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Alcohol evaluations and acceptability: Examining descriptive and injunctive norms among heavy drinkers

Dawn W. Foster, Ph.D.¹, Clayton Neighbors, Ph.D.², and Heather Krieger, B.A.²

¹Yale School of Medicine, Department of Psychiatry

²University of Houston, Department of Psychology

Abstract

Objectives—This study assessed descriptive and injunctive norms, evaluations of alcohol consequences, and acceptability of drinking.

Methods—Participants were 248 heavy-drinking undergraduates (81.05% female; $M_{age} = 23.45$).

Results—Stronger perceptions of descriptive and injunctive norms for drinking and more positive evaluations of alcohol consequences were positively associated with drinking and the number of drinks considered acceptable. Descriptive and injunctive norms interacted, indicating that injunctive norms were linked with number of acceptable drinks among those with higher descriptive norms. Descriptive norms and evaluations of consequences interacted, indicating that descriptive norms were positively linked with number of acceptable drinks among those with negative evaluations of consequences; however, among those with positive evaluations of consequences, descriptive norms were negatively associated with number of acceptable drinks. Injunctive norms and evaluations of consequences interacted, indicating that injunctive norms were positively associated with number of acceptable drinks, particularly among those with positive evaluations of consequences. A three-way interaction emerged between injunctive and descriptive norms and evaluations of consequences, suggesting that injunctive norms and the number of acceptable drinks were positively associated more strongly among those with negative versus positive evaluations of consequences. Those with higher acceptable drinks also had positive evaluations of consequences and were high in injunctive norms.

Conclusions—Findings supported hypotheses that norms and evaluations of alcohol consequences would interact with respect to drinking and acceptance of drinking. These examinations have practical utility and may inform development and implementation of interventions and programs targeting alcohol misuse among heavy drinking undergraduates.

Keywords

acceptance; descriptive norms; injunctive norms; alcohol; evaluations

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Of the 10.6 million undergraduates enrolled in four-year institutions in 2012 (U.S. Department of Education, 2013), an estimated 4.2 million drink heavily at least once a month (National Institute on Alcohol Abuse and Alcoholism, 2013). These heavy drinking episodes are associated with academic problems, physical assault and injury, drunk driving, and even death (Hingson, Heeren, Winter, & Wechsler, 2005; National Institute on Alcohol Abuse and Alcoholism, 2013; Perkins, 2002). The outcomes of heavy drinking directly affect an estimated 2 million college students and are a continuing public health concern (National Institute on Alcohol Abuse and Alcoholism, 2013). Using Ajzen's (1991) theory of planned behavior, which highlights the importance of attitudes and norms in influencing alcohol behaviors, research has explored individual characteristics that influence the consumption of alcohol among undergraduates. Thus, we use this framework to explore specific drinking acceptability and attitudes towards alcohol consumption and outcomes associated with heavy drinking, defined as drinking at least 4 or 5 drinks during one occasion in the past month for females or males respectively.

Descriptive and injunctive norms

Perceptions of drinking and acceptability of alcohol use, measured via descriptive and injunctive norms, are strong precursors to heavy drinking (e.g. Borsari, Murphy, & Barnett, 2007; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). Descriptive norms, defined as perceptions of peer drinking, are consistently found to be higher than reported personal use (Baer & Carney, 1993), indicating that students think their peers drink more than they do. Descriptive norms are also consistently related to increased personal alcohol consumption (e.g. Borsari & Carey, 2001; Borsari & Carey, 2003), which suggests that students who think their peers drink more also tend to drink more. The perception of peer approval of drinking, termed injunctive norms, also impacts alcohol consumption with higher injunctive norms leading to higher alcohol consumption (e.g. Collins & Spelman, 2013; Larimer, Turner, Mallett, & Geisner, 2004). The relationship between injunctive norms and alcohol consumption has been found to be inconsistent and may be a result of the use of different or less salient reference groups (Collins & Spelman, 2013; LaBrie, Hummer, Neighbors, & Larimer, 2010; Neighbors et al, 2008). However, both descriptive and injunctive norms have been found to influence how acceptable and positive drinking is perceived to be (Brown, Christiansen, & Goldman, 1987). Greater injunctive and descriptive norms lead to greater drinking acceptability ratings and greater levels of alcohol consumption (Brown, Christiansen, & Goldman, 1987). Research further indicates that injunctive and descriptive norms interact to predict drinking and acceptability of alcohol (Rimal & Real, 2003). Additional research is warranted to explore antecedents to heavy drinking that may play important roles alongside alcohol-related norms and acceptability of alcohol use, and one such antecedent is an individual's evaluation of alcohol-related consequences.

