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Evidence synthesis

Indigenous people's experiences of primary health care in Canada: a qualitative systematic review

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This article has been peer reviewed.

Abstract

Introduction: Indigenous people in Canada encounter negative treatment when accessing primary health care (PHC). Despite several qualitative accounts of these experiences, there still has not been a qualitative review conducted on this topic. In this qualitative systematic review, we aimed to explore Indigenous people's experiences in Canada with PHC services, determine urban versus rural or remote differences and identify recommendations for quality improvement.

Methods: This review was guided by the Joanna Briggs Institute's methodology for systematic reviews of qualitative evidence. MEDLINE, CINAHL, PubMed, PsycInfo, Embase and Web of Science as well as grey literature and ancestry sources were used to identify relevant articles. Ancestry sources were obtained through reviewing the reference lists of all included articles and determining the ones that potentially met the eligibility criteria. Two independent reviewers conducted the initial and full text screening, data extraction and quality assessment. Once all data were gathered, they were synthesized following the meta-aggregation approach (PROSPERO CRD42020192353).

Results: The search yielded a total of 2503 articles from the academic databases and 12 articles from the grey literature and ancestry sources. Overall, 22 articles were included in this review. Three major synthesized findings were revealed—satisfactory experiences, discriminatory attitudes and systemic challenges faced by Indigenous patients—along with one synthesized finding on their specific recommendations.

Conclusion: Indigenous people value safe, accessible and respectful care. The discrimination and racism they face negatively affect their overall health and well-being. Hence, it is crucial that changes in health care practice, structures and policy development as well as systemic transformation be implemented immediately.

***Keywords:** Indigenous people, primary health care, health services accessibility, systematic review, Canada*

Highlights

- This is the first qualitative systematic review to explore the experiences of Indigenous people with primary health care services across Canada.
- Following Joanna Briggs Institute's systematic reviews of qualitative evidence methodology, this review included six academic databases as well as grey literature and ancestry sources.
- The experiences of Indigenous people accessing primary health care in Canada have been described as supportive and respectful in some cases, but also heavily included discriminatory attitudes and systemic challenges.
- Indigenous people living in rural or remote communities reported greater concern about privacy, confidentiality and accessibility compared to those residing in urban locations.

Introduction

The 1946 Constitution of the World Health Organization (WHO) established that every human being has the fundamental right to the highest attainable standard of health.[1] Nevertheless, to this day, health inequities continue to exist worldwide.[2] Health inequities are systematic differences in the health status of various population groups caused by unequal distribution of social determinants of health that further disadvantage those who are already socially vulnerable.[2,3] The WHO and other public health advocates assert the importance of investing in primary health care (PHC) as a means of addressing health inequities within countries.[4,5]

In Canada, PHC services have been offered to all eligible residents through the universal public health coverage, also known as Medicare.[6] Medicare is governed by the 1984 *Canada Health Act*, which ensures the delivery of health care services (including PHC) and adherence to the five core principles of public administration, comprehensiveness, universality, portability

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and accessibility.[7] In 2000, a PHC reform was agreed upon and launched by the federal, provincial and territorial governments, with the primary goal of improving service access, service quality and health equity as well as responsiveness to patients' and communities' needs.[6,8] Yet, PHC access and quality issues continue to persist, particularly for socially marginalized populations, such as in the case of Indigenous Peoples.[9,10] Social marginalization is often defined as social exclusion due to a lack of power, resources and status that leads to limited opportunity or accessibility.[11]

Numerous studies have highlighted barriers faced by Indigenous people who reside in urban and rural or remote locations when accessing PHC services, such as discrimination, racism, lack of culturally safe care and inaccessible care.[12-15] Despite several qualitative accounts of these negative experiences, a deep search of the literature indicates that there still has not been a qualitative review conducted on this topic. Addressing this literature gap may assist policy makers, health care managers and professionals, and researchers in identifying key areas for improving PHC access and quality across Canada.

Accordingly, we aimed to explore the following research questions:

1. What are the experiences and perspectives of Indigenous people with PHC services in Canada?
2. How do these experiences and perspectives differ when comparing PHC services provided in urban versus rural or remote settings?
3. What are the recommendations of Indigenous people to improve the quality of PHC services delivered in Canada?

Methods

Protocol and registration

This systematic review is registered in the International Prospective Register of Systematic Reviews (PROSPERO CRD42020192353).

Eligibility criteria and search strategy

Our review was guided by Joanna Briggs Institute (JBI) methodology for systematic reviews of qualitative evidence;[16] the detailed protocol has been described elsewhere.[17] English and French qualitative and mixed-methods articles were considered for inclusion if they focussed on first- or second-hand experiences of Indigenous people in Canada when receiving PHC services. There were no restrictions with respect to publication year or research participants' age, gender, medical condition or geographical location.

A preliminary search of CINAHL and PubMed was conducted to identify keywords and terms relevant to the research questions. A complete search strategy was then developed and tailored to each selected database: MEDLINE, CINAHL, PubMed, PsycInfo, Embase and Web of Science (Table 1). Grey literature was also searched on Google Scholar, Bielefeld Academic Search Engine, ProQuest Dissertations and Theses and other relevant websites (e.g. Native Health Database and National Collaborating Centre for Indigenous Health). Furthermore, the reference list of each included article was examined to identify any additional studies for the review in order to obtain ancestry sources.

Study selection

Following the search, all identified citations were uploaded on Rayyan.[18] Next, two authors (GB and SA) independently screened the articles' titles and abstracts against the inclusion criteria. They then independently examined selected articles in full. Reasons for excluding certain articles were noted, and no major discrepancy arose between the two reviewers; hence, the assistance of a third reviewer was not needed. Once all included articles were identified, they performed an independent quality assessment using JBI's Critical Appraisal Checklist for Qualitative Research.[19]

Data extraction and synthesis

All pertinent data from the included studies were then retrieved using the JBI data extraction tool.[16] The extracted data included information on the studies' methodology, approach to analysis, phenomena of interest, geographical location, participant characteristics, findings and illustrations. These data were then synthesized following JBI's meta-aggregation approach; the findings and illustrations were aggregated into categories and further grouped together to create a comprehensive set of synthesized findings. Finally, consistent with Munn et al.,[20] these synthesized findings were assigned a ConQual score to demonstrate their dependability and credibility.

Results

The search yielded a total of 2503 articles from the academic databases and 12 articles from the grey literature and ancestry searches. Overall, 22 articles were included in this review.

Figure 1 illustrates the PRISMA flow diagram of the search results and study selection process.[21] The methodological quality of all included articles was moderate to high; therefore, no studies were excluded following their appraisal (Table 2).

Characteristics of included studies

The detailed characteristics of the included studies are presented in Table 3. Articles were published between 2001 and 2020. Various qualitative approaches were used in these studies. These approaches included participatory research design,[12,22-27] Indigenous methodologies,[13,15,24,28-31] ethnography,[25,27,32,33] phenomenology,[34,35] case study,[14,36] qualitative description,[12,37] grounded theory[38] and mixed methods.[39] Eleven out of 22 studies represented experiences from major Canadian metropolitan areas, including Calgary,[25,38] Edmonton,[37] Ottawa,[23] Toronto,[29,30,34] Vancouver[15,28] and Winnipeg,[13,31] while 10 studies were conducted in rural or remote communities within the provinces of British Columbia,[26,27,39] Manitoba,[33] Nova Scotia,[12,24] Ontario[24] and Quebec[14] and within the Canadian territories of Nunavut[22] and Northwest Territories.[32] Finally, one article included findings from multiple provinces and locations, with participants from urban southern and rural Alberta, urban northern and remote northern Ontario, and rural British Columbia.[35] The categorization of urban versus rural or remote settings was based on the study setting as defined by the authors as well as by the population density; urban areas are characterized as having at least 400 people per square kilometre, and the opposite is true ($< 400/\text{km}^2$) for rural or remote regions.[40]

Research participants of included studies were from First Nations, Métis and Inuit background, and overall were between the ages of 16 and 79 years. Their reasons for seeking PHC and their pre-existing medical conditions also varied (e.g. cancer, arthritis, diabetes, cardiovascular disease, human immunodeficiency virus and mental health disorders).

TABLE 1
Database search strategy

MEDLINE	CINAHL	PUBMED	PSYCINFO	EMBASE	WEB OF SCIENCE
Ovid MEDLINE ALL 1946 to 21 December 2021	**CINAHL Plus with full text**	**N/A**	**APA PsycInfo 1806 to December week 2, 2021**	**Embase 1996 to December week 2, 2021**	**Web of Science Core Collection (all indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED)**
1. content analysis.mp.	S1. TI content analysis* OR AB content analysis*	#1. content analysis[Title/Abstract]	1. content analysis.mp.	1. content analysis.mp.	1. TI=content analysis* OR AB=content analysis*
2. descriptive.mp.	S2. TI descriptive OR AB descriptive	#2. descriptive[Title/Abstract]	2. descriptive.mp.	2. descriptive.mp.	2. TI=descriptive OR AB=descriptive
3. discourse.mp.	S3. TI discourse OR AB discourse	#3. discourse[Title/Abstract]	3. discourse.mp.	3. discourse.mp.	3. TI=discourse OR AB=discourse
4. ethno*.mp.	S4. TI ethno* OR AB ethno*	#4. ethno*[Title/Abstract]	4. ethno*.mp.	4. ethno*.mp.	4. TI=ethno* OR AB=ethno*
5. exploratory.mp.	S5. TI exploratory OR AB exploratory	#5. exploratory[Title/Abstract]	5. exploratory.mp.	5. exploratory.mp.	5. TI=exploratory OR AB=exploratory
6. grounded theory.mp.	S6. TI grounded theory OR AB grounded theory	#6. grounded theory[Title/Abstract]	6. grounded theory.mp.	6. grounded theory.mp.	6. TI=grounded theory OR AB=grounded theory
7. interpretive.mp.	S7. TI interpretive OR AB interpretive	#7. interpretive[Title/Abstract]	7. interpretive.mp.	7. interpretive.mp.	7. TI=interpretive OR AB=interpretive
8. interview*.mp.	S8. TI interview OR AB interview	#8. interview*[Title/Abstract]	8. interview*.mp.	8. interview*.mp.	8. TI=interview OR AB=interview
9. mixed method*.mp.	S9. TI mixed method* OR AB mixed method*	#9. mixed method*[Title/Abstract]	9. mixed method*.mp.	9. mixed method*.mp.	9. TI=mixed method* OR AB=mixed method*
10. multi* method*.mp.	S10. TI multi* method* OR AB multi* method*	#10. multi* method*[Title/Abstract]	10. multi* method*.mp.	10. multi* method*.mp.	10. TI=multi* method* OR AB=multi* method*
11. narrative.mp.	S11. TI narrative OR AB narrative	#11. narrative[Title/Abstract]	11. narrative.mp.	11. narrative.mp.	11. TI=narrative OR AB=narrative
12. phenomenolog*.mp.	S12. TI phenomenolog* OR AB phenomenolog*	#12. phenomenolog* [Title/Abstract]	12. phenomenolog*.mp.	12. phenomenolog*.mp.	12. TI=phenomenolog* OR AB=phenomenolog*
13. qualitative.mp.	S13. TI qualitative OR AB qualitative	#13. qualitative[Title/Abstract]	13. qualitative.mp.	13. qualitative.mp.	13. TI=qualitative OR AB=qualitative
14. thematic*.mp.	S14. TI thematic* OR AB thematic*	#14. thematic*[Title/Abstract]	14. thematic*.mp.	14. thematic*.mp.	14. TI=thematic* OR AB=thematic*
15. theme*.mp.	S15. TI theme* OR AB theme*	#15. theme*[Title/Abstract]	15. theme*.mp.	15. theme*.mp.	15. TI=theme* OR AB=theme*
16. case studies.mp.	S16. TI case studies OR AB case studies	#16. case studies[Title/Abstract]	16. case studies.mp.	16. case studies.mp.	16. TI=case studies OR AB=case studies
17. focused group discussions.mp.	S17. TI focused group discussions OR AB focused group discussions	#17. focused group discussions[Title/Abstract]	17. focused group discussions.mp.	17. focused group discussions.mp.	17. TI=focused group discussions OR AB=focused group discussions
18. Empirical Research/	N/A	N/A	18. Empirical Research/	18. Empirical Research/	N/A
19. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18	S18. S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15 or S16 or S17	#18. #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17	19. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18	19. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18	18. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17
20. attitude*.mp.	S19. TI attitude* OR AB attitude*	#19. attitude*[Title/Abstract]	20. attitude*.mp.	20. attitude*.mp.	19. TI=attitude* OR AB=attitude*
21. belief*.mp.	S20. TI belief* OR AB belief*	#20. belief*[Title/Abstract]	21. belief*.mp.	21. belief*.mp.	20. TI=belief* OR AB=belief*
22. experience*.mp.	S21. TI experience* OR AB experience*	#21. experience*[Title/Abstract]	22. experience*.mp.	22. experience*.mp.	21. TI=experience* OR AB=experience*

Continued on the following page

TABLE 1 (continued)
Database search strategy

MEDLINE	CINAHL	PUBMED	PSYCINFO	EMBASE	WEB OF SCIENCE
Ovid MEDLINE ALL 1946 to 21 December 2021	CINAHL Plus with full text	N/A	APA PsycInfo 1806 to December week 2, 2021	Embase 1996 to December week 2, 2021	Web of Science Core Collection (all indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED)
23. opinion*.mp.	S22. TI opinion* OR AB opinion*	#22. opinion*[Title/Abstract]	23. opinion*.mp.	23. opinion*.mp.	22. TI=opinion* OR AB=opinion*
24. perception*.mp.	S23. TI perception* OR AB perception*	#23. perception*[Title/Abstract]	24. perception*.mp.	24. perception*.mp.	23. TI=perception* OR AB=perception*
25. perspective*.mp.	S24. TI perspective* OR AB perspective*	#24. perspective*[Title/Abstract]	25. perspective*.mp.	25. perspective*.mp.	24. TI=perspective* OR AB=perspective*
26. satisfaction.mp.	S25. TI satisfaction OR AB satisfaction	#25. satisfaction[Title/Abstract]	26. satisfaction.mp.	26. satisfaction.mp.	25. TI=satisfaction OR AB=satisfaction
27. value*.mp.	S26. TI value* OR AB value*	#26. value*[Title/Abstract]	27. value*.mp.	27. value*.mp.	26. TI=value* OR AB=value*
28. view*.mp.	S27. TI view* OR AB view*	#27. view*[Title/Abstract]	28. view*.mp.	28. view*.mp.	27. TI=view* OR AB=view*
29. 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28	S28. S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27	#28. #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27	29. 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28	29. 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28	28. 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27
30. aborigin*.mp.	S29. TI aborigin* OR AB aborigin*	#29. aborigin*[Title/Abstract]	30. aborigin*.mp.	30. aborigin*.mp.	29. TI=aborigin* OR AB=aborigin*
31. First Nation*.mp.	S30. TI First Nation* OR AB First Nation*	#30. First Nation*[Title/Abstract]	31. First Nation*.mp.	31. First Nation*.mp.	30. TI=First Nation* OR AB=First Nation*
32. indigen*.mp.	S31. TI indigen* OR AB indigen*	#31. indigen*[Title/Abstract]	32. indigen*.mp.	32. indigen*.mp.	31. TI=indigen* OR AB=indigen*
33. Inuit*.mp.	S32. TI Inuit* OR AB Inuit*	#32. Inuit*[Title/Abstract]	33. Inuit*.mp.	33. Inuit*.mp.	32. TI=Inuit* OR AB=Inuit*
34. Metis.mp.	S33. TI Metis OR AB Metis	#33. Metis[Title/Abstract]	34. Metis.mp.	34. Metis.mp.	33. TI=Metis OR AB=Metis
35. native*.mp.	S34. TI native* OR AB native*	#34. native*[Title/Abstract]	35. native*.mp.	35. native*.mp.	34. TI=native* OR AB=native*
36. Indian*.mp.	S35. TI Indian* OR AB Indian*	#35. Indian*[Title/Abstract]	36. Indian*.mp.	36. Indian*.mp.	35. TI=Indian* OR AB=Indian*
37. 30 or 31 or 32 or 33 or 34 or 35 or 36	S36. S29 or S30 or S31 or S32 or S33 or S34 or S35	#36. #29 or #30 or #31 or #32 or #33 or #34 or #35	37. 30 or 31 or 32 or 33 or 34 or 35 or 36	37. 30 or 31 or 32 or 33 or 34 or 35 or 36	36. 29 or 30 or 31 or 32 or 33 or 34 or 35
38. Canad*.mp.	S37. TI Canad* OR AB Canad*	#37. Canad*[Title/Abstract]	38. Canad*.mp.	38. Canad*.mp.	37. TI=Canad* OR AB=Canad*
39. Alberta*.mp.	S38. TI Alberta* OR AB Alberta*	#38. Alberta*[Title/Abstract]	39. Alberta*.mp.	39. Alberta*.mp.	38. TI=Alberta* OR AB=Alberta*
40. British Columbia.mp.	S39. TI British Columbia OR AB British Columbia	#39. British Columbia[Title/Abstract]	40. British Columbia.mp.	40. British Columbia.mp.	39. TI=British Columbia OR AB=British Columbia
41. Manitoba*.mp.	S40. TI Manitoba* OR AB Manitoba*	#40. Manitoba*[Title/Abstract]	41. Manitoba*.mp.	41. Manitoba*.mp.	40. TI=Manitoba* OR AB=Manitoba*
42. New Brunswick.mp.	S41. TI New Brunswick OR AB New Brunswick	#41. New Brunswick[Title/Abstract]	42. New Brunswick.mp.	42. New Brunswick.mp.	41. TI=New Brunswick OR AB=New Brunswick
43. Newfoundland and Labrador.mp.	S42. TI Newfoundland and Labrador OR AB Newfoundland and Labrador	#42. Newfoundland and Labrador[Title/Abstract]	43. Newfoundland and Labrador.mp.	43. Newfoundland and Labrador.mp.	42. TI=Newfoundland Labrador OR AB=Newfoundland Labrador
44. Nova Scotia.mp.	S43. TI Nova Scotia OR AB Nova Scotia	#43. Nova Scotia[Title/Abstract]	44. Nova Scotia.mp.	44. Nova Scotia.mp.	43. TI=Nova Scotia OR AB=Nova Scotia
45. Ontario.mp.	S44. TI Ontario OR AB Ontario	#44. Ontario[Title/Abstract]	45. Ontario.mp.	45. Ontario.mp.	44. TI=Ontario OR AB=Ontario
46. Prince Edward Island.mp.	S45. TI Prince Edward Island OR AB Prince Edward Island	#45. Prince Edward Island[Title/Abstract]	46. Prince Edward Island.mp.	46. Prince Edward Island.mp.	45. TI=Prince Edward Island OR AB=Prince Edward Island

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TABLE 1 (continued)
Database search strategy

MEDLINE	CINAHL	PUBMED	PSYCINFO	EMBASE	WEB OF SCIENCE
Ovid MEDLINE ALL 1946 to 21 December 2021	**CINAHL Plus with full text**	**N/A**	**APA PsycInfo 1806 to December week 2, 2021**	**Embase 1996 to December week 2, 2021**	**Web of Science Core Collection (all indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED)**
47. Quebec*.mp.	S46. TI Quebec* OR AB Quebec*	#46. Quebec*[Title/Abstract]	47. Quebec*.mp.	47. Quebec*.mp.	46. TI=Quebec* OR AB=Quebec*
48. Saskatchewan.mp.	S47. TI Saskatchewan OR AB Saskatchewan	#47. Saskatchewan[Title/Abstract]	48. Saskatchewan.mp.	48. Saskatchewan.mp.	47. TI=Saskatchewan OR AB=Saskatchewan
49. Northwest Territories.mp.	S48. TI Northwest Territories OR AB Northwest Territories	#48. Northwest Territories[Title/Abstract]	49. Northwest Territories.mp.	49. Northwest Territories.mp.	48. TI=Northwest Territories OR AB=Northwest Territories
50. Nunavut.mp.	S49. TI Nunavut OR AB Nunavut	#49. Nunavut[Title/Abstract]	50. Nunavut.mp.	50. Nunavut.mp.	49. TI=Nunavut OR AB=Nunavut
51. Yukon.mp.	S50. TI Yukon OR AB Yukon	#50. Yukon[Title/Abstract]	51. Yukon.mp.	51. Yukon.mp.	50. TI=Yukon OR AB=Yukon
52. 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51	S51. S37 or S38 or S39 or S40 or S41 or S42 or S43 or S44 or S45 or S46 or S47 or S48 or S49 or S50	#51. #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45 or #46 or #47 or #48 or #49 or #50	52. 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51	52. 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51	51. 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50
53. primary care.mp.	S52. TI primary care OR AB primary care	#52. primary care[Title/Abstract]	53. primary care.mp.	53. primary care.mp.	52. TI=primary care OR AB=primary care
54. primary health care.mp.	S53. TI primary health care OR AB primary health care	#53. primary health care[Title/Abstract]	54. primary health care.mp.	54. primary health care.mp.	53. TI=primary health care OR AB=primary health care
55. primary healthcare.mp.	S54. TI primary healthcare OR AB primary healthcare	#54. primary healthcare[Title/Abstract]	55. primary healthcare.mp.	55. primary healthcare.mp.	54. TI=primary healthcare OR AB=primary healthcare
56. clinic*.mp.	S55. TI clinic* OR AB clinic*	#55. clinic*[Title/Abstract]	56. clinic*.mp.	56. clinic*.mp.	55. TI=clinic* OR AB=clinic*
57. outpatient*.mp.	S56. TI outpatient* OR AB outpatient*	#56. outpatient*[Title/Abstract]	57. outpatient*.mp.	57. outpatient*.mp.	56. TI=outpatient* OR AB=outpatient*
58. ambulatory.mp.	S57. TI ambulatory OR AB ambulatory	#57. ambulatory[Title/Abstract]	58. ambulatory.mp.	58. ambulatory.mp.	57. TI=ambulatory OR AB=ambulatory
59. community care.mp.	S58. TI community care OR AB community care	#58. community care[Title/Abstract]	59. community care.mp.	59. community care.mp.	58. TI=community care OR AB=community care
60. community health care.mp.	S59. TI community health care OR AB community health care	#59. community health care[Title/Abstract]	60. community health care.mp.	60. community health care.mp.	59. TI=community health care OR AB=community health care
61. community health services.mp.	S60. TI community health services OR AB community health services	#60. community health services[Title/Abstract]	61. community health services.mp.	61. community health services.mp.	60. TI=community health services OR AB=community health services
62. general practi*.mp.	S61. TI general practi* OR AB general practi*	#61. general practi*[Title/Abstract]	62. general practi*.mp.	62. general practi*.mp.	61. TI =general practi* OR AB=general practi*
63. family physician*.mp.	S62. TI family physician* OR AB family physician*	#62. family physician*[Title/Abstract]	63. family physician*.mp.	63. family physician*.mp.	62. TI=family physician* OR AB=family physician*
64. family doctor*.mp.	S63. TI family doctor* OR AB family doctor*	#63. family doctor*[Title/Abstract]	64. family doctor*.mp.	64. family doctor*.mp.	63. TI=family doctor* OR AB=family doctor*
65. Health Services, Indigenous/	S64. TI nurse practi* OR AB nurse practi*	#64. Primary Health Care/	65. Health Care Services/	65. health service/	64. TI=nurse practi* OR AB=nurse practi*

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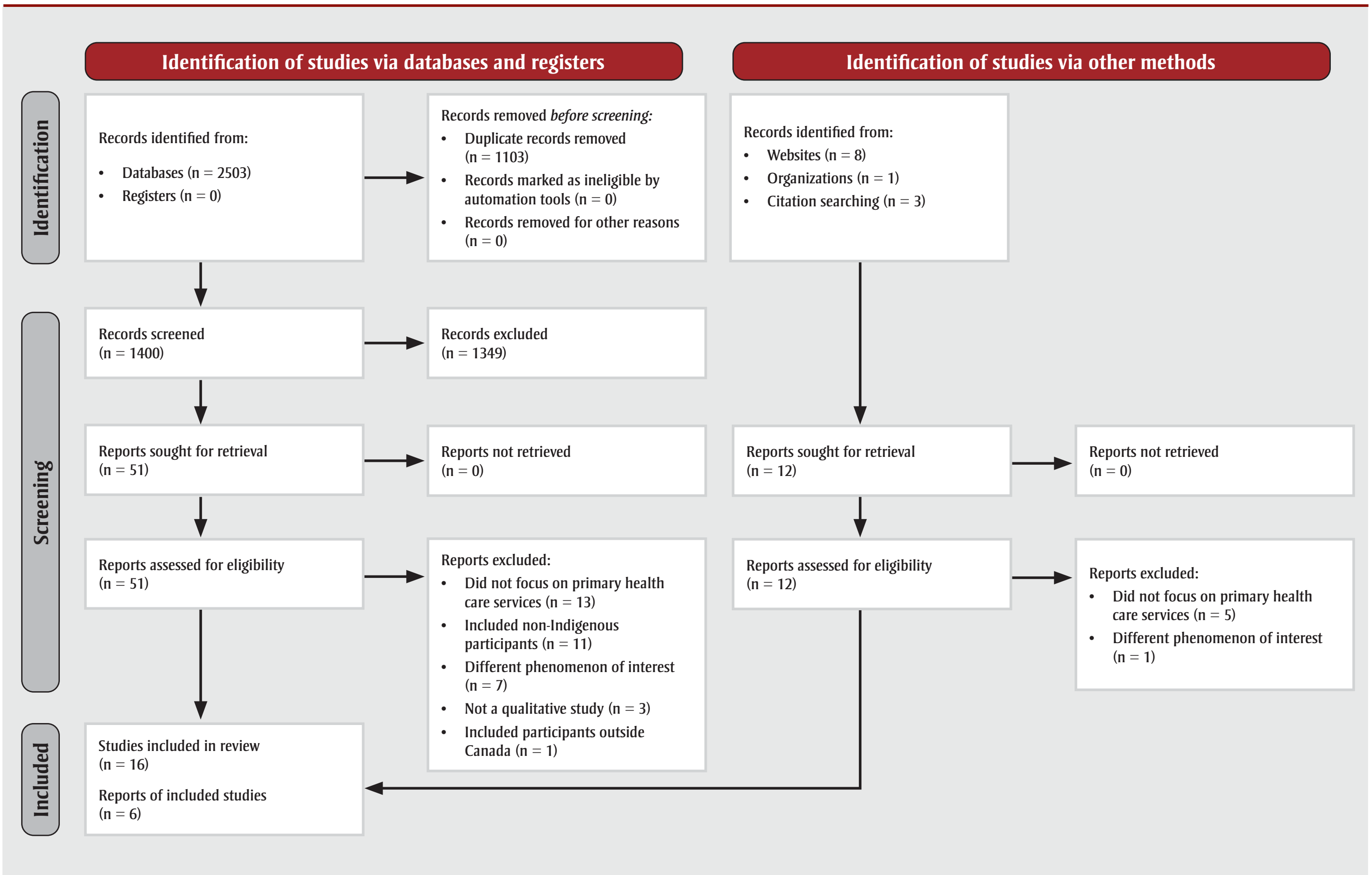
TABLE 1 (continued)
Database search strategy

