

## Article

# The role of issue familiarity and social norms: findings on new college students' alcohol use intentions

Rajiv N. Rimal,<sup>1</sup> Saar Mollen<sup>2</sup><sup>1</sup>Department of Prevention & Community Health, George Washington University, Washington DC, USA; <sup>2</sup>University of Amsterdam, The Netherlands

## Significance for public health

Findings from this paper indicate that descriptive norms exercise both a main-effect and an interactive effect on behavioral intentions. The influence of descriptive norms on behavioral intentions was significant, even with the inclusion of the various normative modifiers in the models. Furthermore, the relationship between descriptive norms and behavioral intentions was strengthened under conditions of high issue familiarity, and weakened under conditions of low issue familiarity. More research needs to be conducted, however, to verify the effects of familiarity in the relationship between descriptive norms and behavioral intentions. Furthermore, longitudinal samples will also help in determining whether intentions get translated into actual behaviors. Public health interventions designed to change individuals' health behaviors often have not taken into account people's level of familiarity with the behavior in question. Indeed, most of the prominent theories of behavior change have failed to incorporate this important construct. Findings from this paper clearly indicate that familiarity is an important variable that affects how people think about and act in accordance with prevailing social norms. Behaviors that people are familiar with – those that they have adopted in the past, those that do not invite a lot of personal scrutiny and thoughtfulness – appear to be more strongly affected by social norms. Put another way, when people believe that behaviors familiar to them are also enacted by many others, they have a harder time defying the group norms. Public health interventions thus need to take into account the familiarity (or its corollary, novelty) of the behavior that they are attempting to change.

## Abstract

**Background.** Scholars in a variety of disciplines are interested in understanding the conditions under which social norms affect human behavior. Following the distinction made between descriptive and injunctive norms by the focus theory of normative conduct, the theory of normative social behavior predicts that the influence of descriptive norms on behavior is moderated by injunctive norms, outcome expectations, and group identity. We extended the theory by testing the proposition that the influence of descriptive norms on behavior would be greater under conditions of greater issue familiarity, defined as the ease with which one can cognitively access the behavior or behavioral issue.

**Design and Methods.** The model was tested in the domain of alcohol consumption intentions by conducting a survey among incoming students ( $n=719$ ) to a large university in the United States. Data indicated that students in the sample were well representative of the university population.

**Results.** The influence of descriptive norms on behavioral intentions was moderated by issue familiarity, as predicted. Familiarity was a facilitator of behavior: the influence of descriptive norms on behavioral intentions was greater under conditions of high, rather than low,

familiarity. The overall model explained 53% of the variance in alcohol consumption intentions.

**Conclusions.** Public health interventions promoting health behaviors need to take into account the extent to which the behaviors are familiar to the target audience. The influence of norms appears to be weaker when the behavior is unfamiliar or novel. Implications for theory and interventions for reducing alcohol consumption are discussed.

## Introduction

Excessive alcohol consumption among U.S. college students is a recalcitrant problem. Hingson *et al.*<sup>1</sup> reported that in 2001, more than 1700 college students died from alcohol-related unintentional injuries, which further increased to 1825 in 2005, and in the same year 599,000 (which represents 10.5% of full-time 4-year college students) were unintentionally injured because of alcohol use. In recent years, university officials have begun to adopt social marketing techniques to address this issue. These techniques focus on disseminating positive norms by pointing out that most students either do not drink or drink responsibly. This approach is based on the idea that students overestimate the extent to which their peers consume alcohol, thereby viewing their own drinking as falling within the norms of acceptable conduct. By disseminating information about actual prevalence of drinking, social marketing techniques hope to provide a more accurate frame of reference with which students can compare their own drinking. This approach is so popular that roughly 48 percent of all 4-year residential colleges and universities in the U.S. have tried this approach.<sup>2</sup> Results from these interventions, however, have been mixed, with some showing success,<sup>3</sup> including a change in behavior reported by a meta-analysis of 62 studies,<sup>4</sup> and others being unable to reduce consumption.<sup>5</sup> Both groups of studies have shown reductions in perceptions of consumption as a result of exposure to norms-based campaigns.

A developmental perspective may provide some explanations for why these campaigns have not been more successful. As children grow up, their peers tend to take on greater importance,<sup>6</sup> but children also become increasingly adept at resisting peer influence. Sumter and colleagues found, for example, that self-reported resistance to peer influence increases significantly during adolescence.<sup>7</sup> This may also explain why norms-based campaigns, though effective in correcting misperceptions about consumption, may be less persuasive in actually reducing consumption among adolescents.

