Progression to Problem Drinking Among Mexican American and White European First-Year College Students: A Multiple Group Analysis*

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ABSTRACT. Objective: Problem drinking during college is a well-known phenomenon. However, predictors of progression to problematic drinking, particularly among ethnic minorities such as Mexican Americans, have received limited research attention. **Method:** The current study compared the rates and predictors of problem drinking progression from the first to the second year of college among four groups: Mexican American men, Mexican American women, White European men, and White European women ($N = 215$). At baseline, participants were all first-year college students who scored as nonproblem drinkers on the Young Adult Alcohol Problems Screening Test (YAAPST). Participants were classified as progressors or stable nondrinkers/nonproblem drinkers based on YAAPST scores 12 months later. Hypothesized predictors of progression included behavioral undercontrol, negative emotionality, alcohol use expectancies, and cultural orientation (Mexican American

sample only). Differences were anticipated between gender and ethnic groups in both progression rates and predictors of progression. **Results:** Twenty-nine percent of the sample progressed to problematic drinking; however, no differences emerged by gender or ethnicity. For the full sample, higher behavioral undercontrol and higher negative emotionality significantly predicted progression. Differences in predictors were not found across gender and ethnic subgroups. **Conclusions:** The hypothesis that rates of progression to problem drinking would differ among the four gender and ethnic groups was not supported. Thus, although White European men are most often identified as at high risk for alcohol use problems, the present findings indicate that women and Mexican American students also should be targeted for prevention and/or intervention. (*J. Stud. Alcohol Drugs*, 72, 975–980, 2011)

YOUNG ADULTS REPORT HIGHER RATES of alcohol use than any other age group (Substance Abuse and Mental Health Services Administration, 2005), with college students reporting more drinking than young adults not in college (Slutske et al., 2004). College students who drink heavily are more likely to experience alcohol-related problems such as injury, death, and legal problems (Wechsler et al., 2000). The first year of college is a time when students are at particular risk for increasing their drinking (Fromme et al., 2008; Schulenberg and Maggs, 2002) because of a combination of greater access to alcohol and increased stress induced by added responsibilities.

College student drinking has received a great deal of research attention, with the bulk of this work examining

White students (Borsari et al., 2007). To date, few studies have focused on ethnic minority groups such as Mexican Americans, who comprise two thirds of the U.S. Hispanic population (U.S. Census Bureau, 2010). This is of particular concern because Hispanics are a substantial and growing proportion of the college population, representing 10%–20% of U.S. college students (U.S. Census Bureau, 2009). Additionally, rates of alcohol use problems among Mexican American college students are significant. College student data from the Monitoring the Future study indicate that Hispanics are at lower risk for alcohol use problems than Whites but at higher risk than African Americans (O'Malley and Johnston, 2002). Approximately 30% of Hispanics, compared with 45% of Whites and 15% of African Americans, reported heavy drinking in the past 30 days (O'Malley and Johnston, 2002). However, there is evidence that White European and Mexican American college students who reside near the U.S.–Mexico border are at comparably elevated risk for alcohol use problems (McKinnon et al., 2003).

College student drinking is influenced by both global and ethnicity-specific factors. Temperament (i.e., behavior undercontrol and negative emotionality), male gender, White race, and positive anticipated effects of alcohol use (expectancies) have all been found to reliably predict increases in drinking (Borsari et al., 2007). Differences in drinking rates among ethnic groups may reflect cultural practices and identity. For example, drinking norms differ between the United States

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and Mexico, particularly for women, among whom drinking is more common in the United States than in Mexico (Zemore, 2007). Thus, stronger identification with American culture among Mexican American women may predict greater alcohol use.

Very few studies have examined Mexican American college drinking, and few, if any, have prospectively investigated progression to problematic drinking. To address this gap, the present study examined predictors of drinking progression between the first and second years of college among a sample of Mexican American and White European students. Participants who reported few to no alcohol-related problems during freshman year were classified into two groups based on sophomore-year alcohol problems: stable nondrinkers/nonproblem drinkers (few to no problems from drinking during sophomore year) or progressors (above problem drinking threshold during sophomore year). Based on previous research (Raffaelli et al., 2007; Zamboanga et al., 2006), it was hypothesized that Mexican American female students would be least likely to have progressed and White European male students would be most likely to have progressed.

Second, because global predictors of alcohol progression have not been well studied among Mexican Americans, the predictive utility of behavioral undercontrol, negative affectivity, and positive expectancies for alcohol use were compared across ethnicities. In addition, gender differences were anticipated in the strength of the associations (Smith and Reise, 1998). Specifically, behavioral undercontrol, negative emotionality, and greater sexual enhancement and tension reduction expectancies for alcohol use were hypothesized to more strongly predict problematic drinking among men than among women. Greater sociability expectancies were hypothesized to more strongly predict problem-drinking progression among women than among men. The third hypothesis, specific to the Mexican American sample, was that greater orientation to U.S. culture would predict progression among women but not among men.

