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THE EFFECTIVENESS OF THE USE OF FEAR APPEALS DEPICTING LEGAL AND PHYSICAL CONSEQUENCES IN ANTI-DRUNK DRIVING TELEVISION PUBLIC SERVICE ANNOUNCEMENTS

By

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ABSTRACT

THE EFFECTIVENESS OF THE USE OF FEAR APPEALS
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This study examines the effectiveness of fear appeals depicting negative consequences of drunk driving. More specifically, the study investigates two variables: (1) the relative impact of fear appeals of different fear intensity (strong v. mild fear appeals), and (2) the relative impact of different types of negative consequences of drunk driving (legal v. physical negative consequences) in anti-drunk driving television public service announcement (PSA). Legal consequences are defined as legal or social harm resulting from drunk driving, such as arrest and imprisonment. Physical consequences are defined as physical harm resulting from drunk driving, such as bodily injury and death. The effectiveness of PSAs was measured in terms of the subjects' emotional, cognitive, evaluative, and behavioral responses to a PSA. It was hypothesized that mild fear appeals and the portrayal of legal consequences of drunk driving would be more effective in generating favorable responses to anti-drunk driving messages than strong fear appeals or the portrayal of physical consequences.

A 2 x 2 factorial design with one control group was used for an experiment conducted with a sample of college students. The findings suggest that contrary to the prediction, strong fear appeals and the portrayal of physical consequences were more effective in general than mild fear appeals or the portrayal of legal consequences in generating stronger negative emotional responses to the message and a more favorable evaluation of the given anti-drunk driving message, except for counterargumentation. Mild fear appeals and the portrayal of legal consequences were more effective in suppressing counterarguments. However, neither the varying intensity of fear appeals nor the different types of negative consequences produced differential impact on the subjects' behavioral likelihood to drink and drive, and beliefs and attitudes toward drunk driving. The findings seem to refute speculation that the emphasis on social or legal harm may be more effective than the emphasis on physical harm when using fear appeals. They also seem to support the notion that the portrayal of negative consequences of undesirable behaviors, as opposed to simple delivery of the message, can enhance the message effectiveness in health communication campaigns.

To my parents

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CHAPTER 1 - INTRODUCTION

Overview of the Problem

Drunk driving continues to be one of the nation's most serious public health problems. Although alcohol-related crash fatalities have decreased substantially since 1982, drunk driving is still a major factor in many fatal motor vehicle crashes (Fell and Nash, 1989). Research during the past decade indicates that drunk driving accidents accounted for about half of the 50,000 fatalities each year (Matarazzo 1984). Similarly, nearly one-third of all alcohol-related deaths resulted from driving after drinking (Simons-Morton et al., 1989). The problem of drunk driving is so widespread that it is estimated that about two in every five Americans will be involved in an alcohol-related crash at some time in their lives (Drunk Driving Facts, July 1991).

A close examination of available statistics reveals an even more astonishing phenomenon involving the nation's youth. About half of all traumatic deaths and spinal cord injuries among 15-to-19-year-olds were caused by traffic crashes (Vegega and Klitzner, 1989), and almost 40 % of all traffic crashes were alcohol-related (Fell and Nash, 1989). Although a decline has been observed in the number of alcohol-related fatalities among the teenaged drivers during

the past decade, drunk driving is still considered to be a major problem among youth, especially when considering the following facts: (a) the reduction in fatalities among youth is partially attributed to a decline in the population of youthful drivers, especially 16-to-24-year-olds, and (b) teenage driver involvement in fatal crashes on a per mile driven basis remains substantially higher than other driver age groups (Fell and Nash, 1989). In fact, about 36% of all fatal alcohol-related crashes in 1989 were committed by 16-24 years old drivers, who represent only 17% of all licensed drivers (National Council on Alcoholism and Drug Dependence, Inc., 1990). Additionally, drivers in their early 20s still demonstrate the highest rates of intoxication (National Safety Council,1990).

As the 1988 Workshop on Drunk Driving hosted by then Surgeon General, Dr. C. Everett Koop, emphasized, public education has been recognized as a major tool to combat the problem of drunk driving. Although the issue of drunk driving has long been on the public agenda, initially it was treated as a traffic safety problem, and was dealt with accordingly by law enforcement officers and criminal justice communities who resorted to deterrent strategies. Only recently has the problem of drunk driving been accepted as a public health issue, amenable to health promotion approaches (Sleet, Wagennar, and Waller, 1989).

Like many health promotion activities, campaigns

against drunk driving have been engaged in by diverse organizations through different mass media. One of the most frequently used strategies has been the use of fear appeals in various mass media-mediated anti-drunk driving messages. As a couple of previous content analyses of television PSAs revealed, fear appeals were used in one third (Lynn, 1975) or more than two fifths (Hannerman, 1973) of the anti-drug campaigns, and in most of the anti-drunk driving PSAs in a convenience sample analyzed by Reid and King (1986). Though labeled differently by various researchers (i.e., threat communications, or anxiety-arousing communications), fear appeals are in essence deliberately designed to scare people to accept a particular recommendation provided in a message. One reason for the frequent use of fear appeals in health-related communications is that many health officials find it necessary to communicate unpleasant outcomes of undesirable health habits to people (Beck and Frankel, 1981).

However, despite the frequent use of fear appeals, prior research on fear appeals suggests that the heavy reliance on fear appeals in health-related communications may be questionable because the effectiveness of fear appeals in general has not been unequivocally established, and ineffective health-related campaigns using fear appeals are likely to diminish subsequent relevant health promoting activities (Soames Job, 1988). Moreover, even less understanding exists about the impact of the use of fear

appeals in television PSAs. Most prior studies on fear appeals were conducted with print materials, tape recordings, slides, films, or a combination of those. Therefore, the present study attempts to investigate whether fear appeals are effective in anti-drunk driving television PSAs. More specifically, the study examines whether the different levels of fear intensity, and the different types of consequences depicted affect message effectiveness. The following is a brief overview of the present study.

Overview of the Study

Based on previous health communication studies on fear appeals in general, and anti-drunk driving communications in particular, one potentially important yet under-researched issue concerns whether the depiction of different types of negative consequences of drunk driving produce different degrees of impact on people's beliefs, attitudes, or behaviors. In general, two types of negative consequences of undesirable health-related behaviors have been identified - physical consequences and social, legal or moral consequences (Stuteville, 1970; Ray and Wilkie, 1970; Hanneman and McEwen, 1973; Reid and King, 1986). Although these two types of consequences may not be completely mutually exclusive, physical consequences primarily involve negative physiological outcomes such as illness, injury, or death. This type of negative consequence of undesirable

health behaviors has received much empirical attention in many prior fear appeal studies. The other type of consequences encompass primarily social, moral, or legal consequences of various kinds such as loss of popularity or privileges, embarrassment, arrests, or serving a jail-term. This type of negative consequence has not been given much empirical investigation. For instance, physical consequences of improper dental hygiene include gum diseases, weak teeth, or related pain, while its social consequences can be unpleasing appearance of teeth, or bad breath. In some cases, nonphysiological consequences can be primarily legal or moral rather than social.

In the present study, a series of experiments utilizing a forced-exposure technique was conducted with a sample of college students to investigate the following: (1) whether the use of fear appeals demonstrating negative consequences of drunk driving has an impact on the effectiveness of anti-drunk driving PSAs; (2) the relative impact of (i) fear appeals of different fear intensity levels, and (ii) of different types of negative consequences on the overall effectiveness of anti-drunk driving PSAs, and (3) to attempt to identify variables which mediate the effectiveness of fear appeals or the depiction of negative consequences. The effectiveness of PSAs was measured in terms of the subjects' emotional, cognitive, evaluative, and behavioral responses.

The contributions of the study are as following: (a) first of all, the study provides practical guidelines on how to better design anti-drunk driving campaigns; (b) methodologically, the study demonstrates improved external validity by utilizing an actual PSA rather than a totally fictitious PSA as an experimental stimuli, and (c) the study contributes to examining the utility of prior fear appeal theories as applied to anti-drunk driving campaigns. Next, the remainder of the dissertation is outlined.

Outline of the Remainder of the Dissertation

Chapter 2 is designed to provide the background of fear appeal research in order to generate hypotheses of the study. Prior relevant literature was reviewed for this section. Chapter 3 concerns methodology of the study. Next, Chapter 4 reports results as well as discussion on the findings. Finally, conclusions are drawn and the limitations of the study are discussed.

CHAPTER 2 - LITERATURE REVIEW

In order to provide background and fully explain the purpose of the present study, a review of literature on fear appeals is presented in this chapter. Prior research on fear appeals is characterized by a wide variation in the investigated topic, participants in the study, utilized communications, and criterion variables measured. A couple of attempts have been made to simply reconcile some inconsistencies (Ray, 1970; Stuteville, 1970), and several attempts have been made to develop theory from seemingly chaotic empirical evidence (Janis, 1967; Leventhal, 1970; Rogers, 1983; Witte, 1991). These attempts have outlined processes in which fear and other intermediate variables influence the persuasive effect of fear-arousing communications. Previous reviews of fear appeal studies generally distinguish among three existing and widely published models which attempt to explain the relationship between fear appeals and their persuasive effectiveness, and one emerging model which basically combines the second and the third model. A description of each model and its associated group of studies is now presented. Appendix A presents three models in diagram.

