Drinking Motives and Willingness to Drink Alcohol in Peer Drinking Contexts

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Abstract

Drinking motives are important proximal predictors of alcohol consumption in adolescents and emerging adults (EAs). Despite the importance of peer context on alcohol use decision-making, research on drinking motives is commonly divorced from the contexts where such decisions are made. Behavioral willingness (BW), or openness to engaging in a given behavior, is a contextually dependent aspect of nondeliberative decision-making for youth. As BW and drinking motives are proximal predictors of alcohol use, it was hypothesized that they would interact in the prediction of later drinking. Eighty-seven EAs reported their BW in simulated drinking contexts, drinking motives, and alcohol consumption upon entering college as well as drinking patterns 8 months later. Context-specific BW potentiated coping motives' impact on increased alcohol consumption and potentially hazardous drinking at the end of participants' first year. These findings support the importance of BW and context in understanding motivation's role in drinking behavior for EAs.

Keywords

alcohol; motives; behavioral willingness; simulations

Motives to drink are reasons for consuming alcohol that are believed to be important predictors of alcohol use (Cooper, 1994; Kuntsche, Knibble, Gmel, & Engels, 2005). Drinkers report reasons for consumption associated with having fun (enhancement motives), enjoying being with others (social motives), fitting in with the crowd (conformity motives), and managing negative affect (coping motives; Cooper, 1994). Globally, enhancement motives relate to heavy drinking, social motives to increased frequency of consumption, and coping motives to alcohol-related problems (Cooper, Kuntsche, Levitt, Barber, & Wolf, 2015; Kuntsche et al., 2005). However, drinking motives are often treated as static

predictors of drinking behavior, removed from the context in which decisions to use alcohol are made (O'Hara, Armeli, & Tennen, 2015). This is relatively problematic, as drinkers commonly report that their drinking decisions are influenced by factors such as drinking location, presence of others, and external contingencies on behavior (e.g., Bachrach, Merrill, Bytschkow, & Read, 2012; Johnson & Sheets, 2004). This tendency to treat drinking motives as decontextualized may be an artifact of how drinking motives are most commonly assessed: Participants are generally asked how often particular motives globally influence their drinking without specific contextual information (e.g., Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992).

Given important developmental tasks associated with peer interactions for adolescents and emerging adults (EAs), peer contexts of drinking have been the focus of a substantial body of research in these age-groups (Anderson, Duncan, Buras, Packard, & Kennedy, 2013; Kuendig & Kuntsche, 2012). However, much of the work conducted on drinking contexts has focused on university students. Although EA includes individuals who are not enrolled in college, the subset of EAs who attend college experience a substantial increase in heavy drinking from 12th grade into college, where they continue to evidence the greatest consistency and highest levels of heavy drinking when compared to noncollege-attending EAs (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2014). Moreover, college-attending EAs have been found to be more likely to report past month drunkenness (Johnston et al., 2014), more likely to be diagnosed with alcohol abuse (as defined in the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition; Slutske, 2005), more likely to be diagnosed with an alcohol use disorder (Blanco et al., 2008), and less likely to receive past year treatment for alcohol disorders when compared to their noncollege-attending peers (Blanco et al., 2008). Therefore, college students may represent a subgroup of EAs that are especially at risk for hazardous use. Within collegiate samples, research suggests that first-year students, typically 18- to 20-year-old EAs, disproportionally bear the burden for drinking-related harm (Borsari, Murphy, & Barnett, 2007; Ham & Hope, 2003).

While university students drink in a diversity of settings, specific social contexts are associated with greater negative alcohol-related consequences, including consuming alcohol before attending an event (i.e., preloading, prepartying, or pregaming; Pedersen, LaBrie, & Kilmer, 2009; Read, Merrill, & Bytschkow, 2010), residence hall and off-campus parties, 21st birthday celebrations, and drinking games. Preloading is commonly associated with risky drinking behavior among EAs, both in the United States and in the Europe, resulting in higher blood alcohol levels and negative outcomes including blackouts and alcohol poisoning (Kuntsche & Labhart, 2013; LaBrie, Hummer, Pedersen, Lac, & Chithambo, 2012; Sheehan, Lau-Barraco, & Linden, 2013). Kuntsche and Labhart (2013) investigated the interaction of drinking motives and preloading in event-related analyses with Swiss EAs and found that high coping motives and engaging in preloading led to increased alcohol-related consequences, particularly for women. In university residence halls, and most prominently in coed dormitories, underage drinking is common and associated with heavy drinking (Harford, Wechsler, & Seibring, 2002). Off-campus parties are also common drinking contexts for students, often associated with increased alcohol consumption and heavy episodic drinking (5 + drinks/episode; Harford et al., 2002; Paschall & Saltz, 2007). In the United States, 21st birthday celebratory drinking is associated with greater alcohol

consumption per episode, high estimated blood alcohol concentrations, and increased alcohol-related consequences (Brister, Sher, & Fromme, 2011; Lewis, Lindgren, Fossos, Neighbors, & Oster-Aaland, 2009; Neighbors, Lee, Lewis, Fossos, & Walter, 2009; Piontek, Kraus, & Rist, 2013).