Method

Participants

First-year students ($N = 215$) at a large public university in the southwestern United States near the Mexico–U.S. border were recruited to participate in a study of substance use risk and protective factors. Recruitment consisted of posting flyers with study information in freshman dormitories and other campus locations. Included participants were 18- or 19-year-olds with four biological grandparents of either Mexican American or White European ethnicity. All participants resided in on-campus dormitories, a university requirement for first-year students.

Procedure

Study procedures were approved by the university's institutional review board. All participants provided written informed consent. Trained research assistants interviewed participants during the students' first year of college and again 12 months later.

Measures

Demographics. Participants provided their age, gender, ethnicity, birthplace, and number of years residing in the United States.

Alcohol use problems. Past-year occurrence and frequency of negative consequences from drinking were measured at each interview using the Young Adult Alcohol Problems Screening Test (YAAPST; Hurlbut and Sher, 1992), a 27-item questionnaire. The YAAPST was scored using the procedure developed by Kahler and colleagues (2004), whereby scores greater than 4 indicate problematic drinking (scoring range: 0–13). All participants in the present study obtained scores of 4 or less at the baseline assessment. Those with sophomore-year scores of 4 or less were classified as stable nondrinkers/nonproblem drinkers, whereas those with scores greater than 4 were classified as progressors/problem drinkers.

Behavioral undercontrol. The Behavioral Undercontrol Questionnaire (Stice et al., 1998), a 20-item scale (item scoring range: 1–4) that measures various aspects of impulsivity, was administered at baseline. The Behavioral Undercontrol Questionnaire has good reliability and validity and consistent factor structure across genders (Stice et al., 1998; Watson and Clark, 1992). Overall scores were calculated by summing all individual item scores ($M = 42.79$, $SD = 8.18$, range: 21–64), with higher scores indicating greater behavioral undercontrol. Good internal consistency was found in the present sample among both Mexican Americans and White Europeans (Cronbach's $\alpha = .80$ and $.85$, respectively).

Negative emotionality. The Negative Emotionality Scale (Buss and Plomin, 1984), a 12-item measure of temperamental negative affectivity, was administered at baseline, and overall score was calculated by summing all individual item scores ($M = 29.44$, $SD = 7.13$, range: 14–47). Each item is scored from 0 to 5, with higher scores indicating greater negative emotionality. The scale exhibited good internal consistency in the present sample among both Mexican Americans and White Europeans (Cronbach's $\alpha = .83$ and $.78$, respectively).

Alcohol use expectancies. The Comprehensive Effects of Alcohol (CEOA) questionnaire (Fromme et al., 1993) was administered at baseline. This 38-item measure assesses cognitions regarding outcomes from drinking, with each item scored from 1 to 4. The CEOA has been shown to account for significant variance in drinking behavior

among college students (Fromme et al., 1993; Valdivia and Stewart, 2005). The four positive scales of the CEOA (tension reduction, liquid courage, enhanced sexuality, and sociability) were included in the current analyses. Scale scores were calculated by averaging individual item scores (range of means: 1.88–2.76). All four scales exhibited good internal consistency in the present sample (Cronbach's α range: .77–.83).

Cultural orientation. The Acculturation Rating Scale for Mexican Americans–II (ARSMA-II; Cuellar et al., 1995) was used to assess cultural orientation. The Anglo and Mexican cultural orientation scale scores were calculated by averaging 13 individual item scores, ranging from 1 to 5, for each scale (Anglo scale: $M = 3.79$, $SD = .40$, range: 2.54–4.54; Mexican scale: $M = 3.77$, $SD = .59$, range: 2.24–5.00). The scales exhibited good internal consistency in the present sample (Cronbach's $\alpha = .80$ and $.88$, respectively).

Alcohol use. Past-90-day alcohol use was measured at both interviews using the Timeline Followback procedure, which has been shown to have sound psychometric properties with college students (Sobell et al., 1988). Timeline Followback data were used to identify past-14-day heavy drinking episodes, defined as drinking five or more drinks on one occasion for men and four or more drinks on one occasion for women (Wechsler et al., 1995). Baseline drinking level (i.e., presence of a past-14-day heavy drinking episode) was included as a covariate in all analyses.

