HHS Public Access

Author manuscript

Am J Orthopsychiatry. Author manuscript; available in PMC 2018 January 01.

Published in final edited form as:

Am J Orthopsychiatry. 2017 ; 87(6): 671–679. doi:10.1037/ort0000209.

Associations of Outside- and Within-School Adult Support on Suicidality: Moderating Effects of Sexual Orientation

Robert W.S. Coulter,

Health and Human Development Division, Education Development Center, Inc., the Department of Behavioral and Community Health Sciences, Graduate School of Public Health, University of Pittsburgh, and the Center for LGBT Health Research, Graduate School of Public Health, University of Pittsburgh

Shari Kessel Schneider,

Health and Human Development Division, Education Development Center, Inc

Blair Beadnell, and

Health and Human Development Division, Education Development Center, Inc

Lydia O'Donnell

Health and Human Development Division, Education Development Center, Inc

Abstract

This study examined sexual-orientation differences in reports of outside- and within-school adult support, and whether sexual orientation moderates the associations between adult support and suicidality (i.e., thoughts, plans, and attempts). At 26 high schools across MetroWest Boston, 22,834 students completed surveys assessing: sexual orientation (heterosexual, gay/lesbian, bisexual, or questioning); presence of outside- and within-school adult support; and past-year suicidality. Multivariable regression analyses with General Estimating Equations (adjusting for gender, grade, and race/ethnicity) examined sexual-orientation subgroup differences in adult support, and how sexual orientation and adult support were associated with suicidality. Interaction terms tested whether relationships between adult support and suicidality were moderated by sexual orientation. Gay/lesbian, bisexual, and questioning youth were each less likely than heterosexuals to report having outside-school adult support (risk ratios range: 0.85–0.89). Each group also had greater odds than heterosexuals for suicidal thoughts (odds ratios [ORs] range: 1.86–5.33), plans (ORs range: 2.15–5.22), and attempts (ORs range: 1.98–7.90). Averaged across sexual-orientation subgroups, outside-school support was more protective against suicidality (ORs range: 0.34–0.35) than within-school support (ORs range: 0.78–0.82). However, sexual orientation moderated the protective effects of outside-school adult support, with support being less protective for bisexual and questioning youth than for heterosexuals. Adult support, and particularly outside-school adult support, is associated with lower suicidality. However, fewer gay/lesbian, bisexual, and

Correspondence concerning this article should be addressed to Robert W.S. Coulter, Department of Behavioral and Community Health Sciences, Graduate School of Public Health, University of Pittsburgh, 130 DeSoto Street, Pittsburgh, PA 15261; Phone: 716-523-8564; robert.ws.coulter@pitt.edu.

Preliminary findings were presented at the 2012 conference of the American Public Health Association.

The authors have no conflicts of interest to disclose.

questioning youth can rely on outside-school support and, even if present, it may be less protective against suicidality. Interventions are needed to help adults support gay/lesbian, bisexual, and questioning youth and reduce suicidality disparities.

Keywords

Sexual Orientation; Suicidality; Adult Support; Mental Health

Suicide is the second leading cause of death among 14- to 18-year-old youth (Centers for Disease Control and Prevention & National Center for Injury Prevention and Control, 2015), and is especially a concern for males and females who are gay/lesbian, bisexual, and questioning (i.e., unsure of their sexual identity; Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998; Hatzenbuehler, Birkett, Van Wagenen, & Meyer, 2014; Kessel Schneider, O'Donnell, Stueve, & Coulter, 2012; Stone et al., 2014b). Decades of research have shown that these youth are at substantially higher risk for suicidality (i.e., suicidal thoughts, plans, and attempts) than heterosexuals (Garofalo et al., 1998; Hatzenbuehler et al., 2014; Kessel Schneider et al., 2012; Stone et al., 2014b). Additionally, findings show that the prevalence of suicidality differs by specific sexual-orientation subgroups, such that bisexual youth are at greater risk for suicidality than gay/lesbian youth (Marshal et al., 2011). It is necessary to understand the social factors associated with suicidality among these subgroups to develop interventions that effectively mitigate sexual-orientation disparities in suicidality.

One key social factor robustly associated with lower suicidality is having adult support, defined broadly as positive relationships between adults and youth—either formally (e.g., club advisors) or informally (e.g., socially; O'Donnell, Stueve, Wardlaw, & O'Donnell, 2003). Theoretically, having adult support increases adolescents' sense of psychological and emotional well-being, thereby reducing suicidality (Bowlby, 1969). Empirical studies have shown that having support from parents, adults at school, or through other networks (e.g., youth groups and community centers) is associated with reduced suicidality among youth (Eisenberg & Resnick, 2006; Mustanski, Newcomb, & Garofalo, 2011; O'Donnell et al., 2003; Stone, Luo, Lippy, & McIntosh, 2014a).

An understudied topic is whether the prevalence of adult support differs for specific sexual-orientation subgroups. Previous studies generally show that sexual-minority youth of both genders are less likely than their heterosexual peers to have adult support—both within and outside school (Pearson & Wilkinson, 2013; Reisner, Biello, Perry, Gamarel, & Mimiaga, 2014; Seil, Desai, & Smith, 2014; Stone et al., 2014a). However, largely due to sample size restrictions, this research has investigated sexual-orientation differences in an aggregated manner, in which heterosexual youth are compared to a combined group of gay/lesbian, bisexual, and questioning youth. Examining gay/lesbian, bisexual, and questioning youth *separately* may reveal subgroup differences in the prevalence of adult support and in the protective effects against suicidal ideation and behavior.

