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Racial-ethnic differences in sexual risk behaviors: The role of substance use

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Abstract

This research investigates the impact adolescent substance use has on adult sexual risk behaviors within racial-ethnic groups. Previous research has found support for this relationship, but often relies on concurrent measures of substance use and sexual risk behavior meaning that the causal direction of this relationship may be unclear. The data for this study come from the National Longitudinal Survey of Adolescent to Adult Health (Add Health), a nationally representative survey that followed respondents from adolescence in 1994 to adulthood in 2008. Results show that substance use correlates with sexual risk behavior, but the impact varies by race-ethnicity.

Introduction

In this paper, we investigate the relationship between substance use and sexual risk behavior in black, white, and Hispanic adults. The importance of investigating sexual risk behavior remains clear as rates of sexually transmitted infections continues as a critical health concern. High risk sexual behaviors are those that increase the likelihood that individuals will contract HIV or other STD's, and are often measured through respondent's participation in casual sex, high numbers of sexual partners, and lack of condoms or other forms of birth control (Centers for Disease Control and Prevention, 2016b; Pflieger, Cook, Niccolai, & Connell, 2013). Studies show that despite a very high level of knowledge concerning HIV risk behaviors; individuals often continue to engage in high risk sexual behavior (Centers for Disease Control and Prevention, 2016b; Chan, 2006; Friedman, Cooper, & Osborne, 2009; Pflieger et al., 2013). Race-ethnicity is a key predictor of sexual risk behavior. Racial and ethnic minorities, especially blacks, are disproportionately suffering from HIV and other STDs (Blankenship, Smoyer, Bray, & Mattocks, 2005; Centers for Disease Control and Prevention, 2016a; Friedman et al., 2009; Hallfors, Iritani, Miller, & Bauer, 2007; Kahn, Kaplowitz, Goodman, & Emans, 2002; Pacek, Malcolm, & Martins, 2012). Generally, blacks engage in sex at earlier ages than other racial ethnic groups (Zimmer-Gembeck & Helfand, 2008). However, blacks are less likely to increase their numbers of sexual partners over time (Lansford et al., 2010). Hispanic and Asian respondents were consistently less likely to have high numbers of sexual partners and/or one-night stands. These findings are supported by CDC data that list Hispanics as lower risk for HIV than whites or blacks

(Centers for Disease Control Prevention, 2013). Recent research has indicated that lower rates for Hispanics may be due to high levels of acculturation and religiosity (Smith, 2015). Asian populations have been highly understudied in the sexual risk research (Nguyen et al., 2012; So, Wong, & DeLeon, 2005) as they have one of the lowest rates of HIV infection (Centers for Disease Control Prevention, 2013). therefore, research on changing behavior to prevent HIV and other STDs is of great importance.

A number of studies have examined potential predictors of sexual risk behaviors, including childhood maltreatment (Arriola, Loudon, Doldren, & Fortenberry, 2005; Littleton, Breitkopf, & Berenson, 2007), mental health status (Bersamin et al., 2013; DiClemente, Forrest, & Mickler, 1990; Mincey & Norris, 2014), and socialization (Fletcher et al., 2014). These studies often look at concurrent predictors of sexual risk. However, recent research suggests that adolescent behaviors are of equal salience in determining adult sexual risk behavior, especially for blacks (Hallfors et al., 2007; Kahn et al., 2002). Both white and black adolescents who participate in problematic behaviors, including substance use, generally exhibit higher STI and HIV infection rates, more sexual partners, and lower rates of condom use than their non-delinquent peers (Cook & Clark, 2005; Young, Rhee, Stallings, Corley, & Hewitt, 2006). However, blacks who participate in problematic behaviors, including substance use, as adolescents are especially prone to experiencing negative outcomes later in life, even when they no longer participate in these same behaviors as adults (Hallfors et al., 2007; Kahn et al., 2002). These trends demand further examination of the ways that problematic behavior in adolescence impacts later sexual risk, especially for blacks. In this study, we examine this trend in a large, nationally representative sample and use multiple predictors of substance use including alcohol use, marijuana use, other illegal drug use, and age of first alcoholic beverage to explore one component of problematic adolescent behaviors.

