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	May 2003
	Pages 184–203

Understanding the Influence of Perceived Norms on Behaviors

Although a number of studies demonstrate the impact of perceived norms on human behavior, we know little about how this relation works. Extant norms-based campaigns to reduce alcohol consumption among U.S. college students fail to distinguish between descriptive and injunctive norms. In this article, we make this distinction, and we develop a model of normative influences that also includes the impact of group identity and communication patterns on students' alcohol consumption. Based on a survey of college students (N = 353), we found that descriptive and injunctive norms were different in terms of their impact on behavior. Furthermore, the inclusion of group identity and communication patterns significantly added to the explanatory power of our model. Overall, we were able to explain roughly 53% of the variance in consumption.

Health behaviors are guided not only by individuals' own attitudes (Ajzen & Fishbein, 1980), perceived abilities (Bandura, 1977, 1986), barriers (Janz & Becker, 1984; Rogers, 1975), and risk assessments (Weinstein, 1989; Weinstein & Nicolich, 1993), but also by their perceptions about others' beliefs (Ajzen & Fishbein, 1980) and behaviors (Asch, 1951; Deutsch & Gerard, 1955). In this paper, we focus on the latter concept, commonly referred to as subjective norms (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), social norms (Perkins & Berkowitz, 1986; Perkins, Meilman, Leichliter, Cashin, & Presley, 1999), normative influences (Cialdini, Reno, & Kallgren, 1990; Deutsch & Gerard, 1955), social influences (Rice, 1993), or simply norms (Bendor & Swistak, 2001), in order to understand the underlying mechanism through which these perceptions influence health behaviors.

For both practical and theoretical reasons, we use the term *perceived norms*, and we conceptualize it as comprising two interrelated ideas—individuals' perceptions about the prevalence of a behavior, also known as descriptive norms (Cialdini et al., 1990), and pressures individuals experience to conform, known as injunctive norms. From a practical standpoint, this concept deserves attention because it underlies many antialcohol campaigns currently underway on U.S. campuses. This is

also the health domain under investigation in this article. From a theoretical standpoint, two considerations point to the need to study perceived norms. First, despite a growing body of literature demonstrating the relation between perceived norms and health behaviors, we know little about how or why this influence occurs. Second, in our view, the myriad terms found in the literature (subjective norms, social norms, normative influences, perceived prevalence, etc.) highlight the lack of conceptual clarity between two closely related terms: descriptive and injunctive norms.

We will elaborate on this distinction shortly, but first we want to be explicit about what we mean by norms. In the broadest sense, norms are codes of conduct that either prescribe or proscribe behaviors that members of a group can enact. This definition comprises four important features. First, norms are thought to exist “if any departure of real behavior from the norm is followed by some punishment” (Homans, 1950, p. 123). Indeed, it is meaningless to talk about norms unless their violation triggers some form of sanction (Bendor & Swistak, 2001). Second, norms are different from laws in that laws are explicitly codified whereas norms are understood through social interaction. This “social interaction” component is an important consideration because sanctions for the transgression of norms need not be imposed exclusively by the aggrieved party; indeed, it is often imposed by a third party (Bendor & Swistak, 2001). In this sense, norms comprise modes of conduct larger than those agreed to by individuals in a dyadic relationship, which has been called a norm of reciprocity or reciprocal norms (Axelrod, 1984; Bicchieri, 1993). Third, implicit in this argument is the idea that norms do not exist independently of individuals’ group identity, their sense of belonging or “oneness” with the group (Tajfel & Turner, 1986). Finally, because social interaction can occur only through communication, norms cannot exist in the absence of communication among members of the group. Put another way, norms are constructed, understood, and disseminated among group members through communication. Given these characteristics, we can redefine norms as group identity-based codes of conduct that are understood and disseminated through social interaction. Descriptive norms provide information about group members’ noncompliance, whereas injunctive norms provide sanctions for group members’ noncompliance. In this article, we draw a distinction between these two norms, and we develop a model that includes the influences of communication behaviors and group identity.

Descriptive and Injunctive Norms

Descriptive norms refer to individuals’ beliefs about how widespread a particular behavior is among their referent others. They provide infor-

mation about the strength of the norm. The greater the perceived prevalence of a behavior, the greater the likelihood that individuals will believe that engaging in the behavior is normative, that is, within the prevailing norms of conduct. It does not necessarily follow, however, that the strength of the perceived norm will bear a one-to-one relationship with individuals' propensity to engage in the behavior themselves. Whether individuals will actually subscribe to the norm is determined by other factors, a point we will return to later in this article.

At this point, we note that individuals' perceptions of the prevalence of a behavior may not be accurate. Indeed, they often are not (Perkins & Berkowitz, 1986; Ross, Greene, & House, 1977), and researchers call this phenomenon *social projection* (Rice, 1993). The false consensus effect (Ross et al., 1977) is a special case of a social projection in which individuals engaging in a counternormative behaviors justify their behaviors by exaggerating the perceived support for them.

