



# Drinking motives as moderators of the effect of ambivalence on drinking and alcohol-related problems

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## HIGHLIGHTS

- We evaluated motives as moderators of problems.
- Drinking motives and ambivalence interacted to predict problems.
- Hierarchical regressions were used to evaluate these effects.

## ARTICLE INFO

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Drinking  
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Enhancement  
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## ABSTRACT

The current study seeks to evaluate relationships between drinking motives and alcohol-related ambivalence in the prediction of problem drinking. We expected that: 1) main effects would emerge such that alcohol-related ambivalence would be positively associated with peak drinking and problems; drinking motives would be positively associated with drinking and problems, and 2) interactions would emerge between motives and ambivalence in predicting problematic drinking such that drinking motives would be positively associated with peak drinking and problems, especially among those high in ambivalence over drinking. Six hundred sixty-nine undergraduate students (mean age = 22.95, SD = 5.47, 82.22% female) completed study materials. Results showed that consistent with expectations, ambivalence was positively associated with peak drinking and problems. Further, consistent with expectations, drinking motives were positively associated with peak drinking and problems. Additionally, ambivalence was positively associated with drinking motives. Significant interactions emerged between drinking motives (social and coping) and ambivalence when predicting peak drinking and alcohol-related problems. These findings highlight the importance of considering motives in the relationship between ambivalence and drinking. Clinical implications include the need for tailoring interventions to target individual difference factors that increase risk for heavy drinking and associated problems. This is especially important among college students who may be at risk for problematic behavior.

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## 1. Introduction

### 1.1. College drinking

Alcohol contributes to the leading cause of accidental death such as falls and motor vehicle crashes (U.S. Dept of Health and Human Services, 1990; Wechsler & Davenport, 1994; Wechsler & Nelson, 2008). Alcohol use at any level significantly increases the odds of dying in a motor vehicle accident (Taylor & Rehm, 2012) and as such, alcohol consumption has important public health implications. There are many negative consequences associated with alcohol intoxication, and these

include unintentional injuries, unsafe sex, and growing threat of the spread of acquired immunodeficiency syndrome (AIDS), as well as other sexually transmitted diseases (Cooper, 2002; Hanson & Engs, 1992; Presley, Meilman, & Lyster, 1993; Scott-Sheldon, Carey, & Carey, 2010; Wechsler & Isaac, 1992). Although drinking is illegal in the United States for undergraduate students not yet 21 years of age, prevalence of college drinking and harms associated with it continue to rise (Mitka, 2009). A review of undergraduate drinking across multiple countries including Brazil, Australia, Egypt, Ecuador, Hong Kong, Germany, Lebanon, Ireland, Nigeria, New Zealand, The Netherlands, Sweden, and Turkey revealed that college students are at elevated risk for heavy drinking (Karam, Kypri, & Salamoun, 2007). As such, regardless of country or culture, undergraduates are at increased risk for serious immediate and longer term health risks including driving while intoxicated, other substance use, and alcohol dependence (Karam et al., 2007).

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## 1.2. Ambivalence

Many individuals who engage in heavy alcohol use experience ambivalence toward alcohol (Cameron, Stritzke, & Durkin, 2003; Conner et al., 2002; Graham, 2003; Leigh, 1989; Miller & Rollnick, 2002). Ambivalence is conceptualized as internal conflict induced by holding opposing cognitions (e.g., I enjoy the buzzed feeling I get from drinking, however, I dislike the hangover I feel in the morning). Ambivalence can exist in degrees that increase or decrease with time as an individual struggles with the experience of dissonant and conflicting motivations (Miller & Rollnick, 2002). Drinkers tend to have complicated positive and negative evaluations of drinking and are cognizant of compelling reasons for drinking (e.g., de Visser & Smith, 2007). Individuals struggling with alcohol addiction typically experience co-existing and discordant motivations including simultaneously wanting to quit (e.g., recognizing harm involved with heavy drinking) and not wanting to quit (e.g., being attached to drinking; Walker, Stephens, Rowland, & Roffman, 2011). Ambivalence is a complex phenomenon and a defining characteristic of addictive behaviors (Miller & Rollnick, 2002; Morgenstern et al., 2012; Orford, 1985). Given the paradoxical effects of drinking which may produce negative and positive outcomes at varying stages of a single drinking episode, ambivalence, at times referred to as the “drinkers’ dilemma” is not surprising.