Preloading and drinking game participation are commonly linked, as are drinking games and 21st birthday celebrations. This crossover potentially magnifies the consequences experienced by youth in these contexts (Hummer, Napper, Ehret, & LaBrie, 2013; Neighbors et al., 2014). Drinking game participation is relatively common among collegiate drinkers (47–62% in the past month; Borsari, 2004; Borsari et al., 2007). Drinking games are highly specialized social activities where play is designed to increase alcohol consumption and are often associated with higher rates of alcohol-related consequences (Foster & Ferguson, 2014; Hummer et al., 2013; Sheehan et al., 2013), particularly for younger students and women (Borsari, 2004; Johnson & Sheets, 2004). While some work has examined the role of drinking motives specific to preloading (Bachrach et al., 2012) and drinking game contexts (Borsari, Bergen-Cico, & Carey, 2003; Johnson, Hamilton, & Sheets, 1999; Johnson & Sheets, 2004), limited work has tied contextually specific motives to consumption in the other situations discussed above.

One challenge for the study of social–contextual features of drinking is the ability to study these phenomena in a controlled manner (Anderson et al., 2013; Anderson & Parent, 2007). Laboratory procedures can increase experimental control and are increasingly available for the investigation of social influence and situational features on alcohol-related decision-making. For example, simulated drinking game procedures have been developed to investigate social and contextual influences, such as gender and game type, on alcohol consumption in college students (Cameron, Leon, & Correia, 2011; Correia & Cameron, 2010). Imitation paradigms demonstrate the effects of peer drinking (e.g., Larsen, Engels, Granic, & Overbeek, 2009), and taste tests have examined how solitary versus social contexts influence drinking behavior among EAs (Kuendig & Kuntsche, 2012). Due to legal and ethical boundaries, laboratory simulations for underage drinkers (i.e., under 21 years) in the United States rely on the assessment of a participants' willingness to drink alcoholic beverages rather than actual consumption.

Behavioral willingness (BW), or openness to engaging in a behavior given the opportunity to do so (Pomery, Gibbons, Reis-Bergen, & Gerrard, 2009), is a contextually dependent aspect of nondeliberative decision-making for youth (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008). Dual process models of decision-making propose that a lack of reflection, in tandem with cognitions supportive of behavioral engagement (e.g., motives, prototypes, norms, implicit cognitions), lead to high-risk behavior for youth through the impulsive pathway (Gerrard et al., 2008; Jackson et al., 2014; Wiers, Gladwin, Hofmann, Salemink, & Ridderinkhof, 2013). In the prototype-willingness model, BW is one final pathway to alcohol use, smoking, sexual behavior, and other high-risk behaviors for youth, particularly in peer contexts (Gerrard et al., 2008; Gibbons, Gerrard, Blanton, & Russell, 1998). BW is a robust predictor of alcohol use engagement, both cross-sectionally and longitudinally, in adolescence and early EA (Anderson et al., 2013, 2014; Andrews, Hampson, Barckley,

Gerrard, & Gibbons, 2008; Andrews, Hampson, & Petersen, 2011; Gerrard et al., 2008; Jackson et al., 2014).

Given that context is central to how BW is believed to operate, the assessment of BW traditionally involves vignette descriptions of social situations where youth are offered an opportunity to engage in the target behavior volitionally, divorced from social pressure (Gerrard et al., 2008). Newer techniques allow for the use of audio and video stimuli to enhance the ecological validity of such methods. Anderson, Duncan, Buras, Packard, and Kennedy (2013) developed the Collegiate-Simulated Intoxication Digital Elicitation (C-SIDE), an audio simulation used to predict drinking behavior in college students (18–20 years of age). The C-SIDE assesses students' willingness to accept offers of food, nonalcoholic beverages, and alcohol after the presentation of five simulated scenes commonly associated with heavy drinking for university students (i.e., preloading, small dorm party, 21st birthday, and two drinking game scenarios). In first-year college students, alcohol BW prospectively predicted average alcohol consumption and hazardous drinking at the end of their first academic year (Anderson et al., 2013). Recently, Larsen, Salemink, Wiers, and Anderson (2015) investigated the use of a culturally adapted version of the C-SIDE to simulate heavy drinking context for EAs. In Dutch university students (aged 18–30 years), the C-SIDE simulation method predicted drinking 30 days later better than traditional vignette methods for assessing BW (Larsen, Salemink, Wiers, & Anderson, 2015). Using a video simulation, Anderson and colleagues (2014) examined decision-making regarding the use of alcohol and marijuana in peer contexts for 14- to 19-year-olds and supported concurrent associations between BW for alcohol and marijuana use on the simulation and self-reported use as well as drinking motives and marijuana expectancies.

As BW and drinking motives are believed to be proximal predictors of alcohol use (Cooper et al., 2015; Gerrard et al., 2008), the interplay of these cognitions in alcohol-related decision-making was anticipated. However, no study to date has explicitly examined these relations. The goal of this study was to examine whether context-specific alcohol BW assessed in 18- to 20-year-olds during the first weeks of college would interact with their drinking motives to predict alcohol consumption at the end of students' first year. Given their status as the most commonly endorsed motive for drinking (Cooper et al., 2015) and relations to social drinking environments (O'Hara et al., 2015), we expected positive reinforcement motives (social and enhancement) to be associated with increased willingness to consume alcohol in peer contexts and to predict increased drinking in the future. On the basis of Kuntsche and Labhart's (2013) work, we expected that BW in the preloading context would moderate the relation between coping motives and increased use 8 months later, similar to their findings using event-level measures of contextualized consumption. As the interplay of BW in other contexts and drinking motives has not been studied previously, the remaining analyses were exploratory.