To what extent should the difference between perceived and actual prevalence of a behavior be a concern in developing a theory of normative influences? Rice (1993) noted that reliance on social projection estimates is "least rigorous but may provide the strongest results" (p. 46) and that this process "is quite different from social influence, . . . which argues that the other's actual attitudes, information, and behaviors influence the individual" (p. 48). We believe that building a model of social influence on others' actual attitudes is untenable for two reasons. First, it is not possible for an individual to know another's actual attitude independent of his or her perception of the other's attitude. The process of knowing another's attitude, after all, is based on individuals' interpretations of social interactions, a process that is inherently subjective. Second, even if individuals had access to information about others' actual attitudes and behaviors, their social projections, compared to others' actual attitudes and behaviors, would likely be stronger predictors of their own behaviors. Research indicates, for example, that students tend to harbor exaggerated perceptions about the prevalence of drinking in their midst (Perkins & Berkowitz, 1986) and that as perceived prevalence increases, students are more likely to construe their own consumption patterns as being normative, that is, within the prevailing norms of conduct (Olds & Thombs, 2001; Oostveen, Knibbe, & de Vries, 1996; Rundall & Bruvold, 1988). Thus, as noted by Perkins and Wechsler (1996), we must take into account subjective perceptions because "people act on their perceptions of their world in addition to acting within a real world" (p. 962).

Whereas descriptive norms describe the prevalence of a behavior, injunctive norms refer to the extent to which individuals feel pressured into engaging in a behavior. In this conceptualization, pressure can oc-

cur either because of perceived threats (e.g., losing friendships or being unable to cultivate them) or perceived benefits (because of which, not engaging in the behavior becomes equivalent to depriving oneself of those benefits). As noted earlier, the source of the normative pressure need not be confined to the aggrieved party. For example, to the extent that students feel pressured into consuming alcohol (because of injunctive norms), when a student decides to defy this pressure, we can think of the aggrieved parties as peers who desired but are deprived of this student's company. Hence, sanctions for defying the consumption norm may emanate either from the same peers or from the larger group to which this student belongs. This student may believe, for example, that his or her defiance of the norm will result in the group's withholding other benefits in the future.

Two important features of the group sanction deserve attention. First, the group's sanction need not be confined to alcohol consumption. Indeed, the strictest sanction may involve threatening the student's membership in the group. After all, from the group perspective, defiance of group norms by individual members threatens not the norm per se, but the group identity (Sherif, 1972). Similarly, from the transgressor's perspective, the loss of membership likely looms as large as the importance of his or her identity with the group. Second, more important than the group's actual sanction is the individual member's perceptions about the sanction. It is precisely because these perceptions differ that injunctive norms do not result in uniform effects across group members.

Hence, even though descriptive and injunctive norms share the important feature that members' perceptions are more instrumental than the objective truth, it would be a mistake to equate them in terms of their influence on behaviors. After all, individuals may perceive high levels of prevalence and strong normative pressures and yet not engage in the behavior. Even though the larger norms literature makes this distinction (e.g., Cialdini et al., 1990), the alcohol consumption literature does not (for an exception, see Borsari & Carey, 2001). For example, the social norms-based interventions currently underway on many U.S. campuses are founded on redefining descriptive norms by reducing students' exaggerated perceptions about the prevalence of consumption. Ajzen and Fishbein's (1980) theory of reasoned action, on the other hand, focuses on injunctive norms; subjective norms, the central concept in the theory, are conceptualized as coercive social influences with which individuals feel "motivated to comply."

It is reasonable to assume that when both descriptive and injunctive norms are congruent (e.g., when students believe most others consume alcohol and that strong pressures exist for them to comply), normative influences are likely to be strong (Borsari & Carey, 2001). By suggesting

a one-to-one correlation between perceived norms and consumption, however, and by thus failing to make the distinction between descriptive and injunctive norms, the literature assumes that individuals are unable or unwilling to think for themselves and that they are guided solely by what others do. This line of thinking seems to ignore much of the research on human motivation and learning, which makes a strong case for the role of peer modeling, personal incentives, and self-efficacy, among others, to exercise restraint (Bandura, 1977, 1986, 1989). In order to develop a more comprehensive model of normative influence, we also need to consider the role played by individuals' communicative behaviors, as well as their group identity, topics we consider next.