Another possible reason for these mixed results may be timing. By the time students are exposed to social norms campaigns in college, they tend to have had considerable experience with drinking and thus are likely to have been accustomed to applicable norms and behavioral rules – as they understand them. Once such norms of conduct are internalized and behaviors become habituated, they become more dif-

difficult to change.<sup>8</sup>

In the United States, approximately 2.2 million students enroll in college each year.<sup>9</sup> These students join a new environment in which modes of conduct have to be learned and socially negotiated. With regard to alcohol use, students appear to enter college with fairly well entrenched ideas (whether valid or not) about how much consumption takes place and how much they themselves intend to consume.<sup>10</sup> Although a great deal has been written about the relationship between college students' alcohol-related normative beliefs and their drinking behaviors,<sup>4</sup> researchers have not paid much attention to students' perceptions and beliefs as they enter college for the first time. This is an important issue because of the serious problems associated with alcohol consumption among freshmen, as has been documented elsewhere,<sup>11</sup> most of whom tend to be underage. If students come to campus with already-formed strong intentions to consume alcohol,<sup>10</sup> then public health interventions need to start earlier, perhaps in high school or middle school when such perceptions begin to form.

### Theoretical framework

In this paper, we adopt the theory of normative social behavior (TNSB) in order to make predictions about how incoming students' normative beliefs affect their intentions to consume alcohol.<sup>10,12</sup> Similar to most norms-based strategies to curtail alcohol consumption, the TNSB is based on the idea that human behavior is guided, at least in part, by two normative beliefs: perceptions about the prevalence of the behavior and how most others think one ought to behave. Cialdini *et al.*<sup>12</sup> call these two perceptions descriptive norms and injunctive norms, respectively. The TNSB extends this distinction and proposes specific conditions under which normative influences are expected to occur.

The TNSB posits that the influence of descriptive norms on behaviors should take into account the role of meaningful moderators, which act as the conditions under which normative influences are likely to occur. These moderators include injunctive norms,<sup>13</sup> group identity,<sup>14,15</sup> and outcome expectations.<sup>16</sup>

### Injunctive norms

Injunctive norms, as conceptualized in the TNSB, are similar to subjective norms, as conceptualized in the theory of reasoned action (TRA),<sup>17</sup> in that both concepts tap into notions of what one should do on the basis of one's relationships. They are distinct in that injunctive norms are thought to operate under threat of social sanctions, whereas no such punishments are implied in the conceptualization of subjective norms. It is expected that stronger social pressures (injunctive or subjective) to engage in a behavior will strengthen the relationship between descriptive norms and behavioral intentions. When individuals perceive that most others are engaging in a behavior (high descriptive norms), then they are more likely to engage in the behavior themselves if they also perceive that important referents will disapprove of them if they do not comply. This implied interaction between descriptive norms and injunctive norms on behavior has been confirmed in prior research,<sup>18</sup> including an underlying explanation from qualitative research.<sup>19</sup>

### Group identity

A growing body of research is taking a social-identity or a self-categorization perspective in investigating the influence of social norms on behavior,<sup>20</sup> among other reasons, to explain discrepancies in the attitude-behavior relationship. In this view, self-categorization changes the way the self is construed and gives a sense of belonging and identification with a group. It changes one's behavior to match the prototypes of the in-group. Through this social categorization process,

people depersonalize their perception of others in that others are no longer seen as unique individuals, but become embodiments of the characteristics of that group.<sup>21</sup> This process maximizes the in-group similarities and inter-group differences, and this process of depersonalization is thought to produce conformity to shared in-group norms. In this sense, people are influenced by group norms because the norms inform them about which attitudes and behaviors are appropriate for members of a certain group in that specific context, and they influence behavior through self-categorization.

The TNSB conceptualizes group identity in terms of both perceived similarity with group members and aspiration, which refers to the desire to be like others. When group identity is strong, then not only is there a desire to conform in order to demonstrate one's connection with the reference group, but the threat of making one's nonconformity visible to others is that much more meaningful. In particular, when people aspire to become like others in their reference group, the drive to demonstrate their affiliation is likely to be greater than would be the case if people were indifferent toward the reference group.

