Adolescent Sexual Violence: Prevalence, Adolescent Risks, and Violence Characteristics

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Abstract

The purpose of this research is to investigate peer-to-peer sexual violence victimization and perpetration among male and female adolescents in a large, racially and economically diverse, community-based sample. Using cross-sectional data over a four-year period (2009–2013) from a regional sample of middle school and high school students in southeastern Michigan, we examined the prevalence and correlates of peer-to-peer sexual violence victimization and perpetration among adolescents. 33.9% of males and 53.5% of females reported sexual violence victimization, while 22.8% of males and 12.6% of females reported sexual violence perpetration. The majority of peer-to-peer sexual victimization and perpetration occurred by someone of the opposite sex, however, same-sex victimization and perpetration were not uncommon. Substance use, depression, Attention Deficit Hyperactivity Disorder (ADHD), and conduct disorder were associated with peer-to-peer sexual violence (victimization or perpetration) for both males and females, with few differences in the patterns of associations by sex. These findings are an important step in better understanding the types of peer-to-peer sexual violence that adolescents experience and risk factors for both male and female youth.

INTRODUCTION

Adolescent sexual violence, including peer-to-peer sexual violence, is a significant public health issue in the United States with one-in-ten youth reporting experiences of sexual violence.[1] Although much attention has focused on sexual violence among emerging adults, particularly college students, adolescence is a significant developmental period during which youths' sexual behaviors emerge and sexual experimentation often occurs.[2] Additionally, previous literature has focused on adolescent sexual violence from the child maltreatment perspective or focused specifically on dating partners, with much less known regarding peer-to-peer sexual violence victimization and perpetration.[3] Moreover, although there is literature linking personal and familial factors to increase risk of sexual violence victimization, less is known regarding peer-topeer sexual violence. Consequently, additional study of peer-to-peer adolescent sexual violence perpetration and victimization can provide important clues as to behavioral trajectories that may influence development well into adulthood.

Sexual violence encompasses contact and non-contact sexual experiences that are unwanted and where consent was not or could not be obtained. It has generally been accepted that sexual violence victims are by and large females and that sexual violence perpetrators are, for the most part, males. However, these perceptions have resulted in a dearth of research on female sexual violence perpetration and male sexual violence victimization, and the overlap between perpetrators and victims. Overall, the little research on peer-to-peer adolescent sexual violence has focused on victimization[4], with earlier studies focused primarily on adolescent female sexual violence victimization[5], and only recently, have studies expanded to include adolescent male experiences of sexual violence victimization.[6] In one of the few studies of peer-to-peer adolescent sexual violence perpetration, Espelage and colleagues[7] examined the link between contact and non-contact sexual violence perpetration over time. The researchers found that non-contact sexual violence perpetration, non-sexual bullying perpetration, and homophobic teasing at baseline was associated with non-contact sexual

violence perpetration at a later follow-up, and that contact sexual violence perpetration at baseline was associated with subsequent contact sexual violence. There were no differences by age, sex, or race. Although this study established a potential connection between sexual violence perpetration over time, it did not account for the role of victimization on perpetration, nor the presence of other risk factors associated with sexual violence such as mental health[8,9] or substance use.[8,10] Overall, there is a need for a better understanding of the prevalence and characteristics of adolescent experiences of sexual violence.

Accordingly, this study adds significantly to the literature as we examined the prevalence of sexual violence victimization and perpetration among both male and female adolescents in a large, racially and economically diverse, community-based sample of adolescents. Moreover, we examined adolescent risk factors including mental health symptoms and substance use, as well as several characteristics of sexual violence by sex. This descriptive study is an essential first-step in understanding the scope and significance of this public health problem, to better inform adolescent sexual violence interventions.

