

SELF-REPORTED ALCOHOL USE AND SEXUAL BEHAVIORS OF ADOLESCENTS'

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Abstract:

Summary: Research has demonstrated a relation between alcohol use and engaging in high-risk sexual behaviors. Alcohol use, especially binge drinking, has been linked to a host of problems including high-risk sexual behavior, date rape, and academic problems. As such, the purpose of this study was to provide a descriptive profile of alcohol consumption among adolescents and to examine the relations of alcohol use (lifetime, current, binge) with sexual activity variables (sexual initiation, multiple sex partners, condom use, and pregnancy) among adolescents completing the 1993-1999 Youth Risk Behavior Survey. Analysis showed alcohol use was associated with high-risk sexual activity. Binge drinking had stronger relations with sexual activity variables than lifetime use and current use of alcohol. This result is of particular concern, in that binge drinking has been implicated in many problem behaviors. As such, it is of great importance to intervene in the high-risk practices of adolescents before problems occur.

Article:

Alcohol use in the adolescent population persists and is a major health concern yet to be dealt with effectively. According to the Monitoring the Future Study, 46% of eighth graders, 65% of tenth graders, and 75% of twelfth graders reported annual alcohol use. Also, this study found that 25% of eighth graders, 40% of tenth graders, and 53% of twelfth graders reported 30 days alcohol use, and 15% of eighth graders, 25% of tenth graders, and 31% of twelfth graders had engaged in binge drinking during the past two weeks (Johnston, O'Malley, & Bachman, 1998).

Binge drinking, the consumption of five or more drinks in a row during the past two weeks by males and four or more drinks in a row for females, has been linked to a host of problems including risky sexual behavior, date rape, academic problems, and automobile accidents (National Institute on Drug Abuse, 1996). The practice of binge drinking tends to impair judgment and makes one susceptible to problematic behaviors. The issue of impaired judgment highlights binge drinking as an important risk factor in the prevention of morbidity and mortality in the United States (McGinnis & Foege, 1993; Kann, Kinchen, & Williams, 1998; Nagy & Dunn, 1999).

Empirical research has yielded relations between alcohol use and high-risk sexual behaviors (Sikkema, Willett, & Lombard, 1995; Santelli, 1998, Duncan, Strycker, & Duncan, 1999; Nagy & Dunn, 1999). These behaviors include multiple sex partners, lack of condom use, and early sexual initiation. The National Center on Addiction and Substance Abuse showed students who reported having had a drink were seven times more likely than nondrinkers to have had sexual intercourse (1999). For many adolescents, sexual contact appears to occur after drinking, and the use of alcohol reduces the likelihood of engaging in safer sexual practices (Duncan & Duncan, 1996; Kinsmen, Romer, Furstenberg, & Schwarz, 1998). Castilla, Barrio, Belza, and de la Fuente (1999) reported failure to use a condom during intercourse was more frequent among heavy drinkers compared to light or nondrinkers. As such, this behavior puts the adolescent at risk for sexually transmitted diseases, one of which is the fatal HIV infection. Other studies have yielded similar results as heavy drinkers were more likely to engage in high-risk sexual behaviors, such as multiple partners and lack of condom use compared to light drinkers (Tubman, Windle, & Windle, 1996; Derman, Cooper, & Agocha, 1998; Bailey, Pollock, Martin, & Lynch, 1999). Alcohol intoxication may influence HIV-relevant sexual practices by impairing sound judgment.

With judgment impaired, an individual may engage in risky behaviors such as having multiple sex partners and not using a condom, which can increase the probability of HIV exposure. As such, it is not the initiation of alcohol use that is problematic, but the misuse of alcohol that facilitates problem behaviors.

According to the Centers for Disease Control and Prevention, misuse of alcohol and other drugs and high-risk sexual activity are two categories that significantly affect morbidity and mortality in the United States (1998). The literature tends to find a strong association between alcohol use/abuse and high-risk sexual behavior but more needs to be known about this relation. Few studies have examined lifetime alcohol use, current drinking, and binge drinking, and the relation of these behaviors with sexual initiation, multiple partners, condom use, and pregnancy.

The purpose of this study was to provide a descriptive profile of alcohol consumption patterns among adolescents completing the Youth Risk Behavior Survey (YRBS) from 1993-1999 and also to examine the relation between alcohol use measures and sexual activity variables.

METHOD

Subjects and Response Information

The purpose of the survey is to provide a descriptive profile of adolescent risk behavior in the United States. Data were collected during 1993, 1995, 1997, and 1999. The survey for all years included a 3-stage cluster sampling design. The first stage included large counties or groups of smaller, adjacent counties. The second stage included schools, and the third consisted of classes. The sample was nationally representative of students in Grades 9 through 12. Schools with substantial numbers of African-American and His-panic students were sampled at relatively higher rates than all other schools.