Drug and alcohol use have been found to be consistently strong determinants of sexual risk behavior for college students and young adults across racial-ethnic groups (Cooper, 2002; Guo et al., 2002; Johnson & Chen, 2014; Livingston, Testa, Windle, & Bay-Cheng, 2015; Moilanen, 2013; Thamocharan, Grabowski, Stefano, & Fields, 2014; Valois, Oeltmann, Waller, & Hussey, 1999). In extreme cases, substance use increases the likelihood that individuals will participate in risky sexual behaviors in order to acquire drugs. More broadly, substance use has been found to decrease inhibitions and increase sexual attraction (Duncan, Strycker, & Duncan, 1999; Hallfors et al., 2007; Jones, Jones, Thomas, & Piper, 2003; Paul, McManus, & Hayes, 2000), which in turn, increases the likelihood of sexual risk taking behaviors.

Specific substances have also been found to have an impact on sexual risk behavior. Studies have reported that early and current regular and binge drinking increases the likelihood of sexual risk behavior (Cerwonka, Isbell, & Hansen, 2000; Cooper, 2002; Guo et al., 2002; Moilanen, 2013; Staton et al., 1999). Most studies indicate that alcohol use increases the number of sexual partners (Cooper, 2002; Guo et al., 2002; Kahn et al., 2002). Alcohol use also has been found to decrease the likelihood that adolescents will use condoms (Guo et al., 2002). Research finds that adult marijuana use is associated with more sexual partners and inconsistent condom use (Guo et al., 2002; Shrier, Harris, Sternberg, & Beardslee, 2001).

Illicit drugs have also been shown to increase propensity for sexual risk behaviors (Shrier et al., 2001). Finally, individuals who use multiple substances have been shown to be especially more likely to participate in sexual risk behaviors and to be diagnosed with STI's (Pacek et al., 2012; Petry, 2001).

Young adults and adolescents are at especially high risk to use substances. About 30 percent of adolescents, and over 80% of young adults have tried alcohol, making it the most widely used substance among these age groups. Marijuana is the most widely used illicit substance, with about 16 percent of adolescents using it over the lifetime, and about 13 percent using marijuana in the past year. Among young adults, marijuana is the most widely used illicit substance, with about 53 percent using it over the lifetime, and about 32 percent using marijuana in the past year. Other illegal substances, such as heroin, cocaine and ecstasy typically have past year prevalence rates of less than six percent among adolescents and young adults. Marijuana use is 2.5 to 3 times higher than almost all illicit substances combined (Center for Behavioral Health Statistics and Quality, 2015).

However, there are racial and ethnic differences in the use of licit and illicit substances. Among persons aged 12 or older, Blacks are slightly more likely than members of other racial and ethnic groups to be users of illicit substances in the past year, with a prevalence rate of 19.5 percent, vs. 16.9 percent for whites, and 15.6 percent for Hispanics (Center for Behavioral Health Statistics and Quality, 2015). There are racial and ethnic differences in the age of first use of substances as well. All racial and ethnic groups report older age at first use of alcohol than whites, with the exception of the other race respondents (this is not statistically different from the white non-Hispanic coefficient). First use of marijuana occurs at older ages for blacks and Asians, when compared to whites, but at a younger age for the other-race respondents compared to whites. For the first use of illegal drugs, blacks use at older ages than do whites, while effects for the other race-ethnic groups is not statistically significant from that of whites (Broman, 2016). These differences necessitate that more work be done examining the impact substance use has on sexual risk behavior by race-ethnicity.

In this paper, we investigate further the role of substance use and abuse on sexual risk behaviors. We hypothesize that (1) substance use in adolescence will predict sexual risk behavior in adulthood for all race-ethnic groups, although (2) the impact of substance use on sexual risk may vary by substance used, sexual risk behavior, and race-ethnicity.

