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2009

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Manuscript submitted for publication

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Words: 1,986

Tables: 1

Potential Cultural Predictors of Heavy Episodic Drinking in Hispanic College Students

Jennifer Venegas, Theodore V. Cooper, Natasha Naylor, and Brenda S. Hanson

Heavy alcohol use in college students is a serious health risk. It is unclear how cultural variables impact alcohol use in Hispanic college populations. Here, the relationships between gender, bicultural identity, familism, and adherence to traditional gender roles with Heavy Episodic Drinking (HED) in a Hispanic college sample are assessed. Participants, 80 males and 80 females, were asked to complete a questionnaire packet, which assessed demographic information, as well as measures designed to rate drinking amount and frequency, bicultural integration, familism, and traditional gender role adherence. Average age of the sample was 19.9 years ($SD = 3.05$), in which the majority of participants were classified as either Freshmen or Sophomores (88.8%). Overall, 47.5% of participants reported engaging in HED, with 51% of men and 44% of women reporting HED. Univariate analyses along with logistic regression were utilized to assess possible differences and correlates of HED. Neither individual predictors nor the overall model were statistically significant. These findings suggest the need for continued assessment of HED in Hispanic college students using other culturally based constructs, as well as psychosocial factors that are found to predict heavy drinking in other ethnocultural college aged students.

Keywords: Alcohol use, binge drinking, college students, Hispanic

1. Introduction

Heavy drinking has potentially serious health risks including increases in the risk for stroke and suicide, alcohol poisoning, coma, and possibly death (Bagnardi, Blangiardo, La Vecchia, & Corrao, 2001; English & Holman, 1995; Lehman, Pilch, & Andrews, 1993; May et al., 2002; Rivara, Garrison, Ebel, McCarty, & Christakis, 2004). Heavy episodic drinking (HED) is a pattern of alcohol use in which an individual consumes a large amount of alcohol in a relatively limited amount of time (Johnston, O'Malley, Bachman & Schulenberg, 2004; Wechsler, Dowdall, Davenport & Castillo, 1995; Wells, Graham, Speechley, & Koval, 2005). HED is pervasive across college campuses, and is the most preventable cause of death for undergraduate students (Wechsler et al., 1995). In fact in a recent study, 71% of college students who used alcohol met criteria for binge drinking (Simons, Lantz, Klichine, & Ascolese, 2005), and elevated college drinking rates have been noted along the U.S. / Mexico border (McKinnon, O'Rourke & Byrd, 2005). Despite this and the fact that Hispanics represent the fastest growing minority group in the United States (United States Census Bureau, 2006), relatively few studies have assessed HED and potential cultural influences in Hispanic college students.

Studies have indicated that higher levels of acculturation are associated with drinking diagnoses in a national sample of Hispanics (Caetano, Ramisetty-Mikler, & Rodriguez, 2009), that in female college students higher levels of acculturation are associated with a greater occurrence of heavy drinking (Safer & Plane, 2007), that in adolescents bicultural stress is associated with risky behaviors (Romero, Martinez, & Carvajal, 2007), that gender and familial influence are salient factors for Hispanic college alcohol use (Corbin, Vaughan, & Fromme, 2008) yet that parental alcoholism seems less relevant to Hispanic college drinking (West & Graham, 2006). Although an emerging literature is demonstrating associations between drinking

and cultural influences, few, if any, studies have assessed multiple potential cultural risk and protective factors for Hispanic college student drinking.

Theoretically, both minority and mainstream cultures contribute to an individual's identity, and cultural context affects an individual's cognitions and behaviors (Benet-Martinez, Leu, Lee, & Morris, 2002). As such, the goal of this study was to evaluate the relationships between heavy drinking and different aspects of conventional Mexican values, such as biculturalism, familism, and adherence to gender roles within a cross-section of predominantly Mexican / Mexican American college students. It was hypothesized that HED would be associated with lower levels of biculturation, lower levels of familism, higher levels of traditional gender role adherence in males, and lower levels of gender role adherence in females. Additionally, it was hypothesized that males would have significantly higher HED rates than women.

2. Methods

2.1 Participants

Eighty female and eighty male English-speaking Hispanic participants were assessed. Average age of participants was 19.9 years ($SD = 3.08$), approximately 89% were either freshmen or sophomores, and 70% self-reported as Mexican-American.