MEDLINE	CINAHL	PUBMED	PSYCINFO	EMBASE	WEB OF SCIENCE
Ovid MEDLINE ALL 1946 to 21 December 2021	**CINAHL Plus with full text**	**N/A**	**APA PsycInfo 1806 to December week 2, 2021**	**Embase 1996 to December week 2, 2021**	**Web of Science Core Collection (all indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED)**
66. Preventive Health Services/	S65. TI midwives OR AB midwives	#65. Community Health Services/	66. primary health care/	66. primary health care/	65. TI=midwives OR AB=midwives
67. nurse practi*.mp.	S66. TI midwife* OR TI midwife*	#66. Health Services, Indigenous/	67. nurse practi*.mp.	67. nurse practi*.mp.	66. TI=midwife* OR TI=midwife*
68. midwives.mp.	S67. TI pharmacist* OR AB pharmacist*	#67. Preventive Health Services/	68. midwives.mp.	68. midwives.mp.	67. TI=pharmacist* OR AB=pharmacist*
69. midwife*.mp.	S68. TI nurse OR AB nurse	#68. nurse practi*[Title/Abstract]	69. midwife*.mp.	69. midwife*.mp.	68. TI=nurse OR AB=nurse
70. pharmacist*.mp.	S69. TI nurses OR AB nurses	#69. midwives [Title/Abstract]	70. pharmacist*.mp.	70. pharmacist*.mp.	69. TI=nurses OR AB=nurses
71. nurse.mp.	S70. TI physiotherapist* OR AB physiotherapist*	#70. midwife*[Title/Abstract]	71. nurse.mp.	71. nurse.mp.	70. TI=physiotherapist* OR AB=physiotherapist*
72. nurses.mp.	S71. TI social worker* OR AB social worker*	#71. pharmacist*[Title/Abstract]	72. nurses.mp.	72. nurses.mp.	71. TI=social worker* OR AB=social worker*
73. physiotherapist*.mp.	S72. TI dietician* OR AB dietician*	#72. nurse[Title/Abstract]	73. physiotherapist*.mp.	73. physiotherapist*.mp.	72. TI=dietician* OR AB=dietician*
74. social worker*.mp.	N/A	#73. nurses[Title/Abstract]	74. social worker*.mp.	74. social worker*.mp.	N/A
75. dietician*.mp.	N/A	#74. physiotherapist*[Title/Abstract]	75. dietician*.mp.	75. dietician*.mp.	N/A
N/A	N/A	#75. social worker*[Title/Abstract]	N/A	N/A	N/A
N/A	N/A	#76. dietician*[Title/Abstract]	N/A	N/A	N/A
76. 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75	S73. S52 or S53 or S54 or S55 or S56 or S57 or S58 or S59 or S60 or S61 or S62 or S63 or S64 or S65 or S66 or S67 or S68 or S69 or S70 or S71 or S72	#77. #52 or #53 or #54 or #55 or #56 or #57 or #58 or #59 or #60 or #61 or #62 or #63 or #64 or #65 or #66 or #67 or #68 or #69 or #70 or #71 or #72 or #73 or #74 or #75 or #76	76. 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75	76. 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75	73. 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72
77. 19 and 29 and 37 and 52 and 76	S74. S18 and S28 and S36 and S51 and S73	#78. #18 and #28 and #36 and #51 and #77	77. 19 and 29 and 37 and 52 and 76	77. 19 and 29 and 37 and 52 and 76	74. 18 and 28 and 36 and 51 and 73
78. Filter: English and French	S75. Filter: English and French	#79. Filter: English and French	78. Filter: English and French	78. Filter: English and French	75. Filter: English and French

Abbreviations: AB, Abstract; A&HCI, Arts & Humanities Citation Index; APA, American Psychological Association; BKCI-S, Book Citation Index—Science; BKCI-SSH, Book Citation Index—Social Sciences & Humanities; CCR-EXPANDED, Current Chemical Reactions; CPCI-S, Conference Proceedings Citation Index—Science; CPCI-SSH, Conference Proceedings Citation Index—Social Science & Humanities; ESCI, Emerging Sources Citation Index; N/A, not applicable; SCI-EXPANDED, Science Citation Index Expanded; SSCI, Social Sciences Citation Index; TI, Title.

FIGURE 1
PRISMA 2020[21] flow diagram for new systematic reviews



Synthesized findings

Table 4 presents an overview of the individual findings of our review. Three major synthesized findings emerged from these, pertaining to our first and second research questions, and another one arose for the third research question. Table 5 is a summary of findings containing each synthesized finding's level of dependability and credibility, as well as ConQual score (which rates confidence in the quality of evidence from reviews of qualitative research) to help their evaluation and integration into education, practice and policy.

Synthesized finding one: supportive and respectful experiences

Synthesized finding one demonstrates that certain experiences of Indigenous people when receiving PHC were considered supportive and respectful. This metasynthesis was developed from four categories that included 15 findings. Some First Nations, Métis and Inuit participants expressed that they had supportive and respectful encounters with PHC providers, as they felt safe, secure, listened to and freely able to express themselves without judgment. This finding was affirmed by one of the First Nations and Métis participants living in an urban location as she described her prenatal care: “My G.P. is just a fantastic doctor because he sits there and actually listens to his patients. He respects that they know as much about what's going on with their body as he probably does, if not more.”[31,p.165] Another First Nations woman residing in a remote community echoed this positive experience:

> When my husband died, my [family] doctor phoned me to tell me to come in to talk with him and see if I was okay and talk about things that happened … and he explained it to me really softly; things like this happen. He was really caring. And that was the best thing that ever happened to me was him phoning me on his own to tell me that.[32,p.140]

Participants also greatly appreciated when PHC providers were supportive, accessible and offered as much time as needed to address all of their concerns; similar experiences were described by those residing in urban, rural and remote areas. Having access to dependable information and providers made a significant difference for many of the participants. Many First Nations women in rural communities said that their community health nurses were “always there” to assist them with their health needs.[12]

Moreover, Indigenous participants from urban, rural and remote locations valued health care providers demonstrating respect towards them, their family and their cultural identity. Providers were expected to exhibit culturally sensitive care and to have had training and to possess knowledge about Indigenous history, traditions, customs and challenges. When these qualities were present, PHC providers were perceived to be more helpful and genuine. Overall, across all settings—urban, remote and rural—instances of supportive and respectful PHC were experienced by First Nations, Métis and Inuit participants.

TABLE 2
Assessment of methodological quality[a] of included studies

Reference	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Barnabe et al.[38]	N	Y	Y	Y	Y	N	N	Y	Y	Y
Bird et al.[36]	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Browne and Fiske[32]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bucharski et al.[37]	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Burns et al.[12]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Corosky and Blystad[22]	Y	Y	Y	Y	Y	N	Y	Y	N	Y
Fontaine et al.[13]	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fraser and Nadeau[14]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ghosh[23]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Goodman et al.[15]	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gorman[34]	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Hayden[33]	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Howard et al.[39]	N	Y	Y	Y	N	Y	N	Y	Y	Y
Howell-Jones[28]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Jacklin et al.[35]	N	Y	Y	Y	Y	N	N	Y	Y	Y
MacDonald et al.[24]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Monchalin et al.[30]	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Monchalin[29]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Oelke[25]	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Russell and de Leeuw[26]	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Tait Neufeld[31]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Varcoe et al.[27]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
% Yes	68	100	100	100	95	64	50	100	95	100

Abbreviations: N, no; Q, question; Y, yes.

[a] The Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research[19] was used to assess included studies' quality, and includes the following questions:

Q1: Is there congruity between the stated philosophical perspective and the research methodology?

Q2: Is there congruity between the research methodology and the research question or objectives?

Q3: Is there congruity between the research methodology and the methods used to collect data?

Q4: Is there congruity between the research methodology and the representation and analysis of data?

Q5: Is there congruity between the research methodology and the interpretation of results?

Q6: Is there a statement locating the researcher culturally or theoretically?

Q7: Is the influence of the researcher on the research, and vice-versa, addressed?

Q8: Are participants, and their voices, adequately represented?

Q9: Is the research ethical according to current criteria or, for recent studies, is there evidence of ethical approval by an appropriate body?

Q10: Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Synthesized finding two: discriminatory attitudes and maltreatment

Synthesized finding two reveals that Indigenous people experienced various forms of discrimination and maltreatment that most often resulted in them not receiving adequate and quality primary health care; thus, many adopted strategies to cope with such challenges. Six categories and 58 findings were represented in this metasynthesis.

There were numerous accounts in which participants shared their experiences of health care providers making comments or exhibiting behaviours based on discrimination. First Nations, Métis and Inuit patients in urban and rural or remote areas were immediately assumed to have tobacco and drug addiction, to be intoxicated by alcohol, to have abusive partners, to mistreat their children, or any combination of these, without any actual justification or evidence of such claims.[13-15,25,34,38] As reported by an aggravated Inuit participant from a remote community, "I arrived at the clinic and the first thing the doctor asked me is if I'm a smoker. Is that normal? It's as if she assumed that because I'm Inuit I'm a smoker. I don't think that is fair."[14,p.293] A First Nations woman in an urban setting also commented, "Oh I wouldn't get the proper care if I needed it, like if I was in pain. They thought I'd be there just to get high."[34,p.122]

These negative stereotypes automatically formed the basis of the care that Indigenous people received even though they did not necessarily apply to the specific situation of each patient. Consequently, these patients were generally dismissed, turned away

TABLE 3
Characteristics of included studies

Author(s)	Purpose of study	Approach	Method	Participants (n)	Context	Author conclusions
Barnabe et al.[38]	To understand the experiences of urban First Nations and Métis patients accessing and navigating the health system for inflammatory arthritis care	Patient and Community Engagement Research and grounded theory	Focus groups, semistructured interviews, participant observations and questionnaires	First Nations and Métis women (11)	Urban, Calgary, Alberta	Greater decision-making support regarding pharmacotherapy is required to optimize the management of inflammatory arthritis.
Bird et al.[36]	To explore the experiences with diabetes of Inuit participants living in a small rural community	Multi–case study approach	Semistructured interviews and participant observations	Inuit men (3) and woman (1)	Remote, Baffin Island, Nunavut	Accessibility was a concern with respect to foods, health knowledge, language interpretation and health services
Browne and Fiske[32]	To gain an understanding of First Nations women's encounters with mainstream health care services	Critical and feminist ethnographic approaches	Semistructured interviews and field notes	First Nations women (10)	Remote, Northwestern Canada	Influences of racial and gender stereotypes were revealed in the participants' experiences
Bucharski et al.[37]	To identify Indigenous women's perspectives on the characteristics of culturally appropriate HIV counselling and testing	Exploratory descriptive qualitative research design	Semistructured interviews and focus groups	First Nations and Métis women (7)	Urban, Edmonton, Alberta	Major themes included life experiences, barriers to testing, the ideal HIV testing situation and dimensions of culturally appropriate HIV counselling and testing
Burns et al.[12]	To explore the experiences of Mi'kmaq women accessing prenatal care in rural Nova Scotia	Qualitative description and participatory action research	Semistructured interviews	First Nations women (4)	Rural, Nova Scotia	Issues related to access to prenatal care included difficulties organizing transportation and inequitable services among Mi'kmaq communities
Corosky and Blystad[22]	To generate youth-focussed evidence on experiences of sexual and reproductive health and rights relating to access to care	Piliriqatigiinniq Partnership Community Health Research Model	Semistructured interviews	Inuit community leaders (6), male youth (9) and female youth (10)	Remote, Arviat, Nunavut	Sexual and reproductive health and rights access barriers include distrust of support workers in the community, stigma/taboos and feelings of powerlessness
Fontaine et al.[13]	To investigate First Nations women's experience with heart health	Decolonizing approach	Digital stories and storytelling	First Nations women (25)	Urban, Winnipeg, Manitoba	First Nations women's heart health issues are linked to historical and social roots
Fraser and Nadeau[14]	To explore Inuit experience with health and social services in a community of Nunavik	Case study (explanatory)	Semistructured interviews and field notes	Inuit elders (3), women (10) and man (1)	Remote, Nunavik, Quebec	Experiences with health and social services involved themes of trust, privacy and fear of the consequences of divulging information
Ghosh[23]	To investigate the narratives of Indigenous people, providers and policy makers to inform existing Type 2 diabetes mellitus prevention strategies	Community participatory research	Narrative interviews	First Nations and Métis service users (27), providers (6) and policy makers (7)	Urban, Ottawa, Ontario	Urban Indigenous people's diabetes prevention and management strategies must include the diversities in their historical, socioeconomic, spatial and legal contexts as well as their related entitlement to health services

Continued on the following page

TABLE 3 (continued)
Characteristics of included studies

Author(s)	Purpose of study	Approach	Method	Participants (n)	Context	Author conclusions
Goodman et al.[15]	To explore how multiple forms of discrimination and oppression shape the health care experiences of Indigenous people living in a marginalized community	Indigenous research method	Talking circles and field notes	Indigenous men (18) and women (12) (did not specify participants' Indigenous groups)	Urban, Vancouver, British Columbia	Health care professionals must allocate more time in understanding structural and historical factors that impact Indigenous patients' disparities and personal attitudes
Gorman[34]	To explore Indigenous women's experiences with HIV/ AIDS	Exploratory phenomenology	Semistructured interviews	First Nations women (16)	Urban, Toronto, Ontario	Participants demonstrated resilience despite the insurmountable challenges they faced living with HIV/AIDS
Hayden[33]	To explore how people with diabetes in a small, isolated First Nations community and their health care providers regard the care they receive	Ethnographic collaborative research framework	Semistructured interviews and participant observations	First Nations women (6) and men (3) as well as key informants (8), including family members of participants, health care providers, and health care administrators	Remote and urban, Manitoba	Sharing patient knowledge of diabetes care with health care providers and removing institutional barriers to care may improve diabetes care and have a positive effect on diabetes outcomes
Howard et al.[39]	To describe rural cancer survivor experiences accessing medical and supportive care postcancer treatment	Mixed methods	Focus groups and questionnaires	First Nations women (7) and men (4) as well as non-Indigenous women (34) and men (7)	Rural and remote, British Columbia	Inaccessibility of supportive postcancer care can be attributed to financial constraint and geographical location
Howell-Jones[28]	To elicit descriptions of successful counselling partnerships between Indigenous clients and non-Indigenous mainstream mental health workers	Indigenous research method and narrative research	Semistructured interviews and field notes	First Nations women (4) and men (3)	Urban, Vancouver, British Columbia	A major defining factor for good counselling encounters is the counselling relationship's ability to assist each client in understanding their aboriginality
Jacklin et al.[35]	To examine the health care experiences of Indigenous people with type 2 diabetes.	Phenomenology	Semistructured sequential focus groups	First Nations and Métis women (20) and men (12)	Urban and rural Alberta, urban and remote Ontario and rural British Columbia	Findings categorized Indigenous experience into 4 themes: the colonial legacy of health care, the perpetuation of inequities, structural barriers to care, and the role of health care relationships in mitigating harm
MacDonald et al.[24]	To explore women's experiences with Pap screening in two rural Mi'kmaq communities	Community-based participatory action research design and Indigenous principles	Talking circles, semistructured interviews and field notes	First Nations women (16)	Remote, eastern Canada	Results outlined the need for health care providers to understand the uniqueness of each woman's experiences with Pap screening. Additional emphasis was made to understand the impact of historical trauma, interpersonal violence and trauma-informed care for Indigenous people

Continued on the following page

TABLE 3 (continued)
Characteristics of included studies

Author(s)	Purpose of study	Approach	Method	Participants (n)	Context	Author conclusions
Monchalin et al.[30]	To investigate Métis women's perspectives on identity and their experiences with health services in Toronto	Indigenous methodology	Semistructured interviews	Métis women (11)	Urban, Toronto, Ontario	Findings show multitude of barriers for Métis women when accessing health and social services in Toronto. Practical solutions to develop culturally specific care were also explored
Monchalin[29]	To explore Métis women's experiences of racism and discrimination when accessing and working within health and social services	Indigenous methodology and feminist theory	Semistructured interviews and field notes	Métis women (11)	Urban, Toronto, Ontario	Métis women experienced racial discrimination, e.g. witnessing, absorbing and facing racism, as well as lateral violence when accessing Indigenous-specific services
Oelke[25]	To understand the processes and structures required to support primary health care services for the urban Indigenous population	Ethnography, complex adaptive systems, participatory action research and case study	Meeting notes, individual and group interviews, and participant observation	First Nations and Métis service users (158)	Urban, Calgary, Alberta	Findings outlined key gaps: lack of access, collaboration amongst organizations coordination, and service gaps (e.g. prevention, promotion, mental health, children, and youth)
Russell and de Leeuw[26]	To identify challenges and barriers to Indigenous women accessing sexual health care services related to human papillomavirus and cervical cancer screening	Community-based participatory research, and feminist and antiracist methodologies	Interviews, open-ended questionnaires, and arts-based expressions	Métis women (22)	Remote, British Columbia	Experiences of gendered victimization, feelings of (dis)empowerment, life circumstances and lack of awareness were the four major themes that impacted Indigenous women's access to sexual health care services
Tait Neufeld[31]	To explore Indigenous women's experience; understanding the causes, course, treatment, onset, pathophysiology and prevention of gestational diabetes	Indigenous research exploratory	Semistructured interviews	First Nations and Métis women (29) and health care provider and community representatives (25)	Urban, Winnipeg, Canada	Limited access and quality of prenatal care as well as diabetes education were emphasized by the participants
Varcoe et al.[27]	To understand rural Indigenous women's experiences of maternity care and factors shaping those experiences	Critical ethnographic approach and participatory framework	Participant observations, interviews and focus groups	First Nations women (125) and community leaders (9)	Remote, British Columbia	Participants explained their experiences with maternity care was linked with diminishing local maternity care choices, racism, and challenging economic circumstances

TABLE 4
Results of metasynthesis of qualitative research findings

Findings	Categories	Synthesized findings
Receiving exceptional care (U)	Felt safe and secure, similar to being treated as family	Certain experiences of Indigenous people when receiving primary health care services were considered supportive and respectful
Relationship (C)		
Dealing with diabetes (U)		
Not all women had concerns about confidentiality or privacy (U)		
The role of the health care relationship in mitigating harm (U)	Felt listened to and able to express themselves freely without judgment	
Collaborative and continuous care (U)		
Importance of taking the time to engage (U)		
Actively participating in health care decisions (U)	Health care providers were supportive, always accessible and provided as much time as needed to address all concerns	
Professional support (U)		
Positive comments to local doctor (U)		
Affirmation of personal and cultural identity (U)	Health care providers demonstrated respect to the client and their family and cultural identity	
Providing culturally safe care (U)		
Engagement (C)		
"I thought the world was a bad place" (C)		
Positive relations (U)		
Reluctance to seek care (U)	Did not receive adequate and quality primary health care due to negative stereotypes towards Indigenous people	Indigenous people experienced various forms of discrimination and maltreatment that most often resulted in them not receiving adequate and quality primary health care; thus, many adopted coping strategies to face such challenges
Discrimination as a threat to ongoing medication access (C)		
Dismissal by health care providers (U)		
Racist stereotypes (U)		
Dissatisfaction with services (U)		
Consequences of multiple stigmatized identities (U)		
Additional beliefs swayed decisions to prescribe analgesics (U)		
Lack of empathy (U)		
Equitable care (U)		
Prejudicial and judgmental views (U)		
Examples of racism from participants (U)		
Experiences with racism (U)	Subjected to discriminatory behaviours	
Questioned on two occasions in a row regarding her Native[a] identity (U)		
Passing as White (U)		
Marginalization from the mainstream (U)		
Situations of vulnerability (U)		
Racist comments (U)		
Notions of racial superiority (U)		
Perpetuation of inequities (U)		
Importance of building meaningful, trusting and respectful relationships (U)		
Not welcoming (U)		
Racism (U)		
Looked down their noses at people (U)		

Continued on the following page

TABLE 4 (continued)
Results of metasynthesis of qualitative research findings

Findings	Categories	Synthesized findings
Insensitivity (U)	Health care providers demonstrated judgmental attitudes and lack of compassion	
Being judged (U)		
Compassion missing in action (U)		
Being told in an inhumane manner about her diagnosis (U)		
Presence of the physician's religious values (U)		
Short clinical interactions (U)		
Victimization and discomfort (U)		
Felt her needs were not being met or her voice heard (U)	Felt ignored and needs disregarded	
Felt being forced to leave her community (U)		
What they wanted and needed was overridden (U)		
Disregard for personal circumstances (U)		
Delays in accessing care (U)	Health care providers have inadequate knowledge and/or expertise	
Knowing a client's background (U)		
Unknowledgeable physician (U)		
Ought to consider the context of the individuals, families and communities (U)		
Negative experiences with Indigenous-specific services (U)	Adopted some coping strategies to face discriminatory and negative treatment	
Transforming oneself to gain credibility (U)		
Fear in divulging (U)		
Fear of discrimination (U)		
Feeling of unfairness (U)		
Benefits of not having to identify herself as an Aboriginal[a] person (U)		
Mitigating of discriminatory health care practices (U)		
Overmedication (U)		
Issues with trusting health care providers (U)		
Had waited so long that their symptoms were severe (U)		
Lack of trust and female doctors (U)		
Discomfort with her physician (U)		
Reluctant to seek specialist-level help (U)		
Distrust of the local health care provider (U)		
Lack of confidentiality (U)		
Perceived lack of anonymity (U)		
Invasion of privacy (U)		
Lack of confidentiality (U)		
Confidentiality and privacy issues (U)		
Trust in fly-in health care provider (U)		

Continued on the following page

TABLE 4 (continued)
Results of metasynthesis of qualitative research findings

Findings	Categories	Synthesized findings
Lack of communication between health care providers on- and off-reserve (U)	Limited to absent continuity of care	Issues related to the primary health care system's structure and practices led Indigenous people to experience inaccessible and incomplete care
Attending a walk-in clinic impacted the continuity of care received (U)		
Transient nature of the population and the ability to have a need addressed immediately (U)		
Development of a positive, long-term relationship with a health provider (U)		
Transiency of support personnel (U)		
Structural barriers to care (U)		
Threatened continuity of care (U)		
Physician shortages (U)		
Revolving door (U)		
Travelling the distance (U)	Experienced inaccessible care	
Lack of health care services (U)		
Lack of appropriate resources (U)		
Could not depend on medical care (U)		
Gaps in primary health care services for children and youth (U)		
Lack of mental health services (U)		
The work required by Aboriginal[a] people to find and attend Aboriginal[a]-specific services (U)		
More Aboriginal[a] health service providers (U)	Constant time constraints	
Short physician visits (U)		
Race to fit as many patients (U)		
Time constraints of physicians (U)		
Long waiting times (U)		
Not fully understanding (U)	Health care providers exhibit lack of communication and health teaching	
Gaps between expectation and offered services (U)		
Feeling lost (U)		
Very little understanding (U)		
Lack of support (U)		
Lack of time to educate (U)		
Limited number of services in health promotion (U)		
Health promotion services (U)		
Gaps in health promotion services (U)		
Funding and services were linked to White problems (U)		
Skepticism towards health care and outsiders (U)		

Continued on the following page

TABLE 4 (continued)
Results of metasynthesis of qualitative research findings

Findings	Categories	Synthesized findings
Relationship building (U)	Health care providers need to demonstrate more empathy	Indigenous patients recommended that greater emphasis be placed on culturally sensitive empathic care, recruitment of Indigenous health care providers, accessibility and health teaching and promotion
Appropriate disclosure (U)		
Need to develop good relationship (U)		
Providing choices (U)		
HIV testing process (U)		
Lack of confidentiality (U)		
HIV testing (U)	Integration of culturally sensitive care is paramount	
General lack of respect (U)		
Community engagement (U)		
Be aware of the history (U)		
Community mobilization (U)		
More visible spaces (U)		
Importance of the interior design (U)		
Métis-specific and/or -informed service space (U)		
Skepticism towards health care and outsiders (U)	Advocating for more recruitment of Indigenous health care providers and staff	
Lack of cultural knowledge and awareness (U)		
Need for Native[a] staff (U)		
More Aboriginal[a] doctors (U)		
Travelling the distance (U)	High need for accessible primary health care	
Physician shortage (U)		
Importance of having a family physician (U)		
Gaps between expectation and offered services (U)	More emphasis on health teaching and promotion	
Assistance from nurse practitioners (U)		
Gaps in health promotion services (U)		
Feeling lost (U)		
Total findings = 130	Total categories = 19	

Abbreviations: C, credible; U, unequivocal.

[a] Terminology used in original studies.