Methods

The data used are from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative study of U.S. individuals who have participated in four Waves of in-home interviews, starting in adolescence (Wave I) and ending with the most recent Wave where respondents were aged 25–34 (Wave IV) (Bearman, Jones, Udry, & Health, 1997; Blum, Beuhring, & Rinehart, 2000). For Wave I, a random sample of schools in the United States was selected through a multistaged, stratified, cluster sampling design. All schools that included an 11th grade and had an enrollment of at least 30 students were eligible. All students listed on the course rosters at the selected schools were eligible for inclusion in the

survey. Approximately 120,000 adolescents were eligible for a school interview, and more than 90,000 adolescents completed the in-school questionnaire. From among those eligible for the school interview, a core group of students from each community were randomly selected for in-home interviews in Wave 1. In home interviews took from one to two-hours and were conducted in person using a laptop computer and audio-CASI for sensitive questions. Topics covered in the in-home interview include health status, nutrition, peer networks, decision-making processes, family composition and dynamics, educational aspirations and expectations, employment experience, and involvement in sexual activity, substance use, and criminal activities.

For the purposes of this analysis, we analyzed data from Waves I and IV. Wave I data consists of responses from 20,745 adolescents and was collected between 1994–1995, when respondents were in grades 7–12 and aged 12–21. Wave IV data were collected in 2007–2008 from 15,701 respondents when respondents were 24–32 years of age. All of the respondents from Wave I were interviewed again in Wave IV.

Demographic variables, including age, sex and race-ethnicity were obtained from Wave I data since these variables are constant. The substance use variables, including age of first alcoholic beverage also come from Wave I. Our sample includes both respondents who had, and had not consumed substances by Wave I. The three dependent variables, condom use, number of vaginal sex partners, and number of one-night stands, came from Wave IV data. The strategy of using Wave I variables as correlates of later Wave IV dependent variables allows us to ensure that the correlating variables occurred before the dependent variables, which increases the likelihood that these variables influence later sexual risk behavior, instead of processes that occur concurrently.

Measures

Demographic measures of age, sex, and race-ethnicity were self-reported by respondents. Risky sexual behavior was measured through four sexual risk behaviors at Wave IV, and the measures are highly similar to those used in previous research (Beadnell et al., 2005; Guo et al., 2002; Pflieger et al., 2013; Staton et al., 1999; Valois et al., 1999). First, we use an item obtaining the number of lifetime vaginal sexual partners. Responses to the original item ranged from 1–995. We collapsed the upper categories due to the limited responses contained within each and recoded the variable to include responses from 1 to 31 or more. Second, we measured sexual risk behavior through an item that measured the number of male or female sexual partners respondents had sex with just once. Responses to the original item ranged from 1–650. We collapsed the upper categories due to the limited responses contained within each and recoded the variable to include responses from 1 to 9, 10–15, and 16 or more. Condom use and lifetime STI diagnosis was also obtained.

Substance use—Substance use was measured through four items. The first of these items is alcohol use. Alcohol use is measured based on questions that asked about both the quantity and frequency of alcohol use. The measure was coded into an assessment of the quantity and frequency of use on a five-point scale ranging from “never” (0), to (4), which roughly corresponds to drinking at least 2–3 times a month, and drinking at least more than

10 drinks each time. Alcohol use measures were coded based on prior studies (Duncan, Duncan & Hops, 1998). Marijuana use was measured through a combined variable that assessed the frequency of marijuana use in the last month. Our fourth measure assessed lifetime use of other illegal drugs including LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills within the past month. In addition, we asked a retrospective measure of substance abuse that assessed the age respondents first had an entire alcoholic beverage on their own. These results do not include respondents who just had a sip from another person's beverage.

