



Published in final edited form as:

*Motiv Emot.* 2011 December 1; 35(4): 435–443. doi:10.1007/s11031-011-9223-z.

## Implicit Coping and Enhancement Motives Predict Unique Variance in Drinking in Asian Americans

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### Abstract

Automatic cognitive processes have been shown to be unique predictors of drinking behavior and can be assessed using implicit measures. Drinking motives (e.g., enhancement and coping motives), which are also predictive of alcohol use, have not been studied using implicit measures. Moreover, in the U.S., implicit measures have been studied in samples largely consisting of Caucasian or White Americans. This study adapted the Implicit Association Test (IAT) to examine automatic analogues of enhancement and coping drinking motives and approach/avoid tendencies in 56 Asian-American undergraduates. Enhancement and coping IATs were correlated with self-reported drinking motives and predicted unique variance in drinking frequency and heavy drinking when controlling for self-reported motives. Approach IAT scores were neither associated with self-reported approach/avoid tendencies nor predictive of drinking behaviors. These findings provide initial support for the unique predictive utility of drinking motives in Asian Americans, an understudied population.

### Keywords

alcohol; motivation; drinking motives; implicit cognition; Asian Americans; dual process models

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Dual process models emphasize the contribution of both controlled and automatic cognitive processes to the development and maintenance of addictive behaviors (Wiers & Stacy, 2006). The former are often described as largely intentional and controllable, requiring attentional resources and awareness, so-called “reflective processes” (Bargh, 1994; Deutsch & Strack, 2006; Wiers & Stacy, 2006). They are typically assessed using explicit measures – usually, self-report questionnaires. In contrast, the latter are often described as unintentional and avolitional, not requiring attentional resources and awareness, so-called “reflexive processes” (Bargh, 1994; Deutsch & Strack, 2006; Wiers & Stacy, 2006). They are typically assessed using indirect or implicit measures – often, computer-based reaction time tasks. The current study used an implicit measure, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), to investigate alcohol-related cognitions in a sample of Asian Americans. Although there is an ongoing debate regarding which aspects of automaticity the IAT and other computer-based reaction time measures capture and whether they capture purely automatic processes (see De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009),

the IAT is the most commonly used, reliable, and validated implicit measure (see Greenwald, Poehlman, Uhlmann, & Banaji, 2009). It also has been used successfully in multiple alcohol studies (e.g., McCarthy & Thompson, 2006; Ostafin, Marlatt, & Greenwald, 2008; Ostafin & Palfai, 2006; Wiers, Van Woerden, Smulders, & De Jong, 2002). Three IATs were used in this study: the approach IAT, a measure of alcohol-action tendencies (Ostafin & Palfai, 2006), and the cope and enhance IATs, intended as analogues of self-reported drinking motives.

## Dual Process Models of Drinking

Dual process models focus on the contributions of more automatic and more controlled aspects of cognition and memory to behavior. Formulations of those models suggest that these processes have relatively independent effects on behavior and that whichever process is operating at greater strength will predominate (e.g., Deutsch & Strack, 2006; Greenwald & Banaji, 1995). These models also have been applied to and adapted for a variety of behaviors, including the prediction of substance use (e.g., Deutsch & Strack, 2006; Wiers & Stacy, 2006). Multiple studies have examined implicit and explicit measures of alcohol-related constructs, and findings have indicated that implicit and explicit measures predict unique variance in substance use. For example, in an early study of implicit and explicit contributions in substance use, Stacy (1997) found that explicit measures of alcohol outcome expectancies (i.e., beliefs about the effects of drinking) and their implicit counterpart (e.g., associations about ambiguous words related to alcohol) predicted subsequent drinking in a sample of US college students. Similarly, Thush and Wiers (2007) investigated implicit and explicit contributions to drinking in a sample of Dutch adolescents. Their study used a single category IAT as the implicit measure and an expectancy questionnaire as the explicit measure, and results indicated that implicit and explicit measures were unique predictors of drinking. Similar patterns of findings – i.e., that both implicit and explicit measures predict unique variance in drinking behaviors – have been reported using the IAT (e.g., McCarthy & Thompson, 2006; Ostafin & Palfai, 2006). When the relations between implicit and explicit measures of alcohol-related cognitions have been examined, they tend to be positively correlated at small to moderate levels (e.g., McCarthy & Thompson, 2006; Ostafin & Palfai, 2006), which is consistent with the overall findings from a meta-analysis of 184 independent samples using the IAT and with the specific findings for the 16 samples using IATs related to alcohol and drug use (e.g., Greenwald et al., 2009). Similarly, alcohol and drug use IAT scores were found to be positively correlated with alcohol and drug use behaviors (Greenwald et al., 2009). Notably, the majority of studies of implicit and explicit contributions to drinking have relied on mostly Caucasian or Dutch samples and have not directly considered the role of ethnicity. Further, most of the implicit measures have focused on valence, affect, or basic approach-avoid motivations about alcohol.

