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Substance Use and Sexual Risk Behaviors Among American Indian and Alaska Native High School Students

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Abstract

BACKGROUND—We describe the prevalence of behaviors that put American Indian and Alaska Native (AI/AN) high school students at risk for teen pregnancy and sexually transmitted infections (STIs) and the relationships among race/ethnicity and these behaviors.

METHODS—We analyzed merged 2007 and 2009 data from the national Youth Risk Behavior Survey, a biennial, self-administered, school-based survey of US students in grades 9–12 (N =27,912). Prevalence estimates and logistic regression, controlling for sex and grade, were used to examine the associations between race/ethnicity, and substance use, and sexual risk behaviors.

RESULTS—Of the 26 variables studied, the adjusted odds ratios (AOR) were higher among AI/AN than White students for 18 variables (ranging from 1.4 to 2.3), higher among AI/AN than Black students for 13 variables (ranging from 1.4 to 4.2), and higher among AI/AN than Hispanic students for 5 variables (ranging from 1.4 to 1.5). Odds were lower among AI/AN than Black students for many of the sexual risk-related behaviors.

CONCLUSIONS—The data suggest it is necessary to develop targeted, adolescent-specific interventions aimed at reducing behaviors that put AI/AN high school students at risk for teen pregnancy, STI/HIV, and other health conditions.

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Human Subjects Approval Statement

CDC's Institutional Review Board approved the protocol for the national YRBS.

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Keywords

American Indian/Alaska Native; Indians; Native American; North America; sexual behavior; substance use; Youth Risk Behavior Surveillance System

Compared to other races and ethnicities, American Indians and Alaska Natives (AI/AN) experience considerable health disparities.[1] Health disparities between groups reflect social inequalities, including inadequate education, disproportionate poverty, discrimination in the delivery of health services, and cultural differences.[1] Although there are limited studies on this population, available research indicates that AI/AN adolescents experience disproportionately high rates of substance use, pregnancy, sexually transmitted infections (STIs), and dating violence compared to adolescents in other racial/ethnic groups.[2,17]

A better understanding of AI/AN adolescents' risk behaviors may help to improve future interventions and programs to prevent substance use, teen pregnancy, STIs, and sexual violence in this population. Alcohol and substance use are contributing factors to sexual risk-taking among adolescents and can result in STI transmission, unintentional pregnancy, and sexual violence.[18,19] This study examined the prevalence of substance use and behaviors that put AI/AN high school students at risk for teen pregnancy and STIs (including human immunodeficiency virus/acquired immune deficiency syndrome, HIV/AIDS) and examined the relationships between race/ethnicity and both substance use and sexual risk behaviors.

METHODS

Sample and Survey Administration

A comprehensive description of the national Youth Risk Behavior Survey (YRBS) sampling strategies is available elsewhere.[20,21] Briefly, the Centers for Disease Control and Prevention's (CDC's) national school-based YRBS is a cross-sectional study that has been conducted biennially since 1991. In each survey year, a similar independent 3-stage cluster sample design is used to obtain a nationally representative sample of public and private school students in grades 9 through 12 in the 50 states and the District of Columbia. The YRBS sampling frame, however, does not include schools funded by the Bureau of Indian Education (BIE), which serves approximately 8% of all AI/AN students.[22] Data from the 2007 and 2009 YRBS survey years were combined to increase the sample size of AI/AN respondents for analyses.

Student participation in the YRBS is anonymous and voluntary, and the YRBS is conducted in accordance with local parental permission procedures. The CDC's Institutional Review Board approved the protocol for the national YRBS. Survey participants complete a self-administered questionnaire during a regular class period and record their responses on an optical scan questionnaire booklet or answer sheet. For 2007 and 2009 respectively, school response rates were 81% (in both survey years), student response rates were 84% and 88%, overall response rates (the product of the school and student response rates for each year) were 68% and 72%. The sample sizes for 2007 and 2009 were 14,041 and 16,410, respectively.