The ambivalence and alcohol literature demonstrates that ambivalence predicts addictive behaviors including heavy alcohol use (Hernandez, Salerno, & Bottoms, 2010; Oser, McKellar, Moos, & Moos, 2010), desire to quit substance use (Lipkus, Green, Feaganes, & Sediakides, 2001) and smoking relapse (Menninga, Dijkstra, & Gebhardt, 2011). Further, ambivalence has been shown to mediate the relationship between treatment and heavy drinking (Oser et al., 2010). Although the literature indicates that ambivalence might have some predictive utility with respect to behaviors, some research contrarily indicates that ambivalent attitudes are worse predictors of behavior than attitudes which are unequivocal (Armitage, 2003; Conner, Povey, Sparks, James, & Shepherd, 2003). Most individuals who drink do not have uncomplicated positive evaluations of alcohol, and the literature reflects a complex relationship between ambivalence and drinking. Therefore, additional research is needed to better understand factors that might influence the effect of ambivalence on drinking so as to elucidate this relationship.

## 1.3. Drinking motives

College drinking can be evaluated from a motivational perspective using a drinking motive framework. This framework conceptualizes motives as a proximal pathway to alcohol consumption (Cooper, 1994; Kuntsche, Knibbe, Gmel, & Engels, 2005; Read, Wood, Kahler, Maddock, & Palfai, 2003; Stewart & Devine, 2000) and suggests that motives reflect both environmental and individual influences on drinking (Cox & Klinger, 1988). Thus, this perspective suggests that individuals drink to enhance favorable outcomes or to mitigate unfavorable consequences. Behavioral scientists have long used motivational drinking models to understand and explain the reasons for drinking, and drinking can be conceptualized as being motivated by perceived functions of alcohol (Cooper, 1994).

Motives are important predictors of drinking behavior, and this has been predicted by health behavior theories (e.g., Edwards, 1954; Fishbein & Ajzen, 1972). Four common drinking motives have been suggested: social (drinking for favorable social outcomes such as to enjoy a party); conformity (drinking to avoid rejection or encourage acceptance from social group or peers); coping (drinking to mitigate negative affect such as to forget one’s problems); and enhancement (drinking to increase positive affect such as to experience a pleasant feeling) motives (Cooper, 1994).

The drinking motive literature suggests that drinking motives are strongly linked with college alcohol behaviors (Abbey, Smith, & Scott, 1993; Foster & Neighbors, 2013; Kuntsche et al., 2005; Maggs & Schulenberg, 1998; Mohr et al., 2005; Read et al., 2003; Schulenberg,

O’Malley, Bachman, Wadsworth, & Johnston, 1996). Undergraduate students frequently endorse enhancement and social motives, and these are often linked with heavier alcohol consumption (Kuntsche et al., 2005; LaBrie, Hummer, & Pedersen, 2007; Lewis, Phillippi, & Neighbors, 2007). Conformity and coping motives are less frequently endorsed by undergraduates, however, they are consistently and more strongly associated with alcohol-related problems relative to social and enhancement motives (Kuntsche et al., 2005). Previous studies further show that motives mediate the relationship between alcohol expectancies and use (Abbey et al., 1993; Read et al., 2003; Williams & Clark, 1998). Moreover, among college students, the most common reasons that undergraduates give for drinking include social and enhancement motives (Kuntsche et al., 2005; Mohr et al., 2005).

The literature evaluating drinking motives and ambivalence provides some evidence that motives and ambivalence intersect in the prediction of drinking. To illustrate this poignantly, one study found that most motives for drinking were also identified as reasons for *not* drinking if consumption became excessive (de Visser & Smith, 2007). Simply put, although motives for alcohol consumption have been linked with use, motives might not always be consistent predictors of alcohol consumption. For example, a student who drinks to be more social and less inhibited but drinks too much may become antisocial or even belligerent due to having less concern about adverse effects of their behavior. Therefore, rather than having simple favorable versus unfavorable motives for drinking, individuals aware of the positive and negative aspects of drinking tend to feel ambivalent toward alcohol (Cameron et al., 2003; Conner et al., 2002; Graham, 2003). Interestingly, while this is the case, many individuals who express ambivalence continue to drink for varying reasons, despite the experience of negative consequences (de Visser & Smith, 2007).

