Published in final edited form as:

J Behav Med. 2016 October ; 39(5): 925–930. doi:10.1007/s10865-016-9760-8.

Young Women's Alcohol Expectancies for Sexual Risk-Taking Mediate the Link between Sexual Enhancement Motives and Condomless Sex When Drinking

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Abstract

Alcohol use is prevalent among young women. Alcohol expectancies for sexual risk-taking and sexual enhancement motives have been associated with decreased condom use. This study investigated whether alcohol expectancies for sexual risk-taking mediated the association between sexual enhancement motives and condom use. Young women ($N=287$, M age = 20.1) completed a survey assessing alcohol expectancies for sexual risk-taking, sexual enhancement motives, and characteristics of their most recent sexual encounter involving alcohol. Most participants (66.9%) reported unprotected sex during their last sexual encounter involving alcohol. Higher sexual enhancement motives ($OR=1.35$, $p=.019$) and alcohol expectancies for sexual risk-taking ($OR=1.89$, $p<.001$) were associated with increased likelihood of condomless sex. Alcohol expectancies for sexual risk-taking mediated the association between sexual enhancement motives and condomless vaginal sex. Within the context of sexual encounters involving alcohol, expectancies that drinking may result in sexual risk-taking may account for why sexual enhancement motives relate to decreased condom use.

Keywords

Alcohol expectancies; Sex motives; Condom Use; Expectancy Motive theory; young women

Alcohol is the most commonly used and abused substance by young adults in the United States (U.S.; U.S. DHHS, 2007). Recent data suggest that 70% of U.S. young adults, ages 18–24, drink alcohol, with 39% of young women drinking above recommended daily limits (Chen et al., 2004), including binge drinking (4 drinks during a sitting; SAMSHA, 2005). Alcohol misuse differentially impacts young women across multiple domains (e.g., alcohol use disorders progress more quickly in women than men; Foster et al., 2014), and is associated with increased HIV risk-behavior engagement (e.g., sex without a condom; Leigh et al., 2008). Understanding factors that may underlie the association between alcohol use

and condomless sex among young women is of considerable public health importance, as incident HIV infections are on the rise among women, with a vast majority (84%) infected via heterosexual contact (CDC, 2014b). Young women are also impacted by sexually transmitted infections (STIs; CDC, 2013); 2013 U.S. surveillance data indicated that young women, ages 20–24, had the highest incidence of chlamydia infections (CDC, 2014a).

Global association studies examining overall patterns of alcohol use and HIV/STI risk suggest a positive association between drinking and sexual risk-taking (Dingle & Oei, 1997) and incident HIV infections (Baliunas et al., 2010). Event-based studies provide a more reliable index of sexual risk than retrospective assessments of multiple events and allow for analysis that links alcohol use to a specific sexual occasion (Brown & Vanable, 2007; Schroder et al., 2003). Event-based studies suggest a nuanced relation between alcohol and sexual risk behavior that is influenced by cognitive factors (e.g., alcohol expectancies and sexual motives; Grossbard et al., 2007; Patrick & Maggs, 2009). Indeed, studies that do not account for such factors often fail to show differences in condom use for drinking versus non-drinking sexual encounters (Desiderato & Crawford, 1995; Senf & Price, 1994).

Individual differences in a person's motives for sexual activity in general, as well as alcohol expectancies, or beliefs about how alcohol affects sexual behavior, have been associated with the alcohol-risky sex relation (Cooper, 2002, 2006; Dingle & Oei, 1997; George & Stoner, 2000; Hendershot et al., 2007; Weinhardt & Carey, 2000; White et al., 2009). A desire to have sex to satisfy personal physical needs (i.e., sexual enhancement motives) has been associated with increased HIV-risk behaviors (Cooper et al., 1998, 2000; Grossbard et al., 2007). Individuals who believe alcohol promotes sexual risk-taking are also more likely to engage in unprotected sex after drinking (Abbey et al., 2007; Dermen & Cooper, 2000; Dermen et al., 1998; George et al., 2000; LaBrie et al., 2002). For example, among college women providing event-level sexual episode data over 12 months, alcohol expectancies for sexual risk-taking were negatively associated with condom use when drinking (Walsh et al., 2014). Alcohol expectancies for drinking's effect on sexual risk taking have also been found to mediate the relation between alcohol use and condom use intentions (LaBrie et al., 2002). Some researchers have suggested that motives are more proximal determinants of behavior (e.g., frequency of alcohol use; Kuntsche et al., 2007) than expectancies. Others have proposed that sexual enhancement motives are a precursor for engagement in more frequent sexual encounters involving alcohol (Grossbard et al., 2007). Thus, individuals with stronger sexual enhancement motives may be more inclined to engage in sexual activity after drinking and one's beliefs regarding alcohol's effects on sexual risk-taking may further affect subsequent condom use.

