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Alcohol Use and Sexual Risk Behavior among College Students: Understanding Gender and Ethnic Differences

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Abstract

Objectives—The purpose of the current study was to assess the role of gender and ethnicity in the relationship between alcohol use and risky sexual behavior.

Method—Sexually active college students (n = 425) reported on alcohol expectancies, perceived risk of HIV, and drinking and sexual behavior in the context of a larger health behavior survey.

Results—Approximately one-third of participants reported binge drinking 3 or more times in the past two weeks. African American women reported less drinking and less positive alcohol expectancies than other women. Older men engaged more often than younger men in binge drinking and reported more sexual partners in the past year. Younger age and greater perceived risk for HIV were positively associated with condom use for both women and men.

Conclusion—Collectively, these findings suggest that alcohol abuse and HIV prevention efforts among young adults need to consider gender, ethnicity, and age.

Keywords

substance use; sexual risk; HIV risk; gender; ethnicity

The consequences of excessive college drinking are more widespread and hazardous than many people realize (1). More than 1 in 10 young adults aged 18 to 24 are heavy drinkers, and almost 2 in 5 are binge drinkers. In the U.S., the overall prevalence of alcohol problems is particularly high among college men (2) and among men in the general population (3). In general, women in college consume less alcohol (4-5), and have fewer alcohol-related problems than their male counterparts (6).

In addition to gender differences, there is evidence suggesting that there are cultural differences in how individuals construct the meaning of drinking and that these differences

may influence alcohol use (7). According to data from the 2001 National Household Survey on Drug Abuse (NHSDA), whites are more likely than any other racial/ethnic group to report current use of alcohol and it was estimated that approximately, 6.6% of whites, 4.5% of African Americans, and 4.7% of Hispanics engaged in heavy drinking (8).

Alcohol use has been associated with sexual risk behavior, a relationship that is frequently mediated by alcohol expectancies. Drinking behavior has been significantly and positively associated with positive expectancies about the effects of drinking and inversely associated with negative expectancies (9-10). Sex-related expectancies in particular have been shown to moderate and mediate alcohol's effects on sexual behavior (11-12).

Men generally report higher levels of sexual behavior, such as more lifetime sexual partners and more sexual partners in the current year (13). Additionally, men are more likely to have casual sex and more permissive attitudes (13-15). Given the overall gender differences reported in previous research, it is important to examine differences in ethnic groups by gender. Thus, the purpose of the current study was to examine the effects of gender and ethnicity on the relationship between alcohol use and sexual risk behavior among college students. We hypothesized that men would report more alcohol use than women, as well as more sexual partners. Sex-related alcohol expectancies, alcohol use, and perceived risk of HIV were hypothesized to predict number of sexual partners and condom use for women and men.

METHODS

Procedures

Undergraduate students enrolled full-time at a southern university (N= 916) were approached to complete an anonymous questionnaire. The sample was stratified according to gender and academic class to ensure proportional representation among first, second, third, and fourth-year students. Participants who reported having sexual intercourse in the past year were selected for the study for a total sample of 425 (n = 265 women and n = 160 men).

Questionnaire—The Health Behaviors Survey (HBS) questionnaire was developed for the purpose of planning activities to prevent substance abuse and promote positive overall health behaviors. The current study focused on questions about alcohol use in the past month, binge drinking in the past two weeks (five or more drinks for men, 4 for women), perceived risk of contracting HIV through unprotected sexual intercourse, alcohol outcome expectancies, number of sexual partners in past year, condom use (on a scale from 1 “always” to 5 “never”), STIs, and sexual activity with more than one partner during the same time period. Alcohol expectancy scores were calculated by summing the 14-item alcohol expectancy scale in which respondents answer yes or no to each item ($\alpha = .84$). Sex-related alcohol expectancy scores were calculated by summing the last 4 items pertaining to the effects of alcohol on sexuality ($\alpha = .70$).

Data analyses—Twenty-six participants were missing data on one or more of the variables analyzed in the study. Valid sample sizes for analyses ranged from 250 to 263 and

from 144 to 153 for men. There were no differences between those with missing data and those with no missing data with the exception that women with missing data reported using condoms more frequently (11 missing data, $M = 1.55$, $SD = .93$) than women with no missing data ($M = 2.63$, $SD = 1.52$), $t(262) = -3.64$, $p = .003$ (equal variances not assumed). We used a log transformation on number of sexual partners to adjust for skewness. All analyses were conducted with the transformed variable. To explore the association of ethnicity on key variables of interest, we analyzed the relationship between ethnicity, drinking behavior, alcohol expectancies and sexual risk behavior separately for women and men.

