Group Identification as a Moderator of the Relationship Between Perceived Social Norms and Alcohol Consumption

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Abstract

Previous research has shown that social norms are among the strongest predictors of college student drinking. Among college students, perceiving that "others" drink heavier relative to themselves has been strongly and consistently associated with heavier drinking. Research has also shown that the more specifically "others" are defined, the stronger the association with one's own drinking. The present research evaluated whether group identification as defined by feeling closer to specific groups moderates the associations between perceived drinking norms in the group and one's own drinking. Participants included 3752 (61% Female) students who completed online assessments of their perceived drinking norms for four groups of students on their campus as well as identification with each group and participants' own drinking behavior. Results indicated that greater identification with same-sex students, same-race students, and same-Greek-status students were associated with stronger relationships between perceived drinking norms in the specific groups and own drinking.

Keywords

social norms; alcohol; identification; social identity; Drinking; Group Identity

Young adults consistently overestimate the quantity of alcohol consumed and frequency of drinking of their peers (Borsari & Carey, 2003; Lewis & Neighbors, 2004; Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006a). In addition, perceptions of peer alcohol use are consistently associated with heavier alcohol use (e.g. Borsari & Carey, 2001, 2003; Lewis & Neighbors, 2004). Furthermore, recent research found that perceived peer drinking norms (i.e., perceptions of how much or how often others drink) were among the best predictors of college student drinking (Neighbors, Lee, Lewis, Fossos, & Larimer, 2007).

With respect to preventative intervention implications, it is important to identify moderators of the norms-behavior link. Two factors that might serve as moderators are proximity of the normative peer referent group and salience of that group to an individual. Traditional and

contemporary social psychological perspectives (e.g., Social Comparison, Festinger, 1954; Social Identity Theory, Terry & Hogg, 1996; Self-Categorization Theory, Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; and Deviance Regulation Theory, Blanton & Christie, 2003) suggest that the peer reference groups to which individuals are closely connected by proximity or identification are more relevant and have greater influence on perceptions and behavior than peer reference groups to which individuals are remotely connected.

Research suggests that normative perceptions of proximal reference groups are more likely to influence drinking than normative perceptions of distal groups (Borsari & Carey, 2003; Korcuska & Thombs, 2003; Lewis & Neighbors, 2006). In support of this notion, Lewis and Neighbors (2004) found that perceived same-sex drinking norms were more strongly related to personal drinking when compared to opposite-sex norms. Moreover, Larimer and colleagues (2009) demonstrated that perceptions for drinking for normative referents specific to three levels (e.g., same-sex, same-race, and same-housing) were uniquely related to drinking when accounting for perceived typical student drinking behavior.

The degree to which one identifies with his or her normative referent group may play an important role in the norms-behavior relationship. For example, Lewis and Neighbors (2007) found that same-sex normative drinking information was especially efficacious in reducing drinking for women who more closely identified with their gender. Further, Reed and colleagues (Reed, Lange, Ketchie, & Clapp, 2007) found that the extent to which injunctive norms information was associated with alcohol use depended on the degree to which an individual identified with that specific group. The present research aimed to more specifically evaluate the moderating influence of group identification on the relationship between perceived descriptive norms and drinking behavior at varying levels of specificity.

Previous research has consistently found college men drink more than college women although some suggest that the gap is diminishing (Ham & Hope, 2003, Johnston, O'Malley, Bachman, & Schulenberg, 2008). Moreover, gender has been shown to moderate the association between perceived norms and drinking (Prentice & Miller, 1993; Suls & Green, 2003; Lewis & Neighbors, 2004, 2007). Racial differences in college student drinking have also been well documented with Caucasian students drinking more than other students and Asian/Asian American students drinking less (Johnston, et al., 2008; Siebert, & Wilke, 2007; Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998). In contrast to gender, we are not aware of previous studies that have evaluated the influence of race or identification on the association between perceived norms and drinking. In addition to evaluating proximity of and identification with the normative referent, there may be specific sub-groups of students for whom proximity and identification are particularly important. Fraternities and sororities on college campuses are an example of an insular environment with unique social norms that appear to have a significant influence on members' behavior. Greek-affiliated students drink more heavily and frequently than other students (Barry, 2007; Cashin, Presley, & Meilman, 1998; Larimer, Turner, Mallet, & Geisner, 2004; Sher, Bartholow, & Nanda, 2001) and experience more alcohol-related consequences (e.g., Cashin et al., 1998; Larimer et al., 2004; Neighbors et al., 2007). Finally, research shows that both descriptive and injunctive norms predict drinking and related problems for Greek members (Larimer et al., 2004).

