

The Pennsylvania State University

The Graduate School

College of the Liberal Arts

POSITIVE EMOTION, DRINKING MOTIVATION, AND PROBLEMATIC

DRINKING: A CASE FOR CULTURAL VARIATIONS

A Thesis in

Psychology

by

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

December 2014

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ABSTRACT

Emotions have frequently been established as antecedents or correlates of maladaptive substance use. While investigation has begun to illuminate the relationship between emotions and alcohol abuse, the role of positive emotions in alcohol use, as well as how this varies across cultural groups is less understood. The present study aims to investigate how positive emotion states are related to motivations for alcohol use as well as problematic outcomes and how this relationship is moderated by culture in three groups, including two groups with different norms regarding positive emotions (Hispanic/Latino and Asian). A second aim of this project is to investigate how the unique emotional norms of these groups lead to different relationships with alcohol use than those previously observed in past research. In this study, participants completed baseline measures regarding current level of alcohol use, motives for drinking, problems related to drinking, acculturation, self-control, and emotional experience. In the next portion of the study, participants answered questions indicating how much positive, neutral, and negative emotion they experienced that day, and whether they drank that day for a period of 14 days. If they reported drinking, they were asked how much they drank, about their motivations for drinking, and whether they experienced problematic outcomes as a result of their drinking. Results indicated that positive affect predicted drinking for enhancement purposes when measured daily, and revealed an interaction across ethnicities. Enhancement motivations predicted problematic outcomes both over the course of the past year and when measured daily. Drinking volume fully mediated this effect, and this was moderated by ethnicity such that Latinos experienced greater problematic outcomes when drinking equal amounts as Asians and Caucasians for enhancement purposes. These findings may help to explain higher rates of problematic alcohol use in Latinos, and indicate a need for a unique focus of treatment for this group.

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Chapter 1

INTRODUCTION

The experience of emotions, both positive and negative, have often been linked to mental and physical health outcomes (Singh, 2011; Xu & Roberts, 2010; Bongard, 2008; Richman et al., 2005; Consedine, Magai, & Horton, 2005; Taylor et al., 2004; Todaro et al., 2003). One area in which emotions have received particular attention is in the domain of substance use, especially alcohol use. Emotions have frequently been established as antecedents or correlates of maladaptive substance use (Pardini, Lochman & Wells, 2004; Magid et al., 2009; Mason, Hitch & Spoth, 2009). From this research, we know that some individuals use alcohol in attempt to down-regulate negative emotion, or “self-medicate” (Khantzian, Mack, & Schatzberg, 1974; Khantzian, 1997). This relationship between negative emotions and alcohol use is also echoed in popular expressions such as *drowning one’s sorrows* (in response to sadness) or *driving one to drink* (in response to a frustrating event or person).

While such investigation has begun to illuminate the relationship between emotions and alcohol abuse, the role of positive emotions in alcohol use is less understood. Recently, there has been an increased focus on positive emotions in relation to alcohol use, but the methodologies employed have been varied and the resultant findings have been mixed. There is some preliminary evidence, however, that the experience of positive affect relates to enhancement motivated drinking (drinking to enhance positive affect) and that those who drink for this reason appear to be less susceptible to problematic drinking outcomes (Wilhelm et al., 2012; Martens et al., 2011). This pattern of relationships, as well as other factors influencing them, deserves further attention given the potential to identify a possible protective mechanism against

problem drinking. Of particular importance is a consideration of how the role of positive affect and drinking may vary depending on cultural context, given that culture influences emotional norms around the experience and expression of positive emotions (Markus & Kitayama, 1994; Mesquita & Frijda, 1992; Wierzbicka, 1986; Wierzbicka, 1994). The purpose of the present study is to investigate how positive emotion states are related to enhancement motivations for alcohol use and how enhancement-motivated drinking, in turn, is related to problematic outcomes. I am interested in how these relationships are moderated by culture in three groups with different norms regarding positive emotions.

Emotion and Alcohol Use

Negative affect. In order to understand how positive emotions might relate to alcohol use it is important to consider the existing literature with regard to alcohol use and negative emotions. The use of substances to regulate negative emotion has been well established (Pardini, Lochman & Wells, 2004; Magid et al., 2009; Mason, Hitch & Spoth, 2009). Negative emotion has been conceptualized both in terms of emotion states (i.e. sadness, anger) and as an enduring personality characteristic; both are associated with increased problematic drinking (Kaiser et al., 2012).

The Self-Medication Hypothesis proposes that individuals use drugs and alcohol in order to reduce negative affect or to compensate for psychological conflict, specifically difficulties in maintaining self-esteem or regulating aggressive impulses (Khantzian, Mack, & Schatzberg, 1974; Khantzian, 1997; Khantzian, 1990). In support of this notion, psychological disorders characterized by chronic negative affect (e.g., depression and anxiety) have been repeatedly linked to alcohol use, and this relationship has been established across ethnic and cultural groups (Alva, 1994). For instance, anxiety, sadness

and depression have all been linked to increased risk for alcoholism (Stasiewicz et al., 1997). In one study, college students diagnosed with an anxiety disorder were twice as likely to have problems with alcohol than those without an anxiety disorder (Kushner & Sher, 1993). Several other studies have established that depression is also a risk factor for alcohol use and often precedes the development of alcohol use disorders (Deykin et al., 1987; Deykin et al, 1992).

The relationship between alcohol and the momentary experience of negative emotions has also been demonstrated in experimental studies. Hong and colleagues (2008) measured alcohol cravings in adult social drinkers following exposure to three types of imagery scripts: stressful, alcohol-related and neutral. Participants in the study experienced greater cravings for alcohol following the alcohol-related script, but also following the stressful movie when this was associated with subjective emotional arousal. In another study, individuals at high risk for alcohol problems were found to experience negative affect more intensely following a negative mood induction than low-risk participants (Randall & Cox, 2001). Participants in the study also drank more alcohol during a beer “taste test” that occurred following the negative mood induction.

Motivational models of substance use have been helpful in investigating the way in which emotions can be associated with various drinking outcomes. These models allow for direct assessment of individuals’ reasons for substance use (Cox & Klinger, 1988; Cooper, 1994). According to Cooper’s motivational model, a four-factor model accounts for the motivations that individuals endorse for engaging in alcohol use (Cooper et al, 1992, 1994). Two of these motives are highly associated with affect. For example, coping motives refer to drinking with the goal of reducing negative affect. Enhancement

motives refer to drinking in order to increase positive affect. The drinking motivations endorsed by individuals are important because some motives are more highly related to problematic outcomes. Coping motives in particular, appear to be highly related to problematic outcomes from drinking (Merrill & Read, 2010), consistent with the literature showing that negative affect is associated with poor outcomes.

Investigations of motivational models of alcohol use have repeatedly found that the experience of negative affect predicts the endorsement of coping motives for drinking (Cooper et al, 1995). Similarly, the endorsement of coping motives for drinking appears to be related to problematic outcomes resulting from alcohol use (Weller, 2000; See Figure 1). For example, Merrill and Read (2010) found that coping-motivated drinking directly lead to numerous problematic outcomes in the domains of academic/occupational problems, risky behaviors, and poor self-care in a sample of undergraduates (see Figure 1).

While much of the literature in this area points to problematic alcohol-related outcomes related to negative emotions, there have been some contrasting findings. Hussong and colleagues (2005) found that this effect varied according to the type of negative emotion experienced (fear, hostility, sadness, shyness). This study found that for individuals who endorsed high coping motives for drinking, high to moderate levels of fear or shyness lead to an increased likelihood of drinking. However, the experience of sadness led to a decreased likelihood of drinking in these individuals. For individuals who endorsed low coping motives, drinking behavior did not vary according to daily mood. Thus, negative affect appears to lead to drinking that is motivated by coping goals, but this may not be true for all negative emotions.

The above study suggests that negative emotions may sometimes be a protective factor from alcohol use. Along those lines, Treeby and Bruno (2012) found that shame-proneness was associated with problematic alcohol use, while guilt-proneness was inversely related to alcohol problems in a sample of college students. The authors found that this was due to differences in drinking motivations related to each emotion. Shame-prone individuals endorsed coping motivated reasons for alcohol use and this was in turn associated with increased alcohol use disorder symptomatology. On the other hand, guilt-prone individuals demonstrated an inverse relationship between guilt and alcohol problems, as well as with both coping and enhancement-related drinking motivations. Based on existing emotion theory, the emotion of guilt appears to motivate individuals to focus on transgressions, while shame leads to a focus on the self, specifically on viewing the self as flawed (Lewis, 1971; Tangney, Stuewig, & Mashek, 2007). Perhaps for this reason, guilt-prone individuals tend to possess healthier coping mechanisms than alcohol use for down-regulating negative emotion, making guilt-proneness protective against alcohol use. In contrast, shame-prone individuals tend to seek ways to distract from or forget their problematic behavior, which appears to make them more vulnerable to alcohol use and associated problematic outcomes (Dearing et al., 2005). As this study indicated, it is important to distinguish between specific negative emotions, as these emotions vary in the extent to which they contribute to alcohol use.

