Title

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Journal

Journal of Adolescent Health, 71(6)

ISSN

1054-139X

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Publication Date

2022-12-01

DOI

10.1016/j.jadohealth.2022.07.011

Journal of Adolescent Health xxx (2022) 1–8

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Original article

Trends and Disparities in Suicidality Among Heterosexual and Sexual Minority/Two-Spirit Indigenous Adolescents in Canada

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Article history: Received February 8, 2022; Accepted July 12, 2022
Keywords: Adolescents; Canada; Indigenous; LGBT; Two-spirit; Suicide

A B S T R A C T

Purpose: To explore trends in sexual orientation group differences in suicidality among Indigenous adolescents and evaluate whether gaps between heterosexual and sexual minority/Two-Spirit adolescents have changed over time.
Methods: Leveraging pooled school-based population data from five waves of the British Columbia Adolescent Health Survey (1998–2018), we used age-adjusted logistic regression models, separately for boys and girls, to examine 20-year trends and disparities in past year suicidal ideation and suicide attempts among heterosexual and sexual minority/Two-Spirit Indigenous adolescents ($N = 13{,}788$).
Results: Suicidal ideation increased among all sexual orientation groups in 2018 compared to previous survey waves. Suicide attempts spiked for heterosexual girls in 2003, remained stable for heterosexual boys, and decreased for sexual minority/Two-Spirit boys and girls over time. Compared to their heterosexual peers, sexual minority/Two-Spirit boys had higher odds of suicidal ideation since 1998, whereas sexual minority/Two-Spirit girls had higher odds of suicidal ideation since 2003. Sexual minority/Two-Spirit (vs. heterosexual) boys were approximately 4–7 times more likely to attempt suicide since 2008, whereas sexual-minority/Two-Spirit (vs. heterosexual) girls were approximately 3–4 times more likely to attempt suicide since 2003. These gaps in suicidality were persistent across time.
Discussion: Sexual minority/Two-Spirit Indigenous adolescents are at an elevated risk for suicidality compared to their heterosexual Indigenous peers. While trends of suicidal ideation worsened for all Indigenous adolescents, suicide attempts either lessened or remained stable over time. Greater efforts are needed to help reduce suicidality among Indigenous adolescents in Canada, especially among sexual minority/Two-Spirit young people.

IMPLICATIONS AND CONTRIBUTION

Indigenous sexual minority/Two-Spirit adolescents in British Columbia, Canada, have persistently been at a higher risk for suicidality compared to their heterosexual peers. While suicide attempts are declining among Indigenous sexual minority/Two-Spirit youth, suicidal ideations have increased for all sexual orientation groups.

Prior to European contact, many Indigenous cultures had concepts of gender and sexuality that allowed for diversity and fluidity and included strong and positive roles for people who were not heterosexual and/or cisgender [1]. Through the process of colonization, these roles were eroded alongside many other

Conflicts of interest: The authors have no conflicts of interest to declare.

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1054-139X/
https://doi.org/10.1016/j.jadohealth.2022.07.011

cultural traditions and Indigenous people were deprived of resources and wealth, contributing to an ongoing legacy of high suicidality rates for Indigenous lesbian, gay, bisexual, transgender, queer, and Two-Spirit (LGBTQ2S) young people [1]. Elevated suicidality rates have been documented among youth who identify as either Indigenous or LGBTQ2S in several countries, while limited research also reveals disproportionately high suicidality rates among LGBTQ2S Indigenous young people compared to both their Indigenous heterosexual and non-Indigenous sexual and gender minority peers [2–11]. Tracking inequities in suicidality is important for identifying youth at an elevated suicide risk to help inform targeted suicide prevention interventions.

Indigeneity, sexual orientation, and suicidality

Well-documented inequities in suicidality exist between Indigenous and non-Indigenous youth. Cross-national data show Indigenous youth generally experience higher rates of suicidal ideation, suicide attempts, and death by suicide than their non-Indigenous peers [3–6]. This higher risk of suicidality for Indigenous youth has been linked to poverty, intergenerational trauma, and loss of culture and identity, among other factors [3,6]. However, suicidality among Indigenous youth may vary widely; for example, in British Columbia, Canada, more than 90% of suicides among Indigenous First Nations youth occurred in less than 10% of Indigenous First Nations communities [5]. Much variation in suicidality across Indigenous communities can be explained by protective factors such as cultural continuity, traditional activity participation and language acquisition, and family and community connectedness, and risk factors such as parental residential school attendance [5,6,12,13].