In summary, motives represent individual-specific motivations for drinking, whereas ambivalence represents feeling two ways about one’s behavior. For those high in ambivalence (e.g., individuals who recognize the “other side of the coin” with respect to drinking), engaging in alcohol use for specific reasons (e.g., for social reasons or to regulate negative affect) might increase risk for heavier drinking and problems compared to individuals who are less likely to endorse drinking motives. Further research is needed to better understand the influence of motives on the relationship between ambivalence and drinking.

## 1.4. Current study

This study seeks to elucidate the effect of ambivalence on drinking by considering motives as a moderator of the association. We expected that ambivalence and motives would positively associate with drinking and problems. We further expected that the relationship between ambivalence and drinking would be moderated by motives such that ambivalence would be positively associated with drinking, particularly among individuals low in drinking motives.

## 2. Method

### 2.1. Participants

Six hundred and seventy-nine undergraduate students (mean age = 22.95, SD = 5.47, 82.22% female) completed an online survey. Participants were recruited from psychology courses via in-class recruitment and flyers placed around the university campus. Participants received extra credit for courses as compensation for participation. Participants reported the following races and were generally representative of the university undergraduate population: 40.94% — Caucasian, 18.73% — Black/African American, 20.09% — Asian/Pacific Islander, 5.59% — Multi-ethnic, 0.76% — Native American/American Indian, and 13.90% — other. Further, 28.61% self-reported as Hispanic/Latino.

## 2.2. Measures

### 2.2.1. Demographics

Participants reported demographic information such as age, gender, religious affiliation, racial and ethnic background, and year in school.

### 2.2.2. Alcohol consumption

The Quantity/Frequency Scale (QF; Baer, 1993; Marlatt, Baer, & Larimer, 1995) was used to measure drinking. The QF is a five item scale that assesses the number of drinks and the number of hours spent drinking on a drinking occasion within the past month, as well as the number of days out of the month that alcohol was consumed. The response scale ranges from 0 to 6 (0 = *I do not drink at all*, 1 = *about once per month*, 2 = *two to three times a month*, 3 = *once or twice per week*, 4 = *three to four times per week*, 5 = *almost everyday*, 6 = *I drink once daily or more*). The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990) was also used to assess drinking. The DDQ asks participants to estimate the standard number of alcoholic beverages that they consumed on everyday of a typical week (Monday–Sunday) within the last 90 days (three months). Drinks on each day of the week are added in order to derive the average number of drinks that are consumed over the course of each week. The Cronbach's  $\alpha$  was .78. In this research, drinks per week was considered an indication of typical drinking whereas peak drinking (controlling for typical drinking) was considered an indicator of problematic drinking.

### 2.2.3. Alcohol-related problems

The Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989) was used to assess consequences related to drinking. The RAPI is a 23-item measure that assesses alcohol-related negative consequences experienced in the last month. Responses range from “Never” (0) to “10 times or more” (4). We also included two driving items to the measure. All items were rated based on how many times each problem occurred while drinking, such as “went to work or school high or drunk.” Total summed scores for the RAPI ranged from 0 to 97 (White & Labouvie, 1989; Cronbach's  $\alpha$  = .96).

### 2.2.4. Ambivalence measure

The Drinking Ambivalence Scale (DAS) was modified from the General Ambivalence Scale (Thompson, Zanna, & Griffin, 1995) and was used to measure ambivalence related to alcohol. The DAS asks about attitudes, feelings, and thoughts toward drinking. Items evaluating the positive or negative qualities of alcohol ask participants to evaluate these qualities according to a scale ranging from 1 (not at all) to 4 (extremely). Participants rate the positivity and negativity of their attitudes, feelings, and thoughts. Items include “Considering only the favorable qualities of drinking, how favorable is your evaluation of drinking?” for the positive aspect of attitudes toward alcohol and “Considering only the unfavorable qualities of drinking and ignoring the unfavorable characteristics, how favorable is your evaluation of drinking?” for the negative aspect of attitudes toward alcohol.

