# Perceived Historical Drinking Norms and Current Drinking Behavior: Using the Theory of Normative Social Behavior as a Framework for Assessment

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Social norms are sustained and disseminated, both implicitly and explicitly, through the act of communication. As a result, communication researchers have sought to classify and target normative perceptions to enact social change. In line with this research, the current study investigated whether perceptions of past normative behavior, referred to here as historical norms, were significantly related to current behavior. Using the theory of normative behavior as a guiding framework, two studies were conducted to assess whether college student drinking behavior was related to one of two perceived historical drinking norms measures: historical consumption norms (i.e., the perceived percentage of students who drank over time) and historical tradition norms (i.e., the perception of drinking as a university tradition). Study 1 revealed that although historical consumption norms was not directly related to drinking behavior, it moderated the effect of descriptive norms on drinking behavior ($p = .03$). A full assessment of the theory of normative social behavior was conducted in study 2 to determine whether perceived historical drinking norms influenced behavior above and beyond both descriptive and injunctive norms. Findings demonstrated that historical tradition norms were significantly related to drinking behavior ($p = .001$), and marginally moderated the relationship between descriptive norms and drinking behavior ($p = .09$). These findings offer preliminary evidence in support of measuring perceived historical drinking norms in future campaigns and interventions designed to reduce drinking behavior.

Social norms campaigns function by challenging current normative perceptions about a specific behavior, with the belief that correcting misperceptions will yield beneficial behavior changes (Berkowitz, 2004). Many social norms campaigns focus on modifying the prevailing descriptive norm, or the belief that an individual holds about others' behavior. However, the extent to which social norms campaigns are successful, particularly in the context of college student drinking, is under debate. Some researchers assert

that social norms are among the best predictors of college student drinking (Borsari & Carey, 2001; Lee, Markman Geisner, Lewis, Neighbors, & Larimer, 2007), whereas other studies report mixed or no effects (Campo, Cameron, Brossard, & Frazer, 2004; Campo & Cameron, 2006). One potential explanation for these inconsistent results could be measurement issues, as our understanding of social norms is limited and psychometric studies are lacking (Campo et al., 2003), suggesting that a more robust explication of social norms is necessary (Bute & Jensen, 2010).

The purpose of the current research is to explicate and explore the concept of historical norms in the context of college student drinking. We argue that perceived historical drinking norms—conceptually defined here as perceptions

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of similar others' drinking behavior throughout history—may be an important predictor of current drinking behavior, and an important variable for communication researchers to consider when developing campaigns and interventions to reduce problem drinking behavior. For instance, it is plausible that students' perceptions of historical drinking are based upon media exemplars of a specific time period (such as the drinking behavior exemplified in films ranging from *Porky's* to *Old School*), as well as a general knowledge of history that may affect an estimate of alcohol consumption across time (e.g., Prohibition). If true, then social norms campaigns utilizing only descriptive norms (i.e., perceptions of current behavior) may be suboptimal, as they capture—and thus counter—only a portion of the normative influence underlying student behavior. Using the theory of normative social behavior (TNSB; Rimal & Real, 2003/2005) as a guiding theoretical framework, the current study assessed the utility of using perceived historical drinking norms to predict college students' drinking behavior by testing perceived historical drinking norms as an additional predictor in the TNSB.

## HEALTH COMMUNICATION AND SOCIAL NORMS RESEARCH

Social norms are maintained and perpetuated, both implicitly and explicitly, through the act of communication. Many individuals are familiar with descriptive norms, the beliefs about the typical behaviors of others in an individual's social group (Rimal & Real, 2003), and injunctive norms, an individual's motivation to do the "right thing" in any given situation (Cialdini, Reno, & Kallren, 1990); yet research conducted by communication scholars within the past few years has considerably advanced our theoretical understanding of norms. For instance, Park and colleagues (2009) have identified that five different types of norms—subjective norms, university descriptive norms, university injunctive norms, U.S. descriptive norms, and U.S. injunctive norms—were each unique constructs that were differentially related to intentions to consume alcohol. In their study, subjective norms, U.S. descriptive norms, and U.S. injunctive norms were direct predictors of intentions, whereas university descriptive norms moderated the relationship between attitudes and intentions (Park, Klein, Smith, & Martell, 2009). Similar results were witnessed in a study where intentions to enroll on a state organ donation registry and intentions to engage in family discussions about organ donation were the outcomes of interest (Park & Smith, 2007). This study featured similar operationalizations of norms: subjective norms, personal descriptive norms, personal injunctive norms, societal descriptive norms, and societal injunctive norms. Again, it was found that these five types of norms were distinct across the two outcomes. These studies are particularly important, as previous research had claimed that there were little, if any, differences between subjective norms and injunctive norms (Lapinski & Rimal, 2005; Rivis

& Sheeran, 2003), yet not only are they distinct, it appears that there are even different types of injunctive norms. These studies highlight the fact that our knowledge about social norms, while growing, is still in its infancy. The research community is engaged in a conversation about what types of norms exist and how those norms uniquely impact intentions and behavior. This article attempts to add to this conversation by determining how historical drinking norms affect drinking behavior.

