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Substance Use and Disparities in Teen Dating Violence Victimization by Sexual Identity Among High School Students

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Abstract

Sexual minority youth (SMY) report more substance use and experience more physical and sexual dating violence victimization than heterosexual youth; however, few studies have explored the relationship between substance use and disparities in teen dating violence and victimization (TDVV) using national-level estimates, and examined if these relationships vary by sexual minority subgroups. Data from the nationally representative 2015 and 2017 national Youth Risk Behavior Surveys were used to examine differences in TDVV and substance use by sexual identity, and to determine if substance use was associated with TDVV disparities between SMY and heterosexual high school students who dated 12 months prior to the survey (n = 18,704). Sex-stratified logistic regression models generated prevalence ratios adjusted for demographic characteristics and substance use behaviors to determine if substance use mediated the relationship between sexual identity and TDVV. Compared with their heterosexual peers, SMY experienced higher rates of TDVV and were more likely to report using most types of substances, although differences were more pronounced among female students compared with male students. Disparities in TDVV were reduced for male gay and bisexual students as well as for female bisexual students once substance use was entered into the model, suggesting that there is a relationship between substance use and some of gay and bisexual students' risk for experiences of TDVV. Comprehensive efforts for violence prevention among sexual minority students may benefit from incorporating substance use prevention, given its relationship to disparities in TDVV.

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Conflict of Interest The authors declare that they have no conflict of interest.

Research Involving Human Participants All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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Keywords

Sexual minority youth; Substance use; Teen dating violence; Disparities; Sexual identity

Introduction

Sexual minority youth (SMY; youth who identify as gay, lesbian, or bisexual) experience greater health risks than heterosexual youth (Kann et al. 2016; Kann et al. 2011; Luo et al. 2014; Olsen et al. 2017). SMY are more likely to use substances, such as cigarettes, alcohol, and marijuana and other illicit drugs, compared with their heterosexual peers (Caputi 2018; Fish et al. 2017; Kann et al. 2011; Watson et al. 2018a, b). For instance, among high school students, the prevalence of current cigarette smoking (19.2% vs. 9.8%), alcohol use (40.5% vs. 32.1%), and marijuana use (32.0% vs. 20.7%) is higher among SMY than heterosexual students (Clayton et al. 2019).

SMY also experience a higher prevalence of physical and sexual dating violence victimization (Dank et al. 2014; Edwards 2018; Martin-Storey 2015; Olsen et al. 2017), as well as psychological and cyber dating abuse (Dank et al. 2014), than heterosexual youth. This is particularly concerning given that both substance use and experiences of teen dating violence victimization (TDVV), defined as physical, sexual, psychological, or emotional aggression within a dating relationship, have been linked to poor health outcomes (Edwards 2018; Han et al. 2010; Jouriles et al. 2017; Lea et al. 2009; Silverman et al. 2001). A growing body of literature links TDVV and substance use, which may potentially compound the risk of poor outcomes (Parker and Bradshaw 2015; Rothman et al. 2012; Silverman et al. 2001; Taylor and Sullivan 2017). Despite evidence of SMY experiencing TDVVand substance use at rates greater than their heterosexual counterparts, no studies to our knowledge have sought to explore whether substance use is associated with the disparities in TDVVacross sexual minority subgroups using nationally representative data.

A relationship between substance use and TDVV among adolescents in general has been demonstrated in a number of cross-sectional studies (Johnson et al. 2017; Rothman et al. 2012; Silverman et al. 2001; Vagi et al. 2015). For example, one study demonstrated that the prevalence of non-medical use of prescription drugs is 2–3 times higher among youth who experience TDVV compared with non-victims (Clayton et al. 2017). A recent longitudinal study demonstrated a bidirectional relationship between substance abuse and TDVV, as baseline substance use predicted increased physical and psychological TDVV 6 months later, while baseline physical TDVV predicted increased substance use at follow-up (Taylor and Sullivan 2017). At least one longitudinal study using nationally representative data demonstrated that TDVV in adolescent heterosexual relationships may predict future substance abuse (Exner-Cortens et al. 2013), while another study found that substance use predicted future physical dating violence perpetration among a diverse sample of high school students (Temple et al. 2013). Thus, there is a growing evidence base linking substance use and different types of teen dating violence among adolescents, although most studies focus on adolescents in general or those who identify as heterosexual.