### Outcome expectations

In social cognitive theory,<sup>22</sup> outcome expectation refers to beliefs about the benefits that will result from engagement in a particular behavior. Researchers in the alcohol literature use the term *positive expectancies* to refer to beliefs about the benefits of alcohol consumption.<sup>23</sup> The underlying idea is that perceptions about the benefits of a behavior are strong predictors of the behavior. From the perspective of the TNSB, the relationship of interest is the interaction between descriptive norms and outcome expectation in predicting behavior. When individuals perceive that many others in their social midst are engaging in a behavior (high descriptive norms), and the behavior is perceived to confer many benefits that will, for example, enhance one's social life, then the likelihood of action becomes greater than would be the case if the behavior is not perceived to be beneficial. Conversely, if an individual perceives that many others engage in a behavior (high descriptive norms) that the individual perceives to be harmful (negative outcome expectations), then it is less likely that this individual will engage in the behavior. Perceiving that many others are engaging in a counterproductive behavior, after all, will not result in desires to emulate others; rather, it is likely to strengthen one's own resolve not to engage in the behavior. The moderating role of outcome expectation in the relationship between descriptive norms and behaviors have been established in the literature.<sup>24</sup> Recently, the list of moderators in the relationship between descriptive norms and behaviors has been expanded. Jang, Rimal, and Cho found,<sup>25</sup> for example, that descriptive norms exerted little influence on adolescents' drinking patterns if parental monitoring was high; descriptive norms were significantly more influential in the absence of parental monitoring. This idea of uncovering moderators in the relation between descriptive norms and behavior has found support with other scholars in the field as well.<sup>26</sup> Because the central ideas behind the TNSB have been published elsewhere,<sup>27</sup> and the components of the theory have been discussed in the larger context of normative influences,<sup>28</sup> it will not be repeated here.

### Issue familiarity

In this paper, we consider the role of issue familiarity: the ease with which the behavior in question, including its facilitators and barriers, is cognitively accessible. It signifies the extent to which the focal issue or behavior is thought to be within people's mental reach. In this conceptualization, habitual behaviors would score high on issue familiarity. Because these behaviors have been enacted multiple times,<sup>29</sup> the actor is highly familiar with the larger context in which the behavior is enacted, factors that promote or inhibit the enactment of the

behavior, and costs and consequences of the behavior. By contrast, new behaviors, by definition, lack familiarity. A behavior can, of course, be familiar without being habitual. College students who reduce their drinking after their freshmen year, for example, would be familiar with issues surrounding drinking on campus (issues around access, benefits, and consequences are known to them) but drinking may no longer be a habitual behavior for them.

It is not surprising that familiarity with a behavior and the enactment of that behavior would reinforce each other in a reciprocal manner. People tend to buy products and socialize with others on the basis of familiarity, and the resultant behaviors further reinforce familiarity.<sup>21,30</sup> Familiarity also facilitates. Being familiar with a behavior signifies that, through actual or vicarious experience, one knows about various factors that either promote or inhibit the behavior. In this sense, familiarity with alcohol issues on campus is equivalent to issues pertaining to access, especially for incoming students who are forbidden to purchase alcohol because of their underage status. Finally, familiarity with a behavior obviates the need to critically examine the costs and benefits associated with each decision. For these reasons, we hypothesize that incoming students familiar with alcohol issues on campus would enter the university environment with greater intentions to drink, in comparison to their counterparts whose perceived level of familiarity is lower. The greater theoretical concern here, however, is not so much with whether familiarity affects drinking intentions, which it likely does. Rather, the more relevant issue for this paper is whether familiarity affects the relationship between descriptive norms and drinking intentions. If students coming to campus have high levels of familiarity with alcohol-related issues (in terms of where they can obtain alcohol, what the drinking environment on campus is like, etc.), perceptions that many of their peers also drink alcohol should further boost their intentions to drink. For these students, to the extent that familiarity serves as a facilitator of drinking behavior, beliefs about widespread consumption among their peers should encourage them to increase their own drinking intentions. In the minds of these students, alcohol on campus would be seen as being both accessible and prevalent. On the other hand, if students are unfamiliar with alcohol-related issues and are unaware about how and in what context they can gain access, then perceptions about the prevalence of consumption on campus should have less bearing on their own consumption intentions. For these students, lower levels of familiarity restrict access, which serves as a barrier to consumption, as has been found elsewhere.<sup>31</sup>

Thus, we hypothesize an interaction between descriptive norms and familiarity, such that the relationship between descriptive norms and behavioral intentions will be strong when familiarity is high and weak when familiarity is low. As noted earlier, prior studies have tested the relationship between descriptive norms and moderators such as injunctive norms, outcome expectations, and group identity, which will not be repeated here. However, we will control for their effects in our statistical models.