Sample size was based on theory by Hosmer and Lemeshow (2000) indicating at least 10 observations for every independent variable in a logistic regression model. Because nine independent variables were used, 160 participants exceeded the required sample size threshold.

2.2 Measures

2.2.1 Heavy Episodic Drinking Status

The Daily Drinking Questionnaire provides a way to measure Wechsler et al.'s (1995) definition of HED, which is 5 or more drinks in one sitting for men and 4 or more drinks for women. To assess drinking frequency, volume and HED, this questionnaire measures the average number of drinks over a time interval during a 90 day period (Collins, Parks, & Marlatt, 1985). Convergent validity was established for the DDQ by significantly correlating it with the already established Daily Practices Questionnaire (Cahalan, Cisin, & Crossley, 1969). Here, Cronbach's alpha was .674.

2.22 Measures Assessing Relevant Cultural Characteristics

A demographic questionnaire assessed typical background information.

The Biculturation Identity Integration Scale, Version 1 was used to measure cultural conflict, or to what degree biculturals see their cultural identities as compatible or separate (Benet-Martinez & Haritatos, 2005). This nine item scale asks participants to rate their agreement with each item on a scale ranging from 1 (strongly disagree) to 5 (strongly agree); higher summed scores indicate a more integrated bicultural identity. Internal reliability for this scaled ranged from .69 to .74 (Benet-Martinez & Haritatos, 2005), with Cronbach's Alpha equaling .67 here.

The Family Attitude Scale measures the degree to which an individual identifies him or herself with traditional Mexican American values (Ramirez, 1999). Participants respond using Likert scales to a variety of statements that are based upon the six factors: familial loyalty, rules and restriction of childrearing, respect for adults, separation of gender roles, male superiority, and time orientation. Higher summed scores are representative of more traditional Mexican American values; scores range from 30 to 120. It was shown that Mexicans report more traditional family values than Mexican Americans or non-Hispanic whites, and that non-Hispanic

whites show the most contemporary family values (Ramirez, 1999). In the present study Cronbach's Alpha was .771.

The Hypergender Ideology Scale is a gender neutral measure that allows comparisons of both hypergender men and women (Hamburger, Hogben, McGowan, & Dawson, 1996), and is useful in assessing adherence to traditional gender roles. The 57-item survey uses a 6-point Likert scale that ranges from *Strongly disagree* to *Strongly agree*. Scores are summed and higher scores indicate a stronger adherence to traditional gender roles and ideology; scores range from 57 to 342. Coefficient alpha was reported at 0.96 for the overall survey, while separate coefficient alphas for men and women were reported at 0.94 and 0.92 respectively (Hamburger et al., 1996). In addition, the HGIS significantly correlates with the Hypermasculinity Inventory (Mosher & Sirkin, 1984) at $r = .76$, and the Hyperfemininity Scale (Murnen & Bryne, 1991) at .54 (Hamburger et al., 1996). Here, Cronbach's Alpha was .868.

2.3 Procedure

This study was a cross-sectional assessment of cultural characteristics associated with HED. Independent variables were gender, biculturation, familism, and traditional gender role adherence, while HED was the dichotomous, dependent variable.

Participants were recruited through the undergraduate pool of psychology students. Students signed up for the study in exchange for course credit. Institutional Review Board approval was obtained prior to participant recruitment, and informed consent was obtained from all participants prior to the administration of the survey packet. To ensure confidentiality, data were coded so names were not associated with survey packets. Consent forms and surveys were filed separately.

2.4 Approach to analyses

Descriptive analyses were used to create a profile of Hispanic HED. Univariate analyses were used to compare participants who did and did not engage in HED. To control for compounding error, the α level for t tests, was set to .017 (.05/3). For χ^2 tests, the α level was set to .025 (.05/2).

Logistic regression was used to predict HED (1 = engaged in HED, 0 = did not engage in HED); independent variables included gender, bicultural identity, familism, and adherence to traditional gender roles. An interaction variable was entered to examine varying levels of traditional gender role adherence between males and females. All independent variables, with the exception of gender, were tested for normality and multicollinearity, and all fell within the acceptable range.

3. Results

The rate of engaging in HED at least once a week was 47.5%. Scores on the predictor variables of HED suggest that the average participant viewed his/her mainstream and ethnic cultures as more compatible, held more traditional Mexican American family attitudes, and reported average adherence to traditional gender roles. Participant characteristics and the significance values of univariate tests are illustrated in Table 1.