### 2.2.5. Drinking motives

The Drinking Motives Questionnaire–Revised (DMQR; Cooper, 1994) was used to measure motives related to alcohol consumption. Participants provided ratings on a 5-point scale ranging from 1 (*Never/Almost Never*) to 5 (*Almost Always/Always*) regarding 20 reasons why individuals might be motivated to drink. The measure yields four subscales that reflect motives for drinking including social (e.g., “Because it helps you enjoy a party”;  $\alpha$  = .93), coping (e.g., “To forget your worries”;  $\alpha$  = .89), enhancement (e.g., “Because you like the feeling”;  $\alpha$  = .88), and conformity (e.g., “Because your friends pressure you to drink”;  $\alpha$  = .87) motives.

## 3. Results

### 3.1. Descriptives

Means, standard deviations, and correlations for all of the variables are presented in Table 1. Drinking variables (peak drinks, drinking frequency, drinks per week, and alcohol-related problems) were positively correlated with each other. Motive subscales (social, coping, enhancement, and conformity) were positively associated with each other and with all drinking outcomes. Ambivalence was positively correlated with all drinking outcomes and motives. Gender was positively linked with all drinking frequency, drinks per week, and peak drinks, and marginally and positively associated with social and enhancement motives. The gender variable was dummy coded such that males received a 1 and females received a 0. Thus, positive correlations indicate that males drink more and report higher drinking motives.

### 3.2. Primary analyses

We conducted multiple regression analyses to evaluate relationships between motives, ambivalence, and drinking. In each analysis ambivalence and motives were mean centered and entered into the regression model with their product term. Peak drinks and alcohol-related problems were specified as dependent variables. Weekly drinking was included as a covariate, thus results reflect effects on peak drinking and problems after controlling for typical drinking. Thus, effects on problematic drinking cannot be attributed to typical drinking. There were positive main effects of social, coping, and enhancement motives on peak drinks and problems. Ambivalence positively predicted peak drinks when controlling each of the four motive subscales, however, there was no main effect of ambivalence on problems (Table 1).

A significant interaction emerged between ambivalence and coping motives when predicting peak drinks such that ambivalence was positively linked with peak drinks, and this relationship was stronger among those low in coping motives, however, those high in coping motives were at greater risk for increased peak drinking levels overall (Fig. 1). Two additional interactions emerged between ambivalence and both social (Fig. 2) and coping (Fig. 3) motives when predicting problems. Ambivalence was positive associated with problems among those low in social or coping motives and negatively associated with problems among those high in social or coping motives (Table 2). Findings remained consistent with and without drinks per week controlled. Interactions were graphed using parameters from the regression equation as described in Cohen, Cohen, West, and Aiken (2003). Values in Figs. 1, 2, and 3 represent the number of peak drinks or problems that would be predicted for an individual who scored one standard deviation above (high) and below (low) the mean of each of the motives and one standard deviation above (high) and below (low) the mean of ambivalence.

## 4. Discussion

This study evaluated the influence of drinking motives in the relationship between ambivalence and alcohol use. Our first expectation was that ambivalence would be positively associated with drinking and problems, and results supported this prediction for both correlational and regression main effect analyses. This is consistent with previous studies that suggest ambivalence is linked with heavier alcohol use (Hernandez et al., 2010; Oser et al., 2010). As such, the perspective that ambivalence may have some predictive utility with respect to addictive behaviors is supported. It is worth noting that some research suggests that ambivalent attitudes are worse predictors for behavior relative to behaviors which are homogeneous (Armitage, 2003; Conner et al., 2003). On the surface it may seem as though our findings are inconsistent with this view, however, deeper reflection may reveal that there may be a somewhat linear relationship in predictive utility such that homogeneous attitudes are the strongest predictor of behavior (e.g.,

**Table 1**

Means, standard deviations, and correlations among variables.

	1	2	3	4	5	6	7	8	9	11
1. Peak drinks	–									
2. Drinking frequency	0.72***	–								
3. Drinks per week	0.71***	0.67***	–							
4. Alcohol-related problems	0.40***	0.34***	0.40***	–						
5. Social drinking motives	0.45***	0.47***	0.34***	0.30***	–					
6. Coping drinking motives	0.35***	0.34***	0.27***	0.43***	0.65***	–				
7. Enhancement drinking motives	0.47***	0.47***	0.41***	0.37***	0.81***	0.66***	–			
8. Conformity drinking motives	0.17***	0.13***	0.14***	0.46***	0.49***	0.53***	0.48***	–		
9. Ambivalence	0.38***	0.41***	0.26***	0.21***	0.42***	0.34***	0.39***	0.18***	–	
10. Gender	0.12**	0.08*	0.14***	0.06	0.07***	0.0006	0.06***	0.06	0.01	–
Mean	3.26	2.98	3.94	29.27	11.54	8.26	9.62	6.85	4.29	0.18
Standard deviation	3.62	2.66	6.20	8.68	5.56	4.20	4.85	3.24	2.34	0.38

Note. N = 679.

