

At-a-glance

Gender identity and sexual attraction among Canadian youth: findings from the 2019 Canadian Health Survey on Children and Youth

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Abstract

Gender identity and sexual attraction are important determinants of health. This study reports distributions of gender identity and sexual attraction among Canadian youth using data from the 2019 Canadian Health Survey on Children and Youth. Among youth aged 12 to 17, 0.2% are nonbinary and 0.2% are transgender. Among youth aged 15 to 17, 21.0%, comprising more females than males, report attraction not exclusive to the opposite gender. Given known associations between health and gender and sexual attraction, oversampling of sexual minority groups is recommended in future studies to obtain reliable estimates for identifying inequities and informing policy.

Keywords: *gender identity, sexual orientation, youth, transgender persons, sexual and gender minorities, Canada*

Introduction

Gender and sexual orientation are important determinants of health among adults¹⁻⁵ and youth,⁶⁻¹⁰ and data for these variables should be collected routinely in public health surveillance to identify inequities and inform policy.

Statistics Canada has recently developed data standards for sex and gender,¹¹ and undertaken consultations for similar standards for sexual orientation.¹² Gender refers to “a person’s social or personal identity as a man [male], woman [female] or non-binary person.”¹³ Gender categories and normative expressions of gender vary across historical, cultural and social contexts. Sex at birth, meanwhile, is assigned based on a collection of anatomical and physiological characteristics.¹³ The term “cisgender” encompasses those whose gender identity corresponds to their sex at birth. “Transgender” encompasses those

whose gender identity does not correspond to their sex at birth.¹⁴ “Nonbinary” encompasses those whose gender identity is not exclusively male or female.¹⁴ “Nonbinary” is often used as an umbrella term for gender identities outside the gender binary of male/female, including persons identifying as agender, genderqueer and gender fluid.^{14,15} Nonbinary persons may or may not identify themselves as transgender.¹⁴

Sexual orientation comprises three dimensions: sexual attraction (the sexes or genders of people to whom an individual is attracted), sexual identity (the term that one assigns oneself; e.g. heterosexual, bisexual, lesbian, gay) and sexual behaviour (the sexes or genders of people with whom an individual has sexual experiences).^{16,17} So-called “sexual minorities” are typically those with nonheterosexual attraction, identity or behaviour (i.e. not only attracted to the opposite sex/gender; identifying as nonheterosexual; having had

Highlights

- Gender and sexual attraction as a dimension of sexual orientation are important determinants of health among youth.
- Collecting gender and sexual attraction information as a routine part of public health surveillance is important for identifying inequities and informing policy.
- This study provides nationally representative estimates for the distribution of gender and sexual attraction among Canadian youth.
- This study identifies populations (nonbinary, transgender and same gender-attracted youth) that require oversampling or other approaches to ensure that reliable estimates can be obtained in public health surveillance.

same-sex/gender sexual experiences).¹⁷ Sexual orientation is distinct from “romantic orientation,” which refers to the sexes or genders of those with whom an individual desires to have romantic relationships.¹⁸ Finally, “Two-Spirit” is a term used by Indigenous peoples across North America that encompasses a broad range of gender and sexual identities, as well as a diversity of terms from a number of Indigenous languages.¹⁹

Studies have found that nonbinary, transgender, Two-Spirit and sexual minority persons in Canada face a broad range of

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health and social inequities compared to cisgender and heterosexual persons,^{1-5,19,20} including poorer mental health outcomes among youth.^{6,7}

The distribution of sexual orientation can vary depending on which dimension is examined. Data collection for each dimension is not always possible due to practical constraints, and not all dimensions may be relevant or appropriate to measure, depending on the population being studied. For example, sexual identity develops over time and is subject to change, especially during adolescence and young adulthood.^{17,21} Sexual behaviour is also subject to change—many youth have not yet had sexual experiences,¹⁷ and behaviours are affected by opportunity as well as identity and attraction.²² While sexual attraction is also subject to change, studies have found that sexual attraction questions are the easiest to understand among youth and that youth consider attraction to be the principal element of sexual orientation.^{23,24}

Few studies have examined the distribution of gender and sexual attraction (or other dimensions of sexual orientation) among Canadian youth.^{1,25,26} This is a major gap, given the known health and social inequities associated with nonbinary gender, transgender, Two-Spirit and minority sexual attraction among youth. This study reports distributions for gender identity and sexual attraction among a nationally representative sample of Canadian youth.

