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Effects of alcohol intoxication and autonomic arousal on delay discounting and risky sex in young adult heterosexual men

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Abstract

Objectives—The relationship between alcohol use and risky sexual behavior is complex and depends on psychological and environmental factors. The alcohol myopia model predicts that, due to alcohol's impact on attention, the behavior of intoxicated individuals will become increasingly directed by salient cues. Autonomic arousal (AA) may have a similar effect on attention. Experiential delay discounting (DD) may be increased by both alcohol consumption and AA due to their common effects and may mediate the relationship between these conditions and risky sex.

Methods—This study employed a 3 (alcohol, placebo, control) x 2 (high, low arousal) experimental design to examine the effects of acute alcohol intoxication and AA on experiential delay discounting, subjective sexual arousal, and risky sex.

Results—Path models revealed complex results that only partially supported study hypotheses. Ratings of subjective sexual arousal did not differ across either beverage or arousal conditions. DD was also unrelated to any study variable. However, subjective sexual arousal was positively related to risky sexual intentions. Alcohol intoxication was also positively associated with increased unprotected sex intentions, consistent with past studies.

Conclusions—These results affirm the role of subjective sexual arousal and alcohol intoxication in risky sexual decision-making, yielding effect sizes similar to comparable past studies. Lack of differences across autonomic arousal groups also suggests effects of attentional myopia may be behavior-specific. Failure to replicate effects of alcohol intoxication on DD also suggests reservation regarding its involvement in alcohol-involved risky sex.

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Conflicts of Interest

The authors have no conflicts of interest to declare.

Keywords

Alcohol; condoms; drinking behavior; sexual behavior; unsafe sex

1. Introduction

Sexually-transmitted infections (STIs) are a significant health problem among young adults (Owusu-Edusei et al., 2013; Satterwhite et al., 2013). Heavy alcohol use is also common (Wechsler, Lee, Kuo, & Lee, 2000), and evidence suggests that alcohol intoxication increases unprotected sex (Rehm, Shield, Joharchi, & Shuper, 2012), potentially resulting in STI exposure.

Alcohol myopia theory (AMT) suggests that alcohol limits processing to the most salient information, leading individuals to behave consistent with salient cues (Steele & Josephs, 1990). In sexual situations, cues impelling sex (e.g., arousal, approach motivation) are strong, while inhibitory cues (e.g., disease exposure, social consequences) may be more distal, and alcohol may amplify this balance. Several studies have shown support for AMT's role in risky sex (Cue Davis et al., 2009a; George, Davis, et al., 2009; Norris et al., 2009). Sexual situations also involve autonomic arousal (AA). Attentional myopia theory (Mann & Ward, 2007) suggests that AA produced by exercise may lead to "cue dependence" similar to alcohol (Ward et al., 2008). AA and alcohol may also have synergistic effects on behavior when they are experienced together.

Delay discounting (DD) may be one pathway through which intoxication leads to risky sex. DD refers to decreases in the subjective value of a reward as a function of the delay to its receipt (Bickel, Johnson, Loewenstein, Read, & Baumeister, 2003). DD exhibits relationships with drug use (Kirby & Petry, 2004) and other health risk behaviors (Chapman, 2005). The Experiential Discounting Task (EDT) is thought to be a state-sensitive measure of DD, and one study has shown increased DD among intoxicated individuals on the EDT (Reynolds, Richards, & de Wit, 2006). AA could have similar effects on state-specific measures of DD, given its effects on cognition that are similar to alcohol (Lieberman, 2007; Ward et al., 2008). That is, both intoxicated and aroused individuals may choose immediate rewards as a result of both the narrowed attentional scope and the relative salience of rewards in time.

DD may also serve as a fitting model of sexual risk-taking. Cues suggesting immediate reward (e.g., sexual opportunity) may serve as a strong salient influence on behavior, while longer-term benefits may be inherently more distal. Individual differences in DD are associated with sex risk outcomes (Chesson et al., 2006). Intoxicated individuals opting for more immediate reward despite potential longer-term gains may also opt for immediately gratification in a sexual situation.

We tested whether alcohol intoxication, autonomic arousal, and their interaction increased subjective sexual arousal and unprotected sex intentions in an analogue sexual situation. We also tested whether the effects of intoxication and AA on sex risk intentions were mediated by experiential discounting, above-and-beyond sexual arousal.

