

Sexual Orientation Trends and Disparities in School Bullying and Violence-Related Experiences, 1999–2013

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Numerous recent studies have demonstrated that schools are often unsafe for lesbian, gay, and bisexual (LGB) adolescents, who are more likely than heterosexual peers to be bullied, harassed, or victimized in school contexts. Virtually all of these studies call for change, yet none investigate whether or not it has occurred. Using repeated waves of a population-based high school survey, we examine (a) the extent to which sexual orientation differences in school bullying and violence-related experiences are reported by lesbian/gay, bisexual, and heterosexual male and female adolescents; (b) trends in school bullying and violence-related experiences for each gender/orientation group; and (c) whether disparities have changed over time. Data were drawn from 8 Massachusetts biennial Youth Risk Behavior Surveys from 1999 to 2013, grouped into 4 waves totaling 24,845 self-identified heterosexual, 270 lesbian/gay, and 857 bisexual youth. Disparities between LGB and heterosexual peers were found in all indicators. Heterosexual youth and gay men saw significant reductions in every outcome between the first and last waves. Among bisexual men, skipping school because of feeling unsafe, carrying weapons in school, and being bullied all decreased, but among lesbians and bisexual females only fighting in school declined significantly. Improvement trends in school safety were more consistent for heterosexual youth and gay males than for bisexual or lesbian females. Notably, despite these improvements, almost no reduction was seen in sexual orientation disparities. Future research should identify influences leading to reduced school victimization, especially focusing on ways of eliminating persistent sexual orientation disparities.

Keywords: sexual minority youth, school violence, bullying, trends

Twenty years ago, Jamie Nabozny, who had been a student in the Ashland, Wisconsin public schools, won his case against the school district in the U.S. Court of Appeals (Lambda Legal Defense and Education Fund, 1996). As an openly gay middle and later high school student, Nabozny had been attacked by other students, pelted with objects, subjected to a mock rape in a science class with other students looking on, urinated on in the rest room, and kicked in the stomach hard enough to induce internal bleeding. He and his parents repeatedly appealed to school administrators, who took no action to punish his attackers or stop the abuse. In fact, one principal told him

that, being gay, he “had to expect this kind of stuff to happen.” He attempted suicide several times. Only after dropping out of high school did he learn that his treatment had been not just wrong, but illegal, and he took the school district to court for failing to give him equal protection. In November 1996, in a landmark decision, the U.S. Court of Appeals found the Ashland school officials liable and awarded Nabozny over \$900,000 in damages (Cianciotto & Cahill, 2012).

In the two decades since *Nabozny*, research studies have found, over and over, that school is often not safe for sexual minority youth—young people who self-identify as lesbian, gay, or bisexual (LGB) or who report any same-sex attractions or sexual behavior. Research evidence includes not only high profile cases and anecdotal accounts (Bochenek & Brown, 2001; Reis, 1999), but a number of large-scale survey studies documenting that sexual minority students, in comparison to their heterosexual peers, have a significantly greater likelihood of being victimized or having violence-related experiences in middle or high school, for example by being verbally harassed, being called names, having property damaged, being threatened, being physically assaulted, or fighting and carrying weapons in school (e.g., Bontempo & D’Augelli, 2002; Friedman et al., 2011; Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998; Kann et al., 2011; Robinson & Espelage, 2013).

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In recent years, increasing attention has been devoted to one distinct form of school victimization, bullying, which has been defined as “any unwanted aggressive behavior(s) by another youth or group of youths . . . that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated” (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2014, p. 7). Bullying can take multiple forms, from physical assault to name-calling and verbal threats to social exclusion or deliberate humiliation. Intentionality, repetition, and imbalance of power are key elements (Hymel & Swearer, 2015).

In the social “pecking order” often established in middle and high schools, anyone in a socially disadvantaged position may be more likely to be bullied; youth with physical or learning disabilities and overweight youth, for example, are more likely than other youth to be victimized in school (Eisenberg, Gower, McMorris, & Bucchianeri, 2015). Sexual minority youth and those perceived to be LGB have repeatedly been found to experience school bullying at significantly higher rates than heterosexual students (Berlan, Corliss, Field, Goodman, & Austin, 2010; O’Malley Olsen, Kann, Vivolo-Kantor, Kinchen, & McManus, 2014; Schneider, O’Donnell, Stueve, & Coulter, 2012; Williams, Connolly, Pepler, & Craig, 2005). Indeed, much school bullying often takes the form of homophobic teasing and slurs, regardless of whether it is directed at self-identified LGB youth or not (Potat & Rivers, 2010).

School victimization, bullying, and violence can have devastating effects on the health and well-being of those who experience it (Hertz, Everett Jones, Barrios, David-Ferndon, & Holt, 2015; van Geel, Vedder, & Taniol, 2014). More specifically, numerous studies have linked the higher rates of victimization experienced by sexual minority youth to poorer mental health, depression, and suicidal ideation and attempts (Bontempo & D’Augelli, 2002; D’Augelli, Pilkington, & Hershberger, 2002; Duong & Bradshaw, 2014; Goodenow, Szalacha, & Westheimer, 2006; Mueller, James, Abrutyn, & Levin, 2015; Patrick, Bell, Huang, Lazarakis, & Edwards, 2013; Robinson, Espelage, & Rivers, 2013; Shields, Whitaker, Glassman, Franks, & Howard, 2012), both during adolescence and carrying over into young adulthood (Russell, Ryan, Toomey, Diaz, & Sanchez, 2011; Toomey, Ryan, Diaz, Card, & Russell, 2013). The victimization of LGB youth also contributes toward explaining their higher prevalence of substance abuse (Bontempo & D’Augelli, 2002; Rosario et al. 2014) and high-risk sexual behaviors (Bontempo & D’Augelli, 2002; Robinson & Espelage, 2013; Rosario et al., 2014; Russell et al., 2011). In-school victimization of sexual minority youth is also, perhaps inevitably, associated with poorer educational outcomes such as lower grades, truancy, lower educational aspirations, and school discipline problems (Aragon, Potat, Espelage, & Koenig, 2014; Birkett, Russell, & Corliss, 2014; Kosciw, Palmer, Kull, & Greytak, 2013; Murdock & Bolch, 2005).

