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Evaluating different health communication theories to deter college binge drinking: a look at promising directions for future research

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EVALUATING DIFFERENT HEALTH COMMUNICATION THEORIES TO DETER
COLLEGE BINGE DRINKING: A LOOK AT PROMISING DIRECTIONS FOR
FUTURE RESEARCH

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University Agricultural & Mechanical College
In partial fulfillment of the requirements of the degree of
Master of Mass Communication in
The Manship School of Mass Communication

by
Kristen Sunde
B.A., Louisiana State University, 2002
May 2010

Dedication

I dedicate this thesis research to my husband, Damon, who is my better half in every possible way, and without whose support I could never have made it through graduate school. Thank you for being my friend, editor, and sanity check for the past three years!

I also dedicate this thesis to my parents, who led by example in teaching me to always look for opportunities to learn new things, and to value education. As Sir Isaac Newton said, “If I have seen further, it is only by standing on the shoulders of giants.” You both are my giants, and you have inspired and shaped my life in so many ways for which I am forever grateful.

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For this research, I also wish to acknowledge my undergraduate professor, Dr. David Kurpius, and my dear friend and former co-worker, Trudy Horton, who both convinced me to pursue a graduate degree and begin conducting mass communication research. I am so glad I listened to you!

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Abstract

For more than 30 years, college administrators and health communicators have used binge drinking prevention campaigns on university campuses to deter students from this dangerous and life-threatening habit. Despite the prevalence of such campaigns (Wechsler, Seibring, Liu & Ahl, 2004), binge drinking remains the top public health threat for this population (Wechsler, Dowdall, Davenport, & Castillo, 1995).

In this study, the researcher conducted an experiment using fear appeals to see if these messages were more effective than social norms messages, which are often used in college binge drinking prevention campaigns (Real & Rimal, 2007), at prompting higher message credibility and intentions to change behavior for a sample of college students.

Overall, students in this experiment who viewed messages containing fear, either alone or combined with social norms, reported higher message credibility scores, and students who received a message using only fear reported higher intentions to change behavior than students who received a message with only social norms.

This study offers experimental evidence that fear appeals could be an effective health communication strategy for binge drinking prevention campaigns aimed at college students.

Chapter 1: Introduction

Among American college students, binge drinking is the top public health concern and the leading cause of preventable death. Binge drinking is defined as five or more drinks in a sitting for men, and four or more drinks in a sitting for women (Wechsler, et. al.1995).

The National Institute on Alcohol Abuse and Alcoholism began the first campus-based messaging programs to educate college students about dangerous drinking in the mid-1970s (Broughton, 2006), and in recent years, these programs have become nearly ubiquitous on college campuses, as faculty, administrators and health professionals try to combat dangerous drinking (Wechsler, Seibring, Liu & Ahl, 2004). Unfortunately, very few programs have demonstrated that these messages deter students from binge drinking, or decrease the amount of drinking students on those campuses are already doing. Overall, student drinking either increased or remained the same at most universities in the past decade (Casper, Child, Gilmour, McIntyre & Pearson, 2006).

Part of the reason binge drinking is such a dangerous public health issue is that it affects everyone on campus, even students who do not drink, through secondary health effects. For example, car accidents are the leading cause of death for college-age individuals, and alcohol is a factor in more than half of these crashes (Chaloupka, 1996). College students cause more car accidents, primarily because of alcohol, than is in proportion to their representation in the general population (Treise, Wolburg & Otnes, 1999).

Alcohol is a factor in more than half of suicides among college students, and is a factor in 98 percent of sexual assaults and 95 percent of other violent crimes, such as assault, negligence and damage to property, that take place on college campuses (Parker, 1998).

While many health communicators have spent time and money developing messages to deter students from this dangerous and life-threatening habit, very few campaigns are effective at curbing drinking rates on college campuses. Many current binge drinking-prevention campaigns for a college-aged audience rely on social norms marketing messages, which state how much the “typical” student at that university drinks. But, one study showed this technique was only effective for students who were overestimating the amount of drinking on their campuses, and behavior change effects were not strong even for those students (Campo, Brossard, Frazer, Marchell, Lewis & Talbot, 2003).

People’s personal experiences with friends can cause them to discount the messages espoused in social norms-based binge drinking prevention campaigns (Polonec, Major & Atwood, 2006). Also, readjusting a student’s social perception of how much is appropriate to drink and how much other students drink does not translate into effects on their behavior (Wechsler et.al., 2004).

Because binge drinking remains the top public health issue for college-age students, any research that offers insight into successful prevention messages should be useful to college administrators and to health communicators developing campaigns that deter this behavior.

While this particular study uses a convenience sample at just one university and therefore cannot be considered a general representation of what could work for all college students, the findings indicate new techniques and future directions that could work effectively for college binge drinking-prevention programs.

Research Questions and Hypotheses

Although most binge drinking-prevention campaigns for a college-aged audience rely on social norms, research demonstrates that these campaigns very rarely impact students or affect behavior. This study investigates whether a different health communication tactic, the fear appeal, could be more effective than a social norms-based message in affecting a sample of college students' perceived message credibility and their intentions to change behavior. The study also examines how individual characteristics interact with message condition to affect credibility and intentions to change behavior.

Overall, this study addresses the research questions:

R1: Are there fear appeal message threats other than death, which most fear appeal ads against drinking use, that would appear more salient to a college audience?

R2: How do fear appeals and subjective norms used in binge drinking prevention messages affect students' perceptions of message credibility and their intentions to change behavior?

R3: What interaction effects occur between students' character traits and different message appeals in a binge drinking-prevention message?

and the hypotheses:

H1: There will be a significant relationship between message condition (fear, social norms, and both combined) and perceived message credibility. [Literature review does not support a directional hypothesis.]

H2: There will be significant relationship between message condition (fear, social norms and both combined) and intentions to change behavior. [Literature review does not support a directional hypothesis.]

H3: There will be an interaction effect between participants' fear level (trait anxiety) and message condition, affecting

- Message credibility
- Intentions to change behavior

H4: There will be an interaction effect between participants' stated importance of religion in their lives and message condition, affecting

- Message credibility
- Intentions to change behavior

Before creating her experimental conditions, the researcher conducted an exploratory survey with a very small group of college students to get a sense of whether fear appeal messages might be effective. Though the participant pool was too small to be generalized to the population, several students mentioned law enforcement-focused fears, such as being arrested for driving while intoxicated, as a fearful consequence related to binge drinking.

The researcher felt this could mean using this as a threat in a fear appeal message would be salient to college students and could be an effective message. She used the input and comments from this exploratory survey to develop the fear message for the larger experiment, which comprised the bulk of this study.

The experiment in this study tested messages about dangers of binge drinking, with a participant pool of students at a large, Southeastern university. In this study, the researcher developed messages that give the same basic information about dangers of drinking, but changed the technique with which each was presented. One message was a fear appeal, and presented the information from the perspective that excessive drinking could lead to getting a DWI citation. Another message was based on social norms campaigns, and presented the same basic information, but from the perspective that “most of your fellow students drink responsibly.” A third condition combined both of these techniques in a mixed message.

In addition to looking at the main dependent outcome variables of message credibility and intentions to change behavior, the researcher also tested for interaction effects for characteristics shown by prior research to affect a student’s likelihood of binge drinking.

Chapter 2: Literature Review

Since the Harvard School of Public Health began the annual College Alcohol Study in 1993 to measure student binge drinking nationwide, researchers have found no decrease reported in binge drinking on college campuses, despite a decline in overall U.S. drinking (Parker, 2005). A 2002 National Institute on Alcohol Abuse and Alcoholism survey revealed 1,400 college student deaths annually can be attributed to excessive drinking (Casper et. al., 2006), and students who binge drink during their college years are at a much higher risk to become alcoholics later in life (Chaloupka, 1996).

When Henry Wechsler and his colleagues undertook the first comprehensive study of drinking habits at 140 colleges and universities across the country in 1995 as part of the Harvard study, they learned nearly half – 44 percent – of college students are frequent binge drinkers, which Wechsler et. al. defined as five or more drinks in a sitting for men, and four or more drinks in a sitting for women (Wechsler, et al., 1995). More than a third of college students indicate they drink primarily to get drunk (Treise, et. al., 1999). Further studies found that nearly half – 45 percent – of alcohol consumed in the United States is consumed by people 18-29 (college-age range), even though this age group represents only a little more than a quarter — 27 percent – of the total population (Campo, Brossard, Frazer, Marchell, Lewis & Talbot, 2003).

In recent years, a variety of university, government and nonprofit groups have created health communication message campaigns and programs to curb binge drinking among undergraduate college students (Casper et.al., 2006).

Sixty-eight percent of college and university administrators report that their schools have enacted such programs. Despite the prevalence of these programs on college campuses, little to no evidence shows they have any effect on students' drinking behaviors (Wechsler, et. al. 2004). A follow-up study Wechsler and his colleagues conducted in 1997 and again in 1999 that re-surveyed 130 of the 140 schools from their original study found no significant changes in binge drinking rates at those campuses (Campo, et. al., 2003). In the end, many years of health communication research and millions spent through federal, state and university partnerships have not prevented binge-drinking from remaining a top public health issue for college students (Broughton, 2006).

Previous studies of college student binge drinking reveal several demographic characteristics of dangerous drinkers. White students drink more than students of other races, and male students drink more than female students (Wechsler, et al., 1995). Underclassmen drink more and drink more often than older students (Treise, et al., 1999). Students who join Greek organizations are also more likely to binge drink (Treise, et al., 1999); (Wechsler, et al., 1995).

The Wechsler et. al. study (1995) examined lifestyle issues among college students that could increase or moderate their risk of binge drinking. The attitude item this study measured that had the strongest effect on whether a student was likely to binge drink was religion. Students who indicated they consider religion a very important part of their lives were significantly less likely to become binge drinkers.

Peer associations still are the strongest predictor of a student's drinking behavior (Durkin, Wolfe & Clark, 2005), and drinking behavior tends to become "individual as well as collective" (Real & Rimal, 2007, p. 177). Most students match their best friends in drinking volume and frequency, even when controlling for predictive factors (Yanovitzky, Stewart, & Lederman, 2006).

The college-age population is a particular challenge for health communicators, because this group is very hard to reach effectively with prevention messages. Most people this age enjoy doing the negative health behaviors that prevention campaigns address, such as smoking or drinking, and have strong social incentives to keep doing these things (Dejong & Atkin, 1995). Also, younger people do not consider long-term health consequences such as death or serious illness or injury salient to them at this point in their lives, and they overestimate their ability to quit negative behaviors later (Lee, Ebesu-Hubbard, O'Riordan & Kim, 2006). One study looking at smoking cessation indicated health communicators need to treat college students as a unique population and cannot use the same prevention messages they use for adults. Prior research into relevant threats is needed for prevention campaigns because young adults do not respond to the same threats as other populations. For example, death is not usually a relevant health threat for this age group (Lee et. al., 2006). Also, people this age are more concerned with social consequences than health consequences, and communicators need to keep the perceived social benefits of negative health behaviors in mind when designing campaigns for this age group (Dejong & Atkin, 1995).

Emphasizing risks can backfire with this population because if students see dangers portrayed alongside the perceived rewarding elements of the behavior, they will feel a decreased risk for the danger. For example, if students see threats from drunk driving portrayed in messages that also show young people drinking at parties and having a good time, this desensitizes them to the threat and can reinforce their positive feelings about drinking (Zwarun, Linz, Metzger & Kunkel, 2006). A study that reviewed drunk driving prevention messages recommended that effective messages focus on policy, legal and cultural changes along with individual responsibilities, to make it easier and more likely for young adults to alter their behavior (Dejong & Atkin, 1995).

Many colleges and universities are interested in finding health communication tactics that will deter students from dangerous drinking. This research attempts to discover if alternate messaging tactics could be more effective. Two popular health communication theories are fear appeals and the Theory of Reasoned Action/Theory of Planned Behavior, which details the role of subjective norms in influencing behavior. Both of these could provide a useful framework to develop effective binge drinking-prevention messages for a college-aged audience.

Fear Appeals

Fear appeals are a particular type of persuasive message that emphasize changing behavior to avoid unpleasant consequences, and are a widely used tactic in health communication (Cho & Salmon, 2006). The landmark study on fear appeals was Irving L. Janis and Seymour Feshbach's 1953 experiment about dental hygiene to see if fear was effective at eliciting behavior change.

Based on this study, the researchers proposed a curvilinear relationship between fear and message acceptance, stating that message recipients need just enough fear to motivate them to process the message, but that too much fear causes anxiety, which interferes with the recipient's ability to accept the message (Janis & Feshbach, 1954).

Many scholars consider Janis & Feshbach's the seminal study in this area, and the majority of fear appeal literature references their conclusion that a moderate amount of fear is best. But, many later studies have not replicated its findings and have reached the opposite conclusion, that a high level of fear in a message can and does promote behavior change (Green & Witte, 2006).

The three key elements of a fear appeal message are threat, fear and efficacy. Efficacy is divided into response efficacy (how effective a person thinks a recommended action is in preventing the threat) and self-efficacy (how well a person feels he or she would be able to perform the recommended response.) When perceived threat is low, people will not change behavior. For relevant messages, if the threat is high, as long as perceived response and self-efficacy are at least as high or higher than perceived threat, people will change behavior. Fear is what recipients use to determine threat relevance and for effect, communicators must keep perceived efficacy detailed in the messages higher than perceived threat (Witte, 1992). A literature review of 50 years of fear appeal research showed that overall, messages with a high level of fear combined with a high-efficacy behavior suggestion are the most effective at producing behavior change (Witte & Allen, 2000).

Related to the fear appeal is the guilt appeal. Fear appeals scare recipients by describing bad things that could happen to them from certain threats, but guilt appeals make message recipients feel responsible for causing bad things to happen to others. Fear appeals are referenced to the recipient, but guilt appeals are focused on other people (Block, 2005). One study compared a fear and a guilt appeal message for drinking and driving prevention, with the fear message stating the recipient could be hurt or killed by driving drunk, and the guilt message stating the recipient could kill or injure a friend, neighbor or family member by driving drunk. The researcher also used pre-test questions to assess whether the survey participants were independent (primarily focused on self) or interdependent (primarily focused on others). In this study, independent people reported higher intentions to change behavior and more positive attitudes toward the ad content in the fear appeal condition. But, interdependent people did not differ significantly in attitude or intentions to change behavior for either the fear or guilt appeal condition. The researcher in this study notes that research has not fully examined guilt as an emotional tactic for messages, and suggests this could be a useful avenue and could prove to be an effective alternative to fear in prevention messages for certain groups (Block, 2005).

Fear appeals raise some serious ethical considerations. Most fear appeal research to date used laboratory settings and relied on self-reports from subjects to draw conclusions. These results are interesting, but may not be generalizable to the entire population (Hastings, Stead & Webb, 2004). Fear is a negative emotion, and any fear appeal will therefore invoke a negative response.

Research on negative political ads shows this approach backfires, and people tend to have negative thoughts about the candidate showing the negative ad. Could the same be true for health and social marketing campaigns using fear appeals? Will negative feelings make the sources seem less credible? (Hastings, Stead & Webb, 2004). Also, because the main intention of a fear appeal message is to make people feel scared and at risk, some people might consider this tactic unethical. People who do not perceive high efficacy in a fear appeal message can even have a boomerang effect, and engage further in unhealthy and potentially fatal behaviors, which presents greater potential for ethical considerations (Hastings, Stead & Webb, 2004).