Method

Participants

Institutional review boards at participating colleges and universities approved all procedures. Ninety-eight lifetime drinkers from three schools (one state university and two small liberal

arts colleges) in the Pacific Northwest participated in the study. All were incoming first-year students between the ages of 18 and 20 years recruited via posters and table advertisements during orientation week. Eighty-eight participants (89.8% of original sample) completed both assessments as part of the validation study for the C-SIDE (Anderson et al., 2013). One student did not complete drinking motives items due to administrator error; as such, the final N for the analyses was 87 (63.2% women; $M_{age} = 18.6$, $SD = 0.39$; 86.1% White, 8.1% Asian/Pacific Islander, 5.8% Other, 8.1% Hispanic/Latino/a). In the 3 months prior to college, students drank on average 3.4 drinks per occasion ($SD = 3.13$) on 5.91 days per month ($SD = 6.69$), with 6.77 drinks ($SD = 5.16$) on heaviest drinking occasions.

Time 1 Measures

Alcohol consumption before college.—Students answered three questions (i.e., quantity, frequency, and frequency of heavy episodic drinking) assessing alcohol use in the 3 months prior to college at baseline assessment. This measure was used to describe the sample characteristics in terms of drinking at the time of recruitment (see above).

C-SIDE.—The C-SIDE was presented via laptop computer, and students wore headphones geared to provide optimal sound quality. Training on the simulation was conducted by a research assistant of the same gender as the participant using two neutral (i.e., nonalcohol) scenes. Students were instructed to visualize themselves in the simulated situations, as they listened to five randomly ordered vignettes (i.e., preloading, dorm party, 21st birthday party, beer pong, and movie game) containing alcohol-related content (2–3 min in length). For example, the preloading simulation begins with an audio description depicting students walking across campus when a girl approaches and invites the listener to come drink before ''seeing her little brother's band.'' The audio scene then changes to depict arrival at a social gathering: footsteps walking down a hallway, muffled sounds of a group of people socializing that become louder as the listener approaches a door, a knock at the door, and, finally, the door opening to the sounds of a group of six students (three male and three female) hanging out in a dormitory room. They can be heard listening to music, talking, drinking, and eating. Approximately every 20 s, the listener and/or the group is offered an alcoholic beverage, food, or nonalcoholic beverage from an actor within the scene (*Hey, do you want a shot?*). Each scene results in five offers balanced across alcoholic beverages and food/nonalcoholic beverages across the simulation. Specific offers were randomly assigned to scenes. See Anderson et al. (2013) for more details on the simulation development and procedure; please contact the first author for access to the C-SIDE paradigm.

After each scene, participants rated their willingness to accept or reject each offer of alcohol (2–3 per scene; e.g., cup of beer, 40 oz. beer, vodka) within each scenario on a 1 (*not at all willing*) to 5 (*very willing*) Likert-type scale (Anderson et al., 2013). Reliabilities for alcohol BW ratings varied across scenes: preloading α = .81, dorm party α = .61, 21st birthday party α = .71, beer pong α = .61, and movie game α = .67.

Drinking motives.—The Drinking Motives Questionnaire–Revised (DMQ-R; Cooper, 1994) is a 20-item self-report measure assessing social (α = .91; $M = 3.07$; $SD = 1.17$), coping (α = .87; $M = 1.84$; $SD = 0.89$), enhancement (α = .92; $M = 2.86$; $SD = 1.22$),

and conformity (α = .88; M = 1.53; SD = 0.89) motives. This measure's validity has been repeatedly demonstrated across diverse samples (Cooper et al., 2015).

Time 2 Measures (End of Academic Year)

Alcohol consumption.—Participants responded to a version of the Drinking Norms Rating Form (Baer, Stacy, & Larimer, 1991), assessing how many standard drinks students consumed on each day of the week (Monday–Sunday) across an average week in the past month. A quantity–frequency (Q/F) index of alcohol consumption was computed by summing the number of self-reported average drinks consumed per day for a typical drinking week. On average, students consumed 6.78 alcoholic beverages per week at the end of their first year (SD = 6.92).

Alcohol Use Disorders Identification Test (AUDIT).—Participants responded to the AUDIT (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Kokotailo et al., 2004), a 10-item self-report measure regarding alcohol consumption, alcohol dependence, and alcohol-related problems (α = .81; M = 7.03, SD = 5.44; range = 0–23). Higher scores on the AUDIT are indicative of more hazardous alcohol use. The AUDIT has been found to have good reliability and validity with EAs attending university (O'Hare & Sherrer, 1999).

Procedure

Participants individually completed the C-SIDE on campus at the beginning of their first year of college (T1). To prevent priming effects on the simulation, questionnaires regarding drinking motives and alcohol use were completed following C-SIDE administration. Toward the end of that academic year (T2), participants were e-mailed a link to SurveyMonkey (www.surveymonkey.com), a secure, independent survey site, and asked to complete alcohol use measures.