Drive Model (1950s and 1960s)

Based on behavioral principles of reinforcement and drive reduction, the drive model postulates that a fear appeal induces a negative emotional drive in an individual, which in turn, motivates him or her to reduce. The stronger the drive is generated, the stronger the motivation to reduce it will be induced, according to the model. Yet, the motivation to reduce negative emotion alone is not sufficient for persuasion. The drive model further posits that if rehearsal of a given recommendation in a fear-arousing message reassures the reduction of the unpleasant emotional state which the individual finds himself in, he will be persuaded to accept the persuasive message. However, if too much fear is aroused, the fear-arousing message will be rejected because the individual begins to engage in so-called defensive avoidance, a tendency to ignore or to minimize the threat (Janis and Feshbach, 1953).

This behavioral model was derived from the classic experiment conducted by Janis and Feshbach (1953), and it was later theoretically reiterated by McGuire (1968). Contrary to the long-held belief in the community of psychology that strong fear generates more persuasion, Janis and Feshbach found that minimal to moderate level of fear was more effective than strong or no fear in inducing conformity to a persuasive message. Therefore, they suggested a curvilinear (or nonmonotonic, or an inverted U-

shaped) relationship, rather than a positive linear relationship, between the intensity of fear and the persuasive effect of communication using fear appeals. In other words, some level of emotional discomfort is necessary to motivate individuals to accept the recommendation, but an excessive fear appeal generates defensive avoidance to reject the message, and no fear appeal fails to generate the negative emotional arousal that gives an individual motivation to reduce.

In order to support the drive model, and more precisely his defensive avoidance hypothesis, Janis (1967) presented a few experimental studies which found that strong fear appeals evoked more resistance to persuasion (Janis and Feshbach, 1954; Goldstein, 1959). However, some of these studies measured guilt arousal, not fear arousal (Haefner, 1956; Zemach, 1966). Partial support of Janis' hypothesis came later from a study which used physiological feedback and found that those exposed to moderate fear were more likely to get a vaccination than those exposed to strong or low fear appeals (Krisher, Darley, and Darley,1973).

The curvilinear relationship predicted by the drive model seems plausible, yet those who reviewed subsequent studies have dismissed the model (Beck and Frankel, 1981; Leventhal, 1983; Rogers, 1983; Boster and Mongeau, 1984; Witte, 1991). The primary objection of these authors is based on the fact that they found a positive relationship

between fear intensity and its impact on attitudes, beliefs, and, though much less likely, on intentions and behaviors. These studies covered such diverse topics as dental hygiene practices (Janis and Feshbach, 1953; Goldstein, 1959; Leventhal and Singer, 1966; Evans et al., 1970), smoking (Insko, Arkoff, and Insko, 1965; Leventhal and Watts, 1966; Rogers and Deckner 1975; Rogers and Mewborn, 1976), tetanus inoculation (Dabbs and Leventhal, 1966; Leventhal, Singer, and Jones, 1965), tuberculosis (DeWolfe and Governdale, 1964), safe driving practices (Berkowitz and Cottingham, 1960), drunk driving (Kohn, 1982; King and Reid, 1989), earthquake (Mulilis and Lippa, 1990), fallout shelters (Hewgill and Miller 1965; Powell, 1965), roundworms (Chu, 1966), life insurance (Wheatley, 1971), energy consumption (Hass, Bagely and Rogers, 1975), and AIDS (Hill, 1988; Struckman-Johnson, 1990; Witte, 1991).

In addition, contrary to the model's claim that fear arousal is a necessary intervening component between the stimulus and the protective action to take, it is not only unnecessary in some occasions (e.g., people take protective actions in the absence of fear-arousing messages or situations - Leventhal, 1970) but also insufficient on many occasions (e.g., one's experienced fear does not always translate to changes - Leventhal, Singer, and Jones, 1965; Dembroski et al., 1978).

Several theoretical shortcomings as well as a lack of

empirical support have been pointed out with regard to the drive model's utility, primarily by Leventhal who proposed a subsequent model. First, in contrast to the model's claim that persuasion takes place only when the reduction of aroused negative drive is attained, some studies found that the arousal per se, not its reduction, generated impact on intentions or attitude change (Mewborn and Rogers, 1979; Rogers, 1983).

Second, the model fails to render predictions a priori about the effectiveness of fear appeals because it fails to specify at what point or under what conditions a facilitating function of the fear appeal (i.e., the fear appeal facilitates persuasion) becomes an inhibiting function of fear (i.e., the fear appeal inhibits persuasion) (Leventhal, 1971; Witte, 1991). The so-called hypothetical family of nonmonotonic curves suggested by Janis (1967) seems to reconcile his 1953 study and subsequent studies with conflicting findings in that other studies' level of strong fear were close to his study's moderate fear level. However, as Janis himself acknowledged, it is impossible to predict in advance at what point, and under what conditions, an increasing persuasion begins to drop on the arousal continuum, based on the known characteristics of communication elements.

Third, though Janis (1967) recognized that "many idiosyncratic factors in each person's temperament and past

training" as well as "the potential seriousness of the danger" and "individual manageability" may influence the intensity of fear reactions, the drive model fails to clearly relate the effect of these potentially mediating variables to persuasion. Nor does the drive model outline how these variables interact with fear intensity level to influence persuasion (Leventhal, 1971).

Finally, though the model implies that the processing of persuasive communication leads individuals either to accept or reject a given recommendation (Gleicher and Petty 1992), its primary emphasis on emotion "clumped" a variety of processes together and virtually ignored the contribution of an individual's cognitive capacity to the process (Leventhal, 1970). Although the drive model clearly supported the proposition that strong fear appeals could backfire, its predominant focus on negative emotional responses and drive reduction has led many researchers to turn to the other side of the human mind. It is not surprising then that a subsequent model, advanced predominantly by Leventhal, shifted its focus more to cognition than to emotion.

Parallel Response Model (late 1960s and early 1970s)

In contrast to the drive model which assumes that fear causes persuasion, the parallel response model, later called parallel or dual process model (Leventhal, 1970, 1983),

assumes that fear-arousing communication produces both fear and persuasion. In other words, emotional arousal is not a necessary antecedent of adaptation to the danger, because when an individual confronts a fear-arousing message, he not only feels negative emotions but also thinks about the danger presented in the message.

According to the parallel response model, when a person receives a warning communication, he first encodes or interprets the environmental threat. This initial threat appraisal gives rise either to a danger control process (later labeled as objective-cognitive process) or a fear control process (or subjective emotional process). "Danger control" is largely a cognitive process in which individuals generate the representation of the threat from the danger presented by the fear-arousing message, and engage themselves in task-oriented approach to the danger (i.e., evaluate the danger so that they come up with action plans or a program of action instructions that could control it, such as manipulating the external environment, or modifying the danger agent and its capacity to strike us). Danger control is a problem-solving process related to the concept of response efficacy and self-efficacy discussed more in detail in the third model. On the other hand, "fear control" is an emotional process in which individuals' fearful reactions to the fear-arousing message motivates them to avoid or minimize fear (e.g., eating and drinking to

quiet internal signals, or hiding).

According to the parallel response model, these two processes are relatively independent of each other, yet they interact with each other on most occasions. The model posits that since emotional responses dissipate faster, interactions between the two process are most likely to take place in initial stage when the emotions are aroused. If emotional arousal interferes with the cognitive process at this point, rejection is likely (interfering interaction). At the same time, although the emotional arousal can serve as a motivational construct which facilitates the danger control process (facilitating interaction), the ultimate source of persuasion comes from cognitive process which is lasting and more stable.

The parallel response model seems to fill in the gap left by its predecessor in the fear appeal research by explicitly integrating the instrumental, cognitive appraisal of fear-arousing stimulus into the motivational, drive-oriented responses (Gleicher and Petty, 1992). Yet, it has its own major flaw as a theory. It is difficult to generate precise hypotheses from the parallel response model because it fails to spell out conditions under which individuals resort either to danger control process or fear control process after the initial appraisal (Rogers, 1975; Beck and Frankel, 1981; Witte, 1991; Gleicher and Petty, 1992). Therefore, it lacks adequate rules of correspondence to link

theoretical constructs to observable phenomena (Rogers, 1975). Leventhal himself admitted that the model is "postdictive" rather than predictive (1971, p.1212), and "highly abstract, and more a frame of reference than a theory" (1970, p.169). Despite its untestable nature, however, the parallel response model provides a fruitful approach to conceptualizing fear-arousing communications in health-related issues by incorporating cognitive factors separate from the emotional factors in the threat coping process. For instance, the model's interpretation of what makes low-anxiety people more likely to reject high-fear persuasive message differs from the drive model. While the drive model asserts that high fear leads highly anxious people to deny their vulnerability to danger and to reject the message (defensive avoidance), the parallel response model suggests that they not only react to fear itself but also evaluate their plans or resources for coping with their emotional responses and the threat. This recognition of individual's ability to cope with the danger is instrumental to the extended version of the model proposed by Witte (1991) as well as to the third model that will shortly be discussed. The third model, protection motivation theory, expands the cognitive capability in a threat coping process even further than the parallel response model.

