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## Ethnicity Specific Norms and Alcohol Consumption Among Hispanic/Latino/a and Caucasian Students

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### Abstract

Previous research has shown that social norms are among the strongest predictors of college student drinking and that normative misperceptions of more similar groups' drinking behavior may be more influential on individual drinking than those groups perceived to be more different. However, limited research has explored the moderating role of ethnicity in this context. The current study examined the differential impact that Hispanic/Latino/a and Caucasian students' normative perceptions of both typical and same-ethnicity college students' drinking behavior had on their own drinking. Participants ( $N = 5,369$  students; 60.4% female; 81.4% Caucasian; mean age 19.9 years) from two colleges completed web-based surveys assessing their alcohol consumption, and their perceptions of the drinking behaviors of both the typical college student and the typical same-ethnicity college student at their campus. Results demonstrated that perceived norms were significantly associated with likelihood of drinking regardless of race or ethnicity specificity, but that Hispanics/Latinos/as typically had weaker relationships between ethnicity-specific norms and drinking than general student norms and drinking. The opposite was true for Caucasians such that the relationship between same-ethnicity norms and drinking was stronger than the relationship between general student norms and drinking. Further, Hispanic/Latino/a students with high perceived norms were less likely to have consumed any alcohol than Caucasians with similar normative beliefs. Further, a campus site interaction suggests that the size of the minority population on campus relative to other students may influence the relationship between norms and drinking. Implications and targets for future investigation are discussed.

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### Contributors

Joseph LaBrie, David Atkins, Clayton Neighbors, Mary Larimer, and Tehniat Mirza have each contributed significantly to this manuscript. Specifically, Joseph LaBrie generated the idea for the study, contributed to writing all sections of the manuscript, and oversaw its production. David Atkins performed the major analyses, wrote the Results section and created the tables and figures. Joseph LaBrie, Clayton Neighbors and Mary Larimer contributed to the Results section. In addition, all authors collaboratively drafted the Introduction, Method, and Discussion sections.

### Conflict of Interest

All authors declare that they have no conflicts of interest.

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## Keywords

Social Norms; College Student Drinking; Latino; Latina

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## 1. Introduction

Heavy drinking and associated consequences are a continuing concern on college campuses (Hingson, 2010; Wechsler et al., 2000). Although research has primarily focused on college students in general, there is increasing focus on high-risk groups including fraternities and sororities, first-year students, and student athletes (Hummer, LaBrie, & Lac, in press; LaBrie et al., 2010; Lewis et al., 2007; Martens et al., 2010; NIAAA, 2002, 2007; Park et al., 2009). Hispanic/Latino/a students are an understudied, potentially important high-risk group. They are the fastest growing population in higher education (11.5% of college students; US Department of Education, 2008). Latinos/as exhibit high rates of drinking, generally second only to Caucasians (O'Malley & Johnston, 2002), but report more heavy drinking episodes and alcohol consequences than Caucasians (Bennet, Miller, & Woodall, 1999; Mulia, Greenfield, & Zenmore, 2009).

The influence of perceived drinking norms on Hispanic/Latino/a college students remains considerably understudied, despite these being among the strongest predictors of college drinking (Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). Normative perceptions of others' drinking are often misperceived/overestimated (Perkins, 1997; Perkins, Haines, & Rice, 2005), and regardless of accuracy, significantly influence students' drinking behavior (Clapp & McDonnell, 2000; Larimer et al., 2004; Larimer et al. 2009; Lewis & Neighbors, 2004). Little research however, has examined the role of ethnicity in the norms-behavior link. Larimer and colleagues (2009) found perceived norms vary based on the ethnic specificity of the reference group, but were unable to address the magnitude of this effect within specific ethnic groups. Rice's (2007) study found most ethnic minorities drank less and estimated fewer average drinks consumed by a typical student than Caucasian students did. In contrast, Hispanics reported the highest perceptions of typical college student drinking, more so than Caucasians. Thus, different ethnic groups, Hispanics in particular, vary in how they perceive the behavior of their peers.