Statistical analysis

In this paper, we utilize linear multivariate regression in analyses with continuous dependent variables and logistic regression in analyses with dichotomized dependent variables. All multiple regression results are presented using unstandardized coefficients. Multivariate analysis allowed us to examine whether the substance use variables influenced sexual behavior over and above the influence of demographic differences other than race-ethnicity. In order to determine the impact of substance use on sexual risk by racial-ethnic group, we ran separate sets of regressions examining this relationship for each racial-ethnic group. Cluster and weight variables are used to account for non-independence of observations and unequal probability of selection. The complex survey design is also taken into account through use of cluster and weight variables. When used, the data accurately represents a random sample of U.S. adolescents at Wave 1.

Results

Descriptive data for our sample, by race-ethnicity, is presented in Table 1.

The mean age for respondents in this analysis at Wave I was approximately 16 years of age. Slightly fewer than half of all respondents were men. About 45% of white and Hispanic respondents reported being married at Wave IV. Only 27% of black respondents were married at Wave IV. The average age respondents reported having their first alcoholic beverage in Wave I differed slightly by race, with whites reporting an average age of 16, blacks reporting an average age of almost 18, and Hispanics reporting an average age of almost 17. In Wave 1, blacks also reported that they were less likely to use alcohol on average than whites, with the average response indicating that most blacks abstained from alcohol in the past year, while whites and Hispanics were more likely to report some alcohol use in the past year. Mean reports of marijuana use in the past month from Wave I for all racial-ethnic groups fell between "never" and "abstained in the past month" although blacks were more likely to report abstaining than whites and Hispanics. The mean of responses for other illegal drug use in Wave I was close to never, with blacks being even more likely to report never using illegal drugs. About half of all whites and Hispanics reported using condoms in the past year at Wave IV. Blacks were more likely to report using condoms. Hispanics reported having slightly less than 7 sexual partners on average, whites reported slightly more than 7 sexual partners and blacks reported an average of between 8 and 9 lifetime sexual partners at Wave IV. Whites and blacks reported having approximately three one night stands, while Hispanics reported having slightly less than three at Wave IV.

Our first model examined the impact substance use as an adolescent has on condom use as an adult by race-ethnicity. Age was a significant predictor of condom use for whites, with younger whites being less likely to use condoms. Black and Hispanic condom use did not differ by age. Men were more likely to report using condoms in the past 12 months than women across all race-ethnic groups, however, the differences between men and women were most pronounced for black men, who were more than 3 times more likely to report using a condom than black women. In addition, respondents who were not married in any of the racial groups were more likely to report using condoms. None of the substance use variables included in this model, including age of first drink were statistically significant predictors of condom use for any of the race-ethnic groups.

Our second model examined the impact substance use had on respondent's number of one-night stands by race-ethnicity. Respondent's number of one-night stands did not differ by age across any of the racial-ethnic groups. Men reported more one-night stands than women across all three racial-ethnic groups. White and Hispanic respondents who were not married reported higher levels of one-night stands than respondents in those racial groups who were married. Marital status did not affect blacks number of one-night stands. Respondents who reported younger ages of age at first drink were more likely to have had more one-night stands across all three race-ethnic groups. Increased alcohol use and other illegal drug use increased the number of one night stands white respondents reported, but did not impact the number of one-night stands blacks or Hispanics reported. Marijuana use did not predict number of one-night stands for any of the race-ethnic groups included in these models.

Our third model examined the impact substance use had on respondent's number of sexual partners, by race-ethnicity. Age did not impact white or Hispanics reported number of sexual partners. Older blacks were more likely to report higher numbers of sexual partners than younger blacks. Males in all three of the race-ethnic groups reported higher levels of sexual partners than women. Respondents from all three racial groups who were not married reported more sexual partners than their married counterparts. Respondents who were younger when they had their first alcoholic beverage were more likely to have more sexual partners than their peers who did not drink until later, across all three racial groups. Whites and blacks who reported drinking more or using marijuana more frequently were more likely to have more sexual partners than their peers who drank less. Hispanics alcohol use and marijuana use did not impact the number of sexual partners they reported. Whites who reported illegal drug use at Wave IV reported higher numbers of sexual partners than whites who reported not using illegal drugs. Illegal drug use did not predict blacks or Hispanics reported number of sexual partners.