Protection Motivation Theory (mid 1970s to the present)

Protection motivation theory was advanced primarily by Rogers (1975, 1983). Drawing on health belief model (Rosenstock, 1974, 1988) and value-expectancy theory (Fishbein and Azjen, 1975), protection motivation theory focuses on four factors that affect an individual's response to fear appeals in health communications. Rogers (1975) initially incorporated three components of a fear appeal into the model as following: (a) the magnitude of noxiousness of a depicted event, leading to appraised severity; (b) the conditional probability that the event will occur when no adaptive activity is performed, leading to expectancy of exposure, and (c) the effectiveness of a coping response that might avert the noxious events, leading to belief in coping response efficacy.

Later, drawing on Bandura's self-efficacy theory (1981, 1982, 1983), Rogers (1983) added one more variable, self-efficacy, one's ability to carry out the coping response. The protection motivation theory predicts that when an individual faces a threat, cognitive appraisal processes are undertaken with available information in respect to the four factors. The outcome of the process is an intervening state, called protection motivation, which "has the typical characteristics of a motive: it arouses, sustains, and directs activity" (Rogers, 1975, p.98). This motivation differs from motivation in drive model, because an

individual is motivated to actively protect himself from threat as opposed to to simply reduce his negative drive.

The protection motivation theory initially proposed that more acceptance would be induced if: the consequences of danger is perceived as severe, it is probable to encounter the consequences, the given coping behavior is effective, and the person is able to perform the behavior. Each of the main effects of the four variables have been generally supported (Chu, 1966; Rogers and Thistlethwaite, 1970; Rogers and Decker, 1975; Roger and Mewborn, 1976; Maddux and Rogers, 1983). However, the predicted interaction effects among the variables (Rogers, 1975) were often neither found nor in the predicted directions (Rogers and Mewborn, 1976). Rogers (1983) later revised the model to include the notion that some protection motivation is a product of a dual appraisal process similar to Leventhal's threat appraisal. One process is called threat appraisal which basically considers severity and susceptibility of the danger with rewards or benefits of protecting from the danger by performing the recommended act, and the other process is labeled as coping appraisal which simultaneously considers efficacy and costs of performing the recommended act.

The protection motivation theory appears to integrate relevant factors and to provide satisfactory explanations about the process as a general health communication model,

except for the inconsistencies concerning the interaction effects among the factors. Although this lack of hypothesized multiplicative effects of the factors is attributed to the varying degree of efficacy found in different studies (Rogers and Mewborn, 1976; Maddux and Rogers, 1983; Witte, 1991), it has more fundamental drawbacks as a theory. First, its predominant focus on cognitive appraisal process dissipates the role of emotion in fear-arousing communications, and leads to insufficient explanations about maladaptive coping behaviors (i.e., coping behaviors that reduce the level of fear without reducing the danger) in the appraisal process (Tanner, Hunt, and Eppright, 1991; Witte, 1991, 1992). The most recent model proposed by Witte (1991) and Tanner et al. (1991) extended Leventhal's parallel process model by integrating Leventhal's parallel process model and Rogers' protection motivation model. The extended model emphasizes fear as a necessary construct to lead to defensive motivation, and ultimately to maladaptive changes (Witte, 1991). Maladaptive changes take place when threatened individuals attempt to reduce their internal fear without trying to diminish danger or threat itself. This phenomenon is similar to the fear control presented by Leventhal. Second, social context of the danger is ignored in the process when many coping behaviors are influenced by normative components (Tanner et al., 1991). The deficiency of social context may

explain many maladaptive behaviors which fear or cognition, or both may not be able to explain as precisely as predicted in the proposed models discussed so far. The next section discusses limits of the models in fear appeal research.

Limitations of the Models in Fear Appeal Research

The theoretical models described above provide some value in fear appeal research. For instance, they provide some relatively consistent findings, suggest a group of variables that may interact with fear in eliciting persuasion, and demonstrate feasible processes of fear-arousing communications. However, empirical endeavor in fear appeal research has been inconsistent, and often conflicting, or unsatisfactory. One of the early reviews (Miller and Hewgill, 1966) even declared that no simple generalization is possible concerning fear appeal effects. However, subsequent, more extensive reviews of the literature revealed possible reasons for the seemingly chaotic results.

After reviewing 27 studies on fear arousal from 1953 to 1968, Higbee (1969) suggested possible sources of inconsistency among studies from differences in the following: (a) operational definition of fear and the object of fear; (b) topics of interest that vary in terms of the subject's knowledge, familiarity, or importance; (c) participants in the experiments; (d) media used for the

study, and (e) criterion variables measured. When Witte (1991) examined the studies using three levels of fear intensity only (15 out of almost 90 studies), she dismissed Higbee's first and last components. Instead, she suggests three explanations for diversity of the fear appeal study results: (a) participants' perception of manipulative intent; (b) defensive avoidance, and (c) different levels of efficacy. Regardless of the specific sources of inconsistencies, the empirical observations fail to fully support the theoretical models, thereby limiting practical use of the models in the area of public health education.

Higbee's (1969) point is well taken in this project. Though prior threat appeal studies used at least 16 different topics, inconsistencies in the findings were seldom attributed to the diversity of topics or issues. It seems reasonable to expect that a certain issue in a fear-arousing communication <u>immediately</u> mediates individual's <u>existing</u> information, beliefs, attitudes, behaviors, both personal and normative, with respect to the subject matter along with the components of the communication by evoking different implications for different individuals. For instance, the issue of AIDS among contemporary college students may not evoke the same feelings and thoughts as a topic of drunk driving, even though both topics may be placed side by side on the scales of some of the factors identified in the models. Although replication of various

health issues can contribute to the understanding of fear appeal research (Flora and Maibach, 1990), the replication of the same health issues is equally important in identifying the process of fear-induced persuasion. In order to understand the effects of fear appeals on individuals, it is only appropriate to view the process from the individual's point of view. In that sense, the clear distinction between threat as an external cue and fear as an internal cue (Witte, 1991), previously pointed to, yet largely ignored by Leventhal and Rogers, and more so by Janis and Feshbach, is a step in the right direction.

In order to supplement the theoretical models in fear appeal research, another area of literature on drunk driving seems useful, especially in predicting effects for the present study. This line of research did not focus on fear appeals, but on people's current beliefs, attitudes, and behaviors related to drunk driving and its consequences. Experiments and other approaches such as focus group, surveys, or role-playing were used. Some of the beliefs and attitudes related to drunk driving revealed in the research include the following: (a) Drunk driving is frequently performed by people, especially among young adults (Smith et al., 1989), and identified reasons for drunk driving include inappropriate knowledge about alcohol and driving, lack of decision making skills, tendency to ignore the increased risk of drunk driving (Arkin, 1980), beliefs about norms

regarding drunk driving, previous drunk driving experiences, willingness to accept the risks of drunk driving, denial (DeJoy, 1989), or social benefits of drunk driving (Lastoviska et al. 1987; Basch, DeCicio, Malfetti, 1989); (b) The severity of the outcome of an accident was found to lead to the perceived seriousness of drunk driving (DeJoy, 1985) - in other words, as long as no severe outcomes take place, drunk driving is not perceived as serious (DeJoy, 1984); (c) However, if the driver cannot control the factor(s) causing an accident, people tend not to blame the driver regardless of the outcome severity (Arkkelin, Oakley, and Mynatt, 1979), and (d) People are more likely to identify themselves with accident victims than with violators (Chaikin and Darley, 1973; DeJoy, 1984, 1985, 1989). In addition, people perceive information campaign messages to be ineffective (Gantz, Fitzmaurice, and Yoo, 1990). Information on these beliefs and attitudes is considered to be useful generating predictions on the impact of fear appeal on drunk driving-related responses in this study. Based on the previous research on fear appeals, particularly the drive model and drunk driving related beliefs and attitudes, it is predicted in the study that mild fear appeals rather than strong fear appeals will be more effective for anti-drunk driving messages. Prior research indicates that strong fear appeals tend to backfire if people continue to engage in a condemned behavior without

experiencing negative outcomes of performing the behavior. The next section reviewing a number of studies which investigated the effectiveness of fear appeals in public service announcements further sheds light on the prediction of the study.