Prior studies also clearly identify an elevated risk of suicidality among non-Indigenous sexual minority versus heterosexual youth, with the largest disparities identified in suicide attempts requiring hospitalization [6–8,14]. These inequities have been linked to stigma and minority stress, with specific measures such as psychological distress, perceived burdensomeness, and shame being significantly associated with suicidality [15]. Experiences of victimization, bullying, violence, and family rejection also increase suicidality risk for LGBTQ2S youth, while social support—especially from families—is a key protective factor [16–20]. Suicidality among sexual and gender minority youth varies by geographic location with LGBTQ2S youth living in urban areas faring better than those in rural communities that tend to be less accepting of LGBTQ2S people [6,21].

Indigenous sexual minority/Two-Spirit youth are likely to experience the combined stress of homophobia in their Indigenous communities and racism in their LGBTQ2S communities, which may have significant negative impacts on their health and wellbeing—including an increased suicidality risk [22,23]. While limited research focuses specifically on suicidality among Indigenous sexual minority/Two-Spirit youth, a 2014 US study identified higher suicidality rates among Indigenous sexual minority youth compared to both their White and other racialized sexual minority peers [10]. Similarly, a 2017 Canadian study of homeless and street-involved youth found more than half of Indigenous LGBTQ2S adolescents had attempted suicide in the previous year—a rate more than double that of their Indigenous heterosexual and cisgender peers [11].

Trends in suicidality

Multiple studies have documented time trends in suicide for the general population [24–26]. Recent North American trends suggest suicidality has increased for adolescent girls and either decreased or remained constant for adolescent boys [25,26]. Fewer studies have analyzed time trends in suicidality among Indigenous or LGBTQ2S youth. One Norwegian study identified elevated rates of suicide among Indigenous youth that increased between 1970 and 1998 [4], while an Australian study identified higher rates of suicide among Indigenous (vs. non-Indigenous) young people between 1994 and 2007 that increased over time for females but decreased for males [27]. North American studies documenting suicidality trends by sexual orientation since the 1980s suggest sexual minority youth have experienced persistently higher odds of suicidality compared to their heterosexual peers [2,8,9,28]. Studies that disaggregate these trends by gender suggest gaps in suicidal ideations and attempts have narrowed for gay versus heterosexual boys but widened for bisexual versus heterosexual girls [8,28].

The above literature suggests disparities in suicidality between Indigenous and non-Indigenous youth and between heterosexual and sexual minority youth have persisted over time, despite social movements toward reconciliation between Indigenous and non-Indigenous peoples and increasing acceptance of LGBTQ2S people in greater society. Focusing suicide prevention efforts toward Indigenous LGBTQ2S youth could be important, given their multiple minority status may put them at an increased suicidality risk [11,22,23]. However, to our knowledge, studies are yet to document time trends in suicidality for LGBTQ2S Indigenous youth. Hence, it is unknown whether suicidality is increasing or decreasing among LGBTQ2S Indigenous youth and whether gaps in suicidality between sexual minority/Two-Spirit Indigenous youth and their heterosexual peers have narrowed, widened, or persisted over time.

The present study

Recognizing well-documented suicidality risks among both Indigenous and sexual minority youth—and limited research on the intersection of these populations—our study documents 20-year trends in suicidality for heterosexual and sexual minority/Two-Spirit Indigenous adolescents in British Columbia, Canada. Specifically, we (1) identify time trends in suicidality for heterosexual and sexual minority/Two-Spirit Indigenous adolescents, (2) document whether disparities in suicidality exist between heterosexual and sexual minority/Two-Spirit Indigenous adolescents, and (3) test whether sexual orientation-based inequalities in suicidality have widened, narrowed, or remained consistent over time. Given suicidality varies by gender [24,25], all analyses are stratified to identify distinct trends and disparities for boys and girls.

Methods

Sample

The University of British Columbia Research Ethics Board approved the study. In keeping with recommended practices for research with Indigenous communities, we convened a Two-Spirit Advisory comprised of Indigenous Two-Spirit adults,

Table 1
Sample size (%) and mean age for the British Columbia Adolescent Health Survey, by wave and gender