Analytic plan

First, a Gender $\times$ Ethnicity interaction in drinking progression was tested with logistic regression. Second, multiple group analysis with probit regression was used to examine whether the individual predictors of problematic drinking functioned similarly for male and female Mexican American and White European students. The first step of the multiple group analysis was to test a drinking progression model with the ungrouped full sample using logistic regression. Next, the baseline multiple group model, which allowed parameters to vary between groups, was tested, followed by the structural invariance model. Model fit was determined by consulting the comparative fit index (CFI; Bentler, 1990), the root mean square error of approximation (RMSEA; Steiger, 1990), and the chi-square test. The chi-square difference test was used to directly compare models. All multiple group analyses were conducted with Mplus Version 5.21 (Muthén and Muthén, 2007). Finally, the hypothesized Gender $\times$ Cultural Orientation interaction in predicting drinking progression was modeled using logistic regression analysis.

Results

From the original baseline sample ($N = 215$), 95% ($n = 205$) completed the follow-up interview. From this group, 199 (97%) had complete data. One participant exceeded the problem-drinking cutoff at baseline and was excluded,

TABLE 1. Alcohol use characteristics by gender and ethnic group. Group differences in alcohol use are indicated. In all cases, White European men were the referent group.

Variable	Mexican American men ($n = 41$)	Mexican American women ($n = 51$)	White European men ($n = 55$)	White European women ($n = 52$)
Alcohol use, n (% yes)				
Baseline				
Regular drinker	9 (22.5)	7 (13.7)	32 (58.2)**	19 (36.5)
Past-14-day HDE	14 (35.0)	16 (31.4)	34 (64.8)*	20 (38.5)
>100 lifetime drinks	8 (20.5)	7 (16.7)	19 (36.5)*	15 (31.3)
Follow-up				
Problem drinker	13 (32.0)	12 (24.0)	15 (28.0)	16 (31.0)
Past-14-day HDE	21 (53.8)	16 (38.1)	42 (80.8)**	27 (56.3)
Global predictor, M (SD)				
Personality				
Behavioral Undercontrol Questionnaire	44.24 (7.98)	40.18 (7.57)	44.57 (8.43)	42.35 (8.13)
Negative Emotionality Scale	29.34 (7.24)	32.31 (7.62)	26.35 (6.64)	29.90 (5.81)
Expectancies—CEOA				
Tension reduction	2.47 (0.77)	2.39 (0.96)	2.70 (0.62)	2.21 (0.71)
Sociability	2.89 (0.83)	2.65 (0.88)	3.20 (0.45)	3.03 (0.77)
Liquid courage	2.42 (0.88)	2.09 (0.87)	2.59 (0.61)	2.38 (0.79)
Sexuality	2.01 (0.94)	1.77 (0.81)	2.09 (0.73)	2.15 (0.75)
Ethnic-specific predictor, M (SD)				
Cultural orientation—ARSMA-II				
Anglo	3.79 (0.39)	3.81 (0.39)	—	—
Mexican	3.63 (0.67)	3.86 (0.55)	—	—
Length of time in United States (years)	16.69 (3.10)	15.90 (4.45)	—	—

Notes: HDE = heavy drinking episode; CEOA = Comprehensive Effects of Alcohol questionnaire; ARSMA-II = Acculturation Rating Scale for Mexican Americans–II.

* $p < .05$; ** $p \leq .001$.

yielding a final sample of 198. Group alcohol use and drinking progression predictor characteristics are presented in Table 1.

Problem drinking progression by gender and ethnicity

At follow-up, 56 participants had progressed to problem drinking (28%). A logistic regression model tested whether drinking progression differed by gender and ethnicity, controlling for baseline drinking. Contrary to our hypotheses, there was no interaction between gender and ethnicity in drinking progression (odds ratio [OR] = 2.35, 95% CI [0.65, 8.53], $p = .41$), nor were there main effects for either gender (OR = 0.66, 95% CI [0.28, 1.56], $p = .44$) or ethnicity (OR = 0.70, 95% CI [0.29, 1.73], $p = .64$).

Predictors of progression to problem drinking

A logistic regression model of problem drinking progression was tested with the ungrouped sample. Behavioral undercontrol (OR = 1.06, 95% CI [1.01, 1.11], $p = .019$) and negative emotionality (OR = 1.07, 95% CI [1.01, 1.13], $p = .014$)—but not alcohol use expectancies (all $ps > .05$)—were associated with a significantly increased likelihood of drinking progression. Next, differences in ethnic and gender group-specific predictors of problem-drinking-progression group were examined. The baseline multiple group model, which tested four probit regression models (one for each combination of gender and ethnic groups), adequately fit the data, $\chi^2(12) = 26.69$, $p = .009$ (CFI = 1; RMSEA < .01), and differences in parameter values emerged in this step.