Positive affect and drinking

While historically much of the literature and research investigating emotions in relation to substance and alcohol use has focused on negative emotions, the role of positive emotions in the use of alcohol is less clear. Positive emotion has been less

studied than negative emotion, perhaps because positive emotions have been conceptualized as less powerful in motivating behavior, and thus less likely to lead to behavioral consequences in most theories of emotion (Carver & Scheier, 1990; Srull & Wyer, 1986).

An alternate view of positive emotions suggests that they may be protective against a variety of problematic outcomes. Fredrickson's Broaden and Build hypothesis (Fredrickson, 2001), suggests that the experience of positive emotion leads to exploration of "durable personal resources" which are later available when under stress. In this review of empirical work, positive emotions led to numerous desirable outcomes including expanded attentional focus, heightened cognitive resources (increased creativity, greater cognitive flexibility), increased variation in action-oriented approaches to problems, development of enduring social bonds, and enhanced learning and performance (Fredrickson, 2001). The view of positive emotion as a protective factor suggests such emotions may reduce the need to self-medicate with alcohol in individuals who frequently experience positive emotion and have developed such alternate resources.

The empirical evidence regarding the relation of positive emotion to alcohol use is mixed. Some studies indicate that positive emotions may serve as a protective factor against drinking or problematic outcomes from drinking (Kehle et al, 2012). Some of the evidence indicates that positive emotion may be related to increased drinking (Rankin and Maggs, 2006). Finally, a third set of studies suggests that the role of positive emotion may not be in influencing drinking directly, but rather that positive emotion may be related to motivations for drinking (Cooper et al, 1995; Merrill & Read, 2010; Arbeau et al., 2011). This literature is reviewed in greater depth below.

A recent study has provided support for the idea that positive emotion may be associated with fewer drinking problems. Kehle et al. (2012) investigated the role of positive emotionality among a sample of 348 National Guard Soldiers before and after deployment to a combat setting. Positive emotionality was defined as a disposition toward experiencing positive affect, active engagement in the environment and seeking out rewarding experiences. This study found that lower positive emotionality pre-deployment predicted the development of new alcohol use disorders post-deployment. Thus, higher positive emotionality served as a protective factor for these individuals against the development of problematic alcohol use.

However, contrasting findings have suggested that positive emotion may serve as a risk factor for problematic alcohol use. Rankin and Maggs (2006) used a repeated measures diary design to explore the association between affect and alcohol use in first year college students. In this study, data was collected using a telephone interview every week for a period of 10 weeks. Participants reported their positive and negative affect throughout the previous week, total weekly alcohol use, number of heavy drinking episodes, and number of drinking days. They found that greater reports of within-person weekly positive affect was related to greater consumption of alcohol, more drinking days overall, and more days designated as heavy drinking days. However, it is unclear whether the results of this study may simply reflect normative patterns of alcohol use in college where many individuals may be drinking heavily for enjoyment, but may not be experiencing negative outcomes related to alcohol use. Such distinctions cannot be made without a consideration of motivations for drinking and problematic outcomes related to alcohol use.

Recent data suggests that where positive emotion may play a role is in the motivation behind drinking, rather than a direct role in drinking behaviors. As described above, studies of motivational models indicate that enhancement-motivated drinking is less likely to lead to problematic alcohol use as compared to coping-motivated drinking when frequency and volume are held constant (Cooper et al, 2008). This focus on enhancement-motivated drinking has been incorporated into many studies that investigate the association between positive affect and alcohol use (Cooper et al, 1995). For example, Merrill and Read (2010) looked at the unique consequences associated with motivations for drinking (i.e., controlling for amount of alcohol use). They found that in comparison to the numerous consequences associated with coping-motivated drinking, enhancement-motivated drinking was directly associated with only one problematic outcome—blackout drinking.

In another study, Arbeau and colleagues used an online diary to observe how motives for drinking influenced the relationship of affect and alcohol use in a sample of college students (2011). Participants were asked to report on their affect (using the Positive and Negative Affect Scale), alcohol intake as well as their reasons for drinking each day for a period of 14 days. Specifically, participants were asked whether they drank for the purposes of coping or enhancement. Results showed that individuals who endorsed high coping motives for drinking (high “trait” CM) consumed less alcohol on days that they experienced more positive affect. This suggests that another relationship of positive affect with alcohol use is that the experience of positive affect may reduce the likelihood of engaging in drinking for those individuals who tend to endorse coping motives for drinking in general.

As indicated above, the relationship between positive affect and alcohol use remains unclear. While some studies suggest that positive emotion is a protective factor from alcohol use, others demonstrate that it may be a risk factor. Motives for drinking appear to be most promising in explaining why individuals drink and the types of outcomes that are associated with drinking in response to positive affect. This focus on motives may allow us to further understand the relationship between positive affect and alcohol use with greater clarity than in previous studies.

Cultural norms and positive emotion

The potential role of positive affect in relation to drinking motives and alcohol use raises the possibility that these patterns play out differently across cultural groups where positive emotions may be viewed differently. Culture is highly influential in determining which emotional experiences are valued, what meaning is ascribed to them, and how emotions are processed and regulated (Markus and Kitayama, 1994). While Western cultural norms place value on the experience and open expression of emotion, Eastern cultures value moderation in both positive and negative emotions. These cultures also vary in the specific types of positive and negative emotions they value. Tsai and colleagues found cultural variations in ideal affect (defined as “how people want to feel”) among European Americans, Asian Americans and Hong Kong Chinese (2006). They found that European Americans valued high arousal positive emotions (i.e., enthusiastic, excited), while Hong Kong Chinese valued low arousal positive emotions (i.e., calm, relaxed).

One way that emotion norms of a culture are transmitted to individuals is through cultural scripts, or narratives, that are employed to promote guidelines for the optimal

experience and expression of emotion. Miyamoto and Ma found that these cultural scripts correspond to differing values in emotion as well as to differing experiences of emotion (2011). They found that individuals from Eastern cultures tended to dampen or down-regulate their positive emotions. In contrast, individuals from Western cultures were more likely to engage in hedonic emotion regulation, or savoring (up-regulating and maintaining) their positive emotions. Easterners were less likely to engage in hedonic emotion regulation than Westerners, and this difference was mediated by the beliefs held about the experience of dialectical emotions, or experiencing pleasant and unpleasant emotions simultaneously. Individuals from Eastern cultures are more likely to experience co-occurring positive and negative emotions, especially in situations that are predominantly pleasant (Miyamoto et al, 2010). Because of this low emphasis on emotion, positive emotions may have less of a contribution to alcohol use and problematic outcomes related to drinking for Asian Americans than what is generally shown in the literature, where Asians have not been studied to the extent of other cultural groups.

Conversely, the empirical findings reviewed above may also be inaccurate for groups who highly emphasize positive emotions. While Latino cultures are similar to Asian cultures in their emphasis on collectivism, there are notable variations in their norms for emotions. The concept of *Simpatia*, for example, suggests that Latino cultures value the expression of positive emotions in order to maintain interpersonal harmony (Triandis et al., 1984; Holloway et al., 2009). The expression of negative emotion is discouraged as this is seen as being disruptive to interpersonal relationships and can be perceived as an assault on the dignity of others. Conformity, sharing in other's feelings,

and treating others with respect are other components of the concept of *Simpatia*. Consistent with these cultural norms, Latinos expect a high frequency of positive social behaviors from others as well as a low frequency of negative behaviors. These norms also appear to influence the way that social interactions are perceived (Triandis et al., 1984). For example, a behavior that is considered neutral by non-Latinos is more likely to be perceived as negative by Latinos. Similarly, Latinos expect themselves to experience a high amount of positive emotion as a result of the internalization of these norms. In the absence of positive emotion, Latinos may experience greater distress due to the contrast between the “ideal” positive affect that is encouraged by the cultural norm, and their actual affect, which may or may not be exclusively positive. This may make them more likely to engage in behaviors that increase their amount of positive emotion.

This emphasis among Latinos on positive emotion has been demonstrated in numerous empirical studies. Soto and colleagues (2005) investigated differences in emotion expressed between Chinese Americans and Mexican Americans in a laboratory setting. In this study, Mexican participants experienced more positive emotion in response to an anticipated startle and reported more positive and negative emotions overall as compared to Chinese participants. This indicates that individuals from Latino cultures may not only be expressing more positive emotions, but may in fact be experiencing them more frequently than individuals from other cultural groups.

Additional studies observed variations in the ways in which these cultures moderate their emotions using regulation strategies. Su et al. (2014) compared the use of expressive suppression (defined as “the extent to which individuals reported hiding or restraining the expression of positive and negative emotions”) among Asian Americans

and Latinos. Suppression was selected from many potential strategies because it may be adaptive in these collectivist cultures in order to maintain interpersonal harmony, in contrast to western cultures in which suppression appears to be maladaptive or is relatively underemphasized relative to free expression. Results from this study indicated that Latinos and Asian Americans were similar in their suppression of negative emotion. However, Latinos reported suppressing positive emotions less frequently than Asian Americans. This provides further support that relative to Western (Caucasian) norms, Latinos may be equally or more motivated to maintain or enhance positive emotion, while Asians or Asian-Americans are more likely to reduce or down-regulate this experience. As we already know that positive affect is associated with the endorsement of enhancement motives for drinking, it stands to reason that the relationship between positive affect and enhancement-motivated drinking (see Figure 2 and 4) will be stronger among Latino individuals relative to individuals from Asian backgrounds.