There is even less information about the relationship between substance use and dating violence specifically for SMY, although regional studies point to a possible link between TDVV and substance use for this population. One school-based study in the Northeastern USA found that SMY who were victims of dating violence were more likely to engage in alcohol and substance abuse compared with heterosexual youth (Dank et al. 2014). Another study using data with Massachusetts youth found a higher likelihood of binge drinking among female and male dating violence victims who identified as gay or lesbian, or who reported sexual activity with individuals of both genders, compared with youth who identified as heterosexual (Martin-Storey 2015). Examinations of these types of associations using nationally representative data has yet to be undertaken.

The consequences of TDVV may also be worse for sexual minorities than heterosexual youth (Edwards 2018). Specifically, SMY who experienced TDVV reported more depression and binge drinking, and performed worse academically compared with their heterosexual counterparts (Edwards 2018). Research suggests disparities between SMY and heterosexual youth appear to emerge in adolescence, and widen as youth move into young adulthood (Marshal et al. 2009). Indeed, SMY's substance use has been found to increase more rapidly across adolescence and into young adulthood, placing them at risk of developing substance use disorders later in life (Marshal et al. 2009). Among SMY, bisexual youth have been found to be most at risk for poor outcomes, including depression, poor academic achievement, and binge drinking (Edwards 2018). Bisexual youth, particularly bisexual females, appear to be most vulnerable to trajectories of rapidly increasing substance use and substance dependence (Caputi 2018; Marshal et al. 2009; McCabe et al. 2009), and are at even greater risk for teen dating violence and sexual violence victimization relative to other sexual minority subgroups (Edwards 2018; Luo et al. 2014; Walters et al. 2013).

There is theoretical support for TDVV and substance use possibly co-occurring among SMY. The minority stress model proposes that sexual minorities experience unique stressors that result from social stigma directed at sexual minorities, and that these stressors increase risks of various negative health and behavioral outcomes (Meyer and Frost 2013). Minority stress may give rise to expectations of hostility, rejection, and experiences of actual or perceived prejudice, which may explain SMY's engagement in maladaptive coping and risk behavior. With regard to the connection between TDVV and substance use, SMY may be using substances at greater rates to cope with elevated rates of violence victimization, including TDVV. Alternatively, SMY may be using substances to cope with minority stressors such as harassment and discrimination, and the use of these substances may place them at greater risk for TDVV through other pathways. For example, use of substances by individuals in romantic relationships has been shown to corrode relationship quality over time and increase aggression in perpetrators—it is possible that TDVV is elevated among SMY who use substances to cope with minority stressors (Shorey et al. 2011). Both explanations are consistent with a recent meta-analysis demonstrating significant relationships between exposure to minority stressors, such as negative disclosure reactions and victimization (e.g., homophobic bullying), and substance use among SMY (Goldbach et al. 2014).

There is a growing body of research documenting disparities among SMY and their heterosexual peers in health risk behavior (Caputi 2018; Dank et al. 2014; Fish et al. 2017; Kann et al. 2018; Watson et al. 2018a, b), and the contribution of minority stressors to disparities in substance use (Goldbach and Gibbs 2017). Less is known about the relationship between substance use and disparities in TDVV among SMY and, to date, there has not been a study using national-level estimates. This study sought to fill that gap by examining differences in TDVV and substance use by sexual identity and sex, and how substance use might account for disparities in TDVV between SMY and heterosexual students. Given known disparities in both TDVV and substance use, we expected substance use to be associated with disparities in TDVV across sexual identity and to be significantly related to experiences of all forms of TDVV to a greater extent for SMY than heterosexual students. Additionally, given the literature on bisexual youth's disproportionate experience of substance use and TDVV separately, we hypothesized that cooccurrence may be higher among this subpopulation of SMY, and specifically among bisexual female students.

