The Link between LGBTQ-Supportive Communities, Progressive Political Climate, and Suicidal Behaviour Among Sexual Minority Adolescents in Canada

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Abstract

Despite supportive structural changes to reduce stigma towards lesbian, gay, and bisexual, transgender, queer, and questioning (LGBTQ) Canadian residents, sexual minority youth still face disparities compared to heterosexual peers. We aimed to characterize LGBTQ-supportive environments and political climates, and examine their links to suicidal behavior among sexual minority adolescents in western Canada. Data were from the 2013 British Columbia Adolescent Health Survey, a cluster-stratified random cross-sectional survey of public school students in BC, Canada; We sampled 2,678 self-identified LGB and mostly heterosexual students (69% girls) from 274 schools, representing an estimated provincial population of 24,624 sexual minority students in weighted models. Student reports of past-year suicidal ideation, suicidal attempts, and self-harm behaviors were merged with community-level data assessing diverse aspects of LGBTQ-supportive resources and progressive political climates in communities surrounding the schools. Adjusted multilevel models showed that for sexual minority adolescent girls, higher community LGBTQ-supportiveness predicted marginally significant lower suicidal ideation (aOR = 0.94, 95% CI [0.88, 1.01]) and suicidal attempts (aOR = 0.91, 95% CI [0.83, 1.00]) and

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The authors have no conflicts of interest to declare.

significantly lower self-harm behaviors (aOR = 0.91, 95% CI [0.85, 0.98]). Further, progressive political climates predicted marginally significant lower suicidal ideation (aOR = 0.89, 95% CI [0.78, 1.02]) and significantly lower self-harm behaviors (aOR = 0.87, 95% CI [0.77, 0.99]). For sexual minority adolescent boys, no community-level variables were associated with suicidal behavior in adjusted models. Thus, LGBTQ-supportive communities and progressive political climates appear to be protective against suicidal behavior among sexual minority adolescent girls, but not sexual minority adolescent boys.

Keywords

sexual minority youth; suicide; LGBTQ-supportive environment; structural stigma; BCAHS; Project RESPEQT

Introduction

According to the World Health Organization, approximately 800,000 people die by suicide every year worldwide.[1] In Canada, suicide accounts for 24% of all deaths among youth aged 15–24 years, representing one of the leading causes of youth fatality.[2] Therefore, it is important to study its immediate precursors among adolescents, collectively known as suicidal behavior (e.g., suicidal ideation, nonfatal suicidal attempts, and nonsuicidal self-harm behaviors).[3,4] To develop effective prevention and intervention programmes, it is also important to identify individual differences in suicidal behavior, as well as risk and protective factors.[3–5]

Among the salient individual differences in suicidal behavior is sexual orientation. Consistent evidence has indicated higher rates of suicidal behavior among sexual minority youth than their heterosexual counterparts.[6–13] A recent meta-analysis found that sexual minority youth reported significantly more suicidal ideation (OR = 1.96), suicidal intent or plan (OR = 2.20), suicidal attempts (OR = 3.18), and suicidal attempts needing medical attention (OR = 4.71) than did same-sex heterosexual youth.[7]

The health disparities associated with sexual orientation have been explained by the minority stress model[14] and the social ecological framework[15–17]. According to the minority stress model,[14] the increased health problems among sexual minority people are caused by the stigma they face, including structural stigma, such as discriminatory laws, policies, and social settings.[17] Furthermore, the social ecological framework suggests that the stigma at multiple levels of the social environment could all contribute to individual health.[15–17] Indeed, it has been found that indicators of social climates that relate to lesbian, gay, bisexual, transgender, queer, and questioning (LGBTQ) people at the state level (e.g., concentrations of same-sex couples, proportions of registered U.S. Democrats, and presence of same-sex marriage law),[18,19] in the neighborhood (e.g., LGBTQ assault hate crimes),[20] and in schools (e.g., presence of gay-straight alliances and presence of anti-homophobic-bullying policies)[21–23] are linked to suicidal behavior and other aspects of well-being among sexual minority youth.