Despite the psychological, physical, and educational costs to sexual minority youth of their increased rates of school victimization and violence, there are clearly some differences among these adolescents. Studies have repeatedly found that gay and bisexual males in the United States are more likely to experience victimization than their female counterparts, perhaps because gender conformity is enforced more strongly for men than women (Chesir-Teran & Hughes, 2009; D’Augelli et al., 2002; Kosciw, Greytak, & Diaz, 2009; Russell et al., 2011), although this has not been found in Canada, where lesbian and bisexual female students report higher prevalence of the various types

of verbal, sexual, and physical harassment than their male peers (Konishi & Saewyc, 2014). Additionally, some research has found that bisexual youth were less likely to be harassed than were gay or lesbian adolescents (Berlan et al., 2010; Chesir-Teran & Hughes, 2009), although other studies have found the reverse (e.g., Robinson & Espelage, 2011). Ethnicity also appears to be a significant factor in victimization for both general populations of adolescents and for sexual minority youth in particular. For example, several studies have found Black youth are less likely to report being bullied than are White youth (Mueller et al., 2015; Nansel et al., 2001; Russell, Everett, Rosario, & Birkett, 2014). Finally, for both straight and LGB adolescents, bullying and other forms of school victimization tend to decrease with age, reaching a peak in middle school and then declining in high school and dropping further in young adulthood (Birkett, Newcomb, & Mustanski, 2015; Devoe & Bauer, 2011; Fedewa & Ahn, 2011; Robinson, Espelage, & Rivers, 2013).

Two Decades of Change

Despite the many insights gained through research on sexual minority youth and school victimization in the past 20 years, most of the studies mentioned above have been conducted in an ahistorical, decontextualized fashion, based on one round of data collection or at most a pooled set of several years, with little or no attention to variation over time. In that time span, however, substantial changes have occurred related both to school violence/victimization in general and also to the social environment experienced by LGB adolescents.

Since the mid-1990s, increasing public attention has been drawn to threats to school safety such as in-school victimization, violence, and bullying. The Safe and Drug-Free Schools and Communities Act, part of the federal 1994 Elementary and Secondary Education Act, provided funding to states for programs and activities aimed at reducing school violence. The 1999 Columbine school massacre, in particular, raised widespread public concern about school violence and led to increased school security measures, such as metal detectors and security/surveillance cameras, in many jurisdictions across the country (Centers for Disease Control and Prevention, 2015). Research on school bullying has burgeoned (see Hymel & Swearer, 2015, for a review) and programmatic efforts to address this issue have increased. For example, since 1999, antibullying legislation has been passed by 49 of 50 states (Cornell & Limber, 2015; Stuart-Cassel, Bell, & Springer, 2011), and the percentage of schools reporting bullying prevention programs has increased (Centers for Disease Control and Prevention, 2015). Perhaps as a result, there are signs that some indicators of school victimization and other violence may be decreasing in the general population of school-age youth. Results from the National Youth Risk Behavior Survey found that weapon-carrying and fighting at school declined from 1991 to 2003 and from 1999 to 2013 (Centers for Disease Control, 2005, 2016). Perlus and colleagues, analyzing waves of a national survey of 6th through 10th grade students, found that physical fighting and in-school bullying victimization both declined significantly from 1998 to 2010, though when genders were analyzed separately, results for being bullied were significant only for boys (Perlus, Brooks-Russell, Wang, & Iannotti, 2014). Similarly, a set of regional high school surveys found a decrease in bullying victimization from 2006 to 2012, with that change driven by a significant drop in the bullying of males but not females (Kessel Schneider, O’Donnell, & Smith, 2015).

The past 20 years have also witnessed striking changes in the cultural and social environment affecting sexual minority youth. Laws against same-sex sexual behavior were overturned by the U.S. Supreme Court in 2003 (*Lawrence v. Texas*, 2003); same-sex marriage was legalized in one state in 2004 and nationally in 2015; and the military “Don’t Ask, Don’t Tell” policy, barring LGB persons from serving openly in the military, was rescinded in 2011. Substantial improvements have been measured in attitudes toward sexual minorities among the general public in the past few decades (Flores, 2014), and there are now openly gay politicians, sports figures, and entertainers—a situation that would have been unthinkable only a few years ago.

In that same time span, increased attention has been directed toward the difficulties faced by sexual minority youth. The first population-based studies on LGB adolescents appeared in the mid-to late-1990s (e.g., Garofalo et al., 1998), spurred initially by accounts of high LGB youth suicide rates (Gibson, 1989) but with later attention directed toward the events and circumstances, such as high rates of victimization, that could explain such negative outcomes. The first gay/straight alliances, school-based support groups for LGB youth and their allies, began in the late 1980s; by 2014 they existed in at least 47 states (Demissie et al., 2015).

These indicators of social change suggest that school violence, victimization, and bullying should have decreased since the Nabozny case, not just for the general population of adolescent students but for LGB adolescents in particular. To date, however, few attempts have been made to investigate whether improvements in school safety for sexual minority youth have actually occurred. One recent meta-analysis of 26 studies of sexual orientation victimization in young people did not find that the decade of the studies’ data collection (1990s vs. 2000s) was a significant moderator of the relationship between sexual orientation and negative outcomes (Friedman et al., 2011). On the other hand, in the most recent wave of a national online survey, LGBT youth reported lower rates of school verbal and physical harassment than they had in previous waves (Kosciw, Greytak, Palmer, & Boesen, 2014). Furthermore, a recent regional study found that sexual minority youth, like their heterosexual counterparts, experienced a decline in school bullying victimization (Kessel Schneider et al., 2015). Whether or not such positive trends hold true in a more broadly representative sample of adolescents, whether trends occur equally for males and females, and whether sexual orientation disparities have narrowed or disappeared are critical issues to examine.