Results

In comparison to individuals who were not included in the study because they reported no sexual activity in the past year, participants in this study were older ($F(1, 942) = 26.00$, $p < .001$), more likely to be female ($\chi^2(1, 859) = 7.87$, $p < .01$), and more likely to have completed their first two years of college ($\chi^2(6, 862) = 75.73$, $p < .001$).

Participants' ages ranged from 18 to 34, with a mean of 20.35 ($SD = 1.84$). Most of the women participants (77%) identified as White/European American, 10% African American, 5% Hispanic American, 5% Asian/Pacific Islander American, and 3% other. Most of the men (84%) identified as White/European-American, 6% African American, 3% Hispanic American, 2% Asian/Pacific Islander American, and 2% other. White and African American students were more likely to be sexually active, while Asian-American/Pacific Islander students were less likely to be sexually active, $\chi^2(4, 838) = 55.71$, $p < .001$.

Alcohol Use

More than one-third (34.7%) of participants reported drinking alcohol 10 times or more in the past month, 11.1% drank 11.1 times or more. Binge drinking as defined by drinking 4 or more drinks at a time for women and 5 or more drinks at a time for men was reported by the majority of participants, 62.9%. Binge drinking 3 or more times in the past two weeks was reported by 31.3% of participants.

For women, but not for men, expectancies about the positive effects of drinking alcohol differed by ethnicity, $F(4, 259) = 3.49$, $p = .008$, $\eta^2 = .05$. African American female respondents had less positive expectancies about the effects of drinking alcohol ($M = 4.42$, $SD = 2.69$) than did White female respondents ($M = 6.74$, $SD = 2.18$), *Tukey HSD mean difference* = 2.32, $p = .006$, and marginally less positive expectancies than Hispanic respondents ($M = 7.35$, $SD = 4.16$), *Tukey HSD mean difference* = 2.93, $p = .06$. Sex-specific alcohol expectancies did not differ by ethnicity.

Alcohol use in the past month differed by ethnicity for women as well, $F(4, 255) = 7.87$, $p < .001$, $\eta^2 = .11$ (see Table 1). African American female respondents used alcohol less frequently in the past month than did White female respondents, *Tukey HSD mean difference* = 1.71, $p < .001$, Hispanic female respondents, *Tukey HSD mean difference* = 1.92, $p = .003$, and respondents categorizing themselves as "other" ethnicities, *Tukey HSD mean difference* = 2.03, $p = .007$. African American women also reported significantly less

binge drinking than White women, *Tukey HSD mean difference* = 1.33, $p < .001$ and than women categorizing themselves as “other” ethnicities, *Tukey HSD mean difference* = 1.69, $p < .05$, $F(4, 255) = 7.38$, $p < .001$, $\eta^2 = .10$.

Multivariate Analyses

Separate hierarchical regression analyses were conducted with number of sexual partners and condom use as the outcome variables. Final regression models are shown in Table 2. African American women, women who had more positive sex-related expectancies about the effects of alcohol, women who perceived themselves more at risk for HIV, and women who used alcohol more frequently reported a greater number of sexual partners [$F(5, 246) = 7.44$, $p < .001$, $\text{adj } R^2 = .12$]. Further analysis showed no evidence of mediation of alcohol use by either sex-related alcohol expectancies or perceived risk of HIV. Men who were older and engaged more often in binge drinking had more sexual partners in the past year [$F(5, 141) = 6.82$, $p < .001$, $\text{adj } R^2 = .20$]. Again there was no evidence that sex-related alcohol expectancies or perceived risk of HIV mediated the association of alcohol use with number of partners.

Older age and less perceived HIV risk were associated with greater condom use among men [(age $\beta = .27$, $p < .001$) and perceived HIV risk ($\beta = -.43$, $p < .001$)] and women [($\beta = .19$, $p < .001$) and perceived HIV risk ($\beta = -.40$, $p < .001$)]. The model for men ($F(4, 141) = 14.36$, $p < .001$, $\text{adj } R^2 = .29$) and women ($F(4, 246) = 7.92$, $p < .001$, $\text{adj } R^2 = .19$) accounted for a respectable amount of the overall variance.

Discussion

Alcohol as a risk factor for STIs/HIV differs by gender and ethnicity. African American ethnicity, more positive sex-related alcohol expectancies, perceived risk of HIV and frequency of alcohol use in the past month predicted number of sexual partners for women. When other factors are considered, numbers of sexual partners was no longer significant in predicting condom use suggesting that perceptions of HIV risk is a more powerful correlate of condom use than the number of sexual partners among women.

