 years.

Conditions with the strongest socio-demographic associations

Using Cramer's V to measure association strength, **high blood pressure** had the strongest association with age (Cramer's V = 0.499). **Musculoskeletal conditions** and **sleep apnea** also showed strong age associations (Cramer's V ≈ 0.46 and 0.43, respectively).

Table 2. Conditions with strongest socio-demographic associations (Cramer's V).

Condition	Stratifier	Cramer's V	Interpretation
High blood pressure	Age group	0.499	Age explains roughly half of the variation in hypertension prevalence; risk increases dramatically with age.
Musculoskeletal condition	Age group	0.462	Musculoskeletal problems become much more common among older adults.
Sleep apnea	Age group	0.432	Prevalence of sleep apnea rises with age and is higher among men.

Age-based disparities

High blood pressure illustrates the magnitude of age-related disparities, rising steeply with age (Figure 2). Prevalence rises from **0.12 %** among adolescents (12–17) to **52.36 %** among those aged ≥ 65 years, an absolute difference of 52 percentage points and a relative risk of >400. This steep gradient yields a large Cramer's V, confirming that age is the dominant driver of hypertension prevalence. Similar age gradients were observed for other conditions, though less extreme.

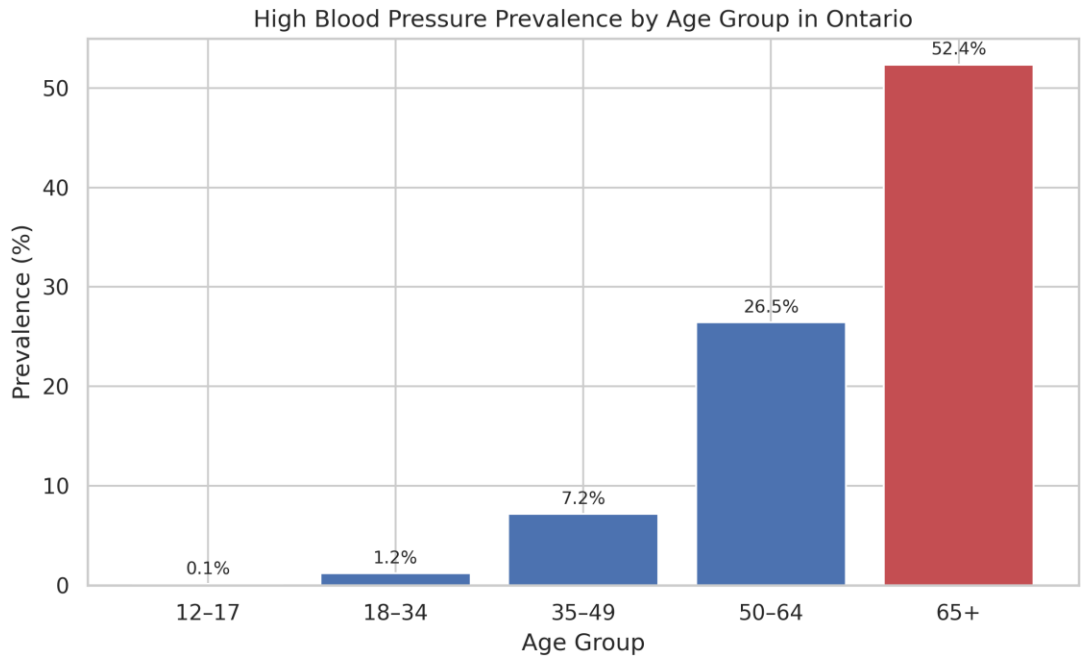

Figure 2. High blood pressure prevalence by age group in Ontario.

Income-based disparities

Income gradients were smaller than age gradients but still notable, with musculoskeletal condition prevalence declining as income rises (Figure 3). In Ontario, prevalence declines from **32.31 %** among individuals with annual incomes of $20 000–39 999 to **17.05 %** among those earning ≥ $80 000. The relative risk comparing the highest- to lowest-income group is 1.90. Canada shows a similar pattern. Sleep apnea and high blood pressure displayed comparable income gradients, whereas differences by sex were minimal (mean absolute difference ≈ 3 percentage points).