Similarly, little is known about whether the protective effects of adult support on suicidality differ due to sexual orientation. One study by Stone and colleagues (2014a) examined this question by deriving participants' sexual orientations based on the gender of their sexual

partners. Because of sample size, the researchers aggregated youth with same-gender and both-gender sexual contacts into a single category that included both gay/lesbian and bisexual behavior (Stone et al., 2014a). This study found that connectedness with non-parental adults offered more protection from suicidal thoughts for heterosexual-behaving youth than for the bisexual- and gay-behaving group (Stone et al., 2014a). By focusing on behavioral operationalizations of sexual orientation, however, the study is less informative about the role of sexual identity. First, the behavior-based sexual orientation excluded youth without any sexual contact. Second, while sexual identity and gender of sexual partners often overlap, there can be substantial incongruences (e.g., some heterosexual-behaving youth may self-identify as gay/lesbian or bisexual; Mustanski et al., 2014). Given these discrepancies, more information is needed about protective factors within sexual-orientation subgroups based on sexual identity, rather than sexual behaviors. Specifically, it is important to understand whether associations between adult support and suicidality are moderated by sexual identity. Moderation occurs when the relationships between two variables (e.g., the effects of adult support on suicidality) vary by levels of a third variable (e.g., by sexual-orientation subgroups). Such findings could directly inform which protective factors need to be strengthened among identifiable subpopulations, thereby helping public health professionals develop more targeted prevention programs.

In the present study, we examine how two types of adult support—outside-school and within-school adult support—are associated with suicidality among sexual-identity subgroups. We hypothesize that gay/lesbian, bisexual, and questioning youth will each report lower adult support and higher suicidality than heterosexuals. Additionally, we hypothesize that adult support will be associated with lower suicidality, and these protective effects will be weaker for gay/lesbian, bisexual, and questioning youth.

Method

Participants

The MetroWest Adolescent Health Survey is a biennial census survey of high school students—students in grades 9 through 12—from 25 suburbs and small cities west of the Boston metropolitan area. The survey is used to inform local school- and community-level policies and practices as well as regional health initiatives in the catchment area served by the MetroWest Health Foundation. In Fall 2012, all 26 public high schools in the MetroWest region that were eligible for participation administered the survey. The school populations in the region consist of predominantly White, working to upper-middle income families. In total, 24,459 youth participated, for a total student participation rate of 90%.

Procedure

While similar in content to the Centers for Disease Control and Prevention Youth Risk Behavior Survey (YRBS; Centers for Disease Control and Prevention, 2011), the MetroWest Adolescent Health Survey is conducted as a census so participating schools can monitor student behaviors and identify health issues that may vary by grade, gender, sexual orientation, and other demographic characteristics. Students in grades 9 through 12 completed anonymous paper-and-pencil surveys. Following procedures approved by the

Institutional Review Board at Education Development Center and reviewed by each district, parents/guardians were notified in advance and given the opportunity to view the survey and opt out their child(ren); students also provided assent. Fewer than 2% of students did not participate for either of these reasons.

Measures

Demographic characteristics—We measured sexual orientation identity with the following question from the Massachusetts YRBS (Massachusetss Department of Elementary and Secondary Education, 2009): "Which of the following best describes you?" Response options included: heterosexual (straight); gay or lesbian; bisexual; not sure. Throughout the remainder of this manuscript, we refer to those who responded as "not sure" as "questioning". We also measured gender (female/male), grade (9 through 12), and race/ethnicity (coded as White vs. non-White).

Suicidality—Drawn from the Centers for Disease Control and Prevention YRBS (2011), three items with excellent test-retest reliability (Brener, Collins, Kann, Warren, & Williams, 1995) measured suicidal thoughts, plans, and attempts in the past 12 months. Participants were asked: (1) "Did you ever seriously consider attempting suicide"; (2) "Did you make a plan about how you would attempt suicide"; and (3) "How many times did you actually attempt suicide." As was done in the original reliability study (Brener et al., 1995), we dichotomized participants' responses into yes/no categories.

Adult support—We measured two sources of adult support—outside-school and within-school— using questions adapted from the Massachusetts YRBS (Massachusetss Department of Elementary and Secondary Education, 2009). Outside-school adult support was measured with the question: "Outside of school, is there an adult (or adults) you can talk to about things that are important to you?" Response categories included: yes, parent or other adult family member; yes, non-family adult (such as religious leader, club advisor, neighbor, etc.); yes, both family and non-family adults; no; and not sure. Within-school adult support was measured with the following question: "Is there at least one teacher or other adult in this school that you can talk to if you have a problem?" Responses included: yes; no; and not sure. We dichotomized responses from both types of adult support as "yes" or "no/not sure."

Statistical Analyses

We conducted bivariate analyses describing the demographics, adult support, and suicidality by sexual orientation using Rao-Scott chi-squared tests adjusting for the correlations of students within schools. We fit multivariable regression models using Generalized Estimating Equations (GEE) to adjust for the clustering of students within schools (Lipsitz, Laird, & Harrington, 1991). Sexual orientation was entered using dummy variables with heterosexual as the reference group. All analyses controlled for gender, grade, and race/ethnicity. First, we tested for sexual-orientation differences in outside- and within-school adult support. Second, we examined differences in suicidality by including sexual orientation and adult support as independent variables. To test for moderation, we then added a second step that included interaction terms of adult support by sexual orientation.