## Design and Methods

A survey was conducted among incoming college students ( $n=719$ ) attending the new-student orientation workshop in a large public university in the southern United States. On the first day of each of the six workshops, researchers handed out surveys to students who were waiting in line to receive various services or making inquiries about registration requirements. Students filled out the four-page survey at tables placed in various parts of a large waiting area. To maintain anonymity, no personally identifiable information was collected from students, and students were asked to drop off completed surveys in a

box placed at some distance from the researchers. This study was approved by the institutional review board of the university where it was conducted, and consent was obtained in the first paragraph of the survey. The entire survey took approximately 10 minutes to fill out. Of the 840 surveys that were handed out over six days, 721 (85.8 percent) were returned. According to data released by the university, of the 7033 incoming freshmen, 53.4 percent comprised female students, compared to 51.5 percent in this sample. The ethnic breakdown of incoming students at the university (and this sample) was as follows: Whites, 59.9 percent (52.3); African Americans, 5.8 percent (2.9); Hispanic, 16.5 percent (20.6); Asian American, 15.9 percent (14.5); and other or unknown ethnicities, 2.6 percent (9.7). Hence, compared to the incoming class as a whole, this convenience sample seems to have included fewer White, African American, and Asian American students, but more Hispanic students and students who did not divulge their ethnic background. Nevertheless, the sample can be deemed to be representative of incoming students in the university where this research was conducted.

## Primary variables

Except for issue familiarity, all other measures were taken from the previous work of Rimal and colleagues,<sup>10,32</sup> who have demonstrated the psychometric properties of the variables. Measures of subjective norms were taken from Ajzen and Fishbein.<sup>17</sup>

### Behavioral intention

Three questions asked students about their intention to consume alcohol during their freshmen year: how often they i) thought they would; ii) would like to; and iii) intended to go out drinking with their friends during any given month. Responses, each scored on a 11-point scale ranging from *never* to *10 times or more*, were averaged into an index ( $\alpha=0.95$ ;  $M=1.86$ ,  $SD=2.43$ ).

### Descriptive norms

Descriptive norms refer to students' perceptions about the prevalence of alcohol consumption on campus. Four questions asked students to estimate how much alcohol a typical student at the university consumed i) when he or she went to a bar, ii) when he or she had friends over to the apartment for drinks, iii) when he or she went to a party, and iv) during the weekend from Friday evening to Saturday evening. Responses, each scored on an 11-point scale ranging from *1* to *more than 10*, were averaged into an index ( $\alpha=0.88$ ;  $M=5.64$ ,  $SD=2.11$ ).

### Issue familiarity

Two items measured the extent to which students were familiar with alcohol-related practices on campus. Students were asked to express how strongly they agreed or disagreed (on a 7-point scale), ranging from *1 strongly disagree* to *7 strongly agree*, with the statements: i) *I am quite knowledgeable about how much alcohol students (at this university) typically drink* and ii) *I believe I have a pretty good idea about where and when students drink alcohol*. Responses were averaged into an index of familiarity ( $r=0.57$ ;  $M=4.10$ ,  $SD=1.53$ ).

## Variables in the theory of normative social behavior

The following variables, which are conceptualized as moderators in the relationship between descriptive norms and behavioral intentions, have been tested elsewhere, and for the sake of simplicity, will not be tested in this paper. Rather, we included them as control variables in our regression models.

### Injunctive norms

Injunctive norms, defined as social approval, were measured through four questions, such as *it is appropriate for students to drink*

every weekend and society in general considers it appropriate for students to drink every weekend on a 7-point scale, ranging from *strongly disagree* to *strongly agree* ( $\alpha=0.89$ ;  $M=2.68$ ,  $SD=1.23$ ). Subjective norms, from the theory of reasoned action, were measured with five question-pairs, each of which was the product of importance of others' beliefs (*most of my close friends think it is OK for me to drink alcohol*) and motivation to comply (*it is important for me to do what my close friends want me to do*); ( $\alpha=0.87$ ;  $M=9.73$ ,  $SD=6.71$ ).

**Outcome expectations**

Outcome expectations were operationalized as students' perceived benefits: the extent to which students believed that drinking alcohol with friends was rewarding, pleasurable, enjoyable, and fun. Responses to these four items, each coded on a 7-point scale, ranging from *strongly disagree* to *strongly agree*, were averaged into an index of perceived benefits ( $\alpha=0.95$ ;  $M=2.97$ ,  $SD=1.70$ ).

**Group identity**

Group identity was conceptualized as aspiration, the extent to which incoming students emulated to be like other students at the university. *Aspiration* was measured as the average of responses to four questions that asked students how strongly they agreed or disagreed with four statements (all measured on 7-point scales, ranging from *strongly disagree* to *strongly agree*): the extent to which they i) thought most UA (*university anonymous* is used here as a proxy for the actual university initials used in the survey) students were respectable; ii) thought most UA students were inspiring; iii) looked up to most UA students; and iv) thought highly of most UA students ( $\alpha=0.89$ ;  $M=4.47$ ,  $SD=1.13$ ).