The present study sought to extend previous research examining the relationship between perceived drinking norms and alcohol use by examining the moderating influence of group identification among varying referent groups on participants' campuses: typical student, typical student of the same sex, typical student of the same race, and typical student of the same Greek affiliation status. We hypothesized that perceived drinking norms of each reference group would be more strongly associated with participants' own drinking as identification with the specific group increased.

Method

Participants

Participants were 3752 (61% female) students recruited from a random sample of 7000 students at two campuses, one a large public university located in the northwest and the other a private mid-sized university in southern California who completed a 20 minute online survey during fall 2007 in exchange for $20. Data were collected in the preliminary phase of a larger study evaluating social norms based alcohol interventions. Previous research has found few differences between web-based surveys were more traditional paper and pencil assessments (Miller et al., 2002; McCabe, Diez, Boyd, Nelson, & Weitzman, 2006). Two universities varying in size, type, and demographics were selected to increase the generalizability of findings from the larger trial. The response rate was higher for the public university (55.3%) than the private university (51.9%), χ^2 (N=7000, $df = 1$) = 8.13, $p < .01$. Demographic information for both campuses and the overall sample is provided in Table 1. Campuses varied significantly from each other on most demographic variables but were relatively representative of the populations from which they were drawn. Women were overrepresented on both campuses.

Design and Procedure

During the first two weeks of the fall semester, 7000 students (3500 per campus) randomly selected from the Registrar's lists received letters inviting their participation in a study examining alcohol use and perceptions of drinking in college, and were provided with a survey link and unique Personal Identification Number (PIN) for participation. Students also received an email with a link to the survey, and once they clicked on the link, they entered their PIN number and were taken to an IRB-approved informed consent form. If they consented, they were routed to the survey. All measures and procedures were approved by the local IRBs on both campuses, and the study obtained a Federal Certificate of Confidentiality to further protect participants.

Measures

Alcohol Consumption was assessed using a modified Daily Drinking Questionnaire (DDQ; Collins, Parks, and Marlatt, 1985; Dimeff, Baer, Kivlahan, & Marlatt, 1999), which obtains participant reports of the typical number of drinks consumed each day of the week. Students' responses were summed to form a typical drinks per week variable that was used in the analyses. The DDQ has been used in numerous studies of college student drinking and has demonstrated good convergent validity and test-retest reliability (Marlatt et al., 1998; Neighbors, Lewis, Bergstrom, Larimer, 2006b).

Perceived descriptive norms were assessed with the Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991; Dimeff et al., 1999), on which participants estimate the number of drinks consumed by the typical member of each of four reference groups (typical student, same sex, same race, same Greek status) on their campus for each day of the week. Responses were summed to create perceived drinks per week for each group. This measure has demonstrated good validity and reliability (e.g., Neighbors, Larimer, & Lewis, 2004; Neighbors et al., 2006b).

Identification with Reference Group—The Inclusion of Other in the Self (IOS) scale (Aron, Aron, & Smollan, 1992; Tropp & Wright, 2001) measured identification of interrelatedness with the four normative reference groups (typical student, same sex, same race/ethnicity, same Greek status) on participants' respective campuses. Participants were presented a series of seven Venn diagrams ranging from non-overlapping circles (i.e., complete independence of the self from the group) to nearly completely overlapping circles and asked

to select which diagram best represented their level of identification with the particular group. Participants were asked to "select the pair of circles that you feel best represents your own level of identification with _____", with the reference being the typical student on campus, the typical same sex student on campus, the typical student of the same ethnicity on campus, and the typical student on campus with the same Greek affiliation. The measure was scored from 1 to 7, with one representing completely non-overlapping circles (i.e., very low identification) and 7 representing nearly completely overlapping circles (i.e., very high identification). The IOS has demonstrated good test-retest reliability, and good concurrent, discriminant, and construct validity in assessing group identification (Tropp & Wright, 2001).