## THEORY OF NORMATIVE SOCIAL BEHAVIOR

One recent theoretical contribution of health communication researchers to social norms research is the TNSB. The theory was developed by Rimal and Real (2003, 2005; Rimal, 2008) and proposes that there are certain cognitive mechanisms that moderate the relationship between descriptive norms and behavior, namely, injunctive norms, outcome expectations, and group identity (Rimal & Real, 2005). As described earlier, injunctive norms include social approval or social sanctions of the behavior in question. The second moderator, outcome expectations, encompasses perceived benefits to self and others, and anticipatory socialization. Concerning perceived benefits, some students may believe that drinking will make them happier or increase social interaction, both of which can be perceived as positive outcome expectations, or the benefits of alcohol consumption. The theory predicts that perceived benefits will moderate the relationship between descriptive norms and behavior because the threat of losing something (e.g., not attaining the benefits of alcohol consumption) is a powerful motivator (Kahneman & Tversky, 1991), and that students may engage in drinking behavior to avoid depriving themselves of the benefits they associate with alcohol consumption (Rimal & Real, 2005). The second outcome expectation that is hypothesized to moderate descriptive norms is anticipatory socialization, which is the belief that alcohol facilitates the development and maintenance of interpersonal relationships (Rimal & Real, 2005). Essentially, as students perceive that others are using alcohol to develop relationships, they will view alcohol consumption as a requisite component of socialization at college. The final moderator between descriptive norms and behavior specified in the theory is group identity, which is conceptualized in terms of aspiration to be like referent others and perceived similarity to others (Rimal & Real, 2005). As an individual's identification with the reference group increases, the person's feelings of group solidarity and the accompanying pressure to comply with group behavior may increase drinking behavior.

## HISTORICAL NORMS

Although the TNSB is the most detailed theory concerning the relationship between norms and behavior, there may

be additional normative components that have not yet been empirically assessed. Descriptive norms are an individual's perceptions of others' current behavior, which may not adequately assess perceptions of historical behavior, and how those perceptions influence current attitudes and behavior. For instance, descriptive norms of college student drinking behavior account for perceptions of drinking over a relatively brief period of time (i.e., while one is attending college). However, the construct of historical drinking norms may be a particular type of descriptive norm, one that illuminates perceptions of how previous generations of students consumed alcohol, rather than just how those in a student's immediate vicinity consume alcohol. The rationale for this assertion is as follows: Decades of behavioral research have demonstratively concluded that descriptive norms—the behaviors that we see of others—can influence our own behaviors; thus, it may be possible that behaviors that we see in television or movies, hear about, read about, or otherwise intuit of others throughout history may likewise exhibit effects on our own behavior. Stated differently, it stands to reason that normative beliefs are shaped not only by our perceptions of current behavior (i.e., descriptive norms) but also by our perceptions of how normative current behavior is compared to the past (i.e., historical norms).

In effect, the beliefs that college students hold about drinking norms today could be influenced by their perceptions of historical drinking norms. Colloquially, these perceptions could include, but are certainly not limited to, the influence of fictional narratives (perhaps the movie *Animal House* affects current students' perceptions of drinking in the 1970s) or past education (perhaps what students learned about the Prohibition era affects perceptions of college student drinking in the 1920s). Thus, perceptions of similar others' alcohol consumption throughout history could affect current perceptions of drinking.

Research from various disciplines has begun to explore the concept of historical norms (i.e. Aggarwal, Krigman, & Womack, 2002; Benjamin, 2003) and how perceptions of past behavior can influence contemporary attitudes, beliefs, and behaviors. Troublingly, current normative measures may not be able to directly account for historical, cultural, or traditional aspects of behavior, as these words alone have implications that are potentially beyond the measurement capacity of descriptive norms measures. Heavy drinking has a history of occurrence on college campuses. Likewise, some schools have been known historically as "party schools," and popular media (e.g., songs, movies, books) serve to reinforce the notion that heavy drinking may have a cultural, traditional, or historical presence on college campuses. Thus, one question that can be asked to further our understanding of the effects of norms on behavior is: Do these historical perceptions impact drinking intentions and behavior?

In fact, several studies have called for the exploration of perceived historical drinking norms and their effect on drinking behavior. Engs (1995) hypothesized that contemporary Western drinking practices could be based on traditional, historical drinking behaviors, and suggested that future research is necessary to determine if drinking attitudes, patterns, and norms are historically based. Additionally, researchers studying alcohol consumption in 18 European nations noted that currently, there is no way to determine if some countries' elevated consumption rates are due to contemporary attitudes about alcohol or if historical normative perceptions guide alcohol consumption (Smart & Ogborne, 2000). Put more succinctly, the researchers are hesitant to conclude that contemporary descriptive norms are solely responsible for drinking behavior, or whether current drinking behavior may be influenced by people's perceptions of traditional, or historical, drinking behavior in their nation.