When interactions were significant, we stratified models by sexual orientation to better understand effects of adult support on suicidality within each sexual-orientation subgroup. We selected the type of analysis based on the prevalence of the outcome: we used the modified Poisson regression approach (i.e., log-binomial models; Zou, 2004) for adult support because its prevalence was greater than 10%, and logistic regression for suicidality because its prevalence was generally lower than 10%. We list-wise deleted observations with missing data, creating an analytic sample of 22,834 participants (93.4% of 24,459 participants who took the survey). We conducted analyses in SAS 9.3 (Cary, NC), and set statistical significance at $p < 0.05$.

Results

Table 1 shows the demographic characteristics of each sexual orientation subgroup. In total, 92.0% of youth self-identified as heterosexual, 1.3% as gay/lesbian, and 3.3% as bisexual. The remaining 3.4% reported being unsure of their sexual orientation. Compared to heterosexuals, gay/lesbian youth were significantly more likely to be male and in higher grades; bisexuals were more likely to be female, non-White, and in lower grades; and questioning youth were more likely to be non-White.

Associations between Sexual Orientation and Adult Support

In general, larger proportions of youth reported having outside-school adult support than within-school adult support (Table 1). For outside-school adult support, gay/lesbian (76.2%), bisexual (78.1%), and questioning youth (79.6%) were significantly less likely to report this type of support than heterosexuals (90.4%). Questioning youth (but not gay/lesbian or bisexual) were significantly less likely than heterosexuals to report having within-school adult support (63.5% versus 70.1%, respectively).

Table 2 shows the associations between sexual orientation and adult support adjusting for gender, race/ethnicity, and grade in school. Risk ratios show that gay/lesbian, bisexual, and questioning youth were 11–15% less likely to have outside-school adult support than heterosexual youth. Gay/lesbian, bisexual, and questioning youth were 5–7% less likely to have within-school adult support, with findings significant for questioning youth.

Suicidal Thoughts

The prevalence of suicidal thoughts was significantly higher among gay/lesbian (37.6%), bisexual (46.0%), and questioning youth (21.4%) compared with heterosexuals (10.9%; Table 1). As shown in Model 1a (Table 3), these sexual-orientation differences in suicidal thoughts remained significant after controlling for gender, race/ethnicity, grade in school, and outside- and within-school adult support. The odds of suicidal thoughts were not significantly different between gay/lesbian and bisexual youth (shown by overlapping confidence intervals), but both of these odds were significantly higher than the odds for questioning youth (shown by non-overlapping confidence intervals). Additionally, having outside-school adult support was associated with lower reports of suicidal thoughts than within-school adult support, but both were independently associated with lower odds of suicidal thoughts.

As shown in Model 1b (Table 3), the effects of adult support on suicidal thoughts were often, but not in all cases, moderated by sexual orientation. To better understand these interactions, we used sexual orientation-stratified models to examine the associations between adult support and suicidal thoughts within each sexual-orientation subgroup (Table 4). Outside-school adult support was associated with lower odds of suicidal thoughts for heterosexuals than for gay/lesbian, bisexual, and questioning youth. Additionally, within-school adult support was associated with lower odds of suicidal thoughts for bisexuals than for heterosexuals.

Suicide Plans

The prevalence of suicide plans was significantly higher among gay/lesbian (31.0%), bisexual (37.6%), and questioning youth (18.6%) compared with heterosexuals (8.0%; Table 1). As shown in Model 2a (Table 3), these sexual-orientation differences in suicide plans remained significant in multivariable models. The odds of suicide plans were not significantly different between gay/lesbian and bisexual youth (shown by overlapping confidence intervals), but both of these odds were significantly higher than the odds for questioning youth (shown by non-overlapping confidence intervals). Additionally, both types of support were independently associated with lower odds of suicide plans, although having outside-school adult support was associated with lower odds of suicide plans than within-school adult support.

As shown in Model 2b (Table 3), the effect of outside-school, but not within-school, adult support on suicide plans was moderated by sexual orientation. As shown in Table 4, outside-school adult support was associated with lower odds of suicide plans for heterosexuals than for bisexual and questioning youth.

Suicide Attempts

The prevalence of suicide attempts was significantly higher among gay/lesbian (22.8%), bisexual (24.6%), and questioning youth (8.2%) compared with heterosexuals (3.4%; Table 1). As shown in Model 3a (Table 3), these sexual-orientation differences in suicide attempts remained significant in multivariable models. The odds of suicide attempts were not significantly different between gay/lesbian and bisexual youth (shown by overlapping confidence intervals), but both of these odds were significantly higher than the odds for questioning youth (shown by non-overlapping confidence intervals). As found with suicidal thoughts and plans, having outside-school adult support was associated with lower odds of suicide attempts than within-school adult support, but both were independently associated with lower odds of suicide attempts.

As shown in Model 3b (Table 3), the effect of outside-school, but not within-school, adult support on suicide attempts was moderated by sexual orientation. As shown in Table 4, outside-school adult support was associated with lower odds of suicide plans for heterosexuals than for bisexual and questioning youth.