Evaluations of alcohol consequences

An individual's positive and negative evaluations of alcohol consequences are also known precursors to drinking (e.g. Leigh, 1987; Patrick & Maggs, 2011). Research demonstrates that positive evaluations of alcohol consequences are positively associated with alcohol consumption and acceptability of alcohol use (Leigh, 1987; Merrill, Read, & Barnett, 2013; Patrick & Maggs, 2011; Zamboanga, Harn, Van Tyne, & Pole, 2011). Moreover, previous work shows that alcohol consequence evaluations predict drinking beyond the influences of descriptive norms (Merrill, Read, & Colder, 2013). They found that greater negative evaluations of alcohol consequences were associated with less drinking at follow up while controlling for previous alcohol use and descriptive norms (Merrill, Read, & Colder, 2013). Similarly, studies of injunctive norms and evaluations of alcohol consequences indicate that they form a relationship, which predicts drinking and drinking acceptability (Zamboanga, Schwartz, Ham, Jarvis, & Olthuis, 2009). Specifically, Zamboanga and colleagues (2009) found that evaluations of consequences mediate the relationship between norms and alcohol consumption, and as such, further work is needed in order to better elucidate relationships among these constructs. Taken together, extant literature indicates that evaluations of alcohol consequences may influence relationships among descriptive and injunctive norms and may play an important role in influencing drinking outcomes.

Current Study

The present study expands previous research by assessing how descriptive and injunctive norms associate with evaluations of alcohol consequences in the context of heavy alcohol consumption. A heavy drinking sample was targeted for this evaluation as these individuals tend to be at greater risk for experiencing alcohol consequences relative to a light or moderate drinking sample (e.g. Perkins, 2002; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Evaluations of alcohol consequences were expected to interact with descriptive and injunctive norms with respect to alcohol consumption and acceptability of alcohol use. This study was designed to examine the predictive ability of norms and evaluations of consequences in regard to alcohol consumption and drinking acceptability and to evaluate the unique effects above and beyond theoretically relevant covariates including gender (Wagoner et al., 2012), race/ethnicity (Hollander, 2012), year in school (generally linked with age; Griffin, Bang, & Botvin, 2010), Greek membership (see Barry, 2007 for a review), and work status (which is linked with socio-economic status; Humensky, 2010).

We had three main hypotheses. Our first hypothesis was related to main effects and attempted to replicate previous findings; we expected that higher descriptive norms, injunctive norms, and positive evaluations of alcohol consequences would be associated with increases in drinking levels and the number of acceptable drinks reported. Our second hypothesis was related to moderating (two-way interaction) relationships; descriptive and injunctive norms were expected to interact such that higher injunctive norms would be associated with increases in alcohol outcomes, particularly among those with high relative to low descriptive norms. Further, evaluations of alcohol consequences were expected to moderate the relationship between descriptive norms and outcomes and also between injunctive norms and outcomes. Here, higher drinking norms were expected to associate

with increases in alcohol outcomes, and this relationship was expected to be more evident among those with positive relative to negative evaluations of consequences. Our third hypothesis predicted that evaluations of alcohol consequences would interact with injunctive and descriptive norms (a three-way interaction) such that the relationship between descriptive and injunctive norms would be influenced differentially by positive versus negative alcohol consequence evaluations. We expected that those at highest risk for problem drinking would be high in injunctive and descriptive norms and would also hold positive evaluations of alcohol consequences.

Method

Participants

Participants were psychology students who were recruited via in-class announcements and informational flyers placed on a large southern university campus. Interested students accessed web-based study materials and completed a battery of self-reported measures. Participants received course extra credit as compensation for participation. A total of 715 participants completed the online questionnaire. Of these, 262 participants met heavy drinking criteria (males/females reporting having consumed 5/4 drinks on one occasion in the previous month, respectively). Of these, 14 cases contained missing data and were thus excluded from analyses. The final sample consisted of 248 heavy drinking undergraduate (81.05% female; Age $M = 23.45$; $SD = 5.45$) students. The racial distribution of this sample was as follows: 50.00% identified as White/Caucasian; 15.73% identified as 'other;' 13.31% identified as Black/African American; 12.50% identified as Asian; 6.81% identified as multi-ethnic; 0.81% identified as Native American/American Indian; and 0.81% identified as Native Hawaiian/Pacific Islander.

Measures

Demographics—Participants provided demographic information including gender, year in school, work status, age, racial background, and ethnicity.