The Current Study

Our study has three purposes. Using a series of cross-sectional population-based surveys of public high school students in Massachusetts from 1999 to 2013, we first explore whether sexual minority adolescents, defined as those who self-identify as LGB, stratified by sex, differ from their heterosexual peers in school intimidation, indicators of school violence-related experiences, and school bullying victimization. Second, we investigate statistical trends in these school experiences for each of these six groups (male and female; lesbian/gay, bisexual, and heterosexual) over the 14-year period covered by the surveys. Finally, we investigate the statistical significance of any changes in the disparities between sexual minority and heterosexual adolescents.

Method

Data

Data presented here are drawn from the 1999 to 2013 Massachusetts Youth Risk Behavior Survey (MYRBS), a Center for Disease Control (CDC) funded population-based survey of Massachusetts’s public high school students administered every odd-numbered year since 1993. All regular public high schools are included in the sampling frame, and each survey year between 57 (2003) and 75 (2013) schools are sampled. Schools were selected systematically with probability proportional to enrollment in Grades 9 through 12, using a random start. The core YRBS questionnaire was developed by the CDC; some questions—including one on self-defined sexual identity—were added by the state. Sampling procedures have been described in detail elsewhere: for 2003 and 2005 (see Matthews, Blosnich, Farmer, & Adams, 2014) and for 2009 and 2011 (see Gonsalves, Hawk, & Goodenow, 2014). Because of high student and school response rates, the CDC weighted the data for each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of nonresponse.

Participants

All participants in this study responded to the question about sexual orientation (see Measures section). We examined data from eight total biennial survey years from 1999 to 2013, grouped into four survey waves (i.e., Wave 1 [1999/2001], Wave 2 [2003/2005], Wave 3 [2007/2009], and Wave 4 [2011/2013]). Data from 1995 and 1997 surveys were excluded because of low numbers of sexual minorities. A question about being bullied was not included in the MYRBS until 2003, so bullying data are available only for Waves 2, 3, and 4. The number of participants ranged from a low of 2,721 (2009) to a high of 4,415 (1999). See Table 1 for the unweighted sample distributions and weighted percentages for each sexual orientation by gender by wave group.

Measures

Demographics. All participants were public high school students in Grades 9 through 12, ranging in age from 12 to 18; with an average age of 16.04 years. Participants self-reported ethnicity, coded as White non-Hispanic, Black non-Hispanic, Asian non-Hispanic, Hispanic, and Other non-Hispanic (including American Indian, Alaska Native, Native Hawaiian, Pacific Islander, or multiethnic). Participants also indicated their sex as male or female.

Sexual orientation. Sexual orientation was measured using a one item: “Which of the following best describes you?” Response options were “heterosexual (straight),” “bisexual,” “gay or lesbian,” and “not sure.” Participants who indicated they were “not sure” of their sexual orientation were excluded from all of our analyses.

Outcomes: Bullying, intimidation, and other violence-related experiences at school. One survey item was used to assess bullying at school: “During the past 12 months, have you ever been bullied on school property?” Responses were 0 (*no*) or 1 (*yes*). Two items tapped experiences of victimization or intimidation: “During the past 12 months, how many times has someone

Table 1
Sample Sizes^a and Percents^b for Massachusetts Youth Risk Behavior Survey by Wave, Gender, and Sexual Orientation

Participants	Wave 1 1999/2001	Wave 2 2003/2005	Wave 3 2007/2009	Wave 4 2011/2013
Male				
Heterosexual	4,054 (95.1%)	3,279 (95.4%)	2,712 (94.6%)	2,565 (94.4%)
Bisexual	60 (1.3%)	46 (1.3%)	52 (1.8%)	54 (2.0%)
Gay	37 (.8%)	41 (1.2%)	64 (2.1%)	47 (1.7%)
Female				
Heterosexual	3,902 (93.9%)	3,306 (93.0%)	2,630 (90.7%)	2,397 (89.1%)
Bisexual	133 (3.3%)	153 (4.1%)	182 (6.3%)	177 (6.8%)
Lesbian	15 (.4%)	25 (.6%)	36 (1.2%)	35 (1.4%)

^a Sample sizes are unweighted *N*s. ^b Percents are weighted. Within each Wave and Gender group, percents do not add up to 100% because youth who answered “not sure” on the sexual identity question are not included here, nor are they included in any subsequent analyses.

threatened or injured you with a weapon such as a gun, knife or club on school property?” and “During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?” Finally, two additional items asked about other violence-related experiences in school: “During the past 12 months, how many times were you in a physical fight on school property?” and “During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club on school property?” Although the original response options for these last four items assessed how often or how many times events had occurred, for purposes of our analyses we collapsed them into just two categories, 0 or 1, depending on whether the event had occurred at all in the time frame mentioned.

Analyses

Data were weighted and adjusted for complex sampling design by using SPSS Complex Samples 22. All analyses were conducted separately for males and females.

First, logistic regression analyses, controlling for age and ethnicity, were conducted to test whether bullying and other violence-related outcomes differed between heterosexual youth (the reference group) and male and female sexual minority youth in each survey wave.

Next, frequencies for each outcome for each orientation subgroup in each wave were calculated. Logistic regression analyses, controlling for age and ethnicity, were then conducted within each orientation group to assess whether changes over time were statistically significant. Wave 1 was used as the reference time period for being threatened/injured at school, skipping school because of fear, fighting in in school, and carrying a weapon in school. Wave 2 was the reference period for being bullied at school, because bullying data were not collected in 1999/2001 (Wave 1).