Fear Appeals in Anti-Drunk Driving Communications

Anti-drunk driving public service advertisements have received fairly minimal attention in the area of fear appeal research. The reason is in part that drunk driving has been considered as a traffic safety issue which mainly concerns law enforcement personnel. It was only recently that drunk driving was accepted as a public health problem (Sleet, Wagenaar, and Waller, 1989). Only a few studies directly addressed the issue of fear-arousing messages and their relationship to beliefs, attitudes, and behavioral intents toward drunk driving. Each of these studies will be reviewed more in detail.

A relatively good profile of current television public service announcements on drunk driving is provided by Reid and King (1986). Their content analysis of 86 anti-drunk driving PSAs revealed that some level of fear appeal was frequently used, since 93% of their sample depicted various physical (60%) and social consequences (40%) of drunk driving. Physical consequences were defined in the study as outcomes that would result in bodily injury or death to self

or others while social consequences were defined as outcomes that would affect relations or interactions with others. Death was most frequently portrayed (in 39 PSAs), followed by arrest (20 PSAs), and bodily injury (14 PSAs). The frequency of fear appeal use in anti-drunk driving messages appears high, compared to the frequency of fear appeals used in anti-drug abuse PSAs that were aired in the 70s. Hanneman and McEwen (1973) reported that more than two fifths of the anti-drug abuse PSAs portrayed physical or social consequences of drug abuse.

A few experimental studies have been conducted to investigate whether fear appeals are effective in anti-drunk driving visual communications. Kohn et al. (1982) manipulated the intensity of fear in films about impaired driving using three levels (high, medium, and low) as well as an irrelevant film (for control group) to show to each of four groups of Canadian high school students (total N=441) as part of their physical education courses. Emotional arousal was created with information on the consequences of drunk driving, as Leventhal (1970) suggested. Three experimental films, titled as "Collision Course" were basically the same with some alterations. The low-threat film showed a narrowly missed collision which resulted in the driver's resolution not to drink and drive. The medium-threat film showed a crash between two cars driven by drinkers which resulted in two fatalities in one car. The

high-threat film was very similar to the medium-threat, but graphic visual and soundtrack effects was added to show the awful consequences of the crash. The emotional arousal was induced as expected (high-->medium-->low-->control). The three experimental groups outperformed the control group in a knowledge test, but the difference disappeared in the six-month delayed posttest.

With regard to attitude measured immediately after the exposure, Kohn et al.'s high- and low-threat groups actually showed more permissive attitudes to drunk driving than the control group, and the low-threat group was also more permissive than medium-threat group. Self-reported behavior showed no significant effects. In the delayed posttest all measures failed to turn up any significant differences among the groups. The authors reasoned that the overall ineffectiveness of fear appeals used in their study might have resulted from the possibility of subjects' reactance (that is, reacting in the opposite direction to what is being expected of them out of resentment of being manipulated or rebellion), the fictional nature of the film, and past experiences which could lead subjects to readily dismiss the message as irrelevant to them. Since the fear manipulation was derived from physical threats, they suggested that social threat might be more effective in generating attitude or behavioral changes about drunk driving.

A study done by Mason (1985) used public service announcements for experimental stimuli. She divided 108 college students into three groups (two experimental groups and one control group) and showed a set of three 30 second existing PSAs to each of the experimental groups (one set depicting arrest v. another set depicting accident, no exposure for control group). The purpose was to examine if a message exposure increased the subjective probability of those two types of consequences happening to subjects, and as a result if it decreased behavioral intention for drunk driving. Both conditions failed to elicit from the groups either increased subjective probability or decreased self-reported behavioral intention. Mason reasoned that the brevity of the experimental exposure might have produced the results. Other factors may account for the results. First, the content of experimental treatments differed from one another, which suggests potential variations in the fear intensity. If significant results had been found, it would be difficult to identify the effect of different types of consequences from the effect of other message factors. Second, the pretest conducted immediately before the experiment might have sensitized subjects to the purpose of the study since the author asked questions about drunk driving-related attitudes and behaviors only. Many previous studies attempted to include unrelated filler items so that subjects would not be sensitized, or at least find it

difficult to recollect their previous answers.

King and Reid (1989) used a 2 x 3 factorial design to examine the impact of threat appeals by manipulating the intensity of physical injury threats (high-, moderate-, and low-threat) and the target of injury (to self, and to others). A total of 212 college students were divided into six groups to view one of the six existing PSAs. As hypothesized, more fear was induced by high-threat PSAs than the low-threat PSAs, and no differences were found by the target of injury. However, fear arousal did not impact the cognitive, evaluative, or behavioral responses. It was interesting though that greater argumentation was generated among those who were exposed to the low-threat, and injury to self PSAs than the other groups. Without speculating much about why the results came out the way they did, they suggested that the impact of social threats as well as physical threats be explored.

Purpose of the Study

Despite the suggestion that the depiction of negative consequences may be effective in PSAs on health issues, little research has been done on different types of consequences. A content analysis which categorized various consequences portrayed in anti-drunk driving television PSAs into two groups, social and physical consequences [Reid and King, 1986] provided a useful distinction, but to date, it

has not been extended to an experimental setting.

In the present study, the relative impact of depicting "Physical" and "Legal" consequences on persuasion was investigated. Though these two types of consequences may not be completely mutually exclusive, "Physical Consequences" primarily concern physiological negative outcomes imposed on those who are involved in the violation of a given recommendation, such as injury or death, while "Legal Consequences" encompass primarily various social, moral, or legal consequences forced upon violators of a given recommendation, such as the revocation of a driver's license, arrests, or serving a jail-term. Although two levels of fear intensity were manipulated based on general threatfulness of consequences, the study tested for three levels in effect since one control condition without the manipulation was provided.

Therefore, the purpose of the study is three fold: (1) to evaluate whether the use of fear appeal demonstrating negative consequences enhances the effectiveness of anti-drunk driving television PSAs; (2) to assess the relative impact of (i) fear appeals of different intensity levels, and (ii) depiction of different types of consequences on the overall effectiveness of anti-drunk driving PSAs, and (3) to attempt to identify variables which mediate the effectiveness of fear intensity or the depiction of negative consequences. The effectiveness of PSAs is measured in

terms of the subjects' emotions, cognitive responses, evaluation and self-reported behavioral intent.

HYPOTHESES

Since the issue in this study is drunk driving, not dental care or AIDS, it is appropriate to take into account the beliefs, attitudes, and behaviors related to drunk driving as identified in prior studies in order to formulate testable hypotheses. Generally, the studies on drunk driving indicate that people find themselves in a situation quite similar to a low self-efficacy situation. As a result, people seem to feel that the locus of control is not much with themselves with respect to drink driving related issues. Although the locus of control, one attribute of self-efficacy, has been suggested to have considerable impact on the effectiveness of fear-arousing communications (Burnett, 1981), it has not been explicitly integrated into models or fully discussed in fear appeal research. The reason for the lack of the treatment seems that the topic of drunk driving was treated in the same manner as dental care or AIDS, and it has not been subject to much of empirical investigation. It is proposed in this study that although people may feel that they are capable of avoiding drinking and driving or performing other alternative behaviors to prevent drunk driving, the perceived lack of control may override their ability to perform alternative behaviors, and

contribute to backfiring of strong fear appeals in anti-drunk driving communications. Although the following hypotheses were not derived from the drive model per se, the predicted effects of fear appeals are similar to those of the model. Therefore, mild fear appeals are proposed to be more effective than strong fear appeals or no fear appeals as following hypotheses state. Since the majority of fear appeal studies reported a higher threat level arouses stronger emotional responses, the present study hypothesizes the following:

H1: The more intense fear appeal is, the more negative emotional arousal is generated from the subjects.

H1a: Strong fear appeals will be more effective than mild fear appeals in generating negative emotional responses.

H1b: Mild fear appeals will be more effective than no fear appeal in generating negative emotional responses.

The issue of drunk driving is more ambiguous than other issues like AIDS or drug uses. People may feel that they have less control over the matter (e.g., similar to a low self-efficacy situation), and they are more likely to view themselves as a victim than as a violator. In addition, drunk driving is perceived as only mildly condemned compared to other social health threats, and the perception tends to be reinforced by everyday experiences of many people. In that case, the fear appeal studies predict

that high fear appeals may backfire (Ray, 1970; Stuteville, 1970; Leventhal, 1975; Witte, 1991). Therefore, it is expected that mild fear appeals will be more favorably received:

H2: Mild fear appeals will impact more favorably than strong fear or no fear appeals on subjects' cognitive and evaluative responses.

- H2a: Mild fear appeals will be more effective than strong or no fear appeals in producing a belief that drinking and driving leads to negative consequences.
- H2b: Mild fear appeals will be more effective than strong or no fear appeals in generating an anti-drunk driving attitude.
- H2c: Mild fear appeals will generate less counter-argumentation than strong or no fear appeal.
- H2d: PSAs with mild fear appeals will be more favorably evaluated than PSAs with strong or no fear appeals.

Prior research suggests that the effect of fear appeals on knowledge or attitudes often fails to carry over to behavioral intents or actual behaviors. Therefore, the following hypothesis is devised:

- H2e: The impact of the varying fear intensity on the subjects' behavioral intentions will be insignificant.