2. Method

2.1 Design

This study employed a 3 (beverage: alcohol [BAC=.08], placebo, or juice control) x 2 (high [HR=150 bpm] or low [HR=baseline] autonomic arousal) randomized factorial design. Dependent variables were the EDT, subjective sexual arousal, and ratings of unprotected sexual intentions.

2.2 Participants

Participants were 113 undergraduate men, ages 21–32 (M = 22.30, SD = 1.85). Eighty-seven percent of the sample was White, 6% was Black, 4% Multiracial, 2% Asian, and 1% Native American/Alaskan Native, and 98% were non-Hispanic. Eligible participants were (1) male, (2) primarily heterosexual, (3) 21+ years old, (4) not currently in an exclusive romantic relationship, (5) sexually active in the last year, (6) not on medications contraindicating alcohol use, and (7) negative for psychiatric or substance use disorders.

2.3 Measures

2.3.2 Experiential Discounting Task—(EDT) is a computerized measure of experiential discounting (Reynolds & Schiffbauer, 2004). It involves participants making choices between smaller-sooner (SS) rewards, which are certain and immediate, and larger-later (LL) rewards, which are uncertain and delivered at varying delays (e.g., 0s, 15s, 30s, and 60s). Choices are delivered in real time via a coin dispenser. Raw EDT indifference values were scored using area under the curve with a trapezoidal rule (Leraas, Patak, Shroff, & Reynolds, 2009; Myerson, Green, & Warusawitharana, 2001). Scores were reversed, with high values representing higher discounting.

2.3.3 Sexual risk scenarios and post-video ratings—Two video scenarios were used to measure risky sexual intentions (Maisto et al., 2004). Each scenario presents a situation in which a male participant is deciding whether to use a condom during sex. After viewing each scenario, participants completed items about subjective sexual arousal and intent to engage in various sexual behaviors. Primary outcomes were intentions to engage in unprotected vaginal sex.

2.5 Manipulation checks

Breath alcohol concentration (BrAC) was used to estimate BAC. Single items assessed participants' perceptions of how much they drank and level of intoxication.

2.6 Procedure

Participants completed screening measures online, and if eligible, were scheduled for an experimental session and randomized. Upon arrival, research assistants (RAs) verified the participant's age, acquired informed consent, ensured BrACs of .000, collected height, weight, heart rate, systolic (SBP) and diastolic blood pressure (DBP), and fit participants with a continuous heart rate device. RAs then administered the baseline EDT assessment with sessions counterbalanced.

Participants in the alcohol condition received doses to achieve the target BrAC of .08%, according Curtin and Fairchild (2003). Alcohol beverages consisted of a 1:4 ratio of vodka to orange juice. Placebo beverages consisted of orange juice served with a vodka "floater" and vodka-soaked glasses. Beverages were mixed in view of participants. Participants consumed beverages in 15 minutes, and a 10-minute absorption phase followed. Those in the high AA condition then pedaled on a recumbent bike (ProForm XP400R; Logan, UT) until their HR reached 150 bpm and sustained this for 2 minutes (Tomporowski & Ellis, 1986), while those in the low AA condition rested. Next, RAs executed the second EDT. Afterward, AA was induced again among those in the high AA group. Finally, RAs administered the sexual risk scenarios. Alcohol participants remained in the lab until their BrAC was <.02% (NIAAA, 2005).

3. Results

While 113 participants were enrolled, 4 were dropped for reaching peak BrACs before completing all measures, producing a final sample of 109. Most were heavy drinkers (89%), and reported 3.19 (*SD* = 3.02) partners in the past year, and 7.67 (*SD* = 7.05) occasions of vaginal intercourse in the past three months, 69.88% of which were protected.

3.1. Manipulation checks

Mean peak BrAC for the alcohol condition was 0.067%. Those in the alcohol condition perceived drinking more ($F(1) = 10.21$, $p = .002$) and felt more intoxicated ($F(1) = 54.74$, $p < .001$) than those in the placebo condition, and the placebo condition perceived drinking more ($F(1) = 59.69$, $p < .001$) and felt more intoxicated ($F(1) = 18.93$, $p < .001$) than the control condition, suggesting that beverage manipulations were successful. Significant differences between the AA conditions in HR ($F = 383.66$, $p < .001$) and SBP ($F = 98.27$, $p < .001$) suggest that the AA manipulation was also successful[1].