TABLE 5
Summary of findings

	Synthesized finding	Type of research	Dependability	Credibility	ConQual score
1	Certain experiences of Indigenous people when receiving primary health care services were considered supportive and respectful	Qualitative	High	High	High
2	Indigenous people experienced various forms of discrimination and maltreatment that most often resulted in them not receiving adequate and quality primary health care; thus, many adopted coping strategies to face such challenges	Qualitative	High	High	High
3	Issues related to the primary health care system's structure and practices led Indigenous people to experience inaccessible and incomplete care	Qualitative	High	High	High
4	Indigenous patients recommended that greater emphasis must be placed on culturally sensitive empathic care, recruitment of Indigenous health care providers, accessibility and health teaching and promotion	Qualitative	High	High	High

and unable to receive the proper medical care they required, leading to severe complications or even death.[32]

Such situations were experienced in urban, rural and remote locations. As reported by a participant in Goodman et al.:

> I reached out on my right side and it really hurt. I went to a DTES [Downtown Eastside] clinic to the doctor and she told me to walk it off. I went to sleep and woke up and thought I was dying—big pain in my chest. I collapsed a lung. I think she thought I wanted painkillers, but I was really hurt.[15,p.90]

Another First Nations participant reported in Fontaine et al.:

> I lost [a family member]. He did drink a lot. And anyway, he got sick and every time he went to the Nursing Station, the nurse in charge there told him, he said, "Oh, you have a severe hangover," without checking him. And he went about three, I know three times for sure, whether the fourth time, I can't remember. But anyway, they kept chasing him home, "There's nothing wrong with you. You're just ... quit drinking, get, you're ... hung over," you know. Anyway, he died one night in ... his home.[13,p.5]

Besides the deliberate omission of quality care, some Indigenous patients also sensed that certain PHC providers had discriminatory attitudes towards Indigenous people. In some cases, as soon as First Nations, Métis and Inuit participants from both urban and rural or remote locations entered a clinic, they instantly felt unwelcomed and judged, based on how the health providers and staff looked at and talked to them. This was further extended in their subsequent interactions, as explained by one frustrated participant in Goodman et al.:

> So [the nurse] showed me how to [inject], but she was so mean about it. She was not accommodating. She said I should know how to do it myself. They treated me like crap, and I know it was because I was Native. We all know because of the look—there's a look. When you need the medical care, we put up with it. We shouldn't have to. We bleed the same way, we birth the same way. We have no choice ...[15,p.89]

Some participants in urban as well as rural or remote areas thought that the negative attitudes and judgments of PHC providers may have stemmed from their lack of understanding or disregard for Indigenous life experiences, history, background and socioeconomic and political circumstances,[23,25,37] but this was particularly emphasized by individuals living in rural or remote communities. There were instances in which First Nations women living on-reserve, who were required to travel to the city due to the unavailability of specialized services or diagnostic tools in their communities, were constantly fined for being late or missing their appointments in the city, even though the primary reasons for missing the appointments were that they were not able to afford a phone, or that there were traffic delays resulting from travelling a long distance.[32] As Browne and Fiske reported, "The embarrassment associated with being late or with being asked to pay the cancellation fine when they lacked the money shaped women's experiences and left women with the sense that they were being blamed for circumstances beyond their control." [32,p.138]

As a result of these various negative interactions with PHC providers and the health care system, numerous Indigenous patients learned to cope by deciding not to disclose their cultural identity and medical history, presenting themselves to look more credible, or simply avoiding seeking care. Certain participants in Goodman et al.,[15] Monchalin et al.[30] and Oelke[25] divulged having omitted sharing their Indigenous background and certain aspects of their medical history to PHC providers, as they believed that this information would not be beneficial for their care, and worse, might only lead to discriminatory acts. Others chose to dress or behave differently in front of PHC providers to gain respect.[32] Indeed, one First Nations participant living in a remote community elaborated in Browne and Fiske:

> It seemed like any time I go to a doctor I would have to be well dressed. I have to be on my best behaviour and talking and I have to sound educated to get any kind of respect.... If I was sicker than a dog and if I didn't want to talk and I didn't care how I sounded or whatever, I'd get treated ... like lower than low. But if I was dressed appropriately and spoke really well, like I usually do, then I'd get treated differently.... But why do I have to try harder to get any kind of respect? You know, why do I have to explain?[32,p.135]

In certain cases, Indigenous patients delayed seeking care as long as possible to prevent being subjected to traumatic and discriminatory experiences.[15,25] They sought health care only when their illness or symptoms had become serious, and they were left with no choice.[15,25] Many participants from both urban and rural or remote regions admitted to distrusting PHC providers.[13,24,26,34] However, Inuit and First Nations patients residing in rural or remote communities expressed significant concerns about whether providers were adequately protecting their privacy and confidentiality.[14,22,24]

When comparing the PHC experiences of First Nations, Métis and Inuit participants in urban and rural or remote settings, we found very limited differences. As demonstrated above, similar to Indigenous patients living in urban areas, rural or remote participants also faced discriminatory attitudes and dismissive and judgmental care, forcing them to develop strategies for coping with such maltreatment. One particular geographical difference, however, was the fear of privacy and confidentiality breach. Although one participant in the study by Bucharski et al.,[37] which included First Nations and Métis women in an urban setting, expressed their concern about privacy and confidentiality, multiple First Nations, Métis and Inuit participants in rural or remote locations highlighted this fear. This concern may be more significant for residents of close-knit, small communities, as are often found in rural or remote locations. For these participants, PHC providers who were not considered "locals" were at times preferred, since they did not know anyone from the community and/or they would only be temporarily working in the community.[14]

Synthesized finding three: structural and practice issues

Synthesized finding three highlights issues related to the PHC system's structure and practices that led Indigenous people to experience inaccessible and incomplete care. Four categories and 32 findings formed the basis of this metasynthesis.

Our review found that major shortages of PHC providers existed across Canada. As a result, the Indigenous patients in the studies we reviewed who lived in both urban and rural or remote settings experienced lack of continuity of care, inaccessibility, short visits and inadequate health teaching and promotion. Many First Nations and Métis people who lived in cities did not have a family doctor; hence, they most often opted to visit walk-in clinics where various physicians rotate to cover the hours, and patients did not necessarily see the same physician during all their visits.[25,35] Establishing a therapeutic physician–patient relationship may be impossible in such brief encounters. This issue was even more problematic in rural and remote communities, where the transiency of PHC providers is prominent, and their recruitment and retention are challenging.[22,27,32,35] Some First Nations and Métis participants in Jacklin et al. "felt that once doctors gain experience, 'they want more money here, and if they don't get it, they quit and move on.'"[35,pp.109-110]

Additionally, Inuit and First Nations patients who lived in rural or remote regions could not easily access certain medical care and preventive services.[12,14,34,39] Minimal or no time was dedicated to health teaching or promotion, especially in a manner that was culturally appropriate.[14] Indeed, as one of the Inuit participants in Fraser and Nadeau confirmed,

> If I was diabetic, for example, I would need information, what can I eat and what can I not. My Grandmother, they did not give her any ideas what she can eat and what she cannot do…. They need to have examples, recipes, and take less salt and sugar. And, how to make bannock. Like when you make spaghetti, use the whole wheat spaghetti. All those nutrition information. People need encouragement.[14,p.292]

Though health promotion materials, such as brochures and videos, may be available, First Nations and Métis participants in Oekle[25] further highlighted the absence of culturally adapted verbal and visual teachings. One participant reported, "The prevention services that are available for First Nations are what's ever in the hype for the White crowd. So if it's a White problem, a White prevention problem, those are what's available."[25,p.147] Also, visits of First Nations and Métis patients with PHC providers in metropolitan, rural and remote areas were commonly described as "rushed," there being "never enough time," "a race to fit as much patients as possible" and "similar to an assembly line."[23,31,33,35] For this reason, many felt that their needs and concerns were not entirely addressed.[33,35]

In regard to other geographical considerations, despite the differences of PHC services offered in urban and rural or remote settings, PHC structure and practices in all three settings similarly affected the accessibility of care experienced by Indigenous people. For instance, in rural or remote locations, hospitals and specialized care did not necessarily exist. PHC providers within these settings therefore generally assumed an expanded role to offer additional services to community; however, this had its limits, as certain diagnostic tools and specialists were only available in the major cities.[12,14] In urban areas, First Nations and Métis people encountered comparable accessibility challenges, including the lack of PHC services for children and youth, and mental health support.[25]

Synthesized finding four: recommendations

Synthesized finding four focussed on Indigenous patients' recommendations for greater emphasis on culturally sensitive empathic care, recruitment of Indigenous PHC providers, accessibility and health teaching and promotion. This last metasynthesis was created from five categories and 25 findings.

Numerous First Nations, Métis and Inuit participants emphasized the importance of cultural sensitivity and empathy, indicating that it is paramount that all PHC providers and staff are familiar with Indigenous history and practices.[24,33,37] They expressed the idea that only through education would providers and staff start to be empathic and respectful towards Indigenous peoples.[13,37] Besides provider–patient interactions, cultural sensitivity could also be conveyed in the design of the physical spaces where PHC services are delivered. Participants suggested that incorporating Indigenous symbols or art onto the walls of the clinic could provide a more welcoming environment for patients.[29]

Participants also suggested that greater funding should be allocated to recruiting PHC providers and staff, particularly those with an Indigenous background.[12,23,25,34-36] As one participant explained, "I just think they need to have more Native doctors and nurses … for Aboriginal peoples to feel comfortable … or people that are experienced in Aboriginal culture. It would be nice to have our own Aboriginal people running it."[23,p.83]

Furthermore, there is a great need to enhance health teaching and promotion in all PHC settings.[14,25,33,35] Health teaching and promotion must also appropriately consider the cultural context and challenges of Indigenous peoples for these to be perceived as beneficial.[25]

Lastly, when geographical differences between urban and rural or remote settings were examined, minor nuances were noticed. Although recommendations for culturally sensitive empathic care, recruitment of Indigenous PHC providers, improved accessibility and health education were common across First Nations, Métis and Inuit participants from urban and rural or remote regions, certain recommendations were given more emphasis within one particular setting. For example, the need for culturally sensitive empathic care and recruitment of Indigenous PHC providers was pointed out more by First Nations and Métis participants residing in the urban areas than those in rural or remote communities, who mostly emphasized suggestions for accessibility and health teaching and promotion.

Discussion

The purpose of this qualitative systematic review was to explore Indigenous people's experiences in Canada with PHC services, determine urban versus rural or remote differences and identify recommendations for quality improvement. Three major synthesized findings were revealed—supportive and respectful experiences, discriminatory attitudes and systemic challenges faced by Indigenous patients—along with one synthesized finding on their specific recommendations.

The conflicting PHC experiences of First Nations, Métis and Inuit participants, wherein instances of supportive and respectful interactions were revealed while discriminatory attitudes and systemic barriers simultaneously exist, attest to the multifaceted complexity of the situation. The interplay between systemic, institutional and interpersonal factors may have influenced these conflicting PHC experiences. The historical and intergenerational traumas of colonization, forced assimilation and residential schools continue to leave a lasting effect on the health care system, contributing to systemic discrimination that is ingrained within Canada's health care policies and structures. The policies and structures of the health care system often reflect historical biases and stereotypes rooted in the colonial era and the legacy of residential schools. These biases manifest in policies that fail to adequately address the unique health challenges faced by Indigenous populations, resulting in unequal access to health care resources and services.

Additionally, there is limited Indigenous representation in health care policy making and leadership. This absence of perspective leads to a health care system that often does not fully understand or prioritize the health needs of Indigenous communities, further alienating them from the system. Although at the institutional level some organizations have invested in cultural sensitivity and antiracism training for health care providers, which can result in more positive experiences for Indigenous patients, individual health care providers within these organizations may still hold conscious or unconscious biases against Indigenous peoples, which can negatively affect the quality of care received.

In sum, the disparity in PHC experiences among Indigenous communities arises from a multifaceted set of conditions that operate at various levels. While systemic issues such as discrimination and racism can lead to negative experiences, targeted interventions and personal relationships can sometimes result in positive interactions. Therefore, efforts to improve PHC health care for Indigenous people in Canada need to be comprehensive, multipronged and culturally sensitive to effectively address this complex situation.

Indigenous people in this review valued safe, accessible and respectful care, aligning with their basic human rights as outlined in the United Nations Declaration on the Rights of Indigenous Peoples[41] and the Truth and Reconciliation Commission (TRC) of Canada's calls to action.[42] Canadian governments and other sectors are nowhere near fulfilling these calls to action,[43] particularly in the domain of health. At the current pace, completing all the calls to action will take until 2065.[43] This shortcoming is particularly evident in our review; significant findings from most of the included articles illustrated considerable discrimination, racism and maltreatment of Indigenous peoples. Synthesized findings two and three echoed these unjust experiences that Indigenous patients had to face (and potentially continue to face).

The discrimination and racism faced by the Indigenous people in this review negatively affected their overall health and well-being. While accessing PHC, they often felt uncomfortable and judged due to providers' negative stereotypes of Indigenous people. These attitudes, along with dismissive care and maltreatment, caused Indigenous people in the studies reviewed to avoid seeking care, exacerbating medical symptoms and potentially leading to severe complications or death.

Similar findings in other studies show that past experiences of discrimination and racism made Indigenous people more likely to avoid medical assistance, contributing to unfavourable health outcomes.[3,44] The life expectancy of Indigenous people is five years less than that of the general population.[3] Additionally, the prevalence of infectious diseases, chronic conditions and mental health disorders as well as infant mortality rates among Indigenous populations in Canada are significantly higher compared to non-Indigenous Canadians.[3] These disparities were further exacerbated during the pandemic, particularly for Indigenous people in rural and remote communities, who contracted COVID-19 at rates three to four times the national average—rising to seven and eight times in some weeks.[45]

In this review, First Nations, Métis and Inuit participants living in rural or remote locations were also more likely to experience maltreatment and dismissive care as well as issues with privacy, confidentiality and accessibility.[12-15,22,24,34] These particular issues could be attributed to the close-knit nature of small communities and the structural barriers associated with the lack of health care infrastructure within these areas. Even though we identified 10 studies of rural and remote regions, there were still limited findings on Indigenous people's PHC experiences in such regions, which prevented a deeper analysis of geographical considerations. The inclusion of participants from diverse geographical settings, however, adds another layer of complexity and richness to the findings, as it allows for a more nuanced understanding of how location may impact health care experiences. Hence, more research on PHC experiences of Indigenous peoples living in rural or remote communities is required to comprehensively understand the challenges they encounter.

Overall, the synthesized findings of this review emphasize the urgent need to address longstanding discrimination and racism, while also advocating for the implementation of sustainable changes to prevent further endangerment of Indigenous lives in Canada.

Recommendations

Indigenous patients have highlighted numerous problems with PHC services, leading to calls for changes in health care practice, structures and policy development. This includes emphasizing Indigenous culture in training, improving cross-cultural communication and prioritizing education to reduce negative experiences, all of which are in line with the TRC calls to action numbers 23 and 24.[42,46] Despite an increase in cultural competency and antiracism training,[47] there is still a need to increase the methodological rigour and standardization of such training, as well as to examine their long-term effects while stressing Indigenous community partnerships.[46,48] Health care providers should also practise some form of self-reflection, such as journalling or meditation, to examine personal biases.[49] This approach, aligned with cultural humility principles, teaches providers to defer to clients as experts in their own culture, creating a safer, nonjudgmental environment with the voices of Indigenous patients at its forefront.[49]

However, the focus of change should not be solely on health care practice and providers. Systemic transformation, including more funding and support for Indigenous communities, must happen concurrently in order to establish meaningful traction towards better patient care. There is a nationwide shortage of Indigenous PHC providers and staff that requires immediate attention. As emphasized in the TRC calls to action, "We call upon all levels of government to increase the number of Aboriginal professionals working in the health-care field [and to] ensure the retention of Aboriginal health care providers in Aboriginal communities…"[42,p.164] These key actors are critical in all sectors of society, from frontline and academia to research and policy development.[49] At this point, the inclusion of Indigenous people across all sectors should be the norm, and not merely an afterthought.

Strengths and limitations

This is the first qualitative review exploring Indigenous people's experiences with PHC services across Canada, serving as a valuable guide for policy makers and health care providers to identify target areas for improvement. Only by incorporating the voices of service users into health policies and interventions will the PHC and health care system as a whole deliver services that truly and meaningfully meet patients' and communities' needs. However, a limitation of qualitative review stems from the pooling of findings that are context-dependent, thus potentially reducing the emphasis on important contextual factors. Nevertheless, through our use of the chosen methodology (i.e. meta-aggregation), the traditions of qualitative research were maintained, preserving the context of each study and aggregating findings into a combined whole.[16] This strengthens the review's findings, making them more appropriate for guiding policy makers and health care providers.

Conclusion

Despite some supportive and respectful encounters with PHC providers, the majority of the experiences of Indigenous peoples were inadequate, unjust and filled with discriminatory attitudes and behaviours. Certainly, more work needs to be done before Canada meets all five core principles of the *Canada Health Act*.[7] These principles are the basis of our health care system and should be applicable to all Canadians, irrespective of their age, gender, race and cultural background.[7] Therefore, it is the duty of Canadian governments, other sectors and citizens to ensure that Indigenous people receive the health care they deserve.

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The authors declare there are no conflicts of interest.

Authors' contributions and statement

GB, SA—conceptualization.

GB, SA—formal analysis.

GB—project administration.

GB, SA—visualization.

GB—writing—original draft.

GB, SA—review & editing.

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Original quantitative research

Rates of out-of-home care among children in Canada: an analysis of national administrative child welfare data

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Abstract

Introduction: As a part of the public health approach to child welfare, data about children placed in out-of-home care are needed to assess population trends, understand drivers of social and health inequities, and examine outcomes for children and families. We analyzed administrative data from Canada to describe the population of children in out-of-home care, and estimate and compare rates of out-of-home care by province/territory, year, sex/gender, age group and placement type.

Methods: We conducted a cross-sectional analysis of point-in-time data from all provinces and territories for the period 2013/2014 to 2021/2022. We used frequencies and percentages to describe the population of children (and youth up to age 21 years) in out-of-home care and estimated overall and stratified rates and rate ratios.

Results: An estimated 61 104 children in Canada were in out-of-home care on 31 March 2022. The national rate of out-of-home care was 8.24 children per 1000 population. Rate variations by province/territory were substantial and changed over time. Rates were highest among males and children aged 1 to 3 and 16 to 17 years. Foster homes were the most common type of placement, although kinship homes accounted for an increasing share.

Conclusion: This analysis demonstrated that administrative data can be used to generate national indicators about children involved in the child welfare system. These data can be used for tracking progress towards health and social equity for children and youth in Canada.

Keywords: *alternative care, child protective services, epidemiology, foster care, pediatrics, public health surveillance, secondary data, social work*

Highlights

- About 61 104 children were in out-of-home care in Canada in 2021/2022; the national rate was 8.24 per 1000.
- Most of the children in out-of-home care (84.3%) were placed in a family-based care setting such as a foster home or with extended family (e.g. in a kinship home).
- The rate of out-of-home care varied by province/territory from 2.72 to 29.60 per 1000 children.
- National administrative child welfare data can be used for public health monitoring.

Introduction

Children and youth have the right to be healthy, to receive a high standard of care and to be protected from violence and neglect.[1] Under the United Nations *Convention on the Rights of the Child*, governments have legislated authority to enact these rights.[1] Using the law to protect children is a responsibility of child welfare systems in many countries.[2,3] In Canada, child welfare legislation and policies are primarily determined by provincial and territorial governments, and services are most often delivered by government departments or ministries and government-funded agencies.[2,3] In 2019, a federal act affirmed the inherent rights of First Nations, Inuit and Métis governments to assert jurisdiction over child welfare for Indigenous children.[4] Indigenous governing bodies have begun to create laws, deliver services and redesign child welfare systems so that they are self-determined and rooted in culturally specific approaches to care.[3,4]

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In Canada, a small proportion of children involved in the child welfare system are in out-of-home care.[5] This includes children placed with extended family, in foster homes or in group or institutional settings.[5-7] Many high-income countries collect administrative data that are used to report on indicators about child welfare services, including the number of children in out-of-home care.[8-12] Analysis of such data at the national level in Canada has been limited,[13,14] although several studies have estimated the size of the population of children in out-of-home care.

According to the *Health Behaviour in School-Aged Children (HBSC) Survey*, which covers a nationally representative sample of children aged 11, 13, and 15 years, 2.4% of children in Canada were living in a foster home or a "children's home" or were cared for by a non-parental family member in 2017/2018.[15] In 2019, the *First Nations/Canadian Incidence Study of Reported Child Abuse and Neglect* (FN/CIS) found that 15 071 children (First Nations and non-Indigenous) were placed in out-of-home care following a new child protection investigation.[5] Estimates calculated based on data from the 2021 national census indicate that there were 26 680 children aged 0 to 14 years in foster care (4.45 per 1000 children).[16] Previous analyses of administrative data estimated that the number of children in out-of-home care peaked at 64 755 in 2009 (8.8 per 1000)[17] and then declined to 59 283 (8.2 per 1000) in 2019.[7] While each of these sources provides a count of a subpopulation of children in out-of-home care, they fall short of being comprehensive national estimates because of their objective, study design, definitions or coverage.[7,16,18]

Evidence shows that children in out-of-home care face greater risks for poor health, social and educational outcomes because of adverse early life experiences such as maltreatment and poverty.[19] Placing children in family-based care environments can reduce risks of mental health problems and other negative consequences associated with maltreatment.[20] However, the experience of being in out-of-home care itself can have independent deleterious effects over the life course,[19,21,22] and children in group or institutional settings in particular experience elevated developmental, cognitive and social risks.[11,23,24] The tension between these realities is especially difficult to negotiate in child welfare policy and practice in Canada because First Nations, Inuit, Métis, Black and other communities made vulnerable by structural inequities are disproportionately harmed by involvement in the child welfare system.[25-28]

As a part of the public health approach to child welfare,[18,29,30] population-based data about children in out-of-home care are necessary to assess trends over time, understand drivers of social and health inequities, and examine outcomes for children and families. Such data can inform policy decisions, interventions and community action.[13,29,31,32]

To expand on previous studies[5,7,16,17,33,34] and strengthen the epidemiological evidence on children in out-of-home care,[29] we analyzed national administrative child welfare data in Canada. The objectives were to: (1) describe the population of children* in out-of-home care; (2) estimate the rate of out-of-home care overall and by province/territory, year, sex/gender, age group, and placement type; and (3) compare rates by province/territory, sex/gender, age group, and placement type.

Methods

We conducted a cross-sectional analysis of data from the Canadian Child Welfare Information System (CCWIS). The CCWIS is a national administrative database derived from demographic, clinical and legal information that is routinely collected and recorded in electronic case management systems by frontline staff as a part of delivering child welfare services. Following several years of partnership building as well as a feasibility assessment,[29,35] the CCWIS was developed by the Public Health Agency of Canada (PHAC) to address national child welfare data gaps and monitor population-level indicators across person, place and time. CCWIS data can support policy and program decisions related to child and family well-being, and may be used for evaluating the impact of legislative, policy, and social changes on the child welfare system.

Data source

The CCWIS contains count (also called "aggregate") and record-level data about children in out-of-home care. Data were obtained from all 13 provincial and territorial departments responsible for child welfare services and were derived from one of three sources: (1) publicly available aggregate data from annual reports and data dashboards ("public data"); (2) custom tabulated aggregate data ("custom data"); and (3) de-identified record-level data ("record-level data").

Several approaches were used to assemble CCWIS data. PHAC epidemiologists created a standardized data collection form to extract counts and information about definitions and parameters from online reports or dashboards recommended by each provincial and territorial child welfare department. Data obtained from public sources were shared with quality assurance and data management staff in each jurisdiction for review, correction and validation.

Because stratified data were not publicly available from most provincial and territorial child welfare departments, PHAC requested custom tabulations by year, sex/gender, age group and placement type using an adapted version of the standardized data collection form. The adapted form included CCWIS definitions and eligibility criteria, along with predefined categories based on previous studies,[5,36] and prompts to describe the corresponding parameters. During the process of validating the public data, all provinces and territories were invited to submit custom data as an enhanced alternative, to be shared with PHAC on a voluntary basis.

Record-level data from the Northwest Territories were obtained through a data sharing agreement between the Government of Northwest Territories (GNWT) and PHAC. The agreement was developed for both a regional data initiative (the Pan Territorial Data Project)[29] and the CCWIS; this agreement permitted the transfer of de-identified data to PHAC and the use of data for statistical purposes. Since the public data about children in out-of-home care for the territory were based on the total for the fiscal year, PHAC and the GNWT aggregated the record-level data to generate stratified point-in-time counts. This step helped harmonize the data for the national analysis and improve the

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* In the objectives and elsewhere, we refer to data on "children" for brevity, but this population also includes youth, unless otherwise specified.

comparability of the territory's rates with other jurisdictions.

Overall, the CCWIS contains public data from six provinces and territories and Indigenous Services Canada (ISC), custom data from five provinces, a mix of public and custom data from one province, and record-level data from one territory; coverage for each jurisdiction varies by year, demographics and placement type (Table 1). Data from Indigenous child welfare agencies were included in the CCWIS only if these data were routinely collected and reported by a provincial or territorial jurisdiction or by ISC. Data from all jurisdictions include First Nations, Inuit and Métis children. However, we did not calculate Indigenous-specific rates of out-of-home care for the present analysis because we did not have permission from Indigenous or provincial/territorial partners to do so, nor did we have access to distinction-based data for most jurisdictions. All CCWIS data are considered "secondary data" because the source information was originally generated for the purpose of delivering services, not for population statistics. The CCWIS is updated when additional data from participating jurisdictions are shared with PHAC.

For this analysis, we extracted CCWIS data for the fiscal year period, 2013/2014 to 2021/2022 (1 April 2013 to 31 March 2022, inclusive), as available. Most data used in this analysis (99.64%) were derived from public or custom data. The results of this analysis may differ from the information that is publicly reported by provinces/territories (see Table 1) due to differences between the national definition of out-of-home care and the definitions used in each jurisdiction.

Definition of out-of-home care

In the CCWIS, children in out-of-home care are those placed in a setting other than their usual home for any reason and for any length of time. Owing to differences in legislation, funding and policy, the specific parameters for placement eligibility vary by province and territory.[2,3,37] In alignment with global approaches to statistics on children in "alternative care,"[6,10,12] the CCWIS has a broad definition of out-of-home care in order to cover children in both formal and informal placements, with any legal status, and in family-based care, group care or other placement settings. For CCWIS data, the age span of coverage includes but is broader than the legislated age of protection, which is from birth to under 16 years or up to under 19 years.[2] Some youth receive placement services under voluntary agreements that can extend to 25 years of age.[2] We adjusted for differences in age span by matching the age parameters of the population data (denominator) with the jurisdiction-specific coverage age span (Table 1) for the count data (numerator), and by restricting overall and stratified analyses to count data that were reported by at least four provinces and territories.

As in other child welfare data systems,[6,8,10,38,39] CCWIS data are based on a point-in-time count. For each fiscal year, children in out-of-home care were enumerated only if they were in a placement on 31 March.[7] Three jurisdictions—Prince Edward Island, Alberta and Yukon—did not report a count on 31 March; alternative counts were treated as a proxy for March 31 counts.

Variables

We analyzed data about children in out-of-home care across five variables: province/territory, year, sex/gender, age group and placement type. The variable "province/territory" indicates the jurisdiction that provided the data to the CCWIS. For most children, this was the province/territory where they were placed. The variable "year" refers to a fiscal year, from 1 April to 31 March.

The CCWIS does not distinguish between sex assigned at birth and gender identity because these distinctions were not evident in the data provided by provinces and territories. For the present analysis, we referred to "sex/gender" and stratified by female and male. For the variable "age group," we used the categories less than 1 year (0–11 months; infants), 1 to 3 years, 4 to 7 years, 8 to 11 years, 12 to 15 years, 16 to 17 years and 18 to 21 years (to 25 years in Yukon). Child age was as of the date of enumeration (31 March in most jurisdictions; see Table 1).

Based on previous analyses from Canada[5] and abroad,[10-12,38] we used four placement type categories: kinship home, foster home, group care and other. We refer to kinship and foster homes together as family-based care. These categories differ from the naming conventions used in some provinces and territories and communities; nomenclature for settings where children in out-of-home care reside is changing as service providers develop an increasingly broad range of placement options. Our terminology reflects the primary categories currently applied in most jurisdictions (see Table 2).

Statistical analysis

We used frequencies and percentage to describe the population of children in out-of-home care. We calculated rates overall and by province/territory, year, sex/gender, age group and placement type. With more detailed data from selected provinces and territories, we were able to conduct stratified analyses.