What are some possible alternatives to fear appeals in health communication? Hastings, Stead & Webb cite effective campaigns that focused on empathy, empowerment and positive role models as effective alternatives to fear in health messages (2004, p. 977). The authors recommend future research examine fear appeals' effectiveness, which could explain why fear appeals work for some people and not others, and could serve as a framework to develop effective health communication alternatives using different emotional tactics.

Subjective Norms

The Theory of Reasoned Action states that people make behavioral choices based on their beliefs about, attitudes toward and intentions to perform that behavior (Schiavo, 2007). Icek Ajzen, who developed this theory, proposed that researchers could predict behavior by knowing a person's intention to perform that behavior, and that people

develop their intentions toward behavior by weighing their attitudes and subjective norms. Attitudes are the person's own thoughts about the benefits or drawbacks of performing a certain behavior, and subjective norms are social pressures people feel to perform a behavior, or to reject that behavior. Ajzen notes people's moral beliefs and past experiences with a behavior also influence their subjective norms toward that behavior (Ajzen, 1991).

The more important the subject considers another person's or group of people's opinion, the more likely they are to influence a person's subjective norms about that behavior, which affects whether or not he performs that behavior (Witte et. al., 2001). For example, in the case of binge drinking, students are likely to perceive their friends' opinions as more important than the opinions of parents, college professors or people in the community (Lee, et. al., 2006).

Social norms can be either descriptive or prescriptive. People obtain descriptive social norms by watching what other, similar people do in certain situations, and this sets the benchmark for what is "normal" behavior in that situation. For example, in one study, researchers split students into two groups, and gave them all handbills, then told the students to throw them away. One group saw a parking lot with other students walking through it littering, and the other group saw a clean parking lot with students responsibly throwing away trash. The students who saw other students littering were more likely to litter themselves because they saw that as the descriptive norm for this situation (Cialdini & Trost, 1998).

For many college students, their drinking volume and frequency are socially learned behaviors, and their drinking activities occur mainly with friends, who act as models for “normal” drinking behavior (Real & Rimal, 2007), thus setting the descriptive norm for drinking behavior.

Prescriptive social norms, on the other hand, are instructional rather than based on observation, and tell people what the “correct” norm is in a given situation. One example is a drug prevention campaign, in which the campaign instructs students that not using drugs is the correct norm, and also provides evidence to tell students drug use is not as widespread as they think (Cialdini & Trost, 1998). This is very similar to the approach used in many current binge-drinking prevention campaigns, which seek to re-educate students about how much drinking takes place on their campuses. This can sometimes cause dissonance, if the prescriptive norm people are hearing does not match with the descriptive norms they obtain watching their peers. But, the norms can also influence each other – in the drug prevention campaign, for example, the authors describe how once the campaign educated students about avoiding drugs, the students started following the advice and abstaining from drug use, which changed the descriptive norm because others were not seeing their fellow students use drugs. In practice, both descriptive and prescriptive norms affect social influence with norms, which is part of how people determine behavior in a given situation (Cialdini & Trost, 1998).

The most common way researchers measure subjective norms’ influence is asking people to rate the extent to which a particular person or group of people would approve of

them performing a certain behavior. Using this method, researchers can use subjective norms as a stronger predictor of behavior (Ajzen, 1991). Ajzen notes that subjective norms derive from a person's salient beliefs, which are the beliefs people hold most strongly about a particular object or behavior, though these are not the only beliefs a person may have about that object or behavior (Ajzen, 1991).

Ajzen acknowledges that research has shown people's attitudes are not strong indicators of behavior, and are in fact a weak way to predict how people will act (Ajzen, 1991). He proposes aggregation as a solution, noting that behavior is the result of a combination of attitude toward performing that behavior and situational elements that are unique to the time when that behavior is being performed. Ajzen argues that looking at people's behaviors in aggregate are a better measurement of how attitudes and intentions influence behavior than in looking at behavior in one particular situation (Ajzen, 1991). In addition to attitudes, Ajzen acknowledges that people's individual personality traits and characteristics affect their behavior.

Through prior research using the Theory of Reasoned Action and Theory of Planned Behavior, Ajzen discovered that the more in control a person is over his or her behavior, then intentions become a stronger and more accurate prediction of behavior (Ajzen, 1991). Using political situations as a behavioral observation, Ajzen and Fishbein conducted a 1981 study in which they assessed people's voting intentions, and found that when they asked people whom they intended to vote for close to the election, this was a strong predictor of their actual votes (Ajzen, 1991). This research demonstrates that while actual behavior can be hard to predict, intentions and attitude can be strong predictors of

how people will act in a given situation. Also, it shows that people's self-reported intentions to change behavior also can strongly correspond with their actual behavior, indicating behavioral intentions can be a good measure of a message's effectiveness.

Ajzen extended the Theory of Reasoned Action and added the element of control with the Theory of Planned Behavior. Subjects consider whether they would be able to perform this behavior, and are they in a position to perform that behavior? The subjects also consider the ease of performing that behavior. The more in control people feel over their ability to perform a certain behavior and the easier they perceive it would be to perform that behavior then, in general, the more likely they will be to do that behavior (Ajzen, 1991).

The control element of the Theory of Planned Behavior is very similar to the efficacy component of fear appeals. And, like efficacy, the person's actual ability to do that behavior is not as effective as how much the person believes he or she could do that behavior, and how likely people feel the recommended behavior is going to improve health or diminish a threat. People who feel most in control of their behavior are the most likely to have a positive attitude toward that behavior, and are most likely to follow through with changing that behavior (Ajzen, 1991).

In sum, this theory suggests behavior is determined through intentions (combination of the three factors outlined in Theory of Reasoned Action), and by ability to perform that behavior, and that ability is rated equally with intention in the decision-making process (Ajzen, 1991).

This theory offers a good framework for binge-drinking prevention messages because it takes social and environmental factors into consideration (Witte et. al., 2001). The Theory of Planned Behavior can also offer insight into why other social norms marketing campaigns fail. While the theory demonstrates social norms do affect behavior, it is only the norms of close associates that apply. Students are not likely to be persuaded by messages about widespread, general norms that say what everyone else on campus is doing (Campo et. al., 2003). Subjective norms, which are based on what a person's closest associates think, could be more effective at prompting change.

Research suggests the Theory of Reasoned Action and the Theory of Planned Behavior can be combined with other theories to effect change (Glanz, Rimer & Lewis, 2002). This research project combines fear appeals tactics with messages containing social norms to look for possible interaction effects.

Moderating Role of Fear

Current research in both fear appeals and Theory of Planned Behavior suggests communicators look closely at individual differences that make some respondents more likely to change behavior than others. Specific to binge drinking, researchers suggest future communication studies examine how certain traits work in combination with demographic traits that already have been shown to affect drinking volume and frequency, such as gender, Greek affiliation, race and classification (Campo et. al., 2003), along with the social demographic of religious inclination (Wechsler, et al., 1995).

Some researchers have studied trait anxiety, which is how afraid or anxious people are in general, and found it to be potentially important in affecting fear appeal

processing. In general, the higher a person's trait anxiety, the less fear they needed for message acceptance. But, the researchers concluded that more information is needed to determine how people process fear appeals and why this tactic is more effective for some message recipients than others (Witte & Allen, 2000).

Shehryar and Hunt (2005) looked at terror management theory as a means of audience segmentation in fear appeals to explain why high-fear messages can boomerang and cause some people to continue or even increase an unhealthy behavior, rather than to adopt the recommended behavior change. Terror Management Theory states people have a deep-rooted, psychological inability to comprehend that they will die one day, and this makes them very susceptible to terror or fear (Shehryar & Hunt, 2005, p. 276.) The researchers theorized that means messages showing death as the fear tactic will cause so much terror that people will cease processing the message because death seems far removed from their current lives. But, the authors hypothesized that using a threat that might seem more salient would cause enough fear to get people's attention and be relevant enough for them to process the message (Shehryar & Hunt, 2005).

The researchers conducted an experiment using drinking-and-driving prevention messages aimed at college-age students to test their hypothesis about what kinds of scenarios can cause the right amount of fear. Participants filled out a survey ahead of time to assess their current beliefs about alcohol and their drinking practices. The participants then received either a fear appeal message about drunk driving prevention that showed either death, being arrested and going to jail or serious injury (loss of limb, paralysis) as

the consequence of drinking and driving. Participants filled out a survey after viewing the messages to indicate their attitudes and intentions to change behavior (Shehryar & Hunt, 2005, pp. 278-284.) The results indicated participants who thought drinking alcohol was a fun social activity and enjoyed doing it (according to the pre-study questionnaire) were more responsive to the fear appeal messages that used arrest or injury as the threat. For these people who received the death-based fear appeal, they did not report increased intentions to change behavior and in fact reported intentions to keep drinking. The authors conclude that very high-fear appeals showing death are ineffective because people are not able to comprehend now that they will die eventually, and if they already derive pleasure from an unhealthy activity (drinking, smoking) they are likely to adopt an “I’ll die anyway, so I’ll enjoy it while I can” attitude (Shehryar & Hunt, 2005, pp. 284-286). This study indicates that the threat component of a fear appeal message has strong effects on whether fear is an effective prompt to make recipients change behavior. The researcher used the exploratory study to inform her experiment for this project specifically to avoid this problem and find a relevant threat for the fear messages. While many social science theories attempt to explain the relationships between attitudes and behavior, much work remains to be done so that communicators can understand the thought processes behind unhealthy behaviors such as binge drinking and prevent those behaviors through effective health communication.

Moderating Role of Religion

Since Henry Wechsler and his colleagues began the Harvard School of Public Health College Alcohol Studies, they have consistently found religion is the social

demographic that has the strongest effect on whether students are likely to binge drink. Students who indicate they consider religion a very important part of their lives are significantly less likely to become binge drinkers than students who indicate religion is not at all or not very important to them (Wechsler, et al., 1995).

Some researchers in this area have theorized religion could be a factor in explaining why historically Black colleges and universities (HBCUs) have had fewer problems related to binge drinking than larger, predominantly white schools. Black students attending HBCUs tend to report the same drinking levels as Black students at predominantly white schools. But, for white students attending HBCUs, a significant difference emerges – these students drink far less than their white counterparts at other colleges and universities (Kapner, 2003).

Black students generally (Wechsler, et al., 1995) and Black students at HBCUs in particular tend to consider religion more important than students of other races and ethnicities, and most HBCUs have a religious affiliation. Religious groups were instrumental in both the anti-slavery and prohibition movements, and these groups have historical affiliations with most of the HBCUs in America (Kapner, 2003). Most HBCUs are “dry” campuses where drinking is not allowed (Brown, 2007). These could be factors that explain why white students at these universities have fewer problems with binge drinking compared to their counterparts at large, predominantly white universities, and lessons from HBCUs show how religion can be an influencing factor in campaigns that

discourage students from dangerous drinking (Kapner, 2003).

In addition to testing for individual characteristics, this experiment will look at participants' perceptions of message credibility and their reported intentions to change behavior as the main outcome dependent variables.

Credibility and Behavior Changes as Message Outcomes

Communicators create advertising messages to raise awareness, arouse interest, describe characteristics, and overall convince consumers the product mentioned is superior to other products, and prompt action, typically a consumer purchase.

In general, communicators can consider their message successful when it prompts some kind of change in a consumer so that he or she will think differently about the brand being advertised (Weilbacher, 2001).

Typically, marketing persuasion models look for consumers' intentions to buy products or change behavior as the outcome of a message, and consumers determine these actions through both affective (how they feel about the brand or product) and cognitive (how much they perceive the message as credible or believe it is desirable) elements (Holbrook, 1978). Experimental testing has shown subjects evaluate the information in the message to determine its credibility, which affects their beliefs about and intentions to buy the product. Participants tend to react more favorably toward messages with information they perceive as very credible and factual, and factual messages have the highest chance of affecting beliefs and attitudes, especially for more educated consumers. Consumers also tend to respond more favorably to the products or

ideas within a message if they consider the content credible (Holbrook, 1978).

Hovland and Weiss (1951) conducted a landmark study on media message credibility, and since then, research in this area has examined how trustworthy audiences consider a message or its source, and how this affects their processing of the message and/or their intentions to change behavior after viewing a message (Eastin, 2001). In media research, credibility typically refers to the degree to which the message or the source appears competent and reliable to recipients (Jackson, 1992).

Hovland and Weiss's media credibility experiment involved giving identical messages attributed to different sources to experimental groups to see which one had the greatest effect on the subjects' opinion and evaluation of the information. The researchers measured credibility on a five-point Likert scale, assessing credibility with items such as "trustworthiness" and "believability." Overall, the researchers did not find a significant difference in how much knowledge participants learned or retained with different sources, but observed that participants were more likely to report changed opinions or behavioral intentions after seeing a message from a highly credible source. The researchers concluded that differences in how participants acquire knowledge from a message tend to vary based on their learning ability differences, but participants' opinion change is related to source credibility (Hovland & Weiss, 1951).

Subsequent media credibility studies have demonstrated that credibility is a construct of several items, such as accuracy, believability, and factualness. Likert or semantic differential scales are the most common measurements of credibility researchers

use, with most studies asking participants to rate between five and 12 items such as “fairness, bias, depth, accuracy, or trustworthiness”(Eastin, 2001). Media researchers then create a scale combining these items to measure participants’ assessment of the source or of the content to gauge a message's effectiveness in this area. (Eastin, 2001).

Researchers typically use media credibility to assess either the source or the message. In general, research shows audiences tend to make situational judgments about news believability based on their perceived credibility of the content more than their perceived credibility of the sources (Austin & Dong, 1994).

Studies examining perceptions of information quality for online messages found that viewers’ perceptions of content accuracy were the factor they used most to determine how they assessed and responded to that information, although viewers will also consider the source when evaluating information (Eastin, 2001). This experiment assessed participants’ perceptions of message credibility using a six-item scale.

The expected outcome of most advertising is purchase, but in the case of social messages, such as the binge-drinking prevention message used in this experiment, the target outcome is positive behavior change rather than an actual product purchase. Common outcome measurements for health advertisements are ad credibility and behavioral intentions (Choi & Cameron, 2009). For health-based messages, communicators need to understand how message strength interacts with emotional content, and determine what message elements cause interactions between individuals' beliefs and message content.

Health communication researchers often measure message credibility and intentions to change behavior as outcome effects. These researchers typically use Likert scales to measure emotional strength, attitudes and content of messages (Lang & Yeghyan, 2008). Emotional factors can very strongly influence the relationship between message strength and message credibility, and health communicators often measure participants' emotional reaction and credibility, susceptibility, and intended outcomes using Likert scales (Choi & Cameron, 2009).

Prior health communication messages studies have looked at what tactics or message elements are most persuasive.

Pilling and Brannon (2007) conducted an experiment to compare students' attitudes toward persuasive messages that varied in how personally tailored they were to individual students, measuring the respondents' attitudes toward the messages themselves, rather than their attitudes toward decreasing binge drinking generally. They created messages personalized to individual participants' behaviors, then asked questions assessing participants' attitudes, asking them to rate the message's effect on their thoughts about drinking, how interesting/informative the information was, and how effective these messages would be for the general student population. Their results indicate participants had a more favorable view and higher intentions to change behavior based on messages that were individually tailored to their interests. The researchers noted it is hard to observe actual behavior change, but the participants' reported intentions support their

conclusion that participants reacted more favorably to the personalized messages (Pilling & Brannon, 2007).

Tamara Chock's (2006) study of the effects of anti-smoking PSAs using social norms and fear tactics showed participants tended to engage in more thoughtful processing with social norms-based messages than with fear-based messages, but this did not translate into stronger effects for behavioral intentions/effects in either condition. The respondents in her study had higher factual recall in the social norms condition (Chock, 2006).