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Race/ethnicity was computed from 2 YRBS questions: (1) “Are you Hispanic or Latino?” and (2) “What is your race?” (response options were “American Indian or Alaska Native,” “Asian,” “Black or African American,” “Native Hawaiian or other Pacific Islander,” or “White”). Students could select more than one race/ethnicity. For our study, students in the AI/AN category were those who were non-Hispanic and selected AI/AN as their only race (N = 436) and students who selected AI/AN plus another race or Hispanic ethnicity (N = 1128), for a total of 1564 respondents. The remaining race categories were non-Hispanic White only (hereafter referred to as White) (N = 12,664), non-Hispanic Black only (hereafter referred to as Black) (N = 5763), and Hispanic or Latino, irrespective of race unless that race was AI/AN (hereafter referred to as Hispanic) (N = 7921). Students who identified their race/ethnicity as Asian, Native Hawaiian, or other Pacific Islander, or who selected more than one response to the race question (with the exception of AI/AN), were assigned to the “other” race/ethnicity category (N = 1990). This study compares the prevalence of risk behaviors among AI/AN, White, Black, and Hispanic students. Data from students whose race/ethnicity was missing (N = 549) or who were in the “other” category were not included in the analyses.

Instrument

The YRBS instrument measures 6 categories of health-risk behaviors: (1) behaviors that contribute to unintentional injuries and violence; (2) tobacco use; (3) alcohol and other drug use; (4) sexual behaviors that contribute to unintended pregnancy and STIs, including HIV infection; (5) unhealthy dietary behaviors; and (6) physical inactivity.[20] The focus of this study was on the prevalence of behaviors that put students at risk for STIs, HIV, and teen pregnancy, including dating violence, forced sexual intercourse, alcohol use, drug use, and sexual risk behaviors (as operationally defined in Tables 1 and 2).

Data Analysis

To account for the complex sample design of the survey, we conducted all analyses using SUDAAN statistical software (Research Triangle Institute, Research Triangle Park, NC). A weighting factor was applied to each record to adjust for school and student nonresponse and oversampling of Black and Hispanic (but not AI/AN) students. We used multivariable logistic regression models, controlling for sex and grade, to examine differences among racial/ethnic groups in the odds of engaging in each risk behavior.

To compare the odds of each risk behavior among AI/AN students and the other racial/ethnic groups, first White, then Black, and then Hispanic race/ethnicity was used as the referent in the logistic regression models. The prevalence of risk behaviors examined in this analysis has been previously reported among male and female White, Black, and Hispanic students,[21] but not among AI/AN students. Thus, for AI/AN students only, we used multivariable logistic regression models that controlled for grade to examine differences among male and female AI/AN in the odds of engaging in each risk behavior.

We did not impute values for missing data. Of the 28 variables examined in this study, 17 had missing data for less than 5% of respondents, 10 had missing data for 5%-10% of

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respondents, and one variable—indicating receipt of testing for HIV—had missing data for 10.6% of respondents.

RESULTS

Dating Violence, Forced Sexual Intercourse, and Alcohol Use

Among AI/AN students, 14.2% had been hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend (ie, dating violence), 11.6% had been forced to have sexual intercourse when they did not want to, 76.7% ever drank alcohol, 29.3% drank alcohol before age 13 years, 42.5% were current alcohol users, 22.8% had engaged in binge drinking, and 6.6% had consumed alcohol on school property (Table 1).

The adjusted odds of dating violence, forced sexual intercourse, drinking alcohol before age 13 years, and drinking alcohol on school property were 1.6 to 2.1 times higher among AI/AN than among White students; whereas, the adjusted odds of binge drinking were lower among AI/AN than among White students (adjusted odds ratio [AOR] = 0.8; 95% confidence interval [CI]: 0.7, 0.9) (Table 1). The adjusted odds of ever drinking alcohol, current alcohol use, binge drinking, and having consumed alcohol on school property were 1.5 to 2.0 times higher among AI/AN than among Black students. Compared to Hispanic students, the adjusted odds of dating violence and forced sexual intercourse were higher among AI/AN adolescents (AOR = 1.4; 95% CI: 1.0, 1.8 and AOR = 1.5; 95% CI: 1.1, 1.9, respectively).

Comparing differences among female and male AI/AN students for forced sexual intercourse and ever drinking alcohol, 16.5% of girls and 6.7% of boys had been forced to have sexual intercourse and 82.7% of girls and 70.5% of boys ever drank alcohol. After adjusting for grade level, the adjusted odds of forced sexual intercourse and ever drinking alcohol were higher among girls than boys AI/AN students (AOR = 2.7; 95% CI: 1.8, 4.0 and AOR = 1.9; 95% CI: 1.5, 2.5, respectively) (Table 2).