Cultural Norms around Problematic Drinking

The cultural norms reviewed above suggest that Latinos would likely experience more positive emotion and thus be more likely to endorse more enhancement motives for drinking. Based on the literature investigating motivational models for drinking, enhancement motivated drinking is typically associated with fewer problematic outcomes when volume is accounted for. Thus, if Latinos engage in this type of enhancement motivated drinking this may lead to fewer problematic outcomes in this group.

However, the literature with respect to alcohol-related problems suggests that the second half of the model may look different for Latinos. Latinos who use alcohol report drinking higher amounts of alcohol than Caucasians who drink, and White Hispanic men

experience higher rates of alcohol-related cirrhosis than any other ethnic or racial group (NIAAA, 2011). Mexican-American and Puerto Rican men, as well as Latinos born in the U.S. (relative to Latinos born outside of the U.S.) are more likely to engage in drinking that leads to negative consequences (Alva, 1994). Furthermore, existing data indicates that Latinos have the highest rate of alcohol use disorders of all cultural groups in the U.S. (Helzer et al., 1991) and report a need for alcohol treatment that is above the national average (8.7% compared to a national average of 8.1%; Substance Abuse and Mental Health Services Administration, 2009). Hispanic-Americans also display higher levels of binge drinking, defined as consuming 5 or more drinks within a two hour period (26.3% compared to a national average of 24.5%), which is concerning given that individuals who engage in binge drinking report more alcohol problems (Collins et al., 2008).

Based on the above data, it is clear that Latinos are experiencing problematic outcomes at elevated rates, and that this may occur despite the endorsement of enhancement-related motives for drinking. Thus, it seems that previous findings in the literature that indicate enhancement-motivated drinking is associated with minimal problematic outcomes (see Figure 3) may not be accurate for Latinos. Additionally, as discussed above, there is reason to expect this model to operate differently among Asians. This suggests that the relationship between enhancement-motivated drinking and problematic outcomes may be moderated by culture and that it would be likely that both Latinos and Asians would show relationships between enhancement-motivated drinking and problematic outcomes that are different from what has been observed in the current literature. For the Latino group, this hypothesized inconsistency with prior literature may

be due to the unique emphasis on positive emotions for this group and the resulting expectations/pressures that Latinos experience around positive emotions. The emotionally rewarding nature of drinking occasions due to these positive feelings may then lead Latinos to increasingly seek out these drinking situations, which can result in more drinking and more potential for problems arising from this behavior. Prior literature regarding the unique aspects of Latino culture (relative to Asian and Caucasian culture), including a more relaxed attitude towards alcohol consumption and the concept of *personalismo*—an emphasis on social relationships, and relaxed attitudes towards alcohol—may contribute to why Latinos might demonstrate more problematic outcomes as they endorse more enhancement-motivated drinking, whereas Asians might be expected to show less problematic outcomes. Caucasians are expected to fall in between the Latino and Asian groups, consistent with previous literature.

Although the reason why individuals who drink to feel more positive emotions tend to have less problematic outcomes is not clear, one possibility is that these individuals no longer feel compelled to drink once they feel good, thereby mitigating any abuse potential. However, because the cultural norm among Latinos encourages experiences that elicit positive emotion, Latinos may be motivated to drink further if they can see additional benefits to their mood. One such benefit might come from the building of interpersonal relationships through drinking. Previous research indicating that alcohol use facilitates social bonding by enhancing behaviors associated with positive affect further supports this idea (Sayette et al, 2012). Given that Latino cultures place an emphasis on *personalismo*, the valuing and building of warm interpersonal relationships and discouragement of overly formal or impersonal relationships, (Santiago-Rivera et al.,

2002), the salience or appeal of these secondary benefits may then continue to increase the desire to seek out and engage in enhancement-motivated drinking. This then may lead to increased drinking in this group potentially resulting in greater problems. Although Asian cultures also place value on harmony within the family or social group, we do not expect to see this result in Asians or Asian-Americans because they do not show the same degree of emphasis on close interpersonal relationships characterized by warmth.

The Present Study

In the current study, I investigate 1) the relationship of emotion and enhancement-motivated drinking in three groups, Caucasians, Asians, and Latinos and 2) the relationship of enhancement-motivated drinking and problematic outcomes in these groups. In this latter relationship, I am also attempting to bring to light a potential discrepancy between what the motivational model predicts for Latinos, in terms of the relationship between enhancement-motivated drinking and problem drinking (lower rates), and actual rates of problematic outcomes among Latinos (higher rates).

This study is unique in its focus on Caucasian, Latino, and Asian groups, chosen specifically because of their divergent attitudes toward positive emotions. This study will employ an initial time point that asks about typical positive affect over the course of a week, motivations for drinking thinking about all prior drinking occasions and problems with drinking over the past year which will be used for cross-sectional analysis. In addition, it makes use of a longitudinal design in which participants report their affect, drinking motives and alcohol use daily for two weeks. The longitudinal design of this study allows for the investigation of the relationship between these variables in Caucasians, Latinos, and Asians without relying solely on retrospective report.

Additionally, it provides information regarding within-person variation in these measures. In addition to data collected regarding affect, drinking motivations and alcohol use, time in the U.S. will be used as a proxy for acculturation status and included as a control variable given its established influence on alcohol use in. Self-control will also be included as a control measure as it is also well-known to influence problematic use of alcohol (Tangney et al, 2007). I expect the above predicted relationships to exist above and beyond the effects of acculturation and self control.

Hypotheses

Hypothesis I. Because of emotional norms, I predict that Latinos will show a stronger relationship between positive emotion and endorsement of enhancement motives for drinking relative to Asians and Caucasians. That is, I expect the amount of positive emotion that Latinos experience will be associated with a significantly greater increase in their motivations to drink for enhancement purposes, while the relationship for Asians and Caucasians will be less pronounced and predicted to be consistent with prior literature. I predict that these relationships will be observed in both the cross sectional (hypothesis 1a) and longitudinal (hypothesis 1b) data sets.

Hypothesis II: I predict that ethnicity will moderate the relationship between enhancement-motivated drinking and problematic outcomes. Specifically, I expect Caucasians to demonstrate a relationship consistent with prior literature in which enhancement-motivated drinking leads to fewer problematic outcomes. In contrast, I expect Latinos to show the opposite relationship in that endorsement of enhancement-motivated drinking will be associated with more problematic outcomes. This inconsistency with prior literature is expected to be due to the unique emphasis on

positive emotion and experience in this group, which may lead Latinos to seek out more opportunities to drink due to the pleasant nature of these events. As a result of this increased drinking, Latinos will demonstrate more problematic outcomes than typically expected for enhancement-motivated drinking. In contrast, Asians are expected to experience fewer negative outcomes relative to Latinos, because of the unique emphasis on emotional balance in this group. Similar to hypothesis 1a and 1b, I predict that these relationships will be observed in both the cross sectional (hypothesis 2a) and longitudinal (hypothesis 2b) data sets.

Figure 1. Relationships (based on existing literature) between type of affect, related motivation for drinking, and problematic outcomes related to alcohol use

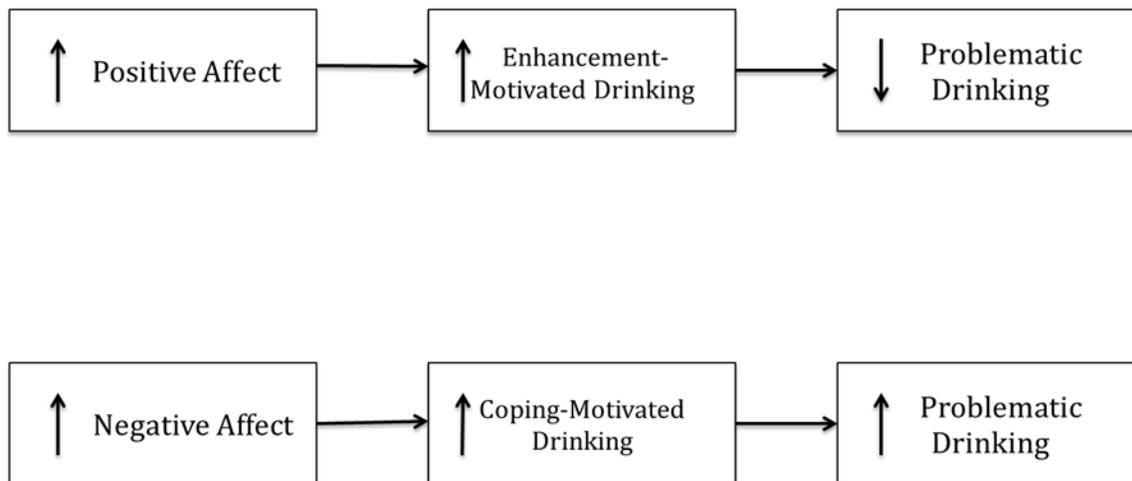


Figure 2. Positive emotion leads to the endorsement of enhancement motivations for drinking