Many advertisements result in third-person effect, with people often perceiving messages as being more helpful to others than to themselves, but when viewers perceive a message as having strong credibility or having social benefits, they are more likely to report intended effects for themselves (Chock, 2006). In health messages, people are more likely to experience first-person, direct effects from ads if they feel the message is socially beneficial to them and applicable to their lives, and if they are willing to be influenced by such a message (Huh, 2008).

Chapter 3: Methods

Before developing the experiment, the researcher wanted insight into how students at the university where the experiment would take place felt about binge drinking and preventive messages. Also, the researcher knew she intended to use fear appeal as a message technique in the experiment, so she wanted to hear from students about what kinds of consequences from binge drinking they considered the most fearful and most salient to other college students. Many fear appeal ads use death or car accidents (most of which are shown resulting in death) as deterrents against drinking (Witte, Meyer & Martell, 2001), but the researcher wanted to determine whether college students are more concerned about other possible outcomes from dangerous drinking.

Exploratory Survey

To gain insight that would help determine the material used in the experimental conditions, the researcher conducted an exploratory survey of undergraduate college students in the Summer 2009 semester to assess their feelings about binge drinking at Louisiana State University, and to see what they thought about prevention efforts. Initially, the researcher intended to conduct an in-person focus group, but was unable to gather enough subjects together to achieve this. The researcher attributes this to fewer students being present on campus during the summer semester, and to the students feeling uncomfortable candidly discussing their drinking behavior and thoughts on drinking in a structured setting with an adult recording their information in person. To follow through, the researcher used guidelines from a previous study (Polonec, Major & Atwood, 2006), which used an online question-and-answer method, to develop an online, exploratory

survey that would be easier to disseminate and use to recruit participants.

The researcher used eight questions for this exploratory survey¹. Four of the questions used multiple choice or Likert scales to answer, and the other four questions involved essay-style answers, where students could elaborate. Questions covered students' perceptions of binge drinking at LSU, their thoughts about why most prevention programs fail, why they think students choose to binge drink, how they would deter other students from binge drinking, and what consequences of binge-drinking they fear most.

The researcher had eight participants for this part of the study who were recruited from an undergraduate mass communication course at Louisiana State University. The students received extra credit in their course as compensation for participating.

One question used multiple-choice format, and asked the respondents to select among possible consequences of binge drinking to advise which would be most alarming to the average LSU student. The choices were being involved in a car crash, getting a DWI/going to jail, kicked out of school/trouble with campus administrators, alcohol poisoning, getting sick/acting stupid in front of friends, disappointing family and other (please specify.) Of the eight respondents, the majority (six) selected "Getting a DWI/going to jail." One respondent selected "Being involved in a car crash," and one selected "Getting sick/acting stupid in front of friends." Although this sample is too small to generalize, the fact that the majority of students in this group selected DWI as the most fearful consequence implies that people in this age group do consider it a salient threat related to binge drinking.

¹ See **Appendix A**, Exploratory Survey Questions

Two students specifically mentioned DWI and jail in their responses to the final question, in which students were asked what they would do if they had to design a program to deter other students from binge drinking, which further implies this consequence is a valid concern for college students.

These responses were:

- Simply having more cops sitting around the bars at night. A DUI is my biggest fear.
- Explain the many roadblocks that campus and Baton Rouge police have set up. That is enough to scare me away from drinking and driving.

Another question asked the students to select who has the biggest influence on their drinking habits, with the choices parents/family members, friends, self/no one else influences me, LSU administration and faculty, and other (please specify.) The eight answers were split equally between “Friends” and “Self/no one else influences me.” None of the respondents selected family, campus administrators or other. The “friends” selection seems to indicate previous and current binge drinking prevention campaigns have valid reasons for selecting social norms as a tactic.²

Although small, the exploratory survey yielded some interesting results that the researcher used toward developing message conditions for the larger experiment. The majority of students indicated getting a DWI or going to jail would be the scariest possible consequence of binge drinking for most students. This is interesting because many fear appeal ads use death or car accidents (most of which are shown resulting in death) as deterrents against drinking (Witte, Meyer & Martell, 2001.)

² See **Appendix B**, Exploratory Survey Results

Based on these findings, the researcher determined that for this age group, a fear appeal ad that emphasized threat of legal consequences might be more effective, and chose to use this rather than death or car accidents as her fear condition for the experiment.

The researcher ideally would have preferred to have more students participate in this portion of the study to get more feedback. But, the responses collected in this exploratory survey shed some light on how students feel about binge drinking consequences and contributed to her first research question. The researcher incorporated information obtained through the exploratory survey into her experimental design for the larger study.

Experiment

This study examined 170 responses to an online experiment with a two-by-two design, eliminating one of the four conditions that would have had neither fear nor social norms included in the message and would have been an empty cell. The three remaining conditions were used to measure different message effects based on fear appeals and subjective norms within the content. One condition mixed fear with subjective norms, another used just fear and a third used only subjective norms. These conditions allowed the researcher to test each health communication tactic separately and pair the two in one condition to see if there were any interaction effects.

The researcher used Survey Monkey, an online survey-creator tool, to design and implement the instrument, an online survey³, to assess their pre-existing beliefs and behaviors regarding binge drinking, expose them to the message, and then ask them to

³ See **Appendix C**, Survey Questions

assess message credibility and their intentions to change behavior. This format allowed the students to answer anonymously and self-report their drinking attitudes and behaviors. Without the possibility for direct observation, self-reporting of alcohol use is generally reliable and can be used as the basis for scientific research if the researcher uses best practices, such as clearly wording the questions, assuring the students their answers are anonymous and emphasizing that this information is for research purposes only (Sobell & Sobell, 1997). Because her survey adhered to these conditions, the researcher believes the self-reported data she collected for this study can be considered reliable.

Justification for Online Messages

The researcher chose to present the students with information in an online format to allow them ease of participation and the opportunity to take the survey in a natural setting rather than a laboratory environment. She also felt an online message was an appropriate tactic for this particular age group.

The 2008 Pew Internet & American Life Project indicates health information became a top-searched online area, with more than 75 percent of all Internet users looking up health information online, and one in nine Internet users reporting they search online for health information at least once per day.

People who regularly use the Internet for health information tend to be young (teens through 20s), have higher-education levels, and tend to come from higher-income households. Age is the biggest predictor for this, and also for Internet use in general, with college-aged students representing a major part of the audience for online information (2008).

Generation Rx.com, a study of people between 15-24 years old, showed young people reported the Internet as a favorable source of health information (Lewis, 2006).

While online media are how college students tend to access health information generally, many colleges and universities are trying to reach students online with binge-drinking prevention messages. At LSU in particular, the binge drinking-prevention program for incoming undergraduate students, My Student Body, is an interactive, personalized alcohol education program that is administered online⁴. Several other colleges and universities use My Student Body on their campuses, showing the increasing popularity of online prevention campaigns⁵. Because students at the university where the experiment was taking place are accustomed to receiving binge drinking prevention messages in an online format, the researcher felt an online message in the experiment was a natural way to reach the students participating from this university.

Participant Pool

The researcher used a non-probability convenience sample of 170 students enrolled in undergraduate mass communication courses at Louisiana State University as participants in the three experimental conditions. Students enrolled to participate through an online subject pool available through the university. For this study, the researcher told participants the survey was to determine how college students feel about different messages and elements of binge-drinking prevention campaigns, and to determine what kinds of information they find credible. Students who participated in the survey earned extra credit points.

⁴ See **Appendix E-1** for more information.

⁵ See **Appendix E-1** through **E-3** for more information.

Participants used the online format to give their answers anonymously, and the researcher did not observe participants directly at any point during the survey. The researcher also did not have access to any identifying information to connect specific participants with their answers, and results remained anonymous.

The sample for this experiment was comprised of 34 male and 131 female students. For classification, the sample included 47 freshmen, 48 sophomores, 48 juniors and 20 seniors, along with 2 students who identified themselves as “other.” For race and ethnicity, participants included 132 white students, 17 black/African-American students, six Hispanic or Latino/a students, six Asian/Pacific Islander students, two multi-racial students and two students who identified themselves as “other.” Students were also asked to indicate whether they are affiliated with any Greek (fraternity or sorority) organization. Forty-five students indicated they were members of a sorority or fraternity, 21 said they were not a member but frequently participated in Greek social activities and 99 said they had no Greek affiliation at all.

Stimulus⁶

For this study, the researcher created three ads to show participants that exposed them to a message about dangers of binge drinking using either fear appeal, social norms, or fear and social norms combined. The fear condition presented the information from the angle of getting a DUI and going to jail as a consequence of binge drinking. The subjective norms message described dangers of binge drinking in terms of “typical”

⁶ See **Appendix D-1, D-2 and D-3.**

student behavior, and the combination message used both the fear and subjective norms tactics.

All ads began with either the fear or social norms tactic as a story for the introduction (both were used in the combined message condition), and then used either an image of handcuffs (fear), or a person becoming ill from drinking (norms), or both (combined condition). For all three ads, the final portion presented students with the same basic facts about the dangers of binge drinking, including how much alcohol consumption is considered binge drinking for males and females, safety tips such as identifying a designated driver before going out, staying in groups when going out socially where people are drinking, and calling 911 if someone appears very ill after consuming alcohol. The key difference among the three conditions was the message tactic used.

The researcher used a Java randomization script within the survey administration system to ensure every third person received the same condition. Following exposure to the message, participants answered a control question the researcher designed to ensure the randomization script had worked, that asked them “Which of the following statements best represents the facts about binge drinking presented in the ad you just viewed?” with the choices “Binge drinking can result in legal trouble” (fear appeal ad), “The majority of LSU students drink in moderation” (social norms) and “Both A and B” (for the combined message with fear and social norms). “Not sure” was also an answer choice. The majority of students in each condition gave the appropriate answer for their message condition, so

the researcher believes the randomization script was effective at distributing participants equally among the three conditions.

With this randomization, 53 students viewed condition one (fear only message), 62 students viewed condition two (norms only message) and 55 viewed condition three (fear and norms combined). Later, the researcher created a new variable called “Presence of Fear Appeal,” which split the groups among message conditions (original conditions one and three) with fear, labeled 0, and the message condition with social norms only (original condition two), labeled 1.

Measures: Pre-test

The online survey began with a pretest to assess the students’ drinking behaviors and practices, and to assess the moderator traits that have the potential to affect how likely a student is to respond to a certain type of message condition.

These characteristics included trait anxiety, called “fear” in this study, which in this instance was measured as how afraid students were of the consequences of dangerous drinking; and interdependence, which was measured as how much students let their friends influence their drinking behavior. This experiment also treated efficacy as a moderator variable, with students asked during the pre-test to rate their prior experience with binge drinking and how well they handle peer pressure to drink.

Survey questions in the pre-test measured participants’ interdependence level with the questions, “How much do you agree with the statement, ‘I tend to drink about the

same amount in social situations as my friends do” (Mean=2.52, Standard Deviation=.870, N=163) and “How important do you consider the opinions of your friends in regard to your drinking behavior?” (Mean=2.24, Standard Deviation=1.04, N=150.) For the overall interdependence measurement, Mean =4.74, Standard Deviation =1.51, N=147.

The researcher used only two items for this index and did not seek validity per Cronbach’s alpha. Questions were based on previous research to measure dependence on friends and friends’ influence regarding drinking. The researcher coded the answers using a traditional Likert scale provided to indicate agreement with each statement and feelings of importance. Answers were coded on a range with the least agreement as “1” and the highest agreement as “4,” with intermediate answers coded accordingly. Not sure/ No opinion answers were coded as missing and not included in the analysis.

The pre-test measured respondents’ drinking control efficacy with the questions, “How much do you agree with the statement, ‘I know when I need to stop drinking and can control my intake?’” (Mean=3.02, Standard Deviation=.704, N=152) and “How much do you agree with the statement, ‘I have trouble resisting peer pressure to drink when socializing with friends?’” (Mean=1.83, Standard Deviation=.780, N=150). For the efficacy measurement overall, Mean =5.13, Standard Deviation =.869, N=139.

The researcher used only two items for this index and did not seek validity per Cronbach’s alpha. Questions were based on previous research to measure drinking efficacy. Researcher coded the answers using a traditional Likert scale provided to

indicate agreement with each statement and feelings of importance. Answers to question three were coded on a range with the least agreement as “1” and the highest agreement as “4,” with intermediate answers coded accordingly. Not sure/ No opinion answers were coded as missing and were not included in the data analysis. For question four, since this was negative phrasing, the lowest agreement (most efficacious answer) was coded at “4” with highest agreement at “1” and other answers coded accordingly. Not sure/ No opinion answers were coded as missing and not included in the analysis.

The researcher measured pre-existing fear among respondents with the questions “How afraid are you of the consequences of dangerous drinking, such as going to jail, getting kicked out of school, or being in a car crash?” (Mean=2.95, Standard Deviation=.950, N=150) and “How often do you consider consequences such as going to jail, getting kicked out of school or being in a car crash occurring when you are drinking with friends?” (Mean=2.55, Std. Deviation=.928, N=151). For this measurement overall, Mean =5.49, Standard Deviation =1.64 and N=137.

Participants rated their responses to these questions using traditional Likert scale answer choices. The researcher combined participants’ answers to these two questions to create a fear measurement. The participants used Likert scales to answer these questions, with the highest agreement/most fear coded at four, and the others coded correspondingly lower. Not sure/no opinion answers were coded as missing, and were not included in the analysis. Because the fear measurement contained only two items, the researcher did not

seek reliability per Cronbach's alpha. The questions were based on previous research assessing trait anxiety and pre-existing fear.

Other questions in the pre-test assessed participants' drinking volume and frequency, asking them to select from numerical responses the typical amount of drinks they consume in one sitting when socializing and how many days in the past week they consumed beer, wine or other alcohol. Another question asked participants who has the biggest influence on their drinking behavior, with the choices "Parents/Family, Friends, Self/No one else influences me, LSU administration or faculty and other (please specify)."

Measures: Post-test

In the post-test, participants answered questions that measured their perceived message credibility, intentions to change behavior, and demographic information. The post-test portion of the survey was used as the measure to assess the experiment's two main outcome dependent variables, message credibility and intentions to change behavior.

The researcher defined the outcome dependent variable "message credibility" as a multidimensional concept, which she measured based on responses participants gave to question one on the post-test, which asked them "How strongly do you agree with the statement, 'I thought this ad was:' " with six adjectives: credible, inaccurate, factual, unreliable, educational and not trustworthy. Participants rated their agreement with each on a five-point Likert scale response set, which the researcher coded so that the positive

responses (highest agreement with the positive adjectives and least agreement with the negative adjectives) were coded as four, with intermittent numbering for each response. The researcher coded “Not sure/no opinion” responses for the items as missing and excluded them from the analysis. The researcher combined participants’ scores from these six measures of credibility to create a credibility index. This index achieved reliability of .837 per Cronbach’s alpha.

Table 1: Credibility Index of Six Items

Variables*	Mean	Std. Deviation	N
Credible	2.84	.695	137
Inaccurate	2.97	.719	138
Factual	2.89	.616	134
Unreliable	3.10	.657	130
Educational	3.00	.683	136
Not Trustworthy	3.14	.670	135

Reliability of Scale
Cronbach’s alpha = .837
N= 160

* Researcher coded the answers using a traditional Likert scale provided to indicate agreement for each word. Answers were coded on a range with the negative adjective as “1” and the positive adjective as “4,” with intermediate answers coded accordingly. Not sure/ No opinion answers were coded as missing and not included in the analysis.