## Drinking Motives and Drinking

A number of variables have been shown to predict drinking in the college population reliably, including demographic factors, family history, personality, social affiliation, perceived norms, expectancies and motivations (Baer, 2002). Motivational models of alcohol use suggest that individuals vary in their reasons for consuming alcohol, and motives have been described as among the most proximal predictors of drinking (Cox & Klinger, 1988). Motives which have been most frequently assessed include drinking in order to cope with negative affect (coping); drinking in order to promote positive affect (enhancement); drinking to achieve positive social goals (social) and drinking to avoid rejection (conformity) (Cooper, 1994). These motives have been shown to predict, both consistently and uniquely, college student drinking (Cooper, 1994; Kuntsche, Stewart, & Cooper, 2008; Mohr et al., 2005; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007).

Specific motivations for drinking distinguish how often, how much, and how problematically students drink. In particular, enhancement and coping motives are uniquely related to multiple indices of drinking across cultures (Kuntsche et al., 2008). Drinking motives have been found to account for associations between more distal variables (e.g., positive expectancies, depression, anxiety, personality) and drinking (e.g., Cooper, Frone, Russell, & Mudar, 1995; DeMartini & Carey, 2011; Ham Zamboanga, Bacon, & Garcia, 2009; Kuntsche, von Fischer, & Gmel, 2008).

Theoretical models regarding motivations for drinking are also critical to efforts aimed at prevention and treatment. Different strategies are likely to be effective for addressing drinking that is motivated by a desire to cope with negative affect versus drinking that is motivated by social motives or a desire to enhance positive affect (Neighbors, Larimer, & Lewis, 2004; Whiteside et al., 2011). A considerable body of research has evaluated self-reported drinking motives and their varying associations with drinking outcomes and other predictors of drinking. This work has been valuable but limited by assumptions that individuals have explicit knowledge and awareness for their motives for drinking.

The potential presence of automatic analogues of these motives can be inferred from experiences in which people drink in anticipation of celebration or in response to stress without “thinking” about it (Mohr et al., 2001). Moreover, such “drinking without thinking” is consistent with theories suggesting that automatic processes play larger roles in substance use over time (Oei & Baldwin, 1994). To the degree that one regularly drinks for coping reasons, it seems likely that one’s reasons for drinking would eventually become automatic, with mental constructs like “coping” and “alcohol” becoming increasingly associated with one another. However, published research to date has not investigated whether people hold automatic associations about alcohol and coping or enhancement. The current study represents an initial step toward bridging this gap with a cross-sectional examination of alcohol-coping and alcohol-enhancement associations.