	1998		2003		2008		2013		2018	
	n (%)	Mean age (95% CI)	*n* (%)	Mean age (95% CI)	*n* (%)	Mean age (95% CI)	*n* (%)	Mean age (95% CI)	*n* (%)	Mean age (95% CI)
Boys										
Heterosexual	664 (94.3)	14.94 (14.75, 15.14)	1,032 (93.5)	14.77 (14.66, 14.89)	1,454 (92.0)	14.87 (14.79, 14.94)	1,160 (91.6)	14.83 (14.74, 14.91)	1,733 (91.4)	14.74 (14.65, 14.84)
Sexual minority/Two-Spirit	45 (5.7)	15.31 (14.96, 15.66)	52 (6.5)	14.94 (14.91, 14.98)	118 (8.0)	15.57 (15.41, 15.73)	102 (8.4)	15.78 (15.62, 15.93)	157 (8.6)	15.04 (14.90, 15.18)
Girls										
Heterosexual	786 (89.6)	14.69 (14.51, 14.86)	1,105 (84.0)	14.63 (14.53, 14.73)	1,408 (79.4)	14.74 (14.66, 14.82)	1,111 (80.2)	14.69 (14.61, 14.77)	1,475 (73.4)	14.67 (14.59, 14.75)
Sexual minority/Two-Spirit	80 (10.4)	15.48 (15.25, 15.71)	189 (16.0)	15.55 (15.42, 15.68)	332 (20.6)	15.40 (15.26, 15.54)	268 (19.8)	15.44 (15.35, 15.54)	517 (26.6)	14.96 (14.86, 15.05)

Note. Table reports unweighted *n*'s and weighted percentages. Heterosexual includes 100%/completely heterosexual, straight, not sure, and no attractions. Sexual minority/Two-Spirit includes: 100%/completely homosexual, gay or lesbian, mostly homosexual, bisexual, and mostly heterosexual or straight.
CI = confidence interval.

most of whom worked in healthcare, education, or social services with Indigenous youth, to guide the research questions and process. Data came from the 1998, 2003, 2008, 2013, and 2018 British Columbia Adolescent Health Survey, the most reliable and comprehensive survey of youth aged 12–19 years in British Columbia, Canada [29]. Sampling and administration procedures are reported elsewhere for this repeated cross-sectional cluster-stratified random survey of grade 7–12 public-school classrooms [30]. In 1998–2018, 78%–97% of eligible school districts participated in the survey, and student response rates ranged from 66%–77%. Data were weighted to account for nonresponse and differential sampling probability and scaled to estimate provincial enrollment using weights provided by Statistics Canada [30].

We pooled data from the five survey waves and included schools that participated in at least three waves in our analyses, yielding data from 54 of 58 school districts that participated in 2018. We then selected students who provided a valid response to the sexual orientation question (measures section) and indicated they were Aboriginal or belonged to at least one of Canada's three official categories of Indigenous peoples (First Nations, Inuit, or Métis). Our total unweighted sample included 6,517 Indigenous boys and 7,271 Indigenous girls.

Measures

Suicidal ideation. Suicidal ideation was coded yes/no based on the question: "During the past 12 months, did you ever seriously consider killing yourself?"

Suicide attempts. The survey asked: "During the past 12 months, how many times did you actually try to kill yourself?", which we dichotomized as 0 = "no times" and 1 = "one or more times."

Sexual orientation. Participants selected the sexual orientation category that best described them. Response options varied slightly across survey waves and included "100% heterosexual (attracted to people of the opposite gender)," "mostly heterosexual," "bisexual (attracted to both males and females)," "mostly homosexual," "100% homosexual (gay/lesbian; attracted to people of the same gender)," and "not sure" in 1998–2008; "completely heterosexual," "mostly heterosexual," "bisexual," "mostly homosexual," "completely homosexual," "questioning," and "I do not have attractions" in 2013; and "straight," "mostly straight," "bisexual," "gay or lesbian," "I am not sure yet," and "something else, specify: _____" in 2018. In 2018 the most common write-ins included "pansexual" and "asexual" or a description of same-gender or other-gender attraction that allowed us to include them with other groups. Given most young people who are unsure of their sexual orientation later identify as heterosexual [31], we combined participants reporting "not sure," "questioning," "I do not have attractions," or "asexual" with students indicating they were "100% heterosexual," "completely heterosexual," or "straight" (hereafter referred to as "heterosexual"). The remaining response categories were combined into a single "sexual minority/Two-Spirit" category to obtain a sample size sufficient for analyses.

Age. Age was a continuous measure of the adolescent's self-reported age on their survey date.