Methods

Data Source and Study Population

Study Population—The national Youth Risk Behavior Survey (YRBS) is a nationally representative, school-based, cross-sectional survey of high school students in grades 9 through 12 who attend private and public schools in the 50 states and the District of Columbia (Brener et al. 2013). The YRBS has been conducted biennially by the Centers for Disease Control and Prevention (CDC) since 1991. The participation of students in the YRBS is both anonymous and voluntary, and local requirements for parental permission are observed. Data from the 2015 and 2017 national YRBS cycles were combined for these analyses in order to provide a sufficient sample of SMY students to examine associations between substance use behaviors and TDVV by SMY status. For the 2015 and 2017 national YRBS, school response rates were 69% and 75%, respectively; student response rates were 86% and 81%; and overall response rates (product of the school and student response rates for each cycle) were 60% and 60% (Kann et al. 2016; Kann et al. 2018). Data were weighted to adjust for oversampling of Hispanic and black students, as well as for school and student nonresponse so that the resulting estimates are nationally representative. Combining the 2015 and 2017 national YRBS resulted in a sample of 30,389 high school students. The sample was then further restricted to students who reported dating during the 12 months before the survey, who indicated that their sexual identity was either heterosexual, gay/lesbian or bisexual, and who had complete data for sex, which resulted in a final analytic sample of 18,575 students. Missing data were not imputed. More detailed information on the sampling strategies and psychometric properties of the YRBS questionnaire have been published elsewhere (Burton et al. 2014). The national YRBS was reviewed and approved by an institutional review board at the CDC, Atlanta, GA.

Measures

Sexual Identity—Students' sexual identity was ascertained by the following question: "Which of the following best describes you?" Response options included: "heterosexual (i.e., straight);" "gay or lesbian;" "bisexual;" and "not sure." Students who were not sure of

their sexual identity were excluded from analyses. Students who indicated that they were gay, lesbian or bisexual were classified in this paper as sexual minority youth (SMY).

Dating Violence—The 2015 and 2017 national YRBS includes two forms of dating violence victimization: physical ("During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose? Count such things as being hit, slammed into something, or injured with an object or weapon") and sexual dating violence ("During the past 12 months, how many times did someone you were dating or going out with force you to do sexual things that you did not want to do? Count such things as kissing, touching, or being physically forced to have sexual intercourse"). Response options included: "I did not date or go out with anyone during the past 12 months"; "0 times"; "1 time"; "2 or 3 times"; "4 or 5 times"; or "6 or more times." These two questions were combined to generate a four-level variable: no TDVV, physical TDVVonly, sexual TDVVonly, and both physical and sexual TDVV.

Substance Use—Five measures of substance use were included in analyses. Four measures were for current substance use behaviors (i.e., past 30 days): cigarette smoking, electronic cigarette use, alcohol use, and marijuana use. The fifth substance use measure was a calculated variable that assessed whether respondents had "ever used" an illicit substance, and included heroin, cocaine, synthetic marijuana, inhalants, hallucinogenic drugs, methamphetamines, and ecstasy. Exact item wording and response options have been published elsewhere (Centers for Disease Control and Prevention 2015–2017).

Statistical Analysis

Demographic and key study variables were compared with sexual identity using the chi-square test. To determine if substance use variables influence the relationship between sexual identity and forms of TDVV (e.g., sexual only, physical only or both physical and sexual), a two-step modeling strategy was employed using ordinal regression, which generated adjusted prevalence ratios (aPRs) and 95% confidence intervals. In the first step (referred to as Model 1), sexual identity was entered as an independent variable with the four-level TDVV as the dependent variable, along with grade and race/ethnicity as demographic covariates. In the second-stage of the modeling strategy, substance use covariates were also entered into the model (referred to as Model 2). All analyses were stratified by sex, as research has demonstrated that key study variables (sexual identity and TDVV) vary significantly by sex (Clayton et al. 2017; Olsen et al. 2017). All analyses were performed in SAS version 9.4 (SAS Institute Inc. 2013), using SUDAAN (Witt 2008) to account for the complex survey design of the YRBS.

Results

A majority of the sample identified as heterosexual, although sexual identity varied significantly by sex with a greater percentage of female students identifying as lesbian or bisexual than male students. (Table 1). There were some differences in substance use patterns by sex, with significantly higher prevalence of both current cigarette smoking and current use of electronic cigarettes observed among male students compared to female

students. No significant differences in prevalence of current alcohol use, current marijuana use, and ever use of illicit drugs were observed by sex. Significant differences in prevalence of TDVV by sex were observed, as female students had a greater prevalence of having experienced all forms of TDVV compared with their male counterparts.

Male Students

Table 2 presents sex-stratified associations for TDVV and substance use variables by sexual identity. Among male students who reported dating in the 12 months before the survey, significant variation in the association between TDVV and sexual identity was observed ($p < 0.01$). The prevalence of all forms of TDVV were greater among gay and bisexual students compared with heterosexual students. Also among male students who dated in the 12 months before the survey, greater prevalence of current cigarette smoking and ever use of illicit drugs was observed for gay and bisexual students compared with heterosexual students (current cigarette smoking: $p = 0.03$; ever used an illicit drug: $p < 0.001$).