Results

Analysis

Means and standard deviations for identification variables, perceived norms for each reference group, and drinking are presented in Table 2. We conducted a series of generalized linear models (i.e., negative binomial regression analyses) to evaluate whether drinking varied as a function of identification, perceived norms, and the interaction between identification and perceived norms for each of four referents controlling for the relevant demographic variable. This strategy was chosen because preliminary analyses revealed a non-normal distribution with extreme positive skew most closely approximating a negative binomial distribution for drinking. Models were run separately for each group referent (i.e., campus, sex, race, and Greek affiliation). Each model was evaluated hierarchically (Cohen, Cohen, West, & Aiken, 2003) where group membership was entered at Step 1, identification and perceived norm was entered at Step 2, and the interaction between identification and perceived norms was entered at Step 3. Additional analyses in which year in school and gender were included as covariates in all models did not change any of the results presented below. Further analyses in which campus, gender, ethnicity, and Greek-status were included as covariates in step 1 of all four generalized linear models produced the same results presented below with the exception that the main effect for identification with students of the same ethnicity was no longer significant. Results are provided in Tables 3–6 and include changes in model fit (i.e., change in −2 log likelihood) at each step. Incident response ratios (IRR's) are also included and represent proportional increase in the outcomes for each unit change in the predictor. In addition, effects sizes are included where *d* is calculated by the formula *2t/sqrt(df)* (Rosenthal, Rosnow, & Rubin, 2000).

Evaluation of Associations with Drinking Using Generalized Linear Models

Typical student on campus—Hierarchical generalized linear model results with typical students on campus as the reference group are presented in Table 3. Results at Step 1 revealed a significant difference in drinking between the two campuses with students from the public campus drinking only 73% (IRR = .728) as many drinks per week as students on the private campus. Results at Step 2 revealed both identification and perceived norms were positively and uniquely associated with higher levels of drinking. The interaction at Step 3 was not significant.

Typical same-sex student on campus—Generalized linear model results with typical same-sex students as the reference group are presented in Table 4. Step 1 revealed that men drank significantly more (i.e., 83%) than women. Step 2 again revealed both identification and perceived norms were positively and uniquely associated with higher levels of drinking. At Step 3 the interaction between identification and perceived norms for the typical same-sex student on campus was significant. Figure 1 presents simple slopes estimated from parameter estimates where low (−1 SD) and high values (+1 SD) of identification and perceived norms were entered into the model equation (Cohen et al., 2003). Results indicated the relationship between perceived drinking norms for same sex students and participants' own drinking was

stronger when participants endorsed greater identification with members of their same-sex on campus.

Typical same-race student on campus—For the purposes of analyses, participant race was coded as Caucasian (57.4%), Asian, (18.6%), Multiracial (10.7%), African American (3.1%) and Other (10.4%), where Caucasian was specified as the reference category in the analysis. Generalized linear model results for typical same-race student on campus as the reference group are presented in Table 5. Results at Step 1 revealed overall differences in drinking among the five race categories. Parameter estimates indicated all racial groups drank significantly less than Caucasians. Results at Step 2 revealed that identification and perceived norms for same race students were both positively associated with drinking. Step three revealed a significant interaction suggesting that the association between perceived norms for same race students and drinking was moderated by how close participants felt to other members of their race on campus. Figure 2 presents simple slopes estimated from parameter estimates.

Typical same-Greek status student on campus—As above and following the same procedure, we evaluated drinking as a function of Greek status, identification, and perceived norms in three steps. Parameter estimates are provided in Table 6. Results at Step 1 indicated that members of Greek organizations drank significantly more than non-Greek students. At Step 2, results indicated that identification and perceived norms for same-Greek status students on campus were each positively associated with drinking. Finally, at Step 3 the interaction between identification and perceived norms was again significant (Figure 3). As for same-sex and same-race, the association between perceived norms for same-Greek status students and drinking was stronger among students who felt closer to others who shared their status with respect to membership in a Greek organization.

Discussion

The current study expanded on previous work evaluating the influence of perceived descriptive norms on drinking among young adults. As in previous research, participants estimated their peers drink about double the amount reported by participants (e.g., Neighbors et al., 2006a). In support of the central hypothesis, the more strongly students identified with a specific reference group (i.e., same- sex, same- race, or same- Greek status students on campus), the stronger the association between their perceived norms for drinking in that group and their own drinking. This did not hold when the reference group was less specific (i.e., typical student on campus) which may suggest that identification is most relevant when groups are more specifically defined. Although the overall hypothesis was supported, the effect sizes for the interactions suggest that the influence of group identification on the association between perceived norms and drinking is relatively weak, at least for the groups evaluated.