Analytic Strategy

Analyses were conducted using Stata SE 14 (StataCorp, 2015). Before conducting multiple regressions, we examined bivariate relations between independent (BW, drinking motives) and dependent variables (Q/F, AUDIT). To test our main hypotheses, moderation was tested via regression with the inclusion of all main effects and interaction terms (BW at the Scene Level × Drinking Motive Type; e.g., BW for Preloading × Social Motives) for predictors that showed a statistically significant bivariate association with the outcomes. Based on recommendations, BW and motives scores were mean centered before analysis (Cohen, Cohen, West, & Aiken, 2003; Jaccard & Turrisi, 2003). When models evidenced nonsignificant interaction terms, models were trimmed of the interaction terms and main effects were analyzed using the centered variables. Given recommendations by Hayes (2013) and Efron (1987) for the use of bootstrapped confidence intervals and our relatively small sample size, we chose to use bias-corrected and accelerated confidence intervals to adjust for bias due to potential non-normality and in the estimation of population parameters, as well as skewness in the bootstrap distribution. Given the number of analyses conducted, we used a moderate Holm-corrected p value to control for family-wise error rates for bivariate associations as well as for the omnibus tests when multiple regressions were

conducted (Holm, 1979). The Holm-corrected *p* value allows for correction due to multiple comparisons to reduce the probability of Type I errors. This test is less conservative than the traditional Bonferroni adjustment through the use of a stepwise rejection procedure, retaining power in detecting an effect (Holm, 1979).

Results

First, we examined associations between BW to consume alcohol within each scene with DMQ-R scale scores (Table 1). As predicted, social and enhancement motives were associated with BW across peer use contexts. While coping motives were correlated with BW in the preloading and drinking game contexts, such associations were not found at the bivariate level for the small dorm party and 21st birthday party. Conformity motives did not significantly relate to BW in any of the scenes. As conformity motives were not significantly associated with drinking outcomes 8 months later, they were not included within the predictive models.

The interaction of BW and coping motives was the most consistently identified moderated effect on increased Q/F of drinking and AUDIT scores at T2 (Tables 2 and 3). Higher coping motives related to greater Q/F for students who endorsed higher levels of BW in the 21st birthday party and in both drinking game contexts (Table 2; Figure 1). These situation-specific BW and coping motive interactions were also significant predictors of later AUDIT scores, again suggesting that increased coping motivation related to higher AUDIT scores for students who endorsed higher levels of BW in these contexts (Figure 1). In addition to the significant interactions found between coping and BW, specific to the beer pong drinking game context only, the interaction between situation-specific BW and social motives predicted greater Q/F at T2, suggesting that higher BW for this drinking game potentiated associations between higher social motives and increased drinking (Figure 2). Across all scenes with significant interactions, social motives significantly predicted alcohol outcomes (Tables 2 and 3).

When interaction terms were not statistically significant in the models described above, the interaction effect was dropped from analysis and main effects were evaluated alone. Social motives predicted Q/F and AUDIT scores at T2 in all main effects models evaluated, except for the prediction of Q/F in the preloading scene (Tables 4 and 5). BW in the preloading scene and coping motives independently predicted increased Q/F (Table 4), while BW for the movie game significantly improved the prediction of AUDIT at T2 (Table 5).

Discussion

The goal of this study was to examine whether context-specific alcohol BW assessed in 18- to 20-year-olds during the first weeks of college would interact with drinking motives to predict alcohol consumption at the end of students' first year. Consistent with research on contexts of drinking and drinking motives (Cooper et al., 2015), social and enhancement motives were related to increased alcohol BW across different peer drinking contexts at the bivariate level. Interestingly, coping motives were associated with willingness to drink alcohol in the preloading context and both drinking game contexts. Theoretical work and

daily diary studies suggest that drinking to cope is more consistent with drinking alone rather than convivial drinking with peers (Cooper et al., 2015; Mohr et al., 2001). Similarly, we found these associations in smaller drinking contexts, rather than those described as ''parties'' (i.e., small dorm party, 21st birthday party). As found in previous studies (e.g., Kuntsche & Cooper, 2010; O'Hara et al., 2015), conformity motives were unrelated to drinking outcomes. In addition, conformity motives were unrelated to BW in specific drinking contexts.

With surprising consistency, BW and coping motives interacted across four of the five contexts for increased alcohol consumption across a span of 8 months. Although there have been mixed findings regarding how drinking motives and negative affect relate to alcohol use, Buckner and Heimberg (2010) suggested that contradictory findings regarding relations between the management of negative affect and alcohol use may relate to the lack of attention to specific contexts of drinking. Buckner and Heimberg's ideas seem especially relevant when examining our findings, as coping motives were less consistent in predicting the alcohol outcomes as main effects; however, the introduction of the situational willingness to engage in alcohol use (i.e., interaction) led to improved consistency in predicting the alcohol outcomes. This finding also lends partial support to O'Hara, Armeli, and Tennen's (2015) hypothesis that there might be a differential impact of coping motives on alcohol consumption dependent on state versus trait-level coping motives and the context in which one is drinking. Thus, situational and personal factors may interact to activate different drinking motives and increase or decrease the willingness to engage in alcohol use. In light of findings from Kuntsche and Labhart (2013) regarding the interaction of preloading and coping motives on alcohol-related consequences, the effect of BW in peer contexts to potentiate the effects of general coping motives is an intriguing finding, suggesting that situational specificity in drinking decision-making may be particularly important when evaluating the effects of coping motives on outcomes.

There was less support for the interaction of BW and other motives in the prediction of drinking. Across analyses, social motives were a consistent predictor of later drinking and AUDIT scores but were generally not moderated by situationally specific BW. A single exception was in the case of BW in the beer pong context, where BW potentiated social motives effects on later alcohol consumption. Overall, our findings support the past literature suggesting the importance of social motives in the prediction of social drinking in EAs (Cooper et al., 2015).