Daily drinking questionnaire—The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985; Kivlahan et al., 1990) asks participants to estimate the standard number of drinks consumed on every day of a typical week (Monday-Sunday) within the last month. Drinks on each day of the week are added in order to derive the average number of drinks that are consumed over the course of each week. This provided the variable for weekly drinking. Compared with alternative drinking measures, weekly drinking has been shown to be a reliable index of problems related to alcohol among college students (Borsari, Neal, Collins, & Carey, 2001). Cronbach's alpha was .71.

Perceived descriptive norms—Descriptive norms were assessed via a modified version of the Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991). Participants were asked to report the average number of drinks on each day of a week over the previous month they believed the typical student from their university consumed. The average number of drinks believed to be consumed weekly by peers was used as an indicator of

perceived descriptive norms. As with the measure for drinking acceptability, the measure for descriptive norms maps directly on to weekly drinking. Cronbach's alpha was .85.

Injunctive norms—The injunctive norms scale was a modified version of the DNRF (Baer et al., 1991), which also mirrored the descriptive norms scale. Participants were asked to report the number of drinks they believed a typical student at their university would consider acceptable to consume for each day of a typical week over the past month. An example item is “On a typical Monday, a typical student at your university would consider ___ drink(s) to be acceptable amount of alcohol to consume.” The average number of drinks that a participant believed a typical student would consider acceptable over the course of a typical week was used as an indicator of injunctive norms. Similar to the measures for acceptability of alcohol consumption and descriptive norms, the measure for injunctive norms maps directly on to weekly drinking. Cronbach's alpha was .80.

Acceptability of drinking—The acceptability of drinking measure was also adapted from the DNRF (Baer et al., 1991), except that participants were asked to report the number of drinks they personally considered acceptable to consume on every day of a typical week within the previous month. An example item is “On a typical Monday, you would consider ___ drink(s) to be acceptable amount of alcohol to consume.” The number of drinks reported as acceptable for each day were added in order to derive the average number of drinks that were considered acceptable over the course of a week. This measure maps directly on to the measure for weekly drinking and provided the variable for number of drinks found acceptable. Cronbach's alpha was .87.

Evaluation of alcohol consequences—This 19-item scale assessed how negatively specific alcohol incidents would be evaluated to the respondent if he or she were to personally experience them (Lewis et al., 2011). Example items include “You drove a car when you knew you had too much to drink” and “You were embarrassed or ashamed because of your behavior while you were drinking.” Responses ranged from 0 (*Extremely positive/extremely good*) to 6 (*Extremely negative/extremely bad*) such that higher values reflected more negative evaluations of consequences and lower values reflected more positive evaluations of alcohol consequences. The sum score was used to indicate each participant's evaluation. Cronbach's alpha was .87.

Procedure

Participants were informed that the purpose of the study was to examine college health behaviors and were recruited on a rolling basis in classrooms, via email, and by flyers. Interested students signed up for the study and received a unique personalized identification number which they used to log in to the web-based survey. Students had to be at least 18 years or older to participate. In addition to this, data for the present study were selected based on meeting heavy drinking criteria (drinking 4/5+ drinks on one occasion in the past month for females/males respectively). Participants completed an online battery of self-report questionnaires. In exchange for involvement, participants received extra credit which could be applied towards their classes. A total of 774 participants completed study materials, and 262 of these met heavy drinking criteria. Data were missing for 14 of these participants

due to their opting out of providing responses, and as such, these cases were excluded from analyses. The final sample included 248 heavy drinkers. All study procedures and treatment of human subjects were conducted in compliance with ethical standards of the American Psychological Association, and the study protocol was approved by the Institutional Review Board at the study site. The present study is on the analyses of baseline (pre-intervention) data for the sample, on the basis of available data on all studied variables.