In terms of consequence types, there is little information available for specific predictions. However, prior research demonstrated that fear appeals using

physiological harms as negative consequences of an undesirable behavior were often ineffective in inducing changes. Therefore, the following hypotheses are exploratory. It is predicted that PSAs portraying physical consequences would be less effective than PSAs portraying legal consequences, except for the negative emotional arousal. The prediction was based on prior suggestions that social consequences may impact more on changes than physical consequences (Stuteville, 1970; Kohn et al., 1982; King and Reid, 1989). Thus, the following hypotheses are proposed:

H3a: PSAs depicting physical consequences will be more effective than PSAs depicting legal consequences in generating negative emotional responses.

H3b: PSAs depicting legal consequences will be more effective than a PSA depicting no negative consequences in generating negative emotional responses.

H4: PSAs depicting legal consequences will impact more favorably than PSAs depicting physical consequences or no consequences on subjects' cognitive and evaluative responses.

H4a: PSAs depicting legal consequences will be more effective than PSAs depicting physical consequences or no consequences in producing a belief that drinking and driving leads to negative consequences.

H4b: PSAs depicting legal consequences will be more effective than PSAs depicting physical consequences or no consequences in generating an anti-drunk driving attitude.

H4c: PSAs depicting legal consequences will generate less counter-argumentation than PSAs depicting physical consequences or no consequences.

H4d: PSAs depicting legal consequences will be more

favorably evaluated than PSAs depicting physical consequences or no consequences.

H4e: The impact of the depiction of consequences on the subjects' behavioral intentions will be insignificant.

In terms of interaction effects between the fear intensity and the consequence types, there is little information to draw on. Based on prior research on drunk driving-related beliefs and attitudes as well as on fear appeals, the following is expected. Since people tend to relate themselves to victims of drunk driving, it seems reasonable to expect that physical consequences of drunk driving are perceived as more severe and more probable to many people. In that case, strong fear appeals may promote people to reject the message since they do not feel they have much control. Therefore, the following working hypotheses are generated.

H5: There will be interaction effects between the fear intensity and the types of depicted consequences on the subjects' emotional, cognitive, evaluative, and behavioral intentions.

H5a: For strong fear appeals, PSAs depicting legal consequences will be more effective than PSAs depicting physical consequences.

H5b: For mild fear appeals, no difference will be found between PSAs depicting legal consequences and PSAs depicting physical consequences.

CHAPTER 3 - METHODOLOGY

Experiment was selected as a research technique to be used in this study since the research technique provides most control over a manipulative variable and the measurement process. Such controlled process allows for linking responses to the experimental stimuli. The experiment also guarantees an exposure of the communication which may otherwise have not been exposed to the audience due to the lack of general exposure of PSAs.

Experimental Stimuli

Four different experimental stimuli were produced by inserting additional footage into an already existing public service announcement. The primary reason for utilizing an existing PSA, instead of creating a totally fictitious message as a basis for the experimental manipulation, was to enhance external validity. In this way, it is more likely that findings will be applicable to other existing PSAs of a similar type. It also helps public health campaign designers to produce more effective PSAs. Many of the experiments performed in prior fear appeal studies have used totally fictitious experimental stimuli that most people do not expose themselves to on a regular basis. Prior stimuli have included a 15-minute illustrated lecture containing 71

references to negative consequences of undesirable health behavior (as in the 1953 Janis and Feshbach study), a long essay of 2,100 words (Insko et al., 1965), and a totally fictional drama (Kohn et al., 1982). An additional reason for modifying an existing PSA was the increased feasibility of manipulating an existing communication to an experimental treatment while ensuring equal production quality among the treatment conditions. There are, however, potential drawbacks to this approach. For instance, prior exposure to the spot among the experiment participants could potentially generate bias in their reactions to the experimental stimuli during the experiment. However, it is reasonable to expect that the randomization of subjects would minimize any possible bias resulting from prior exposure. Additionally, since most PSAs are broadcast during the "graveyard hours," their exposure is fairly limited (Hammond, Freimuth, and Morrison, 1987).

The PSA selected for the present study is a typical "talking head" type of PSA in which Scott Pruett, an Indy car racer, simply delivers an anti-drunk driving message. The spot does not exhibit any noticeable qualities that make itself stand out in the clutter of communications. Therefore it was deemed reasonable to expect that the potential impact of prior exposure of this particular PSA selected for experimental manipulation would be limited, if existent at all.

The Scott Pruett spot was selected from a variety of PSAs based on the following reasons: first, the spot does not show any consequences of drunk driving in its original form, and second, it is only 15 seconds long. These characteristics of the spot allowed for the desired experimental manipulations to be made since the insertion of additional scenes of negative consequences would make the final spot a typical 30-second long PSA with a professional appearance. The following is a brief description on how the experimental stimuli were produced.

The message delivered by Pruett consists of four sentences as follows: "Some people think it's crazy to drive a car over 200 miles an hour. But I'll tell you what crazy is. Crazy is driving any car when you had too much to drink. So, please don't drink and drive." This 15-second long original PSA served as a control group stimulus, since it does not contain any negative consequences or explicitly fearful content. Four different experimental treatments were produced by professionals working at a local television station by adding scenes to the original spot. Additional scenes were extracted from an educational video tape called, "Sentenced to Kill," which features personal experiences about drunk driving related accidents as told by actual victims and offenders of college student age. These characters represent individuals whom experiment subjects can easily identify with.

The first insertion was made immediately following the first sentence. The scene consists of actual footage of a car race for five seconds. Many cars are shown racing with one another, and one car hits the wall at the end. This scene was designed to serve as a filler in order to allow for the final spot to look more natural and technically consistent. For this reason, the car race scene was inserted in the same place in all of the four treatments.

The second insertion was a crucial addition because it was designed to distinguish the four experimental treatments from one another. This crucial scene was inserted prior to the last sentence, "so please don't drink and drive," in all of the four experimental stimuli. Four different negative consequences (hereafter referred to as consequence scene) were selected, based solely on the severity of the consequences as follows: (1) arrest, for the mild fear-legal consequence treatment; (2) imprisonment, for the strong fear-legal consequence treatment; (3) bodily injury, for the mild fear-physical consequence treatment, and (4) death for the strong fear-physical consequence treatment. Since this scene was a crucial part, the length of the second insertion was 10 seconds, and the scene was shown in slow motion in order to have more dramatic effect. As a result, four different 30-second long PSAs were produced to be used as experimental stimuli. Detailed description of each of the four PSAs is found in Appendix B.

Operationalization of Test Variables

The drive model assumes that fear built into a communication directly translates into the generation of fear in the mind of communication receivers. As previously discussed in the literature review chapter, many prior studies rejected this assumption because they found that fear in a message often fails to generate an equal amount of fear in the mind of message recipient. Subsequent models recognized the difference between the fear manifest in external stimuli and the fear experienced by recipients as internal responses. Many different labels were attached to these two different concepts. For instance, external stimuli were labeled as dangers (Leventhal 1970), or threats (Witte, 1990). On the other hand, internal responses were labeled as emotional or affective responses (Leventhal), or perceived fear (Witte, 1990). In this study fear appeals were used to define fearful external stimulus, and fear was operationalized as the sum of negative emotional responses expressed by subjects, as in prior fear appeal studies.

The constructs of fear intensity and negative consequences also were defined for the purpose of the study. Fear intensity was defined as the strength of the fear appeals, and two different levels of fear intensity were experimentally manipulated. However, in effect, three levels of fear intensity were investigated in the study because the one without the consequence scene (referred to

as control group) was included. Strong fear appeals depicted a highly severe consequence in the message, and mild fear appeals portrayed a less severe consequence. The control condition delivers the same message without the added scenes. Consequence type includes two different types of consequences of drunk driving. Physical consequences are primarily physical harm resulting from drunk driving, including injury or death. Legal consequences encompass primarily legal or social damage resulting from drunk driving such as roadside checkpoint or imprisonment.

Dependent Variables

Dependent measures include emotional, cognitive, evaluative, and behavioral responses. The majority of the measured items, especially emotional response measures, used in this study came from previous studies. A sum of ten negative emotional responses measured on a seven-point scale was designed to measure negative emotional responses. It also serves as a manipulation check since fear is operationalized as aroused negative emotional responses.