For men, engaging in HED was more common with 51% ($n = 41$), of male participants reporting one instance of HED, while 44% of women ($n = 35$) reported engaging in HED, though this difference was not statistically significant, $\chi^2(1) = .902, p = .342$. Similarly, univariate tests of cultural measures were not statistically significant. Participant characteristics and the significance values of univariate tests are illustrated in Table 1.

When all variables were considered simultaneously, the model was non-significant, $\chi^2(5) = 5.345, p = .375$, with a reported Nagelkerke Pseudo $R^2 = .044$. As the interaction

variable was not a significant predictor, a second logistic regression model was performed, yet the model remained non-significant, $\chi^2(4) = 2.291$, $p = .682$.

4. Discussion

These findings suggest a high rate of HED in Hispanic college students, yet no significant relationships between HED and bicultural identity integration, familism, or traditional gender role adherence. Overall, nearly one-half of the sample (47.5%) reported engaging in HED. This rate is similar to the binge drinking rates found by McKinnon, O'Rourke, and Byrd's (2003) study of border region drinking. Furthermore, HED rates in this study are higher than national and state HED rates of college students: 34.5% (CDC, 2002), and 27% (Texas Department of State Health Services, 2007a) respectively. This increased use of alcohol and engagement in HED may be due to the increased availability of alcohol from Mexico, as many young adults on the U.S. / Mexico border access alcohol from Mexico (Voas, Lange, & Johnson, 2002). In fact, over a 6 year period from 1999 to 2005, the number of 18-20 year olds crossing the border from El Paso to Juarez to consume alcohol has greatly increased (Voas, Romano, Kelley-Baker & Tippetts, 2006).

Results suggest gender within this sample was not related to engagement in HED, which may be indicative of a narrowing of the gender gap and alcohol use, consistent with some previous studies (Lo, 1996), yet in contrast to a more recent study of college bound Hispanic youth whose alcohol use sex gap was far wider in Latino students relative to non Hispanic White students (Corbin, Vaughan, & Fromme, 2008). It may be that college attendance is associated with social and emotional cues (e.g., peer influence, stress) that heighten drinking levels for females relative to those about to enter college. Future prospective studies assessing this transition period are needed to address this possibility.

None of the culturally based constructs were significant predictors of HED. It may be that these constructs are less relevant to border region college students, as culture switching occurs and likely has been occurring daily for many students. As such, students on the border may be less influenced by cultural issues than other Hispanic subgroups. For example, recent studies suggest that Mexican Nationals are heavier drinkers than those living in Texas (Texas Department of State Health Services, 2007b). It may be that other indicators such as permanent residence are more predictive of HED in a border region college sample. Alternatively, it may be that the strongest predictors of HED in Hispanic college students are related less to cultural values and more to attitudes / beliefs (e.g., more permissive attitudes toward substance use, drinking expectancies; Stacy, Bentler, & Flay, 1994), and behaviors (e.g., other substance use, sensation seeking) commonly associated with heavy drinking in other ethnocultural groups (Barrett, Darredeau, & Pihl, 2006).

The limitations of this study include its cross sectional design limiting causal inference, along with the mean sample age, which was under the legal drinking age, perhaps *underestimating* the actual rate of HED and limiting generalizability to younger college students. The primary strength of this study is its investigation into an understudied area within the most rapidly growing ethnocultural minority.

Based on these findings, continued research is warranted. A more representative sample of Hispanic border region, college students, particularly with regard to age and/or years in school will heighten generalizability of rates and predictors of HED. Additionally, the inclusion of psychosocial correlates of heavy drinking found in other ethnocultural groups may result in the identification of strong predictors of HED. Prospective assessments will also enable exploration of the drinking-vulnerable transition from high school to college. Although HED was not related

to culturally based constructs, a high rate of heavy episodic drinking was demonstrated, suggesting the need for continued assessments, which can lead to the future development and implementation of well tailored prevention and intervention efforts to reduce Hispanic college student drinking rates.