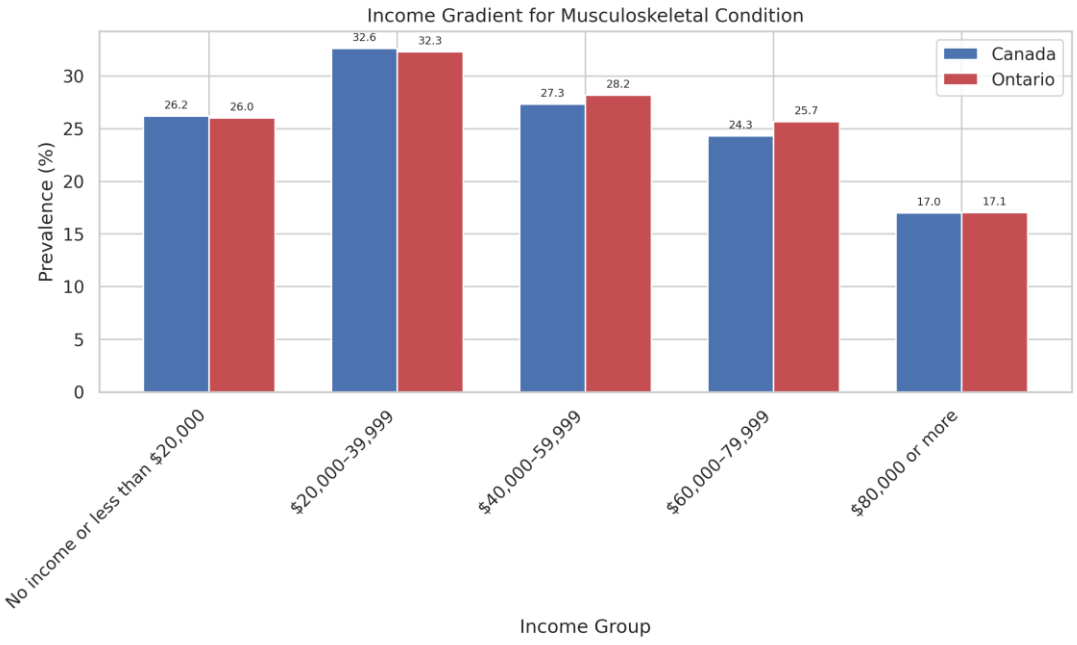

Figure 3. Income gradient for musculoskeletal conditions in Ontario and Canada.

Provincial–national comparisons for high-prevalence conditions

Ontario mirrors national patterns in musculoskeletal conditions, the most prevalent chronic condition, with prevalence increasing steadily across age groups (Figure 4). Prevalence increases steadily with age in both jurisdictions, reaching ~52 % among seniors. Ontario's rates are slightly higher in younger age groups but almost identical among those aged ≥ 65 years.

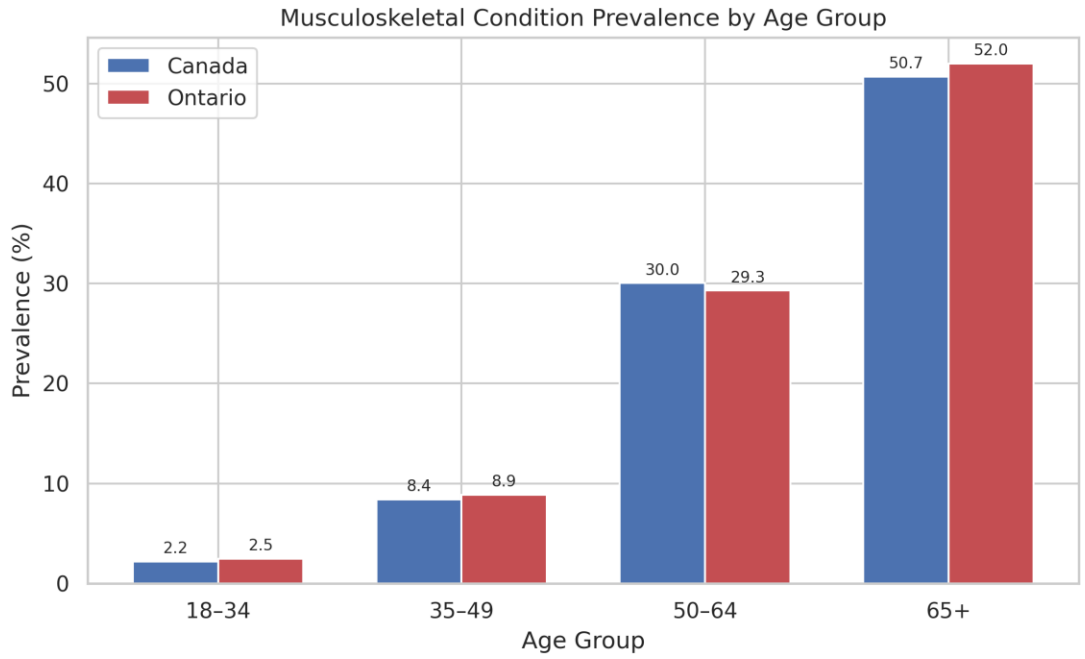

Figure 4. Musculoskeletal condition prevalence by age group: Ontario vs Canada.

