Moving Toward a Theory of Normative Influences:

How Perceived Benefits and Similarity Moderate the Impact of Descriptive Norms on Behaviors

Interventions aimed at reshaping behavioral norms show a great deal of promise (Haines & Spear, 1996), and these programs have gained popularity in recent years, especially in the domain of alcohol consumption on U.S. campuses (Wechsler & Kuo, 2000). These efforts are guided by the underlying belief that if individuals’ perceptions about norms can be changed, then behavior change will ensue. There is some evidence to support this belief (Bator & Cialdini, 2000; Ewing, 2001; Sheeran & Taylor, 1999), but findings from research that tests the causal link between norms and behaviors are inconsistent (Bagozzi, Wong, Abe, & Bergami, 2000; Cialdini, Reno, & Kallgren, 1990). We believe that this inconsistency stems from three shortcomings that prior research has not addressed comprehensively.

First, there is a great deal of conceptual ambiguity surrounding the meaning of norms. We currently have a myriad of terms to describe this concept, including 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). It is our view that different researchers use different terms not to describe the same phenomenon, but rather that there is a lack of clarity between two closely related but conceptually distinct ideas: descriptive norms and injunctive norms.

Following Cialdini et al. (1990), we define descriptive norms as individuals’ perceptions about the prevalence of a behavior and injunctive norms as coercive forces that individuals perceive from members of their reference group to enact or refrain from enacting a particular behavior. Whereas descriptive norms provide information about what is normal, what most
people do, injunctive norms provide information about *what ought to be done*. It is usually the case that descriptive and injunctive norms are mutually congruent; after all, by observing what most people do in a given social setting, individuals perceive, often correctly, that they themselves are required to do the same. For example, upon walking into a meeting, an individual may observe that most others are quiet and attentive (the descriptive norm), and hence he or she may perceive, correctly, that transgressions of this norm will result in some social sanction (injunctive norm). It is not surprising that, in similar situations, many individuals will follow what they perceive to be the appropriate group norm. The principle of social proof (Cialdini, 1993) posits, for example, that it is usually in the individual’s interest to follow group norms because doing so is often beneficial for the group’s survival. There are many situations, however, when individuals defy strong descriptive or injunctive norms, and it is these situations that provide us with an opportunity to understand the underlying cognitive processes.

This points to the second shortcoming of the norms literature – its failure to explicate the underlying cognitive mechanism in the relation between perceived norms and behavior. Because of the absence of this discussion, it has not been possible to determine why norms work, when they do, in influencing behaviors. These normative influences may operate in much the same way as conformity processes (Asch, 1952) or they may include a rational, cognitive component (Ajzen & Fishbein, 1980). The processes which underlie the influence of norms remains unspecified, and thus the implication of the balance of norms-based findings – that humans are unable or unwilling to think for themselves and that they are guided solely by what others do – seems to ignore much of the research on human motivation and learning. That literature makes a strong case for the role of peer modeling, outcome expectations, and self-efficacy to exercise restraint (Bandura, 1977, 1986, 1989).
The third shortcoming of the norms literature is the failure by many researchers to make distinctions among various attributes that define behaviors in general and health behaviors in particular. In other words, with regard to normative influences, not all behaviors are created equal (Bagozzi et al., 2000). Some behaviors, for example, are enacted in personal, private settings, whereas other behaviors are enacted under the public eye. It seems logical that, compared to the first, the second category of behaviors would fall much more strongly under the influence of norms. Bagozzi et al. (2000) found, for example, that for eating behaviors, the influence of norms is moderated by the setting in which the behavior takes place. Getting tested for HIV, conversely, is a behavior that is often enacted with trepidation and fear (Lapinski, Randall, & Pope, 2000). Anonymity is likely to be one of the most powerful attributes that governs this behavior, which means that perceptions about the prevalence of this behavior among one’s social network are likely to be less influential. College students’ alcohol consumption, on the other hand, is a behavior enacted in social settings (Cowan & Mosher, 1986; Haines & Spear, 1996; Perkins, Meilman, Leichliter, Cashin, & Presley, 1999; Wechsler & Kuo, 2000) in which perceptions about others’ behaviors are important (Wechsler & Kuo, 2000, Perkins & Berkowitz, 1986). Hence, unless we delineate key behavioral attributes, our ability to generalize across health behaviors is likely to suffer.