Cognitive responses include beliefs, attitudes, and counterargumentation. Changes in beliefs and attitudes are thought to be a crucial source of persuasion. Some previous studies usually investigated beliefs and attitudes by asking questions about possible legal changes or riding with impaired drivers (Kohn et al., 1982). In this study,

beliefs are measured by beliefs regarding the four different negative consequences (i.e., arrest, bodily injury, death, and imprisonment), and attitudes are measured by asking how much agreement is generated with various attitude related questions. Counterargumentation was measured in some previous studies as responses to counterpropaganda (Janis and Feshbach, 1953) or how much agreement is induced with various thoughts related to the message King and Reid, 1989; Witte, 1991). In this study it is measured by the level of agreement with both counterarguments and proarguments. Although counterargumentation is perceived to be positively related to the intensity of fear appeal (Ray and Ward, 1976), empirical examination revealed that low threat appeals elicited more counterargumentation than high threat appeals (King and Reid, 1989). Counterargumentation can play a major role in inducing maladaptive responses because individuals have the capacity to generate their own thoughts and ideas which are not spelled out in a given message, as cognitive response theories suggest. Counterargumentation may be more crucial for persuasion when the message deals with sensitive issues like drunk driving among college students and it is presented as a form of seemingly preachy public service announcement. Both attitudes and counterarguments concerning drunk driving were measured by six items each on a seven-point scale.

The research in the area of advertising effectiveness

suggests that the attitude toward advertising and the evaluation of the message can influence the purchase decision (Burke and Edell 1986; Biehal et al., 1992; Homer and Yoon, 1992). Although the evidence comes from commercial advertising which is dissimilar to public service announcement, it is interesting to see whether the evaluation of the message is related to the overall effectiveness in public service announcement. Evaluative responses measured evaluative reactions to various elements of the message (overall message, recommendation, portrayed outcome) on a seven-point semantic differential scale. Behavioral responses were measured by self-reported behavioral intents on a seven-point scale. Based on the results from factor analysis and reliability testing of the initial measures, multiple-item composite indices were generated to serve as dependent variables.

Measuring Instruments

Items included both in pretest and posttest measuring instruments were developed based on prior literature in the area of fear appeal studies and attitudes toward drunk driving. Two Ph.D. candidates and one master's student in the college of communication examined the initial measuring instrument for improvement in the selection of items, wording, format, or comprehensibility of the items. The final version of the instrument following this initial

revision process was tested in the pretesting process. The measuring instruments are found in Appendix C.

Pretesting

The primary purpose of pretesting in the study was to see if the mild fear treatments had the capacity to generate emotions, and to refine the measuring instrument.

The pretest was conducted with a total of 37 college students as a course exercise. Since the primary purpose of the pretesting was to see whether the experimental stimuli exhibit capacity for emotional arousal, it seemed reasonable to utilize two mild fear experimental treatments. Thus, Mild Fear with Social Consequence (Arrest) and Mild Fear with Physical Consequence (Bodily Injury) were used in the pretest. Since prior studies suggest a potentially important role of emotions in fear appeals, and fear intensity was measured by the level of emotional arousal, it seemed necessary to elicit some level of emotional arousal from subjects exposed to the communications.

Subjects were randomly assigned to one of the two groups. Roughly one half of the subjects moved to a separate room with one experiment coordinator, and the other half remained with another experiment coordinator in the original room. Then, a pretest questionnaire was distributed to subjects in each group. After the form was collected, each group viewed an experimental treatment which

was randomly assigned to their group. Then a posttest measuring instrument was provided to each subject. After the posttest questionnaire was collected, discussions followed concerning the purpose of the study, the comprehensibility of the items, order and wording of the items, format of the questionnaire, and the impact of the experimental stimuli. In effect, the pretest in this study was a combination of experimental and focus group methods.

As expected, both Mild Fear with Social Consequence and Mild Fear with Physical Consequence produced mild levels of emotional responses (3.12 and 3.42 out of a seven-point scale).

Based on the analysis of the pretest results as well as further discussions, two cognitive response items were dropped due to their low correlation with other cognitive response items. Also, minor modifications were made in the presentation of scales, wording of items and instructions.

Subject and Design

A total of 371 college students from Michigan State University served as participants in the study. College students were used for this investigation of the effectiveness of fear appeals, based on the following rationale. The U.S. Transportation Department reported that drivers 16-24 years old represent approximately 17% of all licensed drivers, but are involved in about 36% of all fatal

alcohol-related crashes. Though the prevalence of drunk driving among U.S. youth has been slowly decreasing (Smith et al., 1989), the concern over young drivers' involvement in drunk driving accidents has been expressed by many people (Koop, 1989). At the same time, the selection of college students constitutes a convenience sampling procedure. Therefore, the generalizability of the results is limited to the college student population.

Voluntary participation was solicited from students who were taking various courses in the College of Communication Arts and Sciences. The solicitation of subjects had been reviewed and approved by the University Committee on Research Involving Human Subjects prior to the request for participation. Fifty five percent of the participants were sophomores, juniors, and seniors who were enrolled in various advertising courses. The rest of the participants came from an introductory communication course primarily designed for freshmen. The majority of them were advertising and communication majors. The students were given extra credit for participating in the study.

About 46% of the participants were younger than 21 years old (the legal drinking age in Michigan). For that reason, questions regarding their drinking, drinking and driving behaviors were not included in the investigation. The gender of the participants were fairly evenly split with 54% female subjects and 46% male subjects. Since the

students were recruited from various classes (9 different classes), and the experimental stimuli were television PSAs, as opposed to print materials which can assure private exposure, it was impossible to administer the experiments with five different conditions in the same place. Thus, an alternative approach was devised. In order to better randomize subjects, participants from each advertising class were divided into two subgroups. This procedure was considered more desirable than exposing all participants in one class to a single experimental treatment.

In terms of administering the experiment to students in the communication class which was of a very large size, a slightly different approach was taken. First, sign-up sheets were passed around to have volunteers sign up for one of the thirteen sessions with a maximum of twenty students per session. When volunteers came to a session to participate in the study, they were divided into two subgroups. Two out of four experimental stimuli were randomly assigned to these two subgroups.

As the present study called for a 2 (two levels of fear intensity: strong and mild fear appeals) x 2 (two types of negative consequences: physical and legal negative consequences) factorial design with one additional treatment (no additional scenes containing a consequence scene) that served as a control group, subjects were assigned to one of the five groups. Table 1 shows the breakdown of the

subjects in each group.

Table 1

Breakdown of Subjects into Experimental Treatments

Experimental Treatment	No. of Subjects
Mild Fear with Legal Consequence	74
Mild Fear with Physical Consequence	74
Strong Fear with Legal Consequence	76
Strong Fear with Physical Consequence	73
No Consequence (Control)	74
Total	371

Procedure

A series of experiments were conducted using a forced exposure pretest and posttest design (Campbell and Stanley, 1963). When the students gathered in an assigned room, they were informed of what tasks they were expected to perform. After this introductory remark, each subject was given a consent form, and was asked to provide his or her signature if they found it agreeable. Because the participation was voluntary, no student refused to perform this initial task. After the consent form was collected, a two-page pretest questionnaire was distributed. The subjects were asked to provide the last four digits of their student number for confidentiality, and once again were assured that their responses would not be revealed to anyone other than the

researcher. At this point, they were asked to be honest and complete in answering questions.

The pretest questionnaire has two parts: the first part concerned their attitudes toward various health-related items of interest to many college students. Three drunk driving-related items were mixed in with the other items. The second part inquired as to the extent of control that subjects feel they have over these health-related items. Here again, a drunk driving issue was buried among the other items. Both parts were measured using a 7-point Likert scale. On the average, the pretest took about six minutes. After everyone was done, the pretest questionnaire was collected. Then, the subjects were randomly assigned to one of two subgroups of fairly equal size. Each class or each session, therefore, had two subgroups. The size of this subgroup varied from two to twenty subjects, and most subgroups consisted of fewer than 10 subjects.

The posttest questionnaire was passed to the subjects in the first experimental subgroup with the instruction that they not look at the questionnaire, but simply provide last four digits of their student number on top of the first page and wait. Then, the researcher requested that they watch a message on a television monitor carefully since it was only 30 seconds-long (for experimental groups), or 15 seconds-long (for the control group). They were told that they would view the whole announcement once, and then the last

portion of the message (the consequence scene) one more time. This approach was devised based on pretest results and discussions. Since the message was so brief, double exposures to the consequence scene, which is the most crucial part, were considered to be desirable in order to compensate for potentially weak impact resulting from the brevity of the spot. After viewing the assigned message, the subjects were asked to fill out the posttest measuring instrument and not to talk with one another.

While the first subgroup was filling out the posttest measures, the second subgroup was instructed to perform the same tasks as the first subgroup did. In all, the administration of the posttest questionnaire took about 13 minutes per subgroup on the average. Control groups took less time. The length of the questionnaire for the experimental groups was six pages long, and five pages long for the control group. In most cases, the instructor of the class who participated in the study helped to monitor one half of the subjects when the researcher was with the other half. In other cases, a special room was arranged for convenience and efficiency of monitoring by the researcher. The special room has a built-in smaller room designed to conduct focus group studies. However, care was taken to control the volume of the sound so that the group in the next room would not know about the purpose of the study.

Since the administration of the experiments lasted

approximately two weeks, the students were asked not to discuss the study with others, and to contact the researcher if they would like to be debriefed after the study was completed.

Analysis

SPSS/PC Plus was used for data analyses.