Despite more than a decade of supportive changes to eliminate structural stigma for LGBTQ people in Canada, including nationwide legalization of same-sex marriage in 2005, recent research in western Canada has suggested only modest improvements in mental health (including suicide behavior) among sexual minority youth, who still face significant disparities compared to their heterosexual peers.[8,24] These findings call for more evidence-based efforts in identifying and creating LGBTQ-supportive environments. In particular, apart from the few studies of macro-level influences on environments (e.g., state policies and laws) examined in prior research[17–19], and somewhat more frequent research on the meso- and micro-level of school environments[21–23], there has been limited attention focused on the effects of community-based LGBTQ supports on suicide behavior among sexual minority youth, or on school and community environments considered together. Given that sexual minority youth interact with school and community environments every day, studying factors in such meso- and micro-levels may identify readily accessible opportunities for prevention and intervention efforts.

As part of Project RESPEQT (Research and Education on Supportive and Protective Environments for Queer Teens), the current study aimed to systematically characterize LGBTQ-supportive environments and examine their influences on suicidal behavior among sexual minority youth. We used a newly developed LGBTQ Supportive Environments Inventory to assess LGBTQ-supportiveness in a large, diverse sample of schools and surrounding communities in British Columbia (BC), Canada.[25] We identified resources and support within the social settings (e.g., coffee shops, mental health services, and youth-serving organizations) using a comprehensive internet-searching protocol.[25] These community-level data were combined with student-level data from a BC-representative adolescent health survey, in which sexual minority students reported suicidal ideation, suicidal attempts, and self-harm behaviors. It was hypothesized that more LGBTQ-supportive community and school environments and a more progressive political climate would contribute to lower odds of suicidal behavior among sexual minority adolescents. We also paid special attention to gender differences in the association between LGBTQ-supportive environments and suicidal behavior among sexual minority youth, because past research has suggested gender differences in suicidal behavior among sexual minority youth.[12,13]

Methods

Participants and Procedures

Youth data were drawn from the 2013 British Columbia Adolescent Health Survey (BCAHS), a cluster-stratified random survey of public school students in BC, Canada, which took place between February and June 2013. The survey procedures were approved by the Behavioral Research Ethics Board of the University of British Columbia (reference: H12–02630). Full sampling methodology is described elsewhere.[26] Informed consent was obtained either from parents and students, or from students with parental notification, according to the procedures chosen by participating school districts. The overall response rate was 70%.

The current sample included 2,678 self-identified LGB and mostly heterosexual students (69% girls) in Grades 8–12 from 274 public schools across BC, representing an estimated provincial population of 24 624 sexual minority students using sampling weights. "Mostly heterosexual" students were included in the sample because prior studies suggest that this group on average have more suicide behavior and higher risks for other mental health problems, compared to "exclusively heterosexual" counterparts.[23,27] These student-level data were combined with the community-level data assessed by the LGBTQ Supportive Environments Inventory (see the "Predictors" section below).[25] See Table 1 for descriptive statistics of the student-level and community-level data in this study.

Outcomes

In the 2013 BCAHS, students reported whether they had seriously considered killing themselves in the past 12 months (0 = no, 1 = yes), the frequency of actually attempting to kill themselves in the past 12 months (0 = 0 times, 1 = 1 or more times), and the frequency of cutting or injuring themselves on purpose but not trying to kill themselves in the past 12 months (0 = 0 times, 1 = 1 or more times). These variables were used to indicate 12-month suicidal ideation, suicidal attempts, and self-harm behaviors.