Group Identity and Communicative Influences

Numerous studies have documented the role that individuals' social networks play in initiating and reinforcing both positive (Hibbard, 1985; House, Landis, & Umberson, 1988; Valente, 1994) and negative (Donohew et al., 1999; Dorsey, Sherer, & Real, 1999; Fraser & Hawkins, 1984; Kandel, 1973; Seeman, Seeman, & Sayles, 1985) behaviors. Of interest in this study is the role that communication patterns play in perpetuating group identity among members of a social group. The importance of communication patterns in this regard can be derived from Carey's (1989) distinction between the transmission and ritualistic views of communication. In the transmission view, communication is defined as "a process whereby messages are transmitted and distributed in space for the control of distance and people" (p. 15). In this view, communication is used as an instrument for achieving a desired end. Using this conceptualization, we can interpret group members' communication patterns as being guided by their desires to express their identity and their alignment with perceived group norms. Ritualistic communication, on the other hand, is concerned with "the representation of shared beliefs," and it "draws persons together in fellowship and commonality" (Carey, 1989, p. 18). This view is analogous to "attending a mass, a situation in which nothing new is learned but in which a particular view of the world is portrayed and confirmed" (Carey, 1989, p. 20). Hence, group identity is likely to be transmitted and ritualized through communication among group members. Groups also select their members based on common interests and values, as has been shown by studies demonstrating the role of peer influence in substance use (Donohew et al., 1999; Oetting & Beauvais, 1987). Hence, communication patterns that exist among group members are likely to reinforce group identity.

Perceived Norms and Alcohol Consumption

The specific behavioral issue we examined was excessive alcohol consumption by college students. We chose to study this issue primarily for

two reasons. First, excessive alcohol consumption by college students is a serious national problem (Baer, Stacy, & Larimer, 1991; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Dowdall, Davenport, & Castillo, 1995; West, Moskal, Dziuban, & Rumbough, 1996). A better understanding about the causes of alcohol consumption on campus can help researchers develop sound campaign strategies to tackle this issue. Second, for many students, going away to college is their first experience in a new and unfamiliar social environment, which means they have to learn new rituals and modes of conduct. This is a period when students experience a great deal of ambiguity, as they cannot rely on many of the habitual behaviors familiar to them in previous years. The literature suggests that presence of ambiguity enhances normative influences (Cialdini, 1993; Moscovici, 1976; Rice, 1993; Sherif & Sherif, 1964). The college experience is a suitable setting in which to study the impact of social norms. College life is also the beginning of friendships for many students as they are socialized into a new environment, and one of the most influential socializing behaviors on campus is alcohol use, which occurs predominantly in social settings (Lo & Globetti, 1993; Montgomery & Haemmerlie, 1993).

Until recently, the public health community had responded to the growing problem of excessive alcohol consumption by raising awareness about the consequences associated with binge drinking (Wechsler et al., 1994), drinking and driving (West et al., 1996), and alcohol-induced sexual assault (Abbey, Ross, McDuffie, & McAuslan, 1996). Despite these efforts, alcohol consumption by college students remains a significant national problem. In recent years, researchers have begun to question prevailing public health strategies designed to reduce alcohol consumption (Clapp & McDonnel, 2000; Haines, 1996). They point out that the intense focus on alcohol problems may have resulted in counterproductive effects: Students may have developed exaggerated perceptions about the prevalence of alcohol use on campus (Perkins et al., 1999). To the extent that normative perceptions about the prevalence of a behavior further perpetuate those same behaviors, it is likely that the continuous focus on alcohol-related problems may have contributed to increased acceptance of alcohol use by college students. Because of this possibility, campus alcohol educators and researchers are working to change perceptual norms, hoping that if *perceived* prevalence of drinking can be reduced, then the *actual* prevalence of consumption will be reduced as well (Haines, 1996; Steffian, 1999).

Based on our model of social influence, we test the overall hypothesis that alcohol-related descriptive norms, communication patterns, injunctive norms, and group identity will each be associated with alcohol consumption.

Control Variables

In order to test our hypothesis, we first controlled for known predictors of alcohol consumption. Members of Greek organizations typically consume more alcohol than nonmembers (Dorsey et al., 1999; Goodwin, 1989; Grenier, Gorskey, & Folse, 1998), as do off-campus, compared to on-campus, residents (Gliksman, Newton-Taylor, Adlaf, & Giesbrecht, 1997; Grenier et al., 1998; Prendergast, 1994). In addition, we also expected legal drinking age status to predict alcohol use (Engs & Hanson, 1990). These variables will function as controls in the tests of our overall hypothesis.

Method

Participants

Data for this study come from a survey conducted among undergraduate students enrolled in various courses offered by the Department of Speech Communication at Texas A&M University. Student volunteers ($N = 353$) received extra course credit for their participation. Participants were predominantly female (72%) and roughly a quarter of the sample comprised members of Greek organizations on campus. The average age of first alcohol use was 16 years ($SD = 2.7$) and the average age of first alcohol purchase was 19.1 years ($SD = 2.0$).