Hispanic students' perceptions' of typical student drinking may differ as a result of who they perceive as a typical student. Overall, college students tend to perceive the typical student as a Caucasian male (Lewis & Neighbors, 2006). However, research suggests a stronger association between drinking and perceived norms of others with whom one identifies closely (Neighbors, LaBrie et al., 2010; Reed, Lange, Ketchie, & Clapp, 2007). Thus, assuming ethnicity is associated with identity, Hispanic/Latinos/as should theoretically look toward other Hispanic/Latinos/as for behavioral references. Given mounting evidence that ethnicity serves as a group providing individuals with culture-specific norms for alcohol-related behaviors (Galvan & Caetano, 2003; Hatchett & Holmes, 2004), greater examination of the potential moderating influence of ethnicity is needed.

The present study builds on previous research by evaluating perceived norms of Hispanic/Latino/a and Caucasian students regarding drinking behavior of other same-race/ethnicity students and the typical college student on their campus. Perceived norms were then compared to the actual reported drinking of Hispanic/Latino/a and Caucasian students, respectively. We expected race-/ethnicity-specific norms would have a stronger association with drinks per week relative to typical student norms. We further evaluated the extent to which these associations differed between Hispanics/Latino/a and Caucasian students.

## 2. Method

### 2.1 Procedures and Participants

Participants were part of the pre-intervention phase of a larger study at two west coast U.S. universities. A total of 18,069 students received a letter and email including a URL directing them to the survey. Response rates for the two campuses were 54% ( $n_1=1817$ ;  $n_2=1936$ ) in year 1, and 45% ( $n_1=1,820$ ;  $n_2=3,164$ ) in year 2. Of these, 5,369 (60.4% female; mean age 19.9) were included in analyses as they reported ethnicity as either Hispanic/Latino/a ( $n = 1001$ ; 18.6%) or non-Hispanic Caucasian ( $n = 4368$ ; 81.4%). Participants from Campus 1 ( $n_1=2713$ ) were 793 Hispanic/Latino/a (29.2%) and 1920 (70.8%) Caucasian students. Campus 2 ( $n_2=2656$ ) included 208 Hispanic/Latino/a (7.8%) and 2448 Caucasian (92.2%) students. These percentages were consistent with the ethnic representation on both campuses.

### 2.2 Measures

**2.2.1 Alcohol Consumption**—The Daily Drinking Questionnaire (DDQ; Collins, Parks, and Marlatt, 1985; Kivlahan et al., 1990) measured drinks consumed by participants on each day of a typical week in the past month. Total number of drinks per typical week was calculated by summing responses for each day.

**2.2.2 Perceived Norms**—The Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991) assessed participants' perception of the amount of alcohol consumed on each day of a typical week for relevant reference groups, parallel to the DDQ. Analyses focused on perceived total drinks per week for the typical student at the same campus and typical student of the same campus and race/ethnicity (Caucasian or Hispanic/Latino/a).

### 2.3 Analytic Plan

Following initial descriptive correlational analyses, regression analyses examined how ethnic identification moderated the association between perceived reference group norms (for typical students and same-ethnicity students) and drinks per week. Given the notable skew and large proportion of zeroes (26.1%) in drinking, a hurdle regression model was used (Hilbe, 2007). Hurdle models simultaneously fit two models to count outcomes: a) a logistic regression for zero vs. non-zero (i.e., no drinking vs. any drinking), and b) a truncated (because it does not include zero) negative binomial regression for non-zero drinking. Gender was included as a covariate given its relationship to drinking, and because the two different campuses varied in the percentage of Hispanic/Latino/a students, campus was also included as a covariate. All analyses were done in R v2.12.2 (R Development Core Team, 2011) and made use of the `pscl` package for hurdle regression (Zeileis, Kleiber, & Jackman, 2008).