Methods

Data source

This study used data from the 2019 Canadian Health Survey on Children and Youth (CHSCY), a cross-sectional survey conducted by Statistics Canada.²⁷ Data collection occurred between 11 February and 2 August 2019. The CHSCY covered a nationally representative sample of children and youth aged 1 to 17 years, excluding those living on First Nation reserves and other Aboriginal settlements, those living in foster homes and the institutionalized population. The sampling frame consisted of beneficiaries of the Canada Child Benefit, covering 98% of the population aged 1 to 17 in all provinces and 96% in all territories. The CHSCY is a Statistics Canada survey conducted under the authority of the *Statistics Act*, and

informed consent and assent were obtained from all participants. The CHSCY and its methodology are further described elsewhere.²⁷

This study focusses on youth aged 12 to 17 years. Data were collected by electronic questionnaire or telephone interview. All youth were asked about gender identity, while only youth aged 15 to 17 were asked about sexual attraction. Other dimensions of sexual orientation (i.e. sexual identity and behaviour) were not included in the CHSCY.

There were 11 077 respondents aged 12 to 17 in the 2019 CHSCY (5301 aged 15 to 17; response rate: 41.3%). Survey weights were provided by Statistics Canada to account for sampling and nonresponse and generate nationally representative estimates. Analyses were restricted to those with available data, totalling 11 064 respondents (99.9%) for gender identity, and 5254 respondents (99.1%) for sexual attraction.

Measures

Sex

Youth were asked, “What was your sex at birth? Sex refers to sex assigned at birth.” Response options were “male” and “female.”

Gender identity

Youth were asked, “Gender refers to current gender which may be different from sex assigned at birth and may be different from what is indicated on legal documents. What is your gender?” Response options were “male,” “female,” “or please specify.” Youth who identified as a gender other than male or female were classified as “nonbinary.”

Cisgender or non-cisgender

Youth whose gender corresponded with their sex at birth were classified as “cisgender.” Youth who identified as a gender other than male or female were classified as “nonbinary.” Youth who identified as the opposite gender to their sex at birth were classified as “transgender.” While nonbinary persons may or may not identify themselves as transgender, Statistics Canada data standards consider nonbinary and transgender persons as constituting different categories, with transgender persons identifying as part of the gender binary of male/female.¹⁴ Since not all categories were reportable due to low sample sizes and high sampling variability,

nonbinary and transgender youth were grouped together as “non-cisgender”

Sexual attraction

Youth aged 15 to 17 were asked whether they were “only attracted to males”; “mostly attracted to males”; “equally attracted to females and males”; “mostly attracted to females”; “only attracted to females”; or “not sure.” Cisgender and transgender youth were classified as “only attracted to the opposite gender”; “attracted to both genders”; “only attracted to the same gender”; or “not sure” based on their reported sexual attraction and self-identified gender. Nonbinary youth were classified as “attracted to both genders”; “only attracted to one gender”; or “not sure.”

Males and females classified as “attracted to both genders” were further disaggregated as: “mostly attracted to the opposite gender”; “equally attracted to both genders”; or “mostly attracted to the same gender,” where there was sufficient sample size.

Analyses by sexual attraction, particularly for the inclusion of nonbinary youth, were not always possible due to insufficient sample size. Therefore, for the current analysis, all youth were classified as having “attraction exclusive to the opposite gender”; or “attraction not exclusive to the opposite gender” if they were attracted to both genders, the same gender, not sure or if they self-identified as nonbinary gender. Similar classifications have been used in other studies.^{28,29} Those reporting “not sure” were excluded as a sensitivity analysis.

Statistical analyses

Descriptive statistics were used to calculate percentages and 95% confidence intervals (95% CIs) for gender identity measures overall and stratified by age group (12–14 and 15–17 years). Descriptive statistics were used to calculate percentages and 95% CIs for sexual attraction measures overall and stratified by gender (male/female). All statistics were calculated using survey weights provided by Statistics Canada to be nationally representative. We calculated 95% CIs using bootstrap weights. Two-tailed hypothesis tests were used to assess differences in gender by age and sexual attraction by gender under a significance level of 0.05.

Analyses were conducted in SAS EG 7.1 (SAS Institute, Inc., Cary, NC, US).

Results

Gender identity

Among Canadian youth aged 12 to 17 years, approximately 0.5% were classified as non-cisgender, with 0.2% identifying as nonbinary and 0.2% transgender (Table 1). The percentage of youth classified as non-cisgender did not differ by age group.

Sexual attraction

Among all youth aged 15 to 17 years, 79.0% reported attraction exclusive to the opposite gender, whereas 21.0% reported attraction not exclusive to the opposite gender (attracted to both genders, not sure of their sexual attraction, or nonbinary). When youth who were not sure of their sexual attraction (n = 190, 3.6%) were excluded in a sensitivity analysis, 17.8% of youth reported attraction not exclusive to the opposite gender (23.7% of females, 11.9% of males).