Drug Use

Marijuana use—Among AI/AN students, 43.9% had ever used marijuana, 13.8% tried marijuana for the first time before age 13 years, 21.7% were current marijuana users, and 6.0% had used marijuana on school property (Table 1). The adjusted odds of ever having used marijuana, having tried marijuana for the first time before age 13 years, and using marijuana on school property were 1.5 to 2.3 times higher among AI/AN than among White students (Table 1). The adjusted odds of trying marijuana for the first time before age 13 years were also higher among AI/AN than among Black (AOR = 1.4; 95% CI: 1.0, 2.0) and Hispanic (AOR = 1.4; 95% CI: 1.0, 2.0) students. Among AI/AN, 5.1% of girls and 7.0% of boys used marijuana on school property; the adjusted odds of having used marijuana on school property were lower among girls than boys (AOR = 0.6; 95% CI: 0.4, 1.0) (Table 2).

Other drug use—Among AI/AN students, 9.4% had ever used cocaine, 18.7% ever used inhalants, 4.3% ever used heroin, 6.6% ever used methamphetamines, 8.4% ever used ecstasy, 3.2% ever injected any illegal drug, and 10.7% ever used hallucinogenic drugs.

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Almost one-third (30.7%) had been offered, sold, or given an illegal drug by someone on school property (Table 1).

The adjusted odds of ever having used cocaine, inhalants, heroin, methamphetamines, ecstasy, and having ever injected any illegal drug were between 1.4 and 2.1 times higher among AI/AN than among White students and between 1.9 and 4.2 higher among AI/AN than among Black students (Table 1). The adjusted odds of ever having used inhalants and hallucinogenic drugs were higher among AI/AN than Hispanic students (AOR = 1.4; 95% CI: 1.2, 1.7 and AOR = 1.4; 95% CI: 1.1, 1.9, respectively). The adjusted odds of having been offered, sold, or given an illegal drug by someone on school property were higher among AI/AN than among both White and Black students (AOR = 1.8; 95% CI: 1.6, 2.0 and AOR = 1.7; 95% CI: 1.4, 2.0, respectively). Among AI/AN students, 2.5% of girls and 3.9% of boys ever injected any illegal drug; the adjusted odds of ever having injected any illegal drug were lower among girls than boys (AOR = 0.5; 95% CI: 0.3, 0.9) (Table 2).

Sexual Risk Behaviors

Among AI/AN students, 48.9% had ever had sexual intercourse, 8.3% had sexual intercourse for the first time before age 13 years, 16.6% had sexual intercourse with 4 or more persons during their life, and 13.7% had been tested for HIV. Among the 32.8% of currently sexually active students, 22.9% drank alcohol or used drugs before their last sexual intercourse and 57.3% used a condom during their last sexual intercourse (Table 1).

The adjusted odds of ever having had sexual intercourse, having had their first sexual intercourse before age 13 years, having had sexual intercourse with four or more persons during their life, and having been tested for HIV were 1.4 to 2.1 times higher among AI/AN than among White students, but 0.4 to 0.6 times lower among AI/AN than among Black students (Table 1). The adjusted odds of being currently sexually active were lower among AI/AN than among Black students (AOR = 0.6; 95% CI: 0.4, 0.7).

Among AI/AN, 5.5% of girls and 11.0% of boys had their first sexual intercourse before age 13 years. Among currently sexually active AI/AN students, 17.5% of girls and 28.5% of boys drank alcohol or used drugs before their last sexual intercourse; the adjusted odds of engaging in those behaviors was lower among girls than boys (Table 2). Among AI/AN, 16.0% of girls and 11.4% of boys had ever been tested for HIV; the adjusted odds of having been tested for HIV were higher among girls than boys (AOR = 1.5; 95% CI: 1.0, 2.2) (Table 2).