Our final model examined the impact substance use had on respondent's STI diagnosis, by race-ethnicity. Age did not impact STI diagnosis for any of the race-ethnic groups. Women were more likely to be diagnosed with an STI across all racial groups. White and Hispanic respondents who were not married were more likely to be diagnosed with an STI than respondents of the same race-ethnicity who were married. Black respondents who were married were just as likely to be diagnosed with an STI as black respondents who were not married. Respondents who had an alcoholic beverage at a younger age were more likely to be diagnosed with an STI in all three race-ethnic categories. Whites who were more frequent

drinkers were more likely to report an STI diagnosis than whites that were less frequent drinkers. Frequency of alcohol use did not impact black and Hispanic STI diagnosis. Marijuana users of any race-ethnicity reported higher rates of STI diagnosis than respondents who did not use marijuana. Illegal drug use did not impact STI diagnosis for any of the race-ethnic groups in this analysis.

Discussion

We expected that substance use in adolescence would predict sexual risk behavior in adulthood and that the impact of substance use on sexual risk would vary by substance, sexual risk behavior, and race-ethnicity. Our research supported these expectations, with the exception of condom use. This latter finding contradicts much research that has found that increased substance use leads to decreased condom use (Guo et al., 2002; Shrier et al., 2001). However, as we expected, the particular pattern of the relationship depended on the race-ethnicity of the respondent, the substance used, and the sexual risk behavior. We detail the significance of these findings in light of the extant research below.

Age at first use of alcohol emerged as one of the most important predictors of sexual risk behavior, across all racial and ethnic groups. Respondents who were younger when they had their first alcoholic drink reported experiencing more one-night stands, more sexual partners and more STIs for all three race-ethnic groups. This supports research that indicates younger age at first alcohol use may coincide with a larger pattern of problematic adolescent behaviors, including increased alcohol dependence and delinquency (Barnes, Welte, & Hoffman, 2002; DeWit, Adlaf, Offord, & Ogborne, 2000).

Other substance use measures were also of importance for sexual risk behaviors, although these findings varied by race-ethnicity. Of most interest are the patterns we found regarding the impact substance use has on sexual risk behavior by race-ethnic group. Most of our findings suggest that substance use of any kind leads to increased sexual risk behavior for whites. There were only two exceptions to this pattern. First, whites that used marijuana were not more likely to have one-night stands than whites who did not report using marijuana. Secondly, whites that reported using illegal drug use did not report higher rates of STI diagnosis. These findings support previous research that suggests substance use is predictive of increased casual sexual relationships, at least in white samples (Wentland & Reissing, 2011).

Black and Hispanic respondents showed slightly more varied patterns in their relationships between substance use and sexual risk behavior. Black substance use did not lead to increased sexual risk behavior in most of our models, with three notable exceptions. Blacks who reported using alcohol or marijuana were more likely to report higher numbers of sexual partners and blacks who used marijuana were more likely to report higher rates of STI diagnosis. Substance use served as an even less salient predictor of sexual risk behavior for Hispanic sexual risk behavior. Hispanic respondents who reported substance use were not any more likely to participate in sexual risk behaviors than Hispanics who did not report using substances with only one exception. Hispanics who used marijuana were more likely to report higher rates of STI diagnosis than Hispanics who did not use. The limited impact

substance use has on sexual risk for Hispanic and black respondents may be due to a more negative stigma regarding sexual risk behavior in communities of color, which partially evolve from increased perceptions of sexual risk. Another possible explanation of the nuanced sexual risk behaviors blacks and Hispanics participate in, even when engaging in substance use, may be due to the increased social support and religiosity that often permeate these communities. Both social support and religiosity have been indicated in previous research as processes that mediate sexual risk behavior (Mays & Cochran, 1988; Mazzaferro et al., 2006; Rostosky, Regnerus, & Wright, 2003; Sinha, Cnaan, & Gelles, 2007).