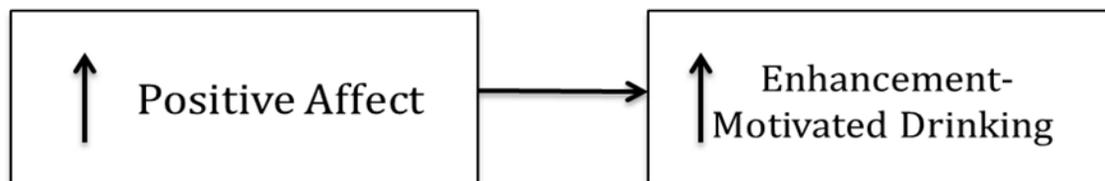


Figure 3. Enhancement-motivated drinking is related to fewer problematic outcomes than coping-motivated drinking

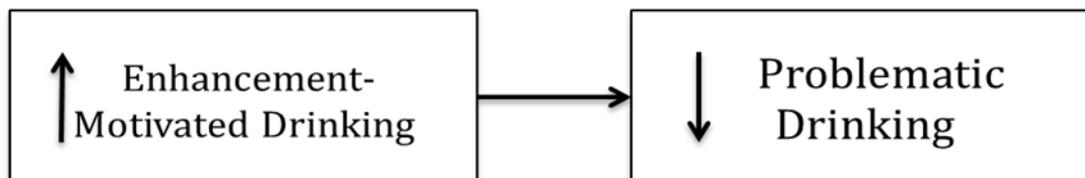


Figure 4. Hypothesis 1: Culture will moderate the relationship between positive emotion and enhancement motives for drinking

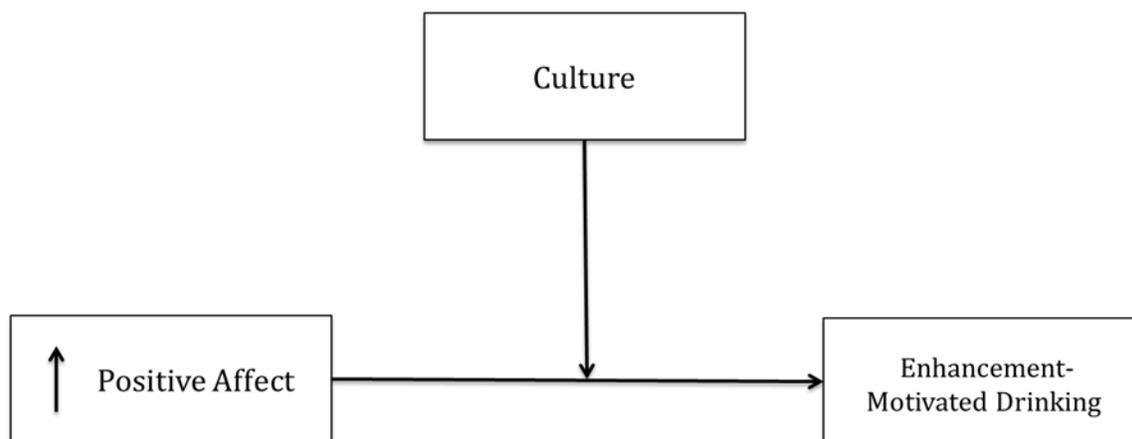
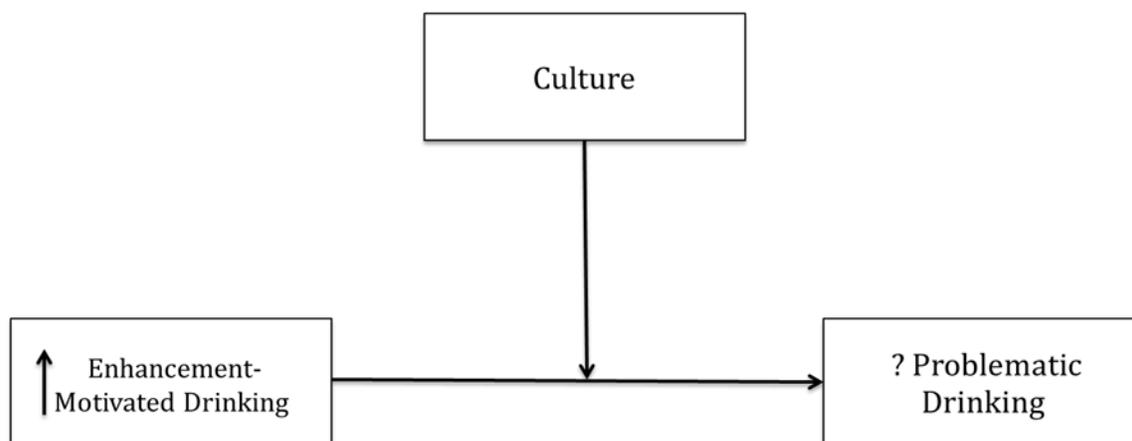


Figure 5. Hypothesis 2: Proposed moderation of the relationship between enhancement motives for drinking and problematic outcomes



Chapter 2

METHOD

Participants

Participants were 99 English-speaking college students who were between 18 and 25 years of age (Nakai & Ke, 2009). Participants were recruited from a large Mid-Atlantic university and completed the study for course credit or pay. Participants who identified as Caucasian, Latino/Hispanic, or Asian/Asian American were included in this study. Both foreign-born and U.S. -born individuals were included. Participants had to report at least one parent who was born in the country of origin (United States for the Caucasian group, Central- South America for the Latino group, an East or Southeast Asia for the Asian American group). These criteria were selected in order to increase the likelihood that participants would have been exposed to and influenced by the emotional norms of their cultural group. Individuals from various Asian ethnic groups were eligible for the study, as past research supports the idea that these groups endorse similar norms for emotional expression (Kim, Yang, Atkinson, Wolfe, & Hong, 2001). A variety of Latino ethnicities (e.g. Puerto Rican, Cuban) were also eligible for the Latino/Hispanic group given that there is a similar emphasis on the expression of positive emotion across these groups.

Procedure

A variety of methods were used to recruit participants. Students in introductory psychology courses were given the option to complete a screener that determined eligibility for the study. Participants qualified for this study if their answers to a demographic screener indicated that they 1) reported drinking at least once every two weeks during the prior three months, 2) they identified as either Caucasian,

Hispanic/Latino, or Asian and 3) met the cultural criteria described above. The study was also advertised on flyers posted in various approved locations on campus and through listserv emails that would likely reach the target groups for this study. Both the flyers and listserv messages directed participants to a website where they completed a demographic screener that determined their eligibility. Eligible participants were contacted by study personnel who provided more information about the study. Participants received course credit (3 hours) or a payment of \$30 as compensation for participation in the study.

Participants who qualified for the study and consented to participate were given a unique identifier and directed to the study website to fill out numerous measures prior to beginning the daily diary portion of the study. These measures gathered information regarding current level of alcohol use, motives for drinking and problems related to drinking. Additional measures gather information regarding demographics (e.g., time in the U.S., primary cultural identification), self-control, and emotional experience. The duration of this session was approximately 1 hour including the consent process and completion of these measures. For both the baseline assessment as well as daily assessments, items were included that assess the validity of participants' responses.

Participants were then provided with instructions regarding the daily diary portion of the study. Participants were instructed to log on to the study website every evening for a period of 14 days. This portion of the study required approximately 8 minutes per day, for a total of 2 hours over 14 days. If participants were not able to complete the daily assessment on a particular evening, they were instructed to complete it the following morning. Each day, participants answered questions indicating how much positive,

neutral, and negative emotion they experienced that day, and whether they drank (Y/N) that day. If they reported drinking on that day, they were asked how much they drank. The extent to which drinking was motivated by coping or enhancement motives was assessed using the Coping and Enhancement items (5 items for each subscale) from the Drinking Motive Questionnaire. Participants were also asked whether they experienced problematic outcomes (missing class, not completing assignments, arguments with others) as a result of their drinking. At the completion of the daily diary portion of the study, participants were debriefed and provided with study credit or compensation.

Measures

Demographic Screener. This screener assesses respondents' ethnic, racial, and cultural backgrounds. It also collects basic demographic information (gender, age, class standing, family income). The screener also collects information that may vary by cultural group, including language familiarity and use, as well as ethnic composition of respondents' neighborhood and social groups. Data collected from the screener was used to determine participants' acculturation status.