Thus, we hypothesize that beliefs regarding alcohol's effects on the likelihood of condom use is a more proximal influence on unprotected sex after drinking that may mediate the more distal impact of general motives to engage in sexual activity for physical gratification. Thus, we examined the association between sexual enhancement motives, alcohol expectancies for sexual risk-taking, and condomless vaginal sex. We utilized event-level data of the most recent sexual encounter involving alcohol (in the past month) among a sample of sexually active 18 to 25-year-old young women and collected global measures of sexual enhancement motives and alcohol expectancies. We tested the hypothesis that alcohol

expectancies for sexual risk-taking mediated the association between sexual enhancement motives and condomless sex.

Methods

Participants

Participants were 287 young women between the ages of 18–25 years ($M = 20.1$, $SD = 1.7$); 84.7% identified as White, 4.2% as African American or Black, 2.4% as Asian, .3% as Native Hawaiian or Other Pacific Islander, 13.6% as “other race,” and 19.2% as Hispanic/Latina.

Procedures

Young adults were recruited from a large Southwestern university to participate in a study examining the association between alcohol use and sexual behaviors. Analyses were limited to individuals who met the following criteria: (a) female; (b) 18–25 years-old; and (c) engaged in vaginal sex after drinking alcohol in the past 30 days. After providing electronic consent, participants completed an online survey and received course research credit for their participation. All participants were informed that their responses would be kept anonymous and that the results of the survey would be used for research purposes only. The affiliated Institutional Review Board approved the study’s protocol.

Measures

Sociodemographics—For descriptive purposes, participants reported their age and race/ethnicity.

Sexual enhancement motives—Sexual enhancement motives were assessed by five questions from the Sexual Motives Scale (Cooper et al., 1998). A sample item is, “How often do you have sex for the thrill of it?” Participants rated how often they have sex for that reason using a 5-point scale from 1 “Almost never/never” to 5 “Almost always/always.” A total score was calculated such that higher scores indicate greater sexual enhancement motives ($\alpha = .88$).

Alcohol expectancies for sexual risk-taking—Two adapted items assessed expectancies that alcohol would increase the likelihood of sexual risk-taking behavior (Dermen & Cooper, 1994). Items were, “After a few drinks, I am less likely to use a condom or ask my partner to use a condom” and “After a few drinks, I am less likely to take precautions before having sex.” Participants rated their agreement using a 6-point scale from 1 “Strongly disagree” to 6 “Strongly agree.” A total score was calculated such that higher scores indicate greater expectancies that alcohol would increase the likelihood of sexual risk-taking behaviors ($\alpha = .85$).

Most recent sexual encounter when drinking—Using an adapted event-level measure, participants reported on their most recent sexual encounter involving alcohol that occurred during the past 30 days (Brown & Venable, 2007). The primary outcome measure was occurrence of condomless vaginal sex. For descriptive purposes, participants also

reported on the number of alcoholic drinks they and their partner consumed, perceived self and partner intoxication levels, and whether sexual activity occurred with a casual (0) or steady partner (1).