METHODS

Participants and Setting

The sample includes adolescents from five public middle and high schools in southeastern Michigan (for more details regarding the SSLS, refer to the following publications).[11–16] Data came from the cross-sectional web-based Secondary Student Life Survey (SSLS) conducted during the fall months on an annual basis across a four-year period (2009–10 through 2012–13 school years) among 7th - 12th graders. Active parental consent and adolescent assent were obtained and the appropriate Institutional Review Board approval and a Certificate of Confidentiality was obtained. The response rate for this study was 68% based on guideline #2 (RR2) of the American Association for Public Opinion Research.[17] The final response rate is comparable to other national school-based studies using comparable data collection procedures.[18]

The sample included 5,217 unique adolescent respondents across the four waves of the study. We excluded 552 adolescents across the four waves due to incomplete data, leaving a final sample of 4,665 respondents (1,688 respondents participated in one wave, 1,247 participated in two waves, 972 participated in three waves, and 758 participated in all four waves). Excluded adolescents were more likely to be male (54.9% versus 48.9%; $\chi 2 = 6.95$, p<.01), Black (54.2% versus 31.3%; $\chi 2 = 113.61$, p<.001), and participated in the SSLS during the 7th and 8th grade (36.4% versus 26.2%; $\chi 2 = 30.27$, p<.001).

Dependent Variables

The SSLS included sex-specific questions on the frequency of sexual victimization and sexual perpetration during the past 12 months that assessed multiple types of sexual acts:[16,19] (1) **victimization** - being stared at in a sexual way/**perpetration** - staring at someone in a sexual way, (2) **victimization** - being teased in a sexual way/**perpetration** - teasing someone in a sexual way, (3) **victimization** - receiving unwanted sexually obscene phone calls/**perpetration** - making unwanted sexually obscene phone calls, (4) **victimization** -

receiving unwanted sexual messages/**perpetration** - making unwanted sexual messages, (5) **victimization** - receiving unwanted kisses, hugs, and touching/**perpetration** - giving unwanted kisses, hugs, and touching, and (6) **victimization** - being made to have unwanted sexual intercourse/**perpetration** - making someone have unwanted sexual intercourse.

At each wave, a dichotomous measure for each sexual act was created for the six parallel items for victimization and perpetration. All six items were combined separately for victimization and perpetration to make a single dichotomous measure for past-year prevalence of sexual victimization (α=.791) and perpetration (α=.785) across each wave. Moreover, a set of additional dichotomous measures were also created to assess past-year prevalence of non-physical (α=.778) and physical victimization (α=.453) across each wave, and non-physical (α=.756) and physical perpetration (α=.465) across each wave. It should be noted that items (1) through (4) consisted of the non-physical construct, and items (5) through (6) consisted of the physical construct.

Independent Variables

We assessed several mental health problems by using the Youth Self Report (YSR/11–18) in the analyses.[20] The *YSR/11–18* assesses behavioral and emotional problems in children between the ages of 4 and 18 and includes scales consistent with *DSM-IV* diagnostic categories of ADHD, affective problems, anxiety problems, and conduct problems.[20] Continuous variables based on T-scores obtained through proprietary software[20] were used to account for severity of ADHD (α=.791), depression (α=.827), anxiety (α=.737), and conduct disorders (α=.882). For the analyses, dichotomous variables were created to assess respondents who had clinically significant symptom levels for the respective measures of mental health problems (i.e., a t-score of 69 or higher) at each wave of the SSLS.

Analyses also included variables to account for potential substance use problems. The Drug Abuse Screening Test, Short Form (DAST-10) measures drug related problems.[21] Respondents with past-year drug use were asked whether they had experienced any of 10 drug-related problems in the past 12 months. Respondents who positively endorsed two or more items were considered at risk for drug abuse or dependence and assigned a value of 1.[21,22] The CRAFFT was also used to measure lifetime symptoms related to alcohol or drug abuse.[23] The "CRAFFT" assesses 6 different aspects of alcohol abuse (i.e, **C**ar, **R**elax, **A**lone, **F**orget, **F**riends, **T**rouble; yes/no). A score of 2 or higher has been used to detect adolescent alcohol abuse/dependence.[24] Respondents who endorsed two or more items were assigned a value of 1.

Finally, the analyses also included several socio-demographic variables: sex, race, student's grade level, school district, parental education, wave of assessment, and frequency of SLSS participation (see Table 1 for details).

