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## “This would be better drunk”: Alcohol expectancies become more positive while drinking in the college social environment

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### Abstract

The current study examined whether drinking and/or presence in the college social environment led to augmented positive alcohol expectancies among college students ( $N = 225$ ). Participants were approached during popular drinking nights as they exited events at which alcohol was consumed or in front of their residence as they returned home. Participants completed a brief questionnaire that included an assessment of demographics, breath alcohol concentration (BrAC), and positive expectancies. Within 48 hours of baseline assessment, participants received via email a follow-up survey that re-assessed positive expectancies while sober. Positive sexual expectancies were more strongly endorsed while drinking in the college social environment for both males and females, while males also reported heightened liquid courage expectancies. In addition, positive expectancies were more strongly endorsed at higher doses of alcohol for males but not females. These findings suggest that interventions which seek to prevent alcohol abuse by targeting alcohol expectancies may wish to challenge positive expectancies in naturalistic college social settings.

### Keywords

Alcohol; Expectancies; College Students; Intervention; Blood Alcohol Concentration; Drinking

## 1. Introduction

An important determinant of alcohol use among college students is positive alcohol expectancies, or representations in memory of how people expect alcohol to positively affect them (Baer, 2002). Expectancies act as a causal mediator of alcohol consumption, as drinkers consume alcohol in a way that delivers expected outcomes (Jones, Corbin, &

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### Contributors

Joseph LaBrie, Sean Grant, and Justin Hummer have each contributed significantly to this manuscript. Specifically, Dr. LaBrie generated the idea for the study and oversaw its production. Dr. LaBrie and Sean Grant designed the study, wrote the protocol, and performed the statistical analyses. Sean Grant performed the literature review, drafted all sections of the manuscript, and created the tables. Dr. LaBrie and Justin Hummer contributed to writing all sections of the manuscript.

### Conflict of Interest

All authors declare that they have no conflicts of interest.

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Fromme, 2001). Positive expectancies are associated with higher levels of current drinking, changes in drinking, and the development of alcohol-related problems (Jones et al., 2001; Leigh & Stacy, 2004; Park & Grant, 2005). Because expectancies are related to heavier drinking and alcohol-related risk, efforts to understand factors that initiate and reinforce expectancies can assist alcohol interventions in combating their impact on drinking behaviors. Among the most primary learning and reinforcement pathways is direct experience with consuming alcohol (Maisto et al., 1999). Despite the need for alternative methodologies to examine expectancies as a correlate of drinking behaviors at various alcohol doses (Baer, 2002; Read Lau-Barraco, Dunn, & Borsari, 2009), no research to date has investigated *in vivo* whether positive expectancies are in fact more strongly endorsed at higher actual (rather than imagined or anticipated) alcohol doses.

Moreover, as the college drinking environment contains salient cues that activate and strengthen learned expectancies, real-life exposure to these cues within this environment may actually lead to stronger endorsement of these expectancies while drinking. According to alcohol myopia theory, alcohol affects social behaviors, as the acute effects of alcohol on cognition impair one's perceptions and reduce the ability to process complex information by limiting the range of cues that can be processed simultaneously (Steele & Josephs, 1990). Moreover, memory while drinking is generally assembled sequentially in response to relevant stimuli, with beliefs assembled in order of their salience to those stimuli (Goldman, Del Boca, & Darkes, 1999). Thus, positive alcohol expectancies interact with alcohol's myopic effects to restrict one's attention to cues in the environment that are related to desired outcomes, leading the more immediate salient goals (e.g., sexual arousal) to influence behavior and behavioral outcomes more strongly (Cooper, 2002; Corbin, Bernat, Calhoun, McNair, & Seals, 2001; Dermen & Cooper, 2000). Consequently, attending to salient cues while ignoring contradictory ones may strengthen and amplify the importance of these previously held positive expectancies and consequently amplify them. As positive expectancies are activated by messages in the college environment that are believed to be part of the expectancy network, drinkers are more likely to consume more alcohol in the short term (Jones et al., 2001; Roehrich & Goldman, 1995; Stein, Goldman, & Del Boca, 1997).

In order to investigate students' motivation for continued alcohol use despite risky physiological effects of heavy drinking, the current study sought to examine whether drinking and/or presence in the college social environment leads to augmented expectancies. We hypothesized that: (1) expectancies would be significantly higher while drinking in the college social environment than while sober outside of it and (2) changes in expectancies would relate directly to level of intoxication (i.e., actual alcohol dose). Hypotheses were also tested as a function of gender, as men tend to hold stronger positive expectancies than women do (see Jones et al., 2001 for review).

## 2. Materials and methods

### 2.1 Participants

Participants were 305 (182 males and 123 females) college students recruited on or near the campuses of two universities on identified party nights. Of these participants, 225 (127 males and 98 females) completed the follow-up survey and comprised the final sample used in all analyses, yielding a retention rate of 73.7%. Participants in the final sample ranged in age from 18 to 22 ( $M = 20.22$ ,  $SD = 1.26$ ) years old and were primarily Caucasian (71.1%).

