



Population-level evaluation of school-based interventions to prevent problem substance use among gay, lesbian and bisexual adolescents in Canada

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ABSTRACT

Objective. This study examined whether students' odds of recent substance use were lower in the presence of gay-straight alliances or explicit anti-homophobia policy that had been established at their school recently, or at least 3 years prior.

Methods. We analyzed a population-based sample of students in grades 8 through 12 from the British Columbia Adolescent Health Survey of 2008 (weighted $N = 21,708$). We used multi-nomial logistic regressions to test the hypothesized effects of gay-straight alliances and policies on substance use outcomes for lesbian, gay and bisexual students, and heterosexual students separately.

Results. Results indicated that gay-straight alliances and anti-homophobic bullying policies were linked to significantly lower odds of some but not all types of recent risky alcohol use, and past-year harms from alcohol or drug use, but almost exclusively in schools where the policies or gay-straight alliances had been established for at least 3 years; and among lesbian, gay and bisexual adolescents, only for girls.

Conclusions. Our findings suggest that these school-based strategies (gay-straight alliances and anti-homophobia policies) to reduce homophobia and foster school inclusion may be beneficial in reducing problem alcohol use among all students, not just sexual minority students.

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Introduction

Sexual minority youth disproportionately experience mental health problems compared to heterosexual peers, including depressive symptoms (Almeida et al., 2009; Marshal et al., 2011) and higher rates of suicidal ideation and suicide attempts (Coker et al., 2010; Saewyc, 2011). For example, a meta-analysis documented that sexual minority youth were almost three times more likely than heterosexual youth to have attempted suicide (Marshal et al., 2011). Stress from stigma, discrimination, rejection and overt hostility may lead sexual minority youth to use alcohol or drugs to cope with their distress. In fact, studies have found significantly higher risk for substance use (Coker et al., 2010; Saewyc, 2011), with the odds of using tobacco, alcohol or illicit drugs among sexual minority adolescents, on average, 190% higher than among heterosexual adolescents (Marshal et al., 2008).

Schools can be one of the commonly hostile or unsupportive environments experienced by sexual minority youth and may contribute to these mental health disparities. Sexual minority adolescents are

more likely than heterosexual peers to experience several types of violence and to miss school because of fear (Fedewa and Ahn, 2011; Friedman et al., 2011). Studies have suggested that exposure to bullying and discrimination based on sexual orientation helps account for the link between minority orientation and adverse mental health outcomes (Almeida et al., 2009; Bontempo and D'Augelli, 2002; Williams et al., 2005). Thus, strategies to prevent mental health problems among sexual minority adolescents should include policies and programs that foster safe and supportive environments for youth of any orientation. School, where adolescents spend a significant portion of their time, is a key site for such interventions.

School-based gay–straight alliances (GSAs) may offer one strategy in risk reduction for sexual minority students. GSAs are student-led clubs with the purpose of providing support and advocating for sexual minority students and their straight allies, aimed at promoting positive school climates (Russell et al., 2009). Although research on the relationship between GSAs and student health is relatively limited, recent studies have provided promising evidence. Sexual minority youth attending a school with a GSA were less likely than those in a no-GSA school to experience at-school victimization (Goodenow et al., 2006; Heck et al., 2011), depressive symptoms (Heck et al., 2011; Toomey et al., 2011), suicidality (Walls et al., 2008) and substance

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use (Heck et al., 2011). The presence of GSAs was also associated with a greater sense of belonging to school and safety in school (Goodenow et al., 2006; Heck et al., 2011). In addition to GSAs, other support programs and anti-bullying policies have been associated with lower odds of suicide attempts (Goodenow et al., 2006).

All of the studies to date, however, have been correlational studies from cross-sectional surveys, where the timing of both the intervention and related risk behavior cannot be disentangled. As well, while GSAs and anti-bullying policies appear to have the potential to improve school climate and reduce stress-related health risks, it may take time after the establishment of these programs for them to produce such effects. The length of time since GSAs or anti-homophobia policies have been implemented may influence health outcomes. Further, most studies have investigated only sexual minority youth, yet GSAs and anti-bullying policies may benefit heterosexual students as well, particularly those who are perceived to be lesbian, gay or bisexual (LGB). In the present study, our ability to identify the year in which policies or GSAs were established across British Columbia, the west coast province of Canada, and focus on recent substance use, can help ensure these population health interventions were implemented before the behavior they are presumed to influence. The purpose of this study, therefore, was to examine whether students' odds of recent substance use were lower in the presence of GSAs or explicit anti-homophobia policy that had been established at their school recently, or at least 3 years prior. We also tested whether there were comparable relationships between these population health interventions and recent substance use among heterosexual students in those schools.