A final set of analyses examined whether the sexual orientation differences in school violence-related outcomes between heterosexual and sexual minority students widened, narrowed, or stayed the same between Wave 1 (or Wave 2 in the case of bullying) and subsequent waves. To do this, we conducted logistic regression analyses, adjusted for age and ethnicity, that included sexual orientation, survey wave, and an orientation-by-wave interaction term, with heterosexual Wave 1 youth (or Wave 2 in the case of bullying victimization) as the reference group. In these analyses, a

statistically significant odds ratio would indicate that the disparity in some outcome between, for example, heterosexual and gay males, significantly narrowed or widened over time. A full discussion of the analytic method for assessing disparity trends is described elsewhere (Homma, Saewyc, & Zumbo, 2016).

Results

Sexual Orientation-Based Differences, by Survey Wave

Table 2 presents age- and ethnicity-adjusted odds ratios (AORs) comparing sexual minority youth to the reference group, their same-gender heterosexual counterparts, for each outcome variable in each wave. Every one of the comparison odds ratios was above 1, indicating higher risk for gay, lesbian, or bisexual adolescents than for their heterosexual peers. Almost all were statistically significant, ranging from relatively modest disparities (e.g., in Wave 4, bisexual females were about twice as likely as straight females to have been in a physical fight in school, AOR = 1.95, confidence interval [CI] = 1.02, 3.72) to extraordinarily large differences (e.g., in Wave 2, lesbians had 20 times the odds of carrying a weapon in school compared with heterosexual females, AOR = 20.56, CI = 7.57, 55.84).

Overall Prevalence and Trends, by Sexual Orientation

Wave by wave prevalence and changes over time for each sexual identity group and each outcome variable are shown in Table 3. The two measures of intimidation—being threatened or injured with a weapon at school and skipping school because of feeling unsafe—showed a roughly similar pattern, with significant declines between Wave 1 and Wave 4 for male and female heterosexual youth and for gay male youth on both indicators. From Wave 1 to Wave 4 there was a significant drop among bisexual males in skipping school because of feeling unsafe, and a marginally significant drop among lesbians in being threatened or injured at school. For bisexual females, neither change since Wave 1 in the two intimidation items was significant by Wave 4.

Two other survey items tapped violence-related behaviors: being in a physical fight at school in the past year and carrying a weapon at school in the past month. As with the intimidation

Table 2
Adjusted Odds Ratios and 95% Confidence Intervals for School Bullying and Violence, by Wave, Sexual Orientation, and Gender

Outcome variables, gender, & sexual identity	Wave 1: 1999/2001	Wave 2: 2003/2005	Wave 3: 2007/2009	Wave 4: 2011/2013
Threatened or injured with weapon at school in past year				
Male				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	2.62 (1.41, 4.87)**	3.28 (1.26, 8.56)*	7.04 (3.73, 13.27)***	3.57 (1.58, 8.07)**
Gay	6.48 (2.84, 14.77)***	3.07 (1.60, 5.88)***	4.68 (2.38, 9.20)***	2.63 (1.11, 6.23)*
Female				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	2.89 (1.61, 5.19)***	3.28 (1.66, 6.50)***	2.36 (1.15, 4.84)*	3.90 (2.25, 5.89)***
Lesbian	6.15 (2.05, 18.47)**	7.05 (1.93, 25.76)**	12.03 (6.11, 23.67)***	7.25 (2.25, 23.36)***
Skipped school because felt unsafe in past year				
Male				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	4.57 (2.16, 9.68)***	5.61 (2.67, 11.79)***	5.68 (2.74, 11.78)***	1.70 (.50, 5.78)
Gay	10.14 (4.85, 21.20)***	6.16 (2.43, 15.58)***	7.89 (3.82, 16.30)***	4.53 (1.54, 13.32)**
Female				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	1.66 (.95, 2.89)	3.73 (1.87, 7.34)***	2.13 (1.12, 4.05)*	3.11 (1.74, 5.55)***
Lesbian	3.51 (1.09, 11.26)*	12.65 (4.17, 38.40)***	7.70 (2.65, 22.37)***	4.96 (1.77, 13.91)**
Physical fight at school in past year				
Male				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	2.40 (1.36, 4.23)**	2.22 (.89, 5.54)	3.94 (2.02, 7.70)***	4.50 (1.97, 10.29)***
Gay	5.21 (2.64, 10.27)***	1.87 (.91, 3.85)	3.68 (2.05, 6.59)***	1.15 (.27, 4.92)
Female				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	2.51 (1.43, 4.40)**	3.70 (2.28, 5.99)***	3.05 (1.84, 5.05)***	1.95 (1.02, 3.72)*
Lesbian	8.62 (3.31, 22.48)***	6.91 (2.12, 22.49)**	5.06 (1.78, 14.40)**	5.70 (2.14, 15.21)***
Carried weapon in school in past year				
Male				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	2.82 (1.58, 5.04)***	2.86 (1.07, 7.59)*	3.25 (1.22, 8.67)*	3.53 (1.57, 7.96)**
Gay	7.39 (3.42, 15.94)***	1.77 (.77–4.03)	3.53 (1.57–7.92)**	1.42 (.64, 4.24)
Female				
Heterosexual	1.0	1.0	1.0	1.0
Bisexual	2.34 (1.04, 5.28)*	2.79 (1.28, 6.08)*	3.77 (1.71, 8.30)***	4.03 (1.76, 9.24)***
Lesbian	15.18 (4.85, 47.52)***	20.56 (7.57, 55.84)***	19.74 (7.22, 53.99)***	11.88 (3.03, 46.57)***
Bullied at school in past year				
Male				
Heterosexual		1.0	1.0	1.0
Bisexual	NA	3.51 (1.88, 6.55)***	4.58 (2.38, 8.80)***	2.20 (1.17, 4.13)*
Gay		3.78 (1.92, 7.41)***	4.59 (2.65, 7.94)***	2.09 (.97, 4.54)
Female				
Heterosexual		1.0	1.0	1.0
Bisexual	NA	2.72 (1.90, 3.91)***	2.56 (1.79, 3.65)***	3.44 (2.47, 4.80)***
Lesbian		3.50 (.91, 13.39)	2.44 (1.11, 5.37)	1.34 (.53, 3.38)

Note. Data are weighted and adjusted for age and ethnicity; 95% confidence intervals are in parentheses. NA = data not available.