Table 2
Trends in suicidal ideation and suicide attempts in the past year between 1998 and 2018, by sexual orientation (%)

	Prevalence comparison					Trend comparison			
	1998 %	2003 %	2008 %	2013 %	2018 %	1998[a]	2003[a]	2008[a]	2013[a]
						aOR[b] (95% CI)	aOR[b] (95% CI)	aOR[b] (95% CI)	aOR[b] (95% CI)
Suicidal ideation									
Boys									
Heterosexual	11.2	13.3	11.4	8.9	13.4	0.81 (0.60, 1.08)	0.98 (0.74, 1.29)	0.82 (0.65, 1.04)	0.62*** (0.47, 0.81)
Sexual minority/Two-Spirit	31.3	31.0	36.6	32.7	42.8	0.60* (0.38, 0.95)	0.61** (0.44, 0.83)	0.75 (0.46, 1.22)	0.62* (0.41, 0.95)
Girls									
Heterosexual	21.2	26.0	16.9	20.7	26.8	0.73** (0.58, 0.92)	0.96 (0.78, 1.18)	0.55*** (0.45, 0.68)	0.71*** (0.58, 0.87)
Sexual minority/Two-Spirit	35.7	49.4	41.3	51.9	54.3	0.50* (0.25, 0.99)	0.88 (0.61, 1.28)	0.62*** (0.46, 0.83)	0.96 (0.70, 1.32)
Suicide attempts									
Boys									
Heterosexual	4.9	5.6	5.2	5.6	4.0	1.22 (0.80, 1.86)	1.41 (0.90, 2.22)	1.30 (0.91, 1.85)	1.40 (0.96, 2.03)
Sexual minority/Two-Spirit	8.9	14.3	29.6	25.7	14.4	0.58 (0.29, 1.14)	1.03 (0.70, 1.51)	2.45*** (1.47, 4.09)	1.99** (1.29, 3.05)
Girls									
Heterosexual	11.9	13.2	9.6	11.7	9.6	1.28 (0.94, 1.74)	1.43* (1.07, 1.92)	1.01 (0.77, 1.32)	1.25 (0.95, 1.64)
Sexual minority/Two-Spirit	19.6	32.4	27.8	34.1	23.0	0.90 (0.39, 2.10)	1.81** (1.23, 2.65)	1.41* (1.00, 1.98)	1.92*** (1.38, 2.68)

Note. Data are weighted.
*$p < .05$, **$p < .01$, ***$p < .001$.
[a] Referent year is 2018.
[b] Odds ratios adjust for age. aOR, adjusted odds ratio; CI, confidence interval.

Analyses

We first assessed whether the prevalence of suicidal ideations and attempts changed between 1998 and 2018. To do this, we used crosstabs and 95% confidence intervals to estimate the prevalence of suicidality outcomes within each survey wave, for boys and girls from each sexual orientation group. We then used logistic regressions by survey year (reference year = 2018) to test for trends in suicide outcomes across survey waves within each sexual orientation group. These analyses control for age because sexual orientation is correlated with age and because mean ages varied slightly across waves. An odds ratio (OR) more than 1 indicates a declining trend; adolescents were more likely to have exhibited suicidality in an earlier survey year, compared to 2018. An OR less than 1 indicates an increasing trend, with adolescents in that orientation group less likely to report suicidality in an earlier survey year.

We then tested whether the prevalence of suicidality differed between heterosexual and sexual minority/Two-Spirit boys and girls in each survey year, using logistic regressions with sexual orientation (reference = heterosexual), controlling for age. ORs more than 1 indicate the sexual minority/Two-Spirit group was more likely than the heterosexual group to report suicidality.

Finally, we tested whether the disparity in suicidal outcomes between sexual minority/Two-Spirit and heterosexual groups changed across years using age-adjusted logistic regression models with year × sexual orientation interactions. The interaction term in the final model calculates a ratio of ORs,