### 2.2 Design and procedure

Sampling occurred between the hours of 10 P.M. and 3 A.M. on popular drinking nights. The trained research team approached young people who were either exiting events or

establishments at which alcohol was consumed or in front of their residence as they returned home. Potential participants were asked if they would be willing to partake in a brief study on alcohol beliefs and behaviors. If they expressed interest, they were then asked two questions for selection criteria: “are you a college student?” and “have you consumed any alcoholic beverages within the last two hours?” Students answering yes to both questions were invited to participate. A research assistant guided participants through an IRB-approved consent form and assured them of the confidentiality of the study. Participants were then informed that, upon completion of a follow-up survey, they would receive an email with their breath alcohol concentration (BrAC) reading and information on how to redeem a \$10 iTunes® gift certificate as an incentive.

**2.2.1 Baseline assessment**—Participants first completed a brief questionnaire that included an assessment of age, gender, ethnicity, standard drinks consumed that night, and positive expectancies. They then had their BrAC assessed via a breathalyzer. The breathalyzer was modified so that participants’ BrACs were not visibly displayed; thus, neither participants nor the researchers were made aware of BrAC values during assessment. Using the AlcoHAWK PT500P, BrAC readings were recorded internally and sent immediately via a wireless connection to a private printer accessible only by the researchers. Each printout had a unique identification number that matched a similar number on each participant’s questionnaire. Printouts were examined the following day. This procedure was consistent with similar IRB-approved studies to meet validity concerns regarding length of procedure, experimenter bias, the possibility of influencing students to drink post-assessment, and ethical standards for privacy and legal liability (e.g., Carey & Hustad, 2002; Clapp et al., 2006; Hustad & Carey, 2005; Lange & Voas, 2001).

**2.2.2. Follow-up assessment**—Within 48 hours following each respective baseline assessment, participants received a follow-up email that contained a link to an IRB-approved 10 minute Web-based survey that included an assessment of positive expectancies.

### 2.3 Measures

The 20 positive-expectancy items from the Comprehensive Effects of Alcohol (CEOA) questionnaire (Fromme, Stroot, & Kaplan, 2003) were used to assess positive expectancies at baseline and follow-up. These items form four subscales: sociability, tension reduction, liquid courage, and sexuality. Participants were instructed to circle one answer per item depending on whether they expected the effect to happen to them if they were under the influence of alcohol. The precursor to each item read, “When I drink alcohol, I expect that...”; participants then assessed their expectancies using a four-point Likert scale (1 [*Disagree*], 2 [*Slightly Disagree*], 3 [*Slightly Agree*], 4 [*Agree*]) eliciting their level of agreement with the item (e.g., “I would be outgoing,” “I would enjoy sex more,” “I would feel unafraid,” etc.). All four subscales demonstrated adequate reliability at baseline and follow-up (all  $\alpha$ 's > .77).

## 3. Results

### 3.1 Discrepancies between Expectancies Held While Drinking Versus Not Drinking

Paired *t*-tests revealed that expectancy scores were significantly higher while drinking on the liquid courage,  $t(222) = 2.14, p < .05$ , and sexuality,  $t(222) = 4.81, p < .001$ , subscales for the overall sample. When the paired *t*-tests were undertaken by gender, men reported more positive expectancies for liquid courage and sexuality while drinking, whereas women reported more positive expectancies only for the sexuality subscale while drinking (see Table 1).

### 3.2 Relationships between Expectancy Change and Level of Intoxication

To assess the magnitude of the difference in participants' endorsements of expectancies while drinking versus not drinking, an expectancy change score was calculated for each subscale by subtracting the subscale score at follow-up from the baseline subscale score. Pearson correlation analyses revealed that BAC level (BrAC) was significantly correlated with change in expectancies for males on all four subscales ( $r$  values between .26 and .39), yet for women there was no significant correlation between BAC and expectancy change on any subscale ( $r$  values between -.06 and .18; see Table 2).

## 4. Discussion

The current paper extends previous work on alcohol expectancies and college student drinking behaviors by examining the association between alcohol use and positive expectancies *in vivo*. Results supported our hypotheses as both males and females endorsed more positive sexual expectancies while drinking in the college social environment than when sober. Males also reported heightened liquid courage expectancies while drinking. In addition, the magnitude of expectancy change was associated with males' intoxication level on every subscale, such that expectancies were more strongly endorsed at higher doses of alcohol. However, no associations were found for females. These results suggest that stronger expectancy endorsement while drinking in the college social environment is positively related to male's BAC level, yet for female students, merely being present in this environment is associated with heightened sex expectancies, regardless of drinking levels.