Discussion

Our study confirms extant literature on sexual orientation, suicidality, and adult support while also providing new information about sexual-orientation subgroups that has not previously been investigated. First, like previous investigations (Garofalo et al., 1998; Hatzenbuehler et al., 2014; Kessel Schneider et al., 2012; Stone et al., 2014b), gay/lesbian, bisexual, questioning youth are at significantly higher risk than heterosexuals for suicidal thoughts, plans, and attempts. Our study also shows that outside-school adult support is protective for youth, independent of sexual orientation, and is substantially more protective against suicidality than having within-school adult support, which is consistent with other studies (Eisenberg & Resnick, 2006; Stone et al., 2014a; Teasdale & Bradley-Engen, 2010).

The analyses also provide novel contributions. The first is the finding that the prevalence of outside- and within-school adult support differs by sexual orientation subgroup. Gay/lesbian, bisexual, and questioning youth are each less likely to have outside-school adult support than heterosexual youth. This finding is consistent with other studies that aggregated gay/lesbian, bisexual, and questioning youth into a single group (Pearson & Wilkinson, 2013; Reisner et al., 2014), but provides additional information that this lower support occurs among each sexual-identity subgroup. Sexual-orientation differences for within-school adult support are not as striking: compared with heterosexual youth, only questioning youth are significantly less likely to report within-school adult support. Previous studies have found conflicting results about whether within-school support differs by sexual-orientation (Reisner et al., 2014; Seil et al., 2014).

Importantly, we extend previous research by showing that the relationships between adult support and suicidality vary by sexual identity. We found that having outside-school adult support is associated with lower suicidality for all youth, but is significantly less protective for bisexual and questioning youth when compared to heterosexuals. Stone et al. showed that sexual *behavior* (in terms of the gender of sexual partners) moderated the relationship between adult support and suicidality, such that those with same- and both-gender sexual partners were less protected by outside-school adult support when compared with youth who had opposite-gender sexual contact only (Stone et al., 2014a). Using sexual identity as a measure of sexual orientation, our analysis reveals that the differences exist for only for self-identified bisexual and questioning youth. For gay/lesbian youth, the findings are less clear-cut. Specifically, we only find a significant interaction with outside-school adult support on suicide thoughts; the magnitude of the odds ratios for suicide plans and attempts were similar to those for bisexual and questioning youth. However, this may be a statistical artifact resulting from the number of gay/lesbian youth being one-third the size of bisexual and questioning youth, and future research might examine this in larger samples.

Overall, our findings are best illuminated when considered in relation to stigma and minority stress theories (Goffman, 1963; Hatzenbuehler, Phelan, & Link, 2013; Link & Phelan, 2001; Meyer, 2003). These theories postulate that sexual-minority youth experience stigma, discrimination, and victimization related their minority sexual orientation, creating stressors that make them more vulnerable to considering, planning, and attempting suicide. Because stigma is also a “fundamental cause of health” (Hatzenbuehler et al., 2013; Link & Phelan,

1995), it can limit access to health-promoting resources for gay/lesbian, bisexual, and questioning youth. This may explain why outside- and within-school adult support is less prevalent among some sexual-minority subgroups.

There are also several theoretical reasons why adult support may be less protective against suicidality for sexual-minority and questioning youth compared to heterosexuals. First, adult support may not be able buffer the influx of violence and victimization disproportionately faced by sexual-minority and questioning youth (Friedman et al., 2011; Toomey & Russell, 2016). These stressors are robustly associated with suicidality (Bontempo & D'Augelli, 2002; Liu & Mustanski, 2012), and the presence of adult support may not be enough to overcome the suicidality risks associated with such threatening social forces.

Second, having adult support does not necessarily mean that youth are holistically supported by adults. Despite having someone to talk to about something problematic or important, sexual-minority and questioning youth may not receive adult support related to their sexual identity development, or, even worse, have their sexual-minority identity rejected (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). In particular, bisexuals may benefit less from adult support than heterosexuals because adults may lack appropriate knowledge and have negative attitudes about bisexuality. For example, both heterosexual and gay/lesbian individuals often have biases against bisexuals (Friedman et al., 2014). Despite increasing support for gay/lesbian rights over the past decade (Gallup, 2015), this attitudinal shift has not necessarily included changes in public opinions about bisexuality. For example, same-sex marriage equality buttresses support for a binary view of sexual orientation (gay/lesbian or heterosexual), but does little to improve societal attitudes toward bisexual individuals. If outside-school or within-school adults support a binary view of sexual orientation, bisexual youth may feel stigmatized, confused, marginalized, and alone—potentially contributing to suicidal thoughts, plans, and attempts.

Questioning youth may benefit less from adult support than heterosexuals because these youth have unique unaddressed needs. Questioning youth are likely in the process of developing their sexual identity, and adults may be unprepared to effectively support youth throughout this time of exploration, uncertainty, and vulnerability. Despite knowing that questioning youth have greater likelihood of suicidality, as well as other health problems and risk factors (e.g., alcohol use and bullying; Coulter et al., 2016; Espelage, Aragon, Birkett, & Koenig, 2008), little research has identified adolescents' specific needs as they develop their sexual identity.

Lastly, sexual-minority and questioning youth may have less secure attachments with adults than heterosexuals (Rosario, 2015). Having less secure attachments may cultivate more internalizing symptoms (e.g., depression and anxiety; Brumariu & Kerns, 2010) and more maladaptive coping mechanisms (e.g., avoidant coping; Seiffge-Krenke, 2006), both of which increase the risk of suicidality among youth (Birmaher et al., 1996; Votta & Manion, 2004). Future research can test multiple hypotheses about why adult support is less protective for sexual-minority than heterosexual youth. Nevertheless, the combination of lower prevalence and less potency of outside-school adult support among bisexual and

questioning youth places these vulnerable populations at increased risk for suicidal thoughts, plans, and attempts.