Rates were estimated by dividing the number of children in out-of-home care on 31 March by the total number of children in a population. Population data were obtained from Statistics Canada's annual intercensal estimates[40] and included jurisdiction-specific parameters for age to account for variations in age span of coverage in each province and territory (Table 1). All rates were reported with 95% confidence intervals (CIs), calculated using the exact method.[41]

For a sensitivity analysis, we combined data from the provinces and territories with data from ISC. We could not identify or exclude children who may have been counted in both provincial/territorial and ISC data. However, pooling sources allowed us to include additional data about children served by First Nations agencies in four provinces (Table 1) who were not otherwise covered and estimate a maximum national rate of out-of-home care. Public count data from ISC were available at the national level only.

For comparisons, we calculated rate ratios (RR) with 95% CIs and used the national rate with and without ISC data as the reference group. The analysis was conducted using SAS Enterprise Guide version 7.1 (SAS Institute, Cary, NC, USA).

Ethics

This analysis was approved by PHAC's Science Review Committee and underwent a Health Canada/PHAC privacy impact assessment. Legislative authority for the development and analysis of CCWIS data is provided by section 4 of the *Department of Health Act*[42] and section 3

TABLE 1
CCWIS data coverage by province and territory, Canada, 2013/2014–2021/2022

Jurisdiction or department	Source type[a,b]	Most recent data used	Number of years of data used, n	Type of count (date of count)	Age span, years[c]	Sex/gender + age group[d]	Placement type[e]	Estimated population coverage, %	Jurisdictions not included in data coverage
Newfoundland and Labrador	Custom	2021/2022	9	Point in time (March 31)	0–21	Yes	Yes	100	n/a
Prince Edward Island	Public	2020/2021	4	Total fiscal year	0–17	No	No	100	n/a
Nova Scotia	Custom	2021/2022	9	Point in time (March 31)	0–20	Yes	Yes	100	n/a
New Brunswick	Custom	2021/2022	9	Point in time (March 31)	0–18	Yes	Yes	Unknown	10 First Nations agencies
Quebec	Public	2021/2022	5	Point in time (March 31)	0–17	No	Yes	Unknown	10 First Nations agencies
Ontario	Custom	2021/2022	3	Point in time (March 31)	0–17	Partial	Yes	Unknown	13 First Nations agencies
Manitoba	Public	2021/2022	9	Point in time (March 31)	0–17	No	Yes	100	n/a
Saskatchewan	Public	2021/2022	9	Point in time (March 31)	0–21	No	No	Unknown	17 First Nations agencies
Alberta	Custom	2021/2022	9	Monthly point in time average	0–17	Yes	Yes	100	n/a
British Columbia	Public and custom	2021/2022	9	Point in time (March 31)	0–18	No	No	100	n/a
Yukon	Public	2021/2022	5	Point in time (September 30)	0–25	No	Yes	100	n/a
Northwest Territories	Record-level	2021/2022	5	Point in time (March 31)	0–18	Yes	Yes	100	n/a
Nunavut	Public	2021/2022	9	Point in time (March 31)	0–18	Partial	Yes	100	n/a
Indigenous Services Canada[f]	Public	2019/2020	1	Point in time (March 31)	0–17	No	No	Unknown	Northwest Territories; Nunavut

Abbreviations: CCWIS, Canadian Child Welfare Information System; n/a, not applicable.

[a] The following sources of public data were consulted or included in the CCWIS (links were last accessed on December 18, 2023):

- Newfoundland and Labrador (https://www.gov.nl.ca/cssd/files/FINAL-Stats-Q4-March-31-2021-Protection-and-In-Care.pdf);
- Prince Edward Island (https://www.princeedwardisland.ca/sites/default/files/publications/child_protection_act_review.pdf);
- Nova Scotia (https://beta.novascotia.ca/government/community-services/corporate-reports);
- New Brunswick (https://legnb.ca/content/house_business/60/1/tabled_documents/6/Through%20Their%20Eyes.pdf);
- Quebec (https://www.cisss-bsl.gouv.qc.ca/documentation/publications/bilan-des-dpj-au-quebec);
- Ontario (https://www.oacas.org/childrens-aid-child-protection/facts-and-figures/);
- Manitoba (https://www.gov.mb.ca/fs/about/annual_reports.html);
- Saskatchewan (https://publications.saskatchewan.ca/#/categories/230);
- Alberta (https://www.alberta.ca/child-intervention-statistics);
- British Columbia (https://mcfd.gov.bc.ca/reporting/services/child-protection/permanency-for-children-and-youth/performance-indicators/children-in-care);
- Nunavut (https://assembly.nu.ca/sites/default/files/2023-06/Family%20Wellness%20Director%27s%20Annual%20Report-FINAL.pdf);
- Northwest Territories (https://www.hss.gov.nt.ca/sites/hss/files/resources/2021-2022-cfs-director-report.pdf);
- Yukon (https://yukon.ca/sites/yukon.ca/files/hss/cfsa_annual_report_2020-2022.pdf);
- Indigenous Services Canada (https://www.sac-isc.gc.ca/eng/1100100035204/1533307858805).

[b] Ontario data were provided by the Ontario Association of Children's Aid Societies, which is not a government department.

[c] The age span of coverage is broader than and includes the legislated age of protection, which varies by province and territory. The age of protection generally ranges from birth to under 16 years or to under 19 years.[2]

[d] Data from Ontario include age group-stratified data for children “in care” and in “customary care”; age group-stratified data on children in “kinship service” placements, who accounted for 35.9% of children in out-of-home care in Ontario on 31 March 2022, were not available for age-specific analysis in the CCWIS. Sex/gender-stratified data from Ontario were not included in the CCWIS. Age group-stratified data from Nunavut were not included in the age-specific analysis; sex/gender-stratified data were included in the sex/gender-specific analysis.

[e] Data from all jurisdictions include children in extended family placements, customary care, kinship care or services, homes with persons of sufficient interest, and other types of formal and informal kinship placements. However, the data may not include all children in such placements from each jurisdiction; children in some informal and voluntary placements with extended family members or community members may not be included in some provinces/territories. Data on kinship placements cannot be disaggregated for all jurisdictions.

[f] Data from Indigenous Services Canada include children in out-of-home care whose parents or guardians were “ordinarily resident on reserve” and whose placement was under the authority of a First Nations child and family services agency or a provincial/territorial department in a jurisdiction for which delegated First Nations agencies do not exist, such as Yukon and Newfoundland and Labrador. First Nations children whose parents or guardians live “off reserve” are not covered.

TABLE 2
Placement type definitions in the CCWIS

Placement type	Definition	Examples of placement types included	Special considerations
Kinship home	A *kinship home* is a type of family-based care with a caregiver who has a family relationship or other close tie or attachment to the child, their family, or the child's cultural community. Informal kinship placements variously include children whose legal status has not changed (i.e. parents/guardians maintain legal custody), but the child is placed with an extended family member or a trusted community member (as in *customary care*) on an emergency or temporary basis under voluntary conditions or by court order. Formal kinship placements typically involve extended family homes and caregivers who have gone through a formal review, training and approval process that is similar to the process foster homes undergo. Both informal and formal kinship and extended family placements are classified in CCWIS data as kinship homes.	Person of sufficient interest Kinship out-of-home care by court order or agreement Customary care Extended family care Kinship service or placement Provisional home Relative foster home Place of safety	Some jurisdictions, e.g. Saskatchewan, do not use the term *kinship* in any form (kinship care, kinship home, kinship service, etc.) when referring to any placement type. In some jurisdictions, kinship placements are formal placements that involve a change in the child's legal custody status, whereas placement with extended family does not. Customary care is a placement type that is specific to First Nations, Inuit and Métis communities. It typically involves a voluntary placement in or close to a home community with extended family or other community member. The purpose of customary care is to support a child's connection to their culture and language.
Foster home	A *foster home* is another type of family-based care. This type of care typically involves one or two primary caregivers who are not related to the child (i.e. non-family members). Except in some specific arrangements with agency-based, contracted or treatment foster homes, caregivers and children live in a private home. Foster homes are a formal placement and prospective foster parents/caregivers undergo a screening, training and approval or licensing process. Caregivers are not typically paid a salary, but receive financial support to cover the living costs for each child placed in their home.	Foster home Treatment foster home Parent-model, agency-based, or contracted foster home Specialized foster home	Some jurisdictions, e.g. Yukon, no longer use the terms *foster home* or *foster care*, but are using *community caregiver home* instead.
Group care	Group care comprises two main subtypes: *group home* and *treatment facility*. A *group home* is often a large house with multiple children, where the caregivers are paid staff, e.g. child and youth workers. Group homes may be operated by the child welfare authority; a contracted resource such as a not-for-profit, charitable or religious organization; or by a for-profit business. A *treatment facility* refers to any placement in a specialized, often secure, institutional or congregate setting, e.g. a campus-based treatment centre or hospital, that provides access to therapeutic supports and interventions for behavioural, social, developmental, mental health, substance use or physical health conditions or issues.	Group home Residential care Treatment centre Secure treatment Hospital	n/a
Other	Children may be placed in other settings, usually on a temporary or transitional basis. This small subset of placements is most often used to address extenuating circumstances such as limited local access to specialized services or limitations in the availability of approved out-of-home care settings.	Out-of-province/territory Semi-independent living Hotel/motel Shelter Adoption probation	In some jurisdictions, data on placement types such as independent and semi-independent living, out-of-province/territory placements and adoption probation were not included or were not disaggregated. In the Northwest Territories, out-of-territory placements were not distinguished from in-territory placements, and so were only included in "other" if the placed child was not in a form of family or group care.

Abbreviations: CCWIS: Canadian Child Welfare Information System; n/a, not applicable.

of the *Public Health Agency of Canada Act*.[43] Our analysis was exempt from research ethics board approval as per Canada's *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* because we used the data for public health surveillance.[44]

In recognition of the guidelines for research and the standards for data governance in Indigenous communities,[44-48] we took steps to understand the priorities of Indigenous organizations in order to develop CCWIS data and conduct the analysis. This involved inviting representatives from National Indigenous Organizations to join the PHAC Working Group that oversees the CCWIS (see the Acknowledgements section); liaising with established groups or networks involved in Indigenous child welfare data governance; hosting engagement sessions with Indigenous organizations to understand how CCWIS might address the need for distinction-based data and be governed through multilateral partnerships; and sharing updates and seeking feedback on CCWIS activities through presentations, meetings and the review of preliminary results and draft materials. Efforts to build partnerships with First Nations, Inuit and Métis organizations are ongoing.

Results

An estimated 61 104 children were in out-of-home care in Canada in fiscal year 2021/2022 (Table 3). The national rate of out-of-home care was 8.24 per 1000. When ISC data were included in the calculation, the estimated count was 70 434 with a rate of 9.50 per 1000. The rate difference between the estimates was 1.26 per 1000 (95% CI: 1.16–1.36) and the percentage difference was 14.2%.

Rates of out-of-home care in 2021/2022 varied by province and territory (Table 3, Figure 1 and Figure 2). Rates were lowest in Ontario (2.72 per 1000) and Nova Scotia (5.98 per 1000) and highest in Manitoba (29.60 per 1000) and Nunavut (20.06 per 1000). During the fiscal year period 2013/2014 to 2021/2022, rates declined in Manitoba and British Columbia, increased in Newfoundland and Labrador, New Brunswick, Quebec and Saskatchewan, and remained relatively stable in the other provinces and territories (Figure 1).

Provincial/territorial rates were 2 to 3 times higher than the national rate in Yukon, Saskatchewan, Northwest Territories, Nunavut and Manitoba and lower in New Brunswick, Nova Scotia and Ontario (Table 3; Figure 2). The size of the disparities varied depending on which national rate estimate was used.

Based on data from the six provinces and territories with data on sex/gender, males accounted for 52.4% of children in out-of-home care in 2021/2022 (Table 3). The out-of-home care rate for males was also slightly higher than the rate for females (RR = 1.05; 95% CI: 1.01–1.09).

Of the six provinces and territories with age group–specific data, children aged 12 to 15 years accounted for the largest percentage (23.3%) of children in out-of-home care (Table 3). Of all children in out-of-home care in 2021/2022, 84.7% were younger than 16 years. Rates were highest for children aged 1 to 3 years and 16 to 17 years, and slightly but significantly higher (RR = 1.44 and 1.26, respectively) than the rate for infants.

In the ten provinces and territories with data on placement type for 2021/2022, family-based care accounted for 84.3% of children in out-of-home care; the majority of these placements were foster homes. Group care accounted for 11.3% of placements (Table 3). Based on data from nine provinces and territories, during the 5-fiscal year period from 2017/2018 to 2021/2022, the overall percentage of children in foster homes decreased and the percentage in kinship placements increased (Figure 3).

Discussion

We used national administrative child welfare data to examine rates of out-of-home care for children in Canada. An estimated 61 104 children were in out-of-home care in 2021/2022 (not including ISC data). Rates were significantly higher than the national rate in nine provinces and territories, and significantly lower in three; this changed slightly when the national rate including ISC data was used as the reference (Figure 2). The low (8.24 per 1000) and high (9.50 per 1000) rate estimates from the CCWIS were similar to the rate of out-of-home care in Australia (8.1 per 1000 in 2020),[8] higher than the rate in the United States (5.8 per 1000 in 2019)[39] and within the range for countries in Europe and Central Asia (1–21 per 1000 in 2021).[10,38] The 2021/2022 rate of out-of-home care that did not include ISC data (8.24 per 1000) was comparable to previous estimates from 2009/2010 (8.8 per 1000)[17] and 2019/2020 (8.2 per 1000)[7] derived from similar data sources. However, our estimate with ISC data (9.50 per 1000) suggests that the rate may have increased or had been previously underestimated. These findings contrast with the decline in the rate of children in foster care shown by census data: from 4.93 per 1000 in 2016 to 4.45 in 2021.[16] FN/CIS data showed a somewhat different pattern, with an increase in placement rates between 1998 and 2008 (2.67 to 3.26 per 1000)[36] and a decline from 2008 to 2019 (to 2.59 per 1000). At the provincial/territorial level, rates over time varied by jurisdiction. The factors behind this heterogeneity across data sources and across geographies are not evident, but warrant further analysis.

The CCWIS rate for family-based care in 2021/2022 (6.15 per 1000) was somewhat similar to the 2021 Census estimate for children in foster homes (4.45 per 1000).[16] The difference may be because the census rate did not include some children in kinship homes or customary care or placed informally with extended family members.[16] The FN/CIS found that 48% of children placed in out-of-home care after a child protection investigation were in an informal kinship home or customary care; 44% were in foster homes (14% kinship, 30% non-relative).[5] These findings differed from CCWIS results. Nonetheless, 92% of children in out-of-home care were in some type of family-based setting in the FN/CIS.[5] This is broadly consistent with the 84.3% found in our analysis,[5] and similar to findings from a 2023 Ontario study.[23]

The discrepancy between the FN/CIS and the CCWIS likely reflects different percentages of children in group care—6% in the FN/CIS[5] versus 12% in our analysis—and missing data on informal kinship placements for some jurisdictions in the CCWIS. Because the FN/CIS captured data early in the child welfare investigation process, it may have been more likely than administrative data to identify children in informal kinship placements. Owing to the use of mostly aggregate data and the limited ability to disaggregate public sources in the CCWIS, it is also possible that some formal kinship placements were misclassified as foster homes,

TABLE 3
Number, percentage, rate and rate ratio of children in out-of-home care, by province/territory, sex/gender, age group, and placement type, Canada, 2021/2022

Characteristics	Population in 2021	Point-in-time count, n	Percentage, %[a]	Rate per 1000	95% LCL	95% UCL	RR[b]	95% LCL	95% UCL
Geography									
Canada (13 provinces/territories + ISC)[c]	7 412 863	70 434	n/a	9.50	9.43	9.57	1.15	1.14	1.17
Canada (13 provinces/territories)	7 412 863	61 104	100.0	8.24	8.18	8.31	Ref.	Ref.	Ref.
Newfoundland and Labrador	106 836	1495	2.4	13.99	13.29	14.72	1.70	1.61	1.79
Prince Edward Island[d]	29 995	387	0.6	12.90	11.65	14.25	1.57	1.41	1.73
Nova Scotia	197 359	1180	1.9	5.98	5.64	6.33	0.73	0.69	0.77
New Brunswick	143 925	1083	1.8	7.52	7.08	7.99	0.91	0.86	0.97
Quebec	1 604 195	15 201	24.9	9.48	9.33	9.63	1.15	1.13	1.17
Ontario	2 750 014	7489	12.3	2.72	2.66	2.79	0.33	0.32	0.34
Manitoba	310 705	9196	15.1	29.60	29.00	30.21	3.59	3.51	3.67
Saskatchewan	331 213	5719	9.4	17.27	16.82	17.72	2.09	2.04	2.15
Alberta	973 725	8164	13.4	8.38	8.20	8.57	1.02	0.99	1.04
British Columbia	926 027	10 462	17.1	11.30	11.08	11.52	1.37	1.34	1.40
Yukon	12 433	205	0.3	16.49	14.31	18.91	2.00	1.74	2.29
Northwest Territories	11 228	218	0.4	19.42	16.92	22.17	2.36	2.05	2.70
Nunavut	15 208	305	0.5	20.06	17.87	22.44	2.43	2.17	2.72
Sex/gender (n = 11 489)[e,f]									
Female	707 641	5474	47.6	7.74	7.53	7.94	Ref.	Ref.	Ref.
Male	740 640	6015	52.4	8.12	7.92	8.33	1.05	1.01	1.09
Age group, years (n = 16 075)[g]									
<1	203 104	702	4.4	3.46	3.21	3.72	Ref.	Ref.	Ref.
1–3	642 294	2801	17.4	4.36	4.20	4.53	1.26	1.16	1.37
4–7	908 968	3290	20.5	3.62	3.50	3.75	1.05	0.96	1.14
8–11	939 506	3074	19.1	3.27	3.16	3.39	0.95	0.87	1.03
12–15	953 353	3750	23.3	3.93	3.81	4.06	1.14	1.05	1.24
16–17	472 688	2345	14.6	4.96	4.76	5.17	1.44	1.32	1.56
18–21[h]	40 628	113	0.7	2.78	2.29	3.34	0.80	0.65	0.98
Placement type (n = 44 679)[i]	6 125 628								
Family-based care	–	37 648	84.3	6.15	6.08	6.21	–	–	–
Kinship home	–	15 896	35.6	2.59	2.55	2.64	0.73	0.72	0.75
Foster home	–	21 752	48.7	3.55	3.50	3.60	Ref.	Ref.	Ref.
Group care	–	5036	11.3	0.82	0.80	0.85	0.23	0.22	0.24
Other	–	1995	4.5	0.33	0.31	0.34	0.09	0.09	0.10

Abbreviations: ISC, Indigenous Services Canada; LCL, lower confidence limit; n/a, not applicable; Ref., reference group; RR, rate ratio; UCL, upper confidence limit.

[a] Totals in each stratum may not equal 100% due to rounding.

[b] A RR with a confidence interval that did not include 1.00 indicated a statistically significant disparity.

[c] Data from Indigenous Services Canada include children in out-of-home care whose parents or guardians were "ordinarily resident on reserve" and whose placement was under the authority of a First Nations child and family services agency or a provincial/territorial department in a jurisdiction for which delegated First Nations agencies do not exist, such as Yukon and Newfoundland and Labrador. First Nations children whose parents or guardians live "off reserve" are not covered.

[d] Because data for the 2021/2022 fiscal year from Prince Edward Island were not available, count data from the most recent year (i.e. 2020/2021) were used as proxy.

[e] Based on data from 6 provinces and territories (Newfoundland and Labrador, Nova Scotia, New Brunswick, Alberta, Northwest Territories and Nunavut), covering 18.8% of children in out-of-home care in 2021/2022.

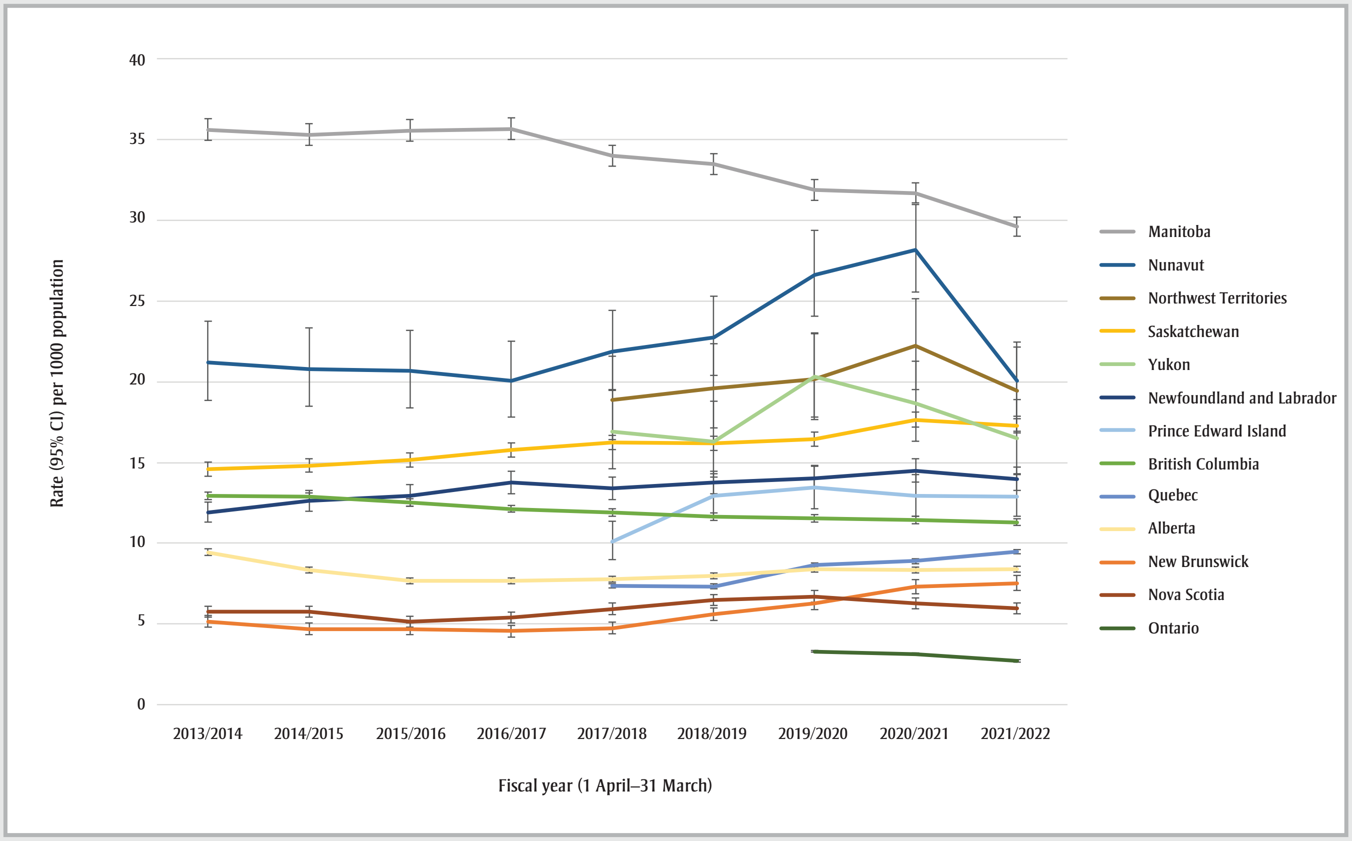
[f] 24 children were excluded from the sex/gender analysis to reduce the risk of identification or because data were not reported or were missing; these children were not included in the sex/gender-stratified rate or the RR calculations.

[g] Based on data from 6 provinces and territories (Newfoundland and Labrador, Nova Scotia, New Brunswick, Ontario, Alberta and Northwest Territories), covering 26.3% of children in out-of-home care in 2021/2022.

[h] Yukon data included individuals aged up to 25 years. Three provinces and territories were excluded due to missing counts (i.e. age span did not include 18+ years) or suppressed counts (Newfoundland and Labrador, Alberta, Ontario).

[i] Based on data from 10 provinces and territories (Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Alberta, Yukon, Northwest Territories and Nunavut), covering 73.1% of children in out-of-home care in 2021/2022. The total 2021 population of these 10 provinces and territories was 6 125 628 (82.6% of the national population for the corresponding age span). Data from all jurisdictions include children in extended family placements, customary care, kinship care or service, persons of sufficient interest, and other types of informal and formal kinship placements. However, the data may not include all children in such placements from each jurisdiction; children in some informal and voluntary placements with extended family or community members may not be included in some jurisdictions. Data on kinship placements cannot be disaggregated for all jurisdictions.

FIGURE 1
Rates of children in out-of-home care, by province/territory and fiscal year, Canada, 2013/2014–2021/2022



Abbreviation: CI, confidence interval.

Notes: Numerator in rate calculations is based on a 31 March point-in-time count.

Prince Edward Island data for 2021/2022 were missing; 2020/2021 data were used for the rate calculation.

Nunavut kinship data for 2017/2018 were used for the rate calculation in 2018/2019.

thereby inflating the prevalence of this placement type.