* $p < .05$. ** $p < .01$. *** $p < .001$.

measures, both male and female heterosexual youth reported significant decreases from Wave 1 to Wave 4 on both items tapping violence-related behavior. Substantial declines on these measures also occurred among gay male youth, who had less than one-tenth the odds of having been in a fight or of carrying a weapon at school in the final wave compared with their 1999–2001 rates. From Wave 1 to Wave 4, bisexual and lesbian females also had sharp decreases in being in a fight at school, though not in weapon-carrying, whereas bisexual males reported decreased rates of weapon-carrying but not fighting in school.

Finally, significant declines in being bullied at school occurred for all groups except bisexual and lesbian females. The biggest significant decreases in bullying were reported by gay

and bisexual male teens, who were both about one-third as likely to report bullying in Wave 4 (2011/2013) as they had been in Wave 2 (the initial wave for this outcome, 2003/2005). The bullying of male and female heterosexual students also dropped significantly to a little over two-thirds of their initial rates.

Changes in Sexual Orientation Disparities

Potential reductions (or increases) in the disparities between sexual minority adolescents and their heterosexual peers were examined using logistic regression analyses with interaction terms. As is evident from Table 4, only 3 of the 54 reported adjusted odds ratios reached statistical significance. Two of

Table 3

Frequencies of School Bullying and Violence-Related Experiences and Adjusted Odds Ratios of Changes Since Initial Survey Wave, by Gender and Sexual Orientation

Outcome variables, gender, & sexual identity	Frequencies				Change 1999/2001 to 2003/2005	Change 1999/2001 to 2007/2009	Change 1999/2001 to 2011/2013
	1999/2001	2003/2005	2007/2009	2011/2013	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Threatened or Injured with Weapon at School (Past 12 months)							
Male							
Heterosexual	10.1%	7.1%	7.4%	6.4%	.69 (.57, .83)***	.66 (.55, .80)***	.57 (.46, .71)***
Bisexual	23.0%	20.0%	36.2%	18.3%	.83 (.36, 1.91)	1.56 (.91, 2.67)	.66 (.33, 1.33)
Gay	44.5%	20.3%	29.8%	17.2%	.23 (.13, .43)***	.36 (.18, .70)**	.18 (.10, .35)***
Female							
Heterosexual	5.0%	3.2%	2.9%	2.9%	.63 (.48, .83)***	.51 (.38, .69)***	.55 (.43, .76)***
Bisexual	12.1%	9.5%	6.2%	11.0%	.64 (.31, 1.32)	.37 (.17, .82)*	.64 (.47, 1.49)
Lesbian	25.5%	24.1%	29.4%	17.8%	.62 (.29, 1.32)	.70 (.51, .97)*	.54 (.29, 1.00)*
Skipped School Because Felt Unsafe (Past 30 days)							
Male							
Heterosexual	5.7%	3.7%	3.6%	3.5%	.64 (.50, .83)***	.59 (.43, .82)**	.59 (.42, .83)**
Bisexual	22.4%	17.6%	16.3%	5.9%	.83 (.43, .60)	.58 (.32, 1.10)	.19 (.08, .44)***
Gay	37.3%	19.9%	23.0%	15.8%	.35 (.20, .62)***	.59 (.34, 1.00)	.29 (.17, .48)***
Female							
Heterosexual	7.4%	3.5%	3.2%	3.5%	.43 (.30, .63)***	.39 (.27, .58)***	.44 (.30, .63)***
Bisexual	11.3%	11.5%	7.5%	11.0%	1.06 (.53, 2.13)	.55 (.30, 1.03)	.91 (.47, 1.79)
Lesbian	24.0%	36.6%	22.0%	14.8%	1.86 (.70, 4.96)	.81 (.30, 2.15)	.63 (.18, 2.13)
Physical Fighting in School (Past 12 months)							
Male							
Heterosexual	16.7%	13.1%	11.0%	7.5%	.75 (.64, .88)***	.58 (.49, .69)***	.39 (.32, .48)***
Bisexual	32.0%	24.9%	32.9%	27.7%	.66 (.35, 1.24)	.98 (.55, 1.74)	.70 (.44, 1.23)
Gay	50.5%	22.6%	29.3%	7.8%	.26 (.20, .35)***	.43 (.29, .66)***	.09 (.02, .37)**
Female							
Heterosexual	7.1%	5.9%	5.1%	3.0%	.82 (.64, 1.04)	.71 (.54, .94)	.41 (.31, .55)***
Bisexual	15.2%	17.9%	14.0%	6.2%	1.02 (.58, 1.81)	.68 (.36, 1.29)	.24 (.12, .47)***
Lesbian	41.3%	32.3%	24.5%	15.8%	.70 (.29, 1.72)	.35 (.25, .49)***	.27 (.13, .55)**
Carried Weapon in School (Past 30 days)							
Male							
Heterosexual	9.3%	7.8%	6.1%	4.5%	.84 (.70, 1.01)	.59 (.47, .74)***	.44 (.34, .57)***
Bisexual	23.2%	19.6%	15.75	17.8%	.76 (.35, 1.62)	.60 (.24, 1.54)	.49 (.29, .81)**
Gay	41.4%	14.1%	18.3%	8.1%	.15 (.10, .24)***	.24 (.15, .37)***	.08 (.04, .14)***
Female							
Heterosexual	2.0%	2.0%	1.6%	1.2%	1.04 (.70, 1.54)	.75 (.48, 1.17)	.59 (.36, .97)*
Bisexual	4.0%	5.9%	5.6%	5.4%	1.43 (.60, 3.10)	1.26 (.67, 2.74)	1.09 (.47, 2.50)
Lesbian	25.5%	33.8%	21.2%	15.7%	1.85 (1.35, 2.52)***	.69 (.37, 1.27)	.43 (.11, 1.62)
Was Bullied at School (Past 12 months)							
Male							
Heterosexual		20.5%	18.3%	14.6%		.84 (.73, .98)*	.68 (.57, .81)***
Bisexual	NA	45.4%	53.1%	28.8%	NA	.90 (.49, 1.63)	.35 (.21, .59)***
Gay		47.7%	44.9%	27.0%		.90 (.51, 1.59)	.36 (.21-.63)***
Female							
Heterosexual		23.4%	19.2%	17.4%		.76 (.66, .88)***	.70 (.60-.88)***
Bisexual	NA	42.9%	36.2%	41.0%	NA	.72 (.45, 1.16)	.91 (.59, 1.40)
Lesbian		47.1%	39.4%	22.4%		.58 (.21, 1.66)	.31 (.09, 1.12)