Implications

Our findings point out unmet needs for suicide prevention and how it may be possible to reduce sexual-orientation disparities in suicidality by increasing both the prevalence and quality of adult support for gay/lesbian, bisexual, and questioning youth. Specifically, suicidality may be reduced if adult family members and other non-school adult role models (e.g., adults who are natural mentors to youth, church leaders) are informed about the importance of, and effective techniques for, supporting gay/lesbian, bisexual, and questioning youth. Further, educating school teachers and administrators about how to be supportive and protective of gay/lesbian, bisexual, and questioning youth may have a significant role in helping lower suicidality among these populations. Because gay/lesbian, bisexual, and questioning youth may have unique needs, the characteristics of adult support (e.g., sexuality affirmation and acceptance) necessary to prevent suicidality among them are likely different than those necessary for heterosexual youth. Thus, outside- and within-school adult support interventions should explicitly address the adult support needs of gay/lesbian, bisexual, and questioning youth. With one notable exception (Ryan, 2010), there is a dearth of public health interventions aimed at tackling this significant health problem (Institute of Medicine, 2011). To effectively reduce suicidality among these vulnerable populations, public health practitioners and researchers need to design, implement, and evaluate research- and youth-informed interventions to improve the quality and quantity of adult support and examine how it affects the mental health and well-being of different groups of sexual-minority youth.

Strengths and Limitations

Our study had several strengths. These include a large sample size of over 20,000 participants surveyed via school censuses with excellent participation rates. Additionally, we analyzed data using models that adjusted for clustering of students within schools, as well as controlled for numerous confounding variables.

Despite these strengths, there are limitations that should be kept in mind. We used data from a cross-sectional survey, so replication in future longitudinal research would be useful in strengthening a causal interpretation. Additionally, these data were collected as part of a general health survey concerning many health behaviors, and the survey had to be completed by students in a single classroom period. This requirement limited the assessment of any one behavior or construct, and, therefore, the suicidality and adult support variables were self-reported by youth in response to single-item questions. Further, we dichotomized these variables in our analyses, which may have lost information (e.g., for single versus multiple suicide attempts). For the adult support variables, we do not know the psychometric properties of these variables and cannot infer the type, frequency, intensity, or extent of support provided to the youth in our study. We assessed sexual identity, and our findings may not generalize to other operationalizations of sexual orientation (e.g., behavior or attractions; Matthews, Blosnich, Farmer, & Adams, 2013). Additionally, our study used a binary item to assess gender, preventing us from identifying transgender youth. Finally, the

study took place in one region in Massachusetts and so may not be generalizable to other geographic areas. Because Massachusetts has low structural stigma (Hatzenbuehler & McLaughlin, 2014) and all schools in the sample have Gay-Straight Alliances (J. Perrotti, personal communication, May 2015), our findings highlight a troubling and challenging problem: even in geographical regions with low stigma and schools that support Gay-Straight Alliances, there remain sexual-orientation differences in suicidality and adult support.

Conclusions

Our research confirms that gay/lesbian, bisexual, and questioning youth are at elevated risk for suicidality, and that they report lower levels of adult support than heterosexual youth. While outside- and within-school adult support is protective for all youth, outside-school adult support is generally less prevalent and less protective against suicidality for bisexual and questioning youth when compared with heterosexual youth. Increasing the quality and quantity of support provided by adults may be an effective way to reduce the elevated risk for suicidality among gay/lesbian, bisexual, and questioning youth. Schools, families, and communities are in need of evidence-based interventions that harness adult support to reduce sexual-orientation disparities in suicidality.

Acknowledgments

The MetroWest Adolescent Health Survey administration was supported by Grant P192 from the MetroWest Health Foundation, Framingham, Massachusetts. We wish to thank Martin Cohen, president and CEO of the MetroWest Health Foundation, and Rebecca Donham, senior program officer. In addition, the lead author was also supported by the Summer Institute in LGBT Population Health (R25HD064426, National Institute of Child Health & Human Development) and the National Institute on Drug Abuse (F31DA037647). We extend our gratitude to school staff, parents, and young people who participated in the survey. We also thank Olivia Alford and other members of the survey administration team.

References

Birmaher B, Ryan ND, Williamson DE, Brent DA, Kaufman J, Dahl RE, Nelson B. Childhood and adolescent depression: A review of the past 10 years. Part i. Journal of the American Academy of Child and Adolescent Psychiatry. 1996; 35(11):1427–1439. [PubMed: 8936909]

Bontempo DE, D'Augelli AR. Effects of at-school victimization and sexual orientation on lesbian, gay, or bisexual youths' health risk behavior. Journal of Adolescent Health. 2002; 30(5):364–374. [PubMed: 11996785]

Bowlby J. Attachment and loss, volume i: Attachment. 1969

Brener ND, Collins JL, Kann L, Warren CW, Williams BI. Reliability of the youth risk behavior survey questionnaire. American Journal of Epidemiology. 1995; 141(6):575–580. [PubMed: 7900725]

Brumariu LE, Kerns KA. Parent–child attachment and internalizing symptoms in childhood and adolescence: A review of empirical findings and future directions. Development and Psychopathology. 2010; 22(1):177–203. [PubMed: 20102655]