The researcher defined the second outcome dependent variable, “intentions to change behavior,” as a combination of participants’ responses to the final three questions in the post-test, which asked them “How much do you agree with the statement, ‘The information in this ad has made me more aware of the dangers of binge drinking,’” “How much do you agree with the statement, ‘I will consider my drinking behavior more carefully after seeing this information,’” and “How much do you agree with the

statement, ‘If LSU students saw the information in this ad, it could help deter them from dangerous drinking.’” Students used traditional Likert scale responses to rate their agreement with each item. The researcher combined participants’ scores from these three questions to create an intentions to change behavior index. For this index, Mean = 6.18, Standard Deviation=2.40, N= 140. Because this index used only three items, the researcher did not seek reliability using Cronbach’s alpha.

Table 2: Intentions to Change Behavior Index

Variables		
How much do you agree with the statement:		
“The information in this ad has made me more aware of the dangers of binge drinking.”	Mean=2.56	Std. Deviation=.736
	N=137	
“I will consider my drinking behavior more carefully after seeing this information.”	Mean=2.53	Std. Deviation=.752
	N=128	
“If LSU students saw the information in this ad, it could deter them from dangerous drinking.”	Mean=2.37	Std. Deviation=.814
	N=127	

N=140

The researcher used only three items for this index and did not seek validity per Cronbach’s alpha. Questions were based on previous research to measure intentions to change behavior. Researcher coded the answers using a traditional Likert scale provided to indicate agreement with each statement. Answers were coded on a range with the least agreement as “1” and the highest agreement as “4,” with intermediate answers coded accordingly. Not sure/ No opinion answers were not included in the analysis.

The final post-test questions in this survey assessed demographic information. Participants were asked to indicate their gender, race, LSU classification and whether they were a member of a sorority or fraternity. Another question asked participants to indicate, on a Likert scale, how important religion or religious beliefs were in their lives,

since the Harvard School of Public Health College Alcohol Studies consistently show religion to be the top social demographic that predicts whether students become binge drinkers (Wechsler, et. al., 1995).

To measure participants' religious inclination, the researcher looked at responses to this question and coded "very important," the most religious group, as four, with the lowest importance at one, and the others coded intermittently. The participants who answered "Not sure/No opinion" were coded as zero for this measure. The mean score was 2.71, and the standard deviation was 1.24.

Table 3: Religion Measurement

How important do you consider religion/religious beliefs in your life?	
Religion	N=165
0 Not sure/no opinion:	12
1 Not important:	22
2 Somewhat important:	19
3 Important:	61
4 Very important:	51

M= 2.71 SD= 1.24

Later in the study, the researcher created a second variable, called "Religiousness," which included scores for participants who answered the importance of religion in their lives and looked at this variable without the 12 participants who chose not to indicate a value and whose answers were labeled zero.

The mean score of this new measure was 2.92, and the standard deviation was 1.01.

Table 4: Religiousness Measurement

Religion	N=153
1 Not important:	22
2 Somewhat important:	19
3 Important:	61
4 Very important:	51

M= 2.92 SD= 1.01

Analysis

The researcher used Statistical Package for the Social Sciences (SPSS) to analyze the data for her experiment.

Chapter 4: Results

H1: Credibility by Message Condition There will be a significant relationship between message condition (fear, social norms, and both combined) and message credibility.

H1 predicts that the type of message appeal used in each condition, fear, social norms, or both combined, matters for how credible the students consider the message to be.

To test **H1**, the researcher computed “message credibility” as participants’ scores on a six-item scale that assessed the ad’s content, coded from 1-4 with the most credible answers at four. Not sure/no opinion answers for each item were coded as missing and excluded from the data analysis. This combination of scores combined served as the credibility index for the experiment.⁷

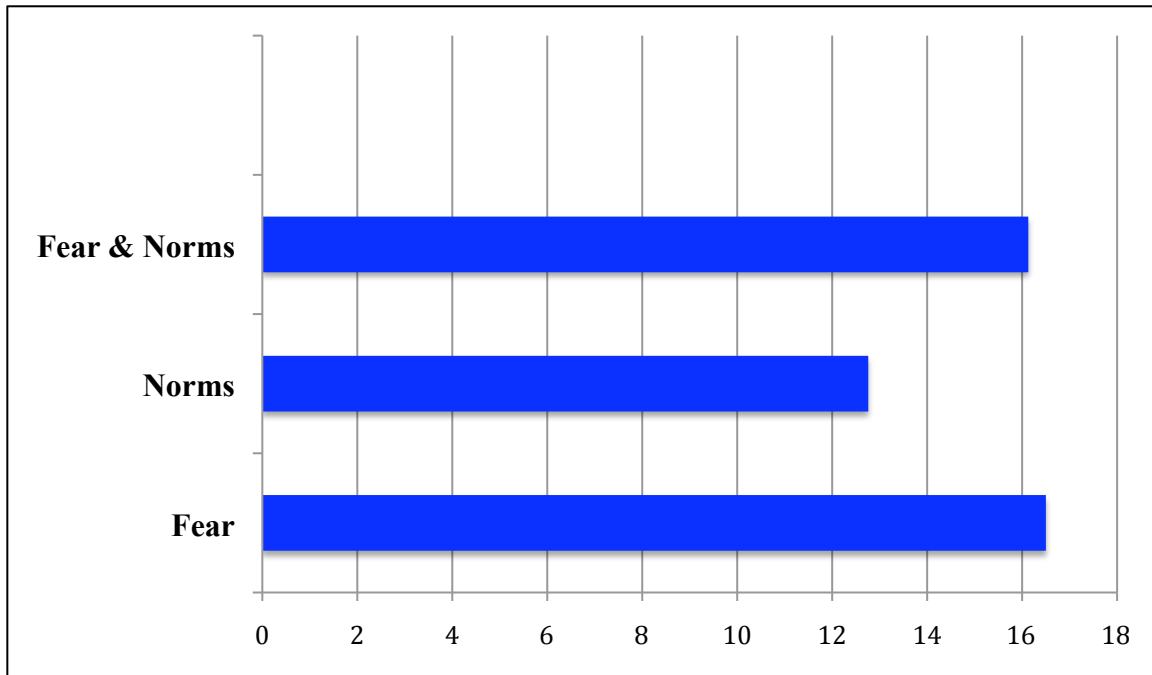
The researcher conducted a one-way ANOVA to look for relationships between experimental condition and message credibility. The one-way ANOVA showed a significant relationship ($p > .05$) between message condition and credibility.

Tahamane’s post-hoc test revealed the differences occurred for students in the social norms-only condition compared to students in either of the other two conditions, which both included fear. Participants in the message conditions with fear (alone or combined with social norms) reported higher mean scores for message credibility than participants in the norms-only condition. The post-hoc test did not reveal any significant differences or differences approaching significance for message credibility between students in the two conditions with fear in the messages.

⁷ See **Table 1**

Table 5: Credibility by Message Condition
Results of a one-way ANOVA comparing the dependent variable message credibility with message condition.

OverallDf	F	MS	p
2	8.79	231.14	p > .05*
Condition	Mean	Std. Deviation	N
Fear	16.50	5.08	51
Norms	12.76	5.57	56
Fear and Norms	16.13	4.64	53



Bar Graph 1: Message Credibility Scores by Message Condition

The students who received messages containing fear rated the message higher on the items comprising the credibility index and had higher overall credibility scores.

These data support **H1**.

H2: Intentions to Change Behavior by Message Condition There will be a significant relationship between message condition (fear, social norms and both combined) and intentions to change behavior.

H2 predicts that the type of appeal used in the message will affect students' self-reported intentions to change behavior. To test **H2**, the researcher used the intentions to change behavior index for the experiment.⁸

The researcher conducted a one-way ANOVA to look for relationships between experimental condition and intentions to change behavior. The one-way ANOVA showed significant differences ($p = .05$) between message condition and intentions to change behavior. Students in the fear-only message condition reported the highest intentions to change behavior.

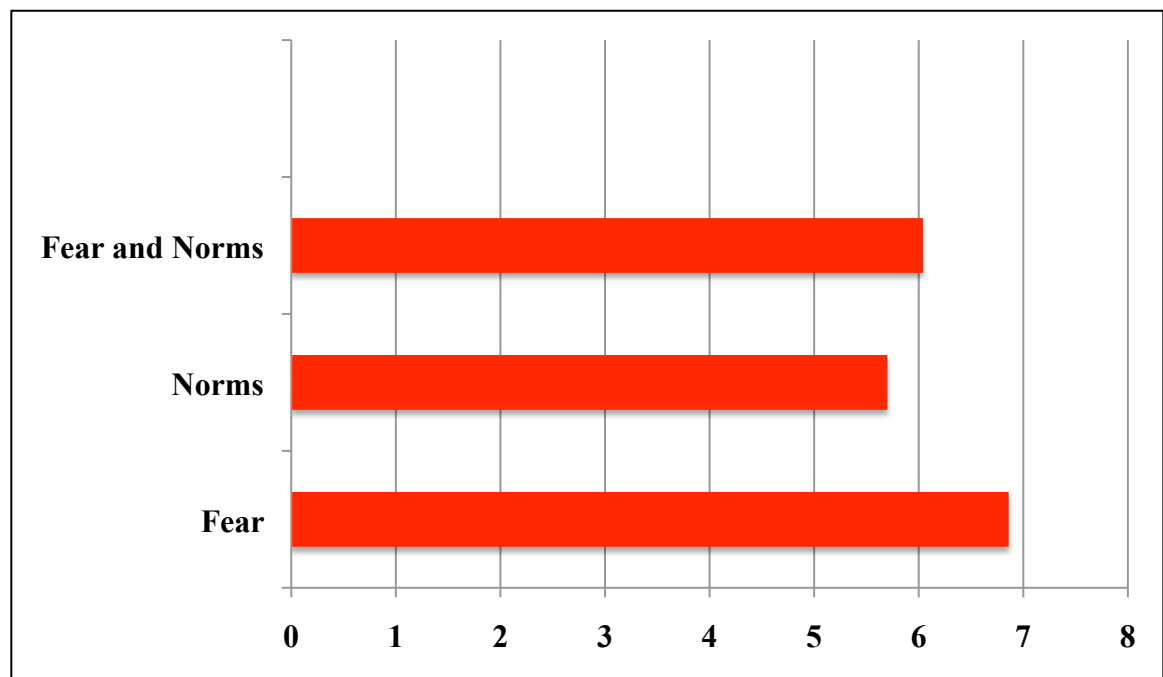
Tahamane's post-hoc test revealed the significant differences occurred when comparing the differences between participants in condition one (fear only message) and condition two (norms only message).

No significant differences emerged between participants with the fear only message or the social norms only message when compared to the participants in the condition that received a message using fear and social norms.

⁸ See **Table 2** for more information.

Table 6: Intentions to Change Behavior by Message Condition
Results of a one-way ANOVA comparing message condition and the dependent variable intentions to change behavior.

Overall	Df	F	MS	p
	2	2.97	16.78	p= .05*
Condition	Mean	Std. Deviation	N	
Fear	6.86	2.52	45	
Norms	5.70	2.11	50	
Fear and Norms	6.04	2.49	45	



Bar Graph 2: Intentions to Change Behavior by Message Condition

The students who received the fear message indicated the highest overall intentions to change behavior.

These data support **H2**.

H3: Pre-Existing Fear Interactions There will be an interaction effect between participants' fear level (trait anxiety) and message condition, affecting

- a. Message credibility
- b. Intentions to change behavior

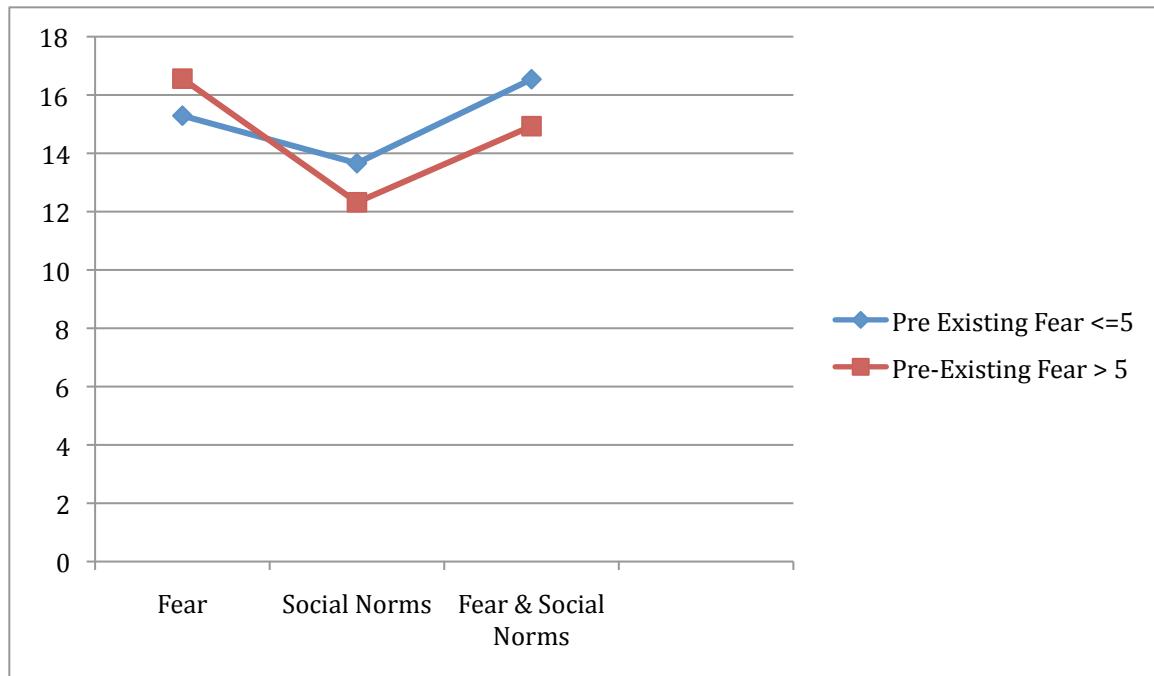
To test **H3** a., the researcher used the pre-existing fear (trait anxiety) measurement.

To test for an interaction effect between message condition and pre-existing fear level on message credibility, the researcher ran a multivariate analysis comparing the pre-existing fear measurement and message condition to the credibility index. The ANOVA did not indicate an interaction effect between message condition and pre-existing fear level on message credibility.

These data do not support **H3:a**.

Table 7: Message Credibility by Message Condition and Pre-Existing Fear
Results of an ANOVA comparing message condition and fear score on the dependent variable message credibility.