Table 3 presents a two-stage modeling strategy that explored whether sex-stratified associations between sexual identity and forms of TDVV were influenced by substance use behaviors. In the first stage of the modeling strategy (i.e., Model 1), which only adjusted for race/ethnicity and grade, male students who were gay or bisexual were significantly more likely to experience all forms of dating violence compared with males who identified as heterosexual. Among gay students, these associations ranged from an aPR of 3.32 for physical TDVV to 4.60 for both physical and sexual TDVV compared with heterosexual students. Among bisexual students, these associations ranged from 2.54 for physical TDVV to 3.09 for both physical and sexual TDVV compared with heterosexual students. After inclusion of substance use covariates in Model 2 for male students, the significant associations between physical TDVV, sexual TDVV, and both physical and sexual TDVV remained for both gay and bisexual students, but were somewhat reduced in magnitude. For example, aPRs among gay students ranged from 2.36 for physical TDVV (vs. 3.32 in Model 1) to 2.99 for both physical and sexual TDVV (vs. 4.60).

Female Students

Among female students who reported dating in the 12 months before the survey, significant variation in the association between TDVV and sexual identity was observed ($p < 0.0001$) (see Table 2). The prevalence of most forms of TDVV were greater for lesbian and bisexual students compared with heterosexual students, except for sexual TDVVonly, for which a lower prevalence was observed among lesbian students. The prevalence of all substance use variables varied significantly by sexual identity among female students, with greater prevalence observed among lesbian and bisexual students compared with heterosexual students.

After controlling for race/ethnicity and grade only in the Model 1 analysis among female students who dated in the 12 months prior to the survey, bisexual students were significantly more likely to report experiencing TDVV compared with their heterosexual counterparts (see Table 3). No significant associations were observed for students who identified as lesbian compared with heterosexual students. Among bisexual female students, aPRs ranged

from 1.56 for physical TDVV to 1.98 for both physical and sexual TDVV. After inclusion of substance use covariates in Model 2, this same pattern emerged, with only the female bisexual students reporting significantly more experiences of all forms of TDVV compared with heterosexual students, although aPRs were reduced in magnitude. Specifically, aPRs among bisexual students in Model 2 ranged from 1.33 for physical TDVV to 1.58 for both physical and sexual TDVV.

Discussion

This study examined the relationship between substance use and TDVV across sexual identity and sex in a nationally representative sample of US high school students. In accordance with prior research (Edwards 2018; Kann et al. 2018; Martin-Storey 2015), among male students, gay and bisexual students experienced higher rates of all forms of TDVV, compared with heterosexual males. Among female students, bisexual students experienced the highest rates of TDVV, compared with heterosexual and lesbian students, which is consistent with research suggesting bisexual female youth are at particular risk of TDVV (Edwards 2018; Luo et al. 2014; Walters et al. 2013). Differences in current substance use among female SMY and heterosexual students were also more pronounced than was observed among male students. Specifically, significantly more lesbian and bisexual females reported current use of all types of substances compared with heterosexual females, while the only difference among male students was that more SMY reported current cigarette smoking. However, regardless of sex, SMY were more than twice as likely to report ever using an illicit drug (e.g., heroin, cocaine, methamphetamines), compared with their heterosexual counterparts.

After controlling for demographics, the prevalence of physical and sexual TDVV and both physical and sexual TDVV remained higher among male SMY and bisexual female students. No differences between lesbian and heterosexual students were observed for any type of TDVV. Once substance use was also controlled for, disparities in TDVV were reduced for male SMY and bisexual female students, suggesting that substance use is associated with these disparities in TDVV. However, the prevalence of all types of TDVV remained significant for these students, indicating that identifying as gay and bisexual continued to be a risk factor for TDVV beyond those accounted for alongside substance use behaviors.