## 3. Results

### 3.1 Mean and Correlational Differences

On average, consistent with previous findings, Hispanic/Latino/a students ( $M = 6.0$ ,  $SD = 8.3$ ) consumed significantly fewer drinks than Caucasians ( $M = 8.0$ ,  $SD = 9.7$ ),  $t(5,324) = 6.1$ ,  $p < .01$ . Among all respondents, there were significant correlations between perceived norms and self-reported drinking, though Caucasian students had a somewhat higher correlation between norms and drinking ( $r = .34$ ) relative to Hispanic/Latino/a students ( $r = .31$ ). Moreover, with ethnicity-specific norms the correlation of perceived norms and drinking increased for Caucasian students ( $r = .39$ ), whereas it decreased for Hispanic/Latino/a students ( $r = .24$ ), suggesting a different relationship between ethnicity-specific norms and drinking, which was further evaluated using hurdle regression analyses.

### 3.2 Hurdle Regression Models Predicting Drinks Per Week

Results for two hurdle regression models (using typical student norms and same ethnicity norms) are shown in Table 1. Both models included interactions of campus, perceived norms, and ethnicity. The logistic portion of the model reports odds ratios (OR) for the association of the covariates with any drinking (i.e., zero vs. non-zero). Examining the logistic regression results, Caucasian participants were more likely to report any drinking, and there were significant campus differences in likelihood of drinking. Moreover, there was a significant interaction between ethnicity and norms for both models. Figure 1 presents simple slopes for both portions of the two models in Table 1. The top row has logistic models, and the bottom row has count regression models; the left column uses typical student norms, whereas the right column has ethnicity-specific norms. Focusing on the logistic models in the top row, the figure shows that there is a notably stronger association between perceived drinking norms and the likelihood of drinking for Caucasian as compared to Hispanic/Latino/a individuals, regardless of type of norm.

Similar to logistic regression, the raw regression coefficients of the count regression portion are usually raised to the base  $e$  for interpretation and are referred to as rate ratios (RR), and 95% confidence intervals for RR that exclude 1 are significant at the  $p < .05$  level. In the count regression portion of Table 1, there are a number of significant results, including the three-way interaction between ethnicity, perceived norms, and campus, which is stronger with the ethnicity-specific norms (both in terms of rate ratio and significance). As seen in Figure 1 which plots the simple slopes, the most striking effect is the difference in the relationship between perceived norms and drinking for Hispanic/Latino/a students at Campus 2, which is somewhat more pronounced for ethnicity-specific norms vs. typical student norms. Moreover, the simple slope for drinking on ethnicity-specific norms for Hispanic/Latino/a students is not significantly different from zero at Campus 2 (RR = 1.01, 95% CI = 0.99, 1.02). Relative to Campus 1, Campus 2 has a much smaller percentage of Hispanic students, though 192 were included in the present analyses.

## 4. Discussion

The current study examined the saliency of ethnicity-specific norms in relation to drinking, focusing specifically on Hispanic/Latino/a and non-Hispanic Caucasian college students. Our findings suggest the relationship between perceived norms and drinking differs by ethnicity and specificity of perceived norms (i.e., typical student versus ethnicity-specific). Among Caucasians, the correlational analyses support the notion that greater proximity (i.e., ethnic group specificity) increases norm saliency. Specifically, we found drinking among Caucasians to be more strongly associated with their perceptions of other Caucasians' drinking relative to their perceptions of other students' drinking more generally. In contrast, Hispanic/Latino/a student drinking was more strongly correlated with their perceptions of the drinking of other students in general relative to their perceptions of drinking among other Latinos/as.

