Drinking Motives, Cultural Orientations, and Alcohol Use among Hispanic College Students at
the U.S.-Mexico Border

P. Priscilla Lui
Southern Methodist University

Byron L. Zamboanga
University of Arkansas

Melissa M. Ertl
University of Albany

Lindsey M. Rodriguez
University of South Florida

Jessica L. Martin
University of Albany

Rubi Gonzales
University of Texas at El Paso

P. Priscilla Lui, Department of Psychology, Southern Methodist University. Byron L. Zamboanga, Department of Psychological Science, University of Arkansas. Melissa M. Ertl and Jessica L. Martin, Division of Counseling Psychology, University at Albany, State University of New York. Lindsey M. Rodriguez, Department of Psychology, University of South Florida. Rubi Gonzales, Department of Psychology, University of Texas at El Paso. Authors declare no conflict of interest associated with this research.

Correspondence should be directed to P. Priscilla Lui, Department of Psychology, Southern Methodist University, PO Box 750442, Dallas, TX 75275-0442. Email: plui@smu.edu.

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Abstract

Hispanic college students at the U.S.-Mexico border are at higher risk for alcohol use and negative drinking consequences, relative to their counterparts in non-border areas. Hispanic students at the U.S.-Mexico border ($N=219$, $M_{\text{age}}=20.14$; 71.2% women) completed an online survey. U.S. orientation was negatively associated with alcohol consumption. Enhancement motives predicted alcohol consumption, whereas coping and conformity motives predicted negative drinking-related consequences. Cultural orientations did not moderate the relations between social motives and alcohol use outcomes. Results highlight the need to consider alcohol-related cognition and to better contextualize U.S. and heritage cultural orientations among Hispanics in the U.S.-Mexico areas.

Keywords: acculturation, drinking motives, drinking norms, enculturation, Latinx

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Second only to the rates among Whites/Euro Americans, Hispanic/Latinx individuals show high rates of past-month alcohol use and binge drinking in the United States (SAMHSA, 2017). Across the lifespan, heavy drinking is the most prevalent during emerging adulthood, particularly among college students (Andrews & Westling, 2016; Carter et al., 2010; Merrill & Carey, 2016; SAMHSA, 2015). Close to 50% of Hispanic college students report binge drinking at least once a week (Venegas et al., 2012). Considering the negative health, personal, and social consequences, alcohol (mis)use present a significant public health concern (Cano et al., 2015).

The deleterious risks associated with alcohol use and misuse are demonstrably greater among Hispanic college students living at the U.S.-Mexico border than in non-border areas (McKinnon et al., 2003). For reasons such as distinct alcohol policies in U.S. and Mexico, and differential access to alcohol across the border, border Hispanics have been shown to be at greater risk for alcohol use, heavy episodic drinking, and negative drinking consequences relative to their non-border peers (Mills & Caetano, 2016; Voas et al., 2002). Specifically, approximately 70% of Hispanic college students living at the border reported past-month alcohol consumption (Cabriaes et al., 2013), compared to 54% of college students across the U.S. (SAMHSA, 2017). Given the evidence that individual differences in drinking motives and cultural orientations can influence alcohol consumption and drinking-related consequences (see Cooper et al., 2016; Lui & Zamboanga, 2018 for review), this study was designed to examine the extent to which drinking motives and U.S. and heritage orientations accounted for individual differences in alcohol consumption and negative drinking consequences among Hispanic college students at the U.S.-Mexico border.

Hispanic College Student Alcohol Use at the U.S.-Mexico Border

Certain sociocultural and personal determinants likely predispose college students living at the border to greater risk for alcohol (mis)use than other groups (McKinnon et al., 2003). Above and beyond risks associated with college attendance (Barnes et al., 2010; Lui et al., 2020a; Paschall et al., 2005), sociocultural environments at the U.S.-Mexico border may immerse Hispanic college students in a unique context that facilitates increased alcohol use (Venegas et al., 2012). Socioeconomic challenges such as poverty and low educational attainment disproportionately affect border counties (Caetano et al., 2008). In Texas, poverty rates are twice as high in border counties than in non-border counties (Ura, 2016). In addition, the border region includes two of the fastest-growing metropolitan areas in the U.S., which has led to community disorganization among the largely transitioning and mobile population (Kunz, 1999). Finally, individuals living at the U.S.-Mexico border may be faced with challenges associated with having to juggle the intermixing of both mainstream U.S. and Mexican cultural values and expectations (Caetano et al., 2008; Mills & Caetano, 2012; Zemore, 2007). Considering that alcohol may be used to reduce stress, socioeconomic and acculturation-related stressors can heighten the risks associated with alcohol consumption and negative drinking-related consequences among Hispanics living at the border (Venegas et al., 2012).