Predictors

LGBTQ-supportive community environments were measured using the LGBTQ Supportive Environments Inventory.[25] This Inventory was developed from prior literature reviews, qualitative interviews with LGBTQ youth, and expert inputs from LGBTQ health researchers. Using this Inventory, a team of 13 trained coders conducted comprehensive Internet searches to survey and code the LGBTQ-supportive business and organizations in geographically defined communities within a 30-minute travel time around each school. The coders used Google Street View's archival images and "Wayback Machine – Internet Archive" (http://web.archive.org) to record data in or immediately before 2013 to match the year in which student-level data were collected. Two independent coders worked on one community and the project director reconciled any inconsistent coding between the two coders. The communities were created by feeding school street addresses into Esri ArcGIS Desktop 10.4.1 and using the "Creative Drive-Time Areas" tool in ArcGIS Online[28]. The communities were dispersed widely across BC's mountain and coastal island geography, with limited overlap between communities, even in populated cities. For further methodological details, see [25].

The LGBTQ Supportive Environments Inventory classifies characteristics of the community environments into three broad categories: (a) LGTBQ-related events such as Pride events, Transgender Day of Remembrance, Anti-Bullying Day, and PFLAG meetings supporting parents, families, and friends of LGBTQ people; (b) community resources that are LGBTQ-supportive, catalogued under 12 categories including bars and coffee shops, art activities and groups, advocacy organizations, social meet-ups, adolescent and young adult health clinics, other health clinics, mental health professionals, domestic violence and sexual assault services, places of worship, housing services, libraries, and travel services; and (c) LGBTQ youth-serving organizations. To quantify supportiveness of LGBTQ-related events, we calculated the total number of these events. To quantify supportiveness of community

resources, we used two indicators: (1) total number of LGBTQ-supportive community resources and (2) total inclusiveness score, calculated by coding LGBTQ-inclusiveness of each community resource (1 = on a resource list, but with no indication of LGBTQ-inclusiveness on their own website; 2 = indicated LGBTQ-inclusiveness on their website) and summing up these scores. To quantify supportiveness of LGBTQ youth organizations, we again used two indicators: (1) total number of LGBTQ youth organizations and (2) total quality score, calculated by coding each LGBTQ youth organization on nine characteristics (0 = absent, 1 = present) that reflected convenience (e.g., visibility from the road, accessibility by public transit) and available services (e.g., special events, confidentiality, trained mental health provider on staff) and summing up these scores.

School environments were assessed through a combination of school or district website review and telephone contact of school staff or administrators, conducted in 2008 and 2014, documenting any presence of gay straight alliances (GSAs) and anti-homophobic-bullying or LGBTQ-inclusive policies. GSAs are student clubs advocating for LGBTQ rights in North American secondary schools.[29] We documented the year in which a GSA was founded in each school, as well as the year in which any anti-homophobic-bullying school policy was enacted in the school or school district, calculating the length of time GSAs and/or school policies were in place before 2013. Schools that did not have a GSA or an LGBTQ-inclusive school policy in 2013 were coded as 0.

Additionally, two aspects of general community environments were measured. First, for each community, the decile (recoded from percentage) of votes for the New Democratic Party (NDP) in the 2013 provincial general election as recorded from Elections BC, as a proxy of progressive political climates.[30] The NDP political platform holds progressive positions such as universal health coverage, a strong social safety net, support for immigration and multiculturalism, and support for Indigenous people's and LGBTQ people's human rights. While other major political parties in Canada that are moderate or conservative support some LGBTQ rights, the NDP platform includes strengthening hate crime laws and removing discrimination in the justice system and immigration.[31] Second, the population size of communities was measured as a covariate, because may be linked to the availability of LGBTQ-related events, community resources, and youth organizations; communities with a population size larger than 100,000 were categorized as large population centers.[32]

At the student level, we retrieved participant demographic characteristics from the 2013 BCAHS, including sexual orientation, age, years of living in Canada (as a proxy of immigration status), and moving history in the past year (as a proxy for socioeconomic status[33]). These variables were used as covariates because they have been linked to suicide behavior in past research.[11–13,23]