The connection between TDVV and substance use among SMY may be understood using minority stress theory. Broadly, both elevated used of substances and experiences of dating violence have been linked to minority stress (Edwards and Sylaska 2013; Lowry et al. 2017). SMY's experience of stigma directed at sexual minorities may cause psychological strain that increases negative coping strategies like substance use (Lowry et al. 2017), and increases the likelihood of violence in romantic relationships (Edwards and Sylaska 2013). The association between substance use and TDVV among SMY in these results may speak to the shared risk factors, as well as possible connections between these two behaviors. For example, some part of substance use among SMY may result from coping with stress caused by higher levels of TDVV (Meyer 2003); alternatively, the higher levels of TDVV may result from substance use corroding the relationship quality of SMY (Shorey et al. 2011). Further

research into both the risk factors and the directionality of this relationship with longitudinal research is warranted.

The finding that disparities in TDVV were reduced but not completely eliminated for both male and female bisexual students after accounting for substance use suggests that bisexual students were at elevated risk for TDVV than heterosexual students. Bisexual students may experience risk factors not shared by gay/lesbian or heterosexual students. Prior research suggests that bisexual youth may experience greater stress related to their sexual identity disclosure, as they may encounter discrimination related to the heterosexism encountered by gay and lesbian youth, but also discrimination related to "monosexism" (i.e., the belief that individuals are either exclusively heterosexual or homosexual) (Pollitt et al. 2017). Consequently, bisexual youth may experience more stressors related to discrimination, which may increase their vulnerability for multiple forms of victimization, including TDVV. Further, as articulated in the minority stress model, experiences of harassment and discrimination may contribute to substance use among sexual minorities. While gay/lesbian students may encounter such stressors from heterosexual peers, bisexual students may also experience this from peers within the LGBT community (i.e., dual stigma) (Weiss 2011). This aligns with other research on the burden of violence among bisexual youth; for example, bisexual students experience more bullying on school property than heterosexual, gay, or lesbian students (O'Malley Olsen et al. 2014), and bullying has been linked to increased rates of teen dating violence (Vivolo-Kantor et al. 2016). Future research examining the contribution of stressors that are potentially unique to bisexual students is needed.

Contrary to previous research (Dank et al. 2014; Edwards 2018; Martin-Storey 2015), the prevalence of sexual TDVV was lowest among female students who identified as lesbian, and lesbian students were not more likely to report TDVV than heterosexual female students. These results suggest that substance use prevention among lesbian students would need to account for contributors to substance use other than TDVV. On the other hand, violence prevention programming might consider incorporating a discussion of substance use, both to help reduce *perpetration* and to offer healthier alternatives to youth who may utilize substances as a mechanism to cope with victimization. For instance, programs that teach safe and healthy relationship skills and incorporate a focus on substance use (e.g., The Fourth R: Strategies for Healthy Teen Relationships; (Wolfe et al. 2009) may help prevent both TDVVand substance use among youth. Regardless, comprehensive programming that addresses a range of risk factors that increase SMY's vulnerability for TDVV will be needed, as outlined in CDC's *Preventing Intimate Partner Violence Across the Lifespan* technical package (Niolon et al. 2017).

Further, results suggest that preventive efforts that target substance use among gay and bisexual students may have impacts on TDVV, as they may be using substances to cope with TDVV as well as minority stressors that may place them at risk for multiple forms of victimization. Alternatively, gay and bisexual students may be using substances in response to experiences of TDVV. If this is the case, efforts to prevent TDVV may have short- and long-term effects on trajectories of substance use among SMY, who may be at increased risk for developing substance use problems and disorders later in life given greater substance use

in adolescence (Marshal et al. 2009). Because the YRBS data are cross-sectional, temporality cannot be established, and thus, longitudinal research with SMY would help elucidate the direction of these relationships and potential trajectories. However, in general, male students who identified as gay and bisexual, as well as females who identified as bisexual, continued to be at elevated risk of TDVV in comparison with their heterosexual peers once models were adjusted for substance use. Accordingly, more research is needed to identify other risk factors that contribute to their TDVV risk.

Comprehensive teen dating violence prevention programs may be an important approach for cross-sectional prevention of related risk behaviors, especially if they are implemented in early adolescence. For example, *Dating Matters*®: *Strategies to Promote Healthy Teen Relationships* (Teten Tharp 2012) was developed to promote healthy relationships and prevent dating violence. The comprehensive prevention model includes multiple strategies at different levels of the social ecology: youth programs for middle school students; community-based parent programs; school-level educator training; a communications campaign; and community level activities to promote capacity and policy development. The prevention model is effective at preventing teen dating violence perpetration and victimization, and also addresses risk factors for multiple forms of violence, including substance use (Niolin et al. 2019). Indeed, comprehensive programming for youth may serve to address shared risk and protective factors for multiple risk behaviors and thus help to prevent TDVV and substance abuse among all youth, including SMY. Thus, existing evidence-based interventions that address shared risk and protective factors may need more widespread adoption and scale-up. Given the current study's results, attention to the needs of SMY in prevention programming is particularly important, including promoting a school environment that is supportive and positive (Dank et al. 2014). Research evaluating the effectiveness of prevention programming with SMY specifically will be needed, as the unique stressors (e.g., discrimination) encountered by this population may influence the effectiveness of existing interventions.