In this paper, we address each of the three shortcomings mentioned above. First, our concern is limited to understanding the influence of descriptive norms, and we do not work with the assumption that descriptive and injunctive norms are isomorphic, or that implications from our study pertain to injunctive norms. In fact, we will show that the two are unrelated. We chose to focus on descriptive norms for primarily two reasons. In this initial study to establish a causal link between normative influences and behaviors, we sought to manipulate norms rather
than study them through a correlation design. We believed that descriptive norms are more easily manipulated than injunctive norms. The second reason for focusing on descriptive norms is more pragmatic. Because many norms-based, anti-alcohol interventions currently underway on U.S. campuses focus on descriptive norms by restructuring students’ perceptions about the prevalence of consumption in their social midst (Haines & Spear, 1996; Perkins et al, 1999; Wechsler & Kuo, 2000), we deemed it important to understand how this influence occurs.

Addressing the second shortcoming – to delineate the underlying cognitive mechanisms – of the extant norms literature is the primary focus of this paper (we will discuss the third shortcoming – identifying behavioral attributes – shortly). By “cognitive mechanisms,” we are referring to the underlying processes that govern whether, and if so how, descriptive norms influence behavior. In prior work (XXX, in press) [identity masked for blind review], we have identified six such factors: benefits to oneself, benefits to others, anticipatory socialization, societal approval, perceived similarity, and aspiration. In the proposed model, each cognitive mechanism is hypothesized to moderate the relation between descriptive norms and behavioral intention. For example, “benefits to oneself,” one of the mechanisms, refers to individuals’ beliefs about the benefits that are likely to accrue if they engage in the behavior. It is hypothesized to influence the relation between descriptive norms and behavior in a multiplicative way such that, when descriptive norms are strong, those who believe the behavior results in many personal benefits will engage in the behavior more frequently. Conversely, if individuals believe that most others refrain from an activity (i.e., the descriptive norms are weak) and perceived benefits are few, individuals will be less likely to engage in the behavior. Put another way, the influence of descriptive norms on behavior must be evaluated in terms of individuals’ perceptions about whether the behavior is likely to be beneficial to them.
The other cognitive mechanisms are hypothesized to exert their influence in a similar manner. Perceived similarity, for example, is also thought to affect the relation between descriptive norms and behavior such that, if most others engaging in a behavior are perceived to be similar, individuals are more likely to engage in the behavior themselves.

The extent to which individuals perceive similarity with referent others who comprise their social group is a key indicator of their identification with the group (Tajfel & Turner, 1986). When they perceive that others are similar to themselves, individuals are likely to experience greater levels of personal identification, which in turn makes them more susceptible to others’ influences, as has been long noted by social science (e.g., Hovland, Janis, & Kelly, 1953) and rhetoric (Burke, 1950) scholars. When individuals believe that the prevalence of a behavior is high among their referent others and they also perceive greater similarity with them, they are likely to engage in the behaviors themselves. On the other hand, when perceived similarity is low, behaviors of others should make little impact in their own behaviors. In fact, if individuals perceive a great deal of dissimilarity, it is likely that the behaviors of the dissimilar others will be negatively associated with their own behaviors. Conceptual discussions of the other cognitive mechanisms (i.e. aspiration, benefits to others, anticipatory socialization, and societal approval) is beyond the scope of the current paper.

In our previous work, we tested the efficacy of the proposed model in two studies that sought to predict college students’ alcohol consumption. The first study (XXX, in press) used retrospective consumption measures and the second study (XXX, 2002, July) used intentions to consume alcohol in the future as the dependent variables; the cognitive mechanisms, together with measures of descriptive norms (and some control variables), were able to account for 53 percent and 63 percent of the variance in consumption, respectively. Both studies, however,
were based on cross-sectional data, which undermined our ability to make causal statements about the influence of descriptive norms on behaviors.