National child welfare data and Indigenous data governance

Child welfare systems in Canada have an important role in upholding children's rights to safety and security and protecting them from maltreatment.[1,3] However, these are colonial systems with abiding legacies of institutional abuse and discrimination against Indigenous, Black and other racialized communities[25-28,49,50] who continue to be overrepresented among children in out-of-home care.[5,27] With these realities in mind, we recognize that CCWIS data are neither neutral nor objective. The information that formed the basis of the data used in our analysis was generated by interventions that can cause harm by separating children from their families and communities and disconnecting them from their culture. The disproportionality of this harm is one of the ways that CCWIS data are imbued with the racism that is manifest in child welfare.[50]

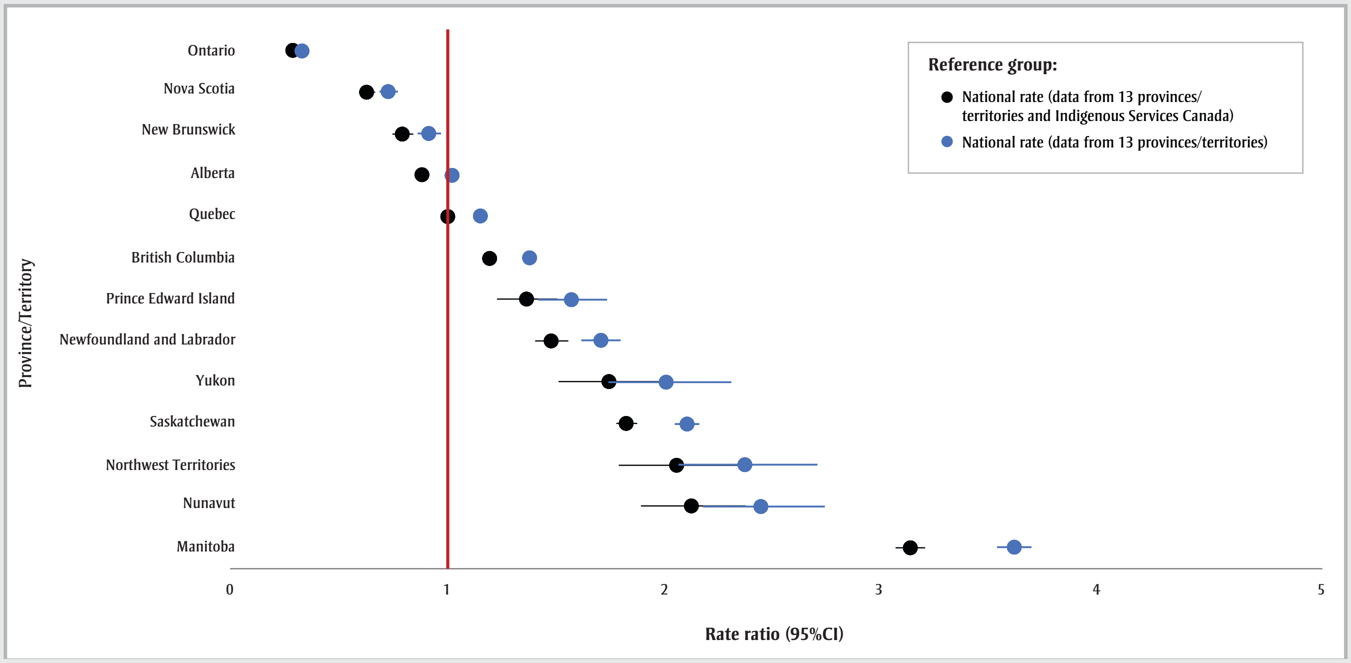
One of the risks in epidemiology with secondary data is that methods and results become detached from the social history and experiences of the people and communities that are represented by the data. We attempted to mitigate this risk during the development and analysis of CCWIS data by being transparent about the information we were using, sharing updates on our decisions and progress, and inviting input and participation from Indigenous organizations, provincial/territorial ministries and federal departments. This outreach helped align our analytical objectives with the priorities of child welfare and Indigenous partners, develop and test a governance model for national administrative data, and contextualize the findings. These efforts are important because the analysis of CCWIS data is meant to be an ongoing activity that serves as a resource in child welfare and public health decision-making.

With a long-term approach to social and institutional licensing, we also sought to minimize the ways our methodology may have contravened guidelines for the use of data related to Indigenous Peoples and balance this with the value the information can provide. Drawing on instructive examples from research,[5,51] we will continue to collaborate with provincial/territorial partners, First Nations, Inuit and Métis organizations, and rights-holders and communities to find ways to respect and operationalize the principles of Indigenous data sovereignty[47] in the CCWIS.

Strengths and limitations

Our analysis has several strengths. The geographic and population coverage of CCWIS data were high: we had data from

FIGURE 2
Rate ratios of children in out-of-home care, by province/territory, Canada, 2021/2022

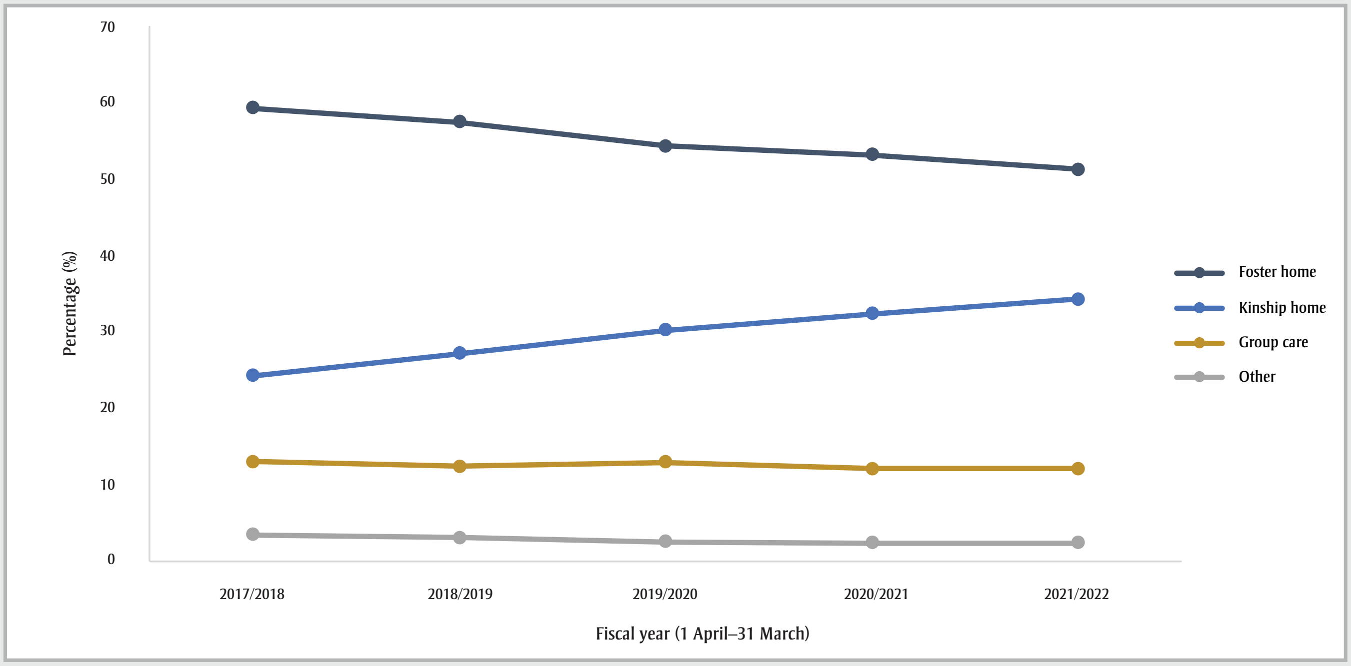


Abbreviation: CI, confidence interval.

all provinces and territories; the inclusion of custom and record-level data enhanced consistency in coverage and definitions; data from nine jurisdictions had full population coverage; and the placement types we employed were broadly comparable (Table 2), with placement type-stratified data from 10 provinces and territories covering 73.1% of the national population of children in out-of-home care. By using ISC data for the sensitivity analysis, we had near-complete capture of jurisdictions that collect data on children in out-of-home care.

A limitation of our analysis is that jurisdictions' definitions of out-of-home care vary by child age, legal status and authority,

FIGURE 3
Percentages of children in out-of-home care, by placement type in Canada, fiscal year 2017/2018 to 2021/2022[a]



[a] Based on point-in-time count data from 9 provinces/territories with available data, stratified by placement type, over the 5-year period: Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Manitoba, Alberta, Yukon, Northwest Territories and Nunavut.

types of placements, relationship to caregivers, duration, and cultural and geographic context. Because the CCWIS data we used were based primarily on aggregate data, there were relatively few opportunities for harmonizing definitions. We attempted to lessen the effects of definitional differences by noting variations in coverage (Table 1) and ensuring the population data (denominator) in rate calculations matched the parameters of the number of children in out-of-home care (numerator). Definitional issues were also partially offset by using a standardized data collection form.

For the sensitivity analysis, to estimate a maximum national rate, we included ISC data that covered First Nations child welfare agencies. This may have helped to account for variations in undercoverage for specific provinces, such as Ontario, but the impact on provincial/territorial rates is unclear. Ongoing collaborations with partners provide an opportunity to further refine definitions and data standards, and expand data coverage.

Another limitation was related to the use of aggregate data, which restricted our ability to carry out in-depth data quality assessments and conduct stratified analyses along dimensions of equity. Record-level administrative data from more provinces and territories would enable the identification of individual risks in child welfare,[52,53] research on the pathways to out-of-home care and beyond[21,54] and an assessment of the extent of missing data and double-counting.

CCWIS data have gaps in coverage for specific populations (such as First Nations children on reserve or under the jurisdiction of First Nations agencies), some years (especially before 2013) and demographic and service variables (such as sex/gender, age and placement type). For example, data on children in informal or emergency placements with extended family may be missing from the CCWIS data we analyzed in some jurisdictions. This and other coverage issues likely contributed to the national rate and the rates for selected provinces and territories being underestimated. A related challenge was that sex/gender and age-specific estimates were based on data from six provinces and territories, representing only 18.8% and 26.3% of all children in out-of-home care in Canada, respectively. Therefore, these results may not reflect national patterns and should be interpreted with caution. Including data disaggregated by sex/gender, age, Indigenous identity, race/ethnicity, geography and placement type from all provinces and territories in the CCWIS will help clarify epidemiological patterns and identify differential risks among specific subgroups.

Finally, our estimates pertained to a single point in time in each year (31 March). This is a common method of reporting the number of children in out-of-home care,[8-10,13] but it underestimates the annual total. Some children move in and out of care, often for short durations,[23] and may not be counted on a specific date. An alternative is a "period" count that refers to the number of children in out-of-home care for at least one night any time during the year. Point-in-time and period counts may be correlated, but the proportionate difference between them is not clear and warrants examination. Expanding CCWIS coverage to include out-of-home care admissions and discharges, duration, number of moves, legal status and reason for placement, along with data on child welfare referrals, investigations, services and youth supports, would improve the breadth and depth of indicators that can be generated.

Implications for public health monitoring and policy

In 2015, the Truth and Reconciliation Commission called on the federal, provincial and territorial governments to "publish annual reports on the number of Aboriginal children (First Nations, Inuit and Métis) who are in care compared with non-Aboriginal children [...]."[25,p.140] The need for this information was further underscored by the Calls for Justice from the National Inquiry into Missing and Murdered Indigenous Women and Girls.[26] With Indigenous partners and distinctions-based data, CCWIS data could be used to directly address the Truth and Reconciliation Commission's second Call to Action[25] and track progress of the federal child welfare legislation's objective of reducing the number of Indigenous children in care.[4]

The development of national data on children in out-of-home care is a first step in improving the transparency and accessibility of child welfare data. With a co-developed governance structure, data sharing agreements and expanded coverage, the CCWIS will be able to create additional national indicators about the child welfare system, harmonize definitions across jurisdictions, improve data quality and disaggregation, and generate population-based evidence on children's health and well-being. By strengthening CCWIS data, governments, agencies, researchers and communities can better monitor inequalities, track the health and social outcomes of children and families, and evaluate and inform policies and interventions.

Conclusion

We used national child welfare data to examine rates of out-of-home care among children in Canada. More than 61 000 children were in out-of-home care in 2021/2022; rates varied substantially by province and territory, and family-based care was the most common type of placement. Our analysis demonstrated that a working definition of out-of-home care can be applied to multiple sources of administrative data to measure broadly similar types of placements, and that these data can, in turn, be used to generate national indicators about children and families involved in the child welfare system.

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The authors have no conflicts of interest to declare.

Authors' contributions and statement

NJP: Conceptualization, methodology, investigation, data curation, writing – original draft, visualization, supervision, project administration.

AMO: Conceptualization, methodology, software, validation, formal analysis, investigation, data curation, writing - review & editing, visualization.

NT: Conceptualization, methodology, writing – original draft, supervision.

WH: Methodology, writing – original draft, supervision, project administration.

AM: Conceptualization, methodology, validation, investigation, resources, data curation, writing – review & editing.

LC: Methodology, software, validation, formal analysis, data curation, writing – review & editing, visualization.

AC: Methodology, writing – original draft.

MT: Software, validation, writing – review & editing.

CZ: Investigation, data curation, writing – review & editing.

CL: Conceptualization, writing – review & editing, supervision.

LT: Conceptualization, methodology, resources, writing – original draft, visualization, supervision, project administration, funding acquisition.

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Original quantitative research

School- and intervention-related factors associated with institutionalization of health promotion interventions in elementary schools

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Abstract

Introduction: Long-term availability of health-promoting interventions (HPIs) in school settings can translate into health benefits for children. However, little is known about factors associated with HPI institutionalization in schools. In this study, we identified correlates of the institutionalization of HPIs offered in elementary schools in Quebec, Canada.

Methods: In two-part, structured telephone interviews over three academic years (2016–2019), elementary school principals (or their designees) throughout Quebec identified an index HPI offered at least once in their school during the previous three years, and were asked whether it was institutionalized (i.e. explicitly written in the school's educational project, e.g. in the form of educational objectives and means of achieving them). We examined associations between institutionalization and 10 school-related and 16 HPI-related characteristics in univariable and multivariable logistic regression analyses.

Results: School key informants (n = 163) reported on 147 different HPIs that had been available in their schools in the past three years, 56% of which were institutionalized. Three aspects of school culture—parent/community engagement with the school, school/teacher commitment to student health and school physical environment—were positively associated with HPI institutionalization. HPI-related characteristics positively associated with HPI institutionalization included number of competencies addressed by the HPI, number of teaching strategies employed, modifications made to the HPI prior to or during implementation and perceived success of the HPI. Inviting families or community groups to participate in the HPI was inversely associated with institutionalization.

Conclusion: Better understanding of factors associated with HPI institutionalization may inform the development of school-based HPIs that have the potential for sustainability.

Keywords: *health-promoting schools, interventions, cross-sectional, sustainability, institutionalization*

Highlights

- Parent/community engagement with the school, school/teacher commitment to student health and school physical environment were positively related to health-promoting intervention (HPI) institutionalization.
- HPIs that included more competencies, that employed more teaching strategies, that were modified prior to or during implementation and that were seen as more successful were more likely to be institutionalized.
- Perceived success was unrelated to formal evaluation of HPIs.
- Understanding school- and HPI-related factors associated with HPI institutionalization may help optimize sustainability.
- We suggest incentivizing evaluation of HPI effectiveness to guard against ending effective or sustaining ineffective interventions.

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Introduction

Health-promoting interventions (HPIs) targeting children and youth support the development of a wide range of positive health behaviours. Schools are ideal settings for both long-term and continuous HPI delivery because all youth attend school early in life when health-related attitudes and behaviours are shaped.[1,2] Indeed, in order to accrue long-term benefits, a core feature of HPIs that requires consideration, in addition to their effectiveness, is their sustainability (i.e. continuation and durability).[3]

Little is known about how to sustain HPIs, although accumulating evidence suggests that sustainability is challenging, especially in complex settings such as schools. Follow-up of two highly resourced school-based programs (i.e. the Child and Adolescent Trial for Cardiovascular Health [CATCH] program in the US[4] and the KidsMatter mental health promotion program in Australia[5]) indicates that most schools did not continue to deliver the program in full or at the same intensity after the first year of implementation.[4,6] In alignment with these findings, a recent systematic review on school-based HPI sustainability in high-income countries indicated that none of the 18 programs studied were sustained in their entirety after funding had ended, when evaluation of sustainability occurred one to five years after the intervention.[7]

A key indicator of HPI sustainability is institutionalization, which refers to the formal integration of health promotion activities into the established structures and operations of a school.[8] Specifically, policies, programs and systems are created or adapted within schools to support and sustain the HPI over the long term. Institutionalization not only optimizes HPI implementation over time but also fosters a school culture that is supportive of health and well-being.[9] Institutionalization may be a critical component in achieving long-term HPI success and should be prioritized in future research and practice.

Despite the importance of institutionalization for long-term success, the evidence on factors associated with institutionalization of school-based HPIs is nascent. Indeed, a systematic review of 24 studies on sustainability of HPIs found that most focussed solely on early implementation, with only two specifically examining institutionalization.[7] The few existing qualitative studies identify barriers to institutionalization, including lack of resources, lack of teacher and parent "buy in" and involvement, changes in school leadership, staffing, culture and student needs, lack of staff training, incompatibility of the HPI with the school environment, goals, mandates and, finally, inadequate "know-how" to implement and evaluate the HPI.[6,8,10]

In the current study, we defined HPIs as activities complementary to the educational curriculum that are offered to all students during class time at no cost, and for which student attendance is expected. We operationalized institutionalization as written incorporation of the HPI into the school's educational project (*projet éducatif*), which details the school's values, policy orientations and educational objectives, along with tangible actions, indicators and evaluation measures to ensure that the educational project is achieved.[11]

Periodically (typically, every five years), the Quebec Ministry of Education updates its strategic educational plan, which "defines … the main orientations to be adopted by the education system and specifies the expected results."[11, p.6] School boards and the schools they oversee then design their educational projects in alignment with the Ministry's strategic plan, and schools report progress on the educational project to their respective school boards and the public annually.

We do not consider institutionalization equivalent to sustainability of the HPI, which is a broader construct. We identified correlates of HPI institutionalization from an array of school- and HPI-related characteristics. In addition, we studied a wide range of different types of HPIs addressing a multitude of health issues in a large sample of elementary schools. To select potential correlates, we drew on diffusion theory,[12] which describes four phases of HPI delivery, including planning, implementation, sustainability and scale-up. Importantly, our adapted conceptual model[13] also draws on socioecological theory[14] to situate HPI delivery within both the school context and the broader contexts of the community and the educational and political systems. Finally, we focussed on elementary schools because their context, resources and student needs differ markedly from high schools.

Methods

Project Prome*SS*[15] is designed to investigate social inequalities in HPI availability in elementary and high schools across Quebec, Canada, using cross-sectional surveys. In the years 2016 through 2019, data were collected from school principals, vice-principals or teachers in a convenience sample of 171 public primary schools in the province. The details have been described elsewhere.[13]

Ethics approval

Prome*SS* was approved by the Centre hospitalier de l'Université de Montréal (CHUM) Ethics Review Board. The CHUM certificate of ethics approval (2013-4130, CE 12.307) was submitted to all eligible school boards and principals upon request. School boards provided consent to approach the schools within their jurisdiction, and each school principal provided their consent to participate.

Procedures

Data collection procedures are detailed elsewhere.[13,16] Briefly, data were collected in a two-part, structured telephone interview (median length = 52 min) administered by trained interviewers in French or English. School principals were solicited; if they had not worked in their current school at least six months or were unavailable, they were asked to nominate another key informant (i.e. a vice-principal or other staff member). In the first part of the interview, school key informants provided information on characteristics of the school, school key informant (i.e. position, years working in the school) and availability of HPIs.

In the second part of the interview, participants responded to the following instruction: "The following questions pertain to ONE specific health-promoting intervention that is currently being offered in your school or that was offered within the last three years. If your school is currently offering a tobacco control intervention or has offered one in the last three years, please answer the following questions with reference to this tobacco control intervention. If your school does not currently offer a tobacco control intervention or has not offered one in the last three years, then think of any health-promoting intervention that is current or that was offered in the last three years. Please answer the following questions with that one intervention in mind. Note that the response choices are in the past tense although we understand that the intervention may be ongoing." The Prome*SS* I 2017-2019 elementary school questionnaires (Adoption of HPIs [part 1] and Implementation of HPIs [part 2]) are available here: https://www.celphie.ca/promess-questionnaires.

If no HPIs were offered in the school within the preceding three years, the questions about an index HPI were skipped. After an index HPI was selected, participants responded to in-depth questions on the health issue addressed and the selection, planning, implementation and institutionalization of the index HPI. Prome*SS* questionnaire items were developed de novo or drawn or adapted from previous studies.[17]

Study variables

Institutionalization of the index HPI was measured by asking: "Is the intervention explicitly written in your school's orientation plan (e.g. the educational project, the success plan or others)?" Response options were "no" or "yes."

We assessed 10 school-related characteristics. Six referred to school structure or student demographic characteristics: (1) school deprivation level; (2) size of population centre served by the school; (3) language of instruction (French or English, determined by the school board); (4) number of students in school; (5) teacher turnover; and (6) principal turnover. Four referred to health-promoting school culture: (7) parent/community engagement in school; (8) school/teacher commitment to student health; (9) school physical environment; and (10) ease of principal leadership (i.e. how easy or difficult it is for the principal to accomplish seven tasks; Table 1).

"Health-promoting school culture" encompasses the school contextual elements (e.g. values, expectations, resources) that influence HPI implementation.[18] It is drawn from the World Health Organization's Health Promoting Schools framework, which focusses on (1) incorporating HPIs into the school's formal curriculum; (2) promoting student health and well-being by promoting certain values and attitudes and providing a favourable physical environment; and (3) engaging with students' families and communities.[18]

The scales measuring parent/community engagement, school/teacher commitment and physical environment were developed through exploratory factor analysis. The scale measuring ease of principal leadership was developed de novo.[18] Table 1 presents the derivation, wording and coding of school-related characteristics.

Sixteen characteristics of the index HPI potentially related to institutionalization included: (1) number of years HPI offered in school; (2) whole school approach to HPI (i.e. all grades received HPI); (3) HPI designer; (4) number of core competencies addressed by the HPI[22]; (5) number of teaching strategies employed; (6) program champion present; (7) nature of HPI animators (i.e. the individuals who deliver the HPI; see list of examples in Table 2); (8) families invited to participate in HPI; (9) community groups invited to participate in HPI; (10) who was responsible for implementing HPI?; (11) school board involved in HPI implementation; (12) number of complementary initiatives in school during HPI implementation; (13) modifications made to HPI; (14) perceived success of HPI; (15) HPI produced changes; and (16) evaluation effort. Table 2 details questionnaire items, response options and coding for analyses of the HPI-related characteristics.

Data analysis

After computing descriptive statistics, we estimated associations for each potential correlate in two logistic regression models—an unadjusted model and a model adjusted for school deprivation level, population centre size, language of instruction and number of students. We did not estimate a model containing all potential correlates, as such models may include variables on the causal pathway for the correlate of interest,[23] which can result in attenuated estimates.[24] In addition, because the two models estimated for each correlate test only a single hypothesis, we did not adjust for multiple comparisons.[25]

Variables with missing values included institutionalization (n = 5, 3%); number of students (n = 1, 0.6%); teacher turnover (n = 2, 1.2%); principal turnover (n = 2, 1.2%); principal leadership (n = 17, 10.4%); years HPI in school (n = 10, 6.1%); families invited to participate (n = 19, 11.7%); community groups invited to participate (n = 20, 12.3%); school board involved (n = 17, 10.4%); program champion present (n = 2, 1.2%); and modifications made to HPI (n = 19, 11.7%). Missing values in institutionalization and potential correlates were accounted for using multiple imputation. Per von Hippel's 2-step calculation to determine the number of imputation sets needed to produce replicable estimates of standard errors,[26] we created 20 imputed datasets using predictive mean matching with 10 nearest neighbour comparators for continuous and ordinal variables,[27] logistic regression for binary variables and negative binomial regression for number of students, which was overdispersed.[28]

Results

School key informants and school characteristics

Of 171 elementary schools participating in Prome*SS*, 163 (95%) provided data on the index HPI and were retained for analysis. School key informants were principals (93%), vice-principals (4%) or teachers (3%) and had spent on average 3.4 years working in their school (SD = 2.6, range = 1–10). Characteristics of participating elementary schools were similar to those of all eligible elementary schools in Quebec regarding school deprivation level (35% of participating vs. 38% of eligible schools served disadvantaged students),[19] language of instruction (primarily French, 83%) and number of students.[13] Fifty-six percent of participating schools were located in rural or small population centres (population ≤ 29 999). Finally, 42% and 22% of school key informants reported "some/a lot" of teacher and principal turnover in the past three years, respectively.

Description of index HPIs

Across the 163 participating schools, a total of 147 unique HPIs were selected by participants in the second part of the interview, some of which are described in previous work.[13] These index HPIs addressed one or multiple health-related topics (e.g. physical activity and healthy eating,* personal safety and injury prevention, bullying,* aggressive behaviour, mental health, personal hygiene, puberty, addiction prevention, oral health* and tobacco prevention

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* Mandated by the Quebec government for elementary schools.