3.2 Primary analysis

The full model was estimated using Mplus 7.0 (Muthen & Muthen, 2007). Bias-corrected, bootstrapped confidence intervals were used to examine indirect effects (MacKinnon, Lockwood, & Williams, 2004). Group variables were effect coded, and baseline EDT scores were included as a covariate. Figure 1 depicts this model.

A Wald test of the interaction of beverage condition with AA on subjective sexual arousal was not significant (Wald $\chi^2(2) = 4.97$, $p = .083$). Joint effects of beverage condition on subjective sexual arousal were also not significant (Wald $\chi^2(2) = 1.42$, $p = .491$), as was the effect of AA. However, placebo group and AA interacted to predict sexual arousal ($b = 0.27$, $p = .039$). Sexual arousal was significantly lower among those in the low AA condition compared with the grand mean ($b = -0.33$, $p = .025$), but was non-significant in the high AA group ($b = 0.14$, $p = .309$), suggesting that consuming placebo beverage while at low AA produced lower ratings of sexual arousal. Indirect effects on unprotected sex intentions were non-significant, however. Only T1 experiential delay discounting predicted T2 experiential discounting ($b = 0.20$, $p = .044$), suggesting that neither acute alcohol intoxication nor

exercise-induced arousal increased discounting. Experiential discounting was also unrelated to unprotected sex intentions.

A Wald test of the interaction of beverage with AA on unprotected sex intentions was not significant (Wald $\chi^2(2) = 1.09$, $p = .580$), nor was the joint effect of beverage condition alone (Wald $\chi^2(2) = 5.01$, $p = .082$) or the overall effect of AA ($b = -0.04$, $p = .679$). However, sexual arousal predicted unprotected sex ($b = 0.37$, $p < .001$), supporting findings from past studies (George, Cue Davis, et al., 2009). In the full model, alcohol group was marginally associated with unprotected sex ($b = 0.22$, $p = .071$), but the total effects of alcohol on unprotected sex were significant overall ($ab = .23$, $p = .050$). Unexpectedly, a negative effect of placebo beverage condition significantly predicted unprotected sex intentions ($b = -0.27$, $p = .032$). A follow-up contrast suggested that those in the alcohol group reported greater intentions to have unprotected sex compared to placebo group (Wald $\chi^2(1) = 4.90$, $p = .027$).

4. Discussion

The purpose of the current study was to test the unique and joint effects of alcohol and exercise-induced attentional myopia on an experiential delay discounting task, subjective sexual arousal, and sexual risk intentions. Our hypotheses were largely unsupported, but the results were nuanced and add important findings to the literature.

While many DD measures exist, we used the EDT due to its potential state sensitivity (Reynolds & Schiffbauer, 2004). However, we found no relationship between intoxication and EDT scores, failing to replicate past findings (Reynolds et al., 2006). Previous research suggested that, in men, alcohol intoxication potentiates subjective sexual arousal (Cue Davis et al., 2009b; George, Cue Davis, et al., 2009). Our results also do not support these findings, as intoxication was unrelated to sexual arousal. AA was also unrelated to subjective sexual arousal. However, a significant placebo by exercise-induced arousal interaction emerged, suggesting that, although sexual arousal was very low among placebo participants overall, AA may have boosted sexual arousal somewhat in the placebo group.

As hypothesized, subjective sexual arousal was positively associated with unprotected vaginal sex intentions, supporting prior research (Ebel-Lam, MacDonald, Zanna, & Fong, 2009; George, Cue Davis, et al., 2009). However, AA was unrelated to intentions, suggesting that exercise-induced myopia may be specific to aggression (Giancola & Corman, 2007). Overall beverage condition was also not significantly related to unprotected sex intentions, but the total effects of intoxication on unprotected sex were significant, consistent with a now robust literature showing that acute alcohol intoxicaton is uniquely related to increased risky sex intentons (Rehm, Shield, Joharchi, & Shuper, 2011). Moreover, the effect sizes in this study are similar to past studies examining comparable doeses in men. For example, in this study, alcohol (0.067%) versus control produced an effect size of Cohen's $d = .43$, while Maisto and colleagues' (2004) study yielded an effect size of Cohen's $d = .44$ with a 059% BrAC. Low ratings in the placebo groups were unexpected and appear to be rare in similar studies, with some exceptions (Cho & Span, 2010), and could be due to overcompensation.