**Other control variables**

In order to test the hypotheses, known predictors of alcohol consumption were used as controls. According to the literature, members of Greek organizations typically consume more alcohol than nonmembers.<sup>33,34</sup> Membership in Greek organizations was measured by asking students whether they currently were or whether they would be joining a Greek organization on campus. Response choices were no (coded as 0), don't know (1), or yes (2). In this sample ( $n=669$ ), 43 percent indicated that they were not, nor wanted to become a member of a Greek organization, 45 percent did not know yet, and 12 percent indicated they would be joining or were already a member. Another control variable was sex, as males typically drink more than females (55.5 percent of sample,  $n=670$ ).<sup>35</sup> Hence, these variables were used as controls in the tests of our hypotheses.

**Statistical analyses**

Study hypothesis was tested through linear regression equations with behavioral intention as the dependent variable, with demographic and prior TNSB variables as controls. The model tested the main-effects of and the interaction between descriptive norms and issue familiarity. In accordance with Aiken and West recommendations,<sup>36</sup> variables used in the interaction analysis were first centered around their mean, standardized, and these standardized values were used to compute interaction terms. The relationship between descriptive norms and drinking intentions was investigated at three levels of the moderator (issue familiarity) variable, corresponding to low (at one standard deviation below the mean), medium (at the mean), and high values (one standard deviation above the mean), respectively.

**Results**

**Preliminary analyses**

Table 1 shows the inter-correlations among variables used in this study. Compared to males, female students perceived lower injunctive and subjective norms to consume alcohol, perceived less benefits from alcohol consumption, and had lower consumption intentions. Students intending to join Greek organizations (compared to those without such intentions) perceived greater injunctive norms to consume alcohol and harbored stronger intentions to drink. Issue familiarity did not differ between males and females, but it was higher among students intending to join Greek organizations, and it was positively associated with descriptive, injunctive, and social approval norms; it was positively associated with intentions to drink alcohol.

**Tests of study hypothesis**

Study hypothesis was tested using behavioral intention to consume alcohol as the dependent variable in hierarchical regression, results of which are shown in Table 2. In the overall model, male and female students did not differ in their intentions to drink alcohol, but there was a significant association between intentions to join Greek organizations on campus and drinking intentions ( $\beta=0.12$ ,  $P<0.001$ ).

Three of the four TNSB variables were significantly associated with drinking intentions. Those who perceived greater social approval for drinking ( $\beta=0.09$ ,  $P<0.01$ ), greater subjective norms to drink ( $\beta=0.10$ ,  $P<0.01$ ), and greater benefits for drinking ( $\beta=0.56$ ,  $P<0.001$ ) had higher intentions to drink.

Descriptive norms ( $\beta=0.09$ ,  $P<0.01$ ) and issue familiarity ( $\beta=0.06$ ,

**Table 1. Pearson correlations among predictors of alcohol consumption (n=719).**

	1	2	3	4	5	6	7	8	9
Female	1.00	0.08*	-0.02	-0.19**	-0.20***	-0.17***	0.02	0.03	-0.08*
Greek		1.00	0.06	0.09*	0.13**	0.10**	0.17***	0.13***	0.21***
Descriptive norm			1.00	0.25***	0.14***	0.16***	0.00	0.11**	0.22***
Social approval				1.00	0.62***	0.62***	0.03	0.19***	0.53***
Subjective norms					1.00	0.59***	0.14***	0.22***	0.50**
Perceived benefits						1.00	0.07	0.26***	0.69***
Aspiration							1.00	0.10**	0.08***
Issue familiarity								1.00	0.3**
Behavioral intention									1.00

\* $P<0.05$ , \*\* $P<0.01$ , \*\*\* $P<0.001$

$P < 0.001$ ) were both positively associated with intentions to drink. We also observed a significant issue familiarity x descriptive norms interaction ( $\beta = 0.06$ ,  $P < 0.05$ ). The pattern of the interaction is shown in Figure 1. At high levels of familiarity, the relationship between descriptive norms and drinking intentions was positive ( $\beta = 0.15$ ,  $P < 0.001$ ). This relationship was somewhat weaker, though statistically significant, at medium level of familiarity ( $\beta = 0.09$ ,  $P < 0.01$ ). At low level of familiarity, the relationship between descriptive norms and drinking intentions was not significant ( $\beta = 0.04$ , *n.s.*). Overall, the model explained 53 percent of the variance in drinking intentions.