All students in selected classes were eligible to participate. In addition, in 1997 and 1999, a small number of Primary Sampling Units (PSUs), with very large enrollment, selected with certainty were recoded as their own strata. The sampled schools within the strata created from "certainty PSUs" were then treated as PSUs within those strata.

The survey procedures were designed to protect students' privacy and allow anonymous participation. Trained data collectors administered the questionnaire in the classrooms, and students recorded responses on computer scannable answer sheets. Parental consent was obtained prior to survey administration.

The 1993 survey consisted of 87 items and had an overall response rate of 70%. The school response rate was 78%, and the student response rate was 90%. All totaled, 16,269 questionnaires were completed in 155 schools. The 1995 survey consisted of 88 items. The school response rate was 70%, and the student response rate was 86%. All totaled, 10,904 questionnaires were completed in 110 schools. The overall response rate was 60%. The 1997 school response rate was 79.1%, and the student response rate was 87.2%. All totaled, 16,262 questionnaires were completed in 151 schools. The overall response rate was 68.9%. The 1997 survey consisted of 89 items. The 1999 survey consisted of 92 items and had an overall response rate of 66%. The school response rate was 77%, and the student response rate was 86%. All totaled, 15,349 questionnaires were completed in 144 schools.

Measures and Procedure

For this study three alcohol consumption variables (lifetime alcohol use, current alcohol use, and current binge drinking) were dependent variables. Lifetime alcohol use was judged by response to the question, "During your life, on how many days have you had at least one drink of alcohol?" The variable current alcohol use was based on the question, "During the past 30 days, on how many days did you have at least one drink of alcohol?" Current binge drinking was indicated on the item, "During the past 30 days, on how many days did you have five or more drinks of alcohol in a row, that is, within a couple of hours?" The three dependant variables were dichotomized so students reporting "0 days" were classified as nondrinkers; all other responses were classified as drinkers.

The independent variables included demographic variables of sex, grade in school, and race, as well as included items related to sexual behavior. Initiation of sexual intercourse was based on the question, "How old were you when you had sexual intercourse for the first time?" Number of sex partners was given to the question, "During your life, with how many people have you had sexual intercourse?" Condom use was assessed on the question, "The last time you had sexual intercourse, did you or your partner use a condom?" The last independent variable to be used was number of pregnancies given in response to "How many times have you been pregnant or gotten someone pregnant?" All sexual variables were dichotomized into yes/ no categories.

All analysis was performed using SPSS for Windows 10.0. Each year's data were analyzed separately (1993, 1995, 1997, and 1999). Logistic regression models were used to examine the relation between alcohol consumption and sexual behaviors for the year 1999. Models were run separately for each dependent variable of alcohol consumption. Odds ratios, 95% confidence intervals, and variance were calculated for each model.

RESULTS

Table 1 shows demographic data across the four time periods. Euro-Americans constituted the largest sample across the four time periods (on average 41%), and African Americans was the second largest group followed by Hispanics (on average 30.3% and 27.7%). Since these three groups made up the majority of the sample, no other racial groups were included in the analysis. The sample was approximately equal between males and females, and most students were 17 years old and in the 12th grade across the four time periods.

TABLE 1
DEMOGRAPHIC DATA BY YEAR OF SAMPLING

	1993		1995		1997		1999	
	%	n	%	n	%	n	%	n
Race								
White	44.0	6619	43.6	4430	37.8	5554	40.6	5407
African American	24.0	3679	34.0	3484	31.0	4558	32.2	4283
Hispanic	31.0	4699	22.0	2242	31.0	4547	27.1	3607
Sex								
Male	49.4	8020	49.4	5356	49.6	8057	49.8	7445
Female	50.6	8233	50.6	5499	50.4	8195	51.2	7828
Grade								
9	24.1	3927	22.9	2497	23.6	3844	24.7	3786
10	23.4	3806	25.2	2747	23.9	3891	24.7	3783
11	24.4	4126	25.3	2761	25.1	4086	25.0	3883
12	26.9	4373	26.3	2871	27.0	4413	25.4	3825

Table 2 shows alcohol use behavior by sex over the four time periods. Lifetime alcohol use ranged from 77.7% to 81.8% across time with a greater number of males using alcohol. Male lifetime use was 81.8% in 1993 and 81.4% in 1995. This level decreased to 78.8% in 1997, followed by a slight increase in 1999 (79.9%). Female lifetime use remained fairly stable between 1993 and 1997 (78.4%, 77.7%, 77.8%), followed by an increase in 1999 (79.8%). Lifetime alcohol use rates between males and females were almost equal for 1997 and 1999.