Data Analysis

The data analysis strategy was divided into three major sections. First, we computed descriptive statistics for the key independent variables and dependent variables to examine characteristics of the sample. Second, we examined the bivariate association between sex of

respondent and the prevalence of sexual victimization and perpetration during the four-year study period. Third, we fitted logistic regression models using the generalized estimating equations (GEE) methodology with an exchangeable correlation structure, to assess the association between sexual victimization/perpetration and several indicators of mental health problems, potential substance use disorders, and key sociodemographic factors for both males and females.[25,26] It should be noted that GEE was the optimal approach given the study questions (i.e., the average correlation between the independent and dependent variable during the study period) and the need to retain the full sample based on the unbalanced design of the longitudinal subsample (i.e., not all respondents completed each wave). While other longitudinal approaches were considered (e.g., mixed models), GEE provided the most parsimonious and relaxed analytic model for the outcomes assessed in the current study. Based on the estimated logistic regression models, we computed adjusted odds ratios (AORs) and 95% confidence intervals (95% CIs) describing the relationships of the correlates with the odds of sexual victimization and perpetration. We note that all variables used in the GEE analyses were treated as time-varying given that some respondents could have participated in the SSLS multiple times. Finally, the Ztest for the equality of coefficients was used to test differences between the strength of the coefficients between males and females for each group of models estimated in the GEE analyses.[27] All the statistical analyses were performed using commercially available software (STATA/SE v. 15.0; STATA Corp., College Station, TX).

RESULTS

Table 1 provides descriptive statistics for the sample over the four-year study period and shows that 51.5% of the sample was female, 62.9% of the sample was White, 75.0% of the sample had at least one parent with a college degree, 57.5% of the sample attended school in a high to moderate income school district, and 74% of the respondents were in high school during the majority of the study period. Roughly 13% of the sample indicated a positive screen for the DAST-10 and 19% indicated a positive screen for the CRAFFT at least once during the study period. With respect to indicators of mental health problems that were identified as clinically significant at least once during the four-year period, depression was the most common (10.8%), followed by conduct disorders (6.3%), anxiety (5.4%), and ADHD (4.7%).

Figure 1 shows that 43.9% of the sample reported being sexually victimized at least once during the four-year study period, while 17.6% of the sample reported engaging in sexual perpetration on at least one occasion during the study period. Females were more likely to be sexually victimized when compared to males (53.5% versus 33.9%), while males were more likely to have indicated sexual perpetration when compared to females (22.8% versus 12.6%). With respect to the percent of overlap among sexual victimization and perpetration, roughly 2.3% of the sample indicated sexual perpetration only (4.2% of males versus 0.4% of females), 15.3% indicate both sexual perpetration and victimization (18.5% of males versus 12.2% of females), and 28.3% indicated sexual victimization only (15.4% of males versus 41.3% of females) on at least one occasion during the study period.

Figure 2 presents the results of sexual victimization and perpetration during the four-year study period by the sex of the offender (i.e, victimization by someone of the same or opposite sex) and sex of the victim (i.e., sexually perpetrated against someone of the same or opposite sex). Sexual victimization and perpetration typically occurred by someone of the opposite sex. Of those in the entire sample, 41.5% of adolescents reported opposite sex victimization versus 13.6% same sex victimization, and 14.4% opposite sex perpetration versus 6.4% same sex perpetration. Females were more likely than males to be sexually victimized by a same sex or opposite sex perpetrator. Additonally, males were more likely than females to have sexually perpetrated against someone of the same or opposite sex.

Figure 2 depicts the results of sexual victimization and perpetration by whether these incidents were physical or non-physical. The majority of both sexual victimization (41.1%) and perpetration (13.8%) was non-physical over the four-year period. Females were more likely than males to have experienced either physical or non-physical sexual victimization, while males were more likely than females to have sexually perpetrated against someone in a physical or nonphysical manner.

Table 2 provides the results of the GEE logistic regression examining different correlates of any type of sexual victimization and perpetration among males and females. The results show that respondents, either male or female, who identified as Black, attended school in a low socioeconomic school district, had a positive screen on the CRAFFT, had a positive screen on the DAST-10, reported a clinically significant level of depression, or reported a clinically significant level of ADHD had higher odds of either being sexually victimized or engaging in sexual perpetration during the past year. For instance, a positive screen on the CRAFFT for females was associated with roughly three times greater odds of indicating being sexually victimized during the past year (AOR = 2.30, 95% CI = 1.86, 2.84).