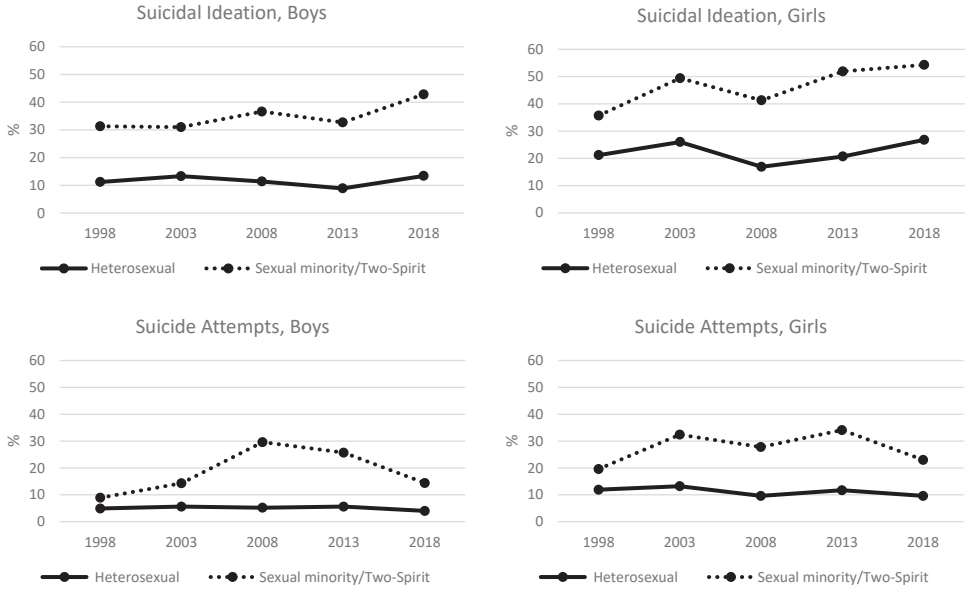

Figure 1. Prevalence of suicidal ideation and suicide attempts for boys and girls by sexual orientation, 1998–2018.

Table 3
Odds ratios and 95% confidence intervals for suicidal ideation and suicide attempts by year (1998–2018): comparisons by sexual orientation

	1998	2003	2008	2013	2018
	aOR[a] (95% CI)	aOR[a] (95% CI)	aOR[a] (95% CI)	aOR[a] (95% CI)	aOR[a] (95% CI)
Suicidal ideation					
Boys					
Sexual minority/Two-Spirit[b]	3.52*** (1.89, 6.58)	2.98* (1.28, 6.97)	4.24*** (2.64, 6.81)	4.42*** (2.69, 7.27)	4.73*** (3.26, 6.86)
Girls					
Sexual minority/Two-Spirit[b]	1.94 (0.95, 3.97)	2.84*** (1.85, 4.38)	3.66*** (2.74, 4.89)	4.20*** (3.09, 5.72)	3.32*** (2.65, 4.16)
Suicide attempts					
Boys					
Sexual minority/Two-Spirit[b]	1.82 (0.69, 4.80)	2.82 (0.97, 8.18)	7.08*** (4.25, 11.77)	5.43*** (3.07, 9.62)	3.88*** (2.44, 6.18)
Girls					
Sexual minority/Two-Spirit[b]	1.75 (0.72, 4.24)	3.44*** (2.25, 5.27)	3.87*** (2.79, 5.38)	4.29*** (3.06, 6.03)	3.00*** (2.22, 4.04)

Note. Data are weighted.
*$p < .05$, **$p < .01$, ***$p < .001$.
[a] Odds ratios adjust for age.
[b] Heterosexual is the reference group. aOR, adjusted odds ratio; CI, confidence interval.

comparing the age-adjusted suicide outcomes for the sexual minority/Two-Spirit orientation group versus the heterosexual referent group in a given year to the odds with those of the same identity in another year. For the two-way interaction term, an OR less than 1 would indicate a disparity had widened over time, whereas an OR more than 1 would indicate a disparity had narrowed. Details of this analytic approach are published elsewhere [32].

Table 4
Trends in suicidal ideation and suicide attempts: main effects and interactions by sexual orientation and year[a]

	Suicidal ideation	Suicide attempts
	aOR[b] (95% CI)	aOR[b] (95% CI)
Boys		
Sexual minority/Two-Spirit	4.72*** (3.25, 6.84)	3.85*** (2.42, 6.13)
Year 1998	0.81 (0.60, 1.08)	1.22 (0.80, 1.86)
Year 2003	0.98 (0.74, 1.30)	1.41 (0.89, 2.23)
Year 2008	0.82 (0.65. 1.04)	1.30 (0.91, 1.85)
Year 2013	0.62*** (0.47, 0.82)	1.40 (0.96, 2.03)
Sexual minority/Two-Spirit × 1998	0.75 (0.36, 1.57)	0.48 (0.16, 1.38)
Sexual minority/Two-Spirit × 2003	0.62 (0.24, 1.57)	0.73 (0.23, 2.32)
Sexual minority/Two-Spirit × 2008	0.92 (0.51, 1.68)	1.91 (0.96, 3.79)
Sexual minority/Two-Spirit × 2013	1.02 (0.56, 1.88)	1.44 (0.70, 2.95)
Girls		
Sexual minority/Two-Spirit	3.28*** (2.62, 4.10)	2.91*** (2.17, 3.91)
Year 1998	0.73** (0.58, 0.92)	1.28 (0.94, 1.74)
Year 2003	0.96 (0.77, 1.18)	1.43* (1.07, 1.92)
Year 2008	0.55*** (0.45, 0.68)	1.01 (0.77, 1.33)
Year 2013	0.71*** (0.58, 0.87)	1.25 (0.95, 1.65)
Sexual minority/Two-Spirit × 1998	0.64 (0.31, 1.33)	0.67 (0.27, 1.66)
Sexual minority/Two-Spirit × 2003	0.87 (0.55, 1.39)	1.17 (0.71, 1.94)
Sexual minority/Two-Spirit × 2008	1.08 (0.75, 1.55)	1.32 (0.86, 2.03)
Sexual minority/Two-Spirit × 2013	1.29 (0.88, 1.89)	1.44 (0.93, 2.23)