TABLE 2
SELF-REPORTED ALCOHOL USE BY SEX

Item	1993		1995		1997		1999	
	%	n	%	n	%	n	%	n
Lifetime Use-Yes								
Male	81.8	5999	81.4	4016	78.8	5796	79.9	5373
Female	78.4	5871	77.7	3908	77.8	5789	79.8	5634
Current Use-Yes								
Male	51.6	3880	53.5	2701	51.1	3870	49.6	3495
Female	45.2	3570	46.9	2456	45.2	3550	45.2	3413
Binge Drink-Yes								
Male	34.0	2655	35.3	1847	33.5	2634	31.9	2324
Female	23.8	1935	24.0	1299	23.3	1888	23.9	1850

An examination of binge drinking patterns showed different profiles for males and females. Among males, rates decreased by nearly 4% between 1995 and 1999 (35.3%, 31.9%), whereas female rates remained stable during the same time period. Thirty-two percent of males and 24% of females answered "yes" to the binge-drinking item in 1999. This trend of decreased use was similar in regards to current use of alcohol, with males' "yes"

response rate decreasing between 1995 and 1999 (53.5%, 51.1%, and 49.6%), whereas females' current use remained fairly consistent across the three time periods (46.9%, 45.2%, and 45.2%).

An examination of sexual behavior items showed different patterns among males and females. In 1993, 62% of males and 51.6% of females had initiated sexual intercourse, while 15.4% and 19.3%, respectively, for males and females had one sexual partner and 46.7% and 32.4%, respectively, for males and females had more than one sexual partner. Thirty-seven percent of males and 24.8% of females had used a condom during last intercourse, while 5.2% of males and 8.2% of females had indicated getting someone pregnant or being pregnant at least once.

Changes in self-reported behavior were more evident in females than males between 1993 and 1995. Female rates increased by approximately 5% points for sexual initiation (56.6%), having multiple sex partners (37%), and condom use (29.9%). In 1997, prevalence rates decreased by 6% points for females on sexual initiation and multiple partners and decreased by 4% points for males on sexual initiation and 5% points for multiple partners.

In 1999, 59.1% of males and 49.2% of females had initiated sexual intercourse, while 44.1% and 29.9%, respectively, for males and females had more than one sexual partner. This indicated a slight increase in these two behaviors for males between 1997 and 1999 and slight decrease for females. Thirty-nine percent of males and 27% of females reported using a condom during last intercourse (2.2% increase for males) while 4.5% of males and 7.0% of females had indicated getting someone pregnant or being pregnant at least once.

TABLE 3
SELF-REPORTED SEXUAL BEHAVIORS BY SEX

Item	1993		1995		1997		1999	
	%	n	%	n	%	n	%	n
Sexual Initiation-Yes								
Male	62.0	4792	62.4	3162	57.6	4448	59.1	4084
Female	51.6	4192	56.6	3005	50.6	4055	49.2	3672
Multiple Partners-Yes								
Male	46.7	3592	47.6	2407	42.8	3297	44.1	3046
Female	32.4	2622	37.0	1963	31.1	2489	29.9	2229
Condom Use-Yes								
Male	37.9	2900	38.7	1935	36.9	2815	39.1	2682
Female	24.8	1999	29.9	1578	27.3	2175	27.3	2034
Pregnancy-Yes								
Male	5.2	413	5.7	297	5.1	399	4.5	321
Female	8.2	673	9.4	506	8.2	669	7.0	533

Separate logistic regression analysis using lifetime alcohol use, current alcohol use, and binge drinking as the dependent measure were conducted with sexual behavior measures as the independent variables to identify the relations among behaviors in 1999 (see Table 4). Lifetime alcohol use was significantly associated with grade, race, sexual initiation, number of partners, and condom use. Similar results were found for current alcohol use, with grade, race, sexual initiation, multiple partners, and condom use being significantly associated. Euro-American students were more likely to report current drinking than African Americans and Hispanics in 1999, and current users were more likely to have initiated sexual behavior, have multiple sex partners, and less likely to use a condom. The variance explained 14.3% of the relations between current alcohol use and demographic and sexual activity behaviors.

Binge drinking was significantly associated with sex, grade, race, sexual initiation, multiple partners, and condom use. Those reporting binge drinking were also more likely to report initiation of sexual behavior, having multiple sex partners, and less likelihood of using a condom. The model explained 17.8% of the relation for binge drinking with demographic data and sexual activity behaviors. Similar relations were found for lifetime alcohol use, current use, and binge drinking and sexual behavior variables for 1993, 1995, and 1997.