Although previous research has developed a rationale for studying historical drinking norms, we are aware of no empirical studies that have investigated the construct. In this study, the effects of perceived historical drinking norms on drinking behavior are assessed using the theoretical framework provided by the TNSB. The current study attempts to explicate the construct of perceived historical drinking norms by determining whether people's perceptions of historical drinking norms affect their current drinking behavior and interact with descriptive norms to influence current drinking behavior. It is possible that descriptive norms could be moderated by people's perceptions of the larger historical context of drinking at their institution.

Two studies were conducted to assess the relationship between perceived historical drinking norms and behavior. In study 1, perceived historical drinking norms was operationalized as one's perceptions of the percentage of students at their university that consumed alcohol at various points in history, referred to as *historical consumption norms*. Study 1 assessed the direct relationship of descriptive norms and historical consumption norms on behavior, as well as the interaction between descriptive norms and historical consumption norms to determine whether historical consumption norms impact the relationship between descriptive norms and drinking behavior.

Study 2 was conducted using a different operationalization of perceived historical drinking norms, referred to as *historical tradition norms.* Historical tradition norms assess one's perceptions of the extent to which one believes drinking is a tradition at one's university. Study 2 was an assessment and an extension of the TNSB, exploring historical tradition norms as a moderator of the relationship between descriptive norms and behavior.

## STUDY 1

## Methods

### Participants and Procedure

The sample consisted of 332 students enrolled in communication classes at a large, Midwestern university. College students are an ideal population to assess alcohol consumption, as heavy drinking peaks during early adulthood, around the ages of 18–24 years old (Hingson, Heeren, Winter, & Wechsler, 2005). Sampling communication classes represents an adequate cross section of the student body, as almost all of the departments at the university require at least one communication class for degree completion. The participants were predominantly female ($n = 183$; 55.1%) and Caucasian ($n = 292$; 88%). Other ethnicities represented in the sample were Asian (4.5%), African American, (2.4%), Latino (2.4%), and other (4.2%). The mean age was 19.48, ranging from 18 to 26 years. Fraternity and sorority, commonly called "Greek," members and pledges accounted for 25.3% of all participants.

A cross-sectional survey was developed to measure students' attitudes and current behaviors regarding alcohol consumption. All participants accessed and completed the survey online and all data were collected in the fall semester. All individuals received extra credit for their participation.

### Measures

*Controls.* Three control variables were included to account for known predictors of drinking behavior. Sex has been found to predict alcohol use; studies have found that males are likely to drink more than females (Wechsler, Dowdall, Davenport, & Castillo, 1995). Also, individuals involved in Greek organizations are likely to drink more than those who are not in a fraternity or sorority (Wechsler et al., 1995). Finally, drinking behavior in high school has been found to predict drinking in college (Wechsler et al., 1995). Drinking behavior in high school was measured on a 4-point scale, ranging from $1 =$ abstainer to $4 =$ heavy drinker. About 35% of the sample reported being abstainers, 34% light drinkers, 27% reported being a moderate drinker, and about 4% of participants reported being heavy drinkers.

*Historical consumption norms.* Participants' estimate of historical drinking at their campus was measured using five questions. Participants were asked, "What percentage of the students at this university do you believe consumed alcohol in the year 1900/1925/1950/1975/2000," respectively. All questions were measured on an 11-point Likert scale ranging from $1 = 0\%$ to $11 = 100\%$. The responses to these questions were summed to create an index measuring the general amount of historical drinking that an individual perceives at his or her university ($M = 30.50$, S$D = 7.09$; scores ranged from 12 to 52).

*Descriptive norms.* This variable measures individuals' perceptions of a typical student's drinking habits. DeJong and colleagues (2006) created an index to measure descriptive norms consisting of five items. Four additional items were added to this measure, designed specifically to address descriptive norms concerning the drinking behaviors of participants' peers at that specific university ($M = 52.65$, $SD = 12.03$; scores ranged from 20 to 119). The addition of these four items increased reliability from $\alpha = .68$ to $\alpha = .78$. Examples of the variables include: "During the past 30 days, on how many occasions do you think the average or typical student at this school has used alcohol?," "What percentage of [university] students do you believe consumed alcohol during the past year?," and "How many alcoholic drinks do you think students at this school have when they party?"

*Drinking behavior.* The composite drinking scale was used to reliably gauge an individual's current drinking behavior (Huang, DeJong, Gomberg Towvim, & Kessel Schneider, 2006). The scale is comprised of four items ($M = 21.81$, $SD = 19.32$; scores ranged from 1 to 147; $\alpha = .77$). Examples of items include: "During the past 30 days, on how many occasions did you use alcohol?," "What is the average number of drinks you consume in a week?," and "When you party, how many drinks do you usually have?"