For Mexican American men and women, only baseline drinking significantly predicted problem-drinking progression. For White European men, none of the included predictors distinguished between stable nondrinkers/nonproblem drinkers and progressor/problem drinker groups. For White European women, greater behavioral undercontrol and greater negative emotionality were associated with greater odds of progression.

Next, to empirically determine whether the probit regression coefficients differed between groups, all parameters were constrained to equivalence. The structural invariance model also adequately fit the data, $\chi^2(11) = 24.48$, $p = .011$ (CFI = 1; RMSEA < .01). A chi-square difference test revealed that the baseline model was not significantly better than the structural invariance model, $\Delta\chi^2(1) = 2.21$, $p > .05$; therefore, the latter model (i.e., the more parsimonious model) was retained, indicating no differences across groups.

Cultural orientation by gender interaction

The hypothesized Gender $\times$ Anglo Cultural Orientation interaction in drinking progression, tested with a binary lo-

gistic regression model, was not supported (OR = 4.31, 95% CI [0.26, 72.38], $p = .31$).

Post hoc analyses

Post hoc analyses further investigated drinking behaviors by group. White European men were more likely than any other group to report a past-2-week heavy drinking episode, $\chi^2(3)_{\text{Year 1}} = 12.92$, $p = .006$, $\chi^2(3)_{\text{Year 2}} = 17.70$, $p = .001$. At follow-up, they were also more than four times as likely to report regular drinking (at least once per week; OR = 4.33, 95% CI [2.25, 8.36], $p < .001$) and a greater number had consumed more than 100 lifetime drinks, $\chi^2(3) = 8.24$, $p = .041$. Notably, a larger proportion of all four groups had a heavy drinking episode in the 14 days before the sophomore-year interview than before the freshman-year interview.

Discussion

The present study addressed gaps in the literature regarding progression to problem drinking between the first and second years of college. We chose to focus on an understudied group, Mexican American college students. Contrary to our hypotheses, no significant differences by gender or ethnicity were observed.

The hypothesis that rates of progression to problem drinking would differ among the four gender and ethnic groups was not supported. This may reflect that alcohol problems emerge at lower levels of alcohol consumption for women than for men (Wechsler et al., 1995) and for individuals at earlier stages of alcohol involvement (Kahler et al., 2009). Consistent with this interpretation, Mexican Americans and women in the present study appear to be at earlier stages of alcohol involvement compared with White European men, who reported greater quantity, frequency, and lifetime use of alcohol.

The null findings for ethnicity may partially reflect the cultural orientation of the sample, suggesting that Mexican Americans who are highly oriented to American culture are at comparable risk for problematic drinking as are White students. The majority of study participants had lived in the United States for a large proportion of their lives (years in the United States, $M = 16.20$, $SD = 3.92$, range: 1–19 years) and were similarly oriented to Mexican and American cultures (ARSMA-II Mexican, $M = 3.77$, $SD = 0.59$; and Anglo, $M = 3.79$, $SD = 0.40$). Given that the baseline heavy drinking episode rate was similar among Mexican American men and women, the current findings support previous studies that found an association between U.S. cultural orientation and drinking among women but not men (Wahl and Eitle, 2010). Additionally, it is possible that cultural orientation alone may not adequately represent ethnic identity. Including additional variables (e.g., acculturation level, religiosity, or familial alcohol use attitudes) may better elucidate the role

of ethnicity in drinking. Further exploration of the role of cultural identity in prospectively predicting problem-drinking progression among Mexican Americans is needed.

The hypothesis that the magnitude of the relationships between predictors and drinking progression would differ by gender and ethnicity was not supported. Although differences emerged when predictors were allowed to vary between groups, the differences were not sufficient to warrant splitting the sample. It is possible that limited power because of the small sample size led to the structural invariance finding and, with a larger sample, the observed differences would indicate significantly different models.

The primary limitations of the current study are sample size and generalizability. Gender and ethnic differences did not emerge, which may be an issue of power. With regard to generalizability, the current sample was drawn from an academically selective university in a border city and may not be representative of college students elsewhere in the country.

In sum, the current study found that Mexican American and White European male and female college students reported similar rates of progression to problem drinking between the first and second years in college—this despite group differences in rates of alcohol consumption at both time points. These findings suggest that alcohol-related problems might be a more accurate indicator of the need for intervention than overall level of alcohol consumption. Accordingly, the present findings indicate that although White European men are most consistently identified as a group at high risk for alcohol use problems (e.g., Borsari et al., 2007), women and Mexican Americans also demonstrate a pattern of problem drinking that should be targeted for prevention and/or intervention.

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