4.1 Limitations

Several limitations should be noted. First, given this study's focus on young adult, heterosexual men, findings may not generalize to other populations. Second, the mean peak BrAC value observed (0.067%) fell below the target of 0.08%. However, this value is similar to those reported in other studies with this target BrAC. Third, difficulty recruiting subjects resulted unequal group sizes, but the analytic procedures used should be robust to unbalanced cells.

4.2 Summary

Our study failed to replicate previously demonstrated associations between intoxication and sexual arousal (Cue Davis et al., 2009b; George, Davis, et al., 2009) and task-specific associations between intoxication and DD (Reynolds et al., 2006). Our results also did not support relationships between attentional myopia and risky sex. However, both subjective sexual arousal and acute alcohol intoxication were important predictors of unprotected sex intentions, consistent with past findings affirming the role of alcohol in increasing the likelihood of unsafe sex.

Acknowledgments

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References

Bickel, WK.; Johnson, MW.; Loewenstein, G.; Read, D.; Baumeister, R. Time and decision: Economic and psychological perspectives on intertemporal choice. New York, NY US: Russell Sage Foundation; 2003. Delay discounting: A fundamental behavioral process of drug dependence; p. 419-440.

Chapman GB. Short-term cost for long-term benefit: Time preference and cancer contol. Health Psychology. 2005; 24(Suppl 4):S41–S48.10.1037/0278-6133.24.4.S41 [PubMed: 16045418]

Chesson HW, Leichliter JS, Zimet GD, Rosenthal SL, Bernstein DI, Fife KH. Discount rates and risky sexual behaviors among teenages and young adults. Journal of Risk and Uncertainty. 2006; 32:217–230.10.1007/s11166-006-9520-1

Cho YH, Span SA. The effect of alcohol on sexual risk-taking among young men and women. Addictive Behaviors. 2010; 35(8):779–785.10.1016/j.addbeh.2010.03.007 [PubMed: 20399023]

Cue Davis K, George WH, Norris J, Schacht RL, Stoner SA, Hendershot CS, Kajumulo KF. Effects of alcohol and blood alcohol concentration limb on sexual risk-taking intentions. Journal of Studies on Alcohol and Drugs. 2009a; 70(4):499–507. [PubMed: 19515289]

Cue Davis K, George WH, Norris J, Schacht RL, Stoner SA, Hendershot CS, Kajumulo KF. Effects of alcohol and blood alcohol concentration limb on sexual risk-taking intentions. Journal of Studies on Alcohol and Drugs. 2009b; 70:499–507. [PubMed: 19515289]

Curtin JJ, Fairchild BA. Alcohol and cognitive control: Implications for regulation of behavior during response conflict. Journal of Abnormal Psychology. 2003; 112:424–436. [PubMed: 12943021]

Ebel-Lam AP, MacDonald TK, Zanna MP, Fong G. An experimental investigation of the interactive effects of alcohol and sexual arousal on intentions to have unprotected sex. Basic Applied Social Psychology. 2009; 31:226–233.

George WH, Cue Davis K, Norris J, Heiman JR, Stoner SA, Schacht RL, Kajumulo KF. Indirect effects of acute alcohol intoxication on sexual risk-taking: The roles of subjective and physiological sexual arousal. Archives of Sexual Behavior. 2009; 38:498–513. [PubMed: 18431618]

George WH, Davis KC, Norris J, Heiman JR, Stoner SA, Schacht RL, Kajumulo KF. Indirect effects of acute alcohol intoxication on sexual risk-taking: The roles of subjective and physiological sexual arousal. Archives of Sexual Behavior. 2009; 38(4):498–513.10.1007/s10508-008-9346-9 [PubMed: 18431618]

Giancola PR, Corman MD. Alcohol and aggression: A test of the attention-allocation model. Psychological Science. 2007; 18(7):649–655.10.1111/j.1467-9280.2007.01953.x [PubMed: 17614875]

Kirby KN, Petry NM. Heroin and cocaine abusers have higher discount rates for delayed rewards than alcoholics or non-drug-using controls. Addiction. 2004; 99(4):461–471.10.1111/j.1360-0443.2003.00669.x [PubMed: 15049746]

Leraas, K.; Patak, M.; Shroff, P.; Reynolds, B. Experiential Discounting Task (EDT, Version 4.01) [Manual]. Columbus, OH: Center for Biobehavioral Health, The Ohio State University; 2009.