Procedures

Participants reported to the departmental computer lab to fill out the survey instrument. Lab staff was present in this semimonitored environment, but no close surveillance was performed during completion of the surveys. This afforded the students some privacy, while minimizing negligence that could occur in the absence of meaningful supervision. Only written directions were provided, and the researchers did not interact with the students.

Survey Instrument

To disguise its true intent, the study was described as one in which researchers were interested in understanding students' weekend spending habits and entertainment activities. Questions were derived from prior research as well as from a pilot study that asked students to list their most enjoyable weekend activities. Activities included students' media consumption (e.g., watching television, renting videos, using the Internet, etc.) and attendance at sporting events and musical concerts, among others. Embedded within this foil were alcohol-related questions.

Measures

Alcohol consumption. Prior research indicates that the reliability of consumption measures can be increased by cuing students about the social context in which consumption occurs (Single & Wortley, 1994). The

most frequently reported drinking contexts were (in decreasing order of occurrence) spending an evening at home, attending a party, spending time at someone else's home, going to a bar or tavern, and going to a restaurant (Single & Wortley, 1994). In order to minimize the number of questions in our survey, we categorized these social contexts into three groups: home, a social party, and a restaurant or bar. Within each context, questions were beverage specific: beer, wine, and liquor. Hence, there were nine questions about consumption (3 beverages x 3 contexts).

A typical question for consumption of beer at home was worded as, "For consumption *at home*—including when you had people over for a visit, watch sports on TV, socialize, party at your place, eat meals, or just plain visit—how much did you consume beer (12-ounce size)?" This question was embedded in a battery of questions that first asked about the consumption of carbonated drinks, fruit juice, milk, coffee, iced tea, and bottled water. Subsequent questions asked about the consumption of wine and liquor, followed by other filler items such as meals and snacks. To standardize the alcohol content across the three beverage types, students were asked to consider one 12-ounce beer equivalent to one 4-ounce glass of wine and to one 1.5-ounce glass of liquor (Russell, Welte, & Barnes, 1991). Total beer consumption was calculated as the sum of the number of 12-ounce beers consumed at home, at a party, and in a restaurant or bar. Totals for liquor and wine consumption were also calculated by adding across the three contexts for each beverage. Finally, we computed a composite measure of alcohol consumption, defined as the total amount of alcohol consumed "during the past weekend" across the three beverage types and three social contexts.¹

Embree & Whitehead (1993) have suggested that offering a broad range of response categories provides a more accurate portrayal of individual drinking patterns. To minimize ceiling effects, Embree & Whitehead (1993) also suggested expanding the upper limit of consumption categories. For these reasons, response scales to consumption questions had a range from 0 to 22 or more.

The distribution of this variable was positively skewed ($M = 10.3$, $SD = 15.6$, skewness = 2.4). In order to obtain a normal distribution, a logarithmic transformation was performed on this variable. This transformed variable was used as the dependent variable in our regression equations.²

Descriptive Norms. Students were asked to estimate what percentage of their fellow students consumed no alcohol whatsoever, 0 to 7 drinks per week, 8 to 12 drinks per week, and more than 12 drinks per week. Descriptive norms were calculated as the weighted average to the responses (obtained by first multiplying the responses to each question by the median of the interval, adding these products, and dividing by the

sum of the four interval medians). The estimated average number of drinks consumed by a “typical student” per week was 6.5 ($SD = 2.2$).

Communication Patterns. Students were asked how often, over the past 2 weeks, they talked with their friends or siblings about drinking alcohol. One question asked about the times when they initiated the discussion and another question asked about the times when their friends or siblings initiated the discussion. These items were averaged into an index to measure communication about alcohol (Cronbach’s $\alpha = .85$).

Group Identity. Following Tajfel and Turner (1986), we conceptualized group identity in terms of one’s perceived similarity with and aspirations to be like the referent others. Aspiration was measured through five items (for example, “I look up to most students at this university.”) and similarity was measured through four items (for example, “How similar are most students at this university to you intellectually?”). All responses were scored on a 7-point scale.

Injunctive Norms. As discussed earlier, injunctive norms refer to the coercion that individuals experience to conform to group norms. This coercion can be manifest in several ways. Individuals may perceive that failure to conform will result in the expression of disapproval by others, they may believe that their conformity behavior will result in significant benefits to themselves (in which case, failure to conform becomes equivalent to depriving oneself of those benefits), or they may believe that others who engage in the particular behavior are deriving significant benefits. Hence, we conceptualized injunctive norms as *social approval* (measured through three items, for example, “How favorably does society in general view . . . having a drink or two 4 or more nights a week?”); *benefits to oneself* (four items, for example, “How pleasurable is drinking alcohol with friends?”); and *benefits to others* (three items, for example, “How enjoyable do you think most students at this university find . . . drinking alcohol with friends?”). All responses were scored on a 7-point scale.