Emotion norms. The Affect Valuation Index (Tsai & Knutson, 2006) is a measure that uses a 1 (*very slightly or not at all*) to 5 (*extremely or all of the time*) scale to assess how frequently respondents 1) felt each of 30 emotion states and 2) would have liked to feel each of these states. Responses were ipsatized to account for individual and cultural differences in response style. For all participants, a mean and standard deviation for all affect ratings was obtained. The overall mean was then subtracted from each affect item and the total divided by the overall standard deviation. Because this measure asks about how respondents would ideally like to feel, rather than simply how they are feeling,

it is considered a measure of “ideal affect” and may reflect internalized cultural norms regarding the experience of emotion. This measure includes positive, negative and neutral emotions and thus will allow for the assessment of the influence of each of these types of emotions on drinking motives and behavior. The measure has been used with numerous cultural groups and shows good test-retest reliability and discriminant validity. The measure of ideal affect also displays good convergent validity.

Drinking Motives. Participants completed the full version of the Drinking Motives Questionnaire-Revised (Cooper, 1994) during their first visit to the study website. This questionnaire assesses the frequency with which individuals drink for the purpose of coping, enhancement, social and conformity motives. Sample items include “To forget about your problems (Coping), “Because it’s fun” (Enhancement), “To fit in with a group you like” (Conformity), and “To celebrate a special occasion with friends” (Social). Participants use a 5 point response scale ranging from 0 (“almost never or never”) to 4 (“almost always or always”) to indicate how often they drank for each of the four motives. This measure has shown excellent psychometric properties for use with college students (Cooper et al., 2000; MacLean & Lecci, 2000; Simons, Correia, Carey & Bosari, 1998).

Alcohol Use Disorders Identification Test: Self-Report Version (AUDIT). Participants completed the AUDIT (Saunders et al., 1993) during their initial visit to the study website. The AUDIT is a 10-item questionnaire that assesses alcohol consumption, alcohol dependence and negative consequences associated with alcohol use during the past year. A frequency continuum is utilized to assess frequency of the factors measured. This measure has demonstrated the ability to distinguish between harmful drinkers,

compared to many similar measures that simply assess alcohol dependence (Bohn et al., 1995). The AUDIT has also been found to be useful in identifying problem drinking in young problem drinkers, particularly with college students (O'Hare & Sherrer, 1999). A cutoff score of 6 or greater on the scale has demonstrated a sensitivity of 91% in detecting high-risk drinking in a college sample (Kokotailo et al., 2004). The typical cutoff score for adults is an 8 (Reinert and Allen, 2002). A score of 8 or more on this measure is associated with hazardous or risky drinking.

Alcohol Related Consequences. The Young Adult Alcohol Consequences Questionnaire (YAACQ; Read et al., 2006) is a 48 item questionnaire that assesses eight types of consequences related to alcohol use. Items are dichotomously rated (Y/N) and can be modified to question participants about any given time period of interest. For this study, participants were asked about consequences that occurred within the past year. Domains assessed include: social/interpersonal (e.g., "I have become very rude, obnoxious or insulting after drinking"), academic/occupational (e.g., "I have neglected my obligations to family, work, or school because of my drinking"), risky behavior (e.g., "I have taken foolish risks when I have been drinking"), impaired control (e.g., "I often drank more than I originally had planned."), poor self-care (e.g., "I have been less physically active because of drinking"), diminished self-perception (e.g., "I have felt badly about myself because of my drinking"), blackout drinking (e.g., "I have awakened the day after drinking and found that I could not remember a part of the evening before") and physiological dependence (e.g., "I have felt anxious, agitated, or restless after stopping or cutting down on drinking"). This measure has been used extensively with

college samples and demonstrates good reliability and validity (Read et al, 2007). It shows excellent internal consistency (.91-.95).

Self-Control. The Brief Self-Control Scale (Tangney et al., 2004) contains 13 items rated on a 1-5 scale. Participants indicated the extent to which these items are like them or not like them. Items assess respondents' ability to alter inner responses, interrupt undesired behavior tendencies and prevent undesirable action. Higher total scores on this measure indicate greater self-control. This measure has demonstrated excellent internal consistency with college students (Cronbach's alpha = .89) and test-retest reliability over a three-week interval ($r = .89$; Tangney et al., 2004). Based on prior research, higher scores are associated with desirable outcomes such as higher grades, improved emotional responses, and lower use of alcohol (Tangney et al., 2004).

Daily Diary. Following the initial assessment, participants participated in a 14-day daily diary assessment. Participants were given a unique identifier that allowed them to log on to the study website every evening (or the following morning when the evening assessment was missed). Each daily assessment was estimated to require approximately 8 minutes to complete, for a total of 2 hours over 14 days. Participants were asked to what extent they experienced each of the following emotions: enthusiastic, dull, excited, sleepy, strong, sluggish, euphoric, idle, aroused, rested, astonished, quiet, surprised, still, passive, inactive, fearful, calm, hostile, peaceful, nervous, relaxed, elated, lonely, content, sad, happy, unhappy, satisfied, and serene. Participants rated to what extent they experienced each of these 30 emotion states throughout the day using a 0 (none) to 5 (very much) scale. Participants reported if they drank since their previous entry (Y/N). If they reported drinking, they were asked to report the number of alcoholic drinks that

they consumed and whether they experienced negative consequences as a result (missing class, not completing assignments, arguments with others). Coping and enhancement motives were assessed on days that participants reported drinking using the coping and enhancement subscales of the Drinking Motives Questionnaire. The five coping items include the following motives for alcohol use: to forget your worries, because it helps you when you feel nervous or depressed, to cheer you up when you are in a bad mood, because you feel more self-confident and sure of yourself, and to forget about your problems. The five enhancement items include the following motives for alcohol use: because you like the feeling, because it's exciting, to get high, because it gives you a pleasant feeling, and because it's fun.

Data Analysis Plan

Both cross-sectional data from the baseline appointment as well as longitudinal data consisting of data from both the initial time point and 14 daily assessments were analyzed. The cross-sectional data was analyzed using Hierarchical Multiple Regressions. In order to test the hypothesis that the relationship between positive affect and enhancement motivated drinking was moderated by ethnicity (hypothesis 1a), we conducted a hierarchical multiple regression with positive affect as the predictor variable and drinking motives serving as the criterion variable. In the first step, we included age, gender, income as control variables. In step 2, we included time in the U.S. (used as a proxy for acculturation) as a covariate of interest. In step 3, we included the affect term of interest, namely overall positive affect. We then tested whether ethnicity moderated the relationship between positive affect and enhancement-motivated drinking, by including ethnicity and the affect x ethnicity interaction in steps 4 and 5, respectively.

A similar hierarchical regression procedure was used to examine whether the relationship between enhancement-motivated drinking and problematic outcomes was moderated by ethnicity (hypothesis 2). For this second set of analyses, the criterion scores included total scores for the AUDIT and YAACQ as well as the dependence subscale score on the YAACQ. Self-control was also included as a control for the second set of analyses, given the relationship in past literature of self-control with impulsive behaviors including alcohol use (Tangney et al., 2004).

Multilevel modeling was used to analyze the longitudinal data with repeated measures nested within persons for the intercept to assess for the influence of daily affect on drinking motives and alcohol use (hypotheses 2a and 2b). This approach allows for the observation of daily relationships with drinking motives that does not rely on retrospective report. Daily diary entries were nested within individual respondents, with ethnicity serving as a fixed variable. We predicted that these relationships would vary by ethnicity, such that Latinos would exhibit a stronger relationship between positive affect and drinking for enhancement purposes (hypothesis 1b), as well as a stronger relationship between enhancement-motivated drinking and problematic outcomes (hypothesis 2b). Level 1 variables consisted of daily covariation in experiences (within-level variability in affect, and drinking), while level 2 consisted of between-subjects variables (including affect, drinking motives, ethnicity). Age, gender, income, and time in the U.S. were also included as controls for these analyses, with self-control added for tests of the second hypothesis as was the case for the tests of hypothesis 1.

Chapter 3

RESULTS

Demographics

Of the 106 individuals who met screening criteria for the study and were invited to participate, two participants were excluded from the analysis because they were incorrectly identified as alcohol users from the screening measure. An additional five participants were excluded for failure to provide the correct response to validity questions in which they were asked to select a specific answer for certain items. This yielded a total of 99 participants included in the final cross-sectional analyses which consisted of 37 Caucasian, 37 Latino, and 25 Asian participants. Sixty-eight percent were women and participants ranged in age from 18 to 25. Additional sample demographics are presented in Table 1 for the entire sample and by ethnicity.

The longitudinal dataset consisted of 103 subjects who completed up to 14 daily assessments for a total of 1219 observations. The range of daily entries completed was 1 to 14 with an average of 11.83 entries completed per subject. For the present analyses, observations were only included for days when participants reported drinking. Thus, the total number of observations used was 262, or 21% of the total observations. This included observations from 87 subjects, with an average of 3.01 observations per subject. 101 of observations were from Latinos, 110 were from Caucasians, and 52 were from Asians. As indicated in Table 1, Caucasians reported the highest number of problematic outcomes, followed by Latinos. Asians reported the fewest number of problematic outcomes related to drinking.

Positive Affect and Enhancement Motivations for Drinking

Cross-sectional data collected during the initial setting were analyzed to assess for participants' typical affect and drinking behavior. Mean affect rating, motivations to drink, and mean level of reported problematic outcomes related to drinking are reported in Table 1. Individuals in this study reported experiencing more positive than negative emotion during a typical week.