With respect to unique associations among females, female respondents who reported a clinically significant level of conduct disorder had higher odds of being sexually victimized and engaging in sexual perpetration during the past year. Moreover, female respondents who identified as 'other race' had lower odds of being sexual victimized when compared to White females, and female respondents in the 9th through 12th grade had lower odds of engaging in sexual perpetration when compared to their female peers in the 7th and 8th grade. Among male respondents, those in the 11th and 12th grade had lower odds of being sexually victimized or engaging in sexual perpetration than their male peers in the 7th and 8th grade. Further, male respondents who reported a clinically significant level of conduct disorder had greater odds of engaging in sexual perpetration.

Examining whether there were significant differences between these associations among males and females only revealed a few significant results. First, the finding that respondents in the 11th and 12th grade have lower odds of being sexually victimized that those in the 7th and 8th grade is stronger for males than females (Z = 2.25, p=.024). Third, the finding that respondents who had a positive screen on the CRAFTT have greater odds of being sexually victimized is stronger for females than for males (Z = 2.24, p=.025).

Additional sub-analyses (available upon request) examined these associations with respect to sex of perpetrator (for victimization)/sex of victim (for perpetration) and whether the type of victimization/perpetration was physical or non-physical. These analyses provided similar results from what is shown in table 2 and confirmed that males and females who were Black, attended school in a low socioeconomic school district, had a positive screen on the CRAFFT, indicated clinically significant levels of depression, and indicated clinically significant levels of conduct disorder had the greatest odds of both sexual victimization and perpetration during the past year.

DISCUSSION

The research on adolescent sexual violence is sparse, particularly where female perpetration and male victimization are concerned. There is little research examining the characteristics and correlates of peer-to peer sexual victimization and perpetration among male and female adolescents– this study addresses this research gap. Some of the most striking findings in this study are the extent to which adolescents experience sexual violence. During the four-year study period, more than half of female adolescents experienced sexual violence victimization and more than one in three males reported sexual violence victimization. With regard to perpetration, nearly one in four males reported perpetrating sexual violence and more than one-in-ten females also reported perpetrating sexual violence. Although sexual violence was primarily perpetrated by opposite-sex peers, there were a number of individuals who reported that they had experienced same-sex peer sexual violence (13.6% of the sample). This same-sex violence requires future examination: it is unclear whether this indicates a need for nonheteronormative prevention interventions or if perhaps Espelage's and colleagues'[7] model of bullying perpetration that becomes more sexualized over time should be considered.

With regard to risk for sexual violence, this study found common correlates for males and females that were indicated by the cross-sex associations between sexual violence and substance use and greater symptoms of depression. Where alcohol use has been consistently associated with violence in emerging adulthood,[28] there has been less research linking substance use to sexual violence among younger adolescents. To be clear, the association between substance use and sexual violence is not meant to blame victims of sexual violence, but to inform prevention efforts aimed at addressing all of the risks associated with sexual violence. Moreover, it is not clear whether the association between alcohol and sexual violence is related to alcohol use preceding or following incidents of sexual violence. Further, the associations between depression and sexual violence involvement requires additional inquiry to determine how this information can be used in prevention efforts and to inform clinical care for adolescents with depression.

This study also has implications for working with Black youth and youth living in low-resource communities, both of which were at a higher risk for experiencing sexual violence. While the majority of attention and resources for sexual violence prevention have been focused on college communities, consistent with recent findings in adult populations,[29] our study findings indicate that it is imperative that more resources for sexual violence prevention need to be focused in low-resource communities where youth are at higher risk of

experiencing sexual violence. Moreover, prevention efforts specifically focused on school settings in these communities may be particularly helpful in protecting youth from experiences of sexual violence.

Finally, there were also several risk factors associated with sexual violence that differed by sex. Specifically, potential alcohol use disorders (i.e., CRAFFT) differed for males and females with regard to sexual violence victimization. Further study of the roles of these factors in the occurrence of sexual violence is necessary in order to elucidate the ways in which these findings can best inform prevention efforts.