## Alcohol use in Asian Americans

Despite substantial interest in automatic cognitions and alcohol use, research in the U.S. has been conducted primarily in ethnically homogeneous samples. Consequently, the applicability of automatic processes across ethnic groups is unknown. Automatic alcohol cognitions are hypothesized to reflect a network of learned associations; therefore, cultural, social or biological factors that influence patterns of drinking behavior in specific racial/ethnic groups could conceivably influence the relative strength, content, and/or influence of alcohol-related cognitions. Of relevance to the current study, Asian Americans can be distinguished from the general U.S. population based on differences in culturally based attitudes towards alcohol use and the presence of genetic variants that significantly influence the efficiency of alcohol metabolizing enzymes and rates of alcohol consumption (e.g., Akutsu, Sue, Zane, & Nakamura, 1989; Hendershot, MacPherson, Myers, Carr, & Wall, 2005). Both cultural and genetic factors are hypothesized to partly account for relatively lower rates of alcohol use in Asian Americans compared to the general population, raising the possibility that automatic associations toward alcohol could also differ in this group.

Notably, the proportion of Asian Americans is projected to nearly double between 2008 and 2050 (U.S. Census Bureau, 2008) and epidemiological findings suggest increasing rates of alcohol use disorders among Asian-American young adults (Grant et al., 2004). Thus, greater efforts to characterize drinking behavior in this subgroup are needed (Wong, Klingle, & Price, 2004). Further, because associations of drinking motives with consumption have been found to differ in U.S. versus Asian college students (Nagoshi, Nakata, Sasano, &

Wood, 1994), it is necessary to evaluate whether cognitive models of drinking behavior are replicable across ethnic groups.

## Overview and Hypotheses

The current study aimed to evaluate implicit measures of drinking motives in a sample of Asian-American college students. Three IATs were administered: the cope and enhance IATs, created for the study, and the approach IAT, which predicted drinking in previous studies with largely Caucasian samples (e.g., Ostafin et al., 2008; Ostafin & Palfai, 2006). Consistent with previous findings (e.g., Greenwald et al. 2009), we predicted that participants' responses to explicit measures and their implicit counterparts would be weakly but positively correlated as would their responses to implicit measures and measures of self-reported drinking. Given previous findings that implicit and explicit measures independent predicted drinking behaviors (e.g., McCarthy & Thompsen, 2006, Ostafin & Palfai, 2006, Thush & Wiers, 2007), we also predicted that implicit motives would predict unique variance in self-reported alcohol consumption.

## Method

### Participants

Participants were 56 undergraduates who had participated in a larger prospective study of drinking behavior among Asian students at a large public university in the US Pacific Northwest. Participants were recruited via email and phone contact following their participation in a larger survey of the undergraduate population (for detailed information see Hendershot et al., 2009). The eligibility criterion for the current study was self-reported lifetime drinking experience. Participants' (44.6% male;  $n = 25$ ) average age was 20.7 years ( $SD = 1.8$ ). Their ethnic heritage was 100% Chinese ( $n = 39$ ) or 100% Korean ( $n = 17$ ). Among those who participated in the IAT study, 47% reported being born in the United States and 71% reported permanent residence in the U.S. Although the sample included some international students (29%), for brevity we use the terms "Chinese-American" and "Korean-American" because most were U.S. residents.

### Measures

**IATs**—The IAT (Greenwald et al., 1998) measures reaction times when pairing two target concepts (e.g., "alcohol" and "water") with two attribute concepts (e.g., "cope" and "ignore"). Reaction time difference is presumed to be a proxy for the relative strength of the associations between mental constructs. For example, if one is faster at categorizing stimuli representing the concepts of "alcohol" + "cope" (& "water" + "ignore") compared to the concepts of "alcohol" + "ignore" ("water" + cope), "alcohol" and "cope" (& "water" and ignore") are thought to be more strongly associated in the mind than "alcohol" and "ignore" (& "water" and "cope").