These 19 variables (10 variables tapping into the three dimensions of injunctive norms and 9 variables tapping into the two dimensions of group identity) were submitted to a principal component factor analysis with varimax rotation. Five factors emerged. We then formulated the three injunctive norms dimensions and two group identity dimensions. They were social approval (Cronbach’s $\alpha = .60$), benefits to oneself ($\alpha = .94$), benefits to others ($\alpha = .82$), similarity ($\alpha = .78$), and aspiration ($\alpha = .83$).³

Control Variables. Standard demographic information obtained from students included whether they were members of a Greek organization, their sex, whether they lived on or off campus, and their age (which was used to determine whether they were of legal age to purchase alcohol). We also asked how old they were when they first consumed alcohol.

Statistical Analyses

In order to test our hypotheses, we conducted hierarchical regression equations with alcohol consumption (logarithmically transformed to approximate a normal distribution) as the dependent variable. This was done in three steps. First, we introduced control variables, including sex, underage status (underage or legal age), on- or off-campus residence, membership in Greek organizations, and age of first alcohol consumption. Of these, only underage status and age of first drink were significant predictors of consumption. In the second step, we introduced descriptive norms into the equation, followed by communication about alcohol in the third step. Tests of injunctive norms and group identity variables were all conducted in the fourth step by adding one variable for the main effect and another for the interaction term to those already in the model in step 3, and removing these two variables before adding the second set of variables. Hence, step 3 (which included the control variables, descriptive norms, and communication about alcohol) served as the baseline for the test of the effects of injunctive norms and group identity. We adopted this procedure because we reasoned that the test of injunctive norms and group identity would be meaningful only if we first accounted for the influence of descriptive norms and communication about alcohol use.

Results

Table 1 shows the intercorrelations among the variables comprising the four central concepts in our model (descriptive norms, communication, injunctive norms, and group identity) as well as those between each variable and consumption. Our overall hypothesis predicted that descriptive norms, communication patterns, injunctive norms, and group identity would each predict alcohol consumption. When the influence of these concepts on consumption was evaluated without taking into consideration the influence of other variables, the overall hypothesis seemed to be supported.

A number of observations can be made from the correlations. First, consumption was correlated with all variables except perceived benefits to others. Second, based on the strength of the correlations, it appears that the two most important variables in understanding student alcohol consumption are students' communication patterns ($r = .63, p < .001$) and perceived benefits to themselves ($r = .67, p < .001$). These two variables were themselves strongly correlated ($r = .65, p < .001$). Third, social approval was negatively correlated with consumption ($r = -.19, p < .001$). We will return to the implications of these findings.

Table 2 shows the results of the hierarchical regression equations.

Table 1.
Correlations Among Descriptive Norms, Communication Patterns, Injunctive Norms, and Group Identity (N = 353)

	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Descriptive norms	.17*	.00	.17**	.23***	-.03	-.04	.19***
	1.00	-.16**	.65***	-.02	.21***	.25***	.63***
Injunctive norms							
(3) Social approval		1.00	-.27***	-.14**	-.20***	-.05	-.19***
			1.00	.17**	.30***	.30***	.67***
(4) Benefits to oneself				1.00	.00	.04	.03
(5) Benefits to others							
Group identity					1.00	.49***	.25***
						1.00	.20***
(6) Similarity							1.00
(7) Aspiration							
(8) Consumption							

* $p < .05$, ** $p < .01$, *** $p < .001$

The two control variables together accounted for 9.6% of the variance in consumption. When descriptive norm was entered into the model in the second step, the increment in variance was significant: $\Delta R^2 = 2.78\%$, $p < .001$. In the third step, we added communication about alcohol, which also resulted in a significant increment in explained variance: $\Delta R^2 = 32.5\%$, $p < .001$. The variables up to the third step of the equation explained 44.9% of the variance.

In the fourth step (step 4A), we added the social approval term and the descriptive norm x social approval interaction term.⁴ As a block, these two variables explained 1.55% of the variance ($p < .01$) beyond that explained by variables up to step 3. Of these two variables, only the interaction term, but not the social approval main effect, was significant ($\beta = -.11$, $p < .01$).

Also in the fourth step (step 4B), we tested the effects of benefits to oneself and the benefit x descriptive norm interaction term. These two terms explained 8.53% of the variance ($p < .001$) beyond that explained by variables up to step 3, but almost all the increment in variance was explained by the main effect ($\beta = .41$, $p < .0001$), as the interaction term was not significant.

In step 4C, we added benefits to others and its interaction term (with descriptive norms) in the model. Neither of the two variables was significant.

In order to test the influence of perceived similarity, we added this variable (together with the similarity x descriptive norm interaction term) in the fourth step (step 4D). Only the main effect was significant ($\beta = .14$, $p < .001$) and these two variables accounted for an additional 1.58% of the variance ($p < .001$). We also tested the influence of aspiration (step 4E), but neither the main effect nor the interaction effect (with descriptive norms) was significant.