According to alcohol myopia theory, expectancies most affectively relevant to a given context are those activated in that environment (Read et al., 2004, 2009). Because college drinking venues tend to be places to find and interact with potential partners (Abbey, Saenz, & Buck, 2005; Cooper, 2002; Dermen & Cooper, 2000), expectancies related to hooking up (e.g., sexuality, relationship, and interpersonal risk-taking) may be especially activated and magnified in this context. Previous research has shown that many college students report drinking because they expect alcohol to help facilitate sexual opportunities and sexual affect (Abbey et al., 1999), as well as decrease sexual inhibitions (Kotchick, Shaffer, Forehand, & Miller, 2001). These heightened sex-related expectancies can be cause for concern as feeling more sexual (and more daring for males as well) while drinking can result in sexually acting out in risky or aggressive ways that may be received poorly or without full-consent. Previous research has shown sex-related alcohol expectancies to be a significant predictor for unwanted outcomes in potentially sexual, social situations (Dermen & Cooper, 1994). Moreover, individuals with stronger alcohol-related sex expectancies demonstrate decreased condom use after drinking and a greater amount of sexual behaviors, which are predictive of more alcohol-related negative consequences (LaBrie, Earleywine, Schiffman, Pedersen, & Marriot, 2005; Patrick & Maggs, 2009; Thompson et al., 2009). Thus, heightened sexual/relational expectancies that grow more positive while drinking pose a potentially serious health risk to college drinkers.

The relationship between BAC level and stronger expectancy endorsement for males may be explained by the theory of reciprocal determinism, which argues for a positive feedback loop between alcohol's effects and drinking (Maisto et al., 1999). Drinking behavior is reciprocally related to expectancies, such that expectancies both modify and are modified by drinking behaviors (Patrick & Maggs, 2008; Read et al., 2009). Therefore, the heightening of positive expectancies while drinking in the college social environment could fuel the consumption of even more alcohol and consequently increase the likelihood of risky sexual behaviors.

These findings highlight changes in expectancies around sex and risk-taking while drinking as a potential mechanism linked to sex-related consequences that may have important implications for preventative interventions. Interventionists may wish to challenge expectancies in naturalistic settings. For example, preventive marketing campaigns can seek to activate expectancies for competing alternatives to heavy drinking via posters in college social environments. Posters could also specifically address sexual expectancies (e.g., a picture of person haggard from alcohol use with the tagline “I’m a beautiful drunk”) to counter the risk associated with the alcohol-sex expectancies relationship. Salient cues that highlight behavioral risks to intoxicated individuals may lead to safer sex intentions (MacDonald, Fong, Zanna, & Martineau, 2000). Further, interventions could and should both educate students about the potential risks of having strongly positive sex-related expectancies and challenge the notion (especially for women) that the college social environment around drinking is a safe place to explore sexual opportunities.

Findings should be considered along with a primary limitation. First, due to the sampling procedure, static expectancies held while sober were assessed after expectancies held while drinking and could have changed due to the drinking event from pre-event levels. Future research could look longitudinally at these expectancies across several drinking events. Nonetheless, positive expectancies are related to subsequent drinking problems (Leigh & Stacy, 2004; Park & Grant, 2005) and the current study demonstrates stronger endorsement of expectancies while drinking in the college social environment and highlights a potential mechanism for how consequences (especially sexual and interpersonal consequences) emerge while drinking in college.

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### Research Highlights

- First study to examine *in vivo* changes in expectancies at actual alcohol doses.
- Positive sexual expectancies were heightened while drinking for both genders.
- Males also reported heightened liquid courage expectancies.
- Positive expectancies were heightened at higher alcohol doses for males.
- Prevention efforts should challenge positive expectancies in natural college settings.

Table 1

Difference Between Baseline and Follow-up Expectancies by Gender

Expectancy Subscale	Overall (N = 225)			Gender					
	Baseline	Follow-up	t score	Female (n = 127)		Male (n = 98)			
				Baseline	Follow-up	t score			
Sociability	3.36 (.52)	3.35 (.54)	0.23	3.39 (.52)	3.44 (.50)	-1.26	3.34 (.51)	3.29 (.54)	1.25
Tension Reduction	2.66 (.80)	2.65 (.73)	0.15	2.53 (.84)	2.55 (.76)	-0.25	2.76 (.76)	2.74 (.77)	0.40
Liquid Courage	2.88 (.70)	2.79 (.70)	2.14*	2.81 (.73)	2.75 (.73)	0.94	2.94 (.68)	2.82 (.69)	2.01*
Sexuality	2.65 (.83)	2.44 (.79)	4.81***	2.63 (.89)	2.38 (.82)	3.57***	2.66 (.80)	2.49 (.77)	3.23***

Note:

\* = significant at  $p < .05$ .\*\* = significant at  $p < .01$ .\*\*\* = significant at  $p < .001$ .

**Table 2**

Pearson Correlations between BrAC and Expectancy Change Score by Gender

Expectancy Difference Score	BrAC	
	Females	Males
Sociability	-0.07	0.26 <sup>**</sup>
Tension Reduction	0.06	0.26 <sup>**</sup>
Liquid Courage	0.04	0.39 <sup>***</sup>
Sexuality	0.19	0.28 <sup>**</sup>

Note: Expectancy difference score calculated as baseline minus follow-up score for each subscale.

<sup>\*\*</sup> = significant at  $p < .01$ .

<sup>\*\*\*</sup> = significant at  $p < .001$ .