There are several potential explanations for the current findings. Research indicates that students most often perceive the typical college student as a Caucasian male (Lewis & Neighbors, 2006). Thus, we might expect perceived norms for the typical student to be less strongly associated with drinking among students who do not see themselves as representative of the typical student. In addition, some research has suggested that drinking is particularly relevant to the college student experience among men (Prentice & Miller, 1993; Suls & Green, 2003), but perhaps it is also particularly relevant among Caucasian students. This is not to say that minority students do not drink, but rather that drinking may be less closely connected to college student identity among minority students, particularly in contexts where minority students are less represented in the campus population. Minority

member status may provide some insulation from social influences to drink in these contexts. In contrast, campuses with larger representation of Hispanic/Latino/a students may have greater levels of students identifying with perceived student culture generally. Hispanic/Latino/a students at such campuses may be more likely to consider themselves a greater part of the prevailing campus culture, that may include drinking as a key component of the college student experience. Each of these possibilities is speculative, but provides consideration for additional investigation.

The discrepancy between Caucasians and Hispanics/Latinos/as and the degree to which they are influenced by norms may also be impacted by level of acculturation. A recent study by Kimbro (2009) revealed a relationship between Hispanics' degree of acculturation and their likelihood to engage in heavy episodic drinking. Previous studies have also shown that greater identification with, or feeling highly connected to a reference group lends greater impact to the influence of perceived norms on students' own drinking (Hummer, LaBrie, & Pederson, in press; Neighbors, LaBrie et al., 2010; Reed et al., 2007). Further research should investigate whether or not these hypothesized relationships do indeed hold true for Hispanic student drinkers.

Although the present study provides several advancements in the understanding of social norms, there are several study limitations. These include the use of self-report data and cross-sectional design. Additionally, the two campuses differed on a number of potentially relevant variables, including the proportion of Hispanic/Latino/a students on campus (e.g., private versus public; small versus large). Although this allowed for greater variability and generalizability of the results, it inhibited us from concluding definitively that representation of Hispanic/Latino/a students on campus is the explanation for campus-level differences.

In conclusion, ethnicity-specific norms to be less predictive of drinking and less influential for Hispanics/Latino/as as compared to Caucasian college students, particularly on a campus with low representation of Hispanic /Latino/a students. Findings lend partial support to the notion that specificity leads to higher saliency of norms, but suggest that ethnicity-specific norms are not be equally influential across ethnicities. Future studies examining the level of acculturation and identification with different reference groups may lend insight on how and why ethnicity-based norms function differently for Hispanic/Latino/a students.

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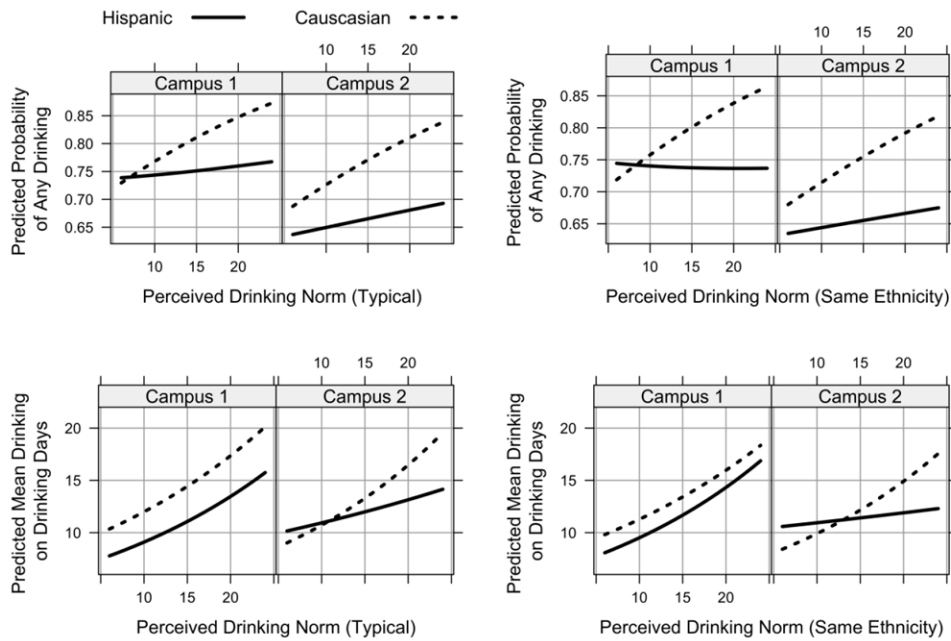
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### Highlights