## Discussion and Conclusions

In this study, we tested the central hypothesis pertaining to the moderating role of familiarity in the relationship between descriptive norms and behavioral intentions. Our data were collected among students on the verge of a major change in their lives (starting a new experience in a large public university), an appropriate setting for testing the effects of familiarity. Bivariate correlations showed that issue familiarity was positively associated with consumption intentions, indicating that those who were more familiar with drinking-related issues on campus were more likely to intend to drink; conversely, those who perceived themselves to be less familiar about prevailing drinking-related issues were less likely to drink. Issue familiarity's interactions with descriptive norms further indicated that the positive association between descriptive norms and behavioral intentions was stronger among those with high levels of familiarity, in comparison to those with low levels of issue familiarity. Students characterized by less familiarity about alcohol consumption were less likely to be influenced by descriptive norms, as compared to students characterized by greater familiarity. It is worthwhile to differentiate issue familiarity from ambiguity. Familiarity, as we have conceptualized in this paper, refers to people's perceptions about what they know about an issue; ambiguity refers to people's inability to make sense of a situation. In the norms literature, ambiguity has been found to enhance normative influences.<sup>37</sup> One of the primary functions that norms serve is that, under conditions of ambiguity, they provide assistance in understanding the appropriate mode of conduct.<sup>38</sup> When unsure about how to interpret an unfolding situation, people first look to the behaviors of others. Others' engagement in a behavior then provides information about what actions are warranted. In this sense, ambiguity refers to individuals' inability to make sense of or ascribe meaning to a social context. Issue familiarity, on the other hand, refers to the level of knowledge that people perceive to have about a particular issue; it does not pertain to interpreting an unfolding set of events, as is the case with situational ambiguity. This paper's findings indicate that, when the level of familiarity is low, people resort to their internal belief structure to help them make decisions; they do not look to the behaviors of others. When their level of familiarity is high, they look beyond their own internal beliefs and form intention judgments based, in part, on their perceptions about others' behaviors. It thus appears that issue familiarity is functionally equivalent to access: when a behavior is perceived to be accessible, others' engagement in the behavior further propels its enactment, but when the behavior is inaccessible, then social prevalence has little to no bearing. It should also be noted that we cannot tell whether or to what extent students' perceived familiarity with alcohol-related issues are accurate. Students may think they know about where alcohol can be obtained and what the drinking patterns among their peers are, but these perceptions may or may not reflect reality. Similarly, their perceptions about the prevalence of consumption on campus may be inaccurate, as they often are.<sup>39</sup> What is important, however, is that these perceptions – as

inaccurate as they may be – determine students' intentions to consume alcohol. While interventions have been designed to correct misperceived norms on campus, our findings indicate that interventions may also consider focusing on the accuracy of perceptions around familiarity with alcohol-issues on campus. Students' perceptions about the availability of alcohol on campus, for example, could be challenged.

We also observed that, even before students begin their university experience, many had already developed fairly strong beliefs about the prevalence of consumption, preferences for consumption, and perceptions about the benefits associated with consumption. This is indicated by the strong correlations observed between other TNSB variables (injunctive norms, subjective norms, perceived benefits, and aspiration) and behavioral intentions. Hence, it appears that health educators need to tackle the issue and change these beliefs much earlier in students' lives, perhaps while they are in high school or even younger. Data from this study suggest that many beliefs about college drinking are formed *prior* to on-campus exposure to existing consumption patterns and our findings indicate that health promotion efforts to change these beliefs need to be moved up.

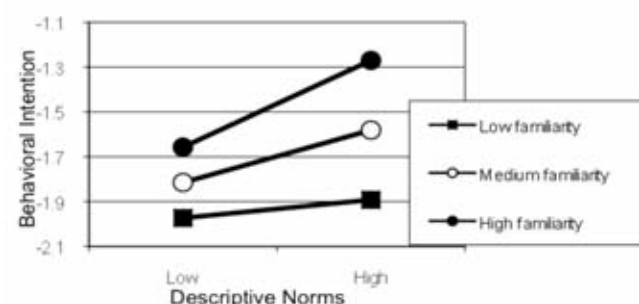
## Limitations

The primary limitation of this study was its design. Because none of the variables were manipulated, the implied causal link between

**Table 2. Predictors of alcohol consumption intention (n=719).**

Predictors	r <sup>a</sup>	<sup>b</sup>	t-value
Demographic controls			
Female	-0.08*	0.03	1.21
Greek	0.21**	0.12**	4.08**
Prior TNSB variables			
Social approval	0.53**	0.09***	2.73***
Subjective norm	0.50**	0.10***	2.76***
Perceived benefits	0.69**	0.55***	15.93**
Aspiration	0.08*	-0.01	-0.29
Test variables: main-effects			
Issue familiarity	0.30**	0.06*	2.20*
Descriptive norms	0.22**	0.09***	3.16***
Test variables: interaction			
Issue familiarity x descriptive norms	0.36**	0.06*	2.30*
Total R <sup>2</sup>			53.3**

<sup>a</sup>Zero-order Pearson Correlation. <sup>b</sup>Standardized beta from regression equations with all variables entered into the model. \* $P < 0.05$ , \*\* $P < 0.001$ , \*\*\* $P < 0.01$ .