Hispanic college students who live at the border can easily travel to and from Mexico, and their drinking behaviors and attitudes may be heavily influenced by the norms and values from both countries (Caetano et al., 2012). Hispanic college students who are under 21 years old but older than 18 can cross the border and consume alcohol legally in Mexico (Mills & Caetano, 2016). Alcohol typically costs considerably less in Mexico than in the U.S., which may further promote alcohol use among college students (Voas et al., 2006). To the extent that college

students who consume alcohol because they consider drinking to be an important aspect of their university experience, individuals' cultural orientations not only can shape their drinking behaviors and negative drinking-related consequences, but also influence their motivations to consume alcohol (Lui et al., 2020a). Hence, both drinking motives and cultural orientations conceivably may affect alcohol use outcomes in Hispanic college students at the U.S.-Mexico border.

Drinking Motives and Alcohol Use

According to the motivational model of alcohol use and supported by empirical data, drinking motives are the most robust and proximal determinants of alcohol use (Cooper, 1994; Cooper et al., 2016; Cox & Klinger, 1988; Kuntsche et al., 2010). Drinking motives often are learned through observations and social interactions with family and friends (LaBrie et al., 2007). Current conceptualizations of drinking motives include dimensions of valence and source (Cooper, 1994). Valence describes positive outcomes (e.g., to improve parties and celebrations) or negative outcomes (e.g., to forget one's problems) that individuals expect to receive from alcohol use. Motivations to drink can come from internal sources such as forgetting personal problems or external sources such as wanting to be liked by others. Crossing valence and source dimensions results in four distinctive drinking motives: social (positive valence and external source), enhancement (positive valence and internal source), coping (negative valence and internal source), and conformity motives (negative valence and external source; Cooper, 1994).

These four drinking motives are associated with distinct patterns of drinking behaviors among college students (see Cooper et al., 2016 for review); yet, the roles of drinking motives have been understudied in ethnic minority groups in the U.S., including Hispanics and individuals at the U.S.-Mexico border. Furthermore, very few studies have examined drinking

motives in the context of U.S. and heritage cultural orientations as they pertain to alcohol use outcomes in Hispanics. Given that drinking motives may involve internalized cultural meaning of alcohol use and reasons for drinking (Golding et al., 1992), there is a critical need to investigate drinking motives among Hispanic college students to enhance scientific understanding of the heightened risk for alcohol use and misuse in this population (McKinnon et al., 2003).

Among all four drinking motives, social motives may be the most robust determinant of alcohol use outcomes among college students (Kuntche et al., 2010). Engagement in alcohol use is often considered a rite of passage in college because of the significant social meaning of drinking (Osberg et al., 2010; Lui et al., 2020b). Additionally, bar attendance for social drinking can explain the increased levels of alcohol consumption among Hispanic young adults living at the border (Mills et al., 2014). Crossing the border from the U.S. to Mexico has been described as an “intensely social activity” (Mills et al., 2014, p. 2810), akin to a rite of passage that encourages alcohol consumption late into the night as a function of younger legal drinking age in Mexico, cheaper alcohol, and marketing tactics of bars that cater to young adults. Given that social opportunities to cross the border to drink may be heightened for Hispanic college students living along the U.S.-Mexico border (Mills et al., 2014), social motives likely are particularly salient determinants of alcohol use and related consequences in this population.