This paper presents a direct test of a component of the XXX (in press) model by manipulating the descriptive norm and two of the six cognitive mechanisms (perceived benefits and similarity) in order to determine whether the moderating role played by the cognitive mechanisms can be established through a more rigorous test of causality. Of the six variables identified by XXX (in press) as moderators of the relation between descriptive norms and behavior, we chose perceived benefits and similarity because these were thought to be most conducive to an experimental manipulation. Thus, our study hypotheses are:

H1: The influence of descriptive norms on behavior will be moderated by perceived benefits such that the interaction between descriptive norms and perceived benefits will be significantly associated with behavior.

H2: The influence of descriptive norms on behavior will be moderated by similarity such that the interaction between descriptive norms and similarity will be significantly associated with behavior.

The specific behavior under investigation in this paper is the practice of Yoga. We chose this behavior mainly for two reasons. First, given this initial study that seeks to manipulate descriptive norms, perceived benefits, and similarity, it was important for us to choose a behavior about which students, our participants in this study, had little prior knowledge. Research shows that normative influences are heightened under conditions of ambiguity (Cialdini, 1993), which can be assured only if prior knowledge about the topic is low. Thus, one of the reasons for choosing the practice of Yoga was our belief that, in order to study normative
influences, the primary behavioral attribute of interest is ambiguity surrounding the behavior. We will return to this point later in the discussion section of this paper.

Second, we sought a behavior that could generate a sufficient amount of interest among students. Given the rising interest in alternative health practices in the United States (Anonymous, 2001), Yoga as a topic was deemed to provide a good balance between low prior knowledge, on one hand, and likelihood of arousing curiosity, on the other. In this study, the two primary outcomes of interest were behavioral intentions and self-efficacy to practice Yoga. Behavioral intention was chosen because it is a reasonable proxy for actual behavior (Ajzen & Fishbein, 1980), and self-efficacy was chosen because, apart from prior behavior, it has commonly been found to be the best predictor of actual behavior (Kim & Hunter, 1993; Rimal, 2000). We used Bandura’s (1977, 1986) definition of self-efficacy – individuals’ perceptions about their abilities to exert personal control.

Method

Design

In order to test our overall hypothesis that the effects of descriptive norms (perceived prevalence) on behaviors would be moderated by perceived benefits and similarity, we conducted a 2 (perceived prevalence) x 2 (perceived benefits) x 2 (similarity) between-subjects experiment. Participants were exposed to three kinds of information about Yoga: either that the practice was highly popular or not popular; either that practitioners of Yoga were similar or dissimilar to the participants; and either that the benefits of Yoga were many or few. Participants then answered questions about their behavioral intentions and self-efficacy to practice Yoga.
Participants for this study comprised students (N = 174) who were recruited from a participant pool maintained in the Department of Communication Studies at a large public university in the southwest. Students were offered extra course credit for their participation. The sample comprised 80 percent females and 75 percent upper-division undergraduates. Approximately 68 percent were White, 5 percent African American, 9 percent Hispanic, 14 percent Asian, and 4 percent “other.” The average age was 21.7 years (SD = 2.8). Because the primary outcomes of interest, behavioral intention and self-efficacy, involved asking participants their intentions and confidence to begin Yoga, we excluded from our data analyses participants (n = 13, 7.5%) who were already engaging in this behavior. A chi-square test between exclusion from this study and assignment to one of the eight experimental conditions, \( \chi^2 (7, N = 173) = 10.2, p > .1 \), was not significant. Thus, our exclusion of prior Yoga participants seems not to correlated with the assignment to experimental condition.