### Analysis

Using the TNSB as a guiding theoretical framework, the current study analyzed the relationship between descriptive norms, historical consumption norms and drinking behavior to determine whether historical consumption norms influence current drinking behavior, and whether they function as a moderator of descriptive norms. Hierarchical regression was utilized to assess the unique influence of each predictor variable as well as their interaction. In order to accurately assess the interaction effects measured in this regression, all quantitative predictors were centered (Aiken & West, 1991). The interaction between descriptive norms and historical consumption norms was further analyzed using the probing procedures developed by Hayes and Matthes (2009). Probing interactions in regression analyses allows researchers to determine the effect of a specific predictor across varying levels of a moderating variable to adequately parse the effects of a given interaction.

## Results

The blocks of the regression analysis were as follows: Sex, Greek membership, and high school drinking behavior were entered in the first block; descriptive norms was entered in the second; historical consumption norms was entered in step 3; and the interaction between descriptive norms and historical consumption norms was entered into step 4.

TABLE 1
Study 1 Results of the Hierarchical Regression Analysis Regressing Drinking Behavior on All IVs

| Predictor Variables | M (SD) | Beta | Block $\Delta R^2$ | Total $R^2$ |
|---|---|---|---|---|
| Block 1: Control variables | | | .39*** | .39 |
| Sex | —a | .19*** | | |
| Greek membership | —a | −.25*** | | |
| HS drinking behavior | —a | .51*** | | |
| Block 2: Descriptive norms (DN) | 6.59 (1.48) | .27 | .07*** | .46 |
| Block 3: Historical consumption norms | 30.50 (7.09) | .05 | .00 | .46 |
| Block 4: DN x Historical consumption norms | —b | .03* | .01 | .47 |

*Note.* All independent variables and interactions were centered, following Aiken and West's (1991) recommendations for regression with interaction terms. Results are for all predictor variables on the dependent variable, drinking behavior, operationalized using the composite drinking scale. Significant differences are indicated by *$p < .05$, ***$p < .001$.

ᵃMeans were not calculated for nominal and ordinal variables.

ᵇMeans were not calculated for interactions between predictor variables.

The regression equation predicted drinking behavior reasonably well, accounting for 47% of the variance in drinking behavior (see Table 1). Concerning individual predictors, the first block consisted of three control variables, which together accounted for 39.4% of the variance in CDS. Sex, $t(287) = 4.22, p < .001$, Greek membership, $t(287) = −5.21$, $p < .001$, and high school drinking behavior, $t(287) = 10.92$, $p < .001$, all had a significant effect on current drinking behavior. In short, males were more likely to report heavier drinking habits than females, students who were Greek members or pledges were more likely to report heavier drinking than non-Greek members, and heavier high school drinking predicted heavier current drinking habits.

Descriptive norms were entered into the second block and were significantly related to drinking behavior, $t(286) = 6.06, p < .001$, accounting for an additional 7% of the variance in drinking behavior. Individuals with higher levels of perceived descriptive norms about alcohol consumption were more likely to report higher levels of drinking alcohol.

In block 3, historical consumption norms was entered into the regression equation. The relationship between historical consumption norms and drinking behavior was not significant, $t(285) = 1.26, p = .21$. Although the bivariate correlation between historical consumption norms and drinking behavior was marginally significant ($r = .11; p = .06$), after controlling for all other variables in the regression model, there did not appear to be a direct relationship between perceived historical consumption norms and drinking behavior.

Finally, block 4 of the regression analysis assessed the interaction between descriptive norms and historical consumption norms on drinking behavior, which was significant, $t(284) = 2.18, p = .03$, accounting for an additional 1% of the variance in drinking behavior. Following the procedures developed by Hayes and Matthes (2009), a probing analysis was conducted to investigate the effects of descriptive norms on drinking behavior at different three levels of the moderator (–1 *SD,* the mean score, and +1 *SD*)
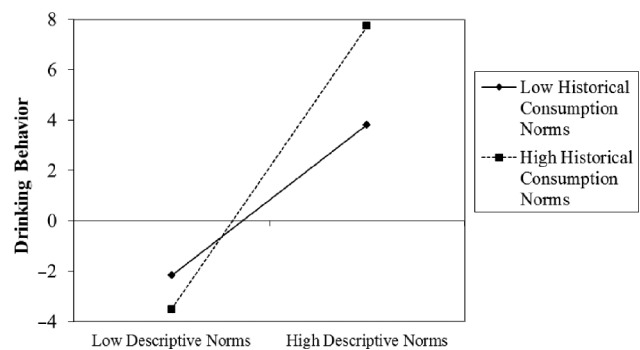


FIGURE 1   Relationship between descriptive norms and drinking behavior (as measured by the composite drinking scale) as a function of high (mean + 1 *SD*) and low (mean – 1 *SD*) values on the moderator, historical consumption norms.

of historical consumption norms. Results show that high levels (+1 *SD*) of historical consumption norms resulted in a stronger relationship between descriptive norms and drinking behavior, $b = .91, t = 5.46, p < .001$ (see Figure 1).