Centers for Disease Control and Prevention. [Retrieved March 13, 2013] Youth risk behavior surveillance system: High school survey. 2011. from http://www.cdc.gov/healthyyouth/yrbs/questionnaire_rationale.htm

Centers for Disease Control and Prevention, & National Center for Injury Prevention and Control. [Retrieved Jan 27, 2014] Web-based injury statistics query and reporting system (wisquars). 2015. from http://www.cdc.gov/injury/wisqars/

Coulter RWS, Birkett M, Corliss HL, Hatzenbuehler ML, Mustanski B, Stall RD. Associations between lgbtq-affirmative school climate and adolescent drinking behaviors. Drug and Alcohol Dependence. 2016; 161:340–347. [PubMed: 26946989]

Eisenberg ME, Resnick MD. Suicidality among gay, lesbian and bisexual youth: The role of protective factors. Journal of Adolescent Health. 2006; 39(5):662–668. [PubMed: 17046502]

Espelage DL, Aragon SR, Birkett M, Koenig BW. Homophobic teasing, psychological outcomes, and sexual orientation among high school students: What influence do parents and schools have? School Psychology Review. 2008; 37(2):202.

Friedman MR, Dodge B, Schick V, Herbenick D, Hubach RD, Bowling J, Reece M. From bias to bisexual health disparities: Attitudes toward bisexual men and women in the united states. LGBT health. 2014; 1(4):309–318. [PubMed: 25568885]

Friedman MS, Marshal MP, Guadamuz TE, Wei C, Wong CF, Saewyc EM, Stall R. A meta-analysis of disparities in childhood sexual abuse, parental physical abuse, and peer victimization among sexual minority and sexual nonminority individuals. American Journal of Public Health. 2011; 101(8):1481. [PubMed: 21680921]

Gallup. Gay and lesbian rights. 2015 [Retrieved Aug 13, 2015] from http://www.gallup.com/poll/1651/gay-lesbian-rights.aspx.

Garofalo R, Wolf RC, Kessel S, Palfrey J, DuRant RH. The association between health risk behaviors and sexual orientation among a school-based sample of adolescents. Pediatrics. 1998; 101(5):895–902. [PubMed: 9565422]

Goffman, E. Stigma: Notes on the management of spoiled identity. New York: Touchstone; 1963.

Hatzenbuehler ML, Birkett M, Van Wagenen A, Meyer IH. Protective school climates and reduced risk for suicide ideation in sexual minority youths. American Journal of Public Health. 2014; 104(2): 279–286. [PubMed: 24328634]

Hatzenbuehler ML, McLaughlin KA. Structural stigma and hypothalamic– pituitary–adrenocortical axis reactivity in lesbian, gay, and bisexual young adults. Annals of Behavioral Medicine. 2014; 47(1):39–47. [PubMed: 24154988]

Hatzenbuehler ML, Phelan JC, Link BG. Stigma as a fundamental cause of population health inequalities. American Journal of Public Health. 2013; 103(5):813–821. [PubMed: 23488505]

Institute of Medicine. The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding. Washington, DC: National Academies Press; 2011.

Kessel Schneider S, O'Donnell L, Stueve A, Coulter RWS. Cyberbullying, school bullying, and psychological distress: A regional census of high school students. American Journal of Public Health. 2012; 102(1):171–177. [PubMed: 22095343]

Link BG, Phelan J. Social conditions as fundamental causes of disease. Journal of Health and Social Behavior. 1995:80–94. [PubMed: 7560851]

Link BG, Phelan JC. Conceptualizing stigma. Annual review of Sociology. 2001:363–385.

Lipsitz SR, Laird NM, Harrington DP. Generalized estimating equations for correlated binary data: Using the odds ratio as a measure of association. Biometrika. 1991; 78(1):153–160.

Liu RT, Mustanski B. Suicidal ideation and self-harm in lesbian, gay, bisexual, and transgender youth. American Journal of Preventive Medicine. 2012; 42(3):221–228. [PubMed: 22341158]

Marshal MP, Dietz LJ, Friedman MS, Stall R, Smith HA, McGinley J, Brent DA. Suicidality and depression disparities between sexual minority and heterosexual youth: A meta-analytic review. Journal of Adolescent Health. 2011; 49(2):115–123. [PubMed: 21783042]

Massachusetss Department of Elementary and Secondary Education. Massachusetts youth risk behavior survey. 2009 [Retrieved Oct 10, 2013] from http://www.doe.mass.edu/cnp/hprograms/yrbs/2009questions.pdf.

Matthews DD, Blosnich JR, Farmer GW, Adams BJ. Operational definitions of sexual orientation and estimates of adolescent health risk behaviors. LGBT health. 2013; 1(1):42–49.

Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. Psychological Bulletin. 2003; 129(5):674. [PubMed: 12956539]

Mustanski B, Birkett M, Greene GJ, Rosario M, Bostwick W, Everett BG. The association between sexual orientation identity and behavior across race/ethnicity, sex, and age in a probability sample

of high school students. American Journal of Public Health. 2014; 104(2):237–244. [PubMed: 24328662]

Mustanski B, Newcomb M, Garofalo R. Mental health of lesbian, gay, and bisexual youth: A developmental resiliency perspective. Journal of Gay & Lesbian Social Services. 2011; 23(2):204–225. [PubMed: 21731405]

O'Donnell L, Stueve A, Wardlaw D, O'Donnell C. Adolescent suicidality and adult support: The reach for health study of urban youth. American Journal of Health Behavior. 2003; 27(6):633–644. [PubMed: 14672394]

Pearson J, Wilkinson L. Family relationships and adolescent well-being: Are families equally protective for same-sex attracted youth? Journal of Youth and Adolescence. 2013; 42(3):376–393. [PubMed: 23196375]

Reisner SL, Biello K, Perry NS, Gamarel KE, Mimiaga MJ. A compensatory model of risk and resilience applied to adolescent sexual orientation disparities in nonsuicidal self-injury and suicide attempts. American Journal of Orthopsychiatry. 2014; 84(5):545–546. [PubMed: 25089757]

Rosario M. Implications of childhood experiences for the health and adaptation of lesbian, gay, and bisexual individuals: Sensitivity to developmental process in future research. Psychology of Sexual Orientation and Gender Diversity. 2015; 2(3):214–224. [PubMed: 26900586]

Ryan C. Engaging families to support lesbian, gay, bisexual, and transgender youth: The family acceptance project. Prevention Researcher. 2010; 17(4):11–13.

Ryan C, Russell ST, Huebner D, Diaz R, Sanchez J. Family acceptance in adolescence and the health of lgbt young adults. Journal of Child and Adolescent Psychiatric Nursing. 2010; 23(4):205–213. [PubMed: 21073595]

Seiffge-Krenke I. Coping with relationship stressors: The impact of different working models of attachment and links to adaptation. Journal of Youth and Adolescence. 2006; 35(1):24–38.

Seil KS, Desai MM, Smith MV. Sexual orientation, adult connectedness, substance use, and mental health outcomes among adolescents: Findings from the 2009 new york city youth risk behavior survey. American Journal of Public Health. 2014; 104(10):1950–1956. [PubMed: 25121812]

Stone DM, Luo F, Lippy C, McIntosh WL. The role of social connectedness and sexual orientation in the prevention of youth suicide ideation and attempts among sexually active adolescents. Suicide and Life-Threatening Behavior. 2014a

Stone DM, Luo F, Ouyang L, Lippy C, Hertz MF, Crosby AE. Sexual orientation and suicide ideation, plans, attempts, and medically serious attempts: Evidence from local youth risk behavior surveys, 2001–2009. American Journal of Public Health. 2014b; (0):e1–e10.

Teasdale B, Bradley-Engen MS. Adolescent same-sex attraction and mental health: The role of stress and support. Journal of Homosexuality. 2010; 57(2):287–309. [PubMed: 20390994]

Toomey RB, Russell ST. The role of sexual orientation in school-based victimization: A meta-analysis. Youth & Society. 2016; 48(2):176–201. [PubMed: 26997680]

Votta E, Manion I. Suicide, high-risk behaviors, and coping style in homeless adolescent males' adjustment. Journal of Adolescent Health. 2004; 34(3):237–243. [PubMed: 14967348]

Zou G. A modified poisson regression approach to prospective studies with binary data. American Journal of Epidemiology. 2004; 159(7):702–706. [PubMed: 15033648]

Am J Orthopsychiatry. Author manuscript; available in PMC 2018 January 01.

Table 1

Demographic Characteristics, Adult Support, and Suicidality by Sexual Orientation (N=22,834): MetroWest Adolescent Health Survey, Massachusetts 2012

	Sexual orientation						
	Heterosexual (n=21,002)	Gay/lesbian (n=290)		Bisexual (n=763)		Questioning (n=779)	
	%	%	*p*[a]	%	*p*[a]	%	*p*[a]
All individuals	92.0	1.3		3.3		3.4	
DEMOGRAPHICS							
Gender							
Male	49.2	67.9	<0.001	28.6	<0.001	46.9	0.172
Female	50.8	32.1		71.4		53.1	
Race/Ethnicity							
White	75.7	72.8	0.262	67.8	0.001	61.2	<0.001
Non-White	24.3	27.2		32.2		38.8	
Grade							
9th	27.1	19.3	<0.001	23.3	0.044	29.8	0.425
10th	25.5	20.0		23.7		24.9	
11th	25.0	30.0		27.8		23.9	
12th	22.4	30.7		25.2		21.4	
ADULT SUPPORT							
Outside-school adult support	90.4	76.2	<0.001	78.1	<0.001	79.6	<0.001
Within-school adult support	70.1	65.9	0.143	66.4	0.087	63.5	0.002
SUICIDALITY							
Suicide thoughts	10.9	37.6	<0.001	46.0	<0.001	21.4	<0.001
Suicide plan	8.0	31.0	<0.001	37.6	<0.001	18.6	<0.001
Suicide attempt	3.4	22.8	<0.001	24.6	<0.001	8.2	<0.001

Note. P-values derived from Rao-Scott chi-squared tests adjusting for correlations of students within schools.

[a]Compared with heterosexuals.