Limitations

Results should be considered in the context of study limitations. First, these data only pertain to adolescents who attend high school, and SMY may be more likely to drop out or have frequent school absences (Burton et al. 2014); these findings are only generalizable to SMY who attend high school. Similarly, we excluded students who were questioning or not sure about their sexual identity because sample sizes were small. YRBS data are self-reported and so the extent to which students may have over- or under-reported substance use and TDVV cannot be ascertained. However, in general, YRBS questions have demonstrated good test-retest reliability (Brener et al. 2002, 2013). Further, because YRBS data are cross-sectional, this study cannot determine whether substance use is a predictor or a consequence of disparities in TDVV. Future longitudinal research with nationally representative samples of SMY is needed to clarify the direction of association and how substance use may contribute to disparities in TDVV, and how disparities in TDVV may contribute to substance use among SMY. Finally, because we were interested in generating national estimates among all high school students, we did not consider differences by grade and thus cannot speak to

developmental trends; longitudinal research would help illuminate how disparities may grow over time and impact health among older populations.

Conclusion

This study has significant implications for prevention efforts targeting SMY. While substance use was related to differences in TDVV between SMY and heterosexual youth, this particular health risk behavior did not fully explain the relationship between sexual identity and TDVV. Lesbian students were not at increased risk of sexual TDVV only, in contrast to prior research, although they were at higher risk for other forms of TDVV. Accordingly, prevention efforts targeting SMY may need to be tailored for sexual minority subgroups. For example, TDVV prevention efforts for gay and bisexual youth may also help prevent substance use, but programs targeting lesbian students may need to also address other types of victimization that may contribute to their higher rates of substance use. Although, to effectively prevent TDVV, research shows that comprehensive efforts that engage influential adults and peers to promote positive social norms, target modifiable risk factors like substance use, and promote positive coping strategies and other protective factors will be needed (Niolon et al. 2017). Still, in general, health professionals working with SMY who have experienced TDVV may need to consider potential overlap with substance use and provide alternative strategies to cope with victimization and other social stressors.

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Table 1

Demographic characteristics, substance use, and teen dating violence victimization among US high school students who dated in the past 12 months, by sex–National Youth Risk Behavior Survey, 2015 and 2017

	Male (*n* = 9042)		Female (*n* = 9533)		*P* value[a]
Characteristics	***n***	**%**	***n***	**%**	
Sexual identity					<0.0001
Heterosexual	8652	95.9	8017	84.6	
Gay or lesbian	161	1.6	277	2.5	
Bisexual	229	2.5	1239	12.9	
Grade					0.07
9th	2092	25.3	2188	23.3	
10th	2202	23.8	2391	25.9	
11th	2421	25.6	2523	25.6	
12th	2280	25.3	2404	25.2	
Race/ethnicity					0.73
White[b]	3990	54.0	4309	55.0	
Black[b]	1392	14.4	1440	13.5	
Hispanic	2636	23.0	2750	22.6	
Substance use					
Current cigarette smoking[c]	1177	13.3	979	10.8	<0.01
Current use of electronic cigarettes[c]	2287	26.2	1883	21.0	<0.0001
Current alcohol use[c]	2871	37.2	3366	39.4	0.096
Current marijuana use[c]	2317	26.2	2296	24.1	0.077
Ever used an illicit drug[d]	1397	16.8	1312	15.4	0.168
Experienced dating violence in the past 12 months					<0.0001
None	8123	91.9	7550	81.6	
Physical dating violence only	399	4.3	546	5.3	
Sexual dating violence only	181	1.9	738	8.5	
Both physical and sexual dating violence	180	2.0	427	4.6	

Sample sizes for each variable may not sum to total given variation in missing data