Data Analysis Plan

Descriptive statistics were calculated to characterize alcohol expectancies for sexual risk-taking, sexual enhancement motives, and characteristics of the most recent sexual encounter involving alcohol. Bivariate correlation coefficients were calculated between alcohol expectancies for sexual risk, sexual enhancement motives, and condomless vaginal sex. Logistic and linear regression analyses examined bivariate associations between alcohol expectancies for sexual risk-taking, sexual enhancement motives, and condomless vaginal sex. Sexual enhancement motives and alcohol expectancies for sexual risk-taking total scores were converted to z-scores to ease interpretation of the parameters from the logistic models. The hypothesis that alcohol expectancies for sexual risk-taking would mediate the association between sexual enhancement motives and condomless vaginal sex, adjusting for partner type, was tested using an SPSS macro (Hayes, 2013; Preacher & Hayes, 2008) that provides estimates of the path coefficients in the mediator model with a bootstrapped 95% confidence interval for the indirect effect. An exploratory, post-hoc analysis was conducted to explore whether partner type moderated the association between alcohol expectancies for sexual risk taking and condom use in the mediational model.

Results

Most participants (66.9%) reported condomless vaginal sex during the last sexual encounter involving alcohol (see Table 1 for additional descriptive statistics). Sexual enhancement motive scores ranged from 5 to 25 ($M = 18.2$, $SD = 4.5$); alcohol expectancies for sexual risk-taking scores ranged from 2 to 12 ($M = 6.4$, $SD = 2.8$). Alcohol expectancies for sexual risk-taking were correlated with sexual enhancement motives ($r = .13$, $p < .05$). The likelihood of condomless vaginal sex was significantly and positively related to alcohol expectancies for sexual risk-taking ($OR = 1.89$, 95% CI: 1.44, 2.49, $p < 0.001$) as well as sexual enhancement motives ($OR = 1.34$, 95% CI: 1.05, 1.72, $p = 0.02$).

In the mediational model (Figure 1), when condomless vaginal sex was regressed on both sexual enhancement motives and alcohol expectancies for sexual risk-taking, sexual enhancement motives were no longer a significant predictor of condomless vaginal sex under the influence of alcohol ($b = 0.20$, $z = 1.51$, $p = 0.13$), whereas alcohol expectancies for sexual risk-taking remained a highly significant predictor in the model ($b = 0.70$, $z = 4.69$, $p < 0.001$). Based on 1,000 bootstrap re-samples, a test of the indirect effect of sexual enhancement motives on condomless vaginal sex via alcohol expectancies for sexual risk-taking, adjusting for partner type, was significant (unstandardized $b = 0.11$, 95% CI: 0.03, 0.22), indicating that alcohol expectancies for sexual risk-taking mediate the association between sexual enhancement motives and increased likelihood of condomless vaginal sex under the influence of alcohol. Additionally, analyses which adjusted for the number of alcoholic drinks consumed and perceived intoxication levels for the participant and her partner did not alter the primary findings and thus, were not included in the model as

covariates. An exploratory analysis (available upon request) tested whether the association between alcohol expectancies for sexual risk taking and condom use (the *b* path in Figure 1) was distinct based on partner type (i.e., casual vs. steady partner); results showed that this effect was not moderated by partner type during the most recent sexual encounter involving alcohol.

Discussion

Alcohol misuse may contribute to risky-sexual behaviors such as condomless vaginal sex, which increases HIV/STI risk (Leigh et al., 2008). In this study, the majority of young women engaged in condomless vaginal sex during their most recent sexual encounter involving alcohol. Additionally, most young women reported levels of heavy drinking prior to sex that may impair cognitive functioning and decision-making (Peterson et al., 1990). These findings underscore the need to examine factors that may underlie the alcohol, sexual risk-taking association.

Similar to previous research, sexual enhancement motives (Cooper et al., 1998, 2000; Grossbard et al., 2007) and alcohol expectancies for sexual risk-taking (Abbey et al., 2007; Dermen & Cooper, 2000; Dermen et al., 1998; George et al., 2000; LaBrie et al., 2002; Walsh et al., 2014) were both associated with increased likelihood of condomless vaginal sex. This study extends the previous literature by demonstrating that alcohol expectancies for sexual risk-taking mediate the association between sexual enhancement motives and condomless vaginal sex under the influence of alcohol. While some have argued that motives are a more proximal determinant of risk behavior than expectancies (e.g., Kuntsche et al., 2007), our findings suggest that within the context of sexual activity involving alcohol, one's beliefs that drinking increases the likelihood of risky sex are more proximal determinants of condom use relative to the more distal role of general motives for sexual activity. Thus, individuals with higher sexual enhancement motives may have a general proclivity for greater sexual risk-taking, including sex under the influence of alcohol. In turn, one's beliefs that alcohol further disinhibits protective sexual behaviors may further enhance the likelihood of condomless sex.