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Table 1: Participant characteristics and univariate differences between participants who engaged in HED and participants who did not engage in HED

Characteristic	All participants (<i>N</i> = 160)	Participants engaging in HED (<i>n</i> = 76)	Participants not engaging in HED (<i>n</i> = 84)	<i>p</i> - value
	Statistic	Statistic	Statistic	
Age (years)	<i>M</i> = 19.9 <i>SD</i> = 3.08	<i>M</i> = 19.5 <i>SD</i> = 2.50	<i>M</i> = 19.90 <i>SD</i> = 3.54	
Gender				
% Female	50.0	46.1	53.6	ns
% Male	50.0	53.9	46.4	
Educational status				
% College freshman	55.0	52.6	57.1	
% College sophomore	33.8	35.5	32.1	
% College junior	9.4	9.2	9.5	
% College senior	1.9	2.6	1.2	
Hispanic ethnic group				
% Mexican-American	70.0	77.5	63.1	
% Mexican National	15.6	13.3	17.8	
% Other Hispanic group	14.4	9.2	19.1	
Previous mental health services				
% Yes	10.0	11.8	8.4	
% No	89.9	88.2	91.6	
Weekly number of drinks				
Males	<i>N</i> = 80	<i>N</i> = 41	<i>N</i> = 39	
Monday	<i>M</i> = .27, <i>SD</i> = 1.71	<i>M</i> = .51, <i>SD</i> = 2.37	<i>M</i> = .03, <i>SD</i> = .16	
Tuesday	<i>M</i> = .17, <i>SD</i> = .67	<i>M</i> = .34, <i>SD</i> = .91	<i>M</i> = .00, <i>SD</i> = .00	
Wednesday	<i>M</i> = .36, <i>SD</i> = 1.52	<i>M</i> = .68, <i>SD</i> = 2.08	<i>M</i> = .03, <i>SD</i> = .16	
Thursday	<i>M</i> = .90, <i>SD</i> = 2.62	<i>M</i> = 1.68, <i>SD</i> = 3.47	<i>M</i> = .08, <i>SD</i> = .48	
Friday	<i>M</i> = 3.69, <i>SD</i> = 4.27	<i>M</i> = 6.49, <i>SD</i> = 4.25	<i>M</i> = .74, <i>SD</i> = 1.25	
Saturday	<i>M</i> = 4.92, <i>SD</i> = 5.11	<i>M</i> = 8.30, <i>SD</i> = 5.01	<i>M</i> = 1.45, <i>SD</i> = 1.70	
Sunday	<i>M</i> = .95, <i>SD</i> = 2.42	<i>M</i> = 1.68, <i>SD</i> = 3.20	<i>M</i> = .18, <i>SD</i> = .51	
Females	<i>N</i> = 80	<i>N</i> = 35	<i>N</i> = 45	
Monday	<i>M</i> = .10, <i>SD</i> = .55	<i>M</i> = .142, <i>SD</i> = .60	<i>M</i> = .08, <i>SD</i> = .52	
Tuesday	<i>M</i> = .04, <i>SD</i> = .29	<i>M</i> = .30, <i>SD</i> = .16	<i>M</i> = .056, <i>SD</i> = .37	
Wednesday	<i>M</i> = .48, <i>SD</i> = 1.92	<i>M</i> = 1.00, <i>SD</i> = 2.82	<i>M</i> = .09, <i>SD</i> = .36	
Thursday	<i>M</i> = .39, <i>SD</i> = 1.36	<i>M</i> = .67, <i>SD</i> = 1.90	<i>M</i> = .19, <i>SD</i> = .65	
Friday	<i>M</i> = 1.8, <i>SD</i> = 2.39	<i>M</i> = 3.40, <i>SD</i> = 2.70	<i>M</i> = .56, <i>SD</i> = 1.03	
Saturday	<i>M</i> = 2.7, <i>SD</i> = 2.74	<i>M</i> = 5.17, <i>SD</i> = 2.20	<i>M</i> = .80, <i>SD</i> = 1.09	
Sunday	<i>M</i> = .28, <i>SD</i> = 1.16	<i>M</i> = .57, <i>SD</i> = 1.70	<i>M</i> = .07, <i>SD</i> = .25	
Bicultural Identity Integration Scale, Version 1				
Total Score	<i>M</i> = 33.14 <i>SD</i> = 6.23	<i>M</i> = 32.03 <i>SD</i> = 7.05	<i>M</i> = 33.75 <i>SD</i> = 5.95	ns
Family Attitude Scale				
Total score	<i>M</i> = 81.94 <i>SD</i> = 9.51	<i>M</i> = 82.10 <i>SD</i> = 9.14	<i>M</i> = 81.80 <i>SD</i> = 9.88	ns

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Hypergender Ideology Scale Total score	$M = 170.75$ $SD = 41.85$	$M = 172.11$ $SD = 40.50$	$M = 169.5$ $SD = 43.22$	ns
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