Other reasons for drinking are important to consider as well, especially because the dimensions of drinking motives are highly correlated (Kuntsche et al., 2010). Although drinking to cope is relatively less common than drinking for social reasons among college students, coping motives are linked to negative drinking consequences, even when adjusting for the effects of alcohol consumption (Cooper et al., 2016; Mackinnon et al., 2014). Although not examined in

previous research, some Hispanic college students living along the border may be at risk to drink in order to cope with stress. Socioeconomic challenges (e.g., exposure to violence and crime, poverty) may put individuals at risk for life stressors that enhance problematic alcohol use (Zemore et al., 2016). Having to navigate different sets of cultural expectations in a blended, binational region also may increase individuals' appraisals of acculturative stress (Caetano et al., 2008; Mills & Caetano, 2012; Zemore, 2007). These stressors cumulatively increase the likelihood that individuals use alcohol to cope with such stress.

Relative to social motives and coping motives, drinking to enhance positive affect and to fit in are less well understood among Hispanic college students. Enhancement motives are typically indirectly related to negative consequences by way of heavy drinking, whereas research has shown inconsistent results linking conformity motives to alcohol use outcomes (Cooper et al., 2016). Given limited research concerning the possible effects of drinking motives on alcohol consumption and negative drinking-related consequences in Hispanic college students at the U.S.-Mexico border, it would be important to explore the relations between alcohol use outcomes and social motives, along with coping, enhancement, and conformity motives in this population.

U.S. and Hispanic Cultural Orientations and Alcohol Use

Although drinking motives are key determinants of alcohol use, they do not fully explain ethnic differences in alcohol use (Neff, 1997). Individuals' cultural orientations comprise a set of important factors to consider when it comes to understanding alcohol use among Hispanic college students (Zamboanga et al., 2017). Particularly at the U.S.-Mexico border, a confluence of sociocultural factors (e.g., high density of Mexican individuals and migrants, potential for frequent crossing between the two countries) may distinctly influence alcohol use and

consequences among Hispanic college students by way of their U.S. and Hispanic cultural orientations. At the border, the sociocultural and physical environments inherently set up a bicultural experience where Hispanics may need to navigate simultaneously U.S. and Hispanic influences. Even for people who were well-immersed in both the mainstream American and ethnic cultural environments, data suggested that these two cultural influences could function in distinctive ways as they pertain to alcohol use (Lui et al., 2020b).

In general, higher levels of mainstream U.S. cultural orientation were linked to greater alcohol use and negative drinking-related consequences (especially among women; e.g., Caetano & Clark, 2003; Lara et al., 2005; Masel et al., 2006; West et al., 2010; see Lui & Zamboanga 2018 for review). Consistent with a bidimensional perspective of acculturation (Berry, 2003; Schwartz et al., 2010), being more immersed in the (Anglo) American environment may socialize individuals to develop attitudes and practices that align more closely with mainstream U.S. drinking norms (Caetano, et al., 2008; Pinedo et al., 2017; Vaeth et al., 2017).

Independently from U.S. orientation, higher levels of Hispanic cultural orientation were linked to fewer social drinking-related consequences (e.g., Pham & Lui, 2019). Being more immersed in the ethnic heritage environment may socialize individuals to develop relatively more conservative attitudes toward alcohol use (Venegas et al., 2012). Thus, examining U.S. and heritage cultural orientations in Hispanic alcohol use has advanced the scientific understanding of cross-ethnic differences in drinking patterns. Yet, what remains unclear is whether Hispanics' cultural orientations predict alcohol use outcomes over and above drinking motives, and how individuals may organize their cultural orientations to navigate social expectations and norms at the U.S.-Mexico border—a unique, bicultural context.

The consideration of cultural orientations among individuals living at the U.S.-Mexico

border is an important one. The acculturation process is nuanced across individuals and critically depends on the sociocultural and physical environments surrounding the individuals (Berry, 2003; Borstein, 2017). Because U.S. and Hispanic cultures may be less differentiated at the U.S.-Mexico border than other parts of the U.S., cultural orientations conceivably do not operate similarly as they do in regions of the U.S. that are further from the border (Montoya et al., 2016). In non-border areas, Hispanics may be immersed in the U.S. culture through contacts with Whites and the mainstream American media, whereas they may be immersed in Hispanic culture(s) through contact with family and same-ethnic peers. By contrast, Hispanic culture may be more dominant than the mainstream U.S. culture at the border than in other non-border areas (Pinedo et al., 2017). Border Hispanics then likely are immersed in a pluralistic and blended U.S.-Mexico environment where they receive influences from both countries simultaneously and in an integrative fashion (Cherpitel et al., 2015). Counter to the observation that higher levels of U.S. orientation were associated with increased alcohol use in many non-border samples (see Zamboanga et al., 2017; Zemore, 2007 for reviews), the relation was found to be in the opposite direction in border samples. For example, lower levels of U.S. orientation were associated with increased consumption among Hispanics at the border (e.g., Montoya et al., 2016). It remains critical to evaluate the extent to which cultural orientations account for variances in alcohol use outcomes over and above drinking motives and to examine the direction of the associations in the border Hispanic population.