Lieberman MD. Social Cognitive Neuroscience: A Review of Core Processes. Annual Review of Psychology. 2007; 58:259–289.10.1146/annurev.psych.58.110405.085654

MacKinnon DP, Lockwood CM, Williams J. Confidence limits for the indirect effect: Distribution of the product and resampling methods. Multivariate Behavioral Research. 2004; 39(1):99–128. [PubMed: 20157642]

Maisto SA, Carey MP, Carey KB, Gordon CM, Schum JL, Lynch KG. The relationship between alcohol and individual differences variables on attitudes and behavioral skills relevant to sexual health among heterosexual young adult men. Archives of Sexual Behavior. 2004; 33(6):571–584.10.1023/B:ASEB.0000044741.09127.e6 [PubMed: 15483371]

Mann T, Ward A. Attention, self-control, and health behaviors. Current Directions in Psychological Science. 2007; 16(5):280–283.10.1111/j.1467-8721.2007.00520.x

Muthen, B.; Muthen, L. MPlus (Version 5). Los Angeles, CA: 2007.

Myerson J, Green L, Warusawitharana M. Area under the curve as a measure of discounting. Journal of the Experimental Analysis of Behavior. 2001; 76:235–243. [PubMed: 11599641]

NIAAA. Recommended council guidelines on ethyl alcohol administration in human experimentation. Paper presented at the National Institutes of Health; 2005.

Norris J, Stoner SA, Hessler DM, Zawacki T, Cue Davis K, George WH, Abdallah DA. Influences on sexual sensation seeking, alcohol consumption, and sexual arousal on women's behavioral intentions related to having unprotected sex. Psychology of Addictive Behaviors. 2009; 32(1):14–22.10.1037/a0013998 [PubMed: 19290686]

Owusu-Edusei K, Chesson HW, Gift TL, Tao G, Mahajan R, Ocfemia MC, Kent CK. The estimated direct medical cost of selected sexually transmitted infections in the United States, 2008. Sexually Transmitted Disease. 2013; 40(3):197–201.10.1097/OLQ.0b013e318285c6d2

Rehm J, Shield KD, Joharchi N, Shuper PA. Alcohol consumption and the intention to engage in unprotected sex: Systematic review and meta-analysis of experimental studies. Addiction. 2011; 107:51–59. [PubMed: 22151318]

Rehm J, Shield KD, Joharchi N, Shuper PA. Alcohol consumption and the intention to engage in unprotected sex: Systematic review and meta-analysis of experimental studies. Addiction. 2012; 107(1):51–59.10.1111/j.1360-0443.2011.03621.x [PubMed: 22151318]

Reynolds B, Richards JB, de Wit H. Acute-alcohol effects on the Experiential Discounting Task (EDT) and a question-based measure of delay discounting. Pharmacology, Biochemistry and Behavior. 2006; 83(2):194–202.10.1016/j.pbb.2006.01.007

Reynolds B, Schiffbauer R. Measuring state changes in human delay discounting: An experiential discounting task. Behavioural Processes. 2004; 67(3):343–356.10.1016/j.beproc.2004.06.003 [PubMed: 15518985]

Satterwhite CL, Torrone E, Meites E, Dunne EF, Mahajan R, Ocfemia MC, Weinstock H. Sexually transmitted infections among US women and men: Prevalence and incidence estimates, 2008. Sexually Transmitted Disease. 2013; 40(3):187–193.10.1097/OLQ.0b013e318286bb53

Steele CM, Josephs RA. Alcohol myopia: Its prized and dangerous effects. American Psychologist. 1990; 45(8):921–933.10.1037/0003-066X.45.8.921 [PubMed: 2221564]

Tomporowski PD, Ellis NR. Effects of exercise on cognitive processes: A review. Psychological Bulletin. 1986; 99(3):338–346.10.1037/0033-2909.99.3.338

Wang XT, Dvorak RD. Sweet future: Fluctuating blood glucose levels affect future discounting. Psychological Science. 2009; 21(2):183–188.10.1177/0956797609358096 [PubMed: 20424042]