Three IATs were used in this study: the approach IAT, cope IAT, and enhance IAT. The first was based on Ostafin and Palfai (2006), and the latter two were created for the study. Target category stimuli were images of beer or water. Attribute stimuli were words. Approach IAT categories were "approach" and "avoid." Stimuli for the former were: approach, toward, closer, advance, and forward; stimuli for the latter were avoid, away, leave, withdraw, and escape. The cope IAT was intended as an implicit measure of drinking to cope or reduce stress. The cope construct was represented by the words calm, helps, soothe, and cope. "Ignore" was chosen as the contrast category to represent the opposite of (alcohol) being sought to "help" one cope. Stimuli were ignore, disregard, neglect, and dismiss. The enhance IAT was intended as an implicit measure of drinking for enhancement

or positive reinforcement reasons. Because Cooper's (1994) explicit measure of drinking for enhancement reasons uses the word "exciting" (vs. enhance), the term "excite" was used in the IAT. Stimuli included excite cheer, high, fun, and amplify. "Diminish" was chosen as the contrast category to represent the opposite of excitement and enhancement. Stimuli were diminish, weaker, lower, lessen, decrease, and reduce.

IATs were created with Inquisit 3.0.3.1 software (2008) using Greenwald's (2006) procedures. IAT blocks 1, 2, and 5 are used to teach participants the task. Blocks 3, 4, 6, and 7 are critical and described in detail. Please see Lindgren et al. (2009) for a complete task description. In the IAT, a single stimulus appears in the center of the screen and participants must categorize it. Participants press the "d" and "k" keys on the keyboard to indicate whether they are placing the stimuli into the right or left category. In blocks 3 and 4, target and attribute concepts are paired together (e.g., "cope" & "alcohol" stimuli are categorized on the left, "ignore" & "water" are on the right). Blocks 6 and 7 switch the pairing of targets and attributes (e.g., "water" & "cope" stimuli are now categorized on the left, "alcohol" & "ignore" are now on the right). Stimuli for each block were randomized, with the restriction that they alternated between targets and attributes. The order of the target-attribute pairings was counterbalanced. IATs scores were calculated using the *D* score algorithm (Greenwald, Nosek, & Banaji, 2003). Positive *D* scores indicate a stronger association between alcohol and the drinking motive or approach – e.g., a stronger association between alcohol + coping (& water + ignore) as compared to alcohol + ignore (& water + cope). Negative *D* scores indicate the opposite.

**Drinking motives**—Cooper's (1994) Drinking Motives Questionnaire assessed self-reported motives for drinking. This 20-item measure consists of four subscales and has been validated across ethnic groups (Cooper, 1994). Two subscales, each of which represents a different drinking motive, were used in the study: coping, (e.g., "to forget your worries"), and enhancement (e.g., "because it's exciting"). Items are rated on a scale of 1 ("Almost never/never") to 5 ("Almost always/always"). Participants' average subscale scores were calculated for analyses. Reliabilities for this sample were .87 (coping) and .89 (enhancement).

**Alcohol thermometer**—To measure the explicit counterpart of the approach IAT, a thermometer item was used. This strategy is commonly used in IAT research (e.g., Greenwald et al., 2002). Participants rated how much they wanted to approach or avoid alcohol using an 11-point Likert scale, ranging from -5 ("strongly avoid it") to 5 ("strongly approach it").

**Alcohol consumption**—The Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985) assessed typical drinking. Standard drink information was provided, and the number of drinks on each day in a week was recorded. A summary score was computed to obtain the typical number of drinks consumed per week. A single item asked about the total number of heavy drinking episodes (defined as 4/5 or more drinks for females/males on a single occasion) in the past month.

## Procedure

Participants completed study measures in a single a laboratory session. After giving informed consent, the IATs and questionnaires were administered on a computer. IAT order was randomized between subjects. Additionally, the IATs and questionnaires were intermixed. Incentives were \$15. All procedures were approved by the university's institutional review board.