Note. Data are weighted.
*$p < .05$, **$p < .01$, ***$p < .001$.
[a] Heterosexual and Year 2018 are the reference groups.
[b] Adjusted model included sexual orientation, survey year, and age along with the orientation × year interactions. aOR, adjusted odds ratio; CI, confidence interval.

We conducted all analyses separately for boys and girls using the Complex Samples module of SPSS 25.0, which adjusts for the complex cluster-stratified sampling method and weighted data. Differences were considered statistically significant at $p < .05$.

Results

Table 1 details the sample size and mean age for boys and girls by sexual orientation and survey wave.

Overall prevalence and trends, by sexual orientation

Table 2 displays the prevalence of suicidality outcomes and age-adjusted ORs of changes in the trends of suicidality between 1998 and 2018, by gender and sexual orientation. Figure 1 plots the prevalence of suicidality outcomes for each group over time, from Table 2. In 2018, 42.8% of sexual minority/Two-Spirit boys and 54.3% of sexual minority/Two-Spirit girls reported suicidal ideations, whereas 14.4% of sexual minority/Two-Spirit boys and 23.0% of sexual minority/Two-Spirit girls reported attempting suicide—rates more than two to three times higher than their heterosexual peers.

The odds of suicidal ideation increased between 2013 and 2018 for heterosexual boys (OR = 0.62) and between all years except 2008 and 2018 for sexual minority/Two-Spirit boys (OR = 0.60–0.62). The odds of suicidal ideation increased in 2018 compared to all years except 2003 for heterosexual girls (OR = 0.55–0.73) and were higher in 2018 compared to 1998 and 2008 for sexual minority/Two-Spirit girls (OR = 0.50–0.62).

The odds of attempting suicide did not change across time for heterosexual boys. However, the odds of attempting suicide were lower in 2018 compared to 2008 and 2013 for sexual minority/Two-Spirit boys (OR = 1.99–2.45). Among heterosexual girls, the odds of attempting suicide decreased in 2018 compared to 2003 (OR = 1.43). The odds of attempting suicide also decreased for sexual minority/Two-Spirit girls in 2018 compared to 2003–2013 (OR = 1.41–1.92).

Sexual orientation-based differences, by survey year

Table 3 displays the ORs for the age-adjusted associations between suicide outcomes and sexual orientation in each survey wave. Across all five survey waves, sexual minority/Two-Spirit

boys reported 2.98–4.73 times higher odds of suicidal ideation than their heterosexual counterparts. Sexual minority/Two-Spirit (vs. heterosexual) girls reported 2.84–4.20 times higher odds of reporting suicidal ideations in 2003–2018 but were not significantly different from heterosexual girls in 1998.

Sexual minority/Two-Spirit boys reported 3.88–7.08 times higher odds of attempting suicide in 2008–2018 compared to heterosexual boys but were not significantly more likely to attempt suicide in 1998–2003. Sexual minority/Two-Spirit girls reported 3.00–4.29 times higher odds of attempting suicide in 2003–2018 but did not significantly differ from heterosexual girls in 1998.

Changes in disparities over time

Next, we considered whether the disparities observed between heterosexual and sexual minority/Two-Spirit Indigenous adolescents narrowed, widened, or stayed the same between 1998 and 2018 (Table 4). We found the gaps in suicidal ideations and attempts between heterosexual and sexual minority/Two-Spirit boys and girls and their heterosexual peers did not significantly change over time.