Statistical analyses

Zero-order correlations were obtained to examine relationships between predictor and criterion variables. Independent samples t-tests were conducted with positive and negative evaluations of alcohol consequences for each variable of interest to examine differences in mean scores. Incremental validity of covariates (gender, ethnicity, age, year in school, work status, Greek membership, and race) and independent variables (IV) were examined in relation to dependent variables (DV). Separate models were constructed for each alcohol variable. For models wherein DVs were alcohol consumption (drinks per week), covariates and IVs (injunctive norms, descriptive norms, and evaluation of alcohol consequences) were entered at Step 1. At Step 2, two-way interactions (product terms) between injunctive and descriptive norms and evaluations of alcohol consequences were added. Three-way interactions between injunctive and descriptive norms and evaluations of alcohol consequences were added at Step 3. Emerging two- and three-way interactions were graphed using parameter estimates from the regression equation where high and low values were specified as one standard deviation above and below their respective means (Cohen, Cohen, West, & Aiken, 2003). For statistically significant interactions, simple slopes analyses were conducted to examine whether the slopes of the regression lines differed from zero at low and high levels of the moderator. In each simple slopes analysis, two regression equations were constructed wherein one represented the relationship between the IV and DV at a lower level of moderator (-1 SD), and the other represented the relationship between the IV and DV at a higher level of moderator ($+1$ SD). All statistical analyses were conducted using SAS 9.3.

Results

Descriptive Data, Correlations, and t-tests among Variables

Means, standard deviations, and bivariate correlations for all of the study variables are presented in Table 1. The number of drinks considered acceptable were positively correlated with the number of drinks consumed, injunctive norms, descriptive norms, and evaluations of consequences (all p 's $< .001$). The number of drinks found acceptable was also correlated with gender ($p < .05$). Drinks consumed per week were positively correlated with injunctive norms, descriptive norms, evaluations of consequences, and gender (all p 's $< .001$) and was also negatively correlated with year in school ($p < .05$). Evaluations of consequences were positively correlated with gender ($p < .05$). Descriptive and injunctive norms were positively correlated ($p < .001$), and descriptive norms were also correlated with year in school ($p < .05$), which in turn was correlated with work status ($p < .001$).

Primary analyses

Table 2 presents multiple linear regression analyses which were conducted, predicting alcohol consumption and acceptance of drinking from injunctive norms, descriptive norms, and evaluations of alcohol consequences. For the model predicting alcohol consumption (average number of drinks consumed weekly), descriptive norms ($\beta = 0.27, p < .01$) and evaluations of alcohol consequences ($\beta = 0.22, p < .001$) were positively associated with alcohol consumption. However, contrary to expectations, injunctive norms, were not associated with drinking. A two-way interaction emerged between injunctive and descriptive norms ($\beta = 0.71, p < .001$; Figure 2). Injunctive norms were positively associated with weekly drinking among individuals high in descriptive norms; however, among individuals low in descriptive norms, injunctive norms were negatively associated with number of drinks consumed per week. This is consistent with predictions.

For the model predicting number of drinks considered acceptable, descriptive norms ($\beta = 0.19, p < .05$), injunctive norms ($\beta = 0.40, p < .001$), age ($\beta = 0.11, p < .05$), and evaluations of alcohol consequences ($\beta = 0.32, p < .01$) were significant predictors. Three significant two-way interactions emerged. The first was between descriptive and injunctive norms ($\beta = 0.52, p < .0001$) and indicates that injunctive norms were positively linked with number of drinks found acceptable, particularly among those with high descriptive norms (left graph in Figure 1). The second interaction was between descriptive norms and evaluation of alcohol consequences ($\beta = 0.27, p < .05$). This interaction indicated that descriptive norms were positively linked with number of acceptable drinks, but only among those with negative evaluations of alcohol consequences. Thus, participants with stronger perceptions of descriptive norms tended to find greater numbers of drinks acceptable but only to the extent that they evaluated alcohol consequences negatively. Among participants evaluating alcohol consequences positively, those with stronger perceptions of descriptive norms found fewer numbers of drinks acceptable. The opposite was true among those with positive alcohol consequence evaluations such that descriptive norms were negatively associated with number of acceptable drinks (middle graph in Figure 1). The third interaction was between injunctive norms and evaluations of alcohol consequences ($\beta = 0.71, p < .001$), and this indicates that injunctive norms were positively associated with number of acceptable drinks, particularly among those with positive evaluations of alcohol consequences (right graph in Figure 1). It is important to note that the two way interactions were subsumed by a significant three-way interaction between injunctive and descriptive norms and evaluations of alcohol consequences ($\beta = -1.16, p < .05$). This interaction sheds some light on counterintuitive two-way interactions. Moreover, among those with positive evaluations of alcohol-related consequences, both injunctive norms and descriptive norms were positively associated with approval of drinking and the association between injunctive norms and approval was similar at lower and higher descriptive norms. Among individuals who evaluated alcohol consequences negatively, there was a significant positive association between injunctive norms and approval, but only among those with lower perceived norms. In other words, individuals with lower perceived norms reported lower approval of drinking, but only among those who evaluated alcohol consequences negatively.