## Study 1 Discussion

Although there was no direct effect of historical consumption norms on drinking behaviors after controlling for other variables in the regression equation, there was still a significant interaction effect between descriptive norms and historical consumption norms. Heuristically, this makes sense: As one perceives that drinking has always been a popular behavior on campus, and believes that drinking is currently a popular behavior on campus, one may be more likely to consume higher amounts of alcohol.

One possible explanation of why historical consumption norms were not directly predictive of drinking behavior is that some participants may have based their perceptions of historical drinking on fact, or historical cues, rather than an opinion. For instance, for the item, "What percentage of

students at this university do you believe consumed alcohol in the year 1925," some participants could have made their estimate with the knowledge that Prohibition was in effect at that time and the consumption of alcohol was illegal, whereas others were not aware of this, or neglected to take historical facts into perspective when making their estimate. Another explanation for this finding is that the current operationalization of perceived historical drinking norms may not be optimal. This explanation is given further treatment in the general discussion.

Still, this finding suggests that it is worthwhile to pursue future research on perceived historical drinking norms, and the broader construct of historical norms. It may be particularly useful to assess historical norms when looking at behaviors that are heavily influenced by a sense of tradition. After all, traditions that individuals, families, and cultures adhere to are steeped in history, and almost certainly influence attitudes, beliefs, and behaviors. Drinking is often viewed as a tradition (Room & Mäkelä, 2000), and perceived historical drinking norms may represent a proxy for measuring collective or cultural traditions within that population. Likewise, the notion of historical norms may be intertwined with the concept of collective norms, which often serve as codes of conduct that tell group members how to act in certain situations (Arrow & Burns, 2004).

Yet questions still remain about how perceived historical drinking norms function within the broader context of the TNSB. Although Study 1 demonstrated that historical consumption norms may function as a moderator of descriptive norms on drinking behavior, it remains unclear whether historical drinking norms account for unique variance in drinking behavior above and beyond another normative moderator of descriptive norms in the TNSB: injunctive norms.

In this regard, it was necessary to conduct another study to address these measurement limitations. In study 2, a different operationalization of perceived historical drinking norms was utilized to explore the belief of drinking on campus as a historical tradition. A full test and extension of the TNSB were conducted, and injunctive norms was controlled for in a hierarchical regression analysis to determine if perceived historical drinking norms can account for unique variance in drinking behavior above and beyond the normative mechanisms already measured in the TNSB.

## STUDY 2

### Methods

#### Participants and Procedure

The sample consisted of 277 students enrolled in communication classes at a large, Midwestern university. None of the participants from study 1 was allowed to participate in

study 2. The participants were predominantly female ($n = 161$; 57.9%) and Caucasian ($n = 228$; 82%). Other ethnicities represented in the sample were Asian ($n = 30$; 10.8%), African American ($n = 7$; 2.5%), Latino ($n = 4$; 1.4%), and other ($n = 9$; 3.2%). The mean age was 20.99, ranging from 18 to 37 years. Greek members and pledges accounted for 29.9% of all participants.

As in study 1, a cross-sectional survey was developed to measure students' attitudes and current behaviors regarding alcohol consumption. All participants accessed and completed the survey online and all data were collected in the fall semester. All individuals received extra credit for their participation.

#### Measures

All measures for study 2 were taken directly from a previous study investigating the TNSB (see Rimal & Real, 2005, for measures) with one exception: Two additional items were added to the measure of injunctive norms: "*my friends consider drinking to be an appropriate activity,*" and "*most [university] students consider drinking to be an appropriate behavior.*" In this study, a separate operationalization of perceived historical drinking norms was assessed, referred to here as *historical tradition norms*. Rather than assessing perceptions of historical alcohol consumption, historical tradition norms ask to what extent "*drinking was part of the college tradition in 1900/1925/1950/1975/*2000." All items were measured on 7-point scales. Drinking behavior in high school, Greek membership, and grade-point average (GPA) were included as controls for this analysis. Analyses were conducted following the procedures developed in Rimal, 2008 to assess the TNSB.

### Results

See Table 2 to view bivariate correlations between all predictor variables and drinking behavior. In these analyses, seven separate regression equations were constructed, one for each proposed moderator in the TNSB, and another assessing whether historical tradition norms moderates the relationship between descriptive norms and drinking behavior. The first two blocks were the same for each regression equation: All control variables were entered into the first block of each regression equation, and descriptive norms was entered into the second block. A proposed moderator was entered into the third block of each equation (block 3a: historical tradition norms; block 3b: injunctive norms; block 3c: anticipatory socialization; block 3d: benefits to self; block 3e: benefits to others; block 3f: aspiration; block 3g: perceived similarity). Blocks 4a–4g included the interaction between descriptive norms and the proposed moderator entered in the same step of block 3.