Predictors	Std. β^a	$\Sigma R^2 (\%)^b$	Total $R^2 (\%)$
Step 1: Controls			
Underage	-.14**		
Age of first drink	-.31***	9.60***	9.60
Step 2: Descriptive norms	.17**	2.78**	12.38
Step 3: Communication about alcohol^c	.59***	32.50***	44.88
Step 4A			
Social approval	-.05		
Social approval x descriptive norms ^d	-.11**	1.55**	46.43
Step 4B: Benefits to oneself	.41***		
Benefits to oneself x descriptive norms	.00	8.53***	53.41
Step 4C: Benefits to others	.02		
Benefits to others x descriptive norms	.03	.00	44.88
Step 4D: Similarity	.14***		
Similarity x descriptive norms	.04	1.58***	46.46
Step 4E: Aspiration	.07		
Aspiration x descriptive norms	-.03	.51	45.39

Table 2.
Effects of Descriptive Norms, Communication Patterns, Injunctive Norms, and Group Identity on Alcohol Consumption From Regression Equations (N = 353)

Notes. ^aStandardized betas from regression equations include all variables up to the particular step. For example, the standardized beta for step 3 represents the value when all variables up to step 3 are included in the model.

^bRefers to the entire block.

^cTests for steps 4A through 4E were conducted with variables up to step 3 retained in the model, and increase in variance was evaluated beyond the 44.88% explained by variables up to step 3. Each subsequent step thus included variables up to step 3 and only those in the specified step. Hence, step 4D, for example, did not include variables in steps 4A through 4C.

^dIn order to reduce multicollinearity, standardized betas for the interaction terms were calculated by first centering the variables around a mean of zero.

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

Discussion

There is a growing awareness in the public health community that traditional approaches that relied on highlighting the severity of alcohol use, particularly by using terms such as “binge drinking,” may have had counterproductive effects. In particular, researchers have been concerned that the intense focus on the problem may have left students believing that their own alcohol use, unless they engaged in binge drinking, was acceptable (Perkins, 1997). Given this new direction in health campaigns, it is essential to know why and how norms-based campaigns could be effective. This study offers initial insight about the specific mechanisms that underlie normative influences on behavior.

The primary objective of this study was to propose and test a model of normative influence on individuals’ behaviors. We were concerned with the lack of conceptual clarity in the norms literature between descriptive and injunctive norms. Recently, there has been an important shift in public health strategies to base campaigns on perceptual norms,

with the belief that if perceived prevalence of drinking can be reduced, then actual consumption will decline as well (Haines, 1996; Perkins et al., 1999; Steffian, 1999). In this context, perhaps the most significant finding from our study is the idea that students' descriptive norms should not be confused with injunctive norms, even though these two terms are used interchangeably.

An important contribution of this study concerns our finding that descriptive norms surrounding alcohol use, one of the most common conceptualizations of normative influences, was not predictive of consumption when other factors were included in our models. Whereas its zero-order correlation with consumption was significant, its effect vanished when other variables were entered into the equation. This suggests that the relation between perceived prevalence of others' behaviors and individuals' own behaviors that has been reported in the literature is potentially misleading. In the absence of an explanation as to how descriptive norms can lead to consumption, we can only speculate that it might affect other intermediate variables that may in turn affect consumption. After all, individuals do not function in a cognitive vacuum, blindly copying the acts of others simply because they perceive that others are enacting certain behaviors. Rather, they make assessments about benefits and consequences that are likely to result, they gauge the acceptability of the behaviors, and they make comparisons between themselves and others whom they perceive to be engaging in those behaviors. This is also one of the central tenets of social cognitive theory (Bandura, 1977).

This study found that, of the proposed normative influences, perceived benefits to oneself was most strongly correlated with consumption (a finding that has important practical implications, a point we will return to shortly). It did not show an interaction effect with descriptive norms. In other words, to the extent that students perceived that consuming alcohol was beneficial to them, their perceptions about the prevalence of this behavior did not affect their consumption. In hindsight, this finding seems reasonable: There is little motivation to be driven by others' behaviors if engaging in the behavior is beneficial to oneself. In fact, the literature on the effects of the scarcity principle (Cialdini, 1993) predicts just the opposite: When an item is perceived to be beneficial, its value increases to the extent that it is unavailable to others. The difference between the scarcity principle and perceived benefits, as conceptualized in this article, is, of course, that scarcity is concerned primarily with situations in which one person's gain is another's loss. However, the connection between these two may lie in the possibility that students who regularly consume alcohol consider themselves to be members of a special group. Perhaps they take pride in being able to consume alcohol and still

remain in charge of their various responsibilities and obligations. Although speculative, this line of reasoning seems worthy of further research.