We first ran a hierarchical regression to test for a cultural moderation of the relationship between overall positive affect and drinking for enhancement purposes (hypothesis 1a). Overall positive affect was operationalized as a mean aggregate of all ipsatized positive emotion scores for a given individual, consistent with prior research utilizing a general measure of positive emotion to assess for the influences of affect on drinking motives and behavior. As indicated above, gender and time in the U.S. (used as a proxy for acculturation) were included in these analyses as control variables, and self-control was included for only the second hypothesis. Age and income were not significant predictors of our outcome variables and did not affect the overall results. For ease of presentation, we only report the models without these variables.

The hierarchical regression model testing hypothesis 1a included overall positive affect in the first step with drinking for enhancement purposes as the criterion. This relationship was not significant, $F(3,94) = .20, p > .05$. Ethnicity also was not a significant predictor of enhancement motives, $F(5,92) = .15, p > .05$. Finally, the interaction between overall positive affect and ethnicity was also not significant, $F(7,90) = .24, p > .05$. See Table 2 for regression models. Thus, hypothesis 1a, which predicted a moderation by

ethnicity of the relationship between positive affect and enhancement motivations for drinking, was not supported using our cross-sectional data.

Table 5 (below) provides results for fixed and random effects for the model of overall positive affect being associated with endorsement of enhancement motivations for drinking using the daily diary data (hypothesis 1b). Across the sample, there was a main effect of positive affect on enhancement-motivated drinking, such that for every +1 standard deviation increase in overall positive affect there was a corresponding 3.4 unit increase in enhancement-motivated drinking scores, $SD = 0.5$, $t(174) = 2.71$, $p = .01$. Ethnicity was not a significant predictor of enhancement-motivated drinking, $F(2,81) = 1.46$, $p = .24$. There was a significant interaction of overall positive affect and ethnicity, such that being Caucasian and reporting higher positive affect (+1 SD) was associated with a decrease in enhancement-motivated drinking scores of 3.26 units, $F(2,174) = 4.02$, $p = .02$, as compared to Latinos, $t(174) = -2.13$, $p = .035$, and Asians, $t(174) = -2.52$, $p = .01$. A post-hoc comparison of the interaction of the slopes by group indicated that there was a significant difference between the interaction slopes of Asians and Caucasians, as well as between Caucasians and Latinos. The interaction simple slope was significant only for the Caucasian group, $F(1,174)=8.01$, $p = 0.01$, indicating that this group experienced a decrease in enhancement motives with an increase in positive affect, whereas the other two groups demonstrated increased enhancement motives with increased positive affect. Thus, although these results support a moderation of the relationship between positive affect and enhancement motivations for drinking, they results were not consistent with the specific cultural moderation that was predicted.

Enhancement Motivated Drinking and Problematic Outcomes

We next ran hierarchical regressions to test for a cultural moderation of the relationship between drinking for enhancement purposes and problematic outcomes related to drinking (hypothesis 2a) in the cross-sectional data. Total scores for two assessments of problem drinking (AUDIT and YAACQ) and dependence as measured by the YAACQ Dependence subscale served as the criterion variables for these analyses. Age, gender, income, time in the U.S., and self-control were included in these models as control variables.

As can be seen in Table 3, greater endorsement of enhancement-related motives for drinking significantly predicted AUDIT total scores, $F(4,94) = 14.95, p = .000$, as did being Latino (relative to the Asian group), $F(6,92) = 11.8, p = .000$. These main effects were qualified by a significant interaction between enhancement motives for drinking and ethnicity, $F(8, 90) = 10.61, p = .00$. Further analyses conducted to unpack these analyses revealed that Asians and Caucasians displayed stronger relationships between enhancement motivations and AUDIT total scores than was the case for Latinos. Endorsement of enhancement motivations for drinking also significantly predicted the number of problematic consequences related to drinking during the past year, as assessed by the YAACQ total score, $F(4,94) = 8.22, p = .000$. The interaction between enhancement motives and ethnicity was marginally significant for this model. Again, this interaction revealed that only the scores for the Caucasian group were significantly predicted by this model ($\beta = .52, p = .001$). These results provide marginal support for hypothesis 2a, which predicted a moderation by culture of the relationship between enhancement motives and problematic outcomes.

Enhancement motives for drinking were also predictive of YAACQ dependence scores, $F(4,94) = 3.30, p = .014$, as was ethnicity, $F(6,92) = 2.91, p = .012$, and the interaction between enhancement motives and ethnicity, $F(8,90) = 4.22, p = .000$. This interaction revealed that dependence scores were only predicted by enhancement motivated drinking for the Caucasian group ($\beta = .47, p = .003$), but not for Latinos and Asians. This again provides support that the relationship between enhancement motivated drinking and problematic outcomes varies across different cultural groups.

In order to test this hypothesis using longitudinal data (hypothesis 2b), we created an aggregate score of reported problematic outcomes per day related to drinking including: missing school or work, not completing assignments, arguments with others, feeling sick due to drinking, and a number count of any other consequences obtained from an “other” category. The range of this variable was 0 to 11 with a mean of .4 problems per entry. Main effects indicated that enhancement motives for drinking significantly predicted problematic outcomes across the entire sample, $F(1,160) = 5.61, p = .02$, such that a 1 unit increase in enhancement motivations was associated with a .07 unit increase in problematic outcomes, $t(160) = 2.86, p = .005$. In this model, ethnicity did not significantly predict outcomes, $F(2,76) = 0.12, p = .88$. There was no significant interaction of enhancement motives and ethnicity in predicting problematic outcomes, $F(2,160) = 1.3, p = .27$. Thus, while enhancement motives were associated with problematic outcomes when measured daily, the hypothesis that this effect would be moderated by culture was not supported.

Post-hoc analyses

Given that drinking for enhancement purposes significantly predicted problematic outcomes in this sample, I was interested in observing whether this relationship was unique to being motivated to drink for enhancement purposes (to maintain or amplify positive affect), or whether similar results might be obtained based on any reported motivation to drink. Thus, additional post-hoc analyses were carried out using three additional motivations from the DMQ-R scale included in our cross-sectional data: coping, social, and conformity motives. As can be seen from Table 4, three of the four drinking motives assessed were significantly predictive of problematic drinking. Coping motives significantly predicted scores on the AUDIT, YAACQ, and YAACQ Dependence subscale. Ethnicity predicted outcome scores for only one of these measures, the AUDIT total score, indicating that Caucasians reported significantly higher scores than Latinos. These findings were qualified by a significant interaction of coping motives and ethnicity for AUDIT scores and YAACQ Dependence scores. Unpacking of these interactions revealed that for Latino and Caucasian groups (but not for the Asian Americans) the AUDIT total scores were predicted by coping motives,. For the YAACQ dependence scores, unpacking of the interaction revealed that dependence scores were significantly predicted by coping motives for Caucasians, while they were only marginally predicted for the Asian/Asian-American and Latino groups.

Endorsement of social motives significantly predicted total scores for two outcome measures, the AUDIT and YAACQ. The YAACQ Dependence subscale was only marginally predicted by social motives. Consistent with results for coping motives, ethnicity predicted outcome scores for only one of these measures, the AUDIT total

score, indicating a significant difference in scores for the Latino and Caucasian groups with the Caucasian group reporting more problematic outcomes. Main effects were qualified by an interaction of social motives and ethnicity for all three outcome measures, AUDIT total score, YAACQ total score, and YAACQ Dependence subscale. Unpacking of the interaction for the AUDIT total score indicated that Caucasian and Asian scores were significant. For the YAACQ total and Dependence scores, the interaction of ethnicity and social motives only predicted scores for Caucasians.

Similar analyses were performed using the longitudinal data for coping motivated drinking. Social and conformity motives for drinking were not included in these analyses because they were not collected during daily assessment. Main effects for coping motivations indicated that coping motivated drinking significantly predicted problematic outcomes across the entire sample, $F(1,160) = 7.76, p = .006$. A one unit increase in coping motivations in this model was associated with a .13 unit increase in problematic outcomes, $t(160) = 4.84, p < .0001$. For this model, an interaction of coping motivations and ethnicity was significant, $F(2,160) = 6.9, p = .001$. Further analyses revealed that slopes were significantly different for Asians and Latinos, as well as for Caucasians and Latinos. This model was significant for Asians, $F(1, 160) = 4.65, p = .03$., and Latinos, $F(1,160) = 13.67, p = .0003$, but not for Caucasians, suggesting that problematic outcomes are positively related to coping motives in a way that is significant for these two groups.