As in study 1, these regression equations predicted drinking behavior reasonably well, accounting for between 47 and

TABLE 2
Bivariate Correlations Between All Study 2 Predictor Variables and Drinking Behavior

| | DN | IN | HDN_trad | BTS | BTO | AS | ASP | PS | DB |
|---|---|---|---|---|---|---|---|---|---|
| DN | — | | | | | | | | |
| IN | .03 | — | | | | | | | |
| HDN_trad | .00 | .45*** | — | | | | | | |
| BTS | .01 | .44*** | .31*** | — | | | | | |
| BTO | .06 | .42*** | .33*** | .40*** | — | | | | |
| AS | .09 | .46*** | .33*** | .49*** | .37*** | — | | | |
| ASP | .00 | .32*** | .18** | .38*** | .48*** | .23*** | — | | |
| PS | .03 | .29*** | .23*** | .41*** | .26*** | .23*** | .60*** | — | |
| DB | .53*** | .21*** | .16** | .38*** | .06 | .22*** | .12† | .23*** | — |

*Note.* DN = descriptive norms, IN = injunctive norms, HDNtrad = historical tradition norms, BTS = benefits to self, BO = benefits to others, AS = anticipatory socialization, ASP = aspiration, PS = perceived similarity, DB = drinking behavior. Significant differences are indicated by †$p < .10$, **$p < .01$, ***$p < .001$.

TABLE 3
Study 2 Results of the Hierarchical Regression Analysis Regressing Drinking Behavior on All IVs

| Predictor Variables | M (SD) | Beta | Block ΔR² | Total R² |
|---|---|---|---|---|
| Block 1: Control variables | | | .29*** | .29 |
| HS drinking behavior | —[a] | .42*** | | |
| Greek membership | —[a] | .20*** | | |
| GPA | 3.08 (0.48) | −.15** | | |
| Block 2: Descriptive norms (DN) | 48.77 (34.17) | .44*** | .18*** | .47 |
| Block 3a: Historical tradition norms | 21.82 (5.95) | .15*** | .02*** | .49 |
| Block 4a: DN × Historical tradition norms | —[b] | .09† | .01† | .49 |
| Block 3b: Injunctive norms | 4.69 (0.94) | .16*** | .02*** | .49 |
| Block 4b: DN × Injunctive norms | —[b] | .16*** | .02*** | .51 |
| Block 3c: Anticipatory socialization | 4.83 (1.14) | .08† | .01† | .47 |
| Block 4c: DN × Anticipatory socialization | —[b] | .09† | .01† | .48 |
| Block 3d: Benefits to self | 5.18 (1.15) | .26*** | .06*** | .53 |
| Block 4d: DN × Benefits to self | —[b] | .13** | .02** | .54 |
| Block 3e: Benefits to others | 5.47 (0.97) | .04 | .00 | .47 |
| Block 4e: DN × Benefits to others | —[b] | .02 | .00 | .47 |
| Block 3f: Aspiration | 5.42 (1.19) | .08 | .01 | .47 |
| Block 4f: DN × Aspiration | —[b] | .02 | .00 | .47 |
| Block 3g: Perceived similarity | 4.45 (1.21) | .08 | .01 | .47 |
| Block 4g: DN × Perceived similarity | —[b] | .02 | .00 | .47 |

*Note.* Hierarchical regression analysis was conducted following the procedures detailed in Rimal (2008). Steps 3a through 4g include all variables through step 2, with only one proposed moderator and interaction term entered into each regression equation. Separate regression equations were utilized to avoid nonessential multicollinearity built into the interaction terms. All independent variables and interactions were centered, following Aiken and West's (1991) recommendations for regression with interaction terms. Results are for all predictor variables on the dependent variable, composite drinking scale. Significant differences are indicated by †$p < .10$, **$p < .01$, ***$p < .001$.

[a] Means were not calculated for nominal and ordinal variables.

[b] Means were not calculated for interactions between predictor variables.

53% of the variance in drinking behavior (see Table 3). Concerning individual predictors, the first block consisted of three control variables, which together accounted for 29% of the variance in drinking behavior. High school drinking behavior, $t(239) = 7.42$, $p < .001$, Greek membership, $t(239) = 3.61$, $p < .001$, and GPA, $t(239) = -2.74$, $p = .007$, were all significantly related to current drinking behavior. In short, heavier high school drinking predicted heavier current drinking habits, students who were Greek members were more likely to report heavier drinking than non-Greek members, and students with lower GPAs were more likely to report heavier drinking behavior.

Block 2 of each regression equation was descriptive norms, which were significantly related to drinking behavior ($t(238) = 8.99$, $p < .001$), accounting for an additional 18% of the variance in drinking behavior. Individuals who reported higher perceived descriptive norms about drinking were more likely to report higher alcohol consumption.