First, factor analysis and reliability testing were performed on individual items in order to create multi-item composite dependent measures.

Testing of hypotheses were two-tiered in general. Initially, ANCOVA with age and gender as covariates were performed. Since the focus of the study is not on the effects of age and gender on responses, paired contrasts were performed. Fortunately, after controlling for age and gender, the results still remained significant in this study.

CHAPTER FOUR - RESULTS AND DISCUSSION

Manipulation Check

A manipulation check was performed to compare the level of negative emotional responses (the perceived fear intensity) generated by the experimental treatments and a control condition. A total of ten adjectives were used to measure the extent of negative emotional responses to a given condition. Each emotional response item was measured on a seven-point scale. As expected, high correlations were observed among the ten items (all significant at .001), two of which were negatively correlated with the rest because they measured opposite emotional responses, that is, positive emotional responses. Since the items were highly correlated, an index was created by summing up all of the items, and was labeled as "emotions." Emotions are represented by eight negative emotional responses; tense, worried, fearful, emotional, anxious, disturbed, upset, concerned, and two positive emotional responses (reversed), comfortable and relaxed. Cronbach's alpha for the index of emotional responses was .92, a satisfactory level.

Pairwise contrasts were conducted to see whether the experimental manipulation created the proposed differences in emotions among the groups. Since an overall F test is

not necessary when using pairwise contrasts (Kerlinger, 1986), three nonorthogonal contrasts were made among three groups. Although orthogonal contrasts are required when an abnormally high number of comparisons are made in order to protect from Type I error, orthogonality per se is not a requirement for meaningful contrasts (Winer, 1971). In fact, one valuable use of nonorthogonal contrasts is found when comparing certain plausible rival hypotheses. In short, contrasts should be made on the basis of their relevance to the research purpose rather than on their basis of orthogonality or nonorthogonality (Rosenthal and Rosnow, 1985). Since the study concerns differences among three group means, three nonorthogonal contrasts were made throughout the analysis. The results of the three comparisons (strong fear treatments with a control condition, mild fear treatments with a control condition, and strong fear treatments with mild fear treatments) are reported in the next page.

As the group means in Table 2 demonstrate, the emotional responses to the experimental conditions were generally moderate with the highest mean being 3.76 on a seven-point scale. Yet, both experimental conditions succeeded in eliciting a higher level of negative emotional responses than the control condition. The differences from the control group were significant for both the strong fear treatments ($t=6.84$, $p < .001$) and the mild fear treatments

(t=6.32, p <.001). The difference between the strong fear treatments and the mild treatments was not statistically significant (t=1.22, p=.22).

Table 2

Manipulation Check

Group Means for Emotional Responses:

Fear Intensity	Means	SD
Strong Fear	3.76	1.49
Mild Fear	3.57	1.20
Control	2.57	1.08

Contrasts for Emotional Responses:

Contrast	Value	SE	t	df	p
Strong Fear with Control	11.96	1.75	6.84	167	<.001
Mild Fear with Control	10.02	1.58	6.32	197	<.001
Strong Fear with Mild Fear	-1.94	1.58	-1.22	167	.222

A more detailed analysis was done with all five different treatments to see whether strong fear treatments elicited more negative emotional responses when the type of negative consequence portrayed in the PSA was either physical or legal. Table 3 reveals that in case of physical consequence treatments, the strong fear treatment portraying death as a negative consequence generated stronger negative

emotions than the mild fear treatment depicting bodily injury, and both treatments were statistically different from all other conditions at .05. On the other hand, in the case of legal consequence treatments, the strong fear treatment portraying imprisonment generated slightly weaker negative emotions than the mild fear treatment depicting an arrest.

Table 3

Emotional Responses by Individual Treatments

Conditions	Mean	Standard Deviation
Mild Fear-Physical Consequence	4.01*	1.09
Strong Fear-Physical Consequence	4.66*	1.23
Mild Fear-Legal Consequence	3.14	1.15
Strong Fear-Legal Consequence	2.89	1.16
Control	2.57	1.08

* Significantly different from all other experimental stimuli and the control at the .05 level.

It appears that the manipulation of both experimental treatments depicting physical consequences was successful. Both experimental treatments were more emotionally arousing than the control condition, and, as expected, the strong fear condition generated stronger negative emotional responses than the mild fear condition. However, the experimental conditions portraying legal consequences failed to turn up the expected outcome. Instead, the mild fear-

legal consequence condition generated a slightly higher emotional response level than the strong fear-legal consequence condition, although the difference was not statistically significant ($t=1.37$, $p=.17$). When compared with the control condition, the mild fear-legal consequence treatment was significantly more emotionally arousing ($t=3.07$, $p < .01$), and the strong fear-legal consequence treatment was not ($t=1.69$, $p=.09$).

One possible explanation as to why the manipulation of legal consequence treatments was not as successful as the manipulation of physical consequence treatments is differential perceived likelihood of occurrence. Prior studies contend that the level of perceived threat is determined by both the perceived severity of the threat and the perceived likelihood of occurrence (Witte, 1990). Thus, it can be argued that less emotional response was elicited from subjects exposed to the strong fear-legal consequence condition because they perceived the portrayed consequence, that is, being subject to imprisonment by the police, to be less likely to occur than the consequence portrayed in the mild fear condition, that is, a potential arrest, even though the former is clearly more serious than the latter. This speculation is supported by the finding that an arrest was in fact perceived as being more likely to happen than imprisonment for all subjects (4.73 v. 4.20 on a seven-point scale). So, the probability of occurrence of an arrest and

imprisonment may be the key to understand the reversed outcome, and the overall moderate level of emotional responses. The fear manipulation in the present study was based solely on the severity of consequence, as indicated in the significant correlation between emotions and the perceived severity of the consequence ($r=.34$, $p<.001$).

However, the differential perceived likelihood proposition does not seem to be applicable to the present study because only the severity of the threat was experimentally manipulated, while the likelihood of occurrence was not. When the likelihood of occurrence is simply measured, not experimentally manipulated, the level of perceived threat can be moderate because the impact which the perceived severity of the threat generates may cancel out the influence of the likelihood of occurrence on the perceived threat, unless both factors carry different weights in determining the level of the perceived threat. Therefore, if both factors are not simultaneously experimentally manipulated, their effects on the perceived threat may be canceled out.

Yet, this possible explanation fails to hold when the physical consequence conditions were examined. Despite the higher perceived likelihood of bodily injury portrayed in the mild fear condition than death in the strong fear condition (4.96 v. 4.27), the strong fear condition still managed to elicit a significantly higher level of emotional

arousal than the mild fear condition. Therefore, differential probability of occurrence alone cannot explain the reversed outcome manifested in the legal consequence treatments.

One interesting point can be made from the exploration. If fear is elicited from appraising both probability of occurrence and severity of outcome as prior studies suggest (Witte, 1990), the two factors may cancel each other under some conditions where both factors are not simultaneously experimentally manipulated. In other words, if one perceives the severity of consequence to be high, he or she is likely to perceive their probability of encountering the consequence as being low, which points to a phenomenon similar to defensive avoidance. Table 4 illustrates the point.

Table 4

Perceived Severity and Perceived Likelihood of Occurrence

Consequence	Perceived Likelihood of Occurrence	Perceived Severity	average
Legal:			
Mild Fear	4.73	3.93	4.33
Strong Fear	4.27	4.65	4.42
Physical:			
Mild Fear	4.96	5.80	5.38
Strong Fear:	4.19	6.50	5.41

Therefore, future research should explore potential factors which may explain why the portrayal of legal

consequences failed to produce the expected outcomes. Nevertheless, the experimental manipulation was deemed as successful in general.

Reliability Measurements

The majority of the items included in the measuring instrument came from the prior research, such as negative emotions. In order to determine the items to be included in each of the indices representing the dependent variables, reliability testing was performed on the multiple item indices designed to measure composite dependent variables. Cronbach's alpha reliability coefficients were used to determine the reliability of individual indices. When a reliability coefficient was low, factor analysis was performed in order to determine how many factors should be used in creating a composite variable. Criteria used for initial factor inclusion were a minimum eigenvalue of 1.0 and a minimum variance accounted for of 10% for all indices.

Factor analysis revealed that only one index, the evaluation of the spot, was represented by a single factor with 56% of explained variance, and that the other indices consisted of more than one underlying dimension. Since the purpose was to generate a reliable index rather than identifying underlying factors latent among the various items, reliability analyses were performed to determine which items to include to measure attitude,

counterargumentation, and evaluation. As a result, a number of indices were generated to serve as dependent variables as shown in Table 5.

An index of belief is a sum of four beliefs on whether drunk driving leads to negative consequences like arrest, imprisonment, bodily injury, and death. The reliability coefficient for this composite was a moderate level of .74.

An index of attitude was derived from three items designed to measure attitude toward drunk driving in the posttest measuring instrument. The three items included in the index were: attitudes toward driving after drinking any alcohol, riding with a driver who has been drinking, and giving stricter punishment to drunk drivers. Cronbach's alpha for this multi-item index was a moderate level of .75.