Finally, given prior research indicating that enhancement motives are associated with greater drinking volume (Piasecki et al., 2013; Merrill, Wardell, & Read, 2014) I tested whether the number of drinks consumed mediated the relationship between

enhancement motives and problematic outcomes. This variable fully mediated the relationship between enhancement motivations and problematic outcomes, $F(1,171) = 13.63, p = .0003$. Furthermore,] marginally significant interaction was found between amount of alcohol consumed and ethnicity, $F(2,171) = 2.65, p = .07$, providing marginal evidence that the mediation was moderated by ethnicity. Unpacking of this interaction revealed that Latinos appeared to display a stronger relationship between enhancement motives and problematic outcomes when mediated by drinking volume as compared to Asians and Caucasians. In other words, when drinking similar amounts for enhancement-motivated reasons, Latinos appear to be experiencing a higher rate of problematic outcomes. Additionally, the relationship between coping motives and problematic outcomes was partially mediated by number of drinks consumed, $F(1,173) = 22.8, p < .0001$, but this mediation was not moderated by ethnicity, $F(2,171) = 1.98, p = .14$. This provides partial support for the hypotheses proposing that Latinos' higher rate of problematic alcohol use may be related to drinking in order to maintain or increase positive affect.

Table 1
Descriptive information for baseline measures (N = 99)

	Entire Sample	Latino	Caucasian	Asian	χ^2	<i>F</i>	Df	<i>P</i>
	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>				
Gender					.66		2,99	.72
Female	68	24	27	18				
Male	31	13	10	7				
Year in School					8.26		8,99	.41
Freshman	27	9	12	6				
Sophomore	24	7	10	7				
Junior	18	10	6	2				
Senior	30	10	7	10				
	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>				
Age	19.84	19.78	19.76	20.04		.311	2,96	.734
Affect								
Overall positive	2.97	3.06	2.88	2.97		.72	2,96	.49
Overall negative	2.38	2.28	2.48	2.37		.88	2,96	.42
DMQ-R Motives								
Enhancement	15.91	15.73	16.30	15.64		.14	2,96	.87
Coping	11.81	11.24	12.16	12.16		.38	2,96	.69
Social	18.33	17.92	18.59	18.56		.21	2,96	.81
Conformity	8.42	7.97	8.68	8.72		.37	2,96	.69
Outcome Measures								
AUDIT score	13.92	10.46	11.16	8.2		2.03	2,96	.14
YAACQ score	10.15	13.73	14.81	12.92		.41	2,96	.67

Table 2
Summary of Hierarchical Regression Analysis for Variables predicting Enhancement-Motivated Drinking

Variable	B	<i>T</i>	SE	<i>R</i>	<i>R</i> ²	ΔR^2
Step 5						
Gender	.05	.50	1.26	.14	.02	.01
Time in U.S.	.07	.65	.11			
Overall Positive Affect	.02	.21	1.26			
Ethnicity						
Ethnicity Code 1	.11	.7	1.08			
Ethnicity Code 2	-0.76	-.49	.99			
Interaction						
Affect x Ethnicity 1	-.15	-.98	1.83			
Affect x Ethnicity 2	.07	.45	1.64			

Note. Standardized coefficients. *N* = 98; **p* < .05. Ethnicity code 1 represents a comparison of the Asian/Asian-American and Latino groups. Ethnicity code 2 represents a comparison of the Caucasian and Latino groups.

Table 3
Summary of Hierarchical Regression Analysis for Variables predicting Risky or Hazardous Drinking (AUDIT Total Score)

Variable	B	T	SE	R	R ²	ΔR ²
Step 6						
Gender	.25**	3.25	.97	.70	.49	.05
Self-Control	.26**	3.27	.08			
Time in U.S.	.04	.52	.09			
Enhancement Motives	.47***	6.08	.08			
Ethnicity						
Ethnicity Code 1	.26	.90	2.18			
Ethnicity Code 2	.51	1.78	1.93			
Interaction						
Motive x Ethnicity 1	-.00	-.00	.13			
Motive x Ethnicity 2	-.71*	-2.53	.11			

Note. Standardized coefficients. N = 99; *p < .05, **p < .01, ***p < .00. Ethnicity code 1 represents a comparison of the Asian/Asian-American and Latino groups. Ethnicity code 2 represents a comparison of the Caucasian and Latino groups.

Table 4
Associations between DMQ-R Motivation Subscales and Problematic Outcomes

	AUDIT total			YAACQ total			YAACQ dependence		
	ΔR^2	<i>B</i> (<i>SE</i>)	<i>T</i>	ΔR^2	<i>B</i> (<i>SE</i>)	<i>T</i>	ΔR^2	<i>B</i> (<i>SE</i>)	<i>t</i>
Coping									
Coping motive	.15	.36(.1)**	4.22	.08	.29(.16)**	3.01	.09	.16(.01)**	1.73
Ethnicity	.06			.02			.04		
Ethnicity 1		-.21(1.97)	-.81		.01(3.06)	.02		-.14(.28)	-.41
Ethnicity 2		.52(1.78)*	1.97		.29(2.78)	1		-.89(.24)*	-2.62
Interaction	.06			.02			.19		
CopingxEth1		.53(.15)*	2.06		.18(.23)	.63		.28(.02)	.81
CopingxEth2		-.74(.13)**	-2.92		-.41(.21)	-1.47		-1.18**(.01)	-3.54
Social									
Social motive	.15	.38(.1)**	4.64	.1	.3(.15)**	3.48	.03	.14(.01)	1.57
Ethnicity	.06			.02			.04		
Ethnicity 1		.36(2.88)	.94		-.02(4.26)	-.05		-.33(.34)	-.77
Ethnicity 2		.75(2.6)*	-1.95		1.1(3.84)**	2.72		1.23(.31)**	3
Interaction	.06			.08			.12		
SocialxEth1		-.05(.15)	-.14		.22(.22)	.55		.49(.02)	1.16
SocialxEth2		-.97(.14)*	-2.56		-1.23(.2)**	-3.09		-1.57(.02)**	-3.72
Conformity									
Conformity motive	.01	.08(.14)	.81	.02	.12(.2)	1.24	.01	-.1(.02)	-1
Ethnicity	.06			.02			.04		
Ethnicity 1		.34(1.9)	1.33		-.09(2.71)	-.34		-.14(.21)	-.51
Ethnicity 2		.06(1.8)	.21		.12(2.57)	.46		.13(.2)	.46
Interaction	.02			.01			.03		
ConformityxEth1		-.06(.2)	-.23		.3(.29)	1.17		.29(.02)	1.12
ConformityxEth2		-.27(.19)	-1.06		-.25(.27)	-.96		-.41(.02)	-1.55

Note. Standardized coefficients. * $p < .05$. ** $p < .01$. Ethnicity code 1 represents a comparison of the Asian/Asian-American and Latino groups. Ethnicity code 2 represents a comparison of the Caucasian and Latino groups.

Table 5
Estimates of Fixed Effects and Random Parameters for a Model of Enhancement-Motivating Drinking as a Function of Overall Positive Affect

Parameter	EMD score	
	Estimate	SE
Fixed effects		
Intercept, γ_{00}	13.416*	(1.133)
Overall positive affect, γ_{01}	3.140*	(1.160)
Ethnicity, Asian	-0.424	(1.819)
Ethnicity, Caucasian	2.214	(1.517)
Ethnicity, Latino	0	
Positive affect x ethnicity, Asian	1.22	(1.875)
Positive affect x ethnicity, Caucasian	-3.262*	(1.531)
Positive affect x ethnicity, Latino	0	
Gender	1.040	(1.350)
Random effects		
Variance intercept, σ^2_{u0}	25.586*	(4.964)
Variance residual, α_0	12.190*	(1.307)
-2LL	1535.1	
AIC	1539.1	

Note. Unstandardized estimates and standard errors. Model based on 87 participants followed for up to 14 days for a total of 262 observations. *AIC* = Akaike Information Criterion; *-2LL* = -2 Log Likelihood, relative model fit statistics. $p < .005$ for * values.

Chapter 4

DISCUSSION

This study sought to investigate a theory that motivations for drinking would be influenced by cultural norms around emotion, such that individuals would drink in order to promote or reach emotion states that are encouraged by their cultural norms. Specifically, I hypothesized that typical positive affect (for baseline measures) and positive affect throughout the day (for daily assessments) would influence motivations to drink, and that both this relationship and the relationship between motivations to drink and problematic outcomes would vary by ethnicity. Overall, the findings provided mixed support for the study hypotheses, demonstrating cultural moderation of these relationships in some instances, although not always in a manner consistent with what was expected and demonstrating variability depending on whether the analyses were cross-sectional or longitudinal.

Positive Affect and Drinking Motivations

The present findings indicate that positive affect does appear to influence motivations to drink, but only when measured daily. While a relationship between typical positive affect and enhancement motivations for drinking was not observed in our cross-sectional data, daily positive affect was significantly associated with endorsement of enhancement motivations for drinking. Importantly, this relationship was different for the different groups. For Caucasians, an increase in positive affect was associated with a decrease in enhancement motivations. For Asians and Latinos, on the other hand, an increase in positive affect was associated with an increase in enhancement motivations. That the results for the Latino and Asian groups were similar was somewhat surprising. Caucasians and Latino emotions norms promote maintenance of positive emotion, while

Asians norms tend to encourage balance between positive and negative emotions (Tsai et al., 2006; Triandis et al., 1984; Holloway et al., 2009). Based on these norms, an increase in positive affect leading to an increase in enhancement motivations was not expected for the Asian group, not was the inverse relationship between positive affect and enhancement motivations for the Caucasian group. It may be that enhancement motivations may only be triggered for Caucasians during times that they are experiencing lower positive affect than is typical for them. Alternatively, there may be other variables that were not included in this study that may be contributing to this pattern of results. For example, a study by LeBrie et al. (2012) found that Caucasians vary from Latinos in their emphasis on same-race drinking norms, or their perception of how much others in their ethnic group drink, rather than general student norms and that this relates to drinking consumption.