This study is a first step in understanding adolescent sexual violence and presents a comprehensive examination of risk factors in terms of perpetration and victimization among both male and female youth. Even so, there are several limitations to be noted. First, the data are primarily self-report and thus are prone to the limitations of self-report data.[30] However, given the nature of sexual violence, there would be few alternative resources to gain this information, particularly for sexual violence that is less severe or with perpetrators who have not become engaged in the criminal justice systems, which encompasses the majority of sexual violence experiences.[31] Second, the samples comes from a geographically contained area and so may have limited generalizability to other populations outside of this region. However, given the information presented, the authors believe that there is much to be gained from these findings to inform future research as well as prevention efforts. Finally, the data are retrospective and so are prone to the weaknesses associated with this type of data. However, there is evidence that retrospective data are a valid source of information in social science research.[32–34] Overall, this study explores aspects of adolescent sexual violence in numerous ways which have not previously been examined among this age-group. For example, the exploration of personal and familial risk factors associated with peer-to-peer adolescent sexual violence. Our findings are an important step in addressing this threat to the health and well-being of adolescents and also provides a springboard for much needed work in research and prevention related to peer-to-peer adolescent sexual violence.

Acknowledgments

Abbreviations:

ADHD	Attention Deficit Hyperactivity Disorder
CRAFFT	alcohol abuse screener ((i.e, **C**ar, **R**elax, **A**lone, **F**orget, **F**riends, **T**rouble)
DAST-10	Drug Abuse Screening Test, Short Form
GEE	Generalized Estimating Equations

SSLS Secondary Student Life Survey

YSR/11–18 Youth Self Report

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What's Known on This Subject

Adolescent sexual violence, including peer-to-peer sexual violence is a significant public health issue in the United States. While attention has focused on sexual violence among emerging adults, little is known with respect to peer-to-peer adolescent sexual violence.

What This Study Adds

More than one-third of adolescent males and more than half of adolescent females reported victimization; nearly one-in-four males and more than one-in-ten females reported perpetration. Substance use and mental health play a strong role for both victimization and perpetration.
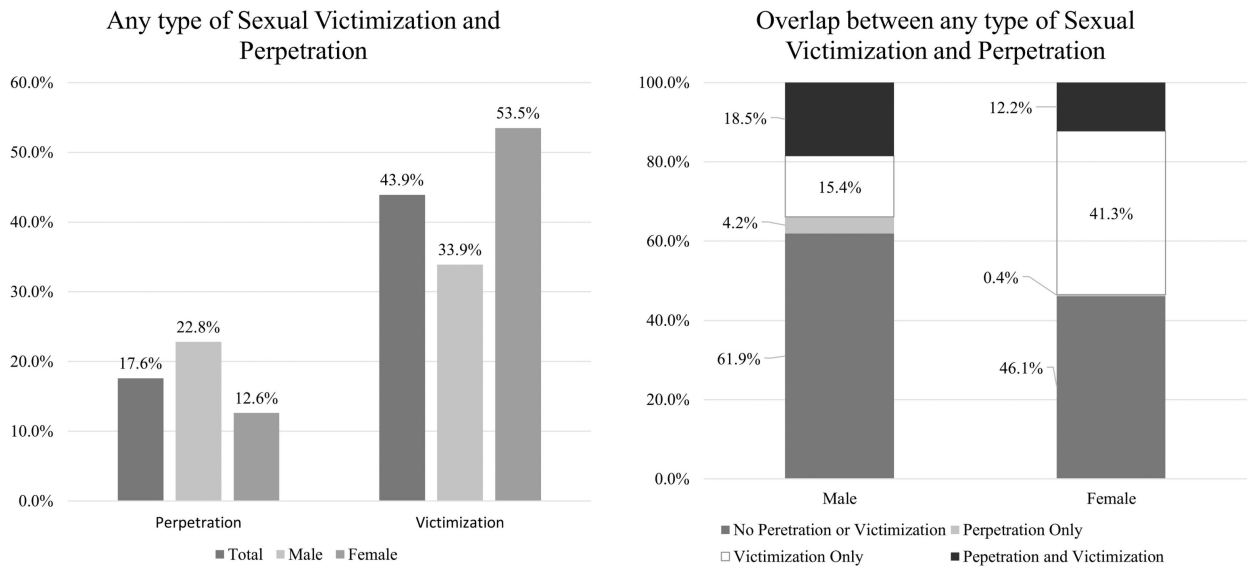
All differences by sex are significant at a .001 alpha-level (χ2 test of independence, df = 1; df = 9)

Figure 1.
Characteristics of sexual victimization and perpetration by gender.