When moderation was unsupported, we examined the prediction of alcohol use and AUDIT scores considering scene-specific BW and motives as independent predictors. Despite the interaction between coping and situational willingness, coping motives only independently predicted Q/F outcomes in the regression for the preloading context, further lending support to the idea that situational specificity may be an important component when examining coping motives. BW for preloading and participation in a movie-based drinking game predicted global indices of later drinking, suggesting that BW can be an important factor in drinking outcomes when considering reasons to drink. Further research is needed to determine the process by which BW interacts with drinking motives to influence alcohol consumption and problematic drinking. As BW assessed here was tied to specific drinking

contexts, but drinking outcomes were assessed in aggregate across drinking situations, do we find moderation only when the use context in the simulation matches EA's most commonly endorsed drinking situation? Would these findings look different if the motives assessed were contextually specific (e.g., drinking game motives)? These are important considerations that should be examined in future work.

The C-SIDE paradigm provides a window into context-specific decision-making regarding alcohol consumption, with the benefit of teasing apart differences relating to identified high-risk contexts for EAs in college: preloading, small dorm party, drinking games, and 21st birthday drinking. However, we were unable to examine all social contexts relevant for problematic drinking in college students or EAs in the general community. Recent work has examined specific risks associated with Spring Break drinking for students (Patrick, Lewis, Lee, & Maggs, 2013), an open arena for the use of this type of simulation. While some situations portrayed were not specific to EAs in college (i.e., 21st birthday celebration, drinking games), others were quite specific (i.e., dorm party; preloading in a dorm room). Work is needed to develop simulations for contexts that are relevant for the broader populations of EAs.

While intriguing, the present study's findings need to be replicated in larger, more diverse EA samples for several reasons. First, we were unable to examine how gender might moderate the relations found in the present study, an important consideration in light of Kuntsche and Labhart's (2013) findings, which demonstrated an interaction of coping motives and preloading on alcohol-related consequences for women but not men. Second, most of the interaction effects were small; therefore, the ability to detect an effect may have been hampered by our relatively small sample size. Although previous work has demonstrated that BW predicts later alcohol outcomes over and above prior drinking history and AUDIT scores (Anderson et al., 2013), we did not include these baseline factors here. Sample size considerations and the number of parameters estimated in our regression equations limited the number of predictors we could include. Future work using this simulation should examine the effects on change in drinking across time through the inclusion of these baseline assessments in larger samples. In addition, the reliabilities for BW in some scenes were low, likely as a function of few alcohol offers at the scene level (i.e., fewer items can lead to lower reliabilities). Given the recent advent of event-specific motives measures, like those for preloading (Bachrach et al., 2012) and drinking games (Borsari et al., 2003; Johnson & Sheets, 2004), future studies should examine relations between BW as assessed by the C-SIDE, context-specific motive measures, and drinking-related outcomes.

Laboratory simulations have a role in our understanding of basic processes underlying alcohol-related decision-making and hold promise for novel intervention strategies (Anderson & Parent, 2007). As a recent meta-analysis of alcohol interventions for first-year college students found that interventions that included identification of risky contexts and personalized feedback improved efficacy and helped first-year college students decrease their alcohol use (i.e., in terms of Q/F; Scott-Sheldon, Carey, Elliot, Garey, & Carey, 2014), the use of laboratory simulations that use ecologically rich situations and incorporate in-the-moment willingness to engage in risky decision-making may strengthen personalized

feedback. In tandem with motivational enhancement strategies and the use of the simulated situations, goal-directed action related to situationally specific risks can be explored in more ecologically valid and perhaps more effective ways. Further, using laboratory simulations may help in evaluating the pre- and postprevention and intervention efforts in identified high-risk situations for individuals. Neighbors and colleagues evaluated prevention programs geared toward reducing consequences associated with 21st birthday drinking in college students, demonstrating mixed results depending on the focus of intervention and general versus specific strategies (Lewis et al., 2009; Neighbors et al., 2009, 2012). Inclusion of simulated situations paradigms in research may provide a more specific lens to view outcomes from such interventions.

In an earlier investigation in this sample (Anderson et al., 2013), we demonstrated that BW predicted later alcohol consumption above and beyond baseline use measures. The present study advances the literature by highlighting the importance of considering motives in such investigations and illuminating a potential mechanism whereby BW in peer drinking contexts interact with drinking motives to constitute specific risks for increased and potentially problematic consumption. Although deliberative and systematic reasons are important in understanding individuals' drinking motives, drinking motives assessed outside of context may be inadequate in understanding the unplanned, reactive decisions to the risk-conducive situations. Clearly, drinking motives are part of a larger decision-making process that involves a number of dynamic processes that are impacted by individual and contextual factors.