\*  $p < .05$ .\*\*  $p < .01$ .\*\*\*  $p < .001$ .\*\*\*\*  $p < .10$ .

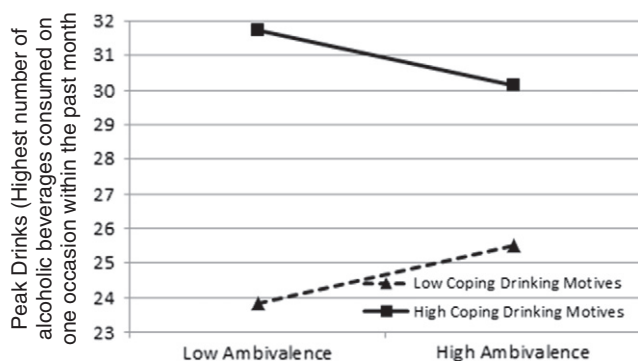
individuals who want to drink and see the positive aspects of drinking), followed by ambivalent attitudes (e.g., individuals who want to drink but see the positive and negative aspects of drinking). It makes intuitive sense that a person who wants to drink and sees no harm in it will be more likely to drink relative to a person who is aware of potential benefits and costs of alcohol use. Moreover, most drinkers do not have uncomplicated positive evaluations of drinking (Cameron et al., 2003; Conner et al., 2002; Graham, 2003; Leigh, 1989; Miller & Rollnick, 2002; Orford, 1985), and thus, a homogeneous positive drinking attitude might be rare.

Our second expectation was that drinking motives would be positively associated with alcohol use and related problems. Correlational and main effect results were largely consistent with this prediction. This finding supports previous research which shows strong links between drinking motives and college alcohol behavior (Abbey et al., 1993; Foster & Neighbors, 2013; Kuntsche et al., 2005; Maggs & Schulenberg, 1998; Mohr et al., 2005; Read et al., 2003; Schulenberg et al., 1996). The literature evaluating motives and ambivalence suggests that most of the motives that college drinkers identify as reasons for drinking can also be identified as reasons for *not* drinking if consumption becomes excessive (de Visser & Smith, 2007). As such, the relationship between ambivalence and motives appears to be more complicated than simple correlation.

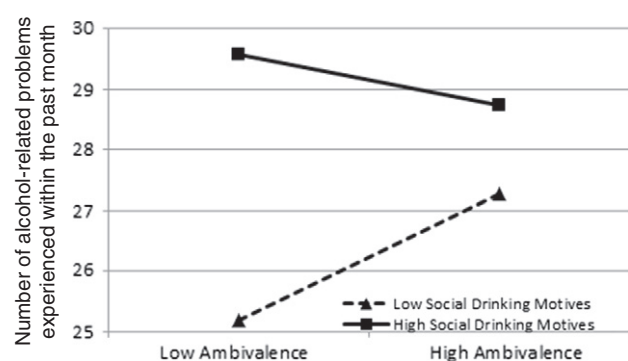
Our third hypothesis was that an interaction would emerge between motives and ambivalence in predicting drinking such that motives would moderate the effect of ambivalence on drinking outcomes. We found multiple significant interactions in support of this hypothesis (Figs. 1–3). The first significant interaction which emerged was

between ambivalence and coping motives in predicting peak drinking. Findings showed that ambivalence was positively linked with peak drinks, and although this positive relationship was stronger among those low in coping motives (i.e., steeper positive slope), those high in coping motives appeared to be at greater risk for increased peak drinking levels, regardless of ambivalence level. The second and third interactions which emerged were between ambivalence, and coping and social motives in predicting alcohol-related problems. Findings from these interactions mirrored those from the previous interactions such that ambivalence was positively associated with problems among those low in social or coping motives, and those high in social or coping motives were at greater risk for problems, regardless of ambivalence level. These findings make intuitive sense in that college students who drink for favorable social outcomes (e.g., to loosen up at a party) or to cope with negative affect (e.g., to feel better after a break-up) are likely to have higher levels of alcohol consumption and experience more problems relative to individuals who do not. This is consistent with the perspective that ambivalent drinkers are at increased risk for heavier drinking levels and problems if they are high in drinking motives and suggests that interventions that target clinical modification of motives might have significant public health impact.