Interplay of Social Motives and Cultural Orientations on Alcohol Use Outcomes

Additional to individual differences in the independent roles of cultural orientations and drinking motives, alcohol use outcomes likely are shaped by the interplay between these two determinants. Social norms theory indicates that individuals' alcohol consumption is shaped by

their perceived drinking norms (Neighbors et al., 2010), which can be products of their beliefs about alcohol use, acculturation orientations, and sociocultural socializations (Lui et al., 2020a). How drinking motives and cultural orientations affect alcohol use among Hispanics at the border remain unknown. Considering the notion that alcohol consumption is largely a social activity in the U.S. and among many Hispanic individuals (Lui et al., 2020b; Mills et al., 2014), social motives may be relatively more strongly correlated with alcohol use outcomes among those who are more U.S. oriented, and more Hispanic oriented. Exploring the interactions between social drinking motives and cultural orientations as predictors of alcohol use outcomes over and above common drinking motives and U.S. and heritage cultural orientations can better identify border Hispanics who may be at increased risk for alcohol use and misuse.

The Present Study

Bridging research concerning drinking motives and acculturation processes as predictors of alcohol use outcomes (Caetano, et al., 2008; Cox & Klinger, 1988; Lui & Zamboanga, 2020; Zamboanga et al., 2017), the present study was designed to examine how drinking motives and cultural orientations were associated with alcohol consumption and negative drinking-related consequences among Hispanic college students at the U.S.-Mexico border. Based on a large body of literature on the relations between alcohol use and drinking motives, and cultural orientations among Hispanic college students and nonstudents (Caetano, et al., 2008; Zamboanga et al., 2017; Zeng, 2007), we hypothesized that alcohol consumption and negative drinking-related consequences would be:

1. positively associated with social motives even when adjusting the roles of enhancement, coping, and conformity motives;
2. positively associated with U.S. cultural orientation and negatively associated with

Hispanic ethnic cultural orientation; and,

3. associated with *social motives x U.S. orientation* and *social motives x Hispanic orientation*.

Method

Participants and Procedure

The present data came from a study on college student sexual health. Participants were recruited from a public, Hispanic-serving, commuter university at the U.S.-Mexico border, where close to 80% of the American college students identify as Hispanic or Latinxs and 65% were employed at least part-time while attending college. Undergraduate students aged 18 years or older, identified as Hispanics, and consumed alcohol in the last three months participated in this study ($N = 219$; age range = 18-25, $M_{age} = 20.14$, $SD_{age} = 1.77$; 71.2% women; 34.3% freshmen, 31.1% sophomores, 24.7% juniors, and 10.1% seniors). Most individuals (87.7%) identified as heterosexual, whereas 5.9% of the sample identified to be lesbian or gay and 6.4% of the sample reported other sexual orientations. In terms of employment status, 54.3% and 10.5% of participants worked part time and full time, respectively. The University Institutional Review Board approved the study protocol, and all procedures were in compliance with research codes of ethics. Using convenience sampling, participants were recruited through the Psychology Subject Pool. Eligible students provided informed consent and completed an online survey. The survey protocol took 30 to 40 minutes to complete; participants were compensated by research credits.

Measures

Cultural Orientations

The Abbreviated Multidimensional Acculturation Scale (AMAS; Zea et al., 2003) is a 42-

item measure that assesses respondents' mainstream U.S. (e.g., "I think of myself as being U.S. American") and heritage cultural orientations (e.g., "How well do you understand your native language?"). Items measure cultural identity, language, and behavioral competence and are rated on a scale from 1 (*not at all*) to 4 (*extremely well/like a native*). The AMAS has demonstrated excellent reliability and validity in research with Hispanic college students (Carrera & Wei, 2014). Mean scores for both cultural orientations were computed; higher scores indicated higher levels of U.S. and Hispanic heritage orientations (Cronbach's α s = .94, α = .93), respectively.