Table 2

Multivariable Regression Models of Sexual Orientation on Adult Support (N=22,834): MetroWest Adolescent Health Survey, Massachusetts, 2012

	Adult support					
	Outside school			Within school		
	RR	(95% CI)		RR	(95% CI)	
Sexual Orientation						
Heterosexual	1.00			1.00		
Gay/lesbian	0.85	(0.80, 0.90)	***	0.93	(0.86, 1.01)	
Bisexual	0.87	(0.83, 0.91)	***	0.95	(0.89, 1.01)	
Questioning	0.89	(0.87, 0.92)	***	0.93	(0.88, 0.98)	**

Note. All models adjusted for gender, race/ethnicity, and grade in school and used Generalized Estimating Equations (GEE) to adjust for clustering of students within schools; we coded outside- and within-school adult support variables as 0 for 'no/not sure' and 1 for 'yes';

RR = risk ratio; CI = confidence interval;

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$

Table 3

Multivariable Logistic Regression Models for Sexual Orientation and Adult Support on Suicidality (N=22,834): MetroWest Adolescent Health Survey, Massachusetts, 2012

	Suicide thoughts		Suicide plan		Suicide attempt	
	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Sexual Orientation						
Heterosexual	1.00	1.00	1.00	1.00	1.00	1.00
Gay or lesbian	5.01 (3.95, 6.37) ***	2.35 (1.41, 3.91) **	5.02 (3.56, 7.08) ***	2.60 (1.38, 4.92) **	7.90 (5.62, 11.08) ***	4.69(2.76, 7.99) ***
Bisexual	5.33 (4.53, 6.29) ***	3.42 (2.47, 4.73) ***	5.22 (4.37, 6.22) ***	3.43 (2.51, 4.68) ***	6.90 (5.52, 8.63) ***	4.09(3.00, 5.58) ***
Questioning	1.86 (1.54, 2.25) ***	1.16 (0.77, 1.76)	2.15 (1.80, 2.57) ***	1.26 (0.92, 1.74)	1.98 (1.52, 2.57) ***	1.10(0.67, 1.80)
Outside-school adult support	0.34 (0.31, 0.38) ***	0.30 (0.27, 0.33) ***	0.34 (0.29, 0.38) ***	0.29 (0.25, 0.34) ***	0.35 (0.29, 0.43) ***	0.28(0.22, 0.35) ***
Within-school adult support	0.82 (0.76, 0.88) ***	0.82 (0.75, 0.90) ***	0.78 (0.73, 0.82) ***	0.76 (0.70, 0.82) ***	0.82 (0.74, 0.90) ***	0.81(0.70, 0.94) **
Sexual orientation × Outside-school adult support Interaction						
Gay/lesbian × Outside-school adult support		2.35 (1.13, 4.88) *		1.85 (0.88, 3.88)		1.73(0.89, 3.38)
Bisexual × Outside-school adult support		2.22 (1.57, 3.15) ***		1.91 (1.31, 2.77) ***		2.42(1.44, 4.07) ***
Questioning × Outside-school adult support		1.63 (1.01, 2.65) *		1.69 (1.07, 2.67) *		2.05(1.04, 4.04) *
Sexual orientation × Adult support at school Interaction						
Gay/lesbian × Within-school adult support		1.21 (0.70, 2.08)		1.40 (0.73, 2.67)		1.28(0.56, 2.92)
Bisexual × Within-school adult support		0.76 (0.59, 0.99) *		0.90 (0.66, 1.23)		0.85(0.55, 1.32)
Questioning × Within-school adult support		1.20 (0.72, 2.01)		1.31 (0.85, 2.01)		1.21(0.62, 2.34)

Note. All models adjusted for gender, race/ethnicity, and grade in school and used Generalized Estimating Equations (GEE) to adjust for clustering of students within schools; we coded outside- and within-school adult support variables as 0 for 'no/not sure' and 1 for 'yes';

OR = odds ratio; CI = confidence interval;

* $p < 0.05$;

** $p < 0.01$;
*** $p < 0.001$

Table 4

Multivariable Logistic Regression Models for Adult Support on Suicidality, Stratified by Sexual Orientation (N=22,834): MetroWest Adolescent Health Survey, Massachusetts, 2012

	Suicide thoughts			Suicide plan			Suicide attempt		
	OR	(95% CI)		OR	(95% CI)		OR	(95% CI)	
Heterosexual (n=21,002)									
Outside-school adult support	0.30	(0.27, 0.33)	***	0.29	(0.25, 0.34)	***	0.27	(0.22, 0.35)	***
Within-school adult support	0.82	(0.75, 0.90)	***	0.75	(0.69, 0.82)	***	0.81	(0.69, 0.95)	**
Gay/lesbian (n=290)									
Outside-school adult support	0.66	(0.33, 1.32)		0.48	(0.23, 1.03)		0.48	(0.24, 0.94)	*
Within-school adult support	1.04	(0.57, 1.90)		1.20	(0.66, 2.20)		1.12	(0.50, 2.52)	
Bisexual (n=763)									
Outside-school adult support	0.66	(0.48, 0.89)	**	0.56	(0.41, 0.78)	***	0.66	(0.42, 1.03)	
Within-school adult support	0.69	(0.53, 0.91)	**	0.76	(0.57, 1.03)		0.74	(0.52, 1.06)	
Questioning (n=779)									
Outside-school adult support	0.49	(0.29, 0.80)	**	0.48	(0.30, 0.77)	**	0.62	(0.31, 1.23)	
Within-school adult support	0.95	(0.59, 1.52)		0.97	(0.62, 1.53)		0.87	(0.46, 1.63)	

Note. All models adjusted for gender, race /ethnicity, and grade in school and used Generalized Estimating Equations (GEE) to adjust for clustering of students within schools; we coded outside- and within-school adult support variables as 0 for 'no/not sure' and 1 for 'yes';

OR = odds ratio; CI = confidence interval;

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$

Am J Orthopsychiatry. Author manuscript; available in PMC 2018 January 01.