Note. AOR = Odds ratio, adjusted for age and ethnicity; CI = 95% confidence interval. NA = data not available.

* $p < .05$. ** $p < .01$. *** $p < .001$.

these were temporary changes (the widening disparity between bisexual and heterosexual males from Wave 1 to Wave 3 in being threatened or injured with a weapon and the narrowing disparity between gay and heterosexual males from Wave 1 to Wave 2 in carrying a weapon in school). From Wave 1 to Wave 4, only the difference between gay and heterosexual males in carrying a weapon at school was significantly smaller in the final wave than it had been initially (AOR = 0.19, CI = 0.05, 0.68). No sexual orientation disparities among females changed significantly over time.

Discussion and Implications

In the United States and other developed countries, the vast majority of adolescents spend much of their waking time in schools, environments intended to be safe and supportive for all youth and to prepare them for successful adult lives. Unfortunately, the rapidly growing body of research over the past 20 years has exposed the high levels of school victimization experienced by one population of youth, sexual minority young people, victimization that substantially increases their risk of

Table 4
Odds Ratios for Changes in Sexual Orientation Disparities in School Violence Across Survey Waves

Outcome variables and sexual identity by wave	Male AOR (95% CI)	Female AOR (95% CI)
Threatened/injured with weapon at school		
Heterosexual by wave 1, 1999/2001	1.0	1.0
Bisexual by wave 2, 2003/2005	1.26 (.42, 3.99)	1.17 (.49, 2.80)
Bisexual by wave 3, 2007/2009	2.79 (1.17, 6.65)*	.85 (.35, 2.08)
Bisexual by wave 4, 2011/2013	1.38 (.50, 3.76)	1.37 (.68, 2.72)
Gay/lesbian by wave 2, 2003/2005	.48 (.17, 1.36)	1.19 (.22, 6.47)
Gay/lesbian by wave 3, 2007/2009	.72 (.26, 2.02)	2.07 (.56, 7.68)
Gay/lesbian by wave 4, 2011/2013	.40 (.13, 1.39)	1.19 (.25, 5.72)
Skipped school because felt unsafe		
Heterosexual by wave 1, 1999/2001	1.0	1.0
Bisexual by wave 2, 2003/2005	1.21 (.43, 3.40)	2.25 (.96, 5.34)
Bisexual by wave 3, 2007/2009	1.21 (.43, 3.35)	1.36 (.58, 3.16)
Bisexual by wave 4, 2011/2013	.38 (.09, 1.55)	1.91 (.86, 4.21)
Gay/lesbian by wave 2, 2003/2005	.62 (.19, 2.01)	3.59 (.74, 17.36)
Gay/lesbian by wave 3, 2007/09	.81 (.29, 2.25)	2.09 (.45, 9.81)
Gay/lesbian by wave 4, 2011/13	.44 (.12, 1.63)	1.34 (.30, 6.11)
Physical fight at school		
Heterosexual by wave 1, 1999/2001	1.0	1.0
Bisexual by wave 2, 2003/2005	.95 (.33, 2.69)	1.41 (.69, 2.90)
Bisexual by wave 3, 2007/2009	1.65 (.70, 3.91)	1.19 (.57, 2.48)
Bisexual by wave 4, 2011/2013	1.91 (.71, 5.13)	.77 (.32, 1.82)
Gay/lesbian by wave 2, 2003/2005	.38 (.15–1.01)	.83 (.19, 3.39)
Gay/lesbian by wave 3, 2007/09	.73 (.30–1.76)	.57 (.14, 2.32)
Gay/lesbian by wave 4, 2011/2013	.24 (.05–1.18)	.70 (.19, 2.67)
Carried weapon at school		
Heterosexual by wave 1, 1999/2001	1.0	1.0
Bisexual by wave 2, 2003/2005	1.00 (.33, 3.04)	1.29 (.43, 3.85)
Bisexual by wave 3, 2007/2009	1.11 (.36, 3.47)	1.68 (.56, 5.04)
Bisexual by wave 4, 2011/2013	1.28 (.48, 3.37)	1.78 (.5, 5.52)
Gay/lesbian by wave 2, 2003/2005	.24 (.08, .72)*	1.39 (.33, 5.90)
Gay/lesbian by wave 3, 2007/2009	.47 (.16, 1.38)	1.07 (.23, 4.98)
Gay/lesbian by wave 4, 2011/2013	.19 (.05, .68)*	.75 (.1, 4.46)
Bullied at school		
Heterosexual by wave 2 (2003/2005)	1.0	1.0
Bisexual by wave 3, 2007/09	1.31 (.54, 3.16)	.96 (.5, 1.58)
Bisexual by wave 4, 2011/2013	.63 (.27, 1.49)	1.27 (.7, 2.03)
Gay/lesbian by wave 3, 2007/2009	1.20 (.51, 2.81)	.76 (.1, 3.33)
Gay/lesbian by wave 4, 2011/2013	.58 (.2, 1.61)	.41 (.0, 1.91)