TABLE 4
 SELF-REPORTED ALCOHOL USE BEHAVIOR BY SELECTED VARIABLES FOR 1999

Variable	R ²	Exp(B)	95% CI
Lifetime Alcohol Use			
Sex		0.86	0.79–1.01
Grade		1.11	1.06–1.16
Race		1.29	1.25–1.33
Age of first intercourse		1.07	1.03–1.11
Number of sex partners		1.23	1.18–1.28
Condom use		1.58	1.37–1.83
Number of pregnancies		1.01	0.87–1.17
Model	.16	4.13*	
Current Alcohol Use			
Sex		1.05	0.98–1.13
Grade		1.05	1.02–1.09
Race		1.26	1.23–1.29
Age of first intercourse		1.06	1.04–1.09
Number of sex partners		1.22	1.19–1.25
Condom use		1.21	1.11–1.31
Number of pregnancies		1.05	0.97–1.15
Model	.14	2.91*	
Binge Drinking			
Sex		1.77	1.26–1.48
Grade		1.50	1.06–1.14
Race		1.81	1.37–1.44
Age of first intercourse		1.85	1.03–1.08
Number of sex partners		2.01	1.21–1.27
Condom use		1.65	1.14–1.36
Number of pregnancies		1.14	1.00–1.23
Model	.18	4.38*	

* $p < .01$.

DISCUSSION

The purpose of this study was to provide a descriptive profile of alcohol consumption patterns among adolescents and to examine the relations of alcohol use (lifetime, current, binge) with sexual activity variables (sexual initiation, multiple sex partners, condom use, and pregnancy). Analysis showed that alcohol use was associated with high-risk sexual activity. Binge drinking had stronger relations with sexual activity variables (sexual initiation, multiple sex partners, condom use, pregnancy) than lifetime use and current use of alcohol. This result is of particular concern, in that binge drinking has been implicated in many problem behaviors.

TABLE 5
 SELF-REPORTED ALCOHOL USE BEHAVIOR AND SEXUAL BEHAVIORS FOR 1999

Item	%	<i>n</i>
Lifetime Use		
Sexual Initiation	61.8	6498
Multiple Partners	61.8	6502
No Condom Use	24.7	2584
Pregnancy	10.1	1076
Current Use		
Sexual Initiation	67.6	4471
Multiple Partners	67.5	4467
No Condom Use	27.0	1778
Pregnancy	11.2	753
Binge Drinking		
Sexual Initiation	73.4	2918
Multiple Partners	73.3	2913
No Condom Use	30.6	1208
Pregnancy	13.5	545

These results seem to indicate that development of alcohol-use patterns are related to risky sexual behavior. As alcohol use increased, so did high-risk sexual behavior, with binge drinkers claiming higher prevalence of sexual initiation, multiple sex partners, lack of condom use, and pregnancy (see Table 5). Other researchers have reported similar findings, in that heavy drinkers were more likely to engage in high-risk sexual behaviors (Fergusson, Horwood, & Lynsey, 1994; Leigh & Schafer, 1994; Santelli, 1998; Duncan, *et al.*, 1999). The present data were collected from adolescents under the age of 21, indicating that many of these patterns develop

well before the legal age limit for drinking. Studies have indicated that early alcohol use is related to increased alcohol-related problems, including alcoholism and high-risk sexual behaviors (Gruber, DiClemente, Anderson, & Lodico, 1996; Hampson, Sevrerson, Burns, Slovic, & Fisher, 2001). As such, this earlier experimentation of alcohol use may place an adolescent at risk for pregnancy, sexually transmitted disease, and the fatal HIV infection. Thus, from a public health perspective it is of great importance to prevent underage drinking and especially binge drinking. As this study has indicated, binge drinking is associated with high-risk sexual behaviors, the results of which will place a tremendous burden on the public health care system.

The association between alcohol and risky sexual behavior may be explained through the age-host-environment model. Alcohol may impair judgment, especially in large amounts, and cause a variety of problems. Also, a youth's personal characteristics, e.g., a risk-taking personality, and social environment, e.g., peers, family, media, may put that youth at risk for inappropriate alcohol use and be followed by high-risk sexual behaviors.

A developmental perspective may be best to explain why some adolescents initiate alcohol use. It seems reasonable to assume that adolescents will experiment with alcohol. Therefore, social norms may be a better perspective to explain alcohol use among adolescents. Studies have indicated that most adolescents believe their friends use alcohol (Simon-Morton, Haynie, Crump, Saylor, Eitel, & Yu, 1999; Werch, Pappas, Carlson, Edgemon, Sinder, & DiClemente, 2000). Given perceived peer prevalence of alcohol use, adolescents may engage in heavy alcohol use.

Additional research is needed to clarify the role of alcohol consumption and the co-occurrence of other high-risk behaviors, specifically as related to social norms and the developmental perspective. The question to be answered is whether social norms or developmental experimentation are more strongly associated with alcohol use. Research is needed to establish a clearer understanding of what underlies problem behaviors such as binge drinking and high-risk sexual behavior. Also, it is important to consider other factors that may contribute to high-risk sexual behavior by adolescents such as peer norms, attitudes, expectancies, family influence, and the environment.

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