Statistical Analysis

To identify the latent constructs measured by the community-level manifest variables of LGBTQ-supportive environments, we conducted principal component analyses (PCAs). We first performed a standard PCA using listwise deletion of missing data to determine the number of principal components, based on eigenvalues. Based on findings from the standard

PCA and considering the amount of missingness in these variables (median = 3%, IQR [2%, 9%]), we performed a second PCA, the probabilistic PCA, which imputed missing data using expectation-maximization methods, with the R package "pcaMethods".[34]

Next, a series of multilevel logistic regression models were performed, because of the clustered sampling design with the individual student responses nested within the community-level data. The models were stratified by gender because previous studies have suggested gender moderates the association between sexual orientation and suicide behavior.[12,13] The predictors included the principal components of LGBTQ-supportive environments calculated from the probabilistic PCA, and two aspects of general environments: the decile of NDP votes, and community population size. These community-level variables were first separately used to predict suicidal ideation, suicidal attempts, and self-harm behaviors in simple multilevel logistic models. Then the community-level variables were entered together in three multiple multilevel logistic models to predict suicidal and self-harm behavior. Finally, another three multiple multilevel logistic models were built that included student-level demographic characteristics, including sexual orientation, age, years of living in Canada, and moving history in the past year. All these models used robust maximum likelihood as the estimator and adjusted for unscaled sampling weights. Due to the small amount of missingness by variable (median = 1%, IQR [0%, 2%]), listwise deletion was used for all models in Mplus 7.[35] We set our alpha to 0.05, although we also noted marginal statistical significance (p<.10).

Role of the Funding Source

The funders of the study had no role in the study design, data collection, data analysis, data interpretation, the writing of the report, or in the decision to submit the paper for publication. EMS had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

Descriptive statistics of predictors and outcomes are presented in Table 1. Overall, 38%, 21%, and 47% of adolescent sexual minority girls and 34%, 12%, 33% of adolescent sexual minority boys (not adjusted for nesting) reported suicidal ideation, suicidal attempts, and self-harm behaviors in the past 12 months, respectively.

Standard PCA suggested two principal components with eigenvalues larger than one. Therefore, in the probabilistic PCA with missing data imputation, two principal components were retrieved, explaining 83% of the total variance. The first PC correlated most strongly with indicators assessing community LGBTQ supportiveness, and the second PC correlated most strongly with indicators assessing school LGBTQ supportiveness (Table 2).

Table 3 presents simple and multiple multilevel logistic models predicting suicidal ideation, suicidal attempts, and self-harm behaviors. Overall, the findings suggest that LGBTQ-supportive community environments and progressive political climate were associated with lower odds of suicidal behavior in sexual minority adolescent girls. Specifically, in simple multilevel logistic models, higher levels of community LGBTQ-supportiveness

was associated with lower odds of suicidal ideation (OR = 0.88, 95% CI [0.84, 0.91]), suicidal attempts (OR = 0.90, 95% CI [0.85, 0.95]), and self-harm behaviors (OR = 0.86, 95% CI [0.82, 0.89]); in addition, a larger decile of NDP votes predicted lower odds of suicidal ideation (OR = 0.82, 95% CI [0.73, 0.93]), suicidal attempts (OR = 0.85, 95% CI [0.73, 0.99]), and self-harm behaviors (OR = 0.81, 95% CI [0.70, 0.93]). In multiple variable multilevel logistic models adjusted for student-level demographics, higher levels of community LGBTQ-supportiveness was marginally significantly associated with lower odds of suicidal ideation (aOR = 0.94, 95% CI [0.88, 1.01]) and suicidal attempts (aOR = 0.91, 95% CI [0.83, 1.00]), but was significantly associated with lower odds of self-harm behaviors (aOR = 0.91, 95% CI [0.85, 0.98]). A larger decile of NDP votes was marginally significantly associated with suicidal ideation (aOR = 0.89, 95% CI [0.78, 1.02]) and significantly associated with self-harm behaviors (aOR = 0.87, 95% CI [0.77, 0.99]). School LGBTQ-supportiveness principal components scores did not significantly relate to suicidal behavior in simple or multiple multilevel logistic models (Table 3).