Acknowledgments

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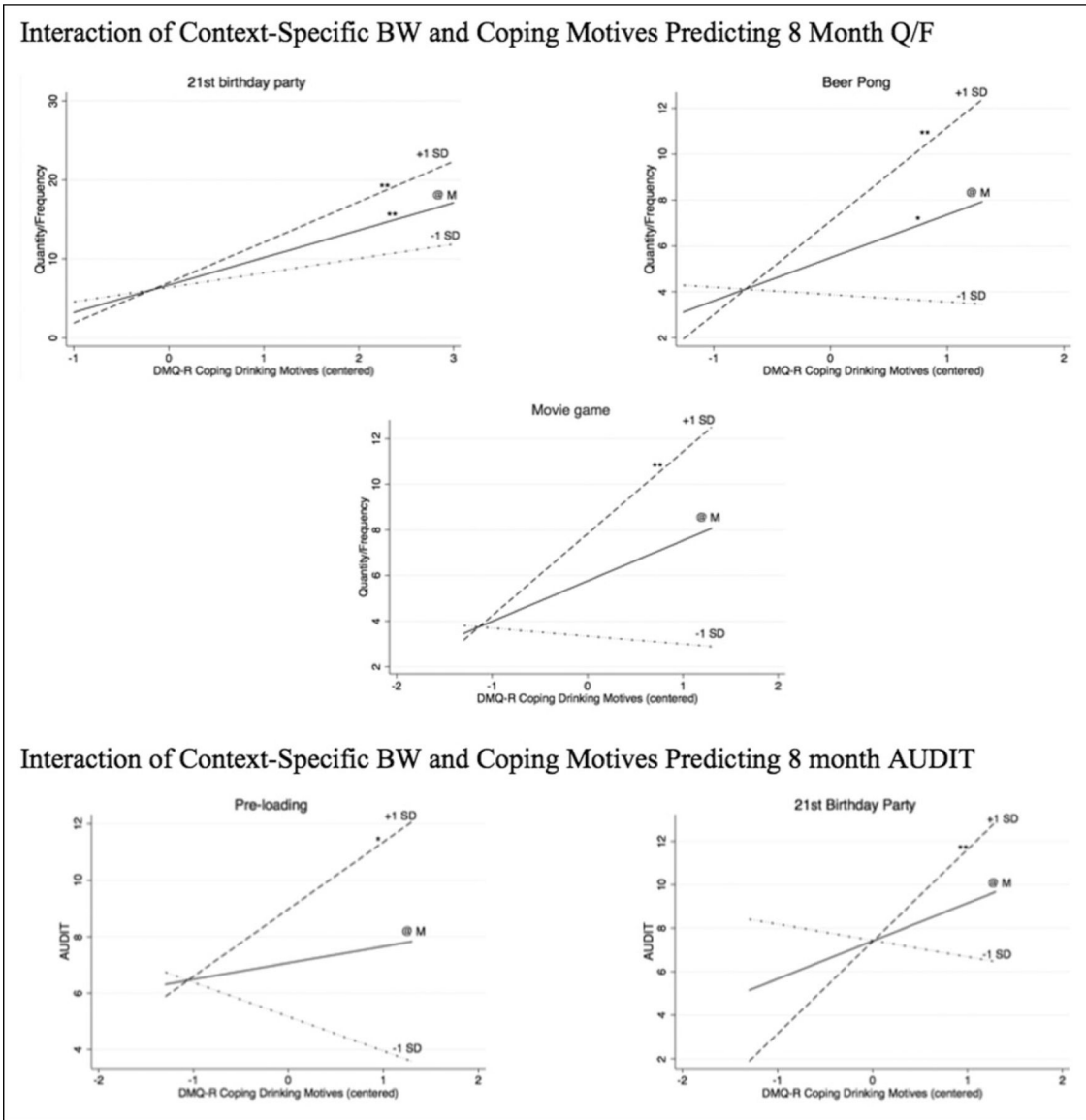
Figure 1.
Interaction of mean-centered behavioral willingness (BW) and mean-centered coping motives on quantity–frequency and Alcohol Use Disorders Identification Test scores (N = 87). $*p < .05$. $**p < .01$. @M = at mean.
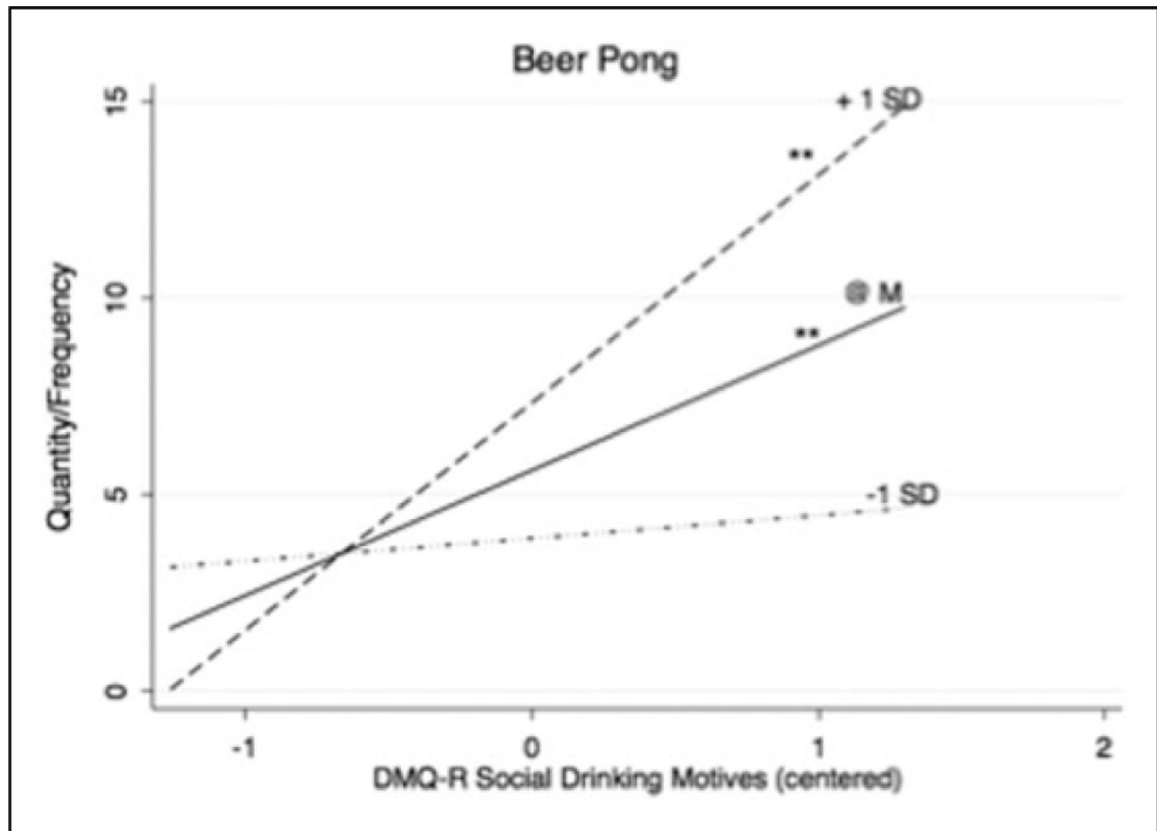
Figure 2.
Interaction of mean-centered behavioral willingness (BW) and mean-centered social motives on quantity–frequency ($N = 87$). **$p < .01$. @M = at mean.