There was some impact of the variables of age, sex and marital status. We did not find that older adolescents are more likely to engage in sexual risk behavior, as is suggested by some prior research (Rosenthal, Smith, & De Visser, 1999; Santelli, Lowry, Brener, & Robin, 2000). Instead, in our research, the predictive value of age depended on the sexual risk behavior and race of the respondent. Age was not predictive of sexual risk in most of our models, which is likely due to the limited age variation in our sample. However, there were two exceptions to this general trend. Younger whites less likely to use condoms than older whites even when controlling for marriage and older blacks were more likely to report more sex partners than younger blacks.

In this research we found support for previous research that men are often more likely to participate in sexual risk behavior, including having a greater number of sexual partners and participating in more one night stands (Elkington, Bauermeister, & Zimmerman, 2011; Zimmer-Gembeck & Collins, 2008). However, we did not find support for previous research that has found that men are less likely to use protective measures during sex (Rosenthal et al., 1999; Santelli et al., 2000). In our research, men reported more condom use than women. Black men were especially more likely to use condoms in their sexual encounters. This may be reflective of the fact that men often have more control of whether protective measures are used during sex than women (Brady, Tschann, Ellen, & Flores, 2009; Pflieger et al., 2013; Tschann, Adler, Millstein, Gurvey, & Ellen, 2002). Unfortunately, this often leads to a situation where those who have the least power during the sexual act, particularly women of color, have less control over condom use and often end up with higher rates of STI's despite the fact that they have lower levels of sexual risk behavior (Bowleg, Lucas, & Tschann, 2004). And we did find that men were less likely to have STIs than were women in these data.

Our research found support for previous work that suggests that those who are married are less likely to participate in sexual risk behavior, including having fewer one night stands and sexual partners (Adimora, Schoenbach, Taylor, Khan, & Schwartz, 2011; Pflieger et al., 2013). These lower rates of sexual risk behavior are often attributed to the trust and commitment to monogamy that exists in many marital relationships, and the reciprocal expectation that these things negate the need for condom use (Brady et al., 2009; Pflieger et al., 2013). The only exception to this was that blacks who were married reported similar rates of one-night stands and STI diagnosis than black respondents who were not married. This suggests that marriage may not always be a salient factor in determining black commitment and monogamy, at least not in our sample.

Conclusion

Strong support that adolescent substance use impacts sexual risk behavior later in life, especially for white respondents was found. We also found support that sexual risk patterns do differ by the kind of substance used and the race-ethnicity of the respondent. Continuing to examine the role drug use plays in sexual risk behavior, and how this role differs by race-ethnicity may be an important factor in prevention and treatment. Many existing treatment programs focus on individual behavioral change. Yet, recent studies have shown that if we are to impact individuals sexual risk behaviors, the most effective and lasting impacts may come from interventions to substance use networks (Friedman et al., 2009) and community movements for social justice (Melton, 2014). This is especially true for black young adults, as previous research has shown that individual behavior alone does not account for the different rates of HIV and STI infections between blacks and whites. This research suggests that white young adults are often only in danger of contracting HIV or STI's when they participate in high levels of sexual risk behavior. Black youth, on the other hand, are at risk of HIV or STI infection, even when they do not participate in high levels of sexual risk behaviors. This is true even when controlling for SES (Hallfors et al., 2007). Therefore, future research will need to continue to analyze successful interventions for sexual risk behavior, especially for race-ethnic minorities that may not follow the traditional trajectories that lead to increased sexual risk.