Supplementary analyses

We ran three key supplementary analyses. First, as a robustness check, we dropped participants who selected "not sure," "questioning," "I do not have attractions," or "asexual" as their sexual orientation (6.7% of the heterosexual sample) and reran all analyses. Results (not shown) revealed prevalence rates and trends similar in magnitude and identical in significance to the reported findings. Second, we repeated all analyses with mostly heterosexual/mostly straight adolescents coded as a distinct group. Results (not shown) revealed similar directions of relationships; however, model estimates were unstable due to small group sizes. Third, to consider whether age was associated with suicidality outcomes over time for girls and boys from each sexual orientation group, we added an age × year interaction term to the trend comparison models presented in Table 2. In most instances the ORs observed for the main effects of age and the interaction effects of age × year were nonsignificant; however, there was some evidence to suggest younger sexual minority boys and girls might be at a higher risk of experiencing suicidality in more recent survey years (results not shown).

Discussion

Indigenous populations' higher suicidality risk is a public health priority [12]. Leveraging a provincially representative sample of Indigenous adolescents from the 1998–2018 British Columbia Adolescent Health Survey, this is the first study to our knowledge to track trends and disparities in suicidality among heterosexual and sexual minority/Two-Spirit Indigenous youth in Canada. Compared to their heterosexual Indigenous peers, we found sexual minority/Two-Spirit Indigenous boys and girls have persistently been at an elevated risk for suicidal ideations and attempts since at least 2008 and rates of suicidal ideation among Indigenous sexual minority/Two-Spirit adolescents were higher in 2018 than any previous survey year.

First, we examined trends in suicidality over time within gender-stratified sexual orientation groups. Overall, we identified upward trends in suicidal ideation for heterosexual and sexual minority/Two-Spirit boys and girls in 2018, compared to some previous survey years. Conversely, sexual minority/Two-Spirit boys and girls showed downward trends in suicide attempts since 2008 and 2003, respectively. No changes in suicide attempts were observed among heterosexual boys over time, whereas heterosexual girls experienced a spike in suicide attempts in 2003. Hence, the upward trend in suicidal ideations among all sexual orientation groups has not been accompanied by parallel increases in suicide attempts. Sexual minority/Two-Spirit Indigenous adolescents remain particularly salient targets for suicide prevention, given we found nearly one in four sexual minority/Two-Spirit Indigenous girls and one in seven sexual minority/Two-Spirit Indigenous boys attempted suicide in 2018 and even more reported suicidal ideations. Early intervention may be important, given supplementary analyses provided some evidence suggesting younger sexual minority/Two-Spirit adolescents might be at a higher risk of experiencing suicidality in more recent survey years.

Next, we compared age-adjusted differences in the odds of suicidal ideations and suicide attempts between sexual minority/Two-Spirit and heterosexual boys and girls within each survey year. In general, sexual minority/Two-Spirit boys and girls fared worse than their heterosexual counterparts, particularly in more recent survey years. In 2018, the most recent year of data collection, sexual minority/Two-Spirit boys and girls were approximately three to five times more likely than their heterosexual peers to report thinking about or attempting suicide. These findings highlight a persistent and elevated risk of suicidality among sexual minority/Two-Spirit Indigenous adolescents.

The large gap in suicidality observed between sexual minority/Two-Spirit and heterosexual Indigenous adolescents may be explained by some of the same factors—such as bullying, victimization, violence, and family rejection—that account for disparities in suicidality among LGBTQ2S youth in the general population [16–18]. Additional factors likely also put Indigenous sexual minority/Two-Spirit youth at risk for suicidality due to their indigeneity. While relatively urban, Indigenous people in British Columbia are twice as likely as the overall provincial population to live in a rural area [33]. Rural LGBTQ2S youth generally experience a greater suicidality risk, linked to elevated rates of stigma, discrimination, and barriers to healthcare access including a lack of culturally competent care [21].

Homelessness and government care experience also contribute to suicidality risk [34,35] and may help account for elevated suicidality among sexual minority/Two-Spirit Indigenous adolescents in British Columbia. Despite making up about 10% of the population, Indigenous youth account for more than half of British Columbia's street-involved/homeless youth and more than one-third of youth in government care, while LGBTQ2S youth are further over-represented in these populations [36,37]. These youth may live outside their communities, making it difficult to connect with community members and Indigenous culture, learn or practice traditional languages, or access culturally relevant services—all key protective factors against suicidality [5,11,13,37].