Discussion

The present study extended previous research related to alcohol consumption and approval of drinking, and assessed relationships among descriptive norms, injunctive norms, and evaluations of alcohol consequences. Further, this study examined alcohol consumption and acceptance of drinking in a sample of heavy drinking college students.

Descriptive norms and evaluations of alcohol consequences were positively associated with increased alcohol use, which was consistent with expectations and previous research (Borsari & Carey, 2003). Also consistent with predictions, descriptive norms, injunctive norms, and favorable evaluations of alcohol consequences were positively associated with increased alcohol acceptance (Table 2). Thus, we found support for our first hypothesis. Interestingly, injunctive norms were positively associated with alcohol use when entered into the model without other independent variables, however when controlling for other independent variables and covariates, this association was not statistically significant. This suggests that the zero-order association between injunctive norms and drinking may be due to the shared variance of descriptive norms and drinking. While both injunctive and descriptive norms were positively correlated with drinking, only the perceived number of drinks that others consume was uniquely associated with drinking. Perceived approval may only be associated with drinking because it is associated with descriptive norms.

Evaluation of consequences was positively associated with drinking and approval of drinking. Moreover, heavier drinkers and those who approve of heavier drinking also tended to evaluate consequences more positively (or less negatively). This may reflect habituation to consequences, in that those who frequently experience consequences (i.e., heavier drinkers) may not see them as aversively as those for whom such events may be more rare. For example, a heavier drinker may become accustomed to vomiting or hangovers and not see them as negatively as a person who rarely or never experiences them. This is somewhat consistent with previous research demonstrating inaccuracy in associating quantity of consumption with specific consequences (Mallett, Lee, Neighbors, Larimer, & Turrisi, 2006). It is also directly related to functional and behavioral tolerance to alcohol (Vogel-Sprott, 1992).

Injunctive and descriptive norms positively interacted to predict alcohol consumption and acceptance of drinking. This is consistent with the work of Rimal & Real (2003) as well as the Focus Theory of Normative Conduct (Cialdini, Kallgren, & Reno, 1991). These perspectives suggest that perceptions of others' approval (injunctive norms) are most relevant when the behavior of interest is more salient (higher descriptive norms).

Evaluations of alcohol consequences did not interact with either type of norm with respect to drinking behavior but interacted with both with respect to personal approval of drinking. Interestingly, these interactions were in opposite directions, both of which were subsumed under the three-way interaction. The pattern of results suggests that injunctive norms are associated with one's own approval of drinking except among those who evaluate alcohol consequences more negatively and who have lower descriptive norms. In essence, these individuals view heavy drinking as non-normative and see consequences related to drinking

as particularly bad. These individuals may represent people who have actively chosen to be “responsible drinkers,” and who are less influenced by their perceptions of whether others approve or disapprove of drinking. Neighbors, Brown, Dibello, Rodriguez, & Foster (2013) found that perceived norms were less associated with drinking among those who reported greater reliance on God, prayer, and religion. The present results may suggest a similar but broader phenomenon. It may be that individuals who are committed to not drink, or not drink heavily, whether for religious, spiritual, or other intrinsic reasons, may be less influenced by their perceptions of others’ approval. Additional research is needed to more clearly evaluate this possible interpretation. The finding that lower risk drinkers were less susceptible to the influence of injunctive norms provides potential clinical applications. For example, lower risk drinkers in one’s social network could be identified in discussions about specific peers in one’s peer network. Suggested alliance with low risk drinkers within one’s social network could offset the influence of heavier drinking peers.

The finding that perceptions of descriptive norms were associated with greater numbers of drinks among those who evaluated alcohol consequences negatively seems somewhat counterintuitive. Framing the finding in a different way may be less counterintuitive. For example, we might equally infer that individuals with lower perceived norms reported lower approval of drinking, but only among those who evaluated alcohol consequences negatively.

It is worth noting that in the present study, injunctive norms were assessed in a different way than they have often been assessed in the alcohol literature. Specifically, injunctive norms were assessed by asking individuals to suggest the number of drinks that others approve of, whereas in past studies injunctive norms were often assessed by asking the extent to which others approve or disapprove of specific behaviors (e.g., drinking every weekend or drinking and driving). While the adapted measure has advantages over previous operationalizations because it is on a similar scale and is not confounded with alcohol consequences, it would be useful to see if similar results are evident using other measures of injunctive norms.