These data are cross-sectional and cannot determine the causal direction among variables. The findings observed are consistent with multiple explanations which are not mutually exclusive: conformity, projection, and peer selection. A conformity explanation, consistent with Social Identity Theory (Terry & Hogg, 1996), is that the more students identify with a group the more sensitive they are to group norms, and the more likely they are to conform to those norms. A projection explanation suggests that students assume their peers are similar to themselves and estimate accordingly, and they are somewhat more likely to do this for group members with whom they identify most closely (Holtz & Miller, 2001). A selection explanation suggests that individuals seek out others who are like them, which in turn effects their global perceptions of drinking norms (Kahler, et al., 2003). In each case we might expect stronger influences of groups that are more specifically defined.

Although the present data cannot distinguish causal direction, considerable evidence indicates changing perceived descriptive norms is a relatively effective intervention strategy in reducing drinking (Borsari & Carey, 2000; DeJong et al., 2006; Lewis & Neighbors, 2007; Neighbors et al., 2004; Neighbors et al., 2006b; Neighbors, Lee, Lewis, Fossos, & Walter, 2009). The importance of group identification in the context of norms based interventions has received limited consideration. A notable exception was a study finding gender specific norms feedback to be more effective in reducing drinking among women who identified more strongly with their gender (Lewis & Neighbors, 2007). The present findings suggest we might see similar effects with respect to race and Greek-status. The present research also suggests interventions which utilize interactive polling systems in a particular setting of interest to provide live, group-specific norms for cohesive social groups may be particularly effective (e.g., LaBrie, Hummer, Huchting, & Neighbors, 2009; LaBrie, Hummer, Neighbors, & Pedersen, 2008).

The present manuscript should be reviewed in light of several limitations. As noted above, the study was a cross-sectional examination of social norms for different referent groups, identification with the different groups and alcohol use. The present study did not look at participants' time spent in college, and future research could examine the relationship between amount of time in a given academic setting and identification with a typical student at that college (e.g., whether identification with the typical student is greater among first-year or fourth-year students). The present study only evaluated descriptive norms regarding perceived drinking behavior and only among a limited number of reference groups. Finally, gender-, ethnicity-, and Greek-specific norms are just a few of the many norms that could be assessed. Further research is necessary to understand whether additional normative reference groups may be appropriate for assessment and how norms for these groups are associated with alcohol use based on the identification with that group, as well as evaluating to what extent normative reference groups should be specified (e.g., combinations of characteristics such as gender and ethnicity together).

In sum, the present research evaluated whether group identification as defined by feeling closer to specific groups moderated the associations between perceived drinking norms for the group and one's own drinking. Findings suggested that the more students identified with other groups (when defined more specifically than just "typical students on campus"), the stronger the relationship between perceived norms and actual drinking behavior. Future studies are needed to evaluate the impact of greater specificity of the referent group in interventions targeting social drinking norms.