In contrast to findings for girls, LGBTQ-supportive community and school environments and progressive political climate were not noticeably linked to suicidal behavior among sexual minority adolescent boys. In simple multilevel logistic models, community LGBTQ-supportiveness predicted lower odds of suicidal ideation (OR = 0.86, 95% CI [0.78, 0.94]) and self-harm behaviors (OR = 0.91, 95% CI [0.84, 0.98]), and was marginally significantly associated with suicidal attempts (OR = 0.90, 95% CI [0.80, 1.01]); NDP votes deciles were marginally significantly associated with lower odds of suicidal ideation (OR = 0.79, 95% CI [0.61, 1.02]). However, after controlling for student-level demographics among sexual minority adolescent boys in multiple multilevel models, there were no significant associations (Table 3).

Discussion

The purpose of this study was to examine the potential contribution of community-level LGBTQ supports to the mental health of sexual minority adolescent boys and girls in 274 schools within diverse geographic communities of a western Canadian province. We found that a more progressive social climate, as indicated by the deciles of population voting for the New Democratic Party, were linked to lower odds of suicidal ideation, suicide attempts, and self-harm in simple multilevel models for sexual minority girls and boys. Similarly, higher levels of LGBTQ-supportive community resources, indicated by Pride events or LGBTQ youth drop-in centers, showed the same protective effect in simple multilevel models, although for boys, the effect was no longer significant after accounting for student-level and community-level covariates. Finally, after accounting for covariates, school LGBTQ-supportiveness (measured by length of time schools had anti-homophobic-bullying policies and/or gay-straight alliances) was not a significant contributor in any models for either girls or boys.

The effect sizes (odds ratios) were generally modest, but it is important to recognize these were fine-grained measures. For example, the odds ratio for the NDP votes is measuring the effect of a 10% increase in people in a community who voted for the NDP. Those odds are cumulative; in communities where a dominant proportion of the population, say, 70%,

supports progressive political views, our analyses suggest the odds of suicide attempts for sexual minority girls would be less than half (aOR = 0.49). These cumulative odds are not trivial in addressing potential mental health risks at a population level, especially given that more than a third of sexual minority adolescents reported self-harming behaviors, a third reported suicidal thoughts, and 17% attempted suicide one or more times in the past 12 months.

We had an unexpected finding that school environments did not relate to reduced suicide behavior among sexual minority youth, either in simple or multiple multilevel models. This finding does not discount the overall benefits of having gay-straight alliances and anti-homophobic-bullying policies in schools, which have been shown in many prior studies.[23,29,36] However, because the principal component of school LGBTQ-supportiveness in our study was extracted after accounting for the variance of community LGBTQ-supportiveness, this unexpected finding may suggest that after decades of progressive changes in Canadian schools,[37] building a supportive community has become more important. Future studies should continue to examine the simultaneous roles that schools and communities play in the mental health of sexual minority youth, e.g., [38–40].

The LGBTQ environmental variations across communities were more clearly linked to lower odds of self-harm and suicide behavior for girls, even after controlling for demographic and community characteristics. A study in Oregon, U.S.[18] found protective effects of social environments on suicide behavior, although that study did not examine gender differences. It is unclear why sexual minority girls appear to have benefited more from supportive environments than boys in our data, but we offer a few possibilities: First, sexual minority girls had a higher incidence of suicide behavior than did sexual minority boys, so there is a larger room for improvement among sexual minority girls. Second, sexual minority girls may be more disadvantaged within social climates than sexual minority boys, dealing with the intersections of structural sexism as well as homophobia or biphobia.[41,42] Subsequently, when a community is supportive, sexual minority girls may respond more strongly to the difference. Further research is needed to identify environments that also support sexual minority boys.