Ward A, Mann T, Westling EH, Creswell JD, Ebert JP, Wallaert M. Stepping up the pressure: Arousal can be associated with a reduction in male aggression. Aggressive Behavior. 2008; 34(6):584–592.10.1002/ab.20270 [PubMed: 18561301]

Wechsler H, Lee JE, Kuo M, Lee H. College binge drinking in the 1990s: A continuing problem: Results of the Harvard School of Public Health 1999 College Alcohol Study. Journal of American College Health. 2000; 48(5):199–210.10.1080/07448480009599305 [PubMed: 10778020]

Weller RE, Cook EW III, Avsar KB, Cox JE. Obese women show greater delay discounting than healthy-weight women. Appetite. 2008; 51(3):563–569.10.1016/j.appet.2008.04.010 [PubMed: 18513828]

Wilson M, Daly M. Do pretty women inspire men to discount the future? Proceedings of the Royal Society of London. 2004; 271:S177–S179.10.1098/rsbl.2003.0134

Highlights

- We tested alcohol and arousal's effects on unprotected sex intentions
- Explored delay discounting as a mediator of these effects
- Alcohol intoxication increased unprotected sex intentions
- Subjective sexual arousal, but not autonomic arousal, was associated with risky sex
- Delay discounting was not related to either alcohol intoxication or risky sex

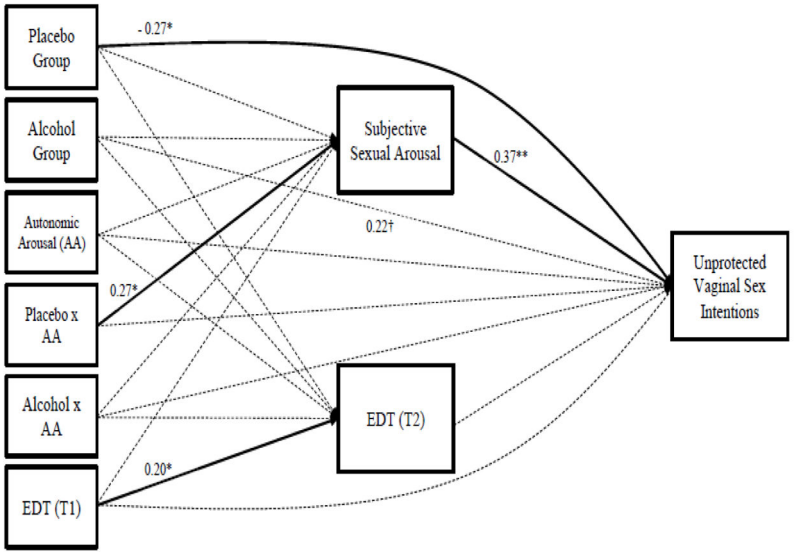

Figure 1.

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TABLE 1

Descriptive statistics and correlations

Variables	Range	Mean	*SD*	*Skew*	*Kurtosis*	1	2	3	4	5	6
1. QFV Index[a]	0–1	-	-	-	-						
2. # unprotected sex events (past 3mos.)[b]	0–25	2.31	4.91	1.81	4.94	−0.01					
3. Lifetime # sex partners[b]	1–80	10.81	12.65	0.03	2.44	0.11	0.34*				
4. T1 EDT[b]	0–1	0.68	0.18	0.00	3.50	−0.10	−0.16	0.01			
5. T2 EDT[b]	0–1	0.68	0.20	0.00	2.89	0.06	0.03	0.01	0.37*		
6. Subjective sexual arousal[c]	1–8.33	3.72	1.65	0.37	2.29	0.01	0.01	−0.09	0.16	0.14	
7. Unprotected sex intentions[c]	1–9	4.11	2.41	0.59	2.59	0.07	−0.01	0.03	0.15	0.17	0.73*

Note. Skew and kurtosis values are presented for transformed and standardized versions of study variables.

[a]The QFV Index classifies respondents into abstainers, light, moderate, and heavy drinkers. All participants in this study were moderate to heavy drinkers.

[b]These variables were transformed as a result of non-normality prior to estimating primary analyses, but ranges, means, and standard deviations are presented for these variables untransformed.

[c]Standardized combinations were formed for these items across the two presented scenarios for use in the primary analysis. However, participant means of all items in each category are presented here for ease of interpretation.

*$p<.05$