The present research extends efforts which recognize variability in the evaluation of alcohol related consequences. Fromme and colleagues (Fromme, Stroot, & Kaplan, 1993) incorporated this into a now widely used measure of alcohol expectancies, but it has been less often applied to consequences. There is considerable variability in the extent to which individuals view alcohol-related consequences as negative. For example, consequences related to cognitive impairment are sometimes viewed favorably, especially among young adults who drink to get drunk (Fromme et al., 1993).

The strengths of the study must be considered in light of its limitations. First, the present sample was relatively homogenous in that it was comprised solely of college students registered in psychology courses who volunteered to participate. It will be important for researchers to draw from populations other than those included in the present study to address potential self-selection bias among individuals with these characteristics and to increase the generalizability of findings. In particular there was a high proportion of females in the study, which is due partly to the overrepresentation of females in psychology courses and may also be due to a greater proportion of females being willing to participate in research studies. Second, the present study was cross-sectional, and thus, findings cannot

shed light on processes over time or isolate causal relations between variables. Finally, it is worth noting that evaluations of specific consequences may be due in part to socially desirable responding. For example, individuals may be less likely to report that “being embarrassed or ashamed because of your behavior while you were drinking” is ever a good thing.

In conclusion, findings from the present study provided reasonable support for hypotheses that norms and evaluations of alcohol consequences would interact with respect to alcohol use and acceptance. These examinations have practical utility and may inform development and implementation of interventions and programs targeting alcohol misuse among undergraduate students.

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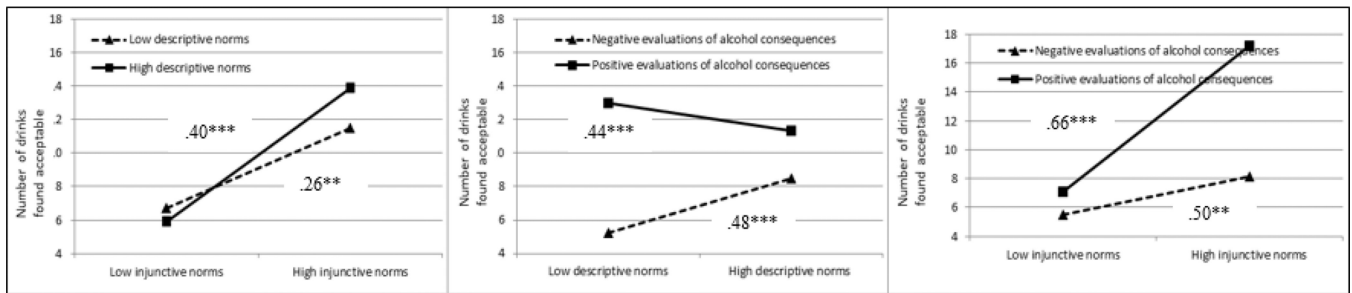


Figure 1.

Three 2-way interactions emerged with acceptable number of drinks as the dependent variable. *Left:* Injunctive norms were positively linked with number of drinks considered acceptable, particularly among those with high descriptive norms. *Middle:* Descriptive norms were positively linked with number of acceptable drinks, but only among those with negative evaluations of alcohol consequences. The opposite was true among those with positive alcohol consequence evaluations such that descriptive norms were negatively associated with number of acceptable drinks. *Right:* Injunctive norms were positively associated with number of acceptable drinks, particularly among those with positive evaluations of alcohol consequences.