DISCUSSION

Our findings fill an important gap in the public health literature by providing nationally representative data for AI/AN high school students for a variety of behaviors associated with substance use and sexual risk. Peer-reviewed literature on the risk behaviors of AI/AN adolescents is sparse and often not generalizable because of small and geographically specific study populations. In the limited literature that exists, several studies found that AI/AN adolescents have a high prevalence of risk behaviors associated with poor

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reproductive health outcomes and have increased odds of engaging in many risk behaviors when compared to White, Black, or Hispanic adolescents.[2,17,23,24]

Although our population of interest in this study was AI/AN high school students, we found that many students—regardless of race/ethnicity—were at risk for serious immediate and long-term health consequences associated with alcohol and drug use, sexual risk-taking, dating violence, and forced sexual intercourse. Many of our findings are consistent with those of previous studies. We found that the odds of several sexual risk behaviors were highest among Black students, including ever having sex, having first sex before age 13, having 4 or more lifetime sex partners, being currently sexually active, and being tested for HIV. We also found that compared to AI/AN, White students were more likely to have engaged in binge drinking. Still, AI/AN students did fare poorly in comparison to their peers in several risk behaviors, namely early drug initiation and lifetime drug use, early alcohol use, early sexual debut, sex with multiple lifetime partners, dating violence, and forced sex.

Several federal agencies have recently initiated projects to increase efforts to assist AI/AN-serving organizations in preventing substance use and sexual risk behaviors among AI/AN adolescents. For example, the US Department of Health and Human Services' (DHHS's) Administration on Children, Youth and Families is funding 16 Tribes and Tribal Organizations to develop comprehensive teen pregnancy prevention programs through the "Affordable Care Act Tribal Personal Responsibility Education Program for Teen Pregnancy Prevention" (commonly referred to as "Tribal PREP").[25] The HHS Office on Women's Health is funding 6 Tribal organizations to develop HIV prevention education projects for Native women and girls that integrate tradition, values, culture, and spirituality through "In Community Spirit—HIV Prevention for Native Women Living in Rural and Frontier Indian Country."[26]

In addition, many nonfederal organizations that serve AI/AN adolescents are adapting and developing new STI/HIV and reproductive health projects and curricula. These innovative interventions harness technology, embrace culture, build upon evidence-based practice, address the unique needs of special populations, and provide skills for healthy decision-making among AI/AN adolescents.[27] As these and other AI/AN-specific interventions are developed, implemented, and evaluated, and their findings are disseminated, Tribes and Tribal organizations will have a greater selection of effective evidence-based programs for AI/AN adolescents from which to choose.

Limitations

The findings of this study should be considered in the context of some limitations. First, these data apply only to adolescents who attend high school and do not capture adolescents not in school. Nationwide in 2008, 8.0% of persons aged 16 to 24 years had dropped out of high school; dropout among AI/AN adolescents (14.6%) was higher than among White (4.8%) and Black (9.9%) adolescents, though lower than among Hispanic adolescents (18.3%).[28] Second, because the sampling frame did not include BIE schools, the findings from this study are not generalizable to students served by those schools; to our knowledge, there are no published data comparing sexual and drug-using behaviors of students attending BIE schools to AI/AN students who do not. Third, YRBS data are self-reported, and thus,

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subject to social desirability bias, which may have affected the validity of the data, particularly because the behaviors being surveyed were of a sensitive nature.[29] However, research examining the reliability of the YRBS questionnaire shows that students generally answer YRBS questions reliably over time.[30] Finally, the data presented here are representative of the national level; however, there is considerable variation in risk behaviors and outcome among AI/AN adolescents due to geographic area, level of urbanicity, and level of acculturation, among other factors.[16,31]

Conclusion

Compared to many adolescents, AI/AN adolescents experience disproportionately high rates of STIs,[5,31] teen pregnancy, [6,16] and alcohol and drug use;[3,10] yet, there is a dearth of behavioral risk data for AI/AN adolescents at the local, regional, or national levels. The data presented in this article contribute to a better understanding of AI/AN risk behaviors at a national level and may help improve future surveillance, analysis, and intervention efforts to better meet the specific needs and risk behaviors of AI/AN adolescents.