Table 1.

Pairwise Correlations of Willingness to Drinking in C-SIDE Contexts and DMQ-R Drinking Motives.

Measure	1	2	3	4	5	6	7	8
1. BW preloading	—							
2. BW dorm party	.85*							
3. BW 21st birthday	.69*	.71*						
4. BW beer pong	.71*	.69*	.63*					
5. BW movie game	.79*	.72*	.66*	.62*				
6. Social	.71*	.65*	.59*	.54*	.64*			
7. Coping	.34*	.28	.10	.30*	.36*	.55*		
8. Enhancement	.62*	.56*	.47*	.49*	.53*	.82*	.82*	
9. Conformity	.08	.03	.03	.01	.10	.46*	.50*	.39*

Note. N = 87.

*
Holm-modified Bonferroni *p* values used to indicate statistical significance. BW = behavioral willingness; DMQ-R = Drinking Motives Questionnaire–Revised; social = DMQ-R social motives; coping = DMQ-R coping motives; enhancement = DMQ-R enhancement motives; conformity = DMQ-R conformity motives; C-SIDE = Collegiate-Simulated Intoxication Digital Elicitation.

Table 2.

Regression of Quantity/Frequency Drinking Outcomes on Behavioral Willingness Ratings, DMQ-R Drinking Motives, and Interaction Terms by Scene When Interactions Were Significant.

	B	*SE*	*p*	CI
21st Birthday				
BW	0.40	0.73	.59	[−0.99, 1.93]
Social	**2.82**	**1.17**	**.02**	**[0.66, 5.35]**
Coping	**3.47**	**1.28**	**.007**	**[0.85, 5.77]**
Enhancement	−1.15	0.79	.15	[−2.72, 0.35]
BW × Social	0.49	0.79	.54	[−1.06, 1.99]
BW × Coping	**2.05**	**1.06**	**.04**	**[0.17, 3.92]**
BW × Enh	−0.97	0.78	.21	[−2.49, 0.60]
Overall model	Wald $\chi^2(7) = 42.72$, $R^2 = .40$, $p < .0001$			
Beer pong				
BW	**1.30**	**0.63**	**.05**	[−0.10, 2.46]
Social	**3.19**	**1.03**	**.002**	**[1.23, 5.22]**
Coping	**1.88**	**0.85**	**.03**	**[0.38, 3.72]**
Enhancement	−1.21	0.75	.12	[−2.73, 0.18]
BW × Social	**2.07**	**0.93**	**.02**	**[0.36, 4.03]**
BW × Coping	**1.74**	**0.89**	**.04**	**[−0.04, 3.45]**
BW × Enh	−1.33	0.80	.09	[−2.65, 0.33]
Overall model	Wald $\chi^2(7) = 59.14$, $R^2 = .51$, $p < .0001$			
Movie game				
BW	**1.76**	**0.54**	**.001**	**[0.64, 2.73]**
Social	**2.54**	**1.01**	**.01**	**[0.70, 4.73]**
Coping	**1.62**	**0.79**	**.04**	**[0.41, 3.55]**
Enhancement	−0.93	0.81	.25	[−2.61, 0.57]
BW × Social	1.21	0.77	.12	[−0.16, 2.97]
BW × Coping	**1.52**	**0.73**	**.04**	**[−0.33, 2.85]**
BW × Enh	−0.80	0.73	.28	[−2.34, 0.67]
Overall model	Wald $\chi^2(7) = 69.96$, $R^2 = .52$, $p < .0001$			

Note. $N = 87$. All predictors were centered prior to analysis. Holm-modified Bonferroni *p* values used to indicate statistical significance at the omnibus level. Confidence intervals and standard errors were calculated using bias-corrected and accelerated confidence intervals with 1,000 replicates. BW = behavioral willingness; DMQ-R = Drinking Motives Questionnaire–Revised; social = DMQ-R social motives; coping = DMQ-R coping motives; enhancement or Enh = DMQ-R enhancement motives. Bold values indicate *p* < .05.

Table 3.

Regression of AUDIT Drinking Outcomes on Behavioral Willingness Ratings, DMQ-R Drinking Motives, and Interaction Terms by Scene When Interactions Were Significant.