**Figure 1. Relationship between descriptive norms and behavioral intentions at three values of issue familiarity: high (1 SD above the mean), medium (at the mean), and low (1 SD below the mean).**

norms and behavioral intention is speculative. It may well be the case, for example, that behavioral intentions lead to normative perceptions and not the other way around as suggested in this paper. For example, students who consume a great deal of alcohol could subsequently justify these behaviors by construing that most others also drink. However, prior research on the TNSB has found similar results with experimental designs,<sup>40</sup> which validates the supposed direction of the causal relation. It however still remains a viable hypothesis, worthy of future research. Another limitation is that our measure of issue familiarity was subjective in nature; it measured participants' perceptions about how familiar they were about others' alcohol consumption. The extent to which students' actual familiarity corresponds with their perceived familiarity (and this variable's association with drinking intentions) remains to be explored in future studies.

## Endnotes

We also measured prior behaviors pertaining to alcohol consumption. Pattern of findings with the use of prior behaviors as the dependent variable were similar to those reported in this paper with the use of behavioral intentions as the dependent variable. For simplicity (and in order to make predictions about future behaviors), we included only the intention measure in our models.

Correspondence: Prof. Rajiv N. Rimal, Department of Prevention & Community Health, George Washington University, 2175 K. St. NW, Suite 700, Washington, DC 20037, USA. E-mail: rimal@gwu.edu  
Key words: descriptive norms, alcohol, theory of normative social behavior, familiarity.

Contributions: RNR conceptualized the project, collected data, conducted the data analysis and wrote the paper; SM did background research and wrote the paper.

Conflict of interests: the authors declare no conflict of interests.

Received for publication: 26 February 2013.

Accepted for publication: 14 May 2013.

©Copyright R.N. Rimal and S. Mollen, 2013

Licensee PAGEPress, Italy

*Journal of Public Health Research* 2013; 2:e7

doi:10.4081/jphr.2013.e7

This work is licensed under a Creative Commons Attribution NonCommercial 3.0 License (CC BY-NC 3.0).