Historical tradition norms was entered into the regression equation in block 3a and was significantly related

to drinking behavior, $t(237) = 3.34$, $p = .001$, accounting for about 2% of the variance in drinking behavior. Specifically, as perceptions of drinking as a historical tradition increased, current drinking behavior increased. The interaction between descriptive norms and historical tradition norms (block 4a) was marginally related to current drinking behavior, $t(236) = 1.70$, $p = .09$, accounting for about 1% of the variance in drinking behavior. Again, a probing analysis was used to investigate the effects of descriptive norms on drinking behavior at different levels of the moderator, historical tradition norms. Results show that high levels ($+1$ $SD$) of historical tradition norms result in a stronger relationship between descriptive norms and drinking behavior, $b = .05$, $t = 8.02$, $p < .001$ (see Figure 2).

To be sure that historical tradition norms predicted behavior above and beyond both descriptive norms and injunctive norms, this analysis was then conducted again, controlling for *injunctive norms*. In this analysis, block one was the same, descriptive and injunctive norms were entered into block two, historical tradition norms were entered into block three, and the interaction between descriptive norms and *historical tradition norms* was entered into block four. With *injunctive norms* controlled for, historical tradition norms was still significantly related to drinking behavior, $t(236) = 2.08$, $p = .04$, and the interaction between descriptive norms and historical tradition norms on drinking behavior was still marginally related to drinking behavior, $t(235) = 1.63$, $p = .10$.

*Injunctive norms* was entered into the regression equation in block 3b and was significantly positively related to drinking behavior, $t(238) = 3.39$, $p = .001$, accounting for an additional 2% of the variance in drinking behavior. As injunctive norms about alcohol consumption increased, self-reported drinking behavior increased. The interaction between injunctive norms and descriptive norms (block 4b) was also significantly related to drinking behavior,
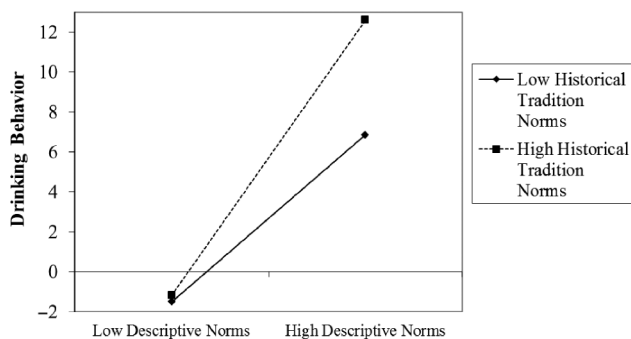


FIGURE 2   Relationship between descriptive norms and drinking behavior (as measured by the composite drinking scale) as a function of high (mean $+ 1$ $SD$) and low (mean $- 1$ $SD$) values on the moderator, historical tradition norms. Both predictor variables are centered.

$t(236) = 3.46$, $p = .001$, accounting for about 2% of the variance in drinking behavior. As injunctive norms increased, the relationship between descriptive norms and drinking behavior grew stronger.

*Anticipatory socialization* was entered into the regression equation in block 3c and was marginally positively related to drinking behavior, $t(237) = 1.72$, $p = 08$. As anticipatory socialization increased, drinking behavior increased. The interaction between anticipatory socialization and descriptive norms (block 4c) was also marginally related to drinking behavior, $t(236) = 1.74$, $p = .08$), accounting for about 1% of the variance in drinking behavior. As anticipatory socialization increased, the relationship between descriptive norms and behavior grew stronger.

Block 3d of the regression equation was benefits to self, which was significantly related to drinking behavior, $t(237) = 5.64$, $p < .001$, accounting for about 6% of the variance in drinking behavior. Specifically, as one perceived higher personal benefits of drinking, drinking behavior increased. The interaction between benefits to self and descriptive norms was entered into block 4d, and was also significantly related to drinking behavior, $t(236) = 2.93$, $p = .004$, accounting for an additional 1% of the variance in drinking behavior. As one's perceptions of the personal benefits of drinking increased, the relationship between descriptive norms and drinking behavior grew stronger.

*Benefits to others* was entered into block 3e of the regression equation, and was not related to drinking behavior, $t(237) = 0.91$, $p = .37$. The interaction between benefits to others and descriptive norms (block 4e) on drinking behavior was also not significant, $t(236) = 0.40$, $p = .69$.

*Aspiration* was entered into block 3f of the regression equation, and was not related to drinking behavior, $t(237) = 1.58$, $p = .12$. The interaction between aspiration and descriptive norms (block 4f) on drinking behavior was also not significant, $t(236) = 0.40$, $p = .73$.

Perceived similarity was entered into block 3g of the regression equation, and was not related to drinking behavior, $t(237) = 1.58$, $p = .12$. The interaction between perceived similarity and descriptive norms (block 4g) on drinking behavior was also not significant, $t(236) = 0.35$, $p = .73$.