Study Strengths and Limitations

This study has strengths and limitations that should be noted to place our findings in context. The study's population-based sampling across diverse geographic regions in a large Canadian province is a strength, as it contributes to potential generalizability of the findings. That said, the study occurs in a country that has had more than 10 years in which laws and policies have supported the rights of LGBTQ people. To the extent that other countries do not have human rights laws protecting LGBTQ people, or where those rights are being eroded by current governments, community environments may not be supportive enough to contribute to measurable differences in well-being. Second, the data are from a cross-sectional survey, thereby preventing causal inferences. Prospective longitudinal research would be needed to tease out effects more clearly, although the ability to anticipate and measure prior to and after changes in progressive voting patterns, or shifts in levels of LGBTQ-friendly community resources, is challenging. Third, while the LGBTQ

Supportive Environment Inventory assessed a greater variety of community supports than other studies, and was based on input from LGBTQ young people across the region, the analytical approach did not allow us to differentiate which supportive community elements were more strongly linked to well-being. Such analyses, looking to identify which supports might offer the strongest contribution, would beneficial to help communities with limited resources prioritize supports. Finally, the survey only captured students attending school, and present in school on the day of data collection; to the extent that sexual minority youth are less likely to attend school due to hostility or stigma, and students with depression or other mental health issues associated with suicide and self-harm are also less likely to be in school, these findings may be an underestimate of effects.

Conclusion

Our findings suggest progressive policies and community attitudes, as well as greater numbers of safe and supportive community spaces, are associated with lower levels of risk for suicide and self-harm among a population that has disproportionately high risks of such mental health challenges. The findings further support the case for stigma and discrimination as a key driver of the disparities experienced by sexual minority youth health. Clinicians, policymakers, and those who work with youth should advocate for more LGBTQ friendly clinical and social resources, and support events such as Pride celebrations or Transgender Day of Remembrance events, in order to provide a safer, more supportive social climate for LGBTQ young people, to more clearly affirm they are welcome and wanted in each community.

Acknowledgements

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HIGHLIGHTS

- A new LGBTQ Supportive Environments Inventory, merged with LGB student data in western Canada, tested links to suicidality

- LGBTQ supports such as Pride Parades, PFLAG, and youth services appear protective for LGB girls' mental health

- LGBTQ community supportiveness predicted lower odds of suicidality among sexual minority adolescent girls, but not boys

- Progressive political climate also predicted lower suicidal ideation and self-harm for LGB girls, not sexual minority boys

Table 1

Characteristics of participating communities/schools and students, 2013 BC Adolescent Health Survey.

Community (school) level	n (%) or *M* (*SD*)
Number of communities (schools)	274
Number of LGBTQ-supportive community events in a community[a]	10.8 (9.0)
Number of LGBTQ-supportive community resources in a community[b]	107.7 (151.1)
Total inclusiveness score of LGBTQ-supportive community resources in a community[c]	175.3 (240.3)
Number of LGBTQ youth-serving organizations in a community	4.9 (5.4)
Total quality score of LGBTQ youth-serving organizations in a community[d]	17.2 (20.2)
Length of time a GSA existed prior to 2013 in a school, years, range 0–15	2.7 (3.9)
Length of time anti-homophobic-bullying school policy existed prior to 2013 in a school, years, range 0–16	3.7 (3.9)
Percent of votes cast for the New Democratic Party in a community, decile (10%)	4.0 (1.0)
Community is a large urban population center[e]	
No	122 (45%)
Yes	152 (55%)