**Procedure**

An online study was designed to manipulate each of our independent variables through separate Web pages. Students received information about the study from course instructors, and they were given a URL to begin the study online. Students were free to participate in the study from any location with online access. Because we did not conduct this study in a tightly-controlled laboratory setting, it is likely that we introduced noise in the data. However, this is of relatively minor concern for two reasons. First, the manipulations (discussed subsequently) seemed to have been successful. Second, our attempt was to simulate a real-world situation in which students receive much of their health information from on-line sources (McDowell, 2002). Thus, while our internal validity was compromised because of an absence of tighter controls that would have been possible in a laboratory setting, we believe our external validity was
significantly enhanced by allowing students to complete the study in a location of convenience to them.

When participants logged on to the study Web site, the first screen presented the informed consent form (approved by the Institutional Review Board where the study was conducted), and participants consented by clicking the “submit” button at the bottom of the screen. On the next screen, participants were told that students from a local high school had been assigned to design a Website that promoted healthy activities. Participants were asked to evaluate this Website according to five criteria – thoroughness of the research, aesthetic appeal of the Web pages, ease of use, Web designers’ understanding of the target audience, and use of appropriate language. Asking participants to use these criteria in their evaluation was a way to ensure that they paid sufficient attention to the content.

After reading this page, participants clicked on the submit button and experienced a five second delay during which time, they were told, the computer was randomly selecting a particular topic for their review. In reality, all participants were provided the same topic (Yoga). A random number generator embedded within the HTML program then assigned the participant to one of the two (high or low) descriptive norms conditions. At the bottom of the screen, participants were asked to write their critique of this Web page. Upon hitting the “submit” button, participants then saw one of the two (high or low) similarity conditions, and they were again asked to provide a written feedback about this page. When they hit the “submit” button, they were then shown one of the two (high or low) benefits conditions and they were again asked to provide written feedback. After all three pages were evaluated in this manner, participants were then presented a screen that asked for their overall evaluations. This screen was used to obtain measures of our dependent variables.
When this section of the experiment was completed, participants were debriefed about the true intent of the study, they were told that the content on the Websites was fictitious, and they were provided information about the necessity for deception. It was not possible for participants to skip the debriefing page because it contained information they had to provide in order to record their participation for extra course credit. They were then thanked for their participation.

**Manipulations**

*Descriptive Norms.* The Website for the high descriptive norms condition noted that the practice of Yoga had experienced a rapid increase in popularity in the last 10 years and that now, more than ever, many people in the U.S. were practicing Yoga. A graph at the center of the screen prominently showed an increase in popularity. In the low descriptive norms condition, all information was identical, except that “high popularity” was replaced by “low popularity,” the graph showed a decrease in popularity over the years, and participants were told that fewer people were practicing Yoga today, compared to a decade ago.

*Similarity.* The website for the high similarity condition contained information indicating that college students were the most common Yoga practitioners. Participants were provided information such as “college students represent the largest single group of Yoga enthusiasts.” In the low similarity condition, participants were told that the most common Yoga subscribers were pregnant women. All information was identical in the two conditions, except that “college students” in the high similarity condition was replaced by “pregnant women” in the low similarity condition.

*Perceived Benefits.* The website for the high benefits condition contained information about how the practice of Yoga provided the body with many benefits. Outcomes such as
relaxation, muscular strength and flexibility, and weight loss were listed as benefits. In the low benefits condition, the Website contained information about how Yoga provided the body with few benefits. Participants were told that Yoga only extends the average life span by three days, and that achieving benefits from Yoga took a long-term commitment with few, if any, positive results.

Measures

Outcome measures were all obtained after participants were exposed to all three manipulations.

Behavioral Intention. Behavioral intention was conceptualized as participants’ intention to initiate Yoga in the near future. Participants expressed their level of agreement (on a 7-point Likert scale) to four statements (e.g., “I intend to take up Yoga in the next week or so” and “I can see myself practicing Yoga on a regular basis). Behavioral intention was calculated as the average of the responses, $\bar{q} = .93$. The resulting variable was positively skewed (skewness = 1.58), and hence it was logarithmically transformed to approximate a normal distribution (skewness of transformed variable = .82). It should be noted that the logarithmic transformation still resulted in a positively skewed distribution, indicating that intention to practice Yoga was quite low in our sample. We will return to the implications of this finding later in the paper. This transformed variable was used in our analyses.