We also predicted that, among those who perceived that the larger society approves of their alcohol consumption, the descriptive norms of consumption would be positively correlated with consumption. We found the opposite to be true—those who perceived that society *disapproves* of consumption and simultaneously believe that most of their peers drink were themselves more likely to drink. We interpret this finding to mean that societal disapproval of their consumption behaviors is not a meaningful deterrent to drinking. In fact, we speculate that many students who consume alcohol probably do so in defiance of societal disapproval. This finding is consistent with Brehm's (1966) psychological reactance theory, which predicts that when individuals' freedoms are threatened, they tend to cling even more tightly to those freedoms. To the extent that students perceive their freedom to consume alcohol to be under threat, reactance theory would predict that they would construe consumption in an even more positive light. What is particularly noteworthy in this study, however, is our finding that this defiant attitude seems to find strength in numbers—the greater the prevalence estimate of students, the stronger was the observed relationship between social disapproval and consumption. In retrospect, we should have, but did not, measure students' perceptions about approval of alcohol use among their own peers. Although it is clear that students' perceptions about the larger society's disapproval is associated positively with their own consumption, we can speculate that their perceptions about their peers' approval will be positively associated with their own consumption.

It is also worth noting that, although many variables were not significantly associated with consumption in a multivariate model, the overall explanatory power of our proposed model was quite high, explaining 53% of the variance in consumption. The two variables that accounted for most of the variance were communication about and benefits of consumption. Because these two variables were themselves correlated, it appears that most of the conversations about alcohol use occurred among like-minded students who perceived great benefits and therefore engaged in alcohol consumption. This finding seems to support Oetting and Beauvais's (1987) peer cluster theory, which suggests that adolescents tend to cluster around like-minded others who engage in similar behaviors.

Implications for Health Campaigns

Two of our findings—(a) the absence of an interaction effect between perceived benefits and descriptive norms and (b) the negative interac-

tion effect between social approval and descriptive norms—have important implications for health campaigns. Health promotion efforts have to address the issue of students' perceived benefits from alcohol consumption. This research suggests that an ineffective strategy would be to frame messages designed to reduce perceived benefits from alcohol consumption in terms of societal disapproval of students' behaviors. Such efforts would be counterproductive because they would likely induce reactance. We suspect that a more productive strategy would be to understand the counterarguments that students generate when they are exposed to antialcohol messages. It is likely that campaign messages are rendered ineffective because students use their ideas about the benefits to be derived from alcohol consumption as counterarguments. Campaigns designed to reduce alcohol consumption can likely benefit from a careful study of the counterarguments that students use to convince themselves that benefits from consumption outweigh the costs associated with the behavior.

This research provides some support for the proposition that group identity, as measured through perceived similarity, can influence behaviors. This suggests that antialcohol campaigns may enhance their effectiveness if they are able to convince students that those who abuse alcohol do not comprise the majority and are atypical. Perhaps an effective way to accomplish this is by providing students with accurate numbers about the actual prevalence of alcohol consumption and by demonstrating their similarity with those who drink responsibly.

The strong correlation we observed between perceived benefits to oneself and consumption seems to suggest that antialcohol campaigns should focus not only on rectifying misperceptions about the prevalence of consumption, but they should also concentrate on restructuring students' perceptions about consumption-related benefits. At this point in the research, we do not know the extent to which these perceptions about benefits correspond with actual benefits that students derive from drinking. In other words, similar to recent research about the misperceptions associated with the prevalence of drinking, it is perhaps time to begin conducting research that seeks to determine whether and to what extent perceived benefits actually mirror actual benefits. It may well be that students also harbor exaggerated perceptions about alcohol-related benefits. If so, antialcohol campaigns could disseminate messages that counter misperceptions about consumption-related benefits. Alternatively, they could develop messages that portray benefits of moderate consumption relative to significant costs associated with alcohol consumption. The challenge, of course, is to present these messages in a credible fashion. Given the strong relation between perceived benefits and consumption reported in this article, for example, it is possible that

messages that do not acknowledge students' extant perceptions about benefits (by focusing only on the costs associated with drinking) will engender strong counterarguments. Perhaps focusing on the benefits to be derived from not consuming alcohol is a viable strategy. In other words, if campaigns can disseminate a dual message—that most students do not drink excessively and that most of them derive significant benefits from responsible drinking—we may be able to use the link between benefits and consumption in a positive way. This is, of course, speculative at best. However, it does lead to specific hypotheses for future research.