The discrepancy of findings between baseline and daily measures is noteworthy. The failure to demonstrate this pattern of results with the cross-sectional data may be due to the unreliability of retrospective report of affect, which has been established in prior literature (Gorin & Stone, 2001). Similarly, during baseline measures subjects were asked about drinking motivations thinking about all of their past drinking episodes, which may be less useful or reliable than asking about motivations for a specific drinking episode or day (as was the case in the longitudinal study), particularly for those who may drink for different reasons on different occasions. Alternatively, it may be that the affect experienced during a particular day may provide a clearer picture of the associations with decisions to drink in order to regulate emotions than affect during a typical week, especially where reports of a typical week are unreliable. Finally, it may be that

experiencing affect that deviates from a person's baseline affect may increase motivation to drink to maintain a positive state or cope with a negative state. For example, a person may be more likely to drink when they experience affect that represent elevations from what is typical for them (Hussong, Hicks, Levy, & Curran, 2001). By standardizing daily affect scores, we were able to assess the impact of deviations from a person's own baseline. The cross-sectional data, in contrast, included only typical affect, which may have contributed to a discrepancy in findings for the cross-sectional and longitudinal data.

Enhancement Motives and Problematic Outcomes

Tests of the second hypothesis indicated that enhancement motivations for drinking consistently predicted problematic outcomes, both during the past year and during individual drinking episodes measured daily, and that these results were moderated by cultural group. Results for baseline outcome measures presented a consistent pattern of interactions. Although the data revealed a moderation by culture, the pattern of moderation was not consistent with what was predicted for this relationship. For all three outcome measures, Caucasians displayed stronger relationships between enhancement motivations and problematic outcomes, and tended to report a higher rate of problematic outcomes. Latinos and Asians reported fewer problematic outcomes, with Asians reporting the lowest number of such outcomes for both cross-sectional and longitudinal data. Thus, the cross-sectional results suggest that enhancement motivated drinking may be especially problematic for Caucasians and not for Latinos as I originally predicted,

The longitudinal data indicated a similar relationship between enhancement motivated drinking and problematic outcomes. However, there was no interaction main effect of ethnicity and no interaction of enhancement motives with ethnicity, which was inconsistent with the hypothesis for these variables of a moderation by culture. Similar to the above, the discrepancy between cross-sectional and longitudinal findings for this model may be related to the different ways in which participants were asked about their drinking motives and problematic outcomes for baseline and daily measures. Baseline measures asked participants to endorse motivations thinking about all of the times they drank, and to report problematic outcomes throughout the past year. This is likely to vary with daily measures, in which participants were asked about their motivations and problematic outcomes for the past day (Gorin & Stone, 2001). This dual approach to data collection appears to be a strength of the current study, in that it allows for collection of data regarding a long period of time, which may be helpful in obtaining information about problematic outcomes from participants who would not be considered heavy drinkers, but also allows for collection of detailed daily information that allows for observation of how a person's reasons for drinking on a given day may be related to problematic outcomes.

Additionally, post hoc analyses for hypothesis 2b indicated that drinking volume, or amount consumed, fully mediated the relationship between enhancement motivations for drinking and problematic outcomes. Further, a marginally significant finding for the Latino group revealed that this group was experiencing a greater number of problematic outcomes when consuming an equal amount of alcohol than Asians or Caucasians. This may help to explain the higher rates of problematic drinking in Latinos as compared to

other ethnic groups. Because of the emphasis on the experience and expression of positive emotion, enhancement motivations for drinking may be especially salient for this group (Triandis et al., 1984; Holloway et al., 2009). However, given the findings regarding problematic outcomes, enhancement motivations appear to lead to a higher rate of problematic outcomes for this group through increased intake of alcohol, making this type of motivation a particular risk factor for this group. Taking these findings as a whole, if Latinos are experiencing a high amount of positive affect, this appears to increase their enhancement motivations for drinking, which then leads to an increased number of problematic outcomes relative to the other two ethnic groups. These findings suggest that the enhancement motivated drinking model does operate differently for Latinos, but more data is needed to provide further support.

Post hoc analyses were conducted to determine whether these findings regarding problematic outcomes were unique to enhancement motivations, or whether being motivated to drink for any reason might be related to problematic outcomes. Results for these analyses indicated a similar pattern of problematic outcomes for coping and social motivations for drinking, but not for conformity reasons. Thus, it is possible that being motivated to drink in general tends to result in problematic outcomes with the exception of drinking that may feel coerced. Additionally, social motivations were the most highly endorsed motivation type for this sample, suggesting that this motivation type may be equally as or more influential than coping and enhancement motives in influencing drinking behavior. This study did not assess for these types of motivation during the longitudinal portion of this study. However, given the emphasis on harmonious interpersonal relationships in both Latino and Asian cultures, social motivations may

play a role similar to enhancement motives in the Latino group as a way to achieve emotion goals or norms. This warrants further investigation.

Limitations and Future Directions

The limitations of this study may inform future research that can extend these findings. A primary limitation is that eligible participants for this study reported drinking at least once every two weeks, and were followed for a period of only two weeks. Thus, many subjects reported few drinking occasions during this two-week period, and problematic outcomes were infrequently endorsed. Obtaining a larger sample of participants or following subjects for a longer period of time may allow for a greater amount of variability in problematic drinking outcomes. Modifying eligibility criteria to target recruitment to only participants who report more frequent drinking may also increase the frequency of reported daily problematic outcomes and provide insight into problem types related to frequent drinking such as dependence. Additionally, this study enrolled only college students, limiting generalizability to the general population. College students tend to endorse permissive norms regarding alcohol use (Perkins, 2002), which may have influenced the current results by shaping drinking behavior or normalizing problematic drinking. Conducting this study with older adults or young adults who are not college students may allow for observation of the variables studied without the influence of permissive college norms, as well as increasing generalizability.

Additionally, while subjects provided information about their length of time in the U.S. and primary cultural identification, they did not complete a measurement of their cultural identity or acculturation. Thus, there may be individual variability with respect to how much they identify with their group membership that was not captured in the present

study. Future research may benefit from including an acculturation measure to assess to what extent the participants may be identifying with the emotional norms of the group they were included in.

Finally, given the limited reports of problematic outcomes, the outcomes measured were collapsed into a single aggregate measure. Future studies may benefit from combining this frequency count with a previously validated measure of problem drinking, such as the AUDIT, to more thoroughly assess negative outcomes on a daily basis. Additionally, the concurrent measure of daily affect, drinking motivations, and problematic outcomes in this study precludes conclusions about causal relationships. Assessing momentary affect at numerous points throughout the day would reduce reliance on retrospective report, which has been shown to be unreliable, as well as allowing for the observation of causal relationships related to affect.

Implications

These findings contribute to the current literature by providing new information regarding the ways in which different cultural groups make decisions about drinking, how these decisions may be influenced by cultural norms, and related problematic outcomes. Such information may have helpful implications for prevention and treatment of alcohol use in these groups as well as for individuals who report drinking for different reasons. For example, individuals who tend to drink in order to cope with negative emotion may benefit primarily from developing different, more adaptive ways to cope. In contrast, individuals who drink primarily to enhance positive emotions may benefit most from interventions focusing on being mindful of and limiting the number of drinks consumed, given that this fully mediated the findings obtained for this motive type. This

may be especially salient for Caucasians given that this group consistently reported the highest number of problematic outcomes related to drinking over the past year, as well as the most problematic outcomes related to enhancement motives. It may be that designing interventions to develop other ways of enhancing positive emotion other than using alcohol may have benefits particularly for this group.

In a recent study, Walker and Stevens (2014) found that college student who made use of behavioral strategies to cope with negative emotions were less likely to engage in drinking to cope than students who did not make use of these strategies. However, much of the literature in this area has focused on other ways to meet the need for coping with negative emotions other than alcohol use, with little focus on other ways to enhance positive emotion. Thus, while current investigation is under way exploring how to modify treatment based on reasons for drinking, more studies are needed that look at non-coping reasons for drinking. The current study may provide information about how to best target treatment for the studied groups.

Conclusion

The current study investigated the role of cultural norms for positive emotion in shaping or influencing drinking behavior, as well as the relationship of drinking motives and problematic outcomes. These results provide support indicating that positive emotions are associated with drinking to achieve affective goals, and that these results vary across cultural groups. Additionally, the relationship for enhancement motives and problematic outcomes revealed a mediated moderation suggesting that Latinos may show a unique relationship related to drinking for enhancement motives that may be a function

of cultural norms. This may provide insight into ways to better target or treat a group that reports high levels of alcohol problems and dependence.

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