Summary of socio-demographic gaps

Age shows the largest disparities: on average, the prevalence gap between the highest and lowest age groups was **23.7 percentage points** with mean Cramer's V of **0.26**. Income differences averaged **8.2 percentage points** (mean Cramer's V = 0.08), while sex differences averaged only **3.3 percentage points** with negligible effect sizes.

Table 3. Summary of socio-demographic gaps across chronic conditions.

Stratifier	Mean absolute difference (%)	Mean Cramer's V	Interpretation
Age group	23.7	0.26	Age is the dominant driver of chronic condition prevalence; differences span >50 percentage points for some conditions.
Income group	8.2	0.08	Lower-income groups experience higher prevalence for many conditions, indicating socioeconomic determinants of health.
Sex (male vs female)	3.3	<0.02	Differences by sex are small; sex is a weak predictor compared with age or income.

Discussion

Our findings confirm that **Ontario's chronic condition prevalence aligns with the national average**. Focusing solely on provincial averages, however, obscures important internal disparities. The **age gradient** is striking: hypertension prevalence increases more

than 400-fold from adolescence to older adulthood. Musculoskeletal conditions, sleep apnea and high blood cholesterol also show large age-related differences. These patterns underscore the need for age-tailored prevention and management strategies, such as early screening, health promotion and support for healthy aging.

Income-related disparities reveal that **socioeconomic factors** meaningfully influence chronic disease burden. For musculoskeletal conditions and sleep apnea, prevalence declines markedly as income rises, suggesting that lower-income individuals face greater occupational hazards, reduced access to preventive care and higher rates of risk factors such as obesity and stress. Addressing these inequities requires policies that improve social determinants of health—adequate income, safe housing, nutrition and access to primary care—alongside targeted interventions like subsidised exercise programmes and workplace ergonomics.

Sex differences were modest compared with age and income. This implies that gender-neutral approaches may suffice for many chronic conditions, but sex-specific strategies may still be warranted for conditions with known biological differences (e.g., cardiovascular disease).

The findings align with national evidence that chronic diseases are major contributors to mortality and disability and that disadvantaged populations bear a disproportionate burden[1][2]. Health equity principles remind us that fair opportunities require addressing structural determinants[3]. Ontario's similarity to the national average does not absolve it of responsibility; instead, it highlights the opportunity for provincial leadership in **reducing inequities within the province**.

Limitations

Several limitations should be considered. **First**, CCHS data are self-reported and may underestimate or overestimate prevalence due to recall bias or social desirability. **Second**, the survey excludes people under 12 years and those living on First Nations reserves, institutionalised populations and full-time members of the Canadian Forces, potentially missing vulnerable groups. **Third**, the analysis is cross-sectional and descriptive; it cannot infer causality or account for confounding variables such as ethnicity, education or geographic variation. **Fourth**, effect size measures like Cramer's V assume a large sample and do not adjust for multiple comparisons; nonetheless, they provide a useful gauge of association strength.

Conclusion

Ontario mirrors Canada in overall chronic disease prevalence, but **the real story lies in internal disparities**. Age and income are strong determinants of chronic condition prevalence, whereas sex differences are minimal. These findings highlight the need to shift from inter-provincial comparisons to **health equity–focused interventions** that address social determinants and support healthy aging. Targeted strategies for older adults and low-income populations, combined with universal prevention and early detection, are critical for reducing the chronic disease burden and promoting equitable health outcomes in Ontario.

References

1. Canadian Public Health Association. **Chronic Disease and Public Health in Canada**. Ottawa: Canadian Public Health Association; 2024. This source reports that chronic diseases are leading causes of death and disability in Canada and that approximately 44 % of adults live with at least one chronic disease while the conditions account for roughly two-thirds of deaths.
2. Canadian Public Health Association. **Chronic Disease and Public Health in Canada**. Ottawa: Canadian Public Health Association; 2024. This reference notes that the burden of chronic disease is not evenly distributed and that Indigenous peoples, low-income individuals and racialized groups experience higher risks because of inequities in access to health-promoting resources.
3. Public Health Ontario. **Health Equity Data**. Toronto: Ontario Agency for Health Protection and Promotion; 2024. The web resource defines health equity and emphasises that fair opportunities require reducing unjust differences related to income, social status, race, gender, education and the physical environment.
4. Northwestern Health Unit. **Canadian Community Health Survey Report**. 2024. This report describes the CCHS as a cross-sectional survey conducted by Statistics Canada that collects information on health status, health care utilisation and health determinants for Canadians aged 12 years and older.