IMPLICATIONS FOR SCHOOL HEALTH

Many health risk behaviors initiated during adolescence track into adulthood.[32] Our study and those cited previously found that the prevalence of many risk behaviors is high among AI/AN. Public health practitioners and health educators who work in communities with large AI/AN populations should consider implementing targeted, adolescent-specific interventions aimed at reducing behaviors that put AI/AN students at risk for teen pregnancy, STIs, HIV, and other health conditions.[13] Given that many AI/AN students drank alcohol, tried marijuana, and had sexual intercourse before the age of 13, middle school students may warrant special consideration. Of course, many schools cannot provide an intervention to one group of students without providing it to all students. In some situations, such as a reservation-based school or a BIE residential school where most—if not all—of the students are AI/AN, it may be possible to implement a school-wide intervention. Otherwise, in schools with students of many race/ethnicities, prevention programs developed for AI/AN adolescents could be implemented in after school programs and clubs, summer programs, by Tribal health departments, or other youth-based organizations. One challenge to implementing a prevention intervention for AI/AN is the dearth of research on effective and culturally relevant programs; for the limited number of programs and interventions that do exist for AI/AN, few have undergone meaningful evaluation.[33,35]

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Table 1

Prevalence and Adjusted Odds[†] of Risk Behaviors Among US High School Students by Race/Ethnicity—Youth Risk Behavior Survey, 2007 and 2009[‡]

	Prevalence of Risk Behaviors by Race/Ethnicity				Adjusted Odds of Risk Behaviors		
	American Indian/ Alaska Native[§] % (95% CI[¶])	White[‖] % (95% CI)	Black[‖] % (95% CI)	Hispanic % (95% CI)	AI/AN vs White AOR[#] (95% CI)	AI/AN vs Black AOR (95% CI)	AI/AN vs Hispanic AOR (95% CI)
Dating Violence, Forced Sexual Intercourse, and Alcohol Use							
Dating Violence[††]	14.2 (11.5–17.4)	8.2 (7.5–9.1)	14.2 (13.1–15.5)	10.9 (10.0–11.8)	1.9 (1.5, 2.4)**	1.0 (0.8, 1.3)	1.4 (1.0, 1.8)*
Forced to have sexual intercourse when they did not want to	11.6 (9.5–14.1)	6.7 (5.9–7.5)	10.3 (9.1–11.5)	8.3 (7.4–9.2)	1.8 (1.4, 2.4)**	1.1 (0.9, 1.5)	1.5 (1.1, 1.9)**
Ever drank alcohol[‡‡]	76.7 (73.4–79.6)	74.9 (72.5–77.1)	68.3 (65.8–70.6)	77.1 (75.3–78.7)	1.2 (1.0, 1.5)	1.6 (1.3, 2.0)**	1.0 (0.8, 1.2)
Drank alcohol before age 13 years, other than a few sips	29.3 (26.4–32.5)	19.6 (18.0–21.4)	25.7 (24.2–27.3)	27.7 (26.4–29.0)	1.6 (1.4, 1.9)**	1.2 (1.0, 1.4)	1.1 (0.9, 1.3)
Current alcohol use[§§]	42.5 (39.1–45.9)	45.9 (43.9–47.9)	33.9 (31.8–36.1)	45.2 (43.0–47.5)	0.9 (0.8, 1.1)	1.5 (1.2, 1.8)**	0.9 (0.8, 1.1)
Binge drinking[‖‖]	22.8 (20.2–25.6)	28.7 (27.1–30.4)	13.2 (11.9–14.6)	25.5 (23.5–27.7)	0.8 (0.7, 0.9)**	2.0 (1.7, 2.4)**	0.9 (0.7, 1.0)
Drank alcohol on school property[¶¶]	6.6 (4.9–8.7)	3.2 (2.8–3.7)	4.5 (3.7–5.4)	7.2 (6.2–8.3)	2.1 (1.5, 2.9)**	1.5 (1.0, 2.2)*	0.9 (0.7, 1.3)
Drug Use							
Ever used marijuana[##]	43.9 (38.5–49.6)	36.8 (34.8–38.9)	40.5 (37.8–43.3)	39.1 (36.4–41.8)	1.5 (1.2, 1.9)**	1.2 (0.9, 1.5)	1.3 (1.0, 1.6)
Tried marijuana for the first time before age 13 years	13.8 (10.8–17.4)	6.4 (5.5–7.5)	9.9 (8.6–11.3)	9.7 (8.7–10.9)	2.3 (1.6, 3.3)**	1.4 (1.0, 2.0)*	1. 4 (1.0, 2.0)*
Current marijuana use***	21.7 (18.8–25.0)	20.3 (18.8–21.9)	21.9 (19.8–24.1)	20.4 (18.6–22.3)	1.1 (0.9, 1.4)	1.0 (0.8, 1.2)	1.1 (0.9, 1.3)
Used marijuana on school property[†††]	6.0 (4.5–8.1)	3.9 (3.2–4.7)	5.3 (4.4–6.4)	5.9 (4.8–7.1)	1.6 (1.1, 2.2)*	1.1 (0.8, 1.6)	1.0 (0.7, 1.4)
Ever used cocaine[‡‡‡]	9.4 (7.5–11.7)	6.8 (6.0–7.6)	2.4 (1.8–3.2)	10.0 (8.7–11.6)	1.5 (1.1,1.9)**	4.2 (3.0, 6.0)**	0.9 (0.7, 1.2)
Ever used inhalants[§§§]	18.7 (16.1–21.5)	12.8 (11.8–14.0)	8.4 (7.2–9.7)	13.6 (12.0–15.2)	1.5 (1.2, 1.8)**	2.5 (2.0, 3.1)**	1.4 (1.2, 1.7)**
Ever used heroin[‖‖‖]	4.3 (3.1–5.9)	2.0 (1.7–2.4)	2.0 (1.4–2.8)	3.3 (2.7–4.0)	2.1 (1.4, 3.2)**	2.1 (1.3, 3.2)**	1.2 (0.9, 1.7)
Ever used methamphetamines[¶¶¶]	6.6 (5.2–8.2)	4.1 (3.5–4.7)	2.3 (1.7–3.2)	5.6 (4.6–6.9)	1.6 (1.2, 2.2)**	2.9 (1.9, 4.3)**	1.2 (0.9, 1.6)
Ever used ecstasy[###]	8.4 (6.4–10.9)	6.0 (5.4–6.8)	4.5 (3.6–5.6)	7.9 (6.9–9.0)	1.4 (1.1, 2.0)*	1.9 (1.3, 2.8)**	1.1 (0.8, 1.5)
Ever injected any illegal drug****	3.2 (2.3–4.6)	1.6 (1.2–2.0)	2.1 (1.6–2.7)	3.0 (2.4–3.7)	1.9 (1.3, 3.0)**	1.4 (0.9, 2.3)	1.0 (0.7, 1.5)
Ever used hallucinogenic drugs[††††]	10.7 (8.4–13.4)	9.0 (8.2–9.9)	2.9 (2.2–3.8)	7.8 (6.6–9.2)	1.2 (1.0, 1.6)	4.1 (2.8, 5.9)**	1.4 (1.1, 1.9)*
Offered, sold, or given an illegal drug by someone on school property[‡‡‡‡]	30.7 (27.9–33.8)	20.2 (18.6–22.0)	20.8 (18.9–22.8)	29.9 (27.5–32.5)	1.8 (1.6, 2.0)*	1.7 (1.4, 2.0)*	1.0 (0.9, 1.2)