## Statistical Analysis

Count regression models were used to test study hypotheses. Analysis of distributions revealed that the alcohol consumption variables did not approximate normal distributions. Thus, count regression models, which allow one to fit criterion with a range of distributions in addition to the normal distribution, were used (see Atkins & Gallop, 2007; Cohen, Cohen, West, & Aiken, 2003). Models were fit using a Poisson distribution with a log link<sup>1</sup> and predictors included participant gender (dummy coded 0 = men, 1 = women), participant ethnicity (dummy coded 0 = Chinese-American; 1 = Korean-American), IAT scores, and FT/DM scores. IAT and FT/DM scores were grand mean-centered to facilitate interpretation. Analyses were conducted separately for each implicit-explicit pairing and each consumption criterion in order to keep the number of predictors low given the sample size.

## Results

### Descriptive statistics and zero-order correlations

Means, standard deviations, and zero-order correlations for all variables are presented in Table 1. Consistent with predictions, cope and enhance IAT scores were positively correlated with alcohol consumption variables,  $ps < .05$ . In contrast, Approach IAT scores and alcohol consumption were practically uncorrelated. Cope and enhance IAT scores were also positively correlated with one another,  $r = .47$ , but they were no more strongly correlated with one another than were coping and enhancement drinking motives (DM) scores,  $r = .55$ . Cope IAT scores were significantly, and positively correlated with coping DM scores,  $r = .28$ . Enhance IAT scores were positively, but weakly, correlated,  $r = .14$ . Approach IAT scores and the approach feeling thermometer (FT) were weakly correlated,  $r = .18$ . Independent samples t-tests were conducted to test for ethnic group differences in drinking-related variables. Significant differences were observed only in drinks per week, with Korean-Americans reporting consuming 6.59 drinks ( $SD = 4.24$ ) and Chinese-Americans reporting consuming 3.62 ( $SD = 4.06$ ),  $t(54) = 2.49$ ,  $p = .02$ .

### Count Regression Analysis

**Approach**—Contrary to predictions, approach IAT scores did not predict unique variance in weekly drinking (see Table 2). Approach FT scores, however, positively predicted drinking. Gender and ethnicity also predicted weekly drinking: men drank more and Korean-Americans drank more. Similar results were found for heavy drinking episodes with the exception that gender and ethnicity variables no longer reached significance.

**Coping**—Consistent with predictions, coping IAT and DM scores were positively and uniquely predictive of typical weekly drinking (see Table 2). Gender and ethnicity were also significant: men and Korean-Americans drank more. A similar pattern of results was observed for heavy drinking episodes. Implicit and explicit coping positively and uniquely predicted variance in heavy drinking episodes. No other predictors were significant.

**Enhancement**—Also consistent with predictions, enhancement IAT and DM scores were positively and uniquely predicted variance in weekly drinking (see Table 2). Gender and ethnicity also were significant: men and Korean-Americans drank more. A similar overall pattern of results was found for heavy drinking episodes, with enhancement IAT and DM scores predicting unique variance. No other predictors were significant.

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<sup>1</sup>Models were also run using traditional linear regression, and the overall pattern of results was similar.

## Discussion

Dual process models of drinking (e.g., Deutsch & Strack, 2006) acknowledge that drinking is influenced by both controlled and automatic processes. Consequently, they offer a more comprehensive map of the factors underlying drinking behavior. Dual process models have been supported by findings from multiple studies that have used a variety of implicit and explicit measures and that have indicated that both implicit and explicit measures of drinking cognitions independently predict drinking behavior (e.g., McCarthy & Thompsen, 2006, Ostafin & Palfai, 2006, Stacy, 1997, Thush & Wiers, 2007).