	n (%) or *M* (*SD*)	
Student level	**Girls**	**Boys**
Number of students	1,829	849
Age, years, range 12–19	15.7 (1.43)	15.7 (1.38)
Sexual orientation		
Lesbian/Gay/Bisexual	668 (37%)	330 (39%)
Mostly heterosexual	1,161 (63%)	519 (61%)
Race/ethnicity		
European	1,183 (65%)	545 (65%)
All others	637 (35%)	296 (35%)
Years of living in Canada		
6 years or longer	1,603 (90%)	744 (89%)
5 years or shorter	179 (10%)	95 (11%)
Moving history in the past year		
oved 0 times	1,255 (69%)	656 (78%)
Moved 1 or more times	560 (31%)	185 (22%)
Suicidal ideation in the past year		
No	1,122 (62%)	634 (76%)
Yes	678 (38%)	197 (34%)
Suicidal attempts in the past year		
0 times	1,439 (79%)	735 (88%)
1 or more times	373 (21%)	97 (12%)
Self-harm behaviors in the past year		
0 times	963 (53%)	639 (77%)

Community (school) level	n (%) or *M* (*SD*)	
1 or more times	848 (47%)	196 (33%)

Note. LGBTQ = lesbian, gay, bisexual, transgender, queer and questioning. GSA = gay-straight alliance. See main text for detailed descriptions of the community-level variables.

[a]Comprising Pride events, Transgender Day of Remembrance, Anti-Bullying Day, and PFLAG meetings.

[b]Catalogued under 12 categories, e.g., bars and coffee shops, advocacy organizations, mental health professionals, etc.

[c]Summed from individual scores for all LGBTQ-supportive community resources, which were rated on a 2-point scale (1 = on a resource list, but with no indication of LGBTQ-inclusiveness on their own website; 2 = indicated LGBTQ-inclusiveness on their website).

[d]Summed from individual scores for all LGBTQ youth-serving organizations, which were evaluated from 11 aspects including visibility, confidentiality, accessibility via public transit, and special events focusing on LGBTQ youth, etc.

[e]Defined by Statistics Canada as having a population size of 100,000 or larger.[32]

Table 2

Principal component analysis of community and school LGBTQ-supportiveness in the LGBTQ Supportive Environments Inventory for British Columbia, Canada.

	Loadings[a]	
	Principal component 1: Community LGBTQ-supportiveness	**Principal component 2: School LGBTQ-supportiveness**
Number of LGBTQ-supportive community events in a community"	0.39	−0.13
Number of LGBTQ-supportive community resources in a community	0.43	−0.08
Total inclusiveness score of LGBTQ-supportive community resources in a community	0.44	−0.08
Number of LGBTQ youth-serving organizations in a community	0.45	−0.13
Total quality score of LGBTQ youth-serving organizations in a community	0.45	−0.14
Length of time a GSA till 2013 in a school	0.22	0.61
Length of time anti-homophobic-bullying school policy existed prior to 2013 in a school	0.14	0.75
R²	0.68	0.16
Mean (SD)	0.00(2.17)	−0.01(1.03)

Note. LGBTQ = lesbian, gay, bisexual, transgender, queer, and questioning. GSA = gay-straight alliance.

[a]Missing data were imputed using the expectation-maximization method by the probabilistic principal component analysis function in the R package "pcaMethods".[34]

Table 3

Odds ratios of LGBTQ-supportive and general environments in predicting suicidal behavior, 2013 BC Adolescent Health Survey and LGBTQ Supportive Environments Inventory for British Columbia, Canada.