Note. AOR = Odds ratios, adjusted for age and ethnicity; CI = 95% confidence interval. Reference group is heterosexuals in 1999/2001 for most school violence-related experiences, but heterosexuals in 2003/2005 for bullying.

* $p < .05$.

poor mental and physical health as well as worse educational outcomes. The present study extends that research by using successive waves of a population-based high school survey to examine how such school victimization and other violence-related experiences have changed since the late 1990s and by investigating whether or not sexual orientation disparities have narrowed significantly in recent years.

Our findings related to decreases in school bullying and other violence-related experiences are cause for partial optimism. The prevalence of all five outcome measures—being threatened or injured by a weapon, skipping school because of safety concerns, carrying weapons or fighting in school, and being bullied—dropped significantly from the first to the final wave of surveys, at least for some students. Results for heterosexual adolescents are consistent with other surveys of youth, most presumably heterosexual, in finding decreases in school violence and victimization

over recent years (Finkelhor, 2014; Finkelhor, Shattuck, Turner, & Hamby, 2014; Perlus et al., 2014). Given the nature of our data, we cannot make clear attributions of causality for these improvements in school safety. The widespread development and implementation of school antibullying policies may have been one beneficial influence, as might physical security measures (e.g., metal detectors, security guards, and locked main entrances) and/or prosocial approaches such as school-wide social-emotional learning programs.

There were also significant decreases over time in school violence, intimidation, and bullying among gay (and to a lesser extent bisexual) males. It is worth noting that the adjusted odds ratios for temporal changes among gay males indicate that especially sharp improvements for these young men. For example, by Wave 4, gay males had only one-tenth the rates of fighting or weapon carrying in school as they had reported initially. In 2011/2013, their rates

for being threatened in school or skipping school because of feeling unsafe were only a fifth and a third, respectively, of what they had been in the late 1990s, whereas changes for heterosexual males, although significant, were more modest. Again, we cannot make causal attributions for the improvements in school safety for gay and bisexual males. Like other students, they probably benefited to some extent from whatever general safety and antibullying programs and policies were put in place during the years covered by the surveys. Reduced victimization rates for gay and bisexual males may well also have been influenced by more targeted efforts to make schools more supportive of sexual minority youth. For example, the state-funded Safe Schools Program for Gay and Lesbian Students has provided training and technical assistance to school staff across state, the percentage of Massachusetts secondary schools with Gay/Straight Alliances has steadily increased, guidance documents about bullying prevention specifically mention the frequent (and impermissible) targeting of LGB students, and almost all Massachusetts middle and high schools identify a “safe space” where sexual minority students can get confidential help (Centers for Disease Control and Prevention, 2015). The increasingly public acceptance of sexual minorities (Flores, 2014) may be a contributing influence as well.

Other results, however, run counter to these positive developments. First among these is the finding that, in contrast to declining risk rates among heterosexual youth and sexual minority males, most outcomes for lesbian and bisexual females did not change significantly. In 2011/2013, they remained as likely to be bullied, skip school because of fear, or carry a weapon in school as they had been in the initial surveys. Bisexual girls experienced no permanent change in their likelihood of being threatened at school, though the decline among lesbians was significant, as was the drop in fighting among both groups of sexual minority females. We have no ready explanation that would account for the absence of progress among LGB girls when significant and striking improvements were seen among heterosexual males and females and among gay and bisexual males. One possible contributing factor may be that victimization among adolescent girls is often more covert and indirect than among males. Bullying among girls, for example, may be more likely to take the form of nasty rumors, name-calling, or social exclusion rather than physical aggression that may be more common among adolescent males. If this is the case, perhaps the victimization of lesbian or bisexual females is less overt, less noticed by school staff or student allies, and less likely to be stopped or publically countered than would be true for their male counterparts. Another possibility is that the social position and status of sexual minority females in high school is qualitatively different from that of their gay or bisexual male schoolmates in some way that we do not currently understand. In any case, the relative lack of improvement among these young women is a cause for concern.

Equally, if not more, troubling is our finding that, despite some widespread improvements in the social situation of sexual minorities and despite the specific reductions in school violence observed here, sexual orientation disparities remain largely unchanged. In analyses of each outcome in each wave, the great majority of disparities between sexual minority youth and their heterosexual counterparts showed significantly higher risk for the former. Further, an examination of changes in those disparities from Wave 1 to Wave 4 found a significant narrowing in only one:

the heterosexual—gay male gap in carrying weapons in school. This seeming intractability of sexual orientation disparities in school violence experiences continues as a major cause of concern.

Results presented here point to the need for continued efforts to reduce violence, intimidation, and bullying in schools, and to foster school cultures that support cooperation and respect for all students. The antibullying and other antiviolence policies and programs that have been put in place in U.S. schools over the past two decades may be major contributors to the decreases we found in school victimization; these need to be strengthened.