Alcohol expectancies and alcohol use were lower among African American college women compared to other ethnic groups. This is consistent with the idea that African American cultural norms generally discourage alcohol use, especially for women (16-18). Although African American women in the study reported less positive expectancies for the effects of drinking alcohol, less use of alcohol, and fewer binge episodes than White respondents, they were at higher risk for STIs/HIV through a greater numbers of sexual partners, which is consistent with findings that a high rate of STIs (38%) among African American college women was associated with a higher number of sexual partners (19). Contrary to previous research findings (13), we found no evidence that African American women or men used condoms more frequently than non-African American women or men. African American women reported more sex partners, but because they did not differ in condom use to other ethnic groups, it is likely that their increased risk for STIs would be based on their sexual networks rather than their sexual behavior.

Men who were older and who engaged in more frequent binge drinking had more sexual partners. Contrary to previous studies (11-12), men's condom use was also not related to alcohol use or alcohol expectancies. Rather, as with women, men who were younger and perceived themselves to be more at risk of contracting HIV from having unprotected sex were more likely to use condoms. The findings offer some hope in that younger college students were using condoms more and that those who perceive more risk in contracting HIV, use condoms more. Conclusions cannot be made about the lack of differences in ethnic groups among male participants, as the numbers of non-white male participants was too low for accurate statistical testing.

It is important to put the findings of the study in the context of the study limitations. Because this was a cross-sectional design study, we cannot infer causation. In addition, the data is self-report, which is prone to external and internal influences such as social desirability and inaccurate memory recall. Moreover, we used a convenience sample of college students attending a southern university that may not be generalizable to colleges located in different geographical regions or to non-college populations.

Even with the study limitations, the findings indicate that prevention efforts that target the reduction of excessive drinking and STI/HIV risk behavior among college populations need to consider ethnicity and gender in public health messages and interventions because these factors have differential effects on alcohol use and sexual behavior. Thus, effective prevention interventions will need to be culturally relevant and be gender specific.

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Table 1

Mean sex-related alcohol expectancies (AE), alcohol use (AU), binge, perceived risk of HIV, condom use, and number of sex partners for women and men

	AE M (SD)	AU M (SD)	Binge M (SD)	Perceived risk M (SD)	Condom use M (SD)	Sex partners M (SD)
Women						
White	.85 (1.02)	3.79 ** (1.57)	2.55 ** (1.46)	2.58 * (1.24)	2.67 (1.55)	1.70 * (1.30)
A-A	.56 (.58)	2.08 ** (1.08)	1.16 ** (.37)	3.12 * (1.17)	2.24 (1.39)	2.24 * (1.51)
Asian	.86 (1.03)	3.07 ** (1.77)	1.36 (.84)	2.50 (1.16)	2.21 (1.19)	1.93 (1.39)
Hispanic	1.38 (1.61)	4.00 ** (1.23)	2.31 (1.44)	3.23 (1.24)	3.00 (1.53)	1.85 (1.68)
Other	1.32 (1.01)	4.11 ** (1.54)	2.89 ** (1.17)	2.89 (1.17)	1.89 (1.36)	2.89 (2.52)
Men						
White	1.39 (1.15)	3.91 (1.65)	2.92 (1.55)	2.53 (1.18)	2.13 (1.33)	1.81 (1.55)
A-A	1.40 (1.07)	3.67 (1.94)	2.44 (1.59)	2.44 (1.13)	2.50 (1.65)	1.90 (1.66)
Asian	1.67 (1.53)	3.00 (2.00)	2.00 (1.73)	3.00 (1.00)	2.33 (.58)	1.33 (.58)
Hispanic	2.69 (1.82)	3.80 (1.64)	2.80 (1.30)	3.20 (.84)	2.40 (.89)	2.00 (1.73)
Other	1.67 (.58)	3.33 (0.58)	2.00 (1.00)	4.00 (.00)	2.33 (2.31)	1.00 (.00)

*** p .001.

* p .05.

** p .01.

Table 2

Regression analysis predicting number of sex partners and condom use for women

		Sex Partners				Condom Use			
		Beta	F	Adj. R ²	R ²	Beta	F	Adj. R ²	R ²
Women									
	Age	-.05				.19***			
	Ethnicity	.19**				-.01			
	Expectancies	.16**				.07			
	Perceived risk	.14*				-.40***			
	Alcohol use	.22***							
			7.68***	.11	.04***		7.92***	.19	.16***
Men									
	Age	.21**				.27***			
	Ethnicity	-.04				.08			
	Expectancies	.04				.11			
	Perceived risk	.13				-.43***			
	Alcohol use	.35***							
			6.82***	.20	.10***		14.36	.29	.18***

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