1. Compared relationship of normative drinking perceptions of typical and same-ethnicity peers on drinking for Hispanics/Latinos/as and Caucasians.
2. Perceived norms associated with likelihood of drinking regardless of ethnicity specificity.
3. Caucasians' drinking more strongly associated with ethnicity-specific perceived norms; Hispanics/Latinos/as drinking more strongly related to perceived general student norms.
4. Perceived norms more strongly related to likelihood of any drinking among Caucasians than Hispanics/Latinos/as.
5. Campus interaction suggests size of minority population relative to greater student body influences norms-drinking relationship.



**Figure 1.** Simple slopes for hurdle models examining associations of perceived drinking norms (typical vs. same ethnicity), ethnicity (Caucasian vs. Hispanic), and campus with drinking. Logit submodels are in the top row, and count regression (negative binomial) submodels are in bottom row. Typical student drinking norms are in the left column, whereas same ethnicity drinking norms are in the right column.

Table 1

Results for Hurdle Regression of Weekly Drinking by Gender, Ethnicity, Campus, and Perceived Drinking Norms (Typical Student or Same Ethnicity; N = 5,160)

Predictor	Typical Student Norms Model			Same Ethnicity Norms Model		
	RR	2.5%	97.5%	RR	2.5%	97.5%
Intercept	5.644 <sup>**</sup>	5.234	6.087	6.553 <sup>**</sup>	6.085	7.056
Men	1.891 <sup>**</sup>	1.792	1.995	1.706 <sup>**</sup>	1.617	1.801
Caucasian	1.307 <sup>**</sup>	1.199	1.424	1.157 <sup>**</sup>	1.064	1.259
Norms	1.040 <sup>**</sup>	1.031	1.049	1.042 <sup>**</sup>	1.032	1.051
Campus	1.105	0.935	1.304	1.012	0.856	1.197
Caucasian × Norms	0.998	0.988	1.008	0.994	0.984	1.004
Caucasian × Campus	0.829 <sup>*</sup>	0.695	0.989	0.890	0.745	1.063
Campus × Norms	0.979	0.958	1.002	0.968 <sup>**</sup>	0.949	0.987
Caucasian × Norms × Campus	1.027 <sup>*</sup>	1.003	1.052	1.039 <sup>**</sup>	1.018	1.061
	Logistic Regression					
Intercept	OR	2.5%	97.5%	OR	2.5%	97.5%
Men	2.443 <sup>**</sup>	2.075	2.875	2.556 <sup>**</sup>	2.165	3.016
Caucasian	1.093	0.959	1.246	0.994	0.873	1.133
Norms	1.392 <sup>**</sup>	1.145	1.692	1.356 <sup>**</sup>	1.114	1.651
Campus	1.015	0.995	1.035	1.004	0.984	1.025
Caucasian × Norms	0.682 <sup>*</sup>	0.488	0.954	0.685 <sup>*</sup>	0.485	0.968
Caucasian × Norms × Campus	1.040 <sup>**</sup>	1.013	1.067	1.049 <sup>**</sup>	1.023	1.076
Campus × Norms	1.159	0.803	1.672	1.130	0.777	1.645
Campus × Norms × Campus	1.001	0.960	1.043	1.006	0.968	1.046
Caucasian × Norms × Campus	0.996	0.951	1.044	0.987	0.945	1.031

\* p < .05,

\*\* p < .01

Note. RR = rate ratio; OR = odds ratio; Men (0 = Women, 1 = Men); Caucasian (0 = Hispanic, 1 = Caucasian); Norms = Perceived drinking norms (either typical student or same race); Campus (0 = Campus 1, 1 = Campus 2). A truncated negative binomial model is used for the count regression portion of the model.