The absence of any sustained improvement for sexual minority girls and the continued sexual orientation disparities for both male and female youth, however, point to the need for much more forceful and specific efforts to reduce homophobia and the targeting of sexual minority youth in schools and to build school communities that appreciate diversity and are supportive of all youth, regardless of sexual orientation or gender expression. Over the past decade a number of promising strategies and approaches to increase school safety and foster the well-being of sexual minority youth have been identified, including several discussed by articles in this volume. Lower rates of school victimization among LGBT adolescents have been found in schools with gay/straight alliances or similar clubs (Goodenow et al., 2006; Heck, Flentje, & Cochran, 2013; Kosciw et al., 2014; Saewyc, Konishi, Rose, & Homma, 2014) and in schools with LGBT-inclusive curricula (Anhalt et al., 2016; Kosciw et al., 2014). Sexual minority youth also fare better in schools with *enumerated* antibullying policies, that is, policies that go beyond the general prohibition of bullying to say specifically that harassment or bullying related to sexual orientation or gender expression is prohibited (Greytak, Kosciw, & Kull, 2016; Kosciw et al., 2014; Saewyc et al., 2014). CDC has identified and is tracking other school approaches to support sexual minority youth, such as training school staff on LGBT issues, providing access to LGBT-sensitive social and psychological services and designating “safe spaces” and a specific contact person in school who can assist LGBT students (Demissie et al., 2015). Other innovative approaches to helping sexual minority youth cope effectively with stressors are also being explored; see, for example, the GSA-based resilience training program piloted by Heck (2015) and training in the kind of mindfulness approach discussed by Toomey and Anhalt (2016). Additional recommendations for best school practice are detailed in the “Resolution on Gender and Sexual Orientation Diversity in Children and Adolescents in Schools,” adopted jointly in 2015 by the American Psychological Association and the National Association of School Psychologists (see Anhalt et al., 2016 for discussion). Continued research and rigorous evaluation will help to identify the specific features of school programs, practices, and policies are most effective and will help in the further development and refinement of ways to improve the school experience of sexual minority adolescents.

One additional area of research is suggested by our findings, and that is the unexpected difference in results between gay (and to a lesser extent bisexual) males and their female counterparts. Even though sexual orientation disparities have not disappeared, trends were far more positive for sexual minority males than for lesbians or bisexual females. We have no ready explanation for these differences, but they point to the need for investigation into ways that the school experiences of male versus female sexual minority

youth may differ. This is an area in which qualitative as well as quantitative investigations may be especially fruitful.

Strengths and Limitations

The current study has several noteworthy strengths. First, data presented here are based on representative, population-based samples of youth, rather than on nonprobability samples used in much other research. An even more important strength of the study is its focus on trends over a 14-year period, both in absolute changes in the prevalence of school victimization and violence-related indicators among LGB and heterosexual adolescents, and in relative changes—reductions and increases in disparities related to sexual orientation—over that time period. By examining four waves of data spanning 14 years, all based on the same standardized questions and data collection methods, we illuminate how these school safety indicators have changed over time, and for whom.

The current study is limited in several ways. The research method itself, based on a series of relatively brief paper-and-pencil surveys, relies on single questionnaire items rather than more in-depth validated scales. Self-report is also an issue, as some adolescents may be more likely to underreport on sensitive topics, for example by being unwilling to self-identify as a sexual minority. Further, our results are limited for “sexual minority youth” because, though we include self-identified LGB adolescents, our surveys do not include any measure of gender identity or transgender status, even though transgender youth have been found to be at exceptionally high risk for victimization, often higher than cisgender LGB adolescents (Greytak, Kosciw, & Diaz, 2009; Veale et al., 2015).

A second limitation concerns the representativeness of survey respondents, especially of our subsample of sexual minority youth. The small number of self-identified lesbian students, especially the reference-group lesbians in the first wave ($n = 15$), limits our ability to document trends for this group. Further, although our overall sample was designed to be representative of Massachusetts public high school students as a whole, youth who skip school because of fear—a behavior more common among LGB youth than their heterosexual peers (Kann et al., 2011) are also less likely than other enrolled students to be in the classroom on the day of the survey, as are youth who are homeless, also a situation more common among sexual minority than heterosexual adolescents (Corliss, Goodenow, Nichols, & Austin, 2011).

A final major limitation of this study, at least as far as extrapolating from the data presented here to adolescents in other localities, is that the study sample is drawn from the Northeast, a region of the country more likely to be supportive of sexual minority youth (Kosciw et al., 2009), and even more specifically from Massachusetts, which has a distinctive history and culture with regard to sexual minority populations, especially LGB youth in schools. The first gay/straight alliances were in Massachusetts, for example. Furthermore, of the 48 states reporting to CDC on their school health programs, Massachusetts had the highest percentage of secondary schools in which there were designated safe spaces, referrals for LGBT health and social services, and curricular materials for LGBT youth (Demissie et al., 2015). As a consequence, the results reported here for sexual minority youth may or may not

generalize to their counterparts in the rest of the country or elsewhere.

Conclusion

School plays a critical role in fostering the psychosocial development as well as the educational preparation of young people, yet school has often been a dangerous and nonsupportive environment for sexual minority youth. The pervasive bullying and other victimization and violence experienced by LGB adolescents in school not only disrupt their education but also contribute to depression, suicidality, and a host of other mental and physical health problems. Even so, the rapidly increasing social acceptance of sexual minorities over the past two decades might be expected to be reflected in improved school experiences for LGB youth.

This study, the first to look at sexual orientation trends and disparities in school violence-related experiences in a population-based sample of high school students, found significant improvements in school safety from 1999 to 2013, but mainly for heterosexual males and females and for gay male youth, with mixed results for bisexual males and little improvement for lesbian and bisexual females. Further, sexual orientation disparities were pervasive and, with one minor exception, did not diminish over time. Results point to the need for strengthening school programs that support the safety and well-being of sexual minority youth, and for research to identify the specific strategies and approaches that are most effective in fostering an inclusive school climate and building resilience among these vulnerable young people.

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