Drinking Motives

The Drinking Motives Questionnaire-Revised (DMQ-R; Cooper, 1994) is a 20-item scale that measures the frequency that respondents consume alcohol for social (e.g., "to be more sociable"), coping (e.g., "to forget about my problems"), enhancement (e.g., "because I like the feeling"), and conformity (e.g., "so I won't feel left out") reasons. Items are rated on a scale from 1 (*never/almost never*) to 5 (*almost always/always*). Mean subscale scores were computed, and higher values indicated stronger endorsement for each respective drinking motive. DMQ-R scores have demonstrated excellent reliability with diverse samples of college students including Hispanic Americans (Conn et al., 2017). Our data showed adequate internal consistency reliability for social, coping, enhancement, and conformity motive scores (Cronbach's α = .90, .87, .88, and .89 respectively).

Alcohol Consumption

Participants' in the present study reported the average number of drinks they consumed per week over the past three months. The Daily Drinking Questionnaire was used to assess respondents' frequency (i.e., number of days) and quantity (i.e., number of standard drinks) of alcohol use during a typical week in the last three months (Collins et al., 1985). The DDQ has

demonstrated adequate psychometric properties in samples that included Hispanic college students (e.g., Corbin et al., 2008).

Negative Drinking Consequences

The Rutgers Alcohol Problems Index (RAPI; White & Labouvie, 1989) is a 23-item measure of alcohol-related problems. Respondents reported the frequency in which they experienced physical, personal, and social problems over the past three months (e.g., “caused shame or embarrassment to someone”). Items are rated on a scale from 0 (*never*) to 4 (*more than 10 times*). Sum scores are computed, and higher scores indicate greater negative drinking consequences. The RAPI has received support for excellent reliability in past research with Hispanic college students (e.g., Conn et al., 2017). The present RAPI scores demonstrated adequate internal consistency reliability (Cronbach’s $\alpha = .94$).

Data Analytic Approach

Alcohol consumption and negative drinking consequences were count variables; residuals of these scores were non-normally distributed. We examined dispersion parameters to determine whether a negative binomial or Poisson distribution better fit the data. The 95% confidence intervals for the estimated alpha did not include zero, indicating that a negative binomial model better fit the data (Hilbe, 2011). Given that men and younger individuals have been found to be at greater risks for heavy alcohol use and negative drinking consequences (Wilsnack et al., 2018), sex and age were entered into regression models as covariates. To test Hypothesis 1, we regressed each outcome variable onto all four drinking motives. To test Hypothesis 2, a second regression model was computed to include drinking motives, and U.S. and Hispanic cultural orientations for each alcohol use outcome. To test Hypothesis 3, statistical significance and effect size concerning *social motives x U.S. cultural orientation* and *social motives x Hispanic*

orientation interaction terms were evaluated. To ascertain the relations between drinking motives and negative drinking consequences above and beyond typical levels of alcohol consumption, we controlled for drinks per week in the regression model for drinking consequences.

Results

Preliminary Analyses

Table 1 summarizes basic descriptive statistics of all key study variables and their zero-order correlations. Social, coping, and enhancement motives were positively correlated with alcohol consumption, and all four drinking motives were positively correlated with negative consequences. U.S. and Hispanic cultural orientations were positively correlated with one another. Cultural orientations were unrelated to alcohol consumption and drinking consequences.

Alcohol Consumption

Table 2 summarizes results concerning alcohol consumption. Results did not support Hypothesis 1. As shown in Model 1, accounting for sex, age, and other drinking motives, social motives did not predict alcohol consumption. Rather, enhancement motives was statistically significantly associated with alcohol consumption ($b = .25, p = .05$). With each one unit increase in enhancement motives, there was a 25% increase in the incidence rate for consuming alcohol. With the addition of cultural orientation variables and their interactions with drinking motives, enhancement motives remained significantly associated with alcohol consumption ($b = .28, p < .05$). In contrast to our prediction in Hypothesis 2, U.S. orientation was negatively associated with alcohol consumption ($b = .53, p < .005$). As shown in Model 2, each one unit increase in self-reported immersion in the mainstream U.S. culture corresponded to a 41% decrease in incidence rate for alcohol consumption. Our data did not support Hypothesis 3. *Social motives x U.S. orientation* and *social motives x Hispanic orientation* was not related to alcohol

consumption in our sample.