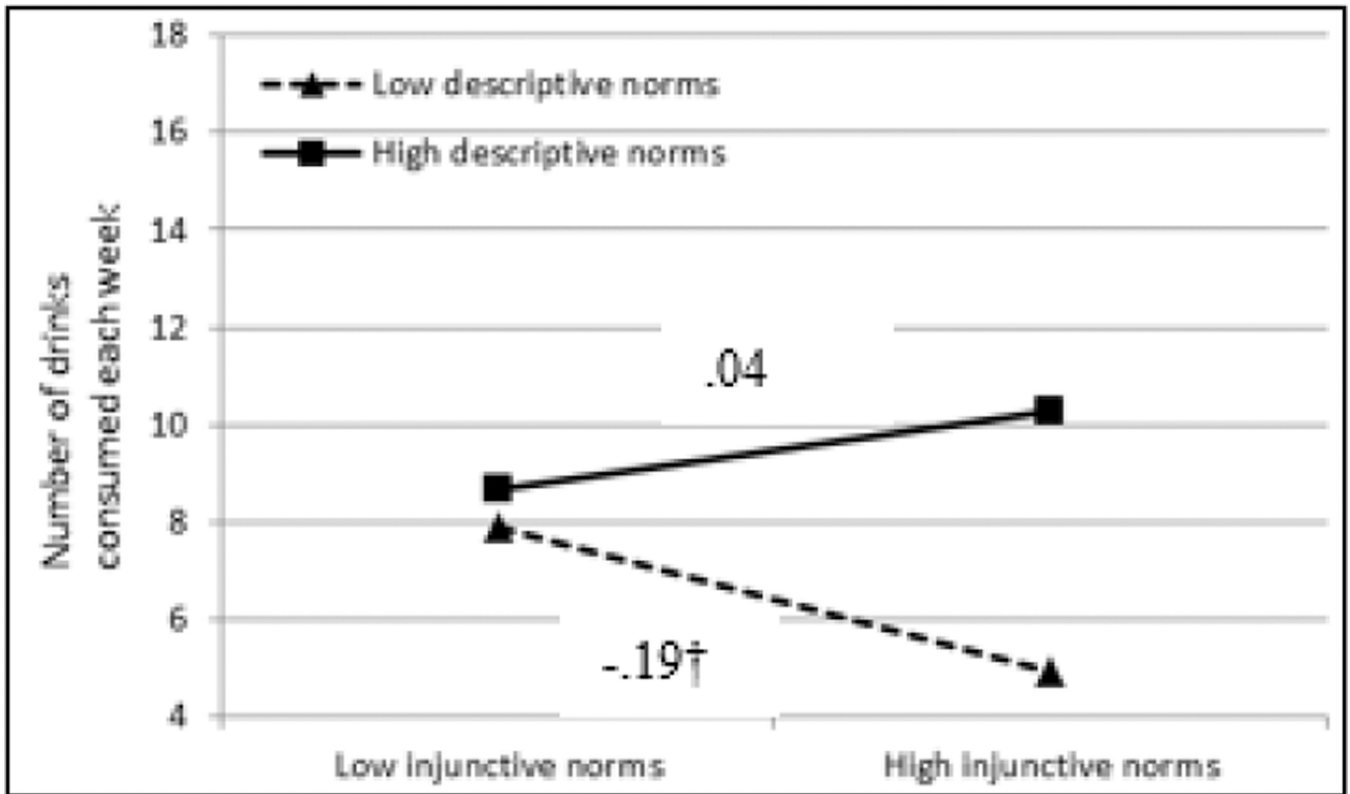


Figure 2.

A 2-way interaction emerged with alcohol use (number of drinks consumed each week). Injunctive norms was positively associated with weekly drinking among individuals high in descriptive norms, however among individuals low in descriptive norms, injunctive norms were negatively associated with number of drinks consumed per week.

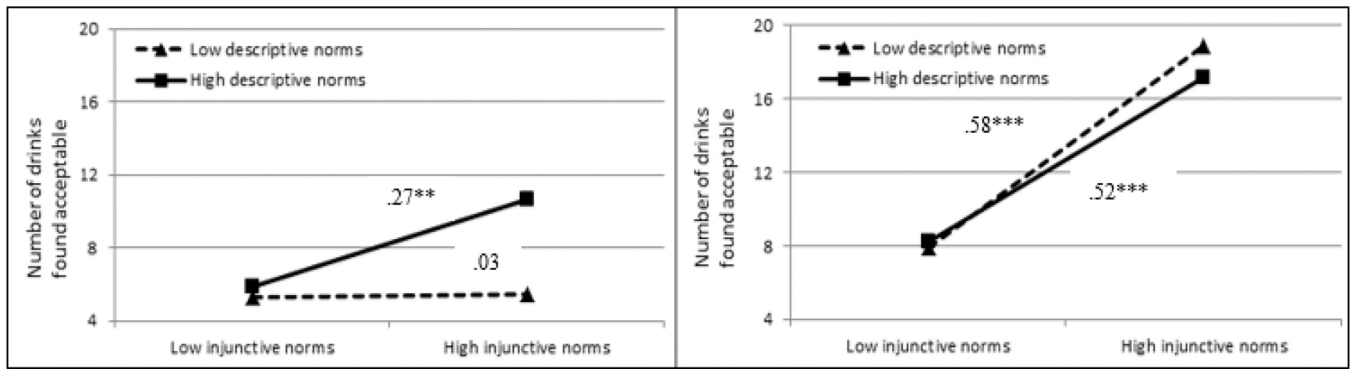


Figure 3. Injunctive norms were generally associated with increases in the number of drinks viewed as acceptable.