Sexual Victimization and Perpetration of Someone of the Same or Opposite Sex

Sexual Victimization and Perpetration – Physical or Non-Physical
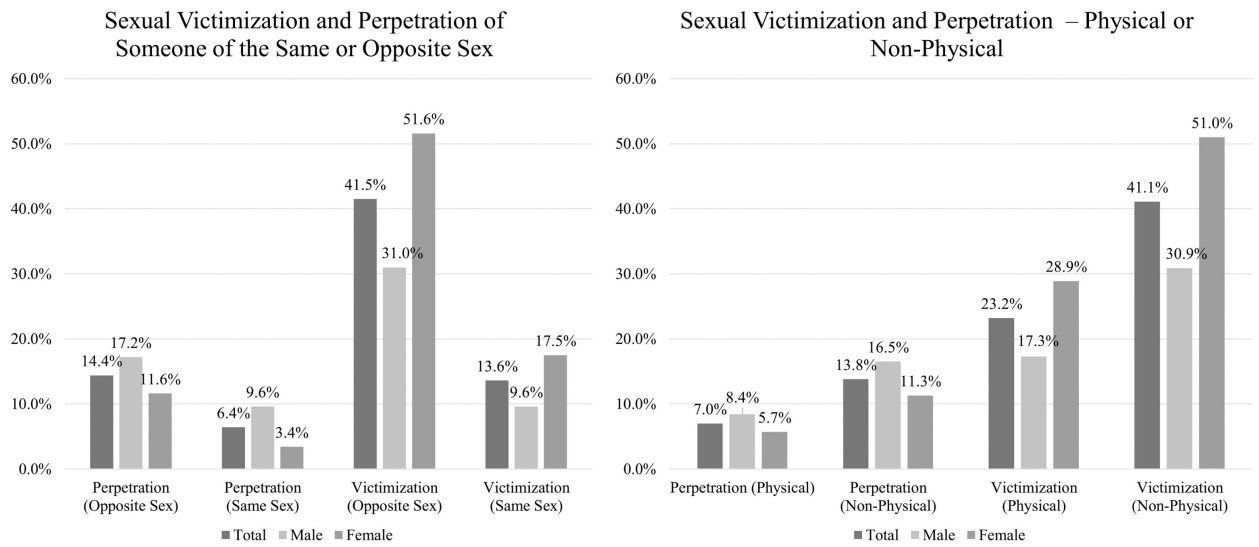
All differences by sex are significant at a .001 alpha-level (χ2 test of independence, df = 1)

Figure 2.
Characteristics of Sexual Victimization and Perpetration by Gender.

Table 1:

Sample characteristics over the four year study period (n = 4,665)(a)

	Total	Males (n=2282; 48.9%)	Females (n=2383; 51.1%)	χ^2	sig.
Socio-Demographic Characteristics	%	%	%		
White (ref.)	62.9%	64.4%	61.6%		
Black	31.3%	30.3%	32.3%	4.20	p=.122
'Other race'	5.8%	5.3%	6.2%		
Respondent is in the 7th or 8th grade (ref.)	26.2%	25.8%	26.5%		
Respondent is in the 9th or 10th grade	31.3%	31.0%	31.2%	0.51	p=.737
Respondent is in the 11th or 12th grade	42.7%	43.2%	42.3%		
Both parents have less than a college degree (ref.)	25.0%	24.5%	25.4%		
At least one parent has a college degree or higher	75.0%	75.5%	74.6%	0.48	p=.642
High to moderate income school district (ref.)	57.5%	57.9%	57.1%		
Low income school district	42.5%	42.1%	42.9%	0.31	p=.615
Potential Substance Use Disorders					
Negative DAST-10 screen (0 to 1 item) (ref.)	87.2%	87.1%	87.2%		
Positive DAST-10 screen (2+ items)	12.8%	12.9%	12.8%	0.01	p=.929
Negative CRAFTT screen (0 to 1 item) (ref.)	81.1%	82.3%	80.0%		
Positive CRAFTT screen (2+ items)	18.9%	17.7%	20.0%	4.79	p=.029
Psychiatric Disorders					
Depression (t-score 68 or lower) (ref.)	89.2%	90.5%	88.1%		
Depression (Clinically Significant t-score 69+)	10.8%	9.5%	11.9%	7.05	p=.008
Anxiety (t-score 68 or lower) (ref.)	94.6%	95.7%	93.5%	11.20	p<.001
Anxiety (Clinically Significant t-score 69+)	5.4%	4.3%	6.5%		
ADHD (t-score 68 or lower) (ref.)	95.3%	95.2%	95.5%	0.37	p=.545
ADHD (Clinically Significant t-score 69+)	4.7%	4.8%	4.5%		
Conduct Disorder (t-score 68 or lower) (ref.)	93.7%	94.5%	92.9%	5.14	p=.023
Conduct Disorder (Clinically Significant t-score 69+)	6.3%	5.5%	7.1%		
Victimization and Perpetration (total)					
No past-year victimization	56.1%	66.1%	46.5%	180.73	p<.001
Past-year victimization	43.9%	33.9%	53.5%		
No past-year perpetration	82.4%	77.2%	87.4%		
Past-year perpetration	17.6%	22.8%	12.6%	83.81	p<.001