To date, the bulk of research has employed cross-sectional methodologies, with limited examination of event-based or daily diary approaches (e.g., Patrick & Maggs, 2009; Walsh et al., 2014). To our knowledge this is the first study to examine whether alcohol expectancies for sexual risk-taking function as a mediator of sexual enhancement motives and condomless sex for the most recent sexual encounter involving alcohol. Focusing on a single recent sexual event reduces self-report errors (Brown & Vanable, 2007; Schroder et al., 2003) and allows for an examination of alcohol use within a single, naturalistic sexual encounter. To further clarify the association between alcohol expectancies, sexual motives, and sexual behaviors, future research endeavors should use ecological momentary assessment methods to collect "real-time" data and permit a more nuanced examination of within-person variation between alcohol use, alcohol expectancies, sexual motives, and sexual behaviors across multiple, real-world events. Such an approach would also facilitate event-level measurement of alcohol expectancies and sexual motives in association with

sexual behaviors. Building on the current findings, these research efforts may ultimately result in tailored interventions that can better address the alcohol-risky sex linkage.

Relative to older women, young women engage in elevated rates of alcohol use and are at increased risk for adverse sexual health outcomes. Efficacious interventions are needed to target beliefs surrounding alcohol use within the context of sexual encounters and assist young women in employing effective strategies to increase condom use, particularly among young women who have greater inclination to seek out sexual activity to satisfy personal physical needs. Interventions employing a cognitive behavioral approach may be particularly promising to reduce sexual risk behaviors by targeting cognitions related to one's sexual motives and alcohol expectancies, while fostering behavioral skills to promote sexual health (e.g., enhancing partner communication, increasing condom use skills). Such interventions offer the promise to reduce STIs, HIV, and unintended pregnancies among young women.

Limitations

There are limitations that should be noted including the recruitment of a heterosexual, young adult female sample attending college, which was predominantly Caucasian; thus, results may not generalize to other young women or to young men. Alcohol expectancies and sexual motives were not assessed at the event-level and the event-based measure was limited to a single sexual encounter involving alcohol. Thus, we were unable to determine whether alcohol expectancies and sexual motives vary across different sexual events. Additionally, the data are correlational and causation cannot be inferred. Furthermore, the analyses conducted in this study, while consistent with extant theory and research on the relations between sexual enhancement motives, alcohol expectancies for sexual risk and condom use, by no means exhaust the potential theoretical and analytic models that could be applied to these data.

Acknowledgments

This research was supported by grants from the National Institute of Drug Abuse (R03DA0377860) to Jennifer L. Brown, the National Institute on Alcohol Abuse and Alcoholism to Amelia Talley (R00AA019974), and research development funds from Texas Tech University to Jennifer L. Brown.

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Figure 1.

Alcohol expectancies for sexual risk-taking as a mediator between sexual enhancement motives and condomless vaginal sex during the most recent sexual episode involving alcohol adjusting for partner type ($N=287$).

Table 1

Characteristics of the Most Recent Sexual Encounter Involving Alcohol (N=287)

	N	%
Number of drinks participant consumed		
1–2	80	27.9
3–5	125	43.6
6–8	55	19.2
9–10	19	6.6
11–19	7	2.4
20+	1	.3
Perceived intoxication level		
Not very	68	23.7
A little	78	27.2
Moderately	111	38.7
Extremely	30	10.5
Number of drinks partner consumed *		
0	20	7.0
1–2	57	19.9
3–5	106	37.1
6–8	64	22.4
9–10	26	9.1
10–19	12	4.2
20+	1	.3
Perceived partner intoxication level †		
Not very	63	23.6
A little	79	29.6
Moderately	102	38.2
Extremely	23	8.6
Partner type		
Someone I just met	17	5.9
A casual sexual partner	80	27.9
My boyfriend or steady partner	190	66.2

Notes.

* N=286;

† N=267.