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	Prevalence of Risk Behaviors by Race/Ethnicity				Adjusted Odds of Risk Behaviors		
	American Indian/ Alaska Native[§] % (95% CI[¶])	White[|] % (95% CI)	Black[|] % (95% CI)	Hispanic % (95% CI)	AI/AN vs White AOR[#] (95% CI)	AI/AN vs Black AOR (95% CI)	AI/AN vs Hispanic AOR (95% CI)
Sexual Risk Behaviors							
Ever had sexual intercourse	48.9 (44.6–53.2)	42.8 (40.1–45.5)	65.9 (63.5–68.1)	50.3 (48.0–52.5)	1.5 (1.2, 1.8)**	0.5 (0.4, 0.6)**	1.0 (0.8, 1.2)
Had first sexual intercourse before age 13 years	8.3 (6.7–10.3)	3.9 (3.2–4.6)	15.7 (14.4–17.2)	7.2 (6.5–7.9)	2.1 (1.5, 2.9)**	0.4 (0.3, 0.6)**	1.1 (0.8, 1.4)
Had sexual intercourse with 4 or more persons during their life	16.6 (14.0–19.6)	11.0 (9.7–12.4)	28.1 (26.0–30.3)	15.4 (14.1–16.8)	1.8 (1.4, 2.3)**	0.5 (0.4, 0.6)**	1.1 (0.9, 1.4)
Currently sexually active[§§§§]	32.8 (28.9–37.1)	32.4 (30.3–34.5)	46.8 (44.3–49.3)	36.0 (34.0–38.1)	1.1 (0.9, 1.4)	0.6 (0.4, 0.7)**	0.9 (0.7, 1.1)
Currently sexually active students [§§§§] who drank alcohol/ used drugs before last sexual intercourse	22.9 (18.9–27.5)	23.8 (22.2–25.5)	17.3 (14.7–20.3)	19.8 (17.8–22.0)	0.9 (0.7, 1.2)	1.4 (1.0, 1.9)*	1.2 (0.9, 1.5)
Currently sexually active students[§§§§] who used a condom during last sexual intercourse	57.3 (50.9–63.5)	61.6 (59.6–63.6)	64.8 (61.6–67.9)	58.1 (55.2–60.8)	0.8 (0.6, 1.0)	0.7 (0.5, 1.0)	1.0 (0.7, 1.3)
Tested for HIV[///////]	13.7 (11.5–16.2)	10.9 (9.9–12.0)	21.8 (19.5–24.4)	12.3 (11.1–13.7)	1.4 (1.1, 1.7)**	0.6 (0.4, 0.7)**	1.2 (0.9, 1.5)