Acknowledgments

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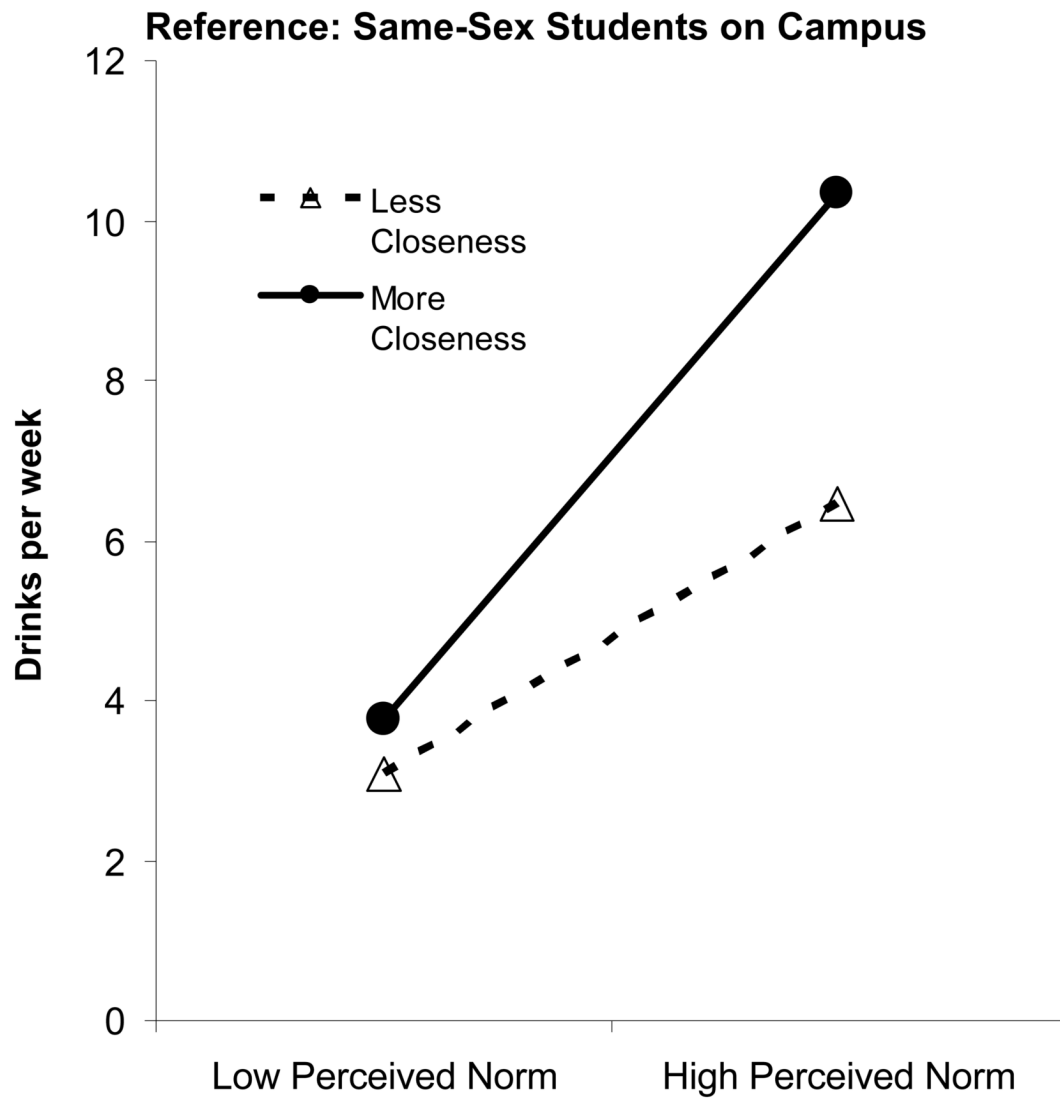## Reference: Same-Sex Students on Campus