This study extends the literature on dual process models of drinking in two ways. First, findings provide initial support for the validity of two implicit analogues of drinking motives. Whereas previous studies incorporating implicit measures have focused on broad classes of alcohol-related cognitions (e.g., valence, arousal, affect, and/or action-tendencies), this study evaluated implicit counterparts of coping and enhancement motives, constructs that strongly predict drinking when assessed with explicit measures (for a review, see Kuntsche, Knibbe, Gmel, & Engels, 2005). In this sample, implicit motives were positively correlated with self-reported drinking. This pattern of findings is consistent with those from previous alcohol-related studies (e.g., Ostafin & Ostafin, 2006; Stacy, 1997) and a recent meta-analysis of IAT studies (Greenwald et al. 2009), which have generally found that implicit measures were positively correlated with self-reported previous or subsequent drinking behaviors. Similarly, implicit and explicit motives were positively correlated. Coping motives were more strongly related than enhancement motives ( $r$ 's were .28 and .14, respectively); however, the relation observed between implicit and explicit enhancement motives is on par with the average implicit-explicit relationship observed in Greenwald et al.'s (2009) meta-analysis (e.g., .16). Importantly, both coping and enhance IATs predicted unique variance in drinking variables when controlling for explicit motives, providing initial evidence for their predictive and incremental validity. This finding was also consistent with previous studies that have found that implicit and explicit alcohol-related cognitions predicted drinking independently from one another (e.g., Ostafin & Palfai, 2006; Thus & Wiers, 2007). Thus, it appears that the observed relations between implicit and explicit motives, between implicit motives and drinking behaviors, and among implicit motive, explicit motives, and drinking that were found in this study are similar to those observed in other studies using different implicit measures and focusing on different alcohol-related constructs.

A second contribution was to extend the dual-process framework to Asian Americans. Its applicability to other ethnic groups had not been demonstrated because previous US studies consisted of largely Caucasian samples and international studies have largely consisted of Dutch samples. Interestingly, cope and enhance IAT scores were significant predictors of drinking behaviors, but approach IAT scores – reliable predictors in other studies (e.g., Ostafin & Palfai, 2006) – were not. However, these patterns could be specific to our sample. Definitive conclusions are not possible given the study's design; replications with larger and more diverse samples will be necessary. Regardless of the specific IATs, however, the study clearly provides support for the extension of implicit measures and dual-process models to Asian Americans and the importance of considering implicit analogues of drinking motives for this group. Avenues for future work include investigating whether cultural factors (e.g., acculturation) that influence drinking among Asian Americans are associated with differences in implicit measures of alcohol cognitions. In addition, certain genetic factors (e.g., the *ALDH2*\*2 allele) have been associated with drinking behavior in northeast Asian populations and with differences in explicit measures of alcohol cognitions (Hendershot et al., under review), it possible that genetic factors may also be associated with implicit measures of alcohol cognitions.

Finally, the pattern of descriptive statistics for the implicit and explicit measures provides additional support for the study's validity. Consistent with participants from cross-national studies of drinking motives (e.g., Kuntsche et al., 2008, Nemeth et al., 2011), participants in this study endorsed higher levels enhancement motives than coping motives as evidenced by the rank order of their mean drinking motive scores. With respect to the implicit measures, participants' IAT scores were, on average, negative. The direction of those scores indicates that participants had (a) stronger associations with alcohol + avoid (and water + approach) versus alcohol + approach (and water + avoid) [Approach IAT]; (b) stronger associations with alcohol + ignore (and water + cope) versus alcohol + cope (and water + ignore) [Cope IAT]; and (c) stronger associations with alcohol + diminish (and water + excite) versus alcohol + excite (versus water + diminish) [Enhance IAT]. This pattern of findings is also consistent with results from several published studies (Lindgren et al., 2009; Ostafin & Palfai, 2006; Palfai & Ostafin, 2003) and may reflect the relative youth of the sample and the severity of drinking they report. An older sampler, which would presumably have a longer drinking history, and/or a sample that drank more frequently and consumed more alcohol on those occasions would be expected to have IAT scores that were positive.