Negative Drinking Consequences

Table 3 summarizes results concerning negative drinking consequences. Alcohol consumption was a statistically significant covariate in both Models 1 and 2 ($b = .03, p < .005$). Results did not support Hypothesis 1. Whereas social motives were unrelated to negative drinking-related consequences, coping motives ($b = .31, p = .01$) and conformity motives ($b = .52, p < .001$) predicted negative drinking-related consequences, accounting for the roles of sex, age, and alcohol consumption. Data revealed that there were 38% and 63% increase in incidence rate for negative drinking-related consequences with each one unit increase in coping motives and conformity motives, respectively. Our results did not support Hypotheses 2 and 3. As shown in Model 2, negative drinking consequences were not associated with U.S. orientation, heritage orientation, nor any of the interactions between cultural orientations and social drinking motives.

Discussion

The present study is the first to examine the associations among drinking motives, U.S. and heritage cultural orientations, and alcohol use outcomes among Hispanic college students living at the U.S.-Mexico border. A strength of our study was the focus on this border population who potentially are at risk for elevated alcohol consumption and related problems (Mills & Caetano, 2016). Another strength of the study was the consideration of personal drinking-related cognitions and sociocultural factors in alcohol use outcomes simultaneously and exploration of their possible joint effects on alcohol consumption and negative drinking-related consequences.

Our findings support the notion that cultural orientations operate differently for Hispanic college students living at the U.S.-Mexico border than they do Hispanics living elsewhere (Montoya et al., 2016). Similar to another study with border Hispanics (Pinedo et al., 2017),

heritage cultural orientation was not associated with alcohol consumption or negative drinking consequences. Perhaps, global measures of U.S. and heritage cultural orientations failed to capture proximal cultural variables that would best explain individual differences in drinking behaviors (e.g., attitudes toward and cultural socializations around alcohol use; cf. Zamboanga et al., 2020). Similar to other studies with Hispanics living in ethnic enclaves in the Southwest of the U.S. (Marsiglia et al., 2012), results from our sample indicated that Hispanic college students who were relatively more U.S.-oriented reported less alcohol consumption than their peers who were less U.S.-oriented. The present results underscored the importance of considering Hispanics' drinking behaviors and acculturation process within the context of their surrounding environments. Not only were participants in our study attending a Hispanic-serving institution, they also were living in a predominantly Hispanic community. The U.S.-Mexico border regions have been characterized as "two countries, one culture" (Pinedo et al., 2017). To the extent that Hispanic college students may find themselves immersed in a sociocultural context that is primarily Hispanic, there may not be a strong mainstream U.S. influence on their drinking behaviors. It also is possible that individuals in our sample were separated from the U.S. mainstream (Warner et al., 2010). In the sociocultural and physical environments that U.S. and Hispanic cultures intermix, there may be little influences from the U.S. socialization on Hispanic college students' drinking outcomes. It would be helpful to further understand the complex relations linking individuals' acculturation strategies to alcohol use outcomes by considering the interactions between U.S. and Hispanic cultural orientations (Pham & Lui, 2019).

Contrary to our hypotheses, when accounting for coping, enhancement, and conformity motives, social motives were not uniquely associated with alcohol consumption or negative drinking consequences. Although U.S. orientation alone did contribute to the prediction of

drinking-related consequences over and above drinking motives and Hispanic heritage orientation, higher levels of U.S. cultural orientation was associated with lower levels of consumption. We also did not find evidence supporting the interplay between social motives and cultural orientations. Despite being the most common reason for drinking (Kuntsche et al., 2005), our data indicated that social motives were not a risk factor for the degree of alcohol consumption and negative consequences associated with drinking among Hispanic students living at the border. The null result regarding the interactions between social motives and cultural orientations suggests that drinking for social reasons are similar among border Hispanic students across cultural orientations. Rather, enhancement motives were shown to be positively associated with alcohol consumption whereas coping and conformity motives were shown to be positively associated with negative drinking-related consequences above and beyond alcohol consumption levels. The effect size for enhancement motives in the prediction of alcohol consumption was just statistically significant with zero as the lower-bound value of the confidence intervals, suggesting that the result might not be very reliable and precise. When accounting for social and enhancement drinking motives, consuming alcohol with the purposes of affective modulation and fitting in appear to be vulnerability factors for negative drinking consequences in Hispanic Americans living at the border, consistent with findings in studies with predominantly White participants as in some other studies (Conn et al., 2017; Cooper et al., 2016; Kuntsche et al., 2005). These unexpected findings were not consistent with a social norms perspective of alcohol use among college students. Our results seemed to suggest that Hispanic college students at the U.S.-Mexico border consume alcohol in the context of environment misfit and potentially psychological distress; hence these patterns require careful examination in future studies designed specifically to explore these effects. Future research would benefit from directly