Method

Sample

This study used data from students who participated in the 2008 British Columbia Adolescent Health Survey (BCAHS), administered to a cluster-stratified random sample of 1,760 classes in grades 7 to 12 in 461 public schools across 50 school districts in British Columbia, Canada. With sampling and post-survey weighting designed in consultation with Statistics Canada, the responses from the 29,315 participants were weighted to adjust for the differential probability of selection across school districts and health regions, actual response rates in each region, and to represent provincial enrollment. Detailed design and sampling for the BCAHS have been described elsewhere (Saewyc and Green, 2009).

Seventh graders were excluded from this study because most of these students were enrolled in elementary or middle schools where GSAs and anti-homophobia policies have not been implemented anywhere in the province, and yet developmentally, alcohol or other substance use is also uncommon. Cases missing key data (i.e., gender, age and sexual orientation) were eliminated from the current analyses (5% of the total sample). The final weighted sample in this study included 21,708 students in grades 8 through 12 from 280 secondary schools across 50 school districts.

Measures

Sexual orientation

To assess students' sexual orientation, we used a self-labeling measure defined by romantic attractions, with the response options of heterosexual, mostly heterosexual, bisexual, mostly homosexual, homosexual (gay/lesbian) and not sure. The homosexual, mostly homosexual and bisexual youth formed the lesbian, gay and bisexual (LGB) group for these analyses. The "not sure" group, about 4% of adolescents in the survey, was excluded because varying reasons for choosing that option, i.e., being unsure of attractions, or unsure what the question is asking, make it unclear what students meant (Saewyc et al., 2004). This is also the case for mostly heterosexual adolescents, who have been shown to differ from both heterosexual and LGB youth in their risk exposures and health outcomes as well as in key demographics, such as age and immigration or English-language learner status (Poon et al., 2011; Saewyc et al., 2004).

Alcohol use

Binge drinking was defined as having five or more drinks of alcohol within a couple of hours. Among those who reported ever using alcohol, the frequency of binge drinking in the past month was categorized as follows: 0 to 2 days, 3 to 5 days and 6 or more days of binge drinking in the past month. Students were also asked about their alcohol use on the Saturday before filling out the survey. Responses were categorized as 0 drinks, 1 to 4 drinks and 5 or more drinks last Saturday.

Marijuana use

Students who had ever used marijuana were assessed for use in the past month, categorized as 0 to 9 days, 10 to 19 days and 20 or more days in the past month. In addition, students were asked about their marijuana use on the Saturday before they completed the survey.

Three or more harms associated with alcohol or drug use

Students were asked to check any or all of 13 potential problems that happened to them in the past year because of drinking alcohol or using drugs, such as passing out, conflict with parents, getting into a car accident, trouble with the police, etc. Response options also included "I did not use alcohol or drugs in the past year" and "I used alcohol or drugs but none of these happened." For the present analyses, problem substance use was defined as experiencing three or more problems in the past year because of alcohol or drug use.

Rural–urban status

The rural–urban classification was derived from Statistics Canada's census definitions and used as a covariate in our model. Rural areas consisted of populations under 10,000, with less than 50% of the labor force commuting to an urban center.

Procedures and data analyses

The presence of GSAs among secondary schools that participated in the 2008 BCAHS was confirmed through telephone surveys of school administrators as well as the year the GSA was established. Schools with explicit homophobia-related anti-bullying policies were identified through an online list provided by the British Columbia Teachers' Federation, with timing confirmed through an examination of the policies. Schools were classified into those with no GSA (197 schools) or policy (226 schools), those with recently established GSAs or policies (implemented between 2005 and 2007: 30 schools and 17 schools, respectively) and those with longer-established GSAs or policies (3 or more years since implementation: 23 schools and 37 schools, respectively). The information about GSAs and the explicit school-district policies was linked to individual BCAHS student data.

We compared LGB and heterosexual students on demographics, school characteristics and substance use measures using chi-square tests. We used multi-nomial logistic regressions to test the hypothesized influences of GSAs and policies on substance use outcomes for LGB and heterosexual students separately.¹ All analyses were conducted using the SPSS 19.0 Complex Samples software to account for the clustered nature of the sampling. Given the known gender and maturational differences in substance use among adolescents by sexual orientation (Saewyc, 2011), we conducted analyses separately by gender and controlling for grade. We also tested the need for additional covariates that have been significantly linked to substance use and which might offer competing explanations for differences in problem substance use prevalence between students in schools with policies or GSAs and those in schools without. These potential confounders included rural–urban status, family composition, current depressed mood and history of sexual abuse. There were no significant differences in the prevalence of any of these potential confounders between schools with and without GSAs or policies, except for rural–urban status. Therefore, we only included rural–urban classification and grade as covariates in the models.

¹ Multilevel models were tested to determine the variability across schools and found that intraclass correlations ranged from 0.01 to 0.06 on our variables, and the majority of them ranged lower than 0.04. Intraclass correlations below 0.10 are considered inconsequential (Lee, 2000), excluding the need in this case to model the nested data in the current analyses.

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