Table 1

Means, Standard Deviations, and Correlations among Variables

	1.	2.	3.	4.	5.	6.	7.	8.
1. Number of drinks considered acceptable	-							
2. Number of drinks consumed	0.57***	-						
3. Injunctive norms	0.53***	0.25***	-					
4. Descriptive norms	0.44***	0.27***	0.68***	-				
5. Evaluations of consequences	0.31***	0.22***	-0.003	-0.07	-			
6. Greek status	0.02	0.03	-0.04	-0.01	0.04	-		
7. Work status	-0.02	0.05	-0.07	0.01	-0.08	-0.01	-	
8. Gender	0.15*	0.25***	0.06	-0.03	0.14*	0.01	-0.04	-
Mean	11.96	8.14	18.06	16.56	28.63	0.13	0.72	0.19
Standard Deviation	7.41	7.65	10.47	10.27	11.98	0.34	0.70	0.39
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	62.00	58.00	86.00	67.00	74.00	1.00	1.00	1.00

Note. N=248

 $p < .001$.**
 $p < .01$.*
 $p < .05$.†
 $p < .10$

Greek status was dummy coded such that Greek members = 1 and non-members = 0.

Gender was dummy coded such that males = 1 and females = 0.

Work status was dummy coded such that working = 1 and not working = 0.

Table 2

Hierarchical regression analysis for variables predicting number of drinks consumed and number of drinks found acceptable from injunctive norms, descriptive norms, and evaluation of alcohol consequences.

Predictor	B	SE	t	p	β	Adj R ²	F
Number of drinks consumed							
Step 1							
Gender	3.73	1.17	3.19	0.002	0.19**	0.195	6.99***
Ethnicity	-0.02	1.04	-0.01	0.99	-0.001		
Race	-0.07	0.21	-0.35	0.72	-0.02		
Age	0.17	0.09	2.05	0.04	0.12†		
Year in School	-1.10	0.36	-3.16	0.002	-0.20***		
Greek Membership	0.65	1.31	0.50	0.62	-0.03		
Work Status	0.51	0.65	1.65	0.10	0.05		
Injunctive Norms (A)	0.02	0.06	0.47	0.64	0.03		
Descriptive Norms (B)	0.20	0.06	3.41	0.001	0.27**		
Evaluation of Consequences (C)	0.14	0.04	3.76	0.0002	0.22***		
Number of drinks considered acceptable							
Step 2							
A * B	0.01	0.002	5.00	<0.0001	0.70***	0.273	8.14***
A * C	0.01	0.005	1.46	0.14	0.32		
B * C	0.004	0.005	0.73	0.46	0.16		
Step 3							
A * B * C	-0.0003	0.0003	-0.81	0.42	-0.47	0.272	7.59***
Number of drinks found acceptable							
Step 1							
Gender	1.35	0.97	1.39	0.17	0.07	0.413	18.37***
Ethnicity	0.66	0.86	0.78	0.44	0.04		
Race	-0.27	0.17	-1.56	0.12	-0.08		
Age	0.15	0.08	2.02	0.04	0.11*		
Year in School	-0.17	0.30	-0.60	0.55	-0.03		
Greek Membership	-0.79	1.08	-0.72	0.47	-0.04		
Work Status	0.33	0.54	0.93	0.36	0.05		
Injunctive Norms (A)	0.29	0.05	6.00	<0.0001	0.41***		
Descriptive Norms (B)	0.14	0.05	2.78	0.01	0.19*		
Evaluation of Consequences (C)	0.20	0.03	6.41	<0.0001	0.32***		

Predictor	B	SE	t	p	β	Adj R ²	F
Step 2 A * B	0.01	0.002	4.29	<.0001	0.51***	0.474	18.15***
A * C	0.01	0.004	3.90	0.0001	0.73***		
B * C	-0.01	0.004	-2.53	0.01	-0.46*		
Step 3 A * B * C	-0.001	0.0003	-2.31	0.02	-1.14*	0.483	17.54***

Note. N=248

*** p < .001

** p < .01

* p < .05.

Greek status was dummy coded such that Greek members = 1 and non-members = 0.
 Gender was dummy coded such that males = 1 and females = 0.

Year in school was coded such that 1 = 1st year, 2 = 2nd year, and so forth.

Work status was dummy coded such that working = 1 and not working = 0. Ethnicity was dummy coded such that those identifying as Hispanic received a 1 and those identifying as non-Hispanic a 0.
 Race was coded such that 1 = White/Caucasian, 2 = Native American, 3 = African American, 4 = Asian, 5 = Pacific Islander, and 6 = Multi-ethnic, and 7 = Other.