Preloading	*B*	*SE*	*p*	CI
BW	**1.47**	**0.54**	**.006**	**[0.49, 2.62]**
Social	**1.93**	**0.81**	**.02**	**[0.36, 3.50]**
Coping	0.58	0.72	.42	[−0.71, 2.08]
Enhancement	−0.43	0.58	.46	[−1.59, 0.74]
BW × Social	−0.02	0.59	.98	[−1.28, 1.00]
BW × Coping	**1.38**	**0.64**	**.03**	**[0.35, 2.79]**
BW × Enh	−0.58	0.53	.27	[−1.49, 0.43]
Overall model	Wald $\chi^2(7) = 114.23$, $R^2 = .51$, $p < .0001$			
21st Birthday				
BW	−0.03	0.58	.97	[−1.15, 1.10]
Social	**2.69**	**0.89**	**.003**	**[1.07, 4.55]**
Coping	1.74	0.95	**.07**	**[−0.10, 3.65]**
Enhancement	−0.47	0.62	.45	[−1.69, 0.70]
BW × Social	−0.51	0.64	.43	[−1.84, 0.71]
BW × Coping	**1.92**	**0.72**	**.008**	**[0.69, 3.31]**
BW × Enh	−0.28	0.56	.62	[−1.31, 0.90]
Overall model	Wald $\chi^2(7) = 83.55$, $R^2 = .46$, $p < .0001$			

Note. $N = 87$. All predictors were centered prior to analysis. Holm-modified Bonferroni *p* values used to indicate statistical significance at the omnibus level. Confidence intervals and standard errors were calculated using bias-corrected and accelerated confidence intervals with 1,000 replicates. BW = behavioral willingness; DMQ-R = Drinking Motives Questionnaire–Revised; social = DMQ-R social motives; coping = DMQ-R coping motives; enhancement or Enh = DMQ-R enhancement motives. Bold values indicate *p* < .05.

Table 4.

Regression of Quantity/Frequency on Behavioral Willingness Ratings and DMQ-R Drinking Motives for Scenes With *ns* Interactions.

Preloading	*B*	*SE*	*p*	CI
BW	**2.79**	**0.72**	**.001**	**[1.32, 4.12]**
Social	1.32	1.10	.23	[−0.75, 3.60]
Coping	**2.09**	**1.03**	**.04**	**[0.48, 4.21]**
Enhancement	−1.45	0.89	.10	[−3.38, 0.08]
Overall model	Wald $\chi^2(4) = 59.26$, $R^2 = .44$, $p < .0001$			
Dorm party				
BW	1.22	0.86	.16	[−0.47, 2.90]
Social	**2.34**	**1.13**	**.04**	**[0.13, 4.56]**
Coping	2.13	1.20	.10	[−0.36, 4.32]
Enhancement	−1.22	0.88	.21	[−2.81, 0.62]
Overall model	Wald $\chi^2(4) = 48.37$, $R = .34$, $p < .0001$			

Note. $N = 87$. All predictors were centered prior to analysis. Holm-modified Bonferroni *p* values used to indicate statistical significance at the omnibus level. Confidence intervals and standard errors were calculated using bias-corrected and accelerated confidence intervals with 1,000 replicates. BW = behavioral willingness; DMQ-R = Drinking Motives Questionnaire–Revised; social = DMQ-R social motives; coping = DMQ-R coping motives; enhancement or Enh = DMQ-R enhancement motives; *ns* = nonsignificant. Bold values indicate *p* < .05.

Table 5.

Regression of AUDIT on Behavioral Willingness Ratings and DMQ-R Drinking Motives for Scenes With *ns* Interactions.

Dorm party	*B*	*SE*	*p*	CI
BW	1.02	0.59	.08	[0.60, 2.40]
Social	**2.18**	**0.79**	**.006**	**[0.62, 3.80]**
Coping	0.63	0.90	.48	[−0.85, 2.64]
Enhancement	−0.37	0.66	.57	[−1.83, 0.90]
Overall model	*Wald* $\chi^2(4) = 96.83$, $R^2 = .41$, $p < .0001$			
Beer pong				
BW	0.80	0.68	.23	[−0.59, 2.00]
Social	**2.51**	**0.80**	**.002**	**[1.01, 4.16]**
Coping	0.48	0.92	.60	[−1.32, 2.18]
Enhancement	−0.38	0.67	.57	[−2.09, 0.68]
Overall model	Wald $\chi^2(4) = 81.87$, $R^2 = .40$, $p < .0001$			
Movie game				
BW	**1.40**	**0.61**	**.02**	**[0.21, 2.59]**
Social	**1.97**	**0.77**	**.01**	**[0.47, 3.47]**
Coping	0.46	0.83	.58	[−1.16, 2.08]
Enhancement	−0.37	0.60	.54	[−1.55, 0.81]
Overall model	Wald $\chi^2(4) = 112.64$, $R^2 = .44$, $p < .0001$			

Note. $N = 87$. All predictors were centered prior to analysis. Holm-modified Bonferroni *p* values used to indicate statistical significance at the omnibus level. Confidence intervals and standard errors were calculated using bias-corrected and accelerated confidence intervals with 1,000 replicates. BW = behavioral willingness; DMQ-R = Drinking Motives Questionnaire–Revised; social = DMQ-R social motives; coping = DMQ-R coping motives; enhancement or Enh = DMQ-R enhancement motives; AUDIT = Alcohol Use Disorders Identification Test; *ns* = nonsignificant. Bold values indicate $p < .05$.