Source	df	F	MS	P
Condition	2	3.80	95.10	p > .05* ns ns
Pre-existing Fear	6	1.17	29.33	
Condition x Pre-existing Fear	12	.913	22.80	

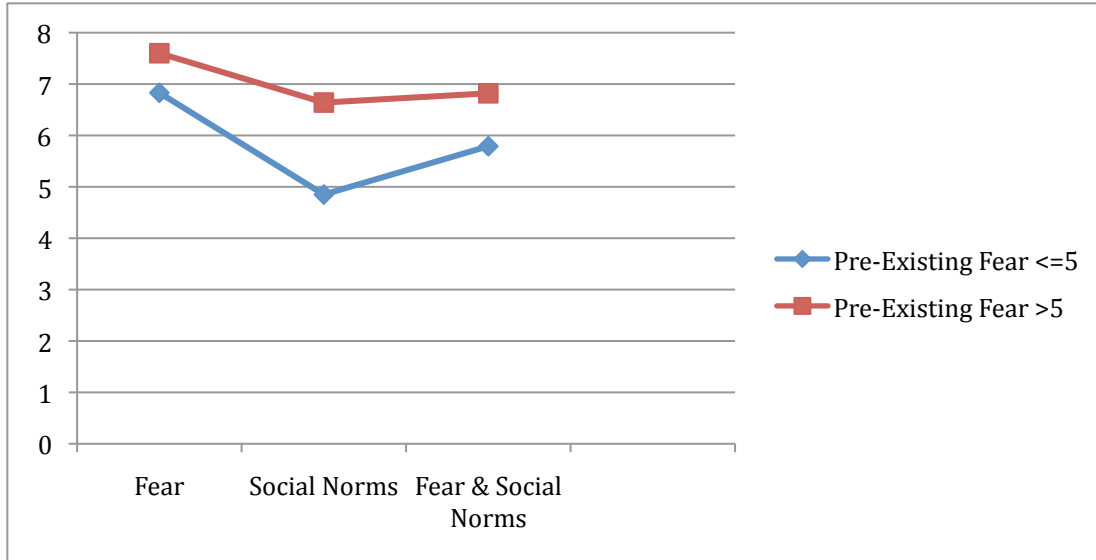


Line Graph 1: Message Credibility by Message Condition and Pre-Existing Fear

To test **H3 b.**, the researcher again used the fear (trait anxiety) measurement to test for an interaction effect between message conditions and fear level on intentions to change behavior. The researcher ran a multivariate analysis comparing the fear index and condition to the intentions to change behavior index. The ANOVA did not indicate an interaction effect between message condition and fear level on message credibility.

Table 8: Intentions to Change Behavior by Message Condition and Pre-Existing Fear
Results of a multivariate ANOVA looking for a relationship between message condition and pre-existing fear on the dependent variable intentions to change behavior.

Source	df	F	MS	P
Condition	2	2.64	14.61	ns
Pre-existing Fear	6	1.49	8.24	ns
Condition x Pre-existing Fear	12	.658	3.63	ns



Line Graph 2: Intentions to Change Behavior by Message Condition and Pre-Existing Fear

These data do not support **H3:b**.

The researcher created a new fear measurement, “Highest Fear,” which looked only at participants whose scores for pre-existing fear, measured in the survey pre-test, were seven or higher (fear measurement ranged from 1-8). There were 33 participants in the experiment whose pre-existing fear scores fell into the “highest fear” range. Within the experimental conditions, there were 23 participants in conditions one and three (conditions with fear) who had the highest pre-existing fear scores, and 10 participants in condition two (social norms-only condition) who had the highest pre-existing fear scores.

The researcher also used a new condition variable, which separated the conditions into two groups, one with participants who received a message with fear, either alone or combined with social norms, and another that included participants who received a message containing only social norms. This new condition variable was called “Presence of Fear Appeal.”

The researcher then conducted a multivariate analysis to look for an interaction effect between message condition and highest fear on intentions to change behavior, measured with the intentions to change behavior index. This ANOVA indicated a significant interaction effect ($p > .05$) for message condition and highest fear (people whose fear scores were seven or higher out of a possible eight) on intentions to change behavior.

Table 9: Intentions to Change Behavior by Presence of Fear Appeal and Highest Pre-Existing Fear

- **Highest Pre-Existing Fear:**

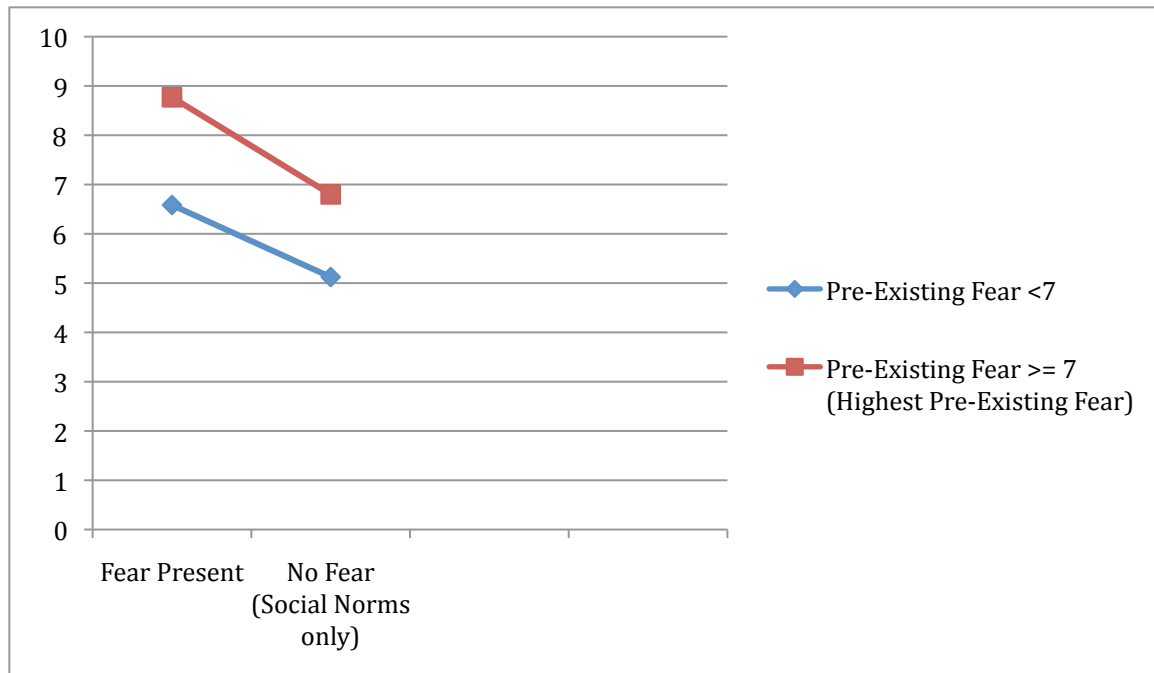
Defined as fear score ≥ 7 , out of a 1-8 score on the fear measurement.

- **Presence of Fear Appeal:**

Condition variable that separates message conditions into two groups, one with fear, either used alone or with social norms, and a second group of participants who received only the social norms message.

Results of a multivariate ANOVA looking for a relationship between Presence of Fear Appeal and Highest Pre-Existing Fear on the dependent variable intentions to change behavior.

Source	df	F	MS	Sig.
Presence of Fear Appeal	1	.101	.599	ns
Highest Pre-Existing Fear	1	1.70	10.06	ns
Presence of Fear Appeal x Highest Pre-Existing Fear	1	4.42	26.12	p>.05*



Line Graph 3: Intentions to Change Behavior by Presence of Fear Appeal and Highest Pre-Existing Fear
 Fear Present Conditions: Highest Pre-Existing Fear N=23
 No Fear (Social Norms Only): Highest Pre-Existing Fear N=10

A post-hoc test showed that the participants in either of the conditions using fear, alone or combined with social norms, who also reported higher pre-existing fear scores, reported the highest intentions to change behavior.

These data indicate that for some participants, high fear combined with a fear message can affect intentions to change behavior. When pre-existing fear level is defined in a particular way, fear appeal messages prompt self-reported behavioral changes more than social norms messages.

H4: Religion Interactions There will be an interaction effect between participants' religious inclination and message condition, affecting

- a. Message credibility
- b. Intentions to change behavior

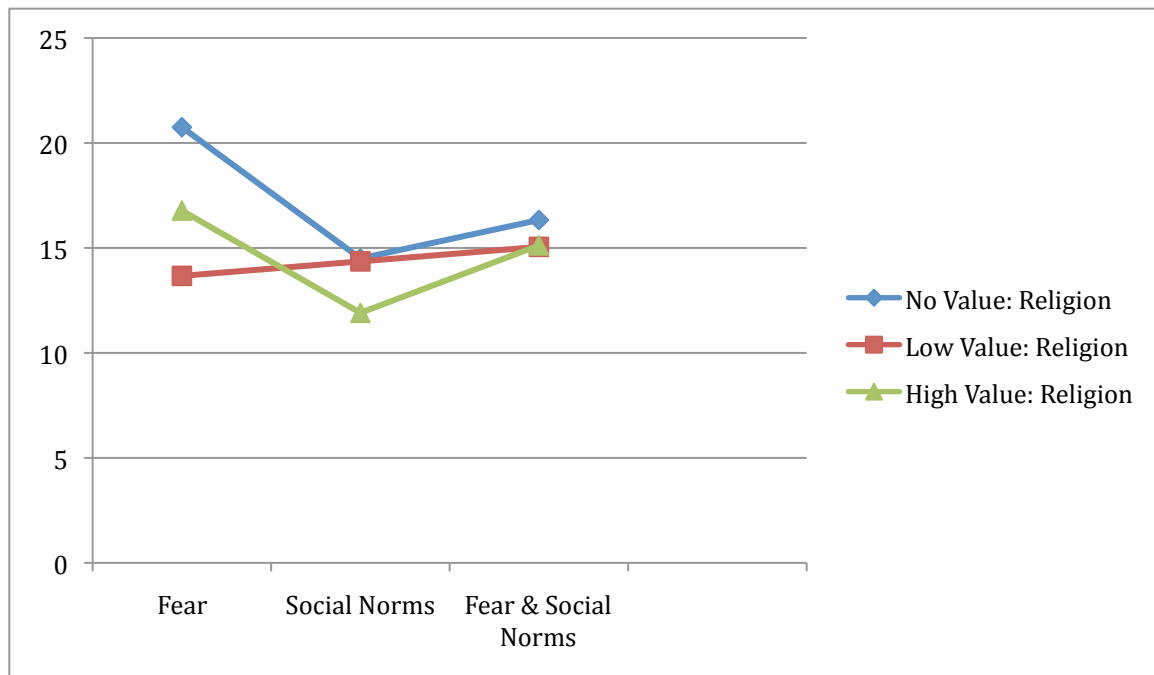
To test **H4 a.**, the researcher used the participants' answers to the final demographic question in the post-test, which asked them to use a Likert Scale to indicate how important religion/religious beliefs are in their lives. These answers served as the religion measure for the experiment⁹.

To test for an interaction effect, a multivariate ANOVA was used to compare the participants' religion scores and message condition to the credibility index. The ANOVA did not indicate an interaction effect between message condition and religion on message credibility.

Table 10: Credibility by Condition and Religion
ANOVA comparing message condition and religion on the dependent variable message credibility.

Source	df	F	MS	p
Condition	2	3.08	76.83	p>.05*
Religion	4	2.45	61.18	p>.05*
Condition x Religion	8	1.29	32.22	ns

⁹ See **Table 3** for more information.

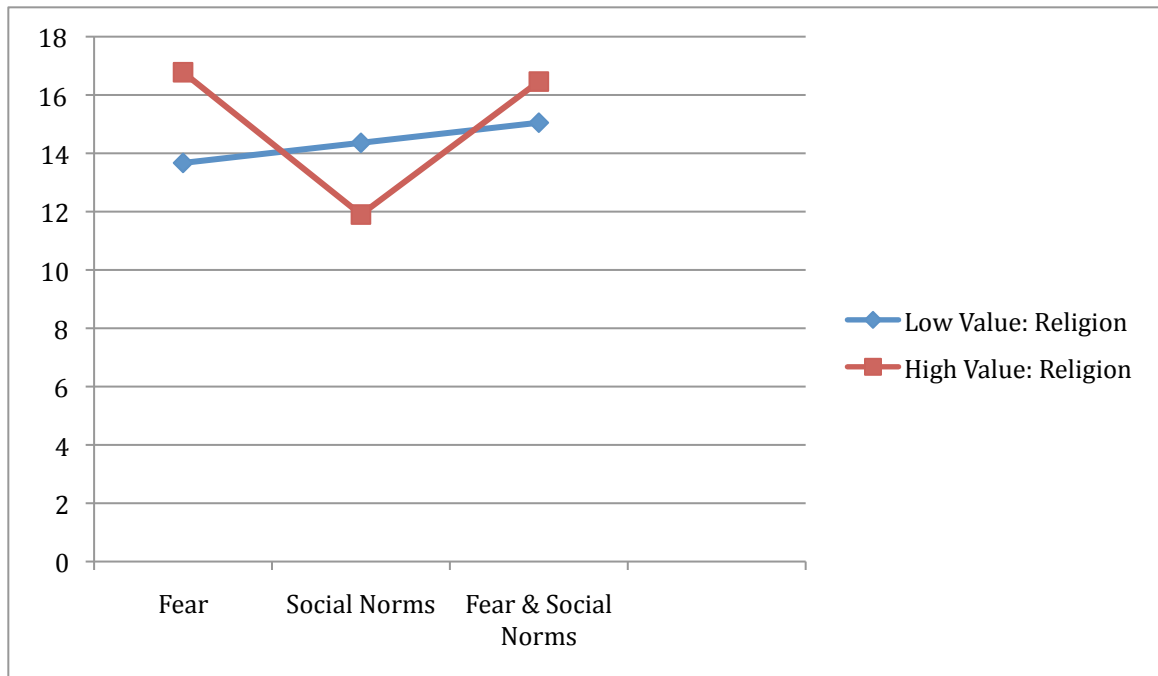


Line Graph 4: Credibility by Condition and Religion

The researcher created a new religion variable, which she called “religiousness,” which looked at scores without the group of participants who chose not to indicate a level of importance for religion in their lives. A multivariate ANOVA was used to compare the new variable, religiousness, and message condition to the credibility index. The ANOVA did not indicate an interaction effect between message condition and religiousness on message credibility.

Table 11: Credibility by Message Condition, Religiousness

Source	df	F	MS	p
Condition	2	3.20	80.01	p>.05*
Religiousness	3	2.60	64.98	p>.05*
Condition x Religiousness	6	1.45	36.36	ns



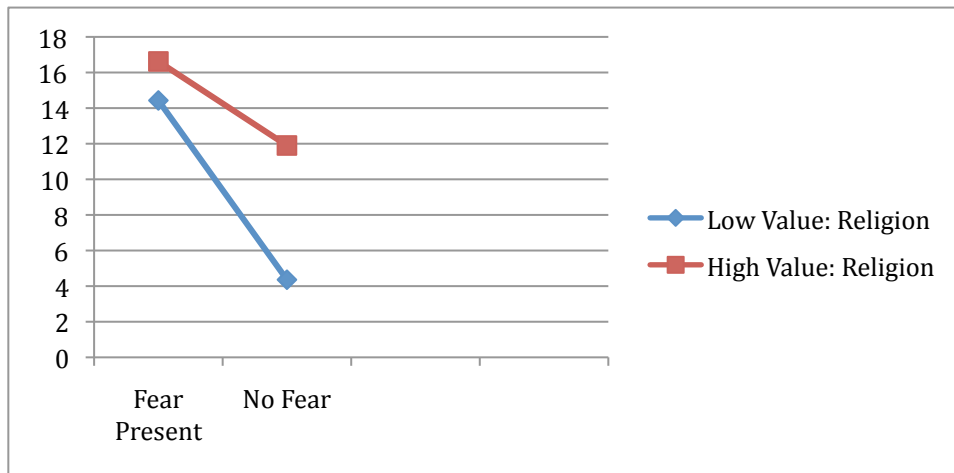
Line Graph 5: Message Credibility by Message Condition, Religiousness

These data do not support **H4:a**.

Because the effects for religion and religiousness were significant in the previous ANOVAs, the researcher conducted another multivariate ANOVA that used the new condition variable, Presence of Fear Appeal, which separated the message conditions into two – those with fear either alone or combined with social norms as one group, and those who received the social norms-only message as another group, and religiousness, the religion measure that excluded students who chose not to indicate a value of religion's importance in their lives. The ANOVA indicated a significant interaction effect ($p > .05$) between Presence of Fear Appeal message condition and religiousness on message credibility.