### Limitations and Future Directions

This current study is an important first step in expanding extending dual process models to include implicit drinking motives and U.S. ethnic minority populations. Because it is a first step, there are important limitations that must be addressed in future research. First, the current study focused on self-reported historic drinking. Future research must investigate whether implicit motives predict drinking prospectively and/or in the laboratory. Second, future studies should include additional ethnic groups. Third, because this study was cross-sectional, we could not directly test a dual process model of drinking, per se. Instead, we focused on key constructs – implicit and measures – that would comprise such a model. Finally, there are methodological limitations of the IAT: it is a relative measure. IAT effects reflect both categories (e.g., alcohol and water) and attributes (e.g., cope and ignore) of which it is composed, and one cannot disentangle one pair of associations from the other. Should one want to examine only associations with alcohol and a single category, a different implicit measure must be used, such as the Extrinsic Affective Simon Test (De Houwer, 2003) or the Brief IAT (Sriram and Greenwald, 2009).

### Acknowledgments

Manuscript preparation was supported by R00AA017669 (PI: Lindgren) and F32AA01862 (PI: Hendershot). This research was also supported by the small grants program at the University of Washington's Alcohol and Drug Abuse Institute and F31AA016440 (PI: Hendershot).

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Table 1

Descriptive statistics and zero-order correlations of IATs, drinking motives, and alcohol consumption variables.

Measure	M	SD	1	2	3	4	5	6	7	8
1. Approach IAT	-0.16	0.34	--	.10	.07	-.16	.07	.18	.01	-.02
2. Cope IAT	-0.39	0.39	--	--	.47**	.28*	.30*	.17	.36**	.36**
3. Enhance IAT	-0.08	0.44	--	--	--	.20	.14	.08	.28*	.28*
4. Coping DM	1.79	0.81	--	--	--	--	.55**	.05	.26	.26
5. Enhancement DM	2.17	1.10	--	--	--	--	--	.35**	.37**	.37**
6. Approach FT	0.52	1.49	--	--	--	--	--	--	.45**	.40**
7. Drinks per Week	4.52	4.30	--	--	--	--	--	--	--	.77**
8. Heavy Drinking Episodes per Week	1.34	1.97	--	--	--	--	--	--	--	--

Notes: Positive IAT scores indicate stronger alcohol-approach, alcohol-cope, or stronger alcohol-enhance associations. Higher DM scores indicate stronger coping or enhancement drinking motives. Higher approach FT scores indicate stronger explicit alcohol approach feeling thermometer scores.

\*  $p < .05$ .

\*\*  $p < .01$ .

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

Poisson regression results examining alcohol consumption variables as a function of gender, ethnicity, IAT scores, and explicit motive scores.

**Table 2**

Predictor	Drinks per week			Heavy Drinking Episodes		
	B	SE	t	B	SE	t
	Approach			Cohen's <i>d</i>		
Gender	-0.42***	0.13	-3.30	0.92	0.23	-0.64
Ethnicity	0.45***	0.13	3.53	0.99	0.24	1.01
Approach IAT	-0.19	0.19	-1.01	0.28	0.35	-1.04
Approach FT	0.29***	0.05	6.23	1.75	0.35***	4.22
	Cope			Cohen's <i>d</i>		
Gender	-0.36***	0.11	-3.27	0.91	0.23	0.60
Ethnicity	0.48***	0.13	3.69	1.03	0.25	0.78
Cope IAT	0.64**	0.13	4.92	1.38	1.13**	2.94
Coping DM	0.18*	0.07	2.57	0.72	0.46***	4.00
	Enhance			Cohen's <i>d</i>		
Gender	-0.34*	0.13	-2.65	0.75	0.22	0.68
Ethnicity	0.46***	0.13	3.59	1.02	0.24	0.96
Enhance IAT	0.39*	0.39	2.62	0.74	0.71*	1.80
Enhance DM	0.30***	0.30	5.10	1.44	0.49**	4.82

Notes: Positive IAT scores indicate stronger associations with alcohol and construct in the IAT name. IAT scores and DM scores were grand mean-centered. Cohen's  $d = 2tidf^2$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

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