*p < .05.

**p < .01.

[†]Adjusted for sex and grade in logistic regression models. First White, then Black, then Hispanic were used as the referent.

[‡]Data from 2007 and 2009 survey years were combined.

[§]American Indians and Alaska Natives includes Hispanic and non-Hispanic AI/AN.

[|]Non-Hispanic.

[¶]Confidence interval.

[#]Adjusted odds ratio.

[††]Hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend during the 12 months before the survey.

[‡‡]Had at least 1 drink of alcohol on at least 1 day during their life.

[§§]Had at least 1 drink of alcohol on at least 1 day during the 30 days before the survey.

[///]Had 5 or more drinks of alcohol in a row, within a couple of hours on at least 1 day during the 30 days before the survey.

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¶¶Had at least 1 drink of alcohol on school property on at least 1 day.

##Used marijuana 1 or more times during their life.

***Used marijuana 1 or more times during the 30 days before the survey.

†††Used marijuana on school property 1 or more times.

###Used any form of cocaine 1 or more times during their life.

§§§Sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high 1 or more times during their life.

//////Used heroin 1 or more times during their life.

¶¶¶Used methamphetamines 1 or more time during their life.

###Used ecstasy 1 or more time during their life.

*****Used a needle to inject any illegal drug one or more times during their life.

††††Used hallucinogenic drugs 1 or more time during their life.

####During the 12 months before the survey.

§§§§Had sexual intercourse with at least one person during the 3 months before the survey.

//////Does not include HIV tests conducted when donating blood.

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Table 2

Prevalence and Adjusted Odds[†] of Risk Behaviors Among American Indian and Alaska Native[‡] US High School Students—Youth Risk Behavior Survey, 2007 and 2009[§]