Table 12: Message Credibility by Presence of Fear Appeal, Religiousness

Source	df	F	MS	p
Presence of Fear Appeal	1	6.48	158.03	p>.05*
Religiousness	3	3.35	81.8	p>.05*
Presence of Fear Appeal x Religiousness	3	2.80	68.38	p>.05*



Line Graph 6: Credibility by Presence of Fear Appeal, Religiousness

For participants who received messages containing fear, higher values for religion's importance in their lives corresponded with higher assessments of message credibility, and participants who indicated the highest level of importance for religion ("Very Important") who were in the conditions with fear messages indicated the highest message credibility scores overall. In the social norms-only conditions, higher agreement with religion's importance in their lives did not correspond with higher message condition scores among participants.

A post-hoc test revealed the significant differences occurred between participants in the two lowest religion categories, who indicated religion was either "not important" or

“somewhat important.” Participants who answered “somewhat important” assigned significantly higher message credibility scores in all conditions than participants who answered “not important.”

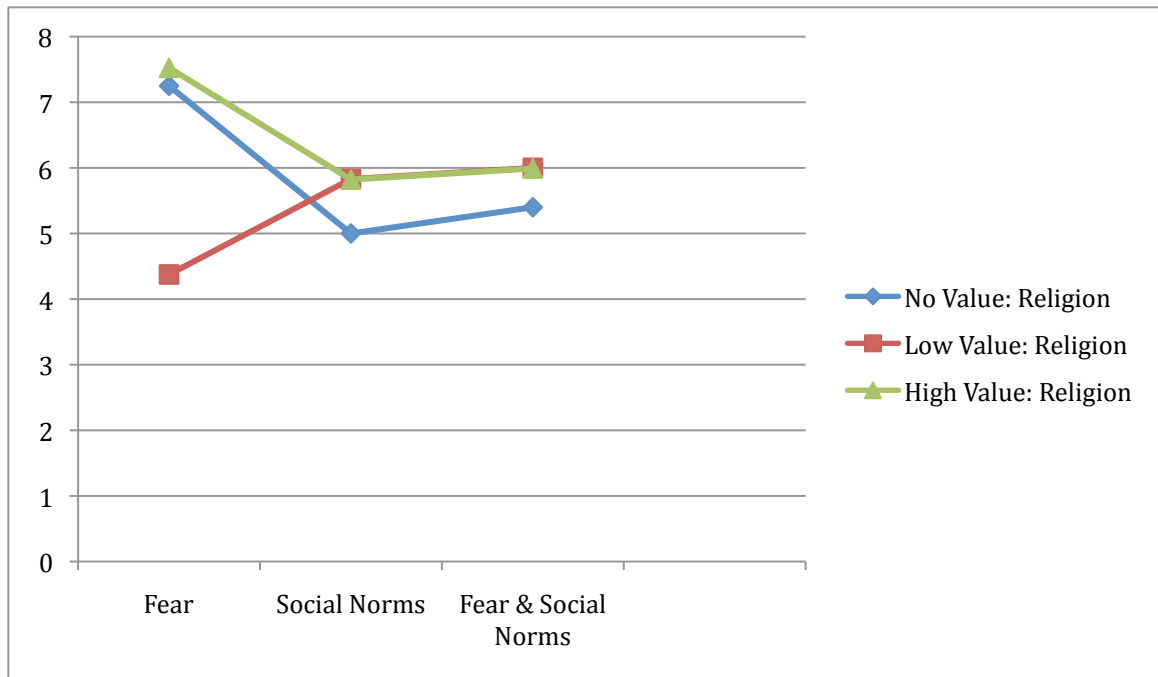
These data support **H4:a** and reveal that fear in a message, either alone or combined with social norms, can interact significantly with a person’s religious inclination to produce higher message credibility scores.

To test **H4 b.**, the researcher again used the religion indicator for the experiment¹⁰. A multivariate ANOVA was used to compare the religion scores and message condition to the intentions to change behavior index. The ANOVA indicated an interaction effect approaching significance ($p=.09$) between message condition and religion on intentions to change behavior.

Table 13: Intentions to Change Behavior by Condition and Religion
ANOVA comparing message condition and religion on the dependent variable intentions to change behavior.

Source	df	F	MS	p
Condition	2	.423	2.25	ns
Religion	4	1.56	8.34	ns
Condition x Religion	8	1.76	9.38	$p=.09$

¹⁰ See **Table 3** more information.

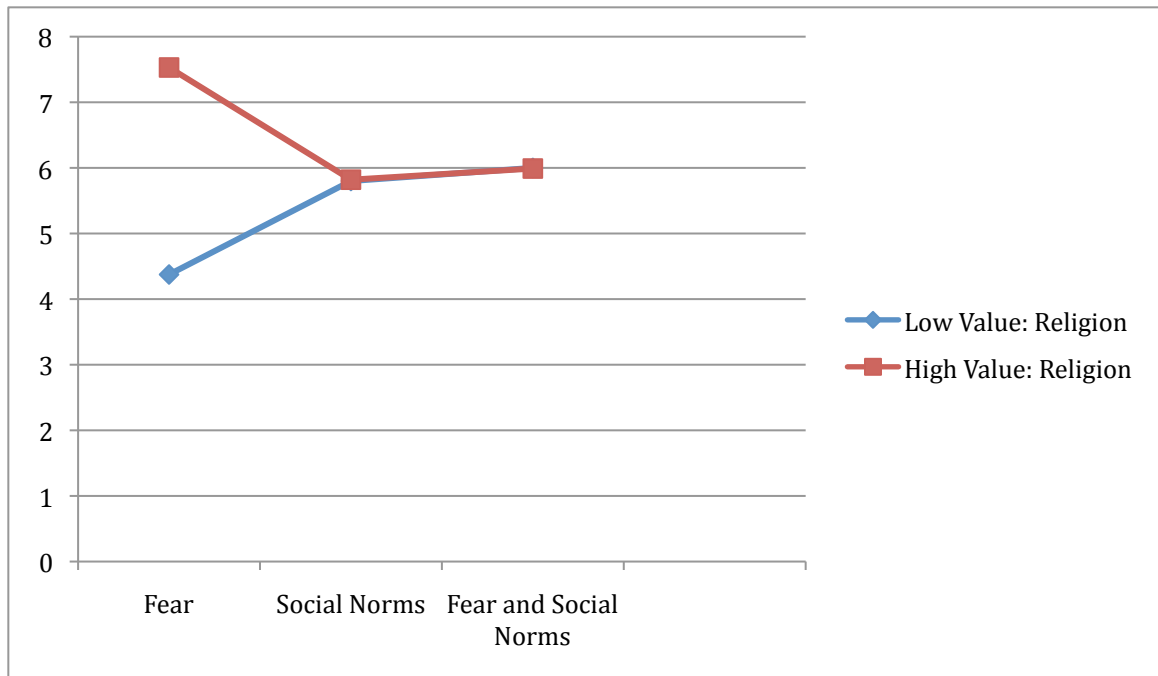


Line Graph 7: Intentions to Change Behavior by Condition and Religion

Because the first ANOVA approached significance, the researcher used the new religion value, “religiousness,” excluding students who did not report a value for their religious beliefs on intentions to change behavior, to look for an interaction effect with message condition. The researcher conducted a second multivariate ANOVA comparing religiousness and message condition’s effect on intentions to change behavior, which revealed a significant interaction effect.

Table 14: Intentions to Change Behavior by Condition and Religiousness
ANOVA comparing message condition and religiousness on the dependent variable intentions to change behavior.

Source	df	F	MS	p
Condition	2	.052	.276	ns
Religiousness	3	2.05	10.88	ns
Condition x Religiousness	6	2.25	11.94	p> .05*



Line Graph 8: Intentions to Change Behavior by Condition, Religiousness

Overall, students who placed the highest level of importance on religion in their lives (those who consider it “Very Important”) who were in the fear appeal-only condition reported the highest intentions to change behavior. For participants in the message conditions containing the fear appeal, higher religion scores corresponded with higher intentions to change behavior. This was not true for students in the message condition with social norms alone, or for students in the combined message condition, who received a message with fear and social norms.

The post-hoc test revealed that significant differences occurred between students in the lowest religion indicator, “Not Important,” and students who answered “Important,” the second-highest measure.

These data support **H4:b**.

Additional Characteristics

Two other individual characteristics the researcher tested for were interdependence level and drinking efficacy, or how able people were to monitor and control their drinking behavior.

The researcher ran a multivariate ANOVA to look for interaction effects between message condition and interdependence on message credibility, and this was not significant.

Table 15: Message Credibility Index by Condition, Interdependence
An ANOVA comparing message condition and interdependence on the dependent variable message credibility.

Source	df	F	MS	P
Condition	2	5.28	140.46	p> .05*
Interdependence	6	.562	14.93	ns
Condition x Interdependence	12	.417	11.09	ns

The researcher ran a second multivariate ANOVA to look for interaction effects between message condition and interdependence on intentions to change behavior, and this also was not significant.

Table 16: Intentions to Change Behavior Index by Condition, Interdependence
An ANOVA comparing message condition and interdependence on the dependent variable intentions to change behavior.

Source	df	F	MS	P
Condition	2	1.93	10.81	ns
Interdependence	6	1.48	8.29	ns
Condition x Interdependence	11	.658	3.68	ns

The researcher ran a multivariate ANOVA to look for interaction effects between message condition and efficacy on message credibility, and this was not significant.

Table 17: Message Credibility Index by Condition, Efficacy
An ANOVA comparing message condition and efficacy on the dependent variable message credibility.

Source	df	F	MS	P
Condition	2	4.09	104.50	p>.05*
Efficacy	6	1.33	33.98	ns
Condition x Efficacy	6	1.28	32.72	ns

The researcher ran a second multivariate ANOVA to look for interaction effects between message condition and efficacy on intentions to change behavior, and this also was not significant.

Table 18: Intentions to Change Behavior Index by Condition, Efficacy
An ANOVA comparing message condition efficacy on the dependent variable intentions to change behavior.

Source	df	F	MS	P
Condition	2	.746	3.84	ns
Efficacy	6	1.15	5.95	ns
Condition x Efficacy	6	1.53	7.90	ns

Additional Findings

In addition to the main research questions and hypotheses this experiment addressed, the researcher found some other interesting results in the data participants provided.

The researcher found a significant positive correlation ($p<.01$) between questions one, which asked how strongly students agree they tend to drink about the same amount as their friends, and question eight, which asked the typical amount of alcohol students

consumed in a social setting. The more participants agreed they tend to drink the same amount as their friends, the greater their reported drinking volume. For question eight, the most common answer (70 out of 167 participants) was “3 or 4 drinks.” This is considered borderline binge drinking, and four drinks in a sitting is considered binge drinking for women (Wechsler, 1995).

The researcher also found a significant positive correlation ($p < .01$) between questions one and question nine, which asked students how many days in the past week they consumed beer, wine, or other alcohol. The more participants agreed they tend to drink the same amount as their friends, the more days in the past week they reported drinking. For question nine, the most common answer (84 out of 167 participants) was “1 or 2 days.”

Question five on the survey pre-test asked respondents “Who would you say has the biggest influence on your drinking behavior,” with the choices Parents/Family, Friends, Self/no one else influences me, LSU administrators or faculty, or Other (please specify.) The most common answer (73 out of 167 participants) was “Friends.” Based on previous research, which indicates that peers and close associates are the strongest predictors of a student’s drinking behavior (Durkin et. al., 2005), the researcher expected to see this answer. But, this was closely followed (67 out of 167 participants) by “Self/No one else influences me.” Nineteen students chose “Parents/Family,” one chose “LSU administrators or faculty,” and seven chose “Other,” with specified answers including “boyfriend,” “girlfriend,” “best friend” and “depends on how I am feeling/emotions.”

Demographics

The researcher conducted a multivariate ANOVA to look for significant relationships among the demographic variables – gender, race, classification and Greek affiliation – and message credibility.

The ANOVA did not reveal any significant relationship with gender, race or Greek affiliation for message credibility.

Table 19: Message Credibility by Demographics

Source	df	F	MS	p
Gender	1	.710	15.81	ns
Race	4	2.54	56.68	ns
Greek	2	.425	9.47	ns

For classification, the ANOVA revealed significant relationships across all conditions for message credibility. A post-hoc test revealed the significant differences occurred comparing sophomores to junior and senior students. Across all conditions, the sophomores reported the highest message credibility scores, and their scores were significantly higher than scores of junior and senior students. Overall, underclassmen (freshmen and sophomores) assigned higher message credibility scores than older students (juniors and seniors.)

Table 20: Message Credibility by Classification

OverallDf	F	MS	p
4	2.82	62.83	>.05*
Classification	Mean	Standard Deviation	N
Freshmen	15.97	5.63	46
Sophomores	16.80	5.59	47
Juniors	13.62	4.81	45
Seniors	12.75	3.64	20
Other	9.5	2.12	2

The researcher conducted a second multivariate ANOVA to look for relationships among the demographic variables – gender, race, classification and Greek affiliation – and intentions to change behavior.

The ANOVA did not reveal any interaction effects for condition with gender, race, classification or Greek affiliation for intentions to change behavior.

Table 21: Intentions to Change Behavior by Demographic

Variable	df	F	MS	Sig.
Gender	4	.204	1.17	ns
Race	4	.348	2.01	ns
Greek	2	2.81	16.27	ns
Classification	4	2.49	14.4	ns

Because this experiment used a non-random sample to compare only differences between experimental conditions, these demographics cannot be generalized to the population under study. But, the researcher conducted this analysis of the participants in this sample to see how their demographic characteristics related to message credibility and intentions to change behavior.

Chapter 5: Discussion

This study shows that fear is a more effective health communication strategy than social norms for binge drinking prevention campaigns aimed at college students, prompting higher perceived message credibility and intentions to change behavior. In this experiment, students who received a message containing fear, either used alone or combined with social norms, reported significantly higher perceived message credibility scores, and students who received the message using only a fear appeal reported significantly higher intentions to change behavior.

Many colleges and universities have developed binge drinking-prevention programs to educate students about this dangerous health issue, and the majority of these campaigns use social norms techniques. In spite of their prevalence, these programs appear to have little, if any, effects on students' drinking behavior (Wechsler, et. al. 2004) (Campo, et. al., 2003).

It is understandable that colleges would approach this health issue using social norms, because college students heavily mimic their close friends and peer group with their drinking behavior (Real & Rimal, 2007); (Yanovitzky et. al., 2006). Even in this particular experiment, the majority of participants indicated their friends have the greatest influence on their drinking behavior. But, because social norms campaigns often are ineffective, this research indicates fear appeal tactics could be a more effective avenue for college administrators and health professionals who want to deter students from dangerous drinking.

Threat

Although the exploratory survey was very small, the fact most students who participated mentioned DWI citation as a salient threat related to binge drinking made the researcher think that could be a valid threat for the population under study. Also, based on previous research, she knew that death was not usually an effective deterrent for this age group, so she wanted to pick a different consequence of dangerous drinking. Based on input from the exploratory survey, the researcher decided to use getting a DWI as the threat in her fear appeal message for the experiment. This turned out to be an effective threat for this group in the experiment, because the fear messages were more successful than the social norms message at prompting higher message credibility scores and intentions to change behavior.

Fear

The data for the two main dependent variables used in this experiment, message credibility and intentions to change behavior, show that fear is more effective than social norms.