It is not clear why enhancement and conformity motives did not emerge as significant moderators of the relationship between ambivalence and drinking. In light of previous research, the lack of significance for enhancement and conformity motives is somewhat admissible. Two major motivations for college drinking are for social reasons (Kuntsche et al., 2005; LaBrie et al., 2007; Lewis et al., 2007; Mohr et al., 2005; Read et al., 2003) or to regulate affect (Carey & Correia, 1997; Foster et al.,



**Fig. 1.** Coping drinking motives and ambivalence interacted when predicting alcohol-related problems.



**Fig. 2.** Social drinking motives and ambivalence interacted when predicting alcohol-related problems.



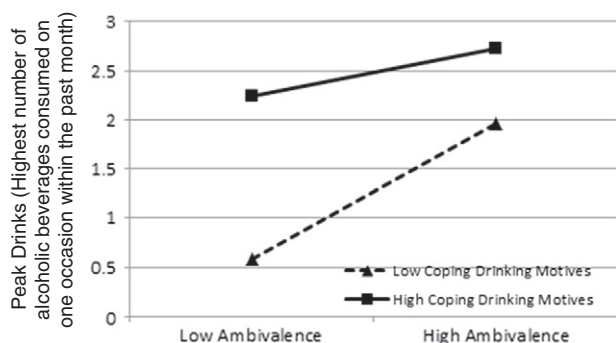


Fig. 3. Coping drinking motives and ambivalence interacted when predicting peak drinks.

submitted for publication; Ham, Zamboanga, Bacon, & Garcia, 2009; Kassel, Jackson, & Unrod, 2000; Kuntsche, Knibbe, Engels, & Gmel, 2007; Martens et al., 2008; Merrill & Read, 2010), and although enhancement and conformity motives are linked with drinking, they are less frequently endorsed among college students. Our own data bore this out, demonstrating that of the four motives, social motives most strongly predicted *drinking*, and coping motives most strongly predicted *problems* (Table 2). Thus, it is possible that the moderating effect for enhancement and conformity motives did not emerge as a function of fewer endorsements of those motives (e.g., low power to detect effects), and as such, it follows that among the college students in our sample, the relationship between ambivalence and alcohol outcomes was not

significantly moderated by enhancement or conformity motives but was moderated by social and coping motives.

Another potential explanation for the lack of significant moderating findings for conformity or enhancement motives stems from research suggesting a temporally diminishing relationship between motives and drinking with age. Motives are linked with drinking among adolescents (Cooper, 1994; Cox & Klinger, 1988), and although this relationship continues to exist for college-age young adults, it appears to be less robust relative to adolescent samples (Kuntsche et al., 2005). The relationship between drinking motives and alcohol use appears to diminish (Sher, Wood, Wood, & Raskin, 1996) or disappear (Read et al., 2003) as individuals progress through adolescence to college and beyond. Thus, it is possible that among adolescents, each of the drinking motives – including enhancement (drinking to experience positive emotion) and conformity (drinking as a result of social pressure) – significantly moderate the relationship between ambivalence and drinking. It is also possible that this moderating relationship might have diminished in strength for college samples, particularly for enhancement and conformity motives. It could be that social and coping reasons for drinking remain salient for college samples, and thus, effects may diminish less quickly over time. Replications of this research in adolescent samples are needed to better understand moderating relationships and whether these change as a function of time or age.

#### 4.1. Limitations and future directions

The strengths of this research should be considered in light of its limitations. The main study limitation is that we do not fully know what the modified Drinking Ambivalence Scale measures, and in particular, the extent to which it is context-specific and differs from the original General Ambivalence Scale. Additionally, the current study was cross-sectionally designed, and thus, the ability to make causal inferences is mitigated. Further, we recruited college students to participate in this study, and as such, generalizability to non-college populations may be attenuated. Relatedly, the majority of this convenience sample was female (82.2%), which might limit generalizability of findings to males. Future studies might consider strengthening the study design by incorporating longitudinal assessments to address causal implications. It is important to determine whether, for example, motives temporally lead to increased drinking, as opposed to heavier drinkers having more salient motives for drinking relative to light drinkers or abstainers. Additionally, a longitudinal design would facilitate determining whether motives increase risk for longer term comorbid problems including depressive symptoms.