Among cisgender and transgender youth aged 15 to 17 years who identified as male or female, 79.3% were only attracted to the opposite gender, 15.9% were attracted to both genders, 1.0% were only attracted

to the same gender and 3.8% were not sure (Table 2). The majority of youth attracted to both genders were mostly attracted to the opposite gender. Females were less likely to only be attracted to the opposite gender than males. All transgender youth reported attraction to both genders or only to the same gender (percentage unreportable due to small sample size). Among nonbinary youth aged 15 to 17 years, 69.9% reported attraction to both genders. The remainder were attracted to one gender or not sure of their sexual attraction (percentages unreportable due to small sample size).

Discussion

This study provides the first nationally representative estimates of the distribution of gender identity and sexual attraction among Canadian youth aged 12 to 17 years.

Gender identity

Of the youth in this study, 0.2% identified as nonbinary, and 0.2% as a gender different than their sex assigned at birth (i.e. transgender). These estimates are generally consistent with the recent 2021 Census, in which 0.79% of Canadians aged 15 to 24 identified as nonbinary or transgender,²⁵ as well as results from the 2013 BC

Adolescent Health Survey, in which fewer than 1% of respondents identified as transgender.²⁶ Similarly, 1.2% of respondents identified as transgender in a population-based survey of New Zealand secondary students,³⁰ and 1.1% in a nationally representative survey of US youth aged 14 to 17.³¹ While constituting a small proportion of the population, nonbinary and transgender persons face a broad range of inequities.¹⁻⁷ Oversampling of these groups should be considered when designing surveillance and research studies to obtain reliable estimates and make inferences on their health and the inequities they experience.³²

Sexual attraction

A considerable percentage of youth (21.0%) reported attractions not exclusive to the opposite gender. This was similar to the percentage reporting sexual identities other than heterosexual in the 2013 BC Adolescent Health Survey (19%),²⁶ and considerably higher than the 2015 Canadian Community Health Survey for ages 15 to 24 years (5.6%).¹ Differences in estimates may be due to differences in the dimensions of sexual orientation and the population assessed, response options and trends over time. Gay, lesbian and bisexual identification has been increasing over time, particularly among younger

TABLE 1
Gender identities of Canadian youth aged 12 to 17 years overall and by age, 2019 Canadian Health Survey on Children and Youth

	Overall (N = 11 063) % (95% CI)	Ages 12–14 years (n = 5770) % (95% CI)	Ages 15–17 years (n = 5293) % (95% CI)
Gender			
Female	48.5 (43.4–53.6)	48.1 (46.8–49.4)	49.0 (47.6–50.3)
Male	51.2 (46.9–55.6)	51.7 (50.4–53.0)	50.8 (49.4–52.2)
Nonbinary	0.2 ^E (0.0–3.6)	^F	0.2 ^E (0.1–0.4)
Total^b	100	100	100
Cisgender/non-cisgender			
Cisgender	99.5 (99.3–99.7)	99.5 (99.3–99.8)	99.5 (99.3–99.7)
Non-cisgender ^a	0.5 ^E (0.0–5.7)	0.5 ^E (0.2–0.8)	0.5 ^E (0.3–0.7)
Nonbinary	0.2 ^E (0.0–3.6)	^F	0.2 ^E (0.1–0.4)
Transgender	0.2 ^E (0.1–3.7)	^F	0.3 ^E (0.1–0.5)
Total^b	0.5 ^E	0.5 ^E	0.5 ^E
Total^b	100	100	100

Abbreviation: CI, confidence interval.

^a The following three rows provide further breakdowns for non-cisgender youth where possible.

^b The sum of the categories may not equal the total due to rounding or unreportable numbers.

^E Estimates should be interpreted with caution due to high coefficient of variation.

^F Estimate unreportable due to high coefficient of variation.

TABLE 2
Sexual attraction of Canadian male and female youth aged 15 to 17 years, overall and by gender, 2019 Canadian Health Survey on Children and Youth

	Overall ^a (N = 5254)	Male (n = 2571)	Female (n = 2683)	Gender comparison (significance level)
	% (95% CI)	% (95% CI)	% (95% CI)	
Sexual attraction				
Only attracted to the opposite gender	79.3 (77.8–80.7)	85.7 (83.8–87.5)	72.7 (70.4–75.0)	*
Attracted to both genders ^b	15.9 (14.6–17.3)	10.5 (8.9–12.2)	21.5 (19.4–23.7)	*
Mostly attracted to the opposite gender	10.2 (9.0–11.3)	7.3 (5.9–8.8)	13.1 (11.3–14.9)	*
Equally attracted to both genders	4.7 (3.9–5.5)	2.5 (1.7–3.3)	7.0 (5.6–8.3)	*
Mostly attracted to the same gender	1.1 ^f (0.7–1.4)	^f	1.4 ^f (0.8–2.1)	
Total^c	15.9	10.5	21.5	
Only attracted to the same gender	1.0 ^e (0.7–1.4)	1.1 ^e (0.6–1.6)	1.0 ^e (0.5–1.4)	
Not sure	3.8 (3.1–4.5)	2.7 (2.0–3.5)	4.8 (3.6–6.0)	*
Total^c	100	100	100	

Abbreviation: CI, confidence interval.