assessing stresses in the U.S.-Mexico border environment, including economic disadvantages and pressures to adapt well to both U.S. and Mexico societies simultaneously, and how individuals' coping and conformity drinking motives relate to these stressors as they pertain to alcohol use outcomes (Mills & Caetano, 2012; Pham & Lui, 2019; Venegas et al., 2012).

Limitations and Future Directions

There are some limitations worth noting. First, the present study is cross-sectional in nature and thus precludes any causal inferences between associations found herein. Future research would benefit from longitudinal investigations of changes over time in alcohol use among Hispanic college students living along the border, especially given heightened risk after age 18 when drinking becomes legally accessible by crossing the border to Mexico (Voas et al., 2002, 2006). Second, cultural orientations in the present study were measured as broad individual differences in cultural immersion; hence cultural orientations seem to be distally linked to alcohol use outcomes. Future studies should consider ways to more precisely measure individuals' value or behavioral acculturation to the U.S. or heritage culture's drinking norms, as well as the potential for bicultural adaptation to both culture's drinking norms where possible (Zamboanga et al., 2020). Third, two-thirds of our participants were female. Although sex was controlled for in the results, we did not consider the possible roles of gender role norms in the relations between drinking motives and alcohol use outcomes. Compared to men, women's drinking may be more affected by their residence at or away from the U.S.-Mexico border (e.g., Caetano et al., 2012, 2013). Additionally, we did not assess where the college students lived (i.e., in Mexico or in the U.S.) and the contexts in which they typically consumed alcohol. In the first study integrating drinking motives and cultural orientations in an understudied population, we examined individuals' alcohol use outcomes globally. Future studies should delineate carefully

Hispanic border students' location of residence, campus residential status, and specific contexts surrounding their drinking activities. Finally, our present sample size may not present the statistical power to examine other potential moderation effects, such as the interactions between U.S. and heritage cultural orientations and between bicultural orientation and social motives (i.e., *social motives x U.S. orientation x heritage orientation*; Pham & Lui, 2019). Larger samples that are more representative of the experiences of Hispanic young adult college student men living at the border would provide needed insight into the dynamics of alcohol use and related negative consequences in this understudied, at-risk population.

Conclusion

Hispanic American college students at the U.S.-Mexico border were understudied in the alcohol literature, although previous research has indicated that individuals in this population could be at relatively high risk for alcohol use and misuse. This is the first study that considered simultaneously the roles of drinking motives and cultural orientations in alcohol consumption and negative drinking-related consequences. Not only did we find social drinking motives to not predict alcohol consumption and drinking-related consequences, but also to not interact with cultural orientations as reliable determinants of these alcohol use outcomes. Stronger U.S. orientations were linked to lower levels of alcohol consumption over and above enhancement motives. Additionally, coping and conformity reasons for drinking were robust correlates of negative consequences even when adjusting alcohol consumption and cultural orientation. Future studies designed specifically to unpack alcohol use motivated by coping and conformity reasons, and the unique cultural experiences of living at the U.S.-Mexico border are warranted.

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Table 1

Descriptive Statistics and Bivariate Correlations for All Study Variables

Variable	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5	6	7
1. Alcohol Consumption	6.92	9.80	0-72	--						
2. Negative Drinking Consequences	4.95	8.87	0-52	.26***	--					
3. Social Motives	2.93	1.12	1-5	.15*	.34***	--				
4. Coping Motives	2.01	1.02	1-5	.13*	.44***	.59***	--			
5. Conformity Motives	1.46	0.75	1-5	.04	.51***	.46***	.62***	--		
6. Enhancement Motives	2.61	1.08	1-5	.19***	.33***	.77***	.57***	.42***	--	
7. U.S. Orientation	3.35	0.49	1-4	-.12	-.01	.05	-.06	-.05	.09	--
8. Heritage Orientation	3.03	0.58	1-4	.10	.05	.15*	-.04	.02	.11	.19**

N = 218**p* < .05, ***p* < .01, ****p* < .001.