Self-Efficacy. Self-efficacy was conceptualized as the extent to which participants felt confident in their ability to practice Yoga on a regular basis. This was measured through three questions that asked about (a) participants’ confidence in ability to spend about 20 minutes each day practicing Yoga, (b) their confidence in ability to set aside time every-day for practicing Yoga, and (c) the extent to which practicing Yoga on a daily basis would be difficult [reverse
Responses were measured on a 7-point Likert scale. Self-efficacy was calculated as the average of the responses, $\alpha = .77$. The resulting variable was positively skewed (skewness = .36) and hence it was transformed. The optimal transformation was obtained by raising it to the power of 2/5 to approximate a normal distribution (skewness of transformed variable = .001). This transformed variable was used in the analyses.

**Manipulation Checks**

**Descriptive Norms.** We conceptualized descriptive norms as participants’ perceptions about the prevalence of the practice of Yoga. Specifically, participants were asked how much they agreed with three statements about the rising popularity of Yoga (e.g., “According to the Web sites, Yoga practice is on the rise in the general population). Responses were measured on a 7-point Likert scale. Descriptive norms were calculated as the average of the three responses, $\alpha = .91$. A t-test revealed that those in the high descriptive norms condition perceived greater levels of prevalence ($M = 5.7, SD = 1.2$) than those in the low descriptive norms condition ($M = 1.9, SD = 1.3, t = 18.8, p < .0001$).

**Similarity.** Similarity was operationalized as the degree to which participants identified with other practitioners of Yoga. One question asked about the extent to which they identified personally with people who practiced Yoga the most and another question asked about the extent to which they believed other practitioners of Yoga were similar to themselves. Responses to these two questions, measured on a 7-point Likert scale, were averaged into an index, $\alpha = .77$. A t-test revealed that those in the high similarity condition perceived other practitioners of Yoga to be more similar to themselves ($M = 4.5, SD = 1.7$), compared to those in the low-similarity condition ($M = 2.7, SD = 1.2; t = 7.84, p < .0001$).
**Perceived Benefits.** Perceived benefits were measured through three variables: the extent to which Yoga provides few, if any, benefits (reverse coded); that Yoga provides the body with numerous health benefits; and that practicing Yoga increases a person’s life span by a significant amount. Responses, measured on 7-point Likert scales, were averaged into an index, $\bar{t} = .91$. T-tests revealed that those in the high-benefits condition perceived greater benefits ($M = 6.3, SD = .91$) than those in the low-benefits condition ($M = 2.2, SD = 1.4, t = 22.5, p < .0001$).

**Preliminary Analyses**

Female students ($M = 2.0, SD = 1.3, n = 123$), compared to male students ($M = 1.5, SD = .82, n = 34$), expressed greater intentions to practice Yoga ($t = 2.11, p < .05$). Male and female students did not significantly differ in their self-efficacy ($t = 1.68, p > .05$). Given the gender difference in behavioral intention, our statistical analyses to test the study hypotheses used this variable as a covariate in models that used behavioral intention as the dependent variable.

**Hypothesis 1**

Our first hypothesis predicted a significant descriptive norms x perceived benefits interaction effect. We tested this hypothesis on two dependent variables – behavioral intention and self-efficacy. To test the effects on behavioral intention, an analysis of covariance model (with gender as the covariate) was conducted; predictors in the model were the two experimental manipulations: descriptive norms and perceived benefits. The overall model was significant, $F(4, 152) = 2.56, p < .05, \eta^2 = .06$. The covariate was only marginally significant, $F(1, 152) = 3.36, p < .07$). Neither the descriptive norms main effect, $F(1, 152) = .19, p > .05$, nor the perceived benefits main effect, $F(1, 152) = .13, p > .05$, was significantly correlated with behavioral intention. However, the descriptive norm x perceived benefits interaction term was significant, $F(1, 152) = 5.51, p < .05, \eta^2 = .04$. As shown in Figure 1, the influence of
descriptive norms on behavioral intention was positive when perceived benefits were high, but negative when perceived benefits were low.