Studies of alcohol on campus have reported alarming findings with regard to the unintended effects of antidrinking campaigns. By focusing on extreme cases of alcohol abuse, campaigns may have perpetuated misperceptions about the prevalence of drinking on American campuses. Perhaps the most influential series of studies in this area have been those conducted by the Harvard School of Public Health (Wechsler et al., 1994; Wechsler et al., 1995). Haines (1996, pp. 12–13) observed that press releases and media coverage of these studies emphasized the negative aspects surrounding the findings. For example, a *Wall Street Journal* story (December 7, 1994) used the headline, “‘Binge’ Drinking at Nation’s Colleges Is Widespread, a Harvard Study Finds.” The lead sentence reported, “Almost half of all students surveyed at 140 colleges admitted to ‘binge’ drinking, leading to everything from fights to vandalism.” Yet Haines (1996) noted that the results of that study could also have been reported differently. Based on the same data, stories could have reported that more than half of all students engage in moderate or no drinking, that moderate drinking is the norm, and that only a small portion of students vandalize or get hurt. The framing of the results in a negative light may have helped create normative misperceptions that in turn resulted in negative consequences for college students.

The news media, of course, are only one of many vehicles through which norms are transmitted. Interpersonal discussion is another. Even though communication had a strong association with consumption in our study, we have no reason to believe that communication causes risky behavior. Instead, we believe that communication among like-minded individuals is a principal mechanism through which norms are transmitted. The formation and dissemination of norms likely occur through communication. For example, Perkins (1997) found that members of the community spread misperceptions of norms in “public conversation.” Hence, it could well be that misperceptions about the prevalence of alcohol consumption are perpetuated through interpersonal discussions. Alternatively, we could hypothesize that consumers of alcohol seek other like-minded peers. Donohew et al. (1999) found, for example,

that high sensation seekers tend to select friends with similar dispositions. Hence, it is not surprising that discussion about alcohol should be positively associated with consumption.

Limitations

Females comprised 72% of the sample in this study. Given the fairly robust finding in the literature that males consume more alcohol than females (Engs & Hanson, 1990), a sample that has twice as many females as males likely underestimates the overall alcohol consumption levels. It is possible that, by underestimating consumption, the strengths of various relationships reported in this paper have been attenuated. Inclusion of a more representative sample could be a fruitful area for future research.

The findings of this study are based on self-reported data. As such, they are open to numerous distortions and misrepresentations. Indeed, the validity of self-reports in studies about alcohol has long been debated. However, until a “gold standard” can be found, it is likely that we will have to continue resorting to self-reports. Some studies do suggest that self-reported data may not be as inaccurate as some critics charge (Midanik, 1988).

Given the cross-sectional design of this study, we cannot make causal claims from our results. We have worked from the assumption that perceived norms precede consumption. However, it is also likely that the temporal ordering of these two variables is the reverse—that those who consume alcohol justify their behaviors by convincing themselves that their behavior is acceptable because it is widespread. The social psychology literature has long established, for example, that humans are adept at rationalizing the negative outcomes of their choices (Festinger, 1957). It is also possible that a third variable accounts for both consumption and normative perceptions. That variable, for example, could be the nature of students’ social networks. To the extent that students’ social networks comprise others who regularly consume alcohol, it is likely that their prevalence estimates and their own consumption levels will both be high. Hence, until the propositions advanced in this paper are rigorously tested through controlled experiments, we can claim that our findings represent only our best estimates of what we suspect is happening.

Conclusion

Through this article, we have attempted to develop a model of normative influences. Our primary point is that descriptive and injunctive norms

are conceptually different. Interventions that seek to reduce consumption through normative restructuring strategies should thus go beyond simply correcting misperceptions that students harbor about the prevalence of consumption in their midst. Rather, they should attempt to understand the injunctive pressures that students have to negotiate. Furthermore, in this context, perhaps the most neglected, albeit fruitful, area of study would be to understand the relation between students' group identity and normative influences. The joint influence of descriptive norms, injunctive norms, and group identity on behavior thus needs further elaboration in future research.

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¹ We do not report the Cronbach's alpha for the index comprising total alcohol consumption because we believe that this index is misleading for our purpose. Cronbach's alpha assumes that all measures comprising an index are mutually supportive, not mutually exclusive, whereas our index comprises mutually exclusive measures both across contexts and across beverage types. For example, it is reasonable to assume that those who drank beer at home "this past weekend" did not also drink wine at a party and liquor in a bar. Our measure is simply the total amount of alcohol consumed "this past weekend." Because the unit for the number of drinks consumed for each beverage type was standardized according to the alcohol content—12 ounces of beer = 4 ounces of wine = 1.5 ounces of liquor (Russell et al., 1991)—a simple addition resulted in the total alcohol content across beverage type and social context.

² Because regression equations are sensitive to the distributions of the dependent variable (Tabachnick & Fidell, 2001), this variable was transformed to reduce the skewness. For simplicity, other (independent) variables were not transformed.

³ Results of the factor analysis are available from the first author upon request.

⁴ In order to reduce multicollinearity problems that arise when the interaction term is included in the model, standardized beta was calculated by first centering the variables around a mean of zero.

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