Figure 1.
Identification with same-sex peers as a moderator of perceived same-sex norms and drinking.
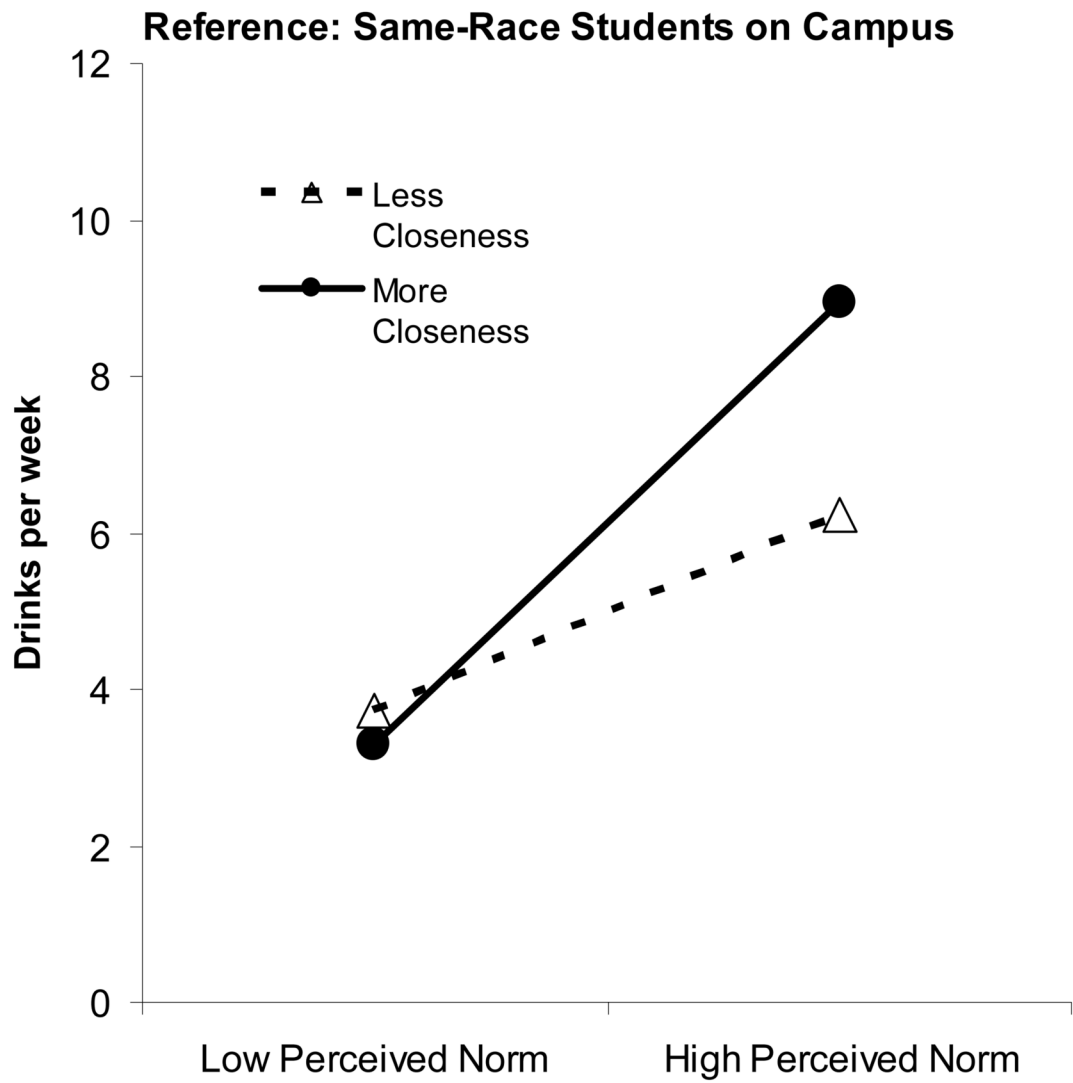
Figure 2.
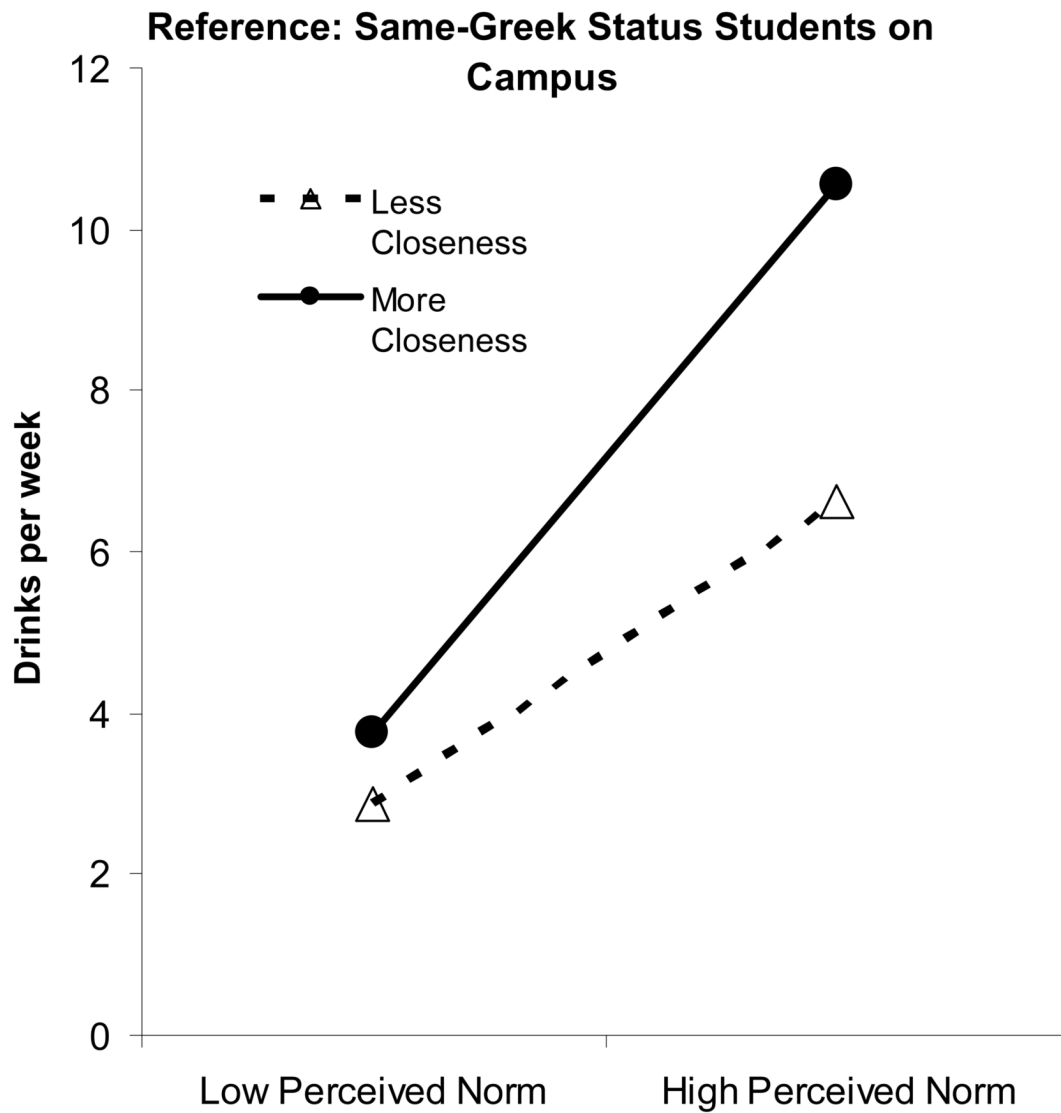Identification with same-race peers as a moderator of perceived same-race norms and drinking.