The first hypothesis was also tested for self-efficacy as the dependent variable in an analysis of variance model. The overall model was not significant, $F(3, 156) = .72, p > .05$. Neither of the two predictors was significantly correlated with self-efficacy. The descriptive norms x perceived benefits interaction term was not significant. Hence, the data were consistent with our first hypothesis for behavioral intention but not for self-efficacy.

**Hypothesis 2**

Our second hypothesis predicted a significant descriptive norms x similarity interaction effect. Identical procedures used to test the first hypothesis were used to test this hypothesis, with the only difference being that the predictors were descriptive norms, similarity (as opposed to perceived benefits), and their interaction term. The overall model was not significant, $F(4, 152) = 1.75, p > .05$. Although females expressed greater intentions to practice Yoga than males, $F(1, 152) = 4.49, p < .05$, neither of the two main effects were significant. The descriptive norms x similarity interaction term was also not significant.
The second test of the second hypothesis was identical to the above test, except that gender was not used as a covariate, and self-efficacy was used as the dependent variable. The overall model was significant, $F(3, 156) = 4.20, p < .01, \eta^2 = .08$. The descriptive norms main effect was not significant, $F(1, 156) = .90, p > .05$; the similarity main effect was not significant, $F(1, 156) = .06, p > .05$. There was, however, a significant descriptive norms x similarity interaction effect, $F(1, 156) = 11.55, p < .001, \eta^2 = .07$, such that, as shown in Figure 2, when other practitioners were perceived to be dissimilar, descriptive norms were positively correlated with participants’ self-efficacy. When other practitioners were perceived to be similar, descriptive norms were negatively correlated with participants’ own self-efficacy. Thus, Hypothesis 2 was not supported for behavioral intentions, but it was supported for self-efficacy.

![Figure 2. Self-efficacy to Practice Yoga](image)

**Discussion**

Prior research (XXX, in press) has found that the influence of descriptive norms on behaviors is moderated by six cognitive mechanisms. Findings, however, have come from correlational data, and hence the implied causal relation has yet to be determined. The primary
objective of this study was to examine whether, by manipulating descriptive norms and two of the six cognitive mechanisms, prior findings could be replicated. Results reported in this paper indicate that the moderating role of the two cognitive mechanisms needs to be specified more precisely. We found that perceived benefits moderates the relation between descriptive norms and behavioral intentions (but not self-efficacy), whereas similarity moderates the relation between descriptive norms and self-efficacy (but not behavioral intention).

Effects on Behavioral Intention

The different ways in which the two cognitive mechanisms exerted their influence needs further elaboration. Not surprisingly, when participants believed that there were many benefits in practicing Yoga, the descriptive norm was positively correlated with behavioral intention. That is, the combination of the belief that many others were engaging in a behavior and that benefits associated with the behavior were high, resulted in participants expressing greater desires to engage in the behavior themselves. This finding likely relates to participants’ desires not to deprive themselves of important benefits that they believed many others were deriving from the behavior. Research indicates that the threat of a potential loss of opportunity looms large in people’s minds. Kahneman and Tversky (1984) and Kahneman, Knetsch, and Thaler (1991) have shown, for example, that the threat of losing something is a greater motivator of action than the potential for gaining something of equal value. That is, individuals take risks in order to avoid missing out on something they perceive others value. It is possible that, when both descriptive norms and perceived benefits were substantial, individuals’ behavioral intentions were strong because of their desires to avail themselves of potential benefits that, apparently, many others were deriving from the behavior.
What was surprising, however, was the finding that, when perceived benefits were few, descriptive norms were negatively associated with behavioral intention. That is, when participants believed that the practice of Yoga conferred few benefits, knowledge about most others engaging in the activity resulted in lower desires to engage in the behavior themselves. We interpret this finding to mean that participants’ belief about the futility of engaging in the behavior was made salient by the observation that many others were doing so. It is possible that, in this context, dissimilarity played a role: that participants viewed themselves to be different from most others because they were in possession of knowledge – that practicing Yoga is futile – that apparently few others possessed. This finding is consistent with research in other domains of social scientific inquiry such as the third person effect (Perloff, 1992) in which people perceive that others may be more susceptible to and more persuaded by certain message or source cues than they themselves. Although speculative, this interpretation is worthy of further inquiry because of its implications for health campaigns, particularly in how to frame campaign messages. If accurate, this interpretation suggests that, in order to persuade individuals not to engage in a behavior (e.g., alcohol consumption), health campaigns should focus on highlighting the fact that the behavior in question is practiced mostly by those who believe, incorrectly, that it provides many benefits.