While participants' pre-existing fear level did not have any overall effect on their perceived message credibility or intentions to change behavior, the researcher found significant effects for people with very high pre-existing fear. This indicates that for certain participants, a fear appeal tactic is very effective at prompting higher reported intentions to change behavior. Perhaps colleges and universities could use this information strategically in a fear appeal message against binge drinking. Since the message appeared most effective for students who were already anxious or afraid of

possible consequences of binge drinking, it seems a fear message would work more effectively when students are already more afraid. If a highly publicized incident, such as a student dying from drinking too much or being arrested occurred on campus, this would not only raise awareness of binge drinking among students, but would probably heighten anxiety as well. In this scenario, a binge drinking prevention message using a fear appeal could be more successful at convincing students to adopt safer drinking behavior. Students would be more likely to listen to and accept such a message under these circumstances.

Religion

Based on the Harvard School of Public Health College Alcohol Studies, which consistently indicate that religion is the top social demographic that affects a college student's likelihood of binge drinking (Wechsler et. al. 1995), the researcher included religiosity as a variable in her study to see how this affected participants in the different message conditions.

The results show religion interacted with fear in messages to produce higher message credibility scores and higher intentions to change behavior, and for participants who saw the fear messages, the more religious they considered themselves, the higher scores they reported for both. In the social norms-only conditions, participants' increasing agreement with religion's importance in their lives did not correspond with increasing message credibility scores or higher intentions to change behavior.

The more highly religious people were, the more they responded to the fear messages. This could perhaps explain another reason social norms campaigns for college

students do not work. Many denominations encourage followers to rely on a higher being for guidance and not to let other people influence their behavior. It would make sense, then, that more religious students are not likely to pay attention to messages that tell them what everyone else on campus is doing, which is the message in most social norms campaigns. Also, many religions emphasize judgment for wrongdoing and punishment for bad deeds, so it could also be possible very religious students are more primed to accept a fear message. This is an interesting interaction that warrants further study.

Because religion appears to interact with the fear message to prompt higher self-reported message credibility and intentions to change behavior, health communicators or campus administrators could use fear appeal messages about dangerous drinking to reach out to students within campus churches or student faith-based organizations in a targeted prevention campaign. Segmenting the audience this way could ultimately prove more effective than developing a general, one-size-fits all message to give everyone on a campus.

Knowledge

An alarming finding from this experiment was that the majority of participants said they consume "3-4 drinks" in a typical social setting. This level is considered borderline binge drinking for males, and for females, four drinks in a sitting is considered binge drinking per the Harvard School of Public Health College Alcohol Studies (Wechsler et. al., 1995). It is likely many students who participated in this study do not realize they are

either borderline binge drinkers or are binge drinking outright.

The researcher believes this finding emphasizes a need to include a knowledge component in binge drinking prevention campaigns. While these campaigns aim to change attitudes and behaviors, it appears many students lack an understanding of basic facts about binge drinking. This is important because it is going to be hard to convince students to avoid drinking too much when they don't even know how to judge how much is too much. Students need to be educated with basic facts about binge drinking - -how much drinking is binge drinking, symptoms of alcohol poisoning, secondary health effects that can occur, etc. In this experiment, the researcher included some basic facts in the efficacy part of the message, but did not focus on this. It appears students could benefit as much from educational information as preventive information, and that the facts about binge drinking are in fact needed to help address this behavior.

Limitations

Some limitations exist in this study that should be acknowledged. The researcher conducted the exploratory survey to inform her experiment with a very small sample of students, and to be considered a broader indicator of "typical" student behavior and attitudes, that survey should be replicated on a larger scale.

For the experiment, the researcher asked participants to self-report their drinking behavior on the questions measuring their drinking volume and frequency, which is not always considered reliable. But, one study (Sobell & Sobell, 1997) outlined best practices so that self-reported alcohol use can be considered reliable and used as the basis of

scientific research, including participant confidentiality, emphasizing the research function of these questions, and using clearly stated, understandable questions in the survey. The researcher adhered to these guidelines and used the studies cited in the literature review to acquire best practices for developing the survey questions.

The researcher also used prior research to develop questions that measured individual characteristics and behavioral intentions, which were not measured with enough items to achieve reliability per Cronbach's alpha. Although she used few questions to measure these items, the researcher believes the data can be considered reliable because the items were based on prior research practices.

A final limitation is that the researcher did not have the possibility for direct observation to measure participants' behavior, so she relied on the participants to self report their intentions to change behavior. A future study could incorporate observation into the results to see how much participants follow through on their behavioral intentions, or could re-survey participants after the experiment's conclusion to re-assess their drinking volume and frequency and note whether changes occur and if message condition had any effect on reported actual behavior changes.

As Ajzen demonstrated through prior research (1991), while intentions are not always an exact predictor of actual behavior, what people say they will do is usually a strong indication of what they actually do.

Without the possibility for direct observation, the researcher believes asking students to self report their intentions is the best possible measure to see how the message affected drinking behavior, and is confident in these results.

Implications and Future Research

This study demonstrates that colleges and universities could have more success with binge drinking prevention campaigns if they used fear appeals rather than social norms tactics in messages.

How can a fear appeal message be more effective? The three main components of a fear appeal message are threat, fear and efficacy, and future research should examine these components to look for effective message tactics.

A future study could replicate this experiment, but vary the different types of threats to determine what is the most effective. In this study, the researcher used a DWI citation as the threat because students mentioned this more than other threats as their biggest fear related to binge drinking. But, because she only used one threat, the researcher cannot say whether the fear message was more effective than social norms because it used fear, or because of the particular threat it used. A future study could use different threats, such as death, being expelled from school, paralysis or serious injury, or looking foolish in front of others, in messages to see if one is more effective than others in a fear appeal message aimed at college students. Based on prior research, death is not likely to be the most effective threat for this age group, which is why she used DWI citation instead.

But, other threats could be even more effective than that, and should be tested. Another angle could be a guilt appeal, presenting the information from the perspective that a student's actions affect others rather than himself, to see if this tactic is more effective than fear for self on message credibility and intentions to change behavior.

A future study also could manipulate the efficacy component for each condition to see if students perceive certain kinds of recommended binge drinking prevention techniques as more credible than others.

Other fear appeal message studies should further examine individual differences to determine whether these messages could work more effectively for certain types of students. Future studies could look at how much pre-existing knowledge students have about what constitutes binge drinking as a moderating characteristic. The students in this study reported drinking at levels that approach or equal binge drinking and probably do not realize this. But, other universities that focus on teaching students about dangerous drinking probably would have students respond differently to a prevention message. It is likely that because they have the facts up front, these students will pay closer attention to the prevention message, and will probably be more discerning of message credibility than students who are learning about binge drinking for the first time while also seeing a prevention message.

Another possibility for moderating character traits is to compare students who have never been in trouble with the law for drinking to see if they perceive message credibility differently or report different levels of intentions to change behavior.

A future study that this researcher would particularly be interested in conducting is comparing binge drinking attitudes and behaviors between students at historically black colleges and universities (HBCUs) and larger, predominantly white schools. HBCUs report fewer problems related to binge drinking than other colleges and universities, and earlier research theorizes about various reasons, including religiosity of students, as the cause. But, there is no definitive explanation, and future research could help explain this pattern.

Since LSU, where this experiment took place, is located in the same city as Southern University, an HBCU, a future study could examine attitudes toward drinking among students at both universities for comparison. While both schools share similar athletic and rich school spirit traditions, which also makes them an ideal basis for comparison, the researcher believes significant differences would emerge between students at both universities when comparing their attitudes and behaviors toward drinking that could offer insight for future prevention campaigns.

Finally, this study used an experiment participant pool from one university. To get a better sense of what messages are effective for college students overall, it would be helpful to replicate this experiment using a participant pool drawn from several universities to ensure the fear and religion interaction effects on intentions to change behavior did not occur because of the particular culture at the university where this experiment took place.

Binge drinking remains a relevant health threat among college students, and this study offers experimental evidence for more effective health messaging tactics that campus administrators and health communicators can use to reduce students' risk. This research also indicates ideas for future research into binge drinking prevention campaigns on college campuses.

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**Appendix A:
Exploratory Survey Questions**

Conducted Summer 2009

1. Nationwide, binge drinking is the top public health problem and the leading cause of preventable death among college students. How do you think LSU compares?

- ☐ I think LSU has fewer binge drinking problems than other universities.
- ☐ I think binge drinking problems at LSU are equal to other universities.
- ☐ I think LSU has more binge drinking problems than other universities.

2. Please explain the reasons for your response to the previous question.

Essay-answer

3. Many colleges and universities, like LSU, develop media campaigns to deter students from dangerous drinking, but these campaigns often have no effect on student binge-drinking rates. Why do you think this is?

Essay-answer

4. What would you say are the biggest factors that affect whether a student will binge drink?

Essay-answer

5. Which of the following possible consequences of binge drinking do you think is the most concerning to the average LSU student? (More than one answer might apply, but please select the one you think students find the most alarming.)

- ☐ Being involved in a car crash
- ☐ Getting a DWI/going to jail
- ☐ Kicked out of school/trouble with campus administrators
- ☐ Alcohol poisoning
- ☐ Getting sick or acting stupid in front of friends
- ☐ Disappointing family

Other (please

specify)

--

6. Who has the biggest influence on your drinking choices?

- ☐ Parents/Family Members
- ☐ Friends
- ☐ Self/No one influences me
- ☐ LSU administration and faculty

Other (please

specify)

7. How much do you agree with the statement, "LSU campus administrators have a responsibility to try and prevent binge drinking among students" ?

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral/Unsure
- ☐ Disagree
- ☐ Strongly Disagree

8. If you had to design a program to deter LSU students from dangerous drinking, what would you do?

Essay-answer

Appendix B: Exploratory Survey Results Report

The first question asked students whether they think LSU has more, the same as, or fewer binge-drinking problems than other universities. Eight students entered valid responses to this question. Four students believe LSU has the same amount of problems related to binge drinking than other universities. Two students believe LSU has more problems, and two students believe LSU has fewer problems than other universities.

The second question asked students to write their reasons for their answer to the first question. Again, the eight students who answered the first question were the only ones who entered valid replies to this question. The four students who believe LSU has the same amount of drinking problems as other universities (majority of responses) offered the following justifications:

- I don't know that many people who have problems with binge drinking.
- I think that we are about average. People think that LSU is a big party school that's why they have that view. [sic]
- All universities have students who binge drink.
- I know LSU is a crazy party school, but many other universities i have visited were much like LSU drinking wise. [sic]

The two students who believe LSU has fewer problems related to binge drinking offered the following justifications:

- I think because the requirements keep raising to get into LSU, students are more controlled and mature when they get to college.

- I have been at LSU for three years and have never heard of anyone dying at a party for drinking too much. This must mean that the university doesn't have a drinking problem equal to other colleges.

The two students who believe LSU has more problems related to binge drinking offered the following justifications:

- Louisiana in general is more accepting of alcohol.
- I see binge drinking at parties and football games in larger quantities than I have been exposed to at other universities.

The next question was also essay-answer format, and asked students, “Many colleges and universities, like LSU, develop media campaigns to deter students from dangerous drinking, but these campaigns often have no effect on student binge-drinking rates. Why do you think this is?” Eight students entered valid replies to this question. Their responses are below:

- Because students don't think it will happen to them; college students view themselves as invincible and until they physically go through something they don't care what statistics say. [sic]
- They need to get on a more personal level with these students.
- kids will still do what they want. [sic]
- because students tend to be rebellious and influenced by the wrong peers [sic]
- Those campaigns are simply not on anyone's minds while they are drinking or about to binge-drink.

- Students associate the college lifestyle with drinking and nothing is going to deter their thought process from this.
- It's because kids have waited their whole life to get out on their own and be able to do whatever they want. They have been waiting for the chance to drink and now they can without trouble. Nothings going to stop that really. [sic]
- College students are young and are not ready to become adults and use drinking as in escape. [sic]

The next question, also essay-answer format, asked students, “What would you say are the biggest factors that affect whether a student will binge drink?” Eight students entered valid responses. Some of the students listed only one factor, and other students listed multiple factors. The answers were:

- Their emotional state; if a girlfriend/boyfriend recently broke up with them.
- Stressful situations and feelings
- Peer pressure
- their friends [sic]
- The people they hang out with. Fraternities, Sororities, Athletes, etc.
- peer pressure [sic]
- Whether or not they have drank before. I can honestly say I got most of my partying out in high school so I don't binge drink here. [sic]
- Friends, Family, School involvement, Will power [sic]

The next questions used multiple-choice format, and asked the respondents to select among possible consequences of binge drinking to advise which would be most alarming to the average LSU student. The choices were being involved in a car crash, getting a DWI/going to jail, kicked out of school/trouble with campus administrators, alcohol poisoning, getting sick/acting stupid in front of friends, disappointing family and other (please specify.) Of the eight respondents, the majority (six) selected “Getting a DWI/going to jail.” One respondent selected “Being involved in a car crash,” and one selected “Getting sick/acting stupid in front of friends.”

The next question asked the students to select who has the biggest influence on their drinking habits, with the choices parents/family members, friends, self/no one else influences me, LSU administration and faculty, and other (please specify.) The eight answers were split equally between “Friends” and “Self/no one else influences me.” None of the respondents selected family, campus administrators or other.

The next question used a Likert scale, asking students how much they agree with the statement, “LSU campus administrators have a responsibility to try and prevent binge drinking among students.” Nine respondents participated in this question. Most of the students selected “Neutral/Unsure,” with one student each selecting “Strongly Agree,” “Agree,” “Disagree,” and “Strongly Disagree.”

For the final question, students were asked what they would do if they had to design a program to deter other students from binge drinking. The eight valid responses were:

- Have a student who has actually lived the experience speak out and have the campaign centered around this person.

- Show pictures and real life stories.
- no clue. [sic]
- ... i would just be real and say that i know they drink but to be safe and think of the consequences. [sic]
- Simply having more cops sitting around the bars at night. A DUI is my biggest fear.
- a seminar that all students had to attend prior to the beginning of the school year [sic]
- Explain the many roadblocks that campus and Baton Rouge police have set up. That is enough to scare me away from drinking and driving. Also tell people the statistics of alcohol poisoning.
- Show them peoples lives who have been directly affected by binge drinking, for example a family who has lost a child due to a drunk driver or alcohol poisoning. [sic]

Appendix C: Survey Questions

1. Consent Agreement

Part One

Thank you for your participation in this research project about the dangers of binge-drinking among college students. This survey contains three parts, in which you will be asked to answer multiple choice questions, view a message about binge drinking, and then rate the information contained in that message. It should take you approximately 15-20 minutes to complete this survey.

In this part of the survey, you will answer nine multiple choice questions by selecting the response choice that best represents your answer to each question. Please select only one answer per question.

1. How much do you agree with the statement, “I tend to drink about the same amount in social situations as my friends do.”

- ☐ How much do you agree with the statement, “I tend to drink about the same amount in social situations as my friends do.” Strongly Agree
- ☐ Agree
- ☐ Not sure/No opinion
- ☐ Disagree
- ☐ Strongly Disagree

2. How important do you consider the opinions of your friends in regard to your drinking behavior?

- ☐ How important do you consider the opinions of your friends in regard to your drinking behavior? Very important
- ☐ Important
- ☐ Not sure/No opinion
- ☐ Somewhat important
- ☐ Not important

3. How much do agree with the statement, “I know when I need to stop drinking and can control my intake”?

- ☐ How much do agree with the statement, “I know when I need to stop drinking and can control my intake”? Strongly Agree
- ☐ Agree
- ☐ Not Sure/No Opinion
- ☐ Disagree
- ☐ Strongly Disagree

4. How much do agree with the statement, “I have trouble resisting peer pressure to drink when socializing with friends” ?