[a] Chi-square

[b] Non-Hispanic. Data for "other" not presented due to limited interpretability

[c] One or more times during the 30 days before the survey

[d] Ever used illicit drugs includes ever use of the following substances: heroin, cocaine, synthetic marijuana, inhalants, hallucinogenic drugs, methamphetamines, and ecstasy

Table 2

Prevalence of teen dating violence victimization and substance use by sex and sexual identity among students who dated in the past 12 months–National Youth Risk Behavior Survey, 2015 and 2017

Variables	Male students							Female students						
	Heterosexual *N* = 8652		Gay *N* = 161		Bisexual *N* = 229		Chi-square *P* value	Heterosexual *N* = 8017		Lesbian *N* = 277		Bisexual *N* = 1239		Chi-square *P* value
	n	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%	
Dating violence victimization							<0.01							<0.0001
None	7841	92.6	107	68.4	175	80.4		6498	83.2	214	81.6	838	70.4	
Physical only	370	4.2	14	7.6	15	7.0		398	4.7	23	7.6	125	8.7	
Sexual only	164	1.7	10	7.5	7	6.0		582	8.0	13	5.0	143	12.3	
Both physical and sexual	137	1.6	22	16.6	21	6.6		317	4.0	19	5.8	91	8.5	
Substance use														
Current cigarette smoking[a]	1092	12.9	27	20.0	58	21.7	0.0301	698	9.1	49	19.4	232	20.6	<0.0001
Current use of electronic cigarettes[a]	2187	26.2	45	27.9	55	25.4	0.9441	1476	19.5	74	27.9	333	29.2	<0.0001
Current alcohol use[a]	2730	37.1	55	43.1	86	39.3	0.6057	2745	38.4	105	43.7	516	45.8	<0.01
Current marijuana use[a]	2215	26.1	38	32.4	64	26.6	0.5872	1729	21.6	107	42.3	460	37.2	<0.0001
Ever used an illicit drug[b]	1264	16.0	60	41.6	73	34.2	<0.001	924	13.0	67	26.6	321	29.4	<0.0001

[a]One or more times during the 30 days before the survey

[b]Ever used illicit drugs includes ever use of the following substances: heroin, cocaine, synthetic marijuana, inhalants, hallucinogenic drugs, methamphetamines, and ecstasy

Table 3

Sex-stratified adjusted prevalence ratios for the association between sexual identity and teen dating violence victimization–National Youth Risk Behavior Survey–2015 and 2017

Gender and identity by model	Teen dating violence victimization							
	No dating violence		Physical dating violence only		Sexual dating violence only		Both physical and sexual dating violence	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Male students								
Model 1 Identity								
Heterosexual	Ref	-	Ref	-	Ref	-	Ref	-
Gay	0.78	0.64–0.94	3.32	2.27–4.87	4.04	2.40–6.78	4.60	2.47–8.58
Bisexual	0.86	0.78–0.95	2.54	1.80–3.60	2.86	1.88–4.36	3.09	1.93–4.95
Model 2 Identity								
Heterosexual	Ref	-	Ref	-	Ref	-	Ref	-
Gay	0.88	0.77–1.01	2.36	1.40–3.96	2.70	1.43–5.11	2.99	1.43–6.28
Bisexual	0.93	0.87–1.00	1.78	1.18–2.68	1.92	1.19–3.11	2.03	1.19–3.47
Female students								
Model 1 Identity								
Heterosexual	Ref	-	Ref	-	Ref	-	Ref	-
Lesbian	0.98	0.90–1.05	1.10	0.82–1.46	1.12	0.79–1.58	1.14	0.76–1.70
Bisexual	0.85	0.80–0.90	1.56	1.38–1.76	1.76	1.50–2.07	1.98	1.62–2.42
Model 2 Identity								
Heterosexual	Ref	-	Ref	-	Ref	-	Ref	-
Lesbian	1.03	0.95–1.12	0.87	0.57–1.33	0.84	0.51–1.40	0.82	0.45–1.48
Bisexual	0.91	0.86–0.96	1.33	1.14–1.55	1.44	1.18–1.75	1.58	1.23–2.02

aPR adjusted prevalence ratio, *95% CI* 95% confidence interval

Model 1–Adjusted for race and grade

Model 2–Adjusted for race and grade (Model 1), and substance use variables (added in Model 2): current cigarette smoking, current electronic cigarettes, current alcohol use, current marijuana use, and lifetime use of illicit substances (cocaine, heroin, methamphetamines, ecstasy, hallucinogenic drugs, and inhalants)