These results are based on an experiment in which perceived benefits were successfully manipulated – those in the high-benefit condition, relative to those in the low-benefit condition, believed that practicing Yoga provided more benefits. We suspect that this manipulation was successful because few participants had extensive prior knowledge about the benefits of Yoga, and hence when the researchers told them about the benefits, they were likely to believe it. The generalizability of this finding is likely limited because the perceived benefits surrounding many
of the behaviors that health campaigns seek to change (e.g., alcohol consumption, smoking) are already deeply engrained, and changing these perceptions is likely to be difficult. We note, however, that if the perceived benefits are already deeply engrained, health campaigns can still take advantage of our results by segmenting the audience according to their perceptions about the benefits. At a minimum, our findings suggest that individuals’ perceptions about the benefits associated with a behavior determine what they will do with information about the prevalence of the behavior. Hence, different messages could be tailored to different people, according to the perceived benefits they attribute to or expect to derive from the behavior.

We also note that participants’ perceived similarity with referent others did not moderate the influence of descriptive norms on behavioral intention. Decisions to engage in or refrain from a behavior were not contingent upon how widespread the behavior was or who was engaging in the behavior. The combination of these two variables, however, was important in imparting information about one’s ability, a topic we turn to next.

**Effects on Self-Efficacy**

Our data revealed that, when practitioners of Yoga were cast as dissimilar others, prevalence of the behavior was positively related to participants’ self-efficacy to engage in the behavior. Conversely, when practitioners of Yoga were cast as similar others, prevalence of the behavior was negatively correlated with participants’ own self-efficacy. Thus, self-efficacy was greatest when many dissimilar others engaged in the behavior, and it was lowest when many similar others engaged in the behavior. We interpret this finding in the context of our operationalization of similarity: in this study, other students were perceived as similar, whereas pregnant women were perceived as dissimilar. This raises a question about the dimension on which participants evaluated their similarity relative to other students and pregnant women. We
suspect that pregnant women were perceived to be dissimilar because they were perceived to be physically less able than the participants to engage in a strenuous activity like Yoga. Hence, when participants were told that lots of pregnant women were engaging in the activity, they likely concluded that, if so many less physically able individuals could do the behavior, then they themselves could, too. Conversely, when only few pregnant women were engaging in the behavior, there were few, if any, reasons to believe that participants could themselves perform the behavior.

This line of reasoning is, of course, speculative at best, but it warrants further investigation. It does, however, points to the need to be sensitive about the particular dimension along which receivers of health information are likely to evaluate their similarity relative to actors shown to be engaging in the behavior. We found that behaviors enacted by many similar others resulted in lower self-efficacy, relative to behaviors enacted by only a few similar others. We interpret this to mean that participants likely identified with those who did not engage in the behavior in both the high-prevalence and low-prevalence conditions when others were portrayed as (similar) students. If so, in the low-prevalence condition, participants would be more likely to attribute greater ability to themselves in comparison to most others who were unable to engage in the behavior. When many similar others were engaging in the behavior, however, if participants again identified with those who did not engage in the behavior, then they would be likely to attribute lower ability to themselves to engage in the behavior. This line of reasoning, too, is speculative, but it presents specific hypotheses that could be tested in future research.