- ☐ How much do agree with the statement, “I have trouble resisting peer pressure to drink when socializing with friends” ? Strongly Agree
- ☐ Agree
- ☐ Not Sure/No Opinion
- ☐ Disagree
- ☐ Strongly Disagree

5. Who would you say has the biggest influence on your drinking behavior?

- ☐ Who would you say has the biggest influence on your drinking behavior? Parents/Family
- ☐ Friends
- ☐ Self/no one else influences me
- ☐ LSU administrators or faculty
- ☐ Other (please specify)

6. How afraid are you of the consequences of dangerous drinking, such as going to jail, getting kicked out of school or being in a car crash?

- ☐ How afraid are you of the consequences of dangerous drinking, such as going to jail, getting kicked out of school or being in a car crash? Very afraid
- ☐ Afraid
- ☐ Not Sure/No Opinion
- ☐ Somewhat afraid
- ☐ Not at all afraid

7. How often do you consider consequences such as going to jail, getting kicked out of school or being in a car crash occurring when you are drinking with friends?

- ☐ How often do you consider consequences such as going to jail, getting kicked out of school or being in a car crash occurring when you are drinking with friends? Very often
- ☐ Often
- ☐ Not Sure/No Opinion
- ☐ Sometimes
- ☐ Never

8. Which of the following best represents the typical amount of drinks (beer, wine or other alcohol) you consume in one sitting when socializing?

- ☐ Which of the following best represents the typical amount of drinks (beer, wine or other alcohol) you consume in one sitting when socializing? I do not drink
- ☐ 1 or 2 drinks
- ☐ 3 or 4 drinks
- ☐ 5 or 6 drinks
- ☐ 7 or more drinks

9. In the past week, how many days did you consume beer, wine or other alcohol?

- ☐ In the past week, how many days did you consume beer, wine or other alcohol? None
- ☐ 1 or 2 days
- ☐ 3 or 4 days
- ☐ 5 or 6 days
- ☐ Daily

Part Two

This part of the survey contains a message about binge drinking. The next part of the survey will ask you to evaluate the information in this message, so please take about five minutes to review it and read the content before proceeding with the survey.

[Exposure to one of three Conditions]

Part Three

In this part of the survey, please use the multiple choice questions and rating scale provided to evaluate the information in the message you just saw. Please select only one response for each question.

*** CONTROL QUESTION**

1. Which of the following statements best represents the facts about binge drinking presented in the ad you just viewed? (Please select only one response, choosing the one that best fits your answer.)

- ☐ Which of the following statements best represents the facts about binge drinking presented in the ad you just viewed? (Please select only one response, choosing the one that best fits your answer.) Binge drinking can result in legal trouble.
- ☐ The majority of LSU students drink in moderation.
- ☐ Both A and B.
- ☐ Not sure.

Ad Evaluation

Please evaluate the information you just viewed in the message. The rows each contain a description for content in the message. Please use the scale provided to indicate how strongly you agree the message reflected each characteristic. If you do not have an opinion, please select the middle button, "No opinion," as your answer.

1. How strongly do you agree with the statement, "I thought this ad was: "

	1 Strongly Disagree	2 Disagree	3 No opinion	4 Agree	5 Strongly Agree
Credible	<input type="radio"/> How strongly do you agree with the statement, "I thought this ad was: " Credible 1 Strongly Disagree	<input type="radio"/> 2 Disagree	<input type="radio"/> 3 No opinion	<input type="radio"/> 4 Agree	<input type="radio"/> 5 Strongly Agree
Inaccurate	<input type="radio"/> Inaccurate 1 Strongly Disagree	<input type="radio"/> 2 Disagree	<input type="radio"/> 3 No opinion	<input type="radio"/> 4 Agree	<input type="radio"/> 5 Strongly Agree
Factual	<input type="radio"/> Factual 1 Strongly Disagree	<input type="radio"/> 2 Disagree	<input type="radio"/> 3 No opinion	<input type="radio"/> 4 Agree	<input type="radio"/> 5 Strongly Agree
Unreliable	<input type="radio"/> Unreliable 1 Strongly Disagree	<input type="radio"/> 2 Disagree	<input type="radio"/> 3 No opinion	<input type="radio"/> 4 Agree	<input type="radio"/> 5 Strongly Agree
Educational	<input type="radio"/> Educational 1 Strongly Disagree	<input type="radio"/> 2 Disagree	<input type="radio"/> 3 No opinion	<input type="radio"/> 4 Agree	<input type="radio"/> 5 Strongly Agree
Not Trustworthy	<input type="radio"/> Not Trustworthy 1 Strongly Disagree	<input type="radio"/> 2 Disagree	<input type="radio"/> 3 No opinion	<input type="radio"/> 4 Agree	5 Strongly Agree <input type="radio"/>

Multiple Choice

For the multiple-choice questions below, please select the response that best represents your answer to each question. Please select only one response per question.

1. How much do you agree with the statement, “The information in this ad has made me more aware of the dangers of binge drinking?”

☐ How much do you agree with the statement, “The information in this ad has made me more aware of the dangers of binge drinking?”

Strongly Agree

- ☐ Agree
- ☐ Not sure/No opinion
- ☐ Disagree
- ☐ Strongly Disagree

2. How much do you agree with the statement, “I will consider my drinking behavior more carefully after seeing this information?”

☐ How much do you agree with the statement, “I will consider my drinking behavior more carefully after seeing this information?”

Strongly Agree

- ☐ Agree
- ☐ Not sure/ No opinion
- ☐ Disagree
- ☐ Strongly Disagree

3. How much do you agree with the statement, “If LSU students saw the information in this ad, it could help deter them from dangerous drinking?”

☐ How much do you agree with the statement, “If LSU students saw the information in this ad, it could help deter them from dangerous drinking?”

Strongly Agree

- ☐ Agree
- ☐ Not sure/No opinion
- ☐ Disagree
- ☐ Strongly Disagree

Part Four

Demographics

Please select one answer per question.

1. What is your gender?

- ☐ What is your gender?
Male
☐ Female

2. What is your race?

- ☐ What is your race?
White/Caucasian
☐ Black/African American
☐ Asian/Pacific Islander
☐ Hispanic/Latino/a
☐ Native American
☐ Multi-racial
☐ Other

3. What is your University classification?

- ☐ What is your University classification?
Freshman
☐ Sophomore
☐ Junior
☐ Senior
☐ Other

4. Are you affiliated with any Greek organization (fraternity or sorority)?

- ☐ Are you affiliated with any Greek organization (fraternity or sorority)?
Yes, I am a member of a fraternity/sorority
☐ I am not a member, but I participate in Greek social activities
☐ No, I have no Greek affiliation

5. How important do you consider religion/religious beliefs in your life?

- ☐ How important do you consider religion/religious beliefs in your life?
Very important
- ☐ Important
- ☐ Not sure/ No opinion
- ☐ Somewhat important
- ☐ Not important

Appendix D-1:
Messages by Condition
Condition One: Fear Appeal



Do You Know Your Limit?
*... because the
law does.*

You're driving home after a night out in Tigerland. Sure, you're a little buzzed, but you only had a few drinks. Right before you turn toward home, you hear the siren and see those flashing blue lights. It's a random DUI checkpoint, and you're getting arrested. You'll probably spend the night in jail, unless one of your drinking buddies is sober enough to come get you and has a spare few hundred bucks to bail you out. You could always call your parents, but then you'll have to explain to them how you wound up in jail and let them know how much your car insurance is going to cost. Not to mention the trouble you'll be in when the University finds out about your new arrest record.

IS THIS THE WONDERFUL COLLEGE EXPERIENCE YOU PLANNED?



Probably not. But, you can avoid being a statistic – know the dangers of binge-drinking, and plan before you party:

- Binge drinking = four or more drinks in a night for women, five or more for men. So, know when to quit.
- You and your friends can take turns being the designated driver to avoid car accidents and DUI checkpoints. Write down the taxi company's number before you leave home for the night, just in case.
- Alcohol is a factor in most of the assaults, rapes, thefts and other violent crimes that occur on college campuses. Hang out with people you trust, and leave the party if things get out of control. If someone is sick from alcohol, be a real friend and seek medical attention immediately.

Binge drinking is scary business, but you can do what it takes to be safe.
No one is saying you can't drink, but protect yourself by drinking responsibly.

**Appendix D-2:
Messages by Condition
Condition Two: Social Norms**



Do You Know Your Limit?
*... because most of your
fellow Tigers do.*

Despite what you may think, LSU students can have a fun and responsible night out. Most students don't drink excessively when partying, so they don't get sick and throw up in front of everyone. They also know the warning signs of alcohol poisoning, and they know to call for medical help if someone cannot stop throwing up, passes out or has difficulty breathing. And, three out of four students take academics seriously and don't miss classes or slack on homework because of hangovers.

IS THIS THE WONDERFUL COLLEGE EXPERIENCE YOU PLANNED?



Probably not. But, you can avoid being a statistic – know the dangers of binge-drinking, and plan before you party:

- Binge drinking = four or more drinks in a night for women, five or more for men. So, know when to quit.
- You and your friends can take turns being the designated driver to avoid car accidents and DUI checkpoints. Write down the taxi company's number before you leave home for the night, just in case.
- Alcohol is a factor in most of the assaults, rapes, thefts and other violent crimes that occur on college campuses. Hang out with people you trust, and leave the party if things get out of control. If someone is sick from alcohol, be a real friend and seek medical attention immediately.

Binge drinking is definitely not fun for the group, so do your friends a favor and be safe. No one is saying you can't drink, but protect yourself by drinking responsibly.

Appendix D-3:
Messages by Condition
Condition Three: Fear Appeal and Social Norms Combined



Do You Know
Your Limit?
... because the law does.

You're driving home after a night out in Tigerland. You only had a few drinks. Right before you turn toward home, you hear the siren and see those flashing blue lights. It's a random DUI checkpoint, and you're getting arrested. You'll probably spend the night in jail, unless one of your drinking buddies is sober enough to come get you and has a spare few hundred bucks to bail you out. You could always call your parents, but then you'll have to explain to them how you wound up in jail and let them know how much your car insurance is going to cost. Not to mention the trouble you'll be in when the University finds out about your new arrest record.

... and most of your fellow Tigers do.

Despite what you may think, LSU students can have a fun and responsible night out. Most students don't drink excessively when partying, so they don't get sick and throw up in front of everyone. They also know the warning signs of alcohol poisoning, and they know to call for medical help if someone cannot stop throwing up, passes out or has difficulty breathing. And, three out of four students take academics seriously and don't miss classes or slack on homework because of hangovers.

IS THIS THE WONDERFUL COLLEGE EXPERIENCE YOU PLANNED?



Probably not. But, you can avoid being a statistic – know the dangers of binge-drinking, and plan before you party:

- Binge drinking = four or more drinks in a night for women, five or more for men. So, know when to quit.
- You and your friends can take turns being the designated driver to avoid car accidents and DUI checkpoints. Write down the taxi company's number before you leave home for the night, just in case.
- Alcohol is a factor in most of the assaults, rapes, thefts and other violent crimes that occur on college campuses. Hang out with people you trust, and leave the party if things get out of control. If someone is sick from alcohol, be a real friend and seek medical attention immediately.

Binge-drinking is dangerous and definitely not fun for the group, so do your friends a favor and do what it takes to be safe.

No one is saying you can't drink, but protect yourself by drinking responsibly.

Appendix E1:
Sample Binge Drinking Prevention Programs
My Student Body – LSU's current binge-drinking prevention program



About this Site

MyStudentBody is a complete alcohol, drugs, and student wellness program for colleges and universities. It is used by leading public and private universities across the nation to manage institutional risks and positively impact student retention rates.

[Learn more about our program](#) ►

The Sources of our Content

MyStudentBody was created by Inflexxion research scientists, multimedia designers, and educators. The content development team includes doctoral-level psychologists and health professionals with training in education, epidemiology, psychology, and public health.

The People Behind the Site

MyStudentBody was created by [Inflexxion, Inc.](#) under the leadership of Emil Chiauzzi, Ph.D., Vice President of Product Strategy at the company. Dr. Chiauzzi is a leading specialist in online health interventions and the principal investigator on 25 SBIR grants.

MyStudentBody's Advisory Board ensures the ongoing integrity of the program through regular consultation. It is comprised of preeminent [experts](#) in the physical and mental health fields as well as distinguished professors at leading universities. Together, this five-member board has collectively authored more than 350 abstracts, articles, chapters and books.

Retrieved 3/10/2010 from <http://www.mystudentbody.com>

Appendix E2:
Sample Binge Drinking Prevention Programs
Southern Methodist University (SMU) – Social Norms-based Prevention Campaign



Appendix E3:
Sample Binge Drinking Prevention Programs



Vita

Kristen Meyer Sunde was born in New Orleans, Louisiana, and received her elementary and secondary education at schools in this area. She initially hoped to become a veterinarian, but her love of reading, along with inspiration from her favorite high school teacher, Mr. C., convinced her to pursue a writing career.

Kristen graduated with honors from St. Scholastica Academy in 1998 and enrolled at Louisiana State University, majoring in mass communication. During her sophomore year, Kristen was hired at *The Reveille*, LSU's student newspaper. Kristen held many different positions at *The Reveille*, including staff writer, chief staff writer and managing editor, becoming editor-in-chief her senior year. Kristen received the Best In-Depth/Investigative Journalism award from the Southwestern Journalism Congress in 2002 for her story "A Community Sobers Up," about efforts to reduce driving-while-intoxicated incidents in Baton Rouge. Kristen also was part of a team of reporters who received the Best Public Service Journalism award from the Southwestern Journalism Congress in 2002 for a series on disability access issues at LSU. In 2002, the Associated Collegiate Press named Kristen a Leader of the Student Press in North America. At *The Reveille*, Kristen met fellow journalist Damon Sunde, whom she married in 2004.

While in college, Kristen began working as a suburban beat reporter for *The Advocate*, Baton Rouge's daily newspaper, covering local government and writing some feature stories. Kristen was accepted into Georgetown University's Institute on Political Journalism the summer between her junior and senior years of college, where she took courses at Georgetown and worked as a news intern for a Washington, D.C.-based wire

service. Kristen had the opportunity to cover Congress and the federal government during this internship, which sparked a fascination with the intertwined and often contentious relationship between media and government.

Kristen graduated cum laude from LSU in 2002, and began work in the Bureau of Media and Communications at the Louisiana Department of Health and Hospitals (DHH), conducting external and internal communications on multiple health topics. She received awards from the Louisiana Federation of Press Women in 2003 and 2004 for her work, and received a third place award from the National Federation of Press Women in 2004 for Best News Release. She was part of the state's emergency operations center communication team during the Hurricane Katrina response in 2005. Her experiences at DHH led to her thesis research interests in health communication and risk perception.

In 2003, Kristen began volunteering with a local adult education nonprofit to do public relations for the organization. She continues her work with that group, Adult Literacy Advocates, today. In addition to public relations, she works as part of a team to plan fundraisers for the organization throughout the year.

In late 2006, Kristen left DHH and became public relations manager for the LSU Center for Computation and Technology, where she focuses on communication topics involving computational science research and is a member of several state and national media organizations that focus on technology use in higher education.

Kristen plans to continue working in public relations to broaden her professional experience. She hopes to eventually pursue a doctoral degree in communication or a related field so she can teach and conduct further research.