Data gathered as part of a preliminary unpublished trial suggest that 50% of college students from our sample are mildly depressed according to the Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1977). Moreover, depressive symptoms have been found to predict increased coping motives (Cooper, Frone, Russell, & Mudar, 1995; Grayson & Nolen-Hoeksema, 2005). As such, individuals higher in exhibit depressive symptoms might engage in alcohol behaviors as an avoidance coping strategy (Dixon, Leen-Feldner, Ham, Feldner, & Lewis, 2009; Saladin, Brady, Dansky, & Kilpatrick, 1995; Stewart, Mitchell, Wright, & Loba, 2004) which relieves distress related to the experience of an anxiety-provoking or stressful event (e.g., taking exam, dealing with a break-up). Therefore, further research is needed to evaluate whether depressive symptoms might play a role in relationships among ambivalence, motives, and drinking.

#### 4.2. Conclusion

This study contributes to the alcohol literature by evaluating drinking motives as moderators of ambivalence's effect on drinking. These findings highlight the importance of considering motives in the relationship between ambivalence and drinking. Clinical implications include the need for tailoring interventions to target individual difference factors

Table 2  
Regression analysis predicting alcohol consumption and problems from SRDI and DB.

Criterion		Predictor	B	SE B	β
Peak drinks	Step 1	Ambivalence (AMB)	0.21	0.04	0.13***
		Social drinking motives (SDM)	0.12	0.02	0.19***
		Drinks per week	0.36	0.02	0.61***
	Step 1	AMB * SDM	−0.01	0.01	−0.04
		AMB	0.26	0.04	0.17***
		Coping drinking motives (CDM)	0.11	0.02	0.13***
	Step 1	Drinks per week	0.37	0.02	0.63***
		AMB * CDM	−0.02	0.01	−0.06*
		AMB	0.23	0.04	0.15***
	Step 1	Enhancement drinking motives (EDM)	0.13	0.02	0.17***
		Drinks per week	0.35	0.02	0.60***
		AMB * EDM	−0.01	0.01	−0.04
	Step 1	AMB	0.31	0.04	0.20***
		Conformity drinking motives (ODM)	0.05	0.03	0.05****
		Drinks per week	0.38	0.02	0.65***
	Alcohol-related problems	Step 1	AMB * ODM	−0.01	0.01
AMB			0.13	0.15	0.04
SDM			0.26	0.06	0.17***
Step 2		Drinks per week	0.47	0.05	0.34***
		AMB * SDM	−0.06	0.02	−0.08*
		AMB	0.01	0.13	0.00
Step 1		CDM	0.74	0.07	0.346***
		Drinks per week	0.43	0.05	0.31***
		AMB * CDM	−0.08	0.03	−0.09**
Step 1		AMB	0.10	0.14	0.03
		EDM	0.44	0.07	0.25***
		Drinks per week	0.42	0.05	0.30***
Step 1		AMB * EDM	−0.05	0.03	−0.07****
		AMB	0.19	0.12	0.05
		ODM	1.07	0.09	0.41***
Step 1		Drinks per week	0.46	0.05	0.33***
	AMB * ODM	−0.04	0.04	−0.04	

Note. N = 679.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

\*\*\*\*  $p < .10$ .

that increase risk for heavy drinking and associated problems. This is especially important among college students who may be at risk for problematic behavior. This study expands existing literature and sheds light on the relationship between important psychological constructs. The broad, long-term implication of current findings is the potential for enhancing future interventions by increasing knowledge of the role motivational factors play in college drinking.

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#### Contributors

Dawn Foster designed the study, wrote the protocol, conducted literature searches, provided summaries of previous research studies, conducted the statistical analysis, and drafted the manuscript. Clayton Neighbors and Alexander Prokhorov provided feedback to manuscript drafts. All authors contributed to and have approved the final manuscript.

#### Conflict of interest

All authors declare that they have no conflicts of interest.

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