	Girls			Boys		
	Simple multilevel logistic models[a] OR (95% CI)	Multiple multilevel logistic model, not adjusted[b] OR (95% CI)	Multiple multilevel logistic model, adjusted[c] aOR (95% CI)	Simple multilevel logistic models[a] OR (95% CI)	Multiple multilevel logistic model, not adjusted[b] OR (95% CI)	Multiple multilevel logistic model, adjusted[c] aOR (95% CI)
Suicidal ideation in the past year						
LGBTQ-supportive environments						
Community LGBTQ-supportiveness	0.88 (0.84–0.91) ***	0.90 (0.85–0.96) ***	0.94 (0.88–1.01) †	0.86 (0.78–0.94) ***	0.88 (0.76–1.01) †	0.91 (0.78–1.06)
School LGBTQ-supportiveness	0.96 (0.87–1.07)	0.97 (0.87–1.07)	0.95 (0.86–1.06)	1.01 (0.85–1.21)	1.01 (0.85–1.20)	0.96 (0.80–1.15)
General environments						
Percent NDP votes	0.82 (0.73–0.93) ***	0.89 (0.79–1.00) *	0.89 (0.78–1.02) †	0.79 (0.61–1.02) †	0.87 (0.68–1.12)	0.86 (0.66–1.12)
Large population center	0.63 (0.50–0.79) ***	0.90 (0.65–1.23)	0.93 (0.67–1.30)	0.59 (0.40–0.88) **	0.93 (0.51–1.70)	0.87 (0.46–1.63)
One or more suicidal attempts in the past year						
LGBTQ-supportive environments						
Community LGBTQ-supportiveness	0.90 (0.85–0.95) ***	0.89 (0.82–0.97) **	0.91 (0.83–1.00) †	0.90 (0.80–1.01) †	0.96 (0.81–1.14)	1.00 (0.82–1.20)
School LGBTQ-supportiveness	0.93 (0.82–1.05)	0.94 (0.82–1.07)	0.91 (0.80–1.05)	0.91 (0.73–1.13)	0.90 (0.72–1.14)	0.85 (0.66–1.11)
General environments						
Percent NDP votes	0.85 (0.73, 0.99) *	0.92 (0.80, 1.07)	0.97 (0.84, 1.11)	0.74 (0.54, 1.02)	0.79 (0.58, 1.07)	0.78 (0.56, 1.09)
Large population center	0.81 (0.63–1.05)	1.18 (0.82–1.71)	1.30 (0.87–1.91)	0.65 (0.40–1.05) †	0.74 (0.36–1.53)	0.69 (0.31–1.55)
One or more self-harm behaviors in the past year						
LGBTQ-supportive environments						
Community LGBTQ-supportiveness	0.86 (0.82–0.89) ***	0.86 (0.81–0.93) ***	0.91 (0.85–0.98) *	0.91 (0.84–0.98) *	0.95 (0.85–1.06)	0.99 (0.88–1.11)
School LGBTQ-supportiveness	0.99 (0.88–1.10)	0.99 (0.89–1.10)	1.00 (0.90–1.10)	0.96 (0.85–1.10)	0.96 (0.85–1.09)	0.95 (0.83–1.09)
General environments						
Percent NDP votes	0.81 (0.70–0.93) **	0.88 (0.77–1.01) †	0.87 (0.77–0.99) *	0.86 (0.69–1.08)	0.91 (0.74–1.11)	0.91 (0.74–1.12)
Large population center	0.61 (0.48–0.78) ***	0.99 (0.70–1.41)	1.03 (0.73–1.46)	0.66 (0.47–0.93) *	0.79 (0.48–1.29)	0.74 (0.44–1.24)

Note. LGBTQ = lesbian, gay, bisexual, transgender, queer, and questioning. Community LGBTQ-supportiveness, range −2.2–5.6. School LGBTQ-supportiveness, range −2.4–3.4. NDP = (Canadian) New Democratic Party, coded in decile (10%), range 0.9–8.8. Large population center is defined by Statistics Canada as having a population size of 100 000 or larger (0 = no, 1 = yes). For all models, robust maximum likelihood was used as the estimator and unscaled sampling weights were accounted for.

[a]Each row represents one simple multilevel logistic model.

[b]Multiple variables were simultaneously entered into one multiple multilevel logistic regression model.

[c]Adjusted for sexual orientation, age, years of living in Canada, and moving history in the past year.

[†]$p < 0.10$.

[*]$p < 0.05$.

[**]$p < 0.01$.

[***]$p < 0.001$.