TABLE 1
Questionnaire items, response options and recoding of response options for analysis—school-related characteristics

Characteristic	Questionnaire item	Response options	Recoding for analysis
School deprivation indicator[19]	Each school was assigned a decile rank according to the 2016/17 school deprivation indicator (i.e. the *Indice de milieu socioéconomique* [IMSE]) available from the Ministère de l'Éducation du Gouvernement du Québec. The IMSE is a composite score based on data for each student within the school reflecting whether the mother had completed high school and whether both parents were employed full-time.	1 (lowest deprivation) to 10 (highest deprivation)	Advantaged (1–3) Moderately advantaged (4–7) Disadvantaged (8–10)
Size of population centre[20]	Population centres (PCs) are groupings of geographical units classified into four groups: rural area; small PC (population 1000–29 999); medium PC (population 30 000–99 999); and large urban PC (population ≥ 100 000).	Small, medium, large	Rural/small Medium/large
Teacher turnover	"Indicate your level of agreement. In the past 3 years your school experienced … teacher turnover."	No turnover in > 3 years; no turnover in the past 3 years; few staff; some staff; several staff	None/few Some/several
Principal turnover	"Indicate your level of agreement. In the past 3 years your school experienced … principal turnover."	0 in > 3 years; 0 in 3 years; 1 in 3 years; 2 in 3 years; ≥ 3 in 3 years	None/few (< 2) Some/a lot (≥ 2)
Parent/community engagement in school[21]	"Indicate your level of agreement. In your school … (1) meetings with teachers are well attended by parents, (2) parents attend school-sponsored events, (3) PPO (Parent Participation Organization) or Home & School meetings are well attended by parents, (4) parent volunteers are easy to recruit, (5) community partners (e.g. community organizations) are involved in the planning and implementation of joint activities or interventions."	Strongly disagree; disagree; neither agree nor disagree; agree; strongly agree	Responses were summed and divided by the number of items responded to, to create a score (range: 1.75–5.00; α = 0.7)
Teacher commitment to student health[21]	"Indicate your level of agreement. In your school … (1) the amount of emphasis on health promotion in your school's educational project is sufficient; (2) teachers in your school are innovative, always seeking out new ways to facilitate students' progress; (3) teachers in your school have a real interest in the health of the students; (4) teachers in your school are committed to promoting healthy behaviours in their students."	Strongly disagree; disagree; neither agree nor disagree; agree; strongly agree	Responses were summed and divided by the number of items responded to, to create a score (range: 2.0–5.0; α = 0.7)
School physical environment[21]	"Indicate your level of agreement. In your school … (1) area provided for eating meals is pleasant and inviting; (2) food distribution (including cafeteria, daycare, outside food suppliers, nutritional support programs) prioritizes foods of good nutritional value; (3) measures are in place to foster active transportation (e.g. crossing guards, secure bike racks, etc.); (4) physical activity is provided on all days when there is no physical education class to all students (not including activities during lunch, recess or before/after school); (5) indoor facilities for physical education, extracurricular and other physical activities meet the needs of all students; (6) outdoor facilities for physical education, extracurricular and other physical activities meet the needs of all students; (7) indoor school physical activity facilities are available to all students outside the class timetable; (8) outdoor school physical activity facilities are available to all students outside the class timetable; (9) access to indoor and outdoor facilities for physical education, extracurricular and other physical activities belonging to other schools or community/private organizations is available to all students (does not include municipal parks)."	Strongly disagree; disagree; neither agree nor disagree; agree; strongly agree	Responses were summed and divided by the number of items responded to, to create a score (range: 1.17–5.00; α = 0.6)
Ease of principal leadership[21]	"Indicate the level of difficulty. In this school, how difficult is it for the principal to ... (1) demonstrate leadership for change, (2) establish a climate of openness to innovation, (3) ensure that instructional goals are clearly communicated to everyone, (4) secure resources for health-promoting interventions, (5) foster respect, (6) establish a safe and orderly school environment, (7) guide the staff in the process of solving problems."	Strongly disagree; disagree; neither agree nor disagree; agree; strongly agree	Responses were summed and divided by the number of items responded to, to create a score (range: 2.57–5.00; α = 0.8)

TABLE 2
Questionnaire items, response options and recoding of response options for analysis—HPI-related characteristics

Characteristic	Questionnaire item	Coding	Recoding for analyses
HPI designer was …	"Who originally designed (*name of intervention*)?"	School principal; vice-principal; homeroom teacher(s); other teacher(s); professional staff member(s) in your school; internal group; school board (educational services, student services); university-based research team; provincial ministry; CISSS/CIUSSS; community organization; not-for profit organization; for-profit organization; other	External to school Internal to school Both internal and external
Number of core competencies addressed by intervention[22]	"Were any of the following core competencies incorporated into (*name of intervention*)? Check all that apply. (1) Self-esteem; (2) managing emotions and stress; (3) positive interactions with others; (4) self-awareness; (5) learning to say "no"; (6) asking for help; (7) informed lifestyle choices; (8) adoption of prosocial choices; (9) management of prosocial choices; (10) social engagement; (11) other (specify)."	No, yes (for each)	Yes responses were summed to create a total score (range: 1–11)
Number of teaching strategies employed	"What type of teaching strategy was used for (*name of intervention*)? Check all that apply. (1) Lecture strategies: presentations, demonstrations; (2) individual work: independent practice; (3) interactive teaching strategies: group discussion, role-play, modelling; (4) social constructivist teaching strategies: peer education, tutoring, collaborative and cooperative learning; (5) other (specify)."	No, yes (for each)	Yes responses were summed to create a total score (range: 1–4)
Whole school approach	"Which grade(s) received (*name of intervention*)? Check all that apply … Kindergarten; Grade 1; Grade 2; Grade 3; Grade 4; Grade 5; Grade 6; all grades (adjusted for age-appropriate content); other (specify)."	No, yes (for each)	No, yes (if all grades received intervention)
Program champion present	"Was there someone who advocated strongly for the intervention and supported its adoption despite barriers?"	No, yes (for each)	None During adoption During implementation During both adoption and implementation
HPI animators[a] were …	"(*Name of intervention*) animators were (check all that apply) … (1) homeroom teachers; (2) other teachers; (3) student-peers; (4) school health professionals (e.g. nurse, dental hygienist, etc.); (5) other; (6) external health professionals (e.g. physician); (7) members of a community organization; (8) CEGEP[b] or university students; (9) other."	No, yes (for each)	Internal to school (1–5) External to school (6–9)
Families included in HPI	"Were families invited to participate in (*name of intervention*)?"	No, yes	N/A
Community groups included in HPI	"Were community groups invited to participate in (*name of intervention*)?"	No, yes	N/A
School board involved in HPI implementation	"Was the school board involved in the implementation of the intervention?"	No, yes	N/A
Responsible for HPI implementation	"Who was responsible for planning how (*name of intervention*) would be implemented in the first year? (check all that apply) … (1) A team composed of members of the school staff; (2) a team composed of members of the school staff and a partner organization; (3) school principal; (4) vice-principal; (5) homeroom teacher; (6) other teacher; (7) external agency; (8) intervention developers; (9) other."	No, yes (to each)	Internal individual (3–6) Internal team (1) External individual or team (1, 2 and 3–6 not endorsed) Internal/external team (2)

Continued on the following page

TABLE 2 (continued)
Questionnaire items, response options and recoding of response options for analysis—HPI-related characteristics

Characteristic	Questionnaire item	Coding	Recoding for analyses
Number of complementary initiatives in the school during HPI implementation	"Were there any other initiatives occurring in your school before or around the same time as (*name of intervention*) that addressed the same health and well-being issue as (*name of intervention*)? Check all that apply. … (1) Media campaign (e.g. posters, distribution of leaflets, social media, etc.); (2) assemblies; (3) extra-curricular activities; (4) linking to services offered by external organization; (5) infrastructure (e.g. installation of bike racks); (6) social environment (e.g. increased surveillance, support to students, etc.); (7) school policy (e.g. nutrition, physical activity, bullying, etc.); (8) school daycare service activities; (9) special events; (10) other."	No, yes (to each)	Yes responses were summed to create a total score (range: 0–7)
Modifications to HPI	"Prior to implementation, did your school make any modifications to (*name of intervention*)? (1) No modifications were made (it could be used as is); (2) no modifications were made (it was already tailored to our school); (3) no modifications were made (other reason); (4) yes (minor modifications); (5) yes (major modifications); (6) yes, but don't know if they were major or minor modifications; (7) don't know (an external agency implemented the intervention in our school). Did (*name of intervention*) change during its implementation? (8) Did not change at all; (9) underwent minor modifications; (10) underwent major modifications; (11) changed completely; (12) don't know (an external agency implemented the intervention)."	N/A	No modifications (1, 2, 3, 7, 8) Modifications prior to implementation (4, 5, 6) Modifications during implementation (9, 10, 11) Modifications prior to and during implementation (any combination of yes responses in both categories)
Perceived success of HPI	"Indicate your level of agreement. In this school … (1) (*name of intervention*) met all objectives; (2) abandoning (*name of intervention*) had/would have a negative effect on the students; (3) (*name of intervention*) had a positive impact on students; and (4) animators enjoyed working on (*name of intervention*)."	Strongly disagree; disagree; neither agree nor disagree; agree; strongly agree	Responses were summed and divided by the number of items responded to, to create a score (range: 2.25–5.00); α = 0.7)
HPI impact on ...	"Did any of the following changes occur in your school as a result of implementing (*name of intervention*)? (1) Changes to the social environment (e.g. increased supervision, emotional support for the students, development of relaxation areas, etc.), update of teachers' roles and responsibilities, revision of school policy or addition of new school policy; (2) changes to school infrastructure (e.g. bicycle racks); addition of equipment; (3) addition of health-promoting interventions, addition of extra-curricular activities, modification/termination of other health-promoting interventions."	No, yes (to each)	No impact (no response endorsed) Social environment (1 endorsed) Physical environment (2 endorsed) Activities/interventions (3 endorsed) Social and physical environments (1 and 2 endorsed) Social environment & activities/interventions (1 and 3 endorsed) Physical environment and activities/ interventions (2 and 3 endorsed) All (1, 2, and 3 endorsed)

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TABLE 2 (continued)
Questionnaire items, response options and recoding of response options for analysis—HPI-related characteristics

Characteristic	Questionnaire item	Coding	Recoding for analyses
Evaluation effort	"Did your school do any of the following to evaluate (*name of intervention*)? (1) Hold regular meetings; (2) obtain feedback from the (*name of intervention*) animators; (3) document the extent to which implementation was carried out in accordance with the plan; (4) document the number of students participating in the (*name of intervention*); (5) document the barriers and facilitators to implementation; (6) formally evaluate the outcomes of the (*name of intervention*)."	No, yes (to each)	The highest level endorsed was recorded: No evaluation (no response endorsed) Informal evaluation (1 or 2 endorsed) Administrative documentation (3, 4 or 5 endorsed) Formal evaluation (6 endorsed)

Abbreviations: CEGEP, Collège d'enseignement général et professionnel; CISSS/CIUSSS: Centre intégré de santé et de services sociaux/centre intégré universitaire de santé et de services sociaux; HPI, health-promoting intervention; N/A, not applicable.

[a] Animators were defined as the individuals tasked with delivering the HPI.

[b] A CEGEP is a public school providing the first level of postsecondary education, similar to a junior or community college elsewhere in Canada or in the US.

and education).[29-32] Fifty-six percent of index HPIs (n = 88) were institutionalized, and half had been in schools at least three years (interquartile range = 2–6, range = 1–43). Among index HPIs related to mandated topics, all three that addressed oral health were institutionalized, as were 84% (36/43) addressing bullying, 45% (42/93) related to physical activity and 46% (32/70) related to healthy eating.

School-related correlates of institutionalization

Three aspects of health-promoting school culture (i.e. parent/community engagement in the school, school/teacher commitment to student health and the school's physical environment) were positively associated with HPI institutionalization. None of the characteristics describing school structure or student demographics were associated with institutionalization (Table 3).

HPI-related correlates of institutionalization

Four HPI-related characteristics were positively associated with institutionalization of the index HPI (Table 4). HPIs that incorporated a greater number of core competencies or a larger number of teaching strategies, or both, were more likely to be institutionalized, as were HPIs that were modified during implementation or both prior to and during implementation. Additionally, the greater the perception that the HPI was successful, the higher the odds of institutionalization. Finally, HPIs in which families were invited to participate were less likely to be institutionalized than those that did not invite families. Adjusted odds ratios for variables with imputed values were within 0.09 of those obtained in sensitivity analyses with complete cases.

The effectiveness of an HPI can be determined only by formal evaluation of the extent to which the intervention met measurable benchmarks.[33] In this study, institutionalization was unrelated to evaluation effort, yet, in an earlier study, the index HPIs were seen as highly successful.[16] Perceived success was equivalent for HPIs evaluated informally (M [SD] = 4.38 [0.58]), via documentation (4.19 [0.52]) or via formal assessment (4.31 [0.49]; $F(2/160) = 1.46$, $p = 0.23$).

Discussion

In this study, we identified correlates of HPI institutionalization from among a comprehensive range of school- and HPI-related characteristics in elementary schools in Quebec, Canada. Benefits of school-based HPI institutionalization include HPI sustainability, consistency over time, accountability and scalability.[8,34,35] Institutionalization is generally viewed as a positive step toward ensuring that HPIs can continue to benefit students after the initial implementation phase.[8] In the current study, over half of the HPIs were institutionalized. The correlates of institutionalization identified herein are discussed below.

School-related correlates of institutionalization

School culture indicators associated with HPI institutionalization included more active involvement of parents and the community in the school, strong commitment to student health among school staff and a physical environment favourable to student health. Beliefs and norms shared within the school (i.e. school culture) are known to be driving forces of the operational processes and motivations that guide HPI implementation.[8] Availability of health-promoting equipment and space could increase the likelihood of school staff choosing an HPI that aligns with the school context. Strong commitment to student health promotion among the school staff can positively influence perceptions of HPIs within the school community, especially in schools where staff believe in the relevance and importance of such interventions. Finally, our results support existing evidence that the role of school principals in guiding staff towards objectives, obtaining resources, distributing responsibilities and resolving conflicts is critical, with multiple studies highlighting the need for strong leadership to facilitate HPI implementation.[36]

Two systematic reviews recently investigated barriers and facilitators to sustainability of school-based HPIs targeting a variety of health themes.[7,34] Although most interventions in these reviews were not completely sustained, Herlitz et al. identified four categories of factors associated with sustainment: school capacity to sustain HPIs, staff motivation and commitment to sustain HPIs, HPI adaptability and integration, and the wider policy context. Factors consistently related to HPI sustainability included leadership by school principals and administration, and

TABLE 3
Unadjusted and adjusted ORs and 95% CIs from logistic regression models for the association between school characteristics and institutionalization of school-based health-promoting interventions

	N[a]	Proportion of institutionalized HPIs, %	OR (95% CI)	aOR[b] (95% CI)
School deprivation				
Advantaged	34	56.3	Ref	Ref
Moderately advantaged	71	58.0	1.12 (0.48–2.60)	1.08 (0.45–2.57)
Disadvantaged	58	52.6	0.90 (0.38–2.14)	0.81 (0.31–2.14)
Size of population centre				
Rural/small	91	55.7	Ref	Ref
Medium/large	72	55.7	1.03 (0.55–1.93)	0.94 (0.43–2.07)
Language of instruction				
French	136	53.4	Ref	Ref
English	27	66.7	1.72 (0.72–4.12)	1.77 (0.72–4.34)
Number of students[c]			0.99[d] (0.91–1.08)	0.99[d] (0.89–1.10)
< 149	40	60.0		
149–265	41	70.3		
266–425	40	35.9		
≥ 426	41	58.5		
Teacher turnover				
None/few	92	58.9	Ref	Ref
Some/a lot	69	50.0	0.71 (0.38–1.34)	0.71 (0.37–1.35)
Principal turnover				
None/few	125	56.8	Ref	Ref
Some/a lot	36	48.4	0.77 (0.35–1.68)	0.79 (0.36–1.75)
Parent/community engagement in school[c]			**2.07 (1.22–3.49)**	**2.32 (1.31–4.08)**
1st quartile	35	28.6		
2nd quartile	35	65.7		
3rd quartile	48	65.1		
4th quartile	45	60.0		
School/teacher commitment to student health[c]			**2.18 (1.18–4.03)**	**2.33 (1.22–4.44)**
1st quartile	46	40.9		
2nd quartile	39	58.3		
3rd quartile	26	50.0		
4th quartile	59	69.2		
School physical environment[c]			**1.80 (1.07–3.02)**	**1.74 (1.02–2.97)**
1st quartile	41	46.2		
2nd quartile	38	44.4		
3rd quartile	48	57.5		
4th quartile	36	75.0		
Ease of principal leadership[c]			1.88 (0.93–3.81)	1.96 (0.96–4.03)
1st quartile	36	55.9		
2nd quartile	35	43.8		
3rd quartile	40	65.0		
4th quartile	35	62.9		

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; HPI, health-promoting intervention; OR, odds ratio; Ref, reference group.

Note: Models were run using imputed data. Bold font indicates confidence intervals that do not contain the null (1.00).

[a] *n*s do not always sum to 163 because of missing data.
[b] Adjusted for school deprivation, size of population centre, language of instruction and number of students.
[c] Continuous potential correlates are presented categorically for descriptive purposes but were retained as continuous in analytic models.
[d] OR represents the change in odds per 50 students.

TABLE 4
Unadjusted and adjusted ORs and 95% CIs from logistic regression models for the association between intervention-related characteristics and institutionalization of school-based health-promoting interventions

	N[a]	Proportion of institutionalized HPIs, %	OR (95% CI)	aOR[b] (95% CI)
Number of years HPI in school[c]			1.06 (0.98–1.15)	1.06 (0.97–1.16)
< 2 years	33	48.5		
2 years	31	51.6		
3–4 years	34	63.6		
≥ 5 years	55	66.0		
Whole school approach to HPI				
No	56	55.8	Ref	Ref
Yes	107	55.7	0.98 (0.50–1.89)	0.99 (0.50–1.94)
HPI designers were ...				
External to school	91	60.0	Ref	Ref
Internal to school	60	50.9	0.72 (0.37–1.41)	0.71 (0.36–1.39)
External and internal	12	45.5	0.53 (0.15–1.87)	0.52 (0.15–1.87)
Number of competencies addressed in HPI[c]			**1.39 (1.19–1.61)**	**1.39 (1.19–1.62)**
< 5	81	38.8		
≥ 5	82	73.1		
Number of teaching strategies used in HPI[c]			**1.77 (1.22–2.58)**	**1.80 (1.22–2.65)**
1	71	44.9		
2	55	55.8		
3–4	37	75.7		
Program champion present				
No	24	59.1	Ref	Ref
Adoption only	14	35.7	0.42 (0.11–1.68)	0.42 (0.10–1.66)
Implementation only	17	47.1	0.64 (0.18–2.27)	0.66 (0.18–2.39)
Adoption and implementation	106	58.3	1.03 (0.41–2.58)	0.97 (0.38–2.49)
HPI animators were ...				
Internal to school	117	54.4	Ref	Ref
External to school	17	53.3	0.91 (0.31–2.63)	0.90 (0.31–2.65)
Internal and external	29	62.1	1.35 (0.58–3.11)	1.23 (0.52–2.91)
Families invited to participate in HPI				
No	70	67.7	Ref	Ref
Yes	74	45.8	**0.40 (0.21–0.77)**	**0.42 (0.21–0.82)**
Community groups invited to participate in HPI				
No	124	56.2	Ref	Ref
Yes	19	55.6	1.08 (0.41–2.82)	1.09 (0.41–2.88)
Responsible for HPI implementation				
Individual internal to school	26	46.2	Ref	Ref
Internal team	24	56.5	1.53 (0.49–4.72)	1.55 (0.49–4.92)
External individual or team	47	51.1	1.28 (0.49–3.36)	1.29 (0.49–3.40)
Internal/external team	66	62.5	1.90 (0.75–4.76)	1.93 (0.76–4.88)
School board involved in HPI implementation				
No	116	58.6	Ref	Ref
Yes	30	53.3	0.85 (0.38–1.90)	0.86 (0.38–1.95)

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TABLE 4 (continued)
Unadjusted and adjusted ORs and 95% CIs from logistic regression models for the association between intervention-related characteristics and institutionalization of school-based health-promoting interventions

	N[a]	Proportion of institutionalized HPIs, %	OR (95% CI)	aOR[b] (95% CI)
Number of complementary initiatives in the school during HPI implementation[c]			1.08 (0.89–1.30)	1.06 (0.88–1.29)
0	42	53.7		
1	42	42.9		
2	30	75.3		
≥ 3	49	57.8		
Modifications made to HPI				
None	47	40.0	Ref	Ref
Prior to implementation	13	63.6	2.56 (0.65–10.02)	2.67 (0.64–11.20)
During implementation	49	71.4	**3.73 (1.61–8.74)**	**3.96 (1.68–9.33)**
Prior to and during implementation	35	61.8	**2.62 (1.08–6.33)**	**2.62 (1.06–6.45)**
Perceived success of HPI[c]			**2.67 (1.38–5.14)**	**2.57 (1.33–4.98)**
1st quartile	37	40.5		
2nd quartile	54	50.0		
3rd quartile	29	60.7		
4th quartile	43	72.1		
HPI produced changes in ...				
No changes	15	57.1	Ref	Ref
Social environment	18	64.7	1.37 (0.32–5.80)	1.36 (0.31–5.97)
Physical environment	4	25.0	0.25 (0.02–3.06)	0.23 (0.02–2.97)
Interventions offered	18	44.4	0.60 (0.15–2.47)	0.63 (0.15–2.64)
Social and physical env.	12	41.7	0.54 (0.11–2.57)	0.41 (0.08–2.06)
Social env. and interventions	30	60.7	1.23 (0.44–4.48)	1.26 (0.34–4.68)
Physical env. and interventions	12	16.7	**0.15 (0.02–0.96)**	0.16 (0.02–1.01)
Changes in all above	54	67.9	1.55 (0.46–5.20)	1.57 (0.45–5.40)
HPI evaluation effort				
Informal[d]	13	46.2	Ref	Ref
Administrative documentation	80	42.7	0.91 (0.28–2.96)	0.94 (0.28–3.13)
Formal evaluation	70	71.4	2.92 (0.87–9.76)	3.09 (0.90–10.59)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; env., environment; HPI, health-promoting intervention; OR, odds ratio; Ref, reference group.

Notes: Models were run using imputed data. Bold font indicates confidence intervals that do not contain the null (1.00).

[a] *n*s do not always sum to 163 because of missing data.

[b] Adjusted for school deprivation, size of population centre, language of instruction and number of students.

[c] Continuous potential correlates are presented categorically for descriptive purposes but were retained as continuous in analytic models.

[d] All schools reported having conducted at least informal evaluation.

commitment and confidence of school staff to promote health,[7] which aligns with our findings.

Our findings also support previous work underscoring the importance of establishing a supportive environment in schools, either before introducing an HPI or as a target of intervention, as well as considering the school climate or culture for adapting an HPI.[21,37] For long-term success, a comprehensive and collaborative approach is needed to address the complex public health challenges that many HPIs aim to tackle. The feasibility of improving school culture to increase access to and effectiveness of HPIs is demonstrated in Canada by the APPLE Schools initiative: an innovative, evidence-based HPI that fosters a supportive school culture to facilitate behaviour change (healthy eating, physical activity, mental well-being) in students.[38-40]

HPI-related correlates of institutionalization

Several characteristics of HPIs were associated with institutionalization. First, HPIs that integrated more core competencies and/or a wider range of teaching strategies were more likely to be institutionalized. Research suggests that multicomponent school-based HPIs are more likely than single-component interventions to meet benchmarks and be cost-effective and sustainable.[40] Second, if an HPI was modified during or prior to implementation, it was more likely to be institutionalized. A "one size fits all" approach may overlook modifications and adaptations needed to render an HPI a good fit to the school.[41] Each school has a unique environment, with its own student population, staff and culture, and what works in one school may not work in another. Modifying or adapting an HPI to the school culture and context is essential to increase its relevance, acceptability and effectiveness, integrate local resources and assets and ensure its institutionalization.[41]

Third, HPIs that included families were less likely to be institutionalized compared to those that did not involve families. This finding is intriguing because involving families and other external stakeholders has been recommended as important to HPI success.[42-44] It is possible that there may be concerns around confidentiality and privacy or that excluding parents increases ease and efficiency of HPI implementation. Additional coordination and resources may be needed to ensure parental participation. However, parental involvement can be critical to HPI success, particularly in promoting healthy behaviours beyond the school environment.[42-44] Thus, striking a balance between the advantages of institutionalization and the potential benefits of parental involvement is essential.

Finally, HPIs that were perceived as successful were more likely to be institutionalized. Perceived success can generate support and buy-in from key stakeholders, including school administrators, staff and parents, who may be more willing to allocate resources to the intervention over time.[8]

It is important to note that neither perceived success nor institutionalization of HPIs guarantees that they are (or remain) effective (i.e. meet established benchmarks), which can be assessed only through formal evaluation.[33,37] Many school-based HPIs are not evaluated in practice for reasons related to lack of time and resources, and challenges in measuring health outcomes in the short- and long-term, and many HPIs are sustained despite being ineffective. In a survey of US public health practitioners from state and local health departments and related agencies, 36% to 42% reported that effective programs that should have continued were discontinued, and 25% to 29% reported that ineffective programs that should have been terminated were continued.[45] Perceived success may not align with effectiveness when HPIs are not adequately evaluated. We suggest that the Ministry and school boards provide incentives to schools to evaluate the effectiveness of available HPIs in achieving measurable benchmarks, and that the evaluations be conducted on a regular basis to guard against decisions that are not evidence-based.

Strengths and limitations

Strengths of this study include the use of a structured interview to collect data, which allowed for expansion and clarification of respondents' comments, and the exploration of aspects of a health-promoting school culture that have not been previously investigated in the context of HPI institutionalization.

Limitations of this analysis include the convenience sample of schools, which could limit generalizability. However, the characteristics of Prome*SS* schools resembled those of all eligible elementary schools in Quebec. Responses from a single key informant within a school may not provide an accurate portrayal of the organizational perspective. However, data collection from multiple respondents within the same school was not feasible. In addition, the Prome*SS* questionnaire was sent to informants prior to the interview so that they could consult their staff to prepare. Our measure of institutionalization included a single item, and its validity and reliability are not established. Recall error could have resulted in misclassification bias in the observed associations. Our measures of health-promoting school culture are new and require further validation. Finally, participants might have been motivated to present the most desirable impression of their schools or chosen to discuss an HPI with which they were more familiar and, perhaps, which was more likely to have been institutionalized, which may have introduced bias.

Conclusion

The work presented herein adds to a growing literature on factors associated with HPI institutionalization. These factors include indicators of health-promoting school culture (parent/community engagement with the school, school/teacher commitment to student health, school physical environment) as well as characteristics of the HPI (number of competencies addressed by the HPI, number of teaching strategies employed, modifications made to the HPI prior to or during implementation, perceived success of the HPI, not inviting families/community groups to participate in the HPI). Our findings therefore suggest that to optimize sustainability, characteristics of both the school context and the intervention itself must be considered in the design and implementation of HPIs.

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Conflicts of interest

The authors have no competing interests.

Authors' contributions and statement

RW—supervision, methodology, formal analysis, writing—original draft, writing—review & editing.

EOL—conceptualization, methodology, writing—original draft, writing—review & editing.

KM—supervision, conceptualization, writing—review & editing.

JK—conceptualization, writing—original draft, writing—review & editing.

TR—resources, conceptualization, writing—original draft, writing—review & editing.

JOL—conceptualization, resources, methodology, writing—original draft, writing—review & editing, supervision, project administration, funding acquisition.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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Original quantitative research

Exploring differences in substance use behaviours among gender minority and non-gender minority youth: a cross-sectional analysis of the COMPASS study

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Abstract

Introduction: Research characterizing substance use disparities between gender minority youth (GMY) and non-GMY (i.e. girls and boys) is limited. The aim of this study was to examine the differences in substance use behaviours among gender identity (GI) groups and identify associated risk and protective factors.

Methods: Cross-sectional data from Canadian secondary school students (n = 42 107) that participated in Year 8 (2019/20) or Year 9 (2020/21) of the COMPASS study were used. Hierarchal logistic regression models estimated current substance use (cigarettes, e-cigarettes, binge drinking, cannabis and nonmedical prescription opioids [NMPOs]). Predictor variables included sociodemographics, other substances, mental health outcomes, school connectedness, bullying and happy home life. Interaction terms were used to test mental health measures as moderators in the association between GI and substance use.

Results: Compared to non-GMY, GMY reported a higher prevalence for all substance use outcomes. In the adjusted analyses, GMY had higher odds of cigarette, cannabis and NMPO use and lower odds for e-cigarette use relative to non-GMY. The likelihood of using any given substance was higher among individuals who were involved with other substances. School connectedness and happy home life had a protective effect for all substances except binge drinking. Bullying victimization was associated with greater odds of cigarette, e-cigarette use and NMPOs. Significant interactions between GI and all mental health measures were detected.

Conclusion: Findings highlight the importance of collecting a GI measure in youth population surveys and prioritizing GMY in substance use–related prevention, treatment and harm reduction programs. Future studies should investigate the effects of GI status on substance use onset and progression among Canadian adolescents over time.

Keywords: *binge drinking, cannabis use, cigarette use, e-cigarette use, gender minority youth*

Highlights

- Gender minority youth (GMY) were more likely to use cigarettes, cannabis and nonmedical prescription opioids and less likely to use e-cigarettes than girls and boys.
- GMY experiencing symptoms of depression or anxiety were less likely to binge drink than GMY without symptoms.
- GMY experiencing symptoms of anxiety were more likely to use nonmedical prescription opioids than GMY without symptoms.
- These findings support the need to prioritize GMY in substance use prevention programs.
- Youth surveillance studies should adopt the two-step gender identity measure.