Our study is not without limitations. It is likely that the measures of sexual risk may underestimate sexual risk behavior, due in part to the fact that these items were self-reported and broach sensitive topics that adolescents may or may not have felt comfortable with. However, the effect of this would be to attenuate the results, and it is unlikely that the relationship found between substance use and sexual risk behavior would be eliminated. In addition, our study relied on previously supported measures of sexual risk behavior, including one-night stands, number of sexual partners, STI diagnosis, and condom use. Although these measures have strong support, more research needs to be done examining whether these behaviors are the best measures of sexual risk across for all race-ethnic groups.

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Table 1

Mean Demographics, by Race-Ethnicity

	White Non-Hispanic	Black Non-Hispanic	Hispanic
Age	15.95	15.89	16.27
Sex (Male=1)	.479	.420	.480
Currently Married	.462	.266	.435
Age of First Drink	6.32	7.65	6.86
Alcohol Use	1.44	1.01	1.49
Marijuana Use	.443	.368	.461
Other Illegal Drug Use	.151	.020	.138
12 Month Condom Use (1=yes)	.510	.673	.560
Number of Sexual Partners	7.27	8.44	6.85
Number of One Night Stands	3.12	3.00	2.57

Table 2

Odds Ratio of Substance Use and Condom Use, by Race-Ethnicity

	White Non-Hispanic	Black Non-Hispanic	Hispanic
Age	.923 ***	.949	.944
Sex (Male=1)	1.53 ***	3.19 ***	1.75 ***
Currently Married	.404 ***	.259 ***	.378 ***
Age of First Drink	1.02	.996	1.03
Alcohol Use	.970	.974	.957
Marijuana Use	1.02	.914	.832
Other Illegal Drug Use	1.03	1.02	1.06
Pseudo R2	5.1%	10.6%	5.8%
N	4510	1380	1091

Note: Numbers rounded to nearest tenth.

*
p .05**
p .01***
p .001.

Table 3

Regression of Substance Use and Number of One Night Stands, by Race-Ethnicity

	White Non-Hispanic	Black Non-Hispanic	Hispanic
Age	.005	.054	-.046
Sex (Male=1)	.573 ***	.627 ***	.585 **
Currently Married	-.998 ***	-.113	-.477 **
Age of First Drink	-.159 ***	-.198 ***	-.189 ***
Alcohol Use	.176 ***	.179	.065
Marijuana Use	.140	.106	.012
Other Illegal Drug Use	.461 ***	-.251	.228
Adjusted R ²	6.9%	4.9%	5.0%
N	4748	1403	1163

Note: Numbers rounded to nearest tenth.

*
p .05**
p .01***
p .001.

Table 4

Regression of Substance Use and Number of Sexual Partners, by Race-Ethnicity

	White Non-Hispanic	Black Non-Hispanic	Hispanic
Age	-.014	.121 *	.017
Sex (Male=1)	.444 ***	1.38 ***	1.03 ***
Currently Married	-1.96 ***	-.987 ***	-.935 ***
Age of First Drink	-.234 ***	-.208 ***	-.347 ***
Alcohol Use	.223 ***	.247 **	.212
Marijuana Use	.411 ***	.460 ***	.213
Other Illegal Drug Use	.365 **	-.651	.408
Adjusted R ²	14.4%	11.2%	13.7%
N	4556	1341	1104

Note: Numbers rounded to nearest tenth.

*
p .05**
p .01***
p .001.

Table 5

Odds Ratios of Substance Use and Number of STI Diagnosis, by Race-Ethnicity

	White Non-Hispanic	Black Non-Hispanic	Hispanic
Age	.965	.993	1.00
Sex (Male=1)	.236 ***	.287 ***	.346 ***
Currently Married	.499 ***	.976	.597 ***
Age of First Drink	.947 ***	.935 ***	.919 ***
Alcohol Use	1.09 **	1.05	1.04
Marijuana Use	1.31 ***	1.27 **	1.21 *
Other Illegal Drug Use	1.06	1.21	.930
Pseudo R2	9.8%	7.2%	6.4%
N	6661	1985	1671

Note: Numbers rounded to nearest tenth.

*
p .05**
p .01***
p .001.