Figure 3.
Identification with same-Greek status peers as a moderator of perceived same-Greek status norms and drinking.

Table 1

Variable	Private University	Public University	Overall
Sex: Women	64.78%	58.35%	61.46%
Race: Caucasian	57.90%	56.38%	57.12%
Race: Asian	7.54%	28.94%	18.58%
Race: Multiracial	13.04%	8.42%	10.66%
Race: "Other"	13.48%	2.33%	7.73%
Race: African American	4.57%	1.81%	3.14%
Race: Hawaiian/Pacific Islander	1.98%	1.40%	1.68%
Race: American Indian/Alaskan Native	0.44%	0.57%	0.51%
Ethnicity: Hispanic	22.91%	3.85%	13.00%
Greek (Fraternity/Sorority)	27.11%	14.81%	20.76%
Age	19.79 (1.15)	19.96 (1.53)	19.87 (1.36)
Drinks per week	7.03 (8.93)	5.11 (8.13)	6.04 (8.58)

Note. Means and standard deviations (in parenthesis) are provided for age and drinks per week. All demographic differences between campuses were statistically significant except for age and the proportion of students who were Caucasian, Hawaiian/Pacific Islander, or American Indian/Alaskan Native.

Table 2

Means and Standard Deviations for Identification, Perceived Norms, and Drinking

Variable	Mean	SD
Drinks per week	6.04	8.58
Identification with typical students	3.78	1.46
Identification with same-sex students	3.85	1.48
Identification with same-race students	3.97	1.53
Identification with same-Greek status students	3.97	1.49
Perceived norms for typical students	13.74	8.31
Perceived norms for same-sex students	13.20	9.12
Perceived norms for same-race students	12.55	8.66
Perceived norms for same-Greek status students	12.77	9.96

Note. All identification and perceived norms variables referenced students on one's own campus.

Table 3

Negative Binomial Regression Results Evaluating Drinking as a Function of Identification and Perceived Norms for the Typical Student on Campus

Predictor	B	B SE	IRR	Lower 95% IRR	Upper 95% IRR	t	d
Step 1: Δ-2LL = −19.29; df = 1; p < .001.							
Campus	−0.317	0.051	0.728	0.659	0.805	−6.22 ***	0.21
Step 2: Δ-2LL = −128.76; df = 2; p < .001.							
Identification	0.126	0.017	1.135	1.098	1.172	7.51 ***	0.25
Perceived Norm	0.045	0.003	1.046	1.039	1.052	13.91 ***	0.47
Step 3: Δ-2LL = −0.255, df = 1; p = ns.							
Identification × Perceived Norm	0.002	0.002	1.002	0.997	1.006	0.73	0.02

Note.