Introduction

Adolescence is a unique time in which individuals between the ages of 10 and 19 develop their gender identity (GI) and sexual orientation.[1] According to the Survey of Safety in Public and Private Spaces, in 2018, individuals aged 15 to 24 years accounted for 30% of the lesbian, gay, bisexual, transgender, queer and Two-spirited (LGBTQ2+) population in Canada, as opposed to 14% of the non-LGBTQ2+ population.[2] The term "gender minority youth" (GMY) refers to individuals whose GI is not cisgender (i.e. individuals whose GI corresponds with their sex assigned at birth [SAB]). GIs that fall under this umbrella term include, but are not limited to, transgender (i.e. someone whose GI does not match their SAB), nonbinary (i.e. a person whose GI is not limited to being exclusively male or female) and Two Spirit

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(i.e. an Indigenous person whose GI has both male and female spirits) populations.[3]

To date, GMY have been understudied in substance use research, as studies typically focus on the differences between cisgender boys and girls.[3,4] This is because questions about GI have not yet been standardized on large-scale population-based surveys, thereby limiting the accuracy and inclusiveness of the data collected and mischaracterizing health and behavioural outcomes for GMY.[3,5] Furthermore, many studies focussing on GMY are generally small-scale, lack comparison groups or fail to recognize that sexual orientation, SAB and GI are conceptually different.[3,5,6] However, this is slowly changing, with national surveys adopting the two-step measure (Step 1 asks SAB; Step 2 asks current GI), as well as researchers, funders and journal editors emphasizing the need to examine the impacts of both sex and gender on health outcomes.[3,7]

Investigating substance use is essential, as the literature suggests that GMY are at a greater risk for substance use, misuse and related problems compared to cisgender youth.[4,8-12] In 2017, findings from a cross-sectional study revealed that nonbinary Canadian youth (Grades 9–12) were 2.26 times more likely to ever use cannabis than males.[13] A cross-sectional analysis of a sample of California youth (Grades 7–12) found that transgender youth had higher rates of lifetime, current and in-school substance use compared to non-transgender peers.[8] Similarly, a national survey in the US highlighted that the rates of lifetime alcohol and past-30-day cigarette and cannabis use were higher among transgender youth than cisgender peers.[10] Emerging evidence also anticipates GMY may have been disproportionately affected by the COVID-19 pandemic, thereby further exacerbating their risk for using substances.[14]

Substance use disparities among GMY may be explained by the minority stress theory, which postulates that GMY use substances to cope with the unique social stressors they experience in schools, families and communities as a result of their marginalized or stigmatized identities.[4,15,16] The chronic stressors that impact their health and well-being may be external (distal) objective stressors (e.g. discrimination), proximal subjective stressors (e.g. hiding one’s GI), or both.[15] The risk for problematic substance use may be further heightened among GMY who, in the absence of social support (e.g. support from school personnel), experience elevated rates of emotional dysregulation, social and interpersonal problems and psychological distress.[15-17]

Currently, the majority of research investigating GMY’s substance use behaviours stems from the US.[9,10,12,15] Given the similar experiences with minority stressors, we expect Canadian GMY’s substance use patterns to mirror those in the US.[4] Understanding substance use behaviours among Canadian GMY is critical in preventing adverse health and social outcomes and informing interventions efforts to effectively support the unique needs of this population. Thus, given the limited large-scale research among Canadian youth (aged 12–18),[13,18] the purpose of this study was to (1) examine the differences in substance use behaviours between Canadian GMY and non-GMY, and (2) identify associated risk and protective factors.

Methods

Ethics approval

All procedures employed by the COMPASS study were approved by the University of Waterloo Office of Research Ethics (ORE #30118) and appropriate school board committees.

Procedure

The COMPASS study is a prospective cohort study that annually collects data from full school samples of Canadian secondary school students (Grades 9–12, Secondary I–V in Quebec).[19] Schools that permit an active-information passive consent parental permission protocol,[20] which limits self-selection and response bias in substance use research, were purposefully sampled.[21] A full description of the COMPASS study methods is available online (https://uwaterloo.ca/compass-system/about).

Cross-sectional data from two consecutive waves (Year 8 [Y8]: 2019/20; Year 9 [Y9]: 2020/21) were used to increase the sample size among GMY. An anonymous, self-generated code was used to identity unique participants. Students were entered into the study once; for students that participated in both years, only their Y9 responses were used. Details on the data linkage process are described elsewhere.[22] Data in Y8 were collected between September 2019 and February 2020 via the paper-based COMPASS Student Questionnaire, which was completed during class time.[23] Since March 2020, when schools first suspended in-person learning due to COVID-19 restrictions, students have completed an online COMPASS Student Questionnaire[24] using Qualtrics XM[25] survey software.

Consistent with youth surveillance systems at the time of data collection,[5,26,27] the COMPASS student questionnaire in Y8 and Y9 measured students’ GI with the question, “Are you female or male?” Response options included “female,” “male,” “I describe my gender in a different way” and “I prefer not to say (PNTS).” While the measure used enabled youth to identify with a GI outside the traditional binary categories, we recognize that by not specifying “sex” or “gender,” this question does not differentiate between youths’ SAB and current GI. Thus, the question could be construed as measuring students’ GI or biological sex.[28,29]

However, given that this study primarily focusses on the socially constructed roles, behaviours and identities of youth, we categorized students who responded “female” and “male” as “girl” and “boy,” respectively, (i.e. “non-GMY”). Students who responded, “I describe my gender in a different way” were categorized as “GMY.” We acknowledge that our definition of “non-GMY” does not meet the preferred cisgender classification. However, seeing that we do not have data for students’ SAB, we cannot definitively categorize youth as “cisgender.” Instead, we can utilize the existing gender measure to differentiate youth that do not self-identify with the conventional binary options from those that do, and provide further insight into the substance use disparities between groups—a topic on which there is a dearth of evidence.

Participants

A total of 80 608 students participated across 144 schools in Ontario, Alberta, British Columbia and Quebec. Students in Secondary I and II in Quebec (equivalent to Grades 7 and 8; n = 20 711) and students with missing values for any variable (n = 17 790; variables with missing values included gender [0.38%], cigarette use [6.0%], e-cigarette use [6.1%], binge drinking [5.4%], cannabis use [6.7%] and non-medical prescription opioid use [NMPOU;

7.2%]) were excluded. Due to their unknown GI status, students who responded "PNTS" (n = 570) for GI were excluded from regression analyses. However, some descriptive results comparing this group with girls, boys and GMY are provided.

Table 1 presents a chi-square analysis of demographic characteristics comparing students with missing outcome data versus complete data. Significant differences between groups were identified for all variables. The primary reasons for missing respondents were school absenteeism, spare study periods and parent refusals (< 1%). The final complete-case analytic sample includes 41 537 students attending 139 schools (Alberta, 3072; Ontario, 14 626; Quebec, 16 403; British Columbia, 7436).

Measures

Substance use

Students reported on their cigarette use ("On how many of the last 30 days did you smoke one or more cigarettes?"); e-cigarette use ("On how many of the last 30 days did you use an e-cigarette?"); binge drinking ("In the last 12 months, how often did you have 5 drinks of alcohol or more on one occasion?"); and cannabis use ("In the last 12 months, how often did you use marijuana or cannabis? [a joint, pot, weed, hash])." Students who reported past-month use were classified as current users and students who used less than once a month were classified as non-current users. NMPOU was assessed with the question, "Have you tried any of the following medications to get high?" with three medications listed: "oxycodone," "fentanyl" and "other prescription pain relievers." Responses were categorized into a binary variable; an answer of "Yes, I have done this in the last 12 months" to any of the three medications was classified as engaging in NMPOU in the past year.

Mental health

Self-reported past-week depression symptoms (e.g. negative affect, somatic symptoms and amotivation) were assessed using the 10-item Center for Epidemiologic Studies Depression Scale Revised (CESD-R-10).[30] Students responded to items using a 4-point Likert scale (0 = "none or < 1 day" to 3 = "5–7 days"). Sum scores were dichotomized, whereby a score of ≥ 10 signified students had clinically relevant symptoms of depression (henceforth referred to as "depression").[30] The CESD-R-10 items had an internal consistency of α = 0.992.

The Generalized Anxiety Disorder 7-item (GAD-7) scale was used to measure self-reported symptoms of anxiety in the past two weeks.[31] Students' self-perceived feelings of worry, fear and irritability were rated using a 4-point Likert scale (0 = "not at all" to 3 = "nearly every day"). Sum scores were dichotomized, whereby a score ≥ 10 denoted students had clinically relevant anxiety symptomology (henceforth referred to as "anxiety").[31] Internal consistency of GAD-7 items was high (α = 0.991).

TABLE 1
Chi-square analysis of demographic characteristics comparing students participating in Year 8 (2019/20) or Year 9 (2020/21) of the COMPASS study with missing outcome data versus complete data (N = 59 897)

Student-level variable		Complete case[a] (n = 41 537)		Missing (n = 18 360)				
		n	%	n	%	χ^2	*df*	*p* value
Grade	9	11 274	27.1	5 317	29.0	$\chi^2 = 49.3$	3	< 0.001
	10	12 340	29.7	4 999	27.2			
	11	11 481	27.6	5 029	27.4			
	12	6 442	15.5	3 015	16.4			
Ethnicity	White	29 105	70.1	11 285	61.5	$\chi^2 = 1027.4$	6	< 0.001
	Black	1 033	2.5	860	4.7			
	Asian	4 466	10.8	2 291	12.5			
	Latin	871	2.1	506	2.8			
	Other	2 876	6.9	1 691	9.2			
	Mixed	3 186	7.7	1 486	8.1			
Weekly spending money	$0	7 894	19.0	3 506	19.1	$\chi^2 = 1878.1$	5	< 0.001
	$1–$20	7 374	17.8	3 067	16.7			
	$21–$100	8 278	19.9	3 324	18.1			
	> $100	10 210	24.6	4 080	22.2			
	I don't know	7 781	18.7	3 581	19.5			
Source of spending money	None	5 688	13.7	2 518	13.7	$\chi^2 = 2724.3$	5	< 0.001
	Parents	10 090	24.3	4 638	25.3			
	Job	15 687	37.8	6 125	33.4			
	Occasional work	3 793	9.1	1 585	8.6			
	Combination[b]	6 279	15.1	2 345	12.8			

Abbreviation: *df*, degrees of freedom.

[a] Final analytic sample.

[b] Combination: student receives money from multiple sources including their job, occasional work and/or parents.

Students' self-rated psychosocial well-being (e.g. psychosocial prosperity, optimism and relationships) was measured using the Flourishing Scale.[32] Students responded to 8 items using a 5-point Likert scale (0 = "strongly disagree" to 4 = "strongly agree"). Sum of the scores ranged from 8 to 40, where higher sum scores indicated greater well-being or flourishing. The Flourishing Scale had high internal consistency ($\alpha = 0.995$).

Emotional intelligence and regulation problems were assessed using a modified version of the Difficulties in Emotion Regulation Scale (DERS) in which one high-loading item from each of the six subscales was included, based on previous studies in adolescent samples.[33-36] Total sum scores ranged from 6 to 30, with higher composite DERS scores indicating greater socio-emotional dysfunction. Internal consistency of the DERS items was high ($\alpha = 0.992$).

Other covariates

Students were asked, "In the last 30 days, in what ways have you been bullied by other students?" Responses were dichotomized, with "yes" indicating having been bullied (e.g. physical attacks, verbal attacks, cyber-attacks, damage to or theft of possessions) and "no" indicating not having been bullied.

School connectedness was measured using an adapted version of the National Longitudinal Study of Adolescent Health 5-item scale,[37] which asks students to indicate how strongly they agree or disagree with the following five statements: "I feel close to people at my school," "I feel I am part of my school," "I am happy to be at my school," "I feel the teachers at my school treat me fairly" and "I feel safe in my school." A sixth item, "Getting good grades is important to me" was added. A sum score ranging from 6 to 24 was developed, with higher sum scores indicating greater feelings of connectedness.

On a 5-point Likert scale, students rated how much they agreed or disagreed with the statement "I have a happy home life." A response of 1 or 2 indicated students strongly agreed or agreed, respectively, that they had a happy home life.

Students provided the following demographic information, which is consistent with other youth health research: grade; province; ethnicity (White, Black, Indigenous, Asian, Latin American, other, mixed); weekly spending money (none, \$1–\$20, \$21–\$40, \$41–\$100, > \$100, don't know); and source of money (I do not usually get any money, my parents/guardians, I get a paycheque from a job, I get paid cash for occasional work).

Analysis

All analyses were performed in SAS 9.4.[38] Prevalence estimates and comparisons by GI were made using frequency tables and χ^2 and one-way ANOVA tests. Intraclass correlation coefficients (ICCs) were calculated for each outcome variable, and modest to moderate amounts of within-school variation were detected ($ICC_{cigarette} = 0.059$; $ICC_{e\text{-}cigarette} = 0.033$; $ICC_{bingedrinking} = 0.076$; $ICC_{cannabis} = 0.028$; $ICC_{NMPO} = 0.001$), indicating that 0.1% to 7.6% of the variation in students' substance use behaviours was due to school-level differences. Diagnostics assessing the risk of multicollinearity between potential explanatory variables revealed a minimal risk of collinearity, as none of the variance inflation factors exceeded 2.

Binary logistic models that predict the log odds of cigarette use, e-cigarette use, binge drinking, cannabis use and NMPOU were built using generalized estimating equations via PROC GENMOD. Models for each outcome were built using a stepwise approach. Models I to IV added variables in the following order: gender, demographic characteristics, other substances and other covariates. Comparisons between GI groups were made by changing the reference group in the model. The moderating effects of all mental health variables were examined; each two-way interaction was tested in separate models. Comparisons between GI groups were assessed using the LSMEANS statement with the DIFF option.

Results

Student characteristics

Table 2 presents the youths' characteristics by GI. A small proportion of students identified as GMY (2.3%), while 51.8% identified as girls and 44.5% as boys. More youth participated in Y9 (n = 29 079) compared to Y8 (n = 13 028) of the COMPASS study; 75% of GMY participated in Y9. Although a majority of the participants identified as White (70%), half of GMY (49.9%) identified as an ethnicity other than White. A higher proportion of GMY reported having no weekly spending money relative to non-GMY. Students who preferred not to disclose their GI (1.4%) had similar characteristics to GMY. Significant differences for all covariates by GI were identified.

Compared to girls and boys, GMY had a higher prevalence of past-month use for all substances, with the use of cigarettes, cannabis and NMPOs being at least two to six times higher. Between girls and boys, the prevalence of substance use was similar. A substantially higher proportion of GMY, followed by girls, reported depression and anxiety compared to boys. On average, GMY reported lower mean flourishing and school connectedness scores and greater mean DERS scores than non-GMY. Boys had similar scores for flourishing and school connectedness as girls but had lower DERS scores. It should be noted that after GMY, students that did not disclose their gender status had the highest proportions of cigarette, cannabis and NMPO use and mental health and social problems.

Predicting substance use

Tables 3 and 4 present logistic regression results for cigarette use, e-cigarette use, binge drinking and cannabis use. Models I (unadjusted) and II (demographic-adjusted) indicate that GMY were more likely to engage in current substance use relative to non-GMY. After adjusting for concurrent substance use (Model III), cigarette, cannabis and NMPO use remained significant, with a positive association.

In the fully adjusted model (Model IV, which includes covariates), the adjusted odds ratio (aOR) was determined for each outcome. GMY had higher odds of using cigarettes ($aOR_{GMYvs.Boys} = 1.61$; $aOR_{GMYvs.Girls} = 1.95$), cannabis ($aOR_{GMYvs.Boys} = 1.39$; $aOR_{GMYvs.Girls} = 1.81$) and NMPOs ($aOR_{GMYvs.Boys} = 1.76$; $aOR_{GMYvs.Girls} = 1.94$) and lower odds of using e-cigarettes ($aOR_{GMYvs.Boys} = 0.78$; $aOR_{GMYvs.Girls} = 0.72$) than non-GMY peers. Girls had a lower likelihood of cigarette use (aOR = 0.83), binge drinking (aOR = 0.83) and cannabis use (aOR = 0.77) compared to boys. Youth who used any of the substances were significantly more likely to use other substances. Prior to testing for interaction effects between mental health predictors and gender, youth with depression were 10% to 36% more likely to binge drink

TABLE 2
Characteristics of high school students (N = 42 107; 139 schools) participating in Year 8 (2019/20) or Year 9 (2020/21) of the COMPASS study, by gender identity status

Student-level variable		Gender identity[a]								p[b]
		Girl (N = 21 814)		Boy (N = 18 744)		GMY (N = 979)		PNTS (N = 570)		
		N	%	N	%	N	%	N	%	
Year	Y8 (2019/20)	6 129	28.1	6 467	34.5	243	24.8	189	33.2	< 0.001
	Y9 (2020/21)	15 685	71.9	12 277	65.5	736	75.2	381	66.8	
Grade	9	5 731	26.3	5 260	28.1	283	28.9	177	31.1	< 0.001
	10	6 493	29.8	5 568	29.7	279	28.5	162	28.4	
	11	6 246	28.6	4 987	26.6	248	25.3	142	24.9	
	12	3 344	15.3	2 929	15.6	169	17.3	89	15.6	< 0.001
Province	Alberta	1 534	7.0	1 454	7.8	84	8.6	57	10.0	
	Ontario	7 552	34.6	6 678	35.6	396	40.4	203	35.6	
	Quebec	8 903	40.8	7 213	38.5	287	29.3	158	27.7	
	British Columbia	3 825	17.5	3 399	18.1	212	21.7	152	26.7	
Ethnicity	White	15 488	71.0	13 128	70.0	489	49.9	279	48.9	< 0.001
	Black	451	2.1	496	2.6	86	8.8	33	5.8	
	Asian	2 407	11.0	1 980	10.6	79	8.1	79	13.9	
	Latin American	441	2.0	407	2.2	23	2.3	13	2.3	
	Other	1 361	6.2	1 372	7.3	143	14.6	105	18.4	
	Mixed	1 666	7.6	1 361	7.3	159	16.2	61	10.7	
Weekly spending money	$0	3 838	17.6	3 787	20.2	269	27.5	151	26.5	< 0.001
	$1–$20	3 816	17.5	3 375	18.0	183	18.7	103	18.1	
	$21–$100	4 681	21.5	3 470	18.5	127	13.0	68	11.9	
	> $100	5 205	23.9	4 783	25.5	222	22.7	97	17.0	
	I don’t know	4 274	19.6	3 329	17.8	178	18.2	151	26.5	
Source of spending money	None	2 526	11.6	2 952	15.7	210	21.5	137	24.0	< 0.001
	Parents	5 330	24.4	4 524	24.1	236	24.1	157	27.5	
	Job	8 318	38.1	7 090	37.8	279	28.5	144	25.3	
	Occasional work	1 871	8.6	1 821	9.7	101	10.3	61	10.7	
	Combination[c]	3 769	17.3	2 357	12.6	153	15.6	71	12.5	
Current cigarette use	No	20 680	94.8	17 682	94.3	780	79.7	507	88.9	< 0.001
	Yes	1 134	5.2	1 062	5.7	199	20.3	63	11.1	
Current e-cigarette use	No	16 737	76.7	14 643	78.1	651	66.5	450	78.9	< 0.001
	Yes	5 077	23.3	4 101	21.9	328	33.5	120	21.1	
Current binge drinking	No	18 143	83.2	15 329	81.8	730	74.6	487	85.4	< 0.001
	Yes	3 671	16.8	3 415	18.2	249	25.4	83	14.6	
Current cannabis use	No	19 633	90.0	16 712	89.2	691	70.6	485	85.1	< 0.001
	Yes	2 181	10.0	2 032	10.8	288	29.4	85	14.9	
Past-year NMPOU	No	20 901	95.8	18 039	96.2	800	81.7	518	90.9	< 0.001
	Yes	913	4.2	705	3.8	179	18.3	52	9.1	
Depression	No	9 697	44.5	13 006	69.4	257	26.3	201	35.3	< 0.001
	Yes	12 117	55.5	5 738	30.6	722	73.7	369	64.7	
Anxiety	No	12 740	58.4	15 585	83.1	405	41.4	290	50.9	< 0.001
	Yes	9 074	41.6	3 159	16.9	574	58.6	280	49.1	
Flourishing	Mean (SD)	30.9 (5.9)		32.2 (5.7)		25.8 (8.2)		27.0 (7.3)		< 0.001
Emotional dysregulation	Mean (SD)	16.1 (5.1)		13.6 (4.4)		18.5 (6.0)		17.2 (5.8)		< 0.001
School connectedness	Mean (SD)	18.1 (3.2)		18.6 (3.3)		15.5 (4.5)		16.3 (4.0)		< 0.001
Victim of bullying (last 30 days)	No	19 417	89.0	17 113	91.3	709	72.4	472	82.8	< 0.001
	Yes	2 397	11.0	1 631	8.7	270	27.6	98	17.2	
Happy home life	No	5 967	27.4	3 035	16.2	485	49.5	251	44.0	< 0.001
	Yes	15 847	72.6	15 709	83.8	494	50.5	319	56.0	

Abbreviations: GMY, gender minority youth; NMPOU, nonmedical prescription opioid use; PNTS, prefer not to say; SD, standard deviation; Y8, Year 8; Y9, Year 9.

[a] Complete case analysis.

[b] All χ^2 and F tests were significant at $p < 0.001$.

[c] Combination: student receives money from multiple sources including their job, occasional work and/or parents.

TABLE 3
Generalized estimated equation models predicting the likelihood of substance use outcomes among high school students participating in Year 8 (2019/20) or Year 9 (2020/21) of the COMPASS study (N = 41 537)

	Current cigarette use	Current e-cigarette use	Current binge drinking	Current cannabis use	Past-year NMPOU
Model I[a] —ORs (95% CI)					
GMY vs. boys (ref.)	4.00 (3.30–4.85)*	1.85 (1.59 – 2.16)*	1.64 (1.36–1.97)*	3.18 (2.67–3.78)*	5.70 (4.78–6.81)*
GMY vs. girls (ref.)	4.19 (3.44–5.09)*	1.65 (1.41–1.94)*	1.74 (1.45–2.08)*	3.32 (2.75–4.01)*	5.10 (4.22–6.17)*
Girls vs. boys (ref.)	0.96 (0.86–1.06)	1.12 (1.05–1.20)*	0.94 (0.88–1.01)	0.96 (0.89–1.03)	1.12 (0.99–1.25)
Model II[b]—aORs (95% CI)					
GMY vs. boys (ref.)	3.99 (3.31–4.82)*	2.14 (1.82–2.51)*	1.95 (1.60–2.37)*	3.28 (2.75–3.92)*	5.15 (4.34–6.11)*
GMY vs. girls (ref.)	4.03 (3.32–4.89)*	1.86 (1.58–2.20)*	2.12 (1.74–2.57)*	3.39 (2.79–4.10)*	4.43 (3.71–5.29)*
Girls vs. boys (ref.)	0.99 (0.89–1.10)	1.15 (1.07–1.23)*	0.92 (0.85–0.99)*	0.97 (0.90–1.05)	1.16 (1.04–1.30)*
Model III[c]—aORs (95% CI)					
GMY vs. boys (ref.)	2.05 (1.63–2.57)*	1.02 (0.81–1.29)	1.02 (0.84–1.24)	1.92 (1.56–2.36)*	2.86 (2.36–3.46)*
GMY vs. girls (ref.)	2.15 (1.73–2.67)*	0.81 (0.64–1.02)	1.17 (0.96–1.42)	2.09 (1.69–2.59)*	2.41 (1.99–2.92)*
Girls vs. boys (ref.)	0.95 (0.86–1.06)	1.26 (1.16–1.36)*	0.88 (0.80–0.95)*	0.92 (0.86–0.99)*	1.19 (1.05–1.34)*

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; GMY, gender minority youth; NMPOU, nonmedical prescription opioid use; OR, odds ratio; ref., reference group.

[a] Model I is unadjusted.

[b] Model II adjusts for school year and sociodemographic variables.

[c] Model III adjusts for school year, sociodemographic and substance use variables.

*$p < 0.05$

and use e-cigarettes, cannabis and NMPOs than those without depression. Anxiety had no significant effect on substance use. Although flourishing was associated with all substances (except cannabis) and DERS was related to every substance except cigarettes, the magnitude of the associations was small.

School connectedness and happy home life were negatively associated with all substances except binge drinking. Students, on average, were 3% to 6% less likely to engage in substance use for every 1-point increase in school connectedness and 24% to 29% less likely if they reported having a happy home life. Youth who reported past-month bullying victimization had higher odds of using cigarettes (aOR = 1.20), e-cigarettes (aOR = 1.44) and NMPOs (aOR = 1.73).

Moderating effects of mental health predictors

Overall, regardless of depression and anxiety status, a greater percentage of GMY compared to girls and boys reported e-cigarette use, binge drinking and NMPOU (Figure 1a–e). Depression was found to significantly moderate the association between gender and e-cigarette use and between gender and binge drinking. GMY with depression (22.3%) had a significantly lower prevalence of binge drinking compared to those without depression (34.2%, $p < 0.001$; Figure 1c]. Comparatively, the prevalence of e-cigarette use and binge drinking was significantly higher for girls with depression than without ($p < 0.001$; Figure 1a, c).

Two-way interaction effects between gender and anxiety existed in e-cigarette use, binge drinking and NMPOU. GMY without anxiety had a significantly higher prevalence of binge drinking (29.9%) than GMY with anxiety (22.3%, $p = 0.005$; Figure 1d). The proportion of girls and boys with anxiety using e-cigarettes was significantly higher compared to girls and boys without anxiety ($p < 0.05$; Figure 1b). NMPOU was greater among GMY with anxiety (19.2%) than GMY without anxiety (7.2%; $p = 0.005$; Figure 1e]. Boys with anxiety engaged in more NMPOU (8.2%) than boys without anxiety (2.9%; $p = 0.008$; Figure 1e). Interaction effects between gender and flourishing and gender and DERS were significant for all outcomes except cigarette use. However, the estimates of the observed associations were small. Table 5 presents the two-way interaction effects.

Discussion

As expected from recent population studies surveying adolescents,[8-11,18,39] the prevalence of substance use was higher among GMY than girls and boys. Interestingly, the frequency of substance use was also significantly higher among youth that indicated “PNTS” than girls or boys. It is possible that substance use among youth that reported PNTS may be driven by their own unique set of challenges (e.g. unsure about their GI).

Our results were consistent with De Pedro and colleagues’ cross-sectional study,[9] which revealed higher rates of past-30-day cigarette and cannabis use among transgender youth compared to non-transgender peers. When adjusting for only sociodemographic characteristics, we found GMY had a higher likelihood of current e-cigarette use and binge drinking, similar to existing research.[9,39,40] However, in our fully adjusted models, we found GMY relative to non-GMY had a lower likelihood of current e-cigarette use and that GMY status alone did not significantly predict current binge drinking. Our unique findings may be explained by the additional covariates (i.e. other substances, mental health outcomes, school connectedness, bullying victimization and happy home life) in our model and the relatively small difference in prevalence estimates between gender groups for e-cigarette use and binge drinking compared to the larger discrepancy seen for other substances.