### Study 2 Discussion

Study 2 assessed an alternate operationalization of perceived historical drinking norms: historical tradition norms. Operationalizing perceived historical drinking norms in terms of whether individuals believed that drinking has been a tradition on college campuses had a direct relationship with drinking behavior and was a significant moderator of the relationship between descriptive norms and drinking behavior at $+1$ SD of historical tradition norms. In essence, as historical tradition norms increased, the relationship between descriptive norms and drinking behavior

intensified. This study lends additional support to the idea that perceived historical drinking norms may play a role in resultant intentions and behaviors concerning college student alcohol consumption. The test of the TNSB was largely in line with the predictions of the theory, except that the relationships (both direct and interactional) concerning benefits to others, aspiration, and perceived similarity were not found to be significantly related to drinking behavior. Similar findings have been demonstrated in previous assessments of the theory (see Real & Rimal, 2007, and Rimal, 2008).

## GENERAL DISCUSSION

This study lends support for the continued exploration of the concept of historical drinking norms. In study 1, the operationalization of historical drinking norms as perceptions of the amount of students at the university that consumed alcohol through history was not directly related to drinking behavior, but was a significant moderator. In study 2, the operationalization of historical drinking norms as the belief that drinking is a tradition was significantly related to drinking behavior and significantly moderated the relationship between descriptive norms and drinking behavior at $+1SD$ of historical tradition norms. Both measures of perceived historical drinking norms assessed here were indexes of drinking perceptions over time; however, future research may benefit from developing, validating, and assessing a scale measure of perceived historical drinking norms.

The findings from this study have several implications for interventions designed to reduce drinking behavior as well as social norms marketing campaigns. Perceived historical drinking norms offers an additional construct that can be directly addressed and manipulated in intervention messages. For instance, if a particular university has a reputation as a party school, historical drinking norms messages can be developed to address this belief. In this regard, historical drinking norms can be used as another type of normative tool for researchers designing messages to reduce heavy drinking behavior.

Yet as this research moves forward, one critical issue to consider is magnitude. In both studies, the largest amount of variance in drinking behavior was predicted by demographic variables, and a small but significant portion was predicted by various norms and normative mechanisms. There are several possible explanations that may explain and potentially validate the legitimacy of this finding. First, perhaps norms are not as related to outcomes, including drinking behavior, as much as researchers would like. This explanation is supported by several studies that have found null effects or inconsistent effects concerning the influence of norms on drinking behavior (Campo et al., 2004; Campo & Cameron, 2006).

Although historical drinking norms only explained a very small percentage of variance in drinking behavior, this may yet prove meaningful to reaching certain populations. In both studies, historical drinking norms is a more powerful moderator at high levels of the variable; at the population level it only explains a small amount of variance, but when perceptions of historical drinking norms are high, the relationship between descriptive norms and drinking behavior intensifies (as evidenced in Figures 1 and 2). Perhaps historical drinking norms can be predictive in determining whether high-risk groups (e.g., fraternities, sororities, those who began drinking at a young age) are likely to drink heavily. It is possible that the drinking behavior of these groups has important historical components that may be a target of future interventions.

Finally, and most immediately in need of research, it may be that we do not measure these norms appropriately in the current study. There is a consistent story between these two studies concerning the influence of historical drinking norms on drinking behavior, but one wonders whether another measure can explain more variance. Qualitative research should be conducted wherein focus-group or interview participants describe their views on the history and tradition of drinking behavior on their campus to better understand what the concept of historical drinking norms is, and how to identify an optimal measurement approach.

### Limitations and Future Research

There are several limitations to the current study that should be addressed. First, as an exploratory study, the current operationalizations of perceived historical drinking norms may not be the most effective way to measure the variable; neither index was subjected to any form of construct validity assessments, reliability testing, or factor analysis. Future studies should build on the current work to further develop a reliable and valid measure of historical drinking norms, as distinguishing historical drinking norms from descriptive norms and injunctive norms is crucial to the establishment of historical drinking norms as a distinct construct. Another limitation was that perceived historical drinking norms were operationalized as campus-wide norms in study 1, and general college norms in study 2. Perhaps measuring perceptions of specific fraternities, majors, or other social groups would have increased the predictive power of both indexes. Finally, all of the limitations listed here may have contributed to the small effect size of the interaction between measures of perceived historical drinking norms and descriptive norms in both studies. Actually, some suggest that interactions that explain less than 1% of variance should not be reported (Aiken & West, 1991). Although the interactions presented here between descriptive norms and historical drinking norms measures were quite small, upon probing the interactions, significance levels markedly increased. Still, the small effect sizes witnessed here are

somewhat troubling, and future research should work to address the limitations of the current study in determining the influence of perceived historical drinking norms on drinking behavior.

## CONCLUSION

The current research offers preliminary evidence suggesting that perceived historical drinking norms may be an important predictor of drinking behavior. Two studies were conducted assessing separate operationalizations of perceived historical drinking norms, finding evidence that this new construct may directly influence drinking behavior as well as moderate the relationship between descriptive norms and drinking behavior. Future research should explore the construct of historical norms and its influence on behavior in an effort to expand the predictive power of the TNSB.

## ACKNOWLEDGMENT

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