^a Overall estimates include youth identifying as male or female, excluding nonbinary youth.

^b The following four rows provide further breakdowns for those attracted to both genders, where possible.

^c The sum of the categories may not equal the total due to rounding or unreportable numbers.

^e Estimates should be interpreted with caution due to high coefficient of variation.

^f Estimate unreportable due to high coefficient of variation.

* Significant difference between males and females, $p < 0.001$

generations.³³ In non-Canadian contexts, 25.6% of US youth aged 14 to 17 reported attractions not exclusive to the opposite gender in a nationally representative survey,³¹ compared to only 11.1% of Australian youth aged 14 to 15.³⁴

Similar to studies examining sexual identity among Canadian youth and adults,^{1,26} females were more likely than males to report attraction not exclusive to the opposite gender. This difference was largely driven by more females reporting attraction to both genders or being unsure of their attraction.

Sampling variability was high for the percentage of youth “mostly attracted” and “only attracted” to the same gender. The percentage of males who were “mostly attracted” to the same gender could not be reported, nor could sexual attraction distributions among nonbinary or transgender youth. In general, it is advisable to report estimates for all sexual attraction categories where possible, as health status can differ between each group,⁸ and this should be taken into consideration in the sampling design for surveillance studies.

Evaluating differences in health status by sexual attraction using existing data may require grouping categories together (e.g. attraction exclusive to the opposite gender

vs. attraction not exclusive to the opposite gender) in order to report reliable estimates. Most youth who were not exclusively attracted to the opposite gender were “mostly attracted” to the opposite gender. Studies have suggested that some of these individuals may have a heterosexual sexual identity or engage in heterosexual sexual behaviour.³⁵ While youth who were not sure of their sexual attraction were classified as not exclusively attracted to the opposite gender, some of these youth may develop a heterosexual orientation later on.³⁶ Attraction to the opposite gender has been found to be relatively stable throughout adolescence and young adulthood compared to same- or both-gender attraction and being unsure of attraction, although studies have suggested gender differences in stability of sexual orientation.^{21,36,37} It may be reasonable, therefore, to compare individuals only attracted to the opposite gender with those reporting any other attraction, particularly for cross-sectional analyses.

Strengths and limitations

This is the first study to describe distributions of both gender and sexual attraction among Canadian youth aged 12 to 17 years, and makes a significant contribution to the evolving understanding of the extent of gender and sexual diversity in this

population. These findings point to the necessity of increasing research on the effectiveness of policies and interventions to minimize health inequities by gender and sexual attraction or orientation. Existing studies include interventions to minimize substance use, social stressors and mental health concerns,³⁸⁻⁴⁰ with one intervention study specifically targeting suicidal same gender-attracted youth.⁴¹ However, research is limited thus far, particularly among youth.

This study had several limitations. Despite the large sample size, there was large sampling variability for the reporting of percentages of certain groups. It was not possible to determine breakdowns for specific gender identities, including Two-Spirit.

The questionnaire did not specify whether sexual attraction towards males and females was based on gender or sex. This study assumed that attraction was based on gender rather than sex, which may not be the case for all respondents.

Non-cisgender identities and nonheterosexual orientations often carry social stigmas, which vary by societal and cultural contexts.^{24,42} These stigmas may lead to social desirability bias in reporting, whereby percentages for non-cisgender identities and sexual attractions not exclusive to the

opposite gender are underestimated. These biases may lessen over time with increasing recognition, visibility and acceptance of gender and sexual diversity.⁴²

Finally, this study was limited to sexual attraction as a dimension of sexual orientation. Although sexual attraction is regarded as a more appropriate dimension to measure in youth than sexual identity or behaviour, it is not always concordant with the other dimensions and can have different health implications.^{23,24} Surveillance would ideally encompass all three dimensions to monitor inequalities, facilitate research and target groups for public health needs.

Conclusion

Based on self-reported data, 0.2% of Canadian youth aged 12 to 17 years identify as nonbinary and 0.2% as transgender. Among Canadian youth aged 15 to 17 identifying as male, female or nonbinary, 79.0% report attraction exclusive to the opposite gender, whereas 21.0% report attraction not exclusive to the opposite gender. Previous research has shown significant health and social inequities for the latter group and other minorities in this study. Conducting surveillance and research is a necessary step in reducing inequities, and researchers should consider oversampling or other approaches to ensure that reliable estimates can be obtained for nonbinary and transgender youth and youth with same-gender attraction.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Authors' contributions and statement

CW, GB, SLW, CS, BJ, MTB, KCR—conceptualization, writing—reviewing & editing. CW, GB—methodology. CW—formal analysis; writing—original draft.

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