***
$p < .001$. Δ-2LL at step 1 represents the change in −2 log likelihood relative to an intercept only model. IRR (incident rate ratio) represents proportional change for each unit increase in the predictor (e.g., an IRR of 1.05 = a 5% increase for each unit change in the predictor). Cohen's d was calculated using the formula $2t(\text{sqrt}[df])$. Campus was dummy coded (public campus = 0; private campus = 1).

Table 4

Negative Binomial Regression Results Evaluating Drinking as a Function of Identification and Perceived Norms for the Typical Same-Sex Student on Campus

Predictor	B	B SE	IRR	Lower 95% IRR	Upper 95% IRR	t	d
Step 1: Δ-2LL = −68.74; df = 1; p < .001.							
Sex	0.602	0.052	1.826	1.651	2.019	11.69***	0.40
Step 2: Δ-2LL = −150.30; df = 2; p < .001.							
Identification	0.117	0.016	1.124	1.089	1.160	7.27***	0.25
Perceived Norm	0.049	0.003	1.050	1.043	1.056	15.19***	0.51
Step 3: Δ-2LL = −3.38, df = 1; p < .01.							
Identification × Perceived Norm	0.005	0.002	1.005	1.001	1.009	2.60**	0.09

Note.

***
p < .001.

**
p < .01. Δ-2LL at step 1 represents the change in −2 log likelihood relative to an intercept only model. IRR (incident rate ratio) represents proportional change for each unit increase in the predictor (e.g., an IRR of 1.05 = a 5% increase for each unit change in the predictor). Cohen's d was calculated using the formula 2t(sqrt[df]). Sex was dummy coded (Men = 1; Women = 0).

Table 5

Negative Binomial Regression Results Evaluating Drinking as a Function of Identification and Perceived Norms for the Typical Same-Race Student on Campus

Predictor	B	B SE	IRR	Lower 95% IRR	Upper 95% IRR	t	d
Step 1: Δ-2LL = −88.28; df = 4; p < .001.							
Asian	−0.8614	0.0679	0.423	0.370	0.483	−12.69***	0.43
Multiracial	−0.3021	0.0841	0.739	0.627	0.872	−3.59***	0.12
African American	−1.1359	0.1554	0.321	0.237	0.435	−7.31***	0.25
Other	−0.3801	0.0863	0.684	0.577	0.810	−4.40***	0.15
Step 2: Δ-2LL = −125.54; df = 2; p < .001.							
Identification	0.043	0.016	1.044	1.012	1.077	2.70**	0.09
Perceived Norm	0.046	0.003	1.047	1.040	1.053	14.68***	0.50
Step 3: Δ-2LL = −12.14; df = 1; p < .001.							
Identification × Perceived Norm	0.010	0.002	1.010	1.006	1.013	5.05***	0.17

Note.

***
p < .001.

**
p < .01. Δ-2LL at step 1 represents the change in −2 log likelihood relative to an intercept only model. IRR (incident rate ratio) represents proportional change for each unit increase in the predictor (e.g., an IRR of 1.05 = a 5% increase for each unit change in the predictor). Cohen's d was calculated using the formula 2t(sqrt[df]). Race categories are coded such that tests of parameter estimates represent the comparison of the given race with Caucasian students.

Table 6

Negative Binomial Regression Results Evaluating Drinking as a Function of Identification and Perceived Norms for the Typical Same-Greek Status Student on Campus

Predictor	B	B SE	IRR	Lower 95% IRR	Upper 95% IRR	t	d
Step 1: Δ-2LL = −113.54; df = 1; p < .001.							
Sex	0.861	0.060	2.366	2.104	2.659	14.42***	0.49
Step 2: Δ-2LL = −209.71; df = 2; p < .001.							
Identification	0.096	0.016	1.101	1.068	1.135	6.19***	0.21
Perceived Norm	0.051	0.003	1.052	1.046	1.058	17.52***	0.59
Step 3: Δ-2LL = −6.52, df = 1; p < .001.							
Identification × Perceived Norm	0.006	0.002	1.006	1.003	1.009	3.56***	0.12

Note.

***
$p < .001$. Δ-2LL at step 1 represents the change in −2 log likelihood relative to an intercept only model. IRR (incident rate ratio) represents proportional change for each unit increase in the predictor (e.g., an IRR of 1.05 = a 5% increase for each unit change in the predictor). Cohen's d was calculated using the formula $2t(\text{sqrt}[df])$. Greek status was dummy coded (Membership = 1; Non-membership = 0).