TABLE 4
Generalized estimating equation models predicting the likelihood of current substance use among high school students participating in Year 8 (2019/20) or Year 9 (2020/21) of the COMPASS study (N = 41 537)

	Model IV				
	Current cigarette use	Current e-cigarette use	Current binge drinking	Current cannabis use	Past-year NMPOU
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Gender					
GMY vs. boys (ref.)	1.61 (1.29–2.01)*	0.78 (0.62–0.98)*	1.02 (0.83–1.25)	1.39 (1.13–1.72)*	1.76 (1.44–2.15)*
GMY vs. girls (ref.)	1.95 (1.57–2.41)*	0.72 (0.58–0.91)*	1.22 (0.999–1.49)	1.81 (1.45–2.25)*	1.94 (1.58–2.37)*
Girls vs. boys (ref.)	0.83 (0.74–0.92)*	1.08 (0.997–1.17)	0.83 (0.77–0.91)*	0.77 (0.71–0.83)*	0.91 (0.80–1.03)
Current cigarette use					
Yes	N/A	9.66 (8.05–11.60)*	1.98 (1.73–2.26)*	3.05 (2.65–3.52)*	2.48 (2.17–2.83)*
No (ref.)		–	–	–	–
Current e-cigarette use					
Yes	7.95 (6.81–9.29)*	N/A	5.34 (4.91–5.81)*	6.46 (5.80–7.20)*	1.62 (1.40–1.88)*
No (ref.)	–		–	–	–
Current binge drinking					
Yes	2.03 (1.82–2.26)*	5.23 (4.80–5.69)*	N/A	2.67 (2.42–2.95)*	1.77 (1.55–2.02)*
No (ref.)	–	–		–	–
Current cannabis use					
Yes	2.93 (2.58–3.33)*	7.44 (6.57–8.44)*	2.75 (2.46–3.08)*	N/A	3.00 (2.58–3.48)*
No (ref.)	–	–	–		–
Past-year NMPOU					
Yes	2.36 (2.07–2.70)*	1.57 (1.34–1.85)*	1.81 (1.58–2.08)*	2.89 (2.50–3.35)*	N/A
No (ref.)	–	–	–	–	
Depression					
Yes	1.09 (0.97–1.22)	1.17 (1.09–1.27)*	1.10 (1.01–1.19)*	1.15 (1.05–1.26)*	1.36 (1.19–1.56)*
No (ref.)	–	–	–	–	–
Anxiety					
Yes	1.00 (0.88–1.13)	1.01 (0.94–1.09)	0.995 (0.91–1.08)	0.99 (0.90–1.09)	1.13 (0.99–1.29)
No (ref.)	–	–	–	–	–
Flourishing	0.98 (0.98–0.99)*	1.01 (1.003–1.02)*	1.03 (1.02–1.03)*	0.99 (0.99–1.003)	0.98 (0.97–0.99)*
Emotional dysregulation	1.003 (0.99–1.01)	1.03 (1.02–1.03)*	1.02 (1.02–1.03)*	1.01 (1.004–1.02)*	1.02 (1.003–1.03)*
School connectedness	0.97 (0.96–0.98)*	0.97 (0.96–0.98)*	0.99 (0.98–1.01)	0.94 (0.93–0.95)*	0.96 (0.94–0.97)*
Victims of bullying (last 30 days)					
Yes	1.20 (1.08–1.34)*	1.44 (1.32–1.58)*	1.08 (0.97–1.20)	1.03 (0.93–1.15)	1.73 (1.52–1.98)*
No (ref.)	–	–	–	–	–
Happy home life					
Yes	0.76 (0.69–0.84)*	0.79 (0.73–0.86)*	1.04 (0.94–1.14)	0.71 (0.66–0.77)*	0.96 (0.85–1.08)
No (ref.)	–	–	–	–	–

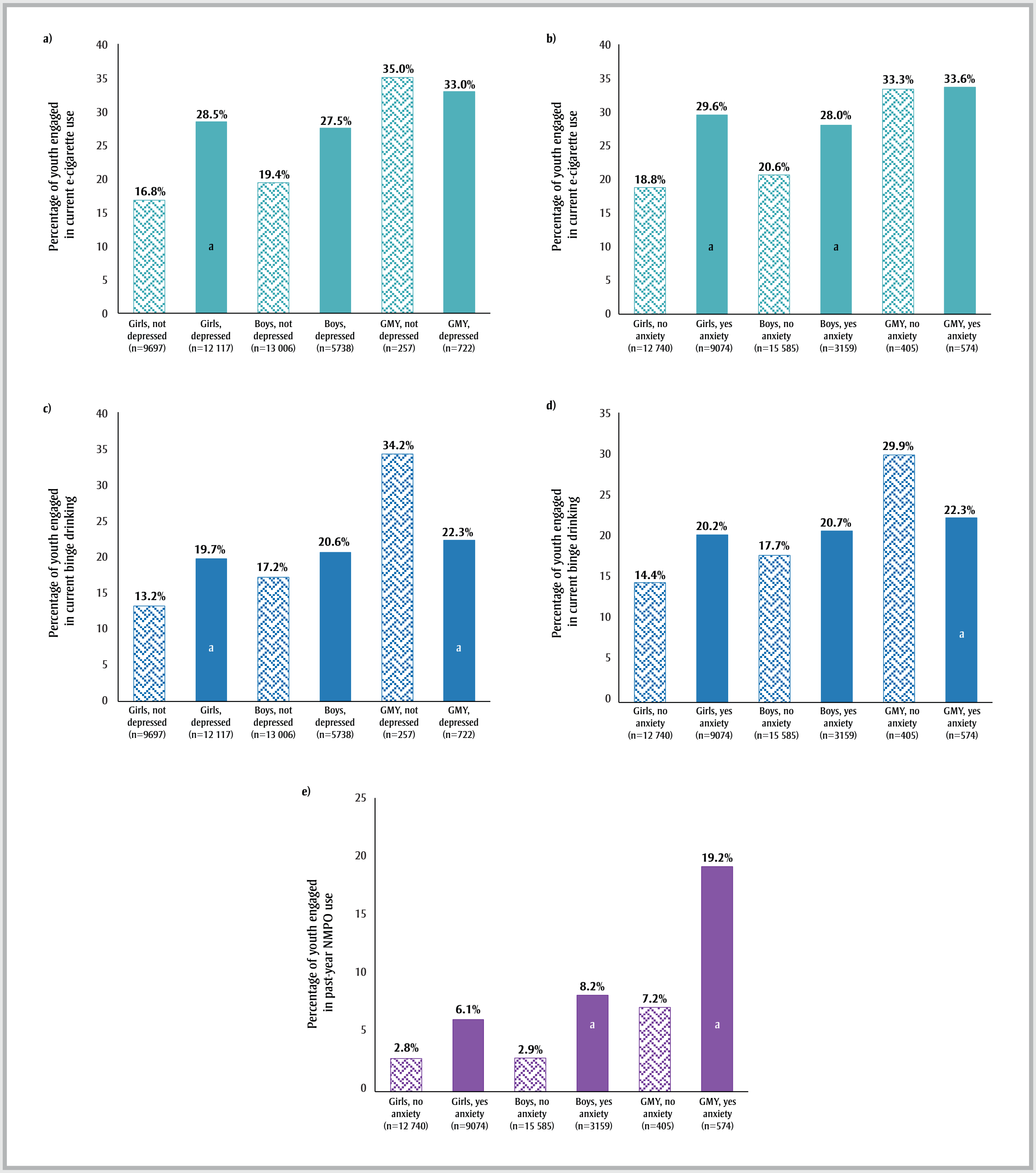
Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; GMY, gender minority youth; N/A, not applicable; NMPOU, nonmedical prescription opioid use; ref., reference group.

[a] Model IV adjusts for school year, sociodemographics, substance use, mental health and other covariates (bullying victimization, school connectedness and happy home life).

*$p < 0.05$

Consistent with previous findings, we found that a greater proportion of GMY, followed by girls, reported mental health issues compared to boys.[8,41,42] Interaction analyses indicated that the associations between gender and e-cigarette use, gender and binge drinking, and gender and NMPOU varied depending on mental health status. As expected, the frequency of NMPOU was greater among youth with clinically relevant anxiety symptoms than those without.[4,43] Although GMY reported higher e-cigarette use and binge drinking compared to non-GMY, we found that binge drinking was lower among GMY with clinically relevant depression and anxiety symptoms than GMY without these conditions. This contradicts the current literature that suggests GMY experiencing internalizing symptoms will engage in greater substance use.[1,8] E-cigarette use

FIGURE 1
The percentage of youth reporting current e-cigarette use, binge drinking and nonmedical prescription opioid use (NMPOU) as a function of (1) gender × depression and (2) gender × anxiety



Notes: Figures (a) and (c) depict depression moderating the association between gender and e-cigarette use and gender and binge drinking, respectively. Figures (b), (d) and (e) depict anxiety moderating the association between gender and e-cigarette use, gender and binge drinking, and gender and NMPOU, respectively.

[a] Significant differences within each gender group with or without depression or anxiety.

TABLE 5
Generalized estimating equation models testing the moderating effects of mental health predictors on the relationship between gender identity status and substance use outcomes among a sample of high school students participating in Year 8 (2019/20) or Year 9 (2020/21) of the COMPASS study (N = 41 537)

Interaction terms[a]			Current e-cigarette use aOR (95% CI)[b]	Current binge drinking aOR (95% CI)[b]	Current cannabis use aOR (95% CI)[b]	Past-year NMPOU aOR (95% CI)[b]
Depression[c] (yes vs. no)	GMY	GMY	0.98 (0.62–1.55)	0.48 (0.34–0.70)*	—	—
	Girl	Girl	1.28 (1.17–1.41)*	1.24 (1.10–1.39)*	—	—
	Boy	Boy	1.06 (0.95–1.18)	0.89 (0.89–1.09)	—	—
Anxiety[c] (yes vs. no)	GMY	GMY	0.81 (0.53–1.22)	0.52 (0.36–0.75)*	—	0.56 (0.39–0.81)*
	Girl	Girl	1.10 (1.02–1.19)*	1.08 (0.99–1.18)	—	1.06 (0.90–1.24)
	Boy	Boy	0.85 (0.75–0.97)*	0.88 (0.77–1.02)	—	1.39 (1.15–1.69)*
Flourishing[d]	GMY	Boy	1.01 (0.99–1.04)	0.995 (0.97–1.02)	1.03 (1.001–1.06)*	1.03 (1.01–1.06)*
	GMY	Girl	1.03 (1.01–1.06)*	1.02 (0.996–1.04)	1.04 (1.01–1.06)*	1.03 (1.01–1.05)*
	Girl	Boy	0.98 (0.97–0.993)*	0.98 (0.97–0.991)*	0.99 (0.98–1.002)	1.00 (0.98–1.02)
Emotional dysregulation[d]	GMY	Boy	0.99 (0.96–1.02)	0.97 (0.94–0.99)*	0.97 (0.93–0.9979)*	0.95 (0.92–0.98)*
	GMY	Girl	0.96 (0.93–0.99)*	0.94 (0.92–0.97)*	0.95 (0.92–0.98)*	0.96 (0.93–0.99)*
	Girl	Boy	1.03 (1.01–1.04)*	1.02 (1.01–1.04)*	1.02 (1.01–1.03)*	0.99 (0.97–1.01)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; GMY, gender minority youth; NMPOU, nonmedical prescription opioid use.

[a] All two-way interaction effects were tested individually in separate models.

[b] Final analytic sample: all models adjusted for school year, sociodemographics, substance use, mental health and other covariates (bullying victimization, school connectedness and happy home life).

[c] The interaction effect on the likelihood of substance use was assessed within each gender identity group (i.e. with or without depression or anxiety) as anxiety and depression are categorical variables.

[d] The interaction effect on the likelihood of substance use was assessed across gender identity groups as flourishing and emotional dysregulation are continuous variables.

[*] $p < 0.05$

did not differ among GMY based on mental health status. However, for girls and boys, clinically relevant internalizing symptoms were associated with greater e-cigarette use, binge drinking and NMPOU.

Additionally, and contrary to expectations,[16,44] we did not find greater psychological well-being or poor emotional regulation skills to influence substance use among GMY. The insignificant findings may be because data were collected during the COVID-19 pandemic. The pandemic-induced lockdowns and restrictions, which upended youths' daily routines, could have driven deteriorations in mental health and emotional dysregulation among all participating youth, regardless of their GI.[45]

A plausible explanation for our contradictory findings for binge drinking may be that GMY with internalizing symptoms are isolating themselves from social activities, in which binge drinking is common.[18] For two-Spirit, lesbian, gay, bisexual, transgender, queer, intersex, and additional people who identify as part of sexual and gender diverse communities (2SLGBTQI+) youth, disclosing one's sexual or gender identity has been linked to lower self-esteem, which is a prospective risk factor for depression and anxiety.[46,47] If "coming out" is a positive experience, one in which youth feel accepted and supported by family, friends and community members, GMY may experience greater self-esteem and fewer internalizing symptoms, allowing them to better connect and socialize with peers.[18,46,47] Future GMY-based research is needed to better understand the relationship between minority stress factors, mental health and substance use.

This study, in line with existing research,[15,17] also highlights that among the entire study sample, perceived happy home life and school connectedness had a protective effect against substance use, while bullying victimization was associated with an increased risk. Future work should examine the mechanisms underlying the association between social health factors and substance use among GMY.

Strengths and limitations

A primary strength of this study is that it is the first to use a large sample of Canadian secondary school students to examine differences in current substance use behaviours between GMY and non-GMY. The large sample size of youth is achieved via the robust COMPASS data collection procedures and data linkage process. Additionally, the GI measure was able to successfully capture GMY.

Regarding the limitations of our study, first, our gender question does not identify the different subcategories of GMY (e.g. transgender, nonbinary). However, the proportion of GMY identified in our study (2%) aligns with other studies that sample youth attending secondary schools[48] and is slightly higher compared to population-based studies that focus solely on transgender youth.[39] Second, purposive sampling was used to recruit schools and collect data, which may limit the generalizability to school-aged youth in Canada. Third, the use of self-report measures (e.g. GI, substance use) may have led to underreporting due to social desirability bias. However, these risks were mitigated with the use of an anonymous, active-information, passive-consent data collection procedure that encourages participation as well as honest self-reporting.[20,21] Fourth, the cross-sectional nature prohibits causal inferences.

Conclusion

We found significant disparities in substance use by GI, with GMY at a significantly greater risk of using some substances (i.e. cigarettes, e-cigarettes and NMPOs) compared to girls and boys. This study highlights the importance of adopting the two-step GI measure in population-based surveillance studies. Future studies should identify the longitudinal patterns of substance use behaviours by gender and sexual orientation status among Canadian adolescents. Such knowledge will be useful when implementing tailored community and school-based interventions that address the unique needs and challenges of GMY.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Authors’ contributions and statement

TV—conceptualization, methodology, formal analysis, data curation, writing—original draft, review & editing.

KAP—supervision, data curation, funding acquisition, resources, writing—review & editing.

MdG—supervision, conceptualization, methodology, resources, writing—review & editing.

YJ—supervision, conceptualization, methodology, resources, writing—review & editing.

STL—supervision, data curation, funding acquisition, resources, conceptualization, methodology, investigation, writing—review & editing.

All authors approved the final manuscript.

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https://doi.org/10.24095/hpcdp.44.4.05

Call for papers: Generating stronger evidence to inform policy and practice: natural experiments on built environments, health behaviours and chronic diseases

Guest editors: Dr. Stephanie Prince Ware (Public Health Agency of Canada), Dr. Gavin McCormack (University of Calgary)

HPCDP Journal Editors: Robert Geneau and Margaret de Groh (Public Health Agency of Canada)

Where we work, learn, play, eat and live has important implications for health. The built environment has been associated with the development of chronic disease, and with health behaviours often seen as critical pathways for this relationship.[1,2] Built environments refer to components of the physical environment that are human-made or human-modified and include structures and buildings, recreation facilities, green spaces and parks, transportation systems and community design.

Natural experiments are interventions that occur without a researcher's ability to manipulate the intervention or exposure to the intervention.[3,4] Natural experiments offer the opportunity to evaluate the effects of "naturally occurring" interventions such as changes to the built environment (e.g. creation of a new bike path, park improvements, infrastructure changes to schools or workplaces, construction of a new recreation facility or grocery store) on health behaviours and chronic disease risk. Natural experiments are often more practical for investigating the health impacts of environmental interventions when compared to traditional experimental studies (e.g. randomized controlled trials). Compared to cross-sectional studies, natural experiments provide a means to generate rigorous evidence to better establish causality, as well as to understand the implementation of interventions in "real-world" scenarios.

This special issue answers the 2017 Canadian Public Health Officer annual report's call to further evaluate the health impacts of community design features in Canada.[5] This special issue resonates with the expanding scholarly and policy-oriented interest in the utility of natural experiments as a critical tool in advancing the body of evidence and for informing interventions to improve public and population health.[6,7] Specifically, the objective of this special issue on natural experiments is to provide timely evidence to further understand the effectiveness of built environment interventions on health behaviours and chronic disease prevention in a Canadian context.

Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice is seeking relevant topical research articles that present new findings or synthesize/review existing evidence on natural experiments of the built environment (or related policies) that influence health behaviours with implications for chronic disease prevention in Canada.

Relevant topic areas include, but are not limited to:

- Built environments, including community or neighbourhoods, workplaces, schools, transportation infrastructure, home environments, recreation environments, parks, playgrounds, green spaces, public open spaces, natural environments and seniors' residences.
- All health-related behaviours, including physical activity, sedentary behaviour, sleep, food consumption, smoking and substance use.
- Chronic diseases and health-related outcomes, including body mass index, fitness, blood pressure, blood lipids, blood sugar, injuries, falls, mental health, stress, depression, anxiety, Alzheimer's disease, dementia, obesity, metabolic syndrome, cardiovascular disease, cancer, diabetes and lung disease.

International submissions will be considered if they include Canadian data, results (e.g. as part of multi-country studies or global comparisons) and/or evidence-based discussion of implications for community or population health in Canada.

Consult the Journal's website for information on article types and detailed submission guidelines for authors. Kindly refer to this call for papers in your cover letter.

All manuscripts should be submitted using the Journal's ScholarOne Manuscripts online system. Pre-submission inquiries and questions about suitability or scope can be directed to HPCDP.Journal-Revue.PSPMC@phac-aspc.gc.ca.

Submission deadline: November 30, 2024

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https://doi.org/10.24095/hpcdp.44.4.06

Corrigendum

Glossary of terms: A shared understanding of the common terms used to describe psychological trauma, version 3.0

This corrigendum is being published to remove two bullets from a definition in the following article:

Heber A, Testa V, Groll D, Ritchie K, Tam-Seto L, Mulligan A, Sullo E, Schick A, Bose E, Jabbari Y, Lopes J, Carleton RN. Glossary of terms: A shared understanding of the common terms used to describe psychological trauma, version 3.0. Health Promot Chronic Dis Prev Can. 2023;43(10/11). https://doi.org/10.24095/hpcdp.43.10/11.09

The first two bullets have been removed from the Military sexual trauma (MST) definition.

At the time of this publication, the Department of National Defence (DND) Terminology Board endorsed the definition of Military Sexual Trauma (MST) provided. Although published on DND's website on September 26, 2023, this definition was removed from its website in early January 2024.

Before correction

Military sexual trauma (MST)

General public and academic definition

- *Military sexual trauma* (MST) is trauma caused to a Canadian Armed Forces (CAF) member as a result of unwanted sexual or sexualized activity by another CAF member. There can be varying degrees and impacts of trauma.

- *(The above is the official definition endorsed by the Department of National Defence Terminology Board and the opening sentence of the Glossary of Terms 3.0 definition.)*

- MST is currently not listed as a diagnosis in the DSM-5-TR or ICD-11.

- MST refers to any sexual or sexualized activity that occurs without the person's consent, during their service as a member of the CAF, and the physically or psychologically traumatic impacts of this activity on the affected person. The spectrum of MST can vary from small impact to severe disorders.

- Examples of sexual or sexualized activities without the person's consent or where the person is unable to consent include (but are not limited to):
  - Taking part in sexual activities because of coercion or threat (such as threats to a person's physical safety, reputation, or career progression, or threats of other negative treatment, if the person refuses to comply)
  - Any coercive situation where expectation of, participation in, or tolerance of, unwanted sexual experiences is used as a basis for work assignment or promotion decisions
  - Any situation involving comments, unwanted touching, grabbing, or sexual advances, including hazing activities or rituals
  - Sexual contact or activities while sleeping, unconscious, or any other circumstance where the person's capacity to consent is impaired by drugs or alcohol
  - Sexualized comments or displays of pornographic or demeaning materials in the workplace
  - Repeated unwelcome requests for a sexual relationship
  - Witnessing any of the examples of sexual or sexualized activities in this list
  - Any unwanted sexual activity or display that creates a hostile, intimidating, or offensive work environment.

- Examples of MST impacts on the affected person include (but are not limited to):
    - Disturbed sleep or nightmares
    - Feeling sad or depressed
    - Disturbing memories of re-experiencing the event
    - Difficulty feeling safe
    - Feeling numb or without emotion
    - Feeling guilt or shame, anger or rage
    - Problems in work (such as reduced productivity, conflict with coworkers)
    - Problems in intimate relationships, and difficulties parenting
    - Problems with alcohol or drugs
    - Physical injuries or pain conditions, and
    - Reluctance to report for duty or to wear their uniform.

After correction

Military sexual trauma (MST)

General public and academic definition

- MST is currently not listed as a diagnosis in the DSM-5-TR or ICD-11.

- MST refers to any sexual or sexualized activity that occurs without the person's consent, during their service as a member of the CAF, and the physically or psychologically traumatic impacts of this activity on the affected person. The spectrum of MST can vary from small impact to severe disorders.

- Examples of sexual or sexualized activities without the person's consent or where the person is unable to consent include (but are not limited to):
    - Taking part in sexual activities because of coercion or threat (such as threats to a person's physical safety, reputation, or career progression, or threats of other negative treatment, if the person refuses to comply)
    - Any coercive situation where expectation of, participation in, or tolerance of, unwanted sexual experiences is used as a basis for work assignment or promotion decisions
    - Any situation involving comments, unwanted touching, grabbing, or sexual advances, including hazing activities or rituals
    - Sexual contact or activities while sleeping, unconscious, or any other circumstance where the person's capacity to consent is impaired by drugs or alcohol
    - Sexualized comments or displays of pornographic or demeaning materials in the workplace
    - Repeated unwelcome requests for a sexual relationship
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- Examples of MST impacts on the affected person include (but are not limited to):
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    - Feeling guilt or shame, anger or rage
    - Problems in work (such as reduced productivity, conflict with coworkers)

- Problems in intimate relationships, and difficulties parenting
- Problems with alcohol or drugs
- Physical injuries or pain conditions, and
- Reluctance to report for duty or to wear their uniform.

The original online version of the article has been modified on February 28, 2024, to reflect this change. Once available, the PDF version of the article will reflect the updated version of the definition.

https://doi.org/10.24095/hpcdp.44.4.07

Other PHAC publications

Researchers from the Public Health Agency of Canada also contribute to work published in other journals and books. Look for the following articles published in 2023 and 2024:

Bouchouar E, Levine MJ, **Ileka-Priouzeau S, Dave S**, et al. Exploring challenges and opportunities in detecting emerging drug trends: a socio-technical analysis of the Canadian context. Can J Public Health. 2023. https://doi.org/10.17269/s41997-023-00842-w

Dun-Dery F, Xie J, Winston K, **Salvadori MI**, et al. Post-COVID-19 condition in children 6 and 12 months after infection. JAMA Netw Open. 2023;6(12). https://doi.org/10.1001/jamanetworkopen.2023.49613

Frehlich L, Turin TC, Doyle-Baker P, **Lang JJ**, et al. Mediation analysis of the associations between neighbourhood walkability and greenness, accelerometer-measured physical activity, and health-related fitness in urban dwelling Canadians. Prev Med. 2024;178:107792. https://doi.org/10.1016/j.ypmed.2023.107792

Leatherdale ST, Amores A, Bélanger RE, […] **Jiang Y.** Youth perception of difficulty accessing cannabis following cannabis legalization and during the early and ongoing stages of the COVID-19 pandemic: repeat cross-sectional and longitudinal data from the COMPASS study. Arch Public Health. 2023;81(1):214. https://doi.org/10.1186/s13690-023-01224-x

Palis H, Haywood B, McDougall J, […] **Burgess H**, et al. Factors associated with obtaining prescribed safer supply among people accessing harm reduction services: findings from a cross-sectional survey. Harm Reduct J. 2024;21(1):5. https://doi.org/10.1186/s12954-024-00928-9

Sayfi S, Charide R, Elliott SA, […] **Stevens A**, et al. A multimethods randomized trial found that plain language versions improved adults understanding of health recommendations. J Clin Epidemiol. 2024;165:111219. https://doi.org/10.1016/j.jclinepi.2023.11.009

Shaver N, Beck A, Bennett A, […] **Garritty C, Subnath M, […] Traversy G, Graham E**, et al. Screening for hypertension in adults: protocol for evidence reviews to inform a Canadian Task Force on Preventive Health Care guideline update. Syst Rev. 2024;13(1):17. https://doi.org/10.1186/s13643-023-02392-1

Toigo S, Katzman DK, Vyver E, **McFaull SR, Iynkkaran I, Thompson W.** Eating disorder hospitalizations among children and youth in Canada from 2010 to 2022: a population-based surveillance study using administrative data. J Eat Disord. 2024;12(1):3. https://doi.org/10.1186/s40337-023-00957-y

Warkentin MT, Ruan Y, Ellison LF, […] **Demers AA, […] Brenner DR.** Progress in cancer control leads to a substantial number of cancer deaths avoided in Canada. JNCI Cancer Spectr. 2023;7(6):pkad105. https://doi.org/10.1093/jncics/pkad105

Zhu F, Zhao Y, Arnold DL, […] **Bonner C, Graham M, […] Knox N, […] Van Domselaar G,** et al. A cross-sectional study of MRI features and the gut microbiome in pediatric-onset multiple sclerosis. Ann Clin Transl Neurol. 2023. https://doi.org/10.1002/acn3.51970

Ziam S, Lanoue S, McSween-Cadieux E, […] **Jean E,** et al. A scoping review of theories, models and frameworks used or proposed to evaluate knowledge mobilization strategies. Health Res Policy Syst. 2024;22(1):8. https://doi.org/10.1186/s12961-023-01090-7