ref. = reference group for GEE logistic regression analysis; χ^2 = chi-square test of independence; sig. = significance level.

(a) Roughly 35% of respondents participated in one wave, 27% participated in two waves, 21% participated in three waves, and 17% participated in all four waves. Roughly 23% of respondents participated at wave 1 (2009–10), 26% participated at wave 2 (201011), 26% participated at wave 3 (2011–12), and 25% participated at wave 4 (2012–2013).

Table 2:

GEE logistic regression examining correlates of any type of sexual victimization and perpetration by gender.

	Model 1				Model 2			
	All Victimization Females (n = 2383) At Least Once in the past Year		All Victimization Males (n = 2282) At Least Once in the past Year		All Perpetration Females (n = 2383) At Least Once in the past Year		All Perpetration Males (n = 2282) At Least Once in the past Year	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Control Variables								
White (ref.)								
Black	1.29 *	1.02, 1.63	1.52 ***	1.19, 1.94	1.99 ***	1.37, 2.90	1.34 *	1.00, 1.78
'Other race'	.645 **	.464, .896	.877	.583, 1.32	.740	.378, 1.44	1.01	.637, 1.62
Respondent is in the 7th or 8th grade (ref.)								
Respondent is in the 9th or 10th grade	1.16 *	1.00, 1.34	.959	.803, 1.14	.721 *	.542, .960	.943	.764, 1.16
Respondent is in the 11th grade or 12th grade	1.08 ^{a}	.923, 1.27	.809 ^{a} *	.665, .986	.491 ***	.357, .675	.729 **	.575, .924
Attends a school in a low SES school district	1.72 ***	1.37, 2.15	1.47 ***	1.16, 1.85	1.80 **	1.23, 2.63	1.44 **	1.09, 1.89
At least one parent has a college degree	1.09	.933, 1.26	.960	.803, 1.14	1.27	.976, 1.67	1.14	.926, 1.42
Positive DAST-10 screen	1.76 ***	1.36, 2.28	1.31	.976, 1.77	1.55 *	1.03, 2.32	1.15	.820, 1.62
Positive CRAFTT screen	2.30 ^{c} ***	1.86, 2.84	1.56 ^{c} ***	1.20, 2.03	1.67 **	1.17, 2.38	1.80 ***	1.33, 2.43
Depression (t-score 69+)	1.96 ***	1.53, 2.51	1.68 ***	1.24, 2.26	1.37	.914, 2.06	2.05 ***	1.49, 2.83
Anxiety (t-score 69+)	1.05	.756, 1.46	1.50	.982, 2.29	1.05	.610, 1.82	1.72 *	1.09, 2.71
ADHD (t-score 69+)	1.72 **	1.17, 2.54	1.54 *	1.04, 2.29	1.72 *	1.02, 2.90	1.31	.845, 2.05
Conduct Disorder (t-score 69+)	1.40 *	1.00, 1.96	1.19	.816, 1.74	2.79 ***	1.86, 4.17	1.91 ***	1.29, 2.83

*
p<.05

**
p<.01

***
p<.001

All analyses also control for year when survey was completed and number of surveys completed during the four waves of the study (results not shown).

^{a} = z-score is significant at the .05 alpha level

^{b} = z-score is significant at the .01 alpha level

^{c} = z-score is significant at the .001 alpha level