Table 2

Summary of Negative Binomial Regression Analyses Predicting Alcohol Consumption

	<u>Model 1</u>				<u>Model 2</u>			
	<i>b (SE)</i>	<i>exp(b)</i>	<i>p</i>	95% CI	<i>b (SE)</i>	<i>exp(b)</i>	<i>p</i>	95% CI
Intercept	1.75 (.16)	--	< .001	[1.45, 2.06]	1.75 (.16)	--	< .001	[1.45, 2.05]
Sex (0 = male)	.12 (.19)	1.13	.52	[-.25, .49]	.08 (.19)	1.08	.67	[-.28, .44]
Age	.18 (.05)	1.19	< .001	[.09, .27]	.16 (.05)	1.18	< .001	[.07, .25]
Social Motives	.06 (.12)	1.07	.60	[-.18, .31]	.07 (.12)	1.07	.57	[-.17, .31]
Coping Motives	.08 (.12)	1.08	.53	[-.16, .32]	.02 (.13)	1.02	.86	[-.23, .27]
Conformity Motives	-.05 (.15)	.95	.74	[-.34, .24]	-.07 (.14)	.94	.65	[-.35, .22]
Enhancement Motives	.25 (.13)	1.28	.05	[.00, .50]	.28 (.12)	1.32	.02	[.04, .52]
U.S. Orientation					-.53 (.18)	.59	.004	[-.88, -.17]
Heritage Orientation					.24 (.15)	1.27	.12	[-.06, .54]
Social Motives x U.S. Orientation					.21 (.18)	1.24	.22	[-.13, .55]
Social Motives x Heritage Orientation					-.06 (.16)	.94	.68	[-.37, .24]

Note. CI = confidence interval. All continuous variables are mean centered. Statistically significant regression coefficients are in bold.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3

Summary of Negative Binomial Regression Analyses Predicting Negative Drinking Consequences

	<u>Model 1</u>				<u>Model 2</u>			
	<i>b</i> (<i>SE</i>)	exp(<i>b</i>)	<i>p</i>	95% CI	<i>b</i> (<i>SE</i>)	exp(<i>b</i>)	<i>p</i>	95% CI
Intercept	1.16 (.17)	--	.001	[.84, 1.48]	1.18 (.16)	--	< .001	[.86, 1.51]
Sex (0 = male)	.01 (.20)	1.01	.94	[-.38, .40]	-.02 (.20)	.98	.92	[-.41, .37]
Age	.01 (.05)	1.01	.79	[-.09, .12]	-.00 (.05)	1.00	.93	[-.11, .10]
Alcohol Consumption	.03 (.01)	1.03	.002	[.01, .05]	.03 (.01)	1.04	.001	[.01, .05]
Social Motives	.18 (.12)	1.19	.15	[-.06, .42]	.19 (.12)	1.20	.13	[-.05, .42]
Coping Motives	.31 (.12)	1.36	.01	[.07, .54]	.32 (.12)	1.38	.006	[.09, .56]
Conformity Motives	.52 (.14)	1.67	< .001	[.24, .79]	.49 (.14)	1.63	.001	[.21, .76]
Enhancement Motives	.12 (.12)	1.13	.32	[-.12, .37]	.11 (.13)	1.12	.36	[-.13, .36]
U.S. Orientation					.20 (.20)	1.23	.32	[-.19, .60]
Heritage Orientation					.09 (.16)	1.10	.58	[-.23, .41]
Social Motives x U.S. Orientation					-.20 (.19)	.82	.29	[-.58, .18]
Social Motives x Heritage Orientation					-.14 (.16)	.87	.38	[-.46, .17]

Note. CI = confidence interval. All continuous variables are mean centered. Statistically significant regression coefficients are in bold.

* $p < .05$, ** $p < .01$, *** $p < .001$.