## References

- Hingson RW, Heeren T, Winter M, Wechsler H. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: changes from 1998 to 2001. *Ann Rev Pub Hlth* 2005;26:259-79.
- Wechsler H, Nelson TF, Lee JE, et al. Perception and reality: a national evaluation of social norms marketing interventions to reduce college students' heavy alcohol use. *J Stud Alc* 2003;64:484-94.
- DeJong W, Schneider, SK, Towvim LG, et al. A multisite randomized trial of social norms marketing campaigns to reduce college student drinking. *J Stud Alc* 2006;67:868-79.
- Carey KB, Scott-Sheldon LAJ, Carey MP, DeMartini KS. Individual-level interventions to reduce college student drinking: a meta-analytic review. *Add Beh* 2007;32:2469-94.
- Clapp JD, Lange JE, Russell C, et al. A failed norms social marketing campaign. *J Stud Alc* 2003;64:409-14.
- Giordano PC. Relationships in adolescence. *Ann Rev Soc* 2003;29:257-81.
- Sumter SR, Bokhorst CL, Steinberg L, Westenberg PM. The developmental pattern of resistance to peer influence in adolescence: will the teenager ever be able to resist? *J Adol* 2009;32:1009-21.
- Ouellette JA, Wood W. Habit and intention in everyday life: the multiple processes by which past behavior predicts future behavior. *Psy Bull* 1998;124:54-74.
- National Center for Education Statistics (2010). Fast facts. Available from: <http://nces.ed.gov/fastfacts/display.asp?id=372>.
- Rimal RN, Real K. How behaviors are influenced by perceived norms: a test of the theory of normative social behavior. *Comm Res* 2005; 32:389-414.
- Hingson RW, Zha W, Weitzman ER. Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18-24, 1998-2005. *J Stud Alc Drugs* 2009;S16:12-20.
- Cialdini RB, Reno RR, Kallgren CA. A focus theory of normative conduct: Recycling the concept of norms to reduce littering public places. *J Pers Soc Psy* 1990;58:1015-26.
- Schultz PW, Nolan JM, Cialdini RB, et al. The constructive, destructive, and reconstructive power of social norms. *Psy Sci* 2007;18:429-34.
- Goldstein NJ, Cialdini RB, Griskevicius V. A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *J Cons Res* 2008;35:472-82.
- Terry DJ, Hogg MA, White KM. The theory of planned behavior: self-identity, social identity, and group norms. *Brit J Soc Psy* 1999;38:225-44.
- Atkinson NL, Permeth-Levine R. Benefits, barriers, and cues to action of yoga practice: a focus group approach. *Amer J Hlth Beh* 2009;33:3-14.
- Ajzen I, Fishbein M. *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall; 1980.
- Lee CM, Geisner IM, Lewis MA, et al. Social motives and the interaction between descriptive and injunctive norms in college student drinking. *J Stud Alc Drugs* 2007;68:714-21.
- Jensen RE, Bute JJ. Fertility-related perceptions and behaviors among low-income women: injunctive norms, sanctions, and the assumption of choice. *Comm Res* 2010;20:1573-84.
- Turner JC, Hogg MA, Oakes PJ, et al. *Rediscovering the social group: a self-categorization theory*. Oxford, UK: Blackwell; 1987.
- Hogg MA. Social identity, self-categorization, and the small group. In: Witte EH, Davis, JH, editors. *Understanding group behavior: small group processes and interpersonal relations*. Mahwah, NJ: Erlbaum; 1996. pp 227-254.
- Bandura A. *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall; 1986.
- Goldman MS, Greenbaum PE, Darkes J. A confirmatory test of hierarchical expectancy structure and predictive power: discriminant validation of the alcohol expectancy questionnaire. *Psy Assmt* 1997;9:145-57.
- Brown A, Moodie C. The influence of tobacco marketing on adolescent smoking intentions via normative beliefs. *Hlth Educ Res* 2009;24:721-33.
- Jang S, Rimal RN, Cho N. Exploring parental influences in the theory of normative social behavior: findings from a Korean high school sample. *Comm Res* 2013;40:52-72.
- Göckeritz S, Schultz PW, Rendón T, et al. Descriptive normative beliefs and conservation behavior: the moderating roles of personal involvement and injunctive normative beliefs. *Eur J Soc Psy* 2009;40:514-23.
- Franca LR, Dautzenberg B, Falissard B, Reynaud M. Are social

- norms associated with smoking in French university students? A survey report on smoking correlates. Available from <http://www.substanceabusepolicy.com/content/4/1/4>.
28. Lapinski MK, Rimal RN. An explication of social norms. *Comm Th* 2005;15:127-47.
  29. Graybiel AM. Habits, rituals, and the evaluative brain. *Ann Rev Neuros* 2008;31:359-87.
  30. Laroche M, Kim C, Zhou L. Brand familiarity and confidence as determinants of purchase intention: an empirical test in a multiple brand context. *J Bus Res* 1996;37:115-20.
  31. Murphy JG, MacKillop J. Relative reinforcing efficacy of alcohol among college student drinkers. *Exp Clin Psychoph* 2006;14:219-27.
  32. Rimal RN. Modeling the relationship between descriptive norms and behaviors: A test and extension of the theory of normative social behavior (TNSB). *Hlth Comm* 2008;23:103-16.
  33. Cashin JR, Presley CA, Meilman PW. Alcohol use in the Greek system: follow the leader? *J Stud Alc* 1998;59:63-70.
  34. Knight JR, Wechsler H, Kuo M, et al. Alcohol abuse and dependence among U.S. college students. *J Stud Alc* 2002;63:263-70.
  35. Wechsler H, Kuo M. College students define binge drinking and estimate its prevalence: results to a national survey. *J Amer Coll Hlth* 2000;49:57-64.
  36. Aiken LS, West SG. *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage; 1991.
  37. Cialdini RB. *Influence: science and practice*. 5th ed. Boston, MA: Allyn & Bacon; 2009.
  38. Latané B, Darley JM. *The unresponsive bystander: Why doesn't he help?* New York: Appleton-Century-Croft; 1970.
  39. Perkins HW, Berkowitz AD. Perceiving the community norms of alcohol use among students: some research implications for campus alcohol education programming. *Inter J Addic* 1986;21:961-76.
  40. Rimal RN, Lapinski M, Cook R, Real K. Moving toward a theory of normative influences: how perceived benefits and similarity moderate the impact of descriptive norms on behaviors. *J Hlth Comm* 2005;10:433-50.