Effects of Descriptive Norms

In terms of its potential application to norms-based health interventions, perhaps the most noteworthy finding of this study is our failure to detect any descriptive norm main effect.
Neither behavioral intention nor self-efficacy was directly influenced by participants’ perceptions about the prevalence of the behavior. This finding, if generalizable to other behaviors, suggests that interventions that seek to change behaviors by restructuring individuals’ perceptions about the prevalence of the behavior are unlikely to be successful. Yet, numerous interventions are currently underway on U.S. campuses (Perkins et al., 1999) that are based on the logic that students’ alcohol consumption can be reduced if their exaggerated misperceptions are corrected. As we noted earlier, there is no theoretical reason to believe that individuals’ behaviors are guided solely by what others do. To subscribe to this belief is to neglect the vast literature on human learning and behavior change, including findings from social cognitive theory (Bandura, 1977, 1986) or the theory of reasoned action (Ajzen & Fishbein, 1980) that posit that humans make decisions based on their self-efficacy and outcome expectations, among other things.

This is not to say, however, that behaviors are independent of peoples’ normative beliefs. As demonstrated in this paper, beliefs about the prevalence of a behavior affect one’s decision to act if other moderators facilitate the change. In particular, individuals are likely to engage in a behavior when perceived benefits of an action (“outcome expectations” in social cognitive theory and “behavioral belief” in the theory of reasoned action) are thought to be substantial and when perceived prevalence of the behavior is high.

This study also illustrates the need to be specific about the outcomes that health promotion campaigns seek to attain through their efforts. We found that the predictors of self-efficacy and behavioral intentions were not the same. Even though self-efficacy has been found to be a strong predictor of behavior change (Bandura, 1977, 1986, 1989), it appears that the determinants of each of these outcomes, especially when they are evaluated according to
normative influences, are different. Consistent with social cognitive theory (Bandura, 1977, 1986), we found that similarity cues were more important in determining self-efficacy than they were in determining behavioral intention. Bandura (1977) notes that one of the sources of people’s efficacy beliefs is vicarious learning and that vicarious learning is facilitated when role models possess characteristics similar to the audience’s. Our findings seem to suggest that dissimilarity can also promote efficacy enhancement, particularly if the behavior is perceived to be enacted by many others.

Health promotion efforts usually conceptualize similarity according to readily apparent characteristics of the actors, including their physical appearance, gender, age, etc. Persuasion researchers generally discuss similarity cues in terms of attitudinal similarity (e.g. Byrne, 1971; Newcomb, 1953). In our study, we provided no such cues about the actors, who were described only as either students or pregnant women. Participants in our study were free to come up with their own criteria to judge whether the actors were similar or dissimilar to themselves. Although our manipulation checks did reveal that those in the high- (relative to the low-) similarity condition perceived the actors as being more similar to themselves, we do not know what frame of reference were used by participants to make this judgment. Based on our findings, we suspect that pregnant women were perceived to be dissimilar in terms of their physical abilities – that participants believed pregnant women were less able than themselves to perform Yoga. If this is accurate, it appears that self-efficacy of the target audience may be enhanced by depicting the behaviors of many others who are perceived, by the target audience, to be less able than themselves.

Finally, we note that findings from this study pertain to a behavior that, we suspect, participants did not have much prior knowledge about. Yoga was deliberately chosen because
we believed that there was a lot of ambiguity surrounding its practice, and we know that normative influences are more powerful in the presence of ambiguity (Cialdini, 1993). It remains to be seen whether our findings also generalize to behaviors characterized by familiarity or those in which participants have extensive prior experience. Furthermore, it is likely that there are other behavioral attributes that also vary in terms of their susceptibility to normative influences. The study of normative influences can be enriched if we first conceptualize behaviors in terms of their constituent attributes. Participants in this study, for example, were not prior practitioners of Yoga and the effects we were able to attain were small – our behavioral intention measure was positively skewed, indicating that few participants expressed strong intentions to take up the practice. Hence, prior familiarity with the behavior seems to have been an important variable in this study. Future studies on normative influences could vary prior behavior or prior behavioral familiarity to determine whether it predicts susceptibility to normative influences.
References


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