	Prevalence % (95% CI[//])		
	Female	Male	AOR[¶ #] (95% CI)
Dating Violence, Forced Sexual Intercourse, and Alcohol Use			
Dating violence[††]	13.4 (10.0–17. 8)	14.8 (11.8–18.4)	0.9 (0.6, 1.2)
Forced to have sexual intercourse when they did not want to	16.5 (13.4–20.2)	6.7 (4.7–9. 4)	2.7 (1.8, 4.0)**
Ever drank alcohol[‡‡]	82.7 (78.9–85. 9)	70.5 (66.0–74.5)	1.9 (1.5, 2.5)**
Drank alcohol before age 13 years, other than a few sips	29.4 (25.7–33. 4)	29.0 (24.9–33.6)	1.0 (0.8, 1.3)
Current al cohol use[§§]	45.8 (40.9–50. 7)	39.1 (34.5–43.8)	1.3 (1.0, 1.7)
Binge drinking[///]	22.4 (18.1–26. 5)	23.1 (19.4–27.1)	0.9 (0.7, 1.3)
Drankalcohol on school property[¶¶]	5.6 (3. 7–8.5)	7.5 (5.2–10.7)	0. 7 (0.4–1.2)
Drug Use			
Ever used marijuana[##]	42.9 (37.1–48. 9)	44.9 (37.8–52.1)	0.9 (0.7, 1.2)
Tried marijuana for the first time before age 13 years	12.9 (10. 0–16.5)	14. 3 (9.7–20.6)	0.9 (0.5, 1.4)
Current marijuana use***	21.4 (17.1–26. 3)	21.9 (18.3–25.9)	0.9 (0.7, 1.3)
Used marijuana on school property[†††]	5.1 (3. 5–7.4)	7.0 (5.0–9. 8)	0.6 (0.4, 1.0)*
Ever used cocaine[‡‡‡]	8.5 (6. 4–11.2)	10.2 (7.8–13.2)	0.7 (0.5, 1.0)
Ever used inhalants[§§§]	21.5 (17.9–25. 7)	15.7 (12.2–20.1)	1.4 (1.0, 2.1)
Ever used heroin[////]	3.8 (2. 3–6.3)	4.6 (3.3–6. 4)	0.7 (0.4, 1.3)
Ever used methamphetamines[¶¶¶]	6.5 (4. 7–9.1)	6.5 (5.0–8. 3)	0.9 (0.6, 1.3)
Ever used ecstasy[###]	8.4 (6. 0–11.7)	8.3 (6.0–11.3)	1.0 (0.6, 1.4)
Ever injected any illegal drug****	2.5 (1. 5–4.0)	3.9 (2.6–5. 9)	0.5 (0.3, 0.9)*
Ever used hallucinogenic drugs[††††]	10.4 (7. 5–14.2)	10.8 (8.3–14.0)	0.9 (0.6, 1.4)
Ever offered, sold, or given an illegal drug on school property[‡‡‡‡]	29.3 (25.2–33. 7)	32.2 (28.0–36.7)	0.8 (0.6, 1.1)
Sexual Risk Behavior			
Ever had sexual intercourse	47.7 (41.7–53. 7)	50.0 (44.3–55.6)	0. 9 (0.6, 1.2)
Had first sexual intercourse before age 13 years	5.5 (3.6–8. 3)	11. 0 (8.5–14. 2)	0.4 (0.2, 0.7)*
Had sexual intercourse with four or more persons during their life	16.0 (12. 9–19.6)	17.3 (13.5–21.9)	0.9 (0.6, 1.3)
Currently sexually active[§§§§]	34.9 (28.9–41. 5)	30.5 (26.6–34.8)	1.2 (0.9, 1.7)
Currently sexually active students[§§§§] who drank alcohol or used drugs before last sexual intercourse	17. 5 (12.8–23.6)	28.5 (21. 8–36.3)	0.5 (0.3, 0.8)*
Currently sexually active students[§§§§] who used a condom during last sexual intercourse	51. 8 (42.9–60.5)	63.5 (55. 4–70.9)	0.7 (0.4, 1.1)
Tested for HIV[/////]	16.0 (12.9–19. 8)	11.4 (8.7–14.7)	1.5 (1.0, 2.2)*

* $p < .05$.

** $p < .01$.

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† Adjusted for grade in logistic regression models.

‡ American Indians and Alaska Natives includes Hispanic and non-Hispanic AI/AN.

§ Data from the 2007 and 2009 survey years were combined.

‖ Confidence interval.

¶ Adjusted odds ratio.

Referent is males.

†† Hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend during the 12 months before the survey.

‡‡ Had at least 1 drink of alcohol on at least 1 day during their life.

§§ Had at least 1 drink of alcohol on at least 1 day during the 30 days before the survey.

‖‖ Had 5 or more drinks of alcohol in a row, within a couple of hours on at least 1 day during the 30 days before the survey.

¶¶ Had at least 1 drink of alcohol on school property on at least 1 day.

Used marijuana 1 or more times during their life.

*** Used marijuana 1 or more times during the 30 days before the survey.

††† Used marijuana on school property 1 or more times.

‡‡‡ Used any form of cocaine 1 or more times during their life.

§§§ Sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high 1 or more times during their life.

‖‖‖ Used heroin 1 or more times during their life.

¶¶¶ Used methamphetamines 1 or more times during their life.

Used ecstasy 1 or more times during their life.

**** Used a needle to inject any illegal drug 1 or more times during their life.

†††† Used hallucinogenic drugs 1 or more times during their life.

‡‡‡‡ During the 12 months before the survey.

§§§§ Had sexual intercourse with at least 1 person during the 3 months before the survey.

‖‖‖‖ Does not include HIV tests conducted when donating blood.