In addition, although Indigenous communities have historically held important cultural places for sexually diverse community members, increasing movement toward Christian religious traditions and the stripping of culture and language through residential schooling have negatively impacted knowledge of these histories [1]. Furthermore, marginalization and

systematic racism can negatively impact Indigenous LGBTQ2S people within the queer communities they might otherwise turn to [38]. This combined stress of homophobia and racism may not only contribute to elevated rates of suicidality but also negatively affect access to and quality of mental healthcare and suicide prevention services for Indigenous LGBTQ2S youth [22].

In the final step of our analyses, we examined changes in disparities in suicidality between heterosexual and sexual minority/Two-Spirit boys and girls between 1998 and 2018 and found, in general, poorer outcomes for sexual minority/Two-Spirit Indigenous adolescents that did not significantly change across time. This suggests the social progress toward LGBTQ2S rights in Canada between 1998 and 2018—including the legalization of same-sex marriage, addition of sexual orientation as a protected category under the Charter of Rights and Freedoms, and implementation of antihomophobia policies and programs in schools—has not been accompanied by improvements in suicidality for sexual minority/Two-Spirit Indigenous adolescents. Moreover, existing suicide prevention methods may not be sufficient for improving outcomes for this population.

Strengths and limitations

This research is an important step in examining trends and disparities in suicidality among heterosexual and sexual minority/Two-Spirit Indigenous youth. Our findings are based on a large-scale repeated cross-sectional population-based study containing a sizeable number of Indigenous adolescents, allowing us to stratify findings by gender. Findings are generalizable to Indigenous adolescents enrolled in British Columbia public schools but cannot be generalized to other provinces or to youth who were disengaged from the education system (a disproportionate number of whom are Indigenous and sexual minority/Two-Spirit), homeschooled, or attending private/independent schools.

Despite our large sample ($N = 13{,}788$), we lacked statistical power to disaggregate findings for gay/lesbian, bisexual, and mostly heterosexual Indigenous youth. We also could not track trends and disparities for transgender adolescents, who likely face similar or greater inequities in suicidality. In addition, sexual minority/Two-Spirit adolescents may be under-reported in earlier survey waves, as growing societal acceptance has been accompanied by a rise in people identifying as LGBTQ2S—especially among young, female, and minority populations [39]. Finally, Indigenous people may be under-represented in earlier survey waves, as rates of Indigenous self-identification have increased over time, due in part to Canadian legislative changes [40].

Future research

Our findings point to several directions for future research. Although theoretical and empirical work on other racial-ethnic groups provides some indications [17,22,23], future research should consider how multiple minority stress affects suicidality risk among LGBTQ2S Indigenous youth. Future research should also continue to monitor trends and disparities in Indigenous youth suicide to provide evidence to support targeted interventions. In addition, studies should aim to identify the risk and protective factors for suicidality that have the largest impact on LGBTQ2S Indigenous youth, to identify the most promising interventions.

Research on whether rurality is a risk factor for suicidality among LGBTQ2S Indigenous youth and, if so, which aspects of rural life put these youth at a higher risk, could help inform interventions for LGBTQ2S Indigenous youth living outside urban centers. Studies should also consider how policy-level interventions—such as those which facilitate access to cultural protective factors—could reduce suicidality among LGBTQ2S Indigenous youth who experience structural risk factors for suicidality, such as government care placements or homelessness. Identifying and addressing the root causes of the disproportionate numbers of LGBTQ2S Indigenous youth who are homeless or in government care could further inform suicide mitigation strategies for these groups.

Conclusion

We described 20-year trends and disparities in suicidality among heterosexual and sexual minority/Two-Spirit Indigenous adolescents and identified whether sexual orientation-based disparities narrowed, widened, or remained the same between 1998 and 2018. Our findings support other research showing—like other LGBTQ2S adolescents—sexual minority/Two-Spirit Indigenous adolescents are at a higher risk for suicidality than their heterosexual peers. Although much work has been done by Canadian policy makers and service providers to help curb youth suicide rates, our study indicates current initiatives have not been enough to reach sexual minority/Two-Spirit Indigenous adolescents. Targeted, culturally based interventions that aim to restore the honored role of LGBTQ2S people in Indigenous communities may be crucial for preventing suicidality among sexual minority/Two-Spirit Indigenous youth.

Acknowledgments

We thank the 14 members of the Indigenous Two-Spirit Advisory for guiding this study, the McCreary Centre Society (Vancouver, Canada) for permission to access the 1998–2018 British Columbia Adolescent Health Survey, and Mauricio Coronel Villalobos for assistance with data analysis.

Funding Sources

This study was supported by a Canadian Institutes for Health Research Grant #FDN 154335.

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