An index of spot evaluation comprising six items was fairly reliable with a reliability coefficient of .84. The index included informative, interesting, on-target, motivating, well-focused, and relevant.

An index evaluating a given recommendation in a PSA included five items, which showed a reliability level of .77. Factor analysis revealed two underlying factors (feasibility of the recommended act and the persuasiveness of the recommendation) which have long been of interest to fear appeal researchers. Since both factors were considered as important dimensions, the five items (easy to do, impractical, unreasonable, effective, and unconvincing),

were included to evaluate a given recommendation. Scores on negative items such as impractical, unreasonable, and unconvincing were reversed.

The evaluation of portrayed outcome was represented by three items comprising a single factor measuring the believability of the outcome: perceived believability, severity, and reasonableness of the portrayed outcome. Cronbach's alpha for this index was .74.

Table 5

Reliability of the Measures

Index	Reliability Coefficient
Emotions	.92
Belief	.74
Attitude	.75
Counterargumentation	.60
Evaluation: Spot	.84
Evaluation: Recommendation	.77
Evaluation: Outcome	.74

Behavioral intent was measured by one item designed to ask about the likelihood of being engaged in drinking and driving after viewing the announcement.

The most problematic index turned out to be the counterargumentation index. The optimal reliability level was only .60 with four items included in the index. Four

items concern thoughts about future intention to drink and drive, accuracy of the consequence portrayal, the credibility of the message, and avoiding harm as long as some extra care is taken. Due to its low reliability, results based on this index should be interpreted with caution.

Hypothesis Testing

Hypothesis testing was performed to test for main effects on each of the two independent variables and for possible interaction effects. Since the hypotheses predict specific directions of effects among the treatments, a number of specific planned comparison tests were performed. Based on theoretical interests, when more than two groups are compared, and a specific direction is predicted in advance of the testing procedure, a series of specific planned comparisons are recommended (Blalock, 1979). It should be noted that when planned comparisons are used, no overall F test need be made. This is in contrast to post hoc tests like the Scheffe tests which may yield significant results only when the overall F test is significant (Kerlinger, 1986).

Before presenting the results of the analyses, it should be noted that gender and, to a much less extent, age turned out to be covariates in some significant main effects. However, after controlling for gender, the main

effects still remained statistically significant. Therefore, gender-related effects were ignored in the subsequent statistical analyses, since the primary focus of the study is not on gender-related differences in the reactions to fear appeals.

Now, the results of the fear intensity effects on cognitive and evaluative responses will be presented.

MAIN EFFECTS I: FEAR INTENSITY

Hypothesis One: On emotional responses

Hypothesis 1 proposes that there is a linear relationship between fear intensity and emotional responses. Specifically, it is proposed that strong fear treatments will elicit stronger negative emotional responses than mild fear treatments (H1a), and mild fear treatments will elicit more negative emotional responses than are found in a control group (H1b). Since this hypothesis serves as a manipulation check, Table 2 should be referred to.

Nonorthogonal contrasts were performed on each pair of the three groups in order to test the hypotheses. The results indicate that a positive linear relationship was observed between fear intensity and the emotional response in the predicted direction. Strong fear treatments elicited stronger emotional response (3.76) than mild fear treatments (3.57), and mild fear treatments in turn elicited more emotional responses than the control treatment (2.57).

However, statistical significance was achieved in only two of the pairwise comparisons. Both strong fear treatments and mild treatments elicited significantly more negative emotions than the control condition ($t=6.84$, $p < .001$ for strong fear treatments, and $t=6.32$, $p < .001$ for mild fear treatments). Yet, the difference between the two experimental treatments, the strong fear treatments and the mild fear treatments, was not large enough to be statistically significant ($t=1.22$, $p=.22$). Therefore, Hypothesis 1 was supported only partially since H1a was rejected, while H1b was supported.

The group means suggest that Hypothesis 1a was not supported mainly due to the moderate level of emotional responses generated by strong fear treatments (3.76 on a seven-point scale). It is not uncommon for strong fear appeals to fail to generate equally strong emotional responses, especially when the fearful communications are transmitted through mass media (Janis, 1967). However, the results in the present study seem to suggest that the portrayal of negative consequences of drunk driving in a television PSA is an effective strategy to generate emotional arousal, which many studies in the area of fear appeals suggest as a potentially important element for persuasion (Janis, 1967; Leventhal, 1970, Witte, 1991).

Hypothesis Two: On Cognitive, Evaluative, and Behavioral Responses

Hypothesis 2 proposed a curvilinear relationship between fear intensity and effectiveness on cognitive and evaluative responses. Specifically, it was hypothesized that mild fear treatments would be more effective than strong fear treatments, and be much more effective than the control condition in generating the following: a belief that drunk driving leads to negative consequences (H2a), an anti-drunk driving attitude (H2b), and generating less counterargumentation to anti-drunk driving message (H2c). Additionally, it was proposed that mild fear treatments would produce the most favorable evaluation of the spot, the recommendation, and the believability of the portrayed outcome, followed by strong fear treatments and the control condition (H2d). Finally, the impact of fear intensity on behavioral intent was predicted to be insignificant (H2e).

The pairwise comparisons revealed non-significant effects of varying intensity of fear on belief and attitude, and some effect on counterargumentation. The findings on each dependent variable are now discussed.

Belief It was expected from H2a that mild fear treatments would be more effective in generating a belief that drunk driving would lead to negative consequences of drunk driving. However, the overall effect on beliefs was insignificant. In order to detect the possible effects of recency (e.g., an exposure of a certain negative consequence

scene and the belief that drunk driving leads to that particular negative consequence) additional analyses were conducted on four different negative consequences. As Table 6 reveals, little impact of varying fear intensity was found on the drunk driving-related beliefs that drunk driving leads to arrest, bodily injury, death, and imprisonment. Although slight differences are observed between the strong fear condition and the mild fear condition (t=-1.56, p=.12), and between the strong fear condition and the control condition (t=- 1.36, p=.17) when the consequence was death, the differences were not statistically significant, and were in opposite direction to the hypothesis.

Table 6

Drunk Driving Related Beliefs

Consequence	Mild	Strong	Control
Arrest	5.26	5.26	5.46
Bodily Injury	6.10	5.98	6.05
Death*	5.61	5.40	5.62
Imprisonment	4.82	4.87	4.84

Contrasts for Belief on Arrest:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	.01	.16	.03	292	.974
Mild Fear with Control	-.20	.18	-1.07	167	.285
Strong Fear with Control	-.20	.18	-1.13	156	.259

Table 6 (cont'd)

Contrasts for Belief on Bodily Injury:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	.15	.12	1.23	290	.221
Mild Fear with Control	.05	.14	.34	148	.733
Strong Fear with Control	-.10	.15	-.68	161	.497

Contrast for Belief on Death:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	.23	.15	1.56	288	.121
Mild Fear with Control	-.00	.17	-.02	157	.983
Strong Fear with Control	-.24	.17	-1.36	176	.174

Contrasts for Belief on Imprisonment:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	-.03	.18	-.15	292	.882
Mild Fear with Control	-.02	.21	-.08	159	.933
Strong Fear with Control	.01	.21	.04	151	.968

Attitude The group means shown in Table 7 suggest that strong fear treatments (5.03) appear to be slightly more effective than mild fear treatments (4.93) or the control condition (4.89) in inducing anti-drunk driving attitudes. This is the opposite direction to what was

proposed in Hypothesis 2b. However, the differences among the groups were so small that no pairwise comparisons were statistically significant.

In order to search for explanation for these non-significant results concerning attitude, scores of an item, "Stricter punishment should be given to drunk drivers," from the pretest measurement and the posttest measurement were compared. This item was chosen because it was the only one included in the creation of the attitude index which was measured both in the pretest and the posttest.

Table 7

Drunk Driving Related Attitude

Group Means:

	Mild	Strong	Control
Attitude	4.93	5.03	4.89

Contrasts for Attitude:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	-.29	.42	-.69	293	.491
Mild Fear with Control	.14	.53	.27	148	.787
Strong Fear with Control	.43	.52	.83	151	.408

Two points can be made based on data in Table 8 regarding the lack of effect from exposure to the treatments. First, the initial scores measured during the

Table 8

Pretest and Posttest Scores of an Attitude Item

	Mild	Strong	Control
Pretest	5.53	5.46	5.58
Posttest	5.51	5.47	5.53

pretest indicate that there is little difference between strong and mild treatments to begin with, which suggests a successful random assignment of subjects in terms of their attitude toward stricter punishment for drunk drivers. Second, the differences between the pretest measurement and the posttest measurement indicate that the initial lack of differences among the groups was nearly unchanged even after exposure to different experimental conditions. It appears that the primary reason for the lack of change is that they already had a high level of anti-drunk driving attitude (e.g., ceiling effects). Yet, it can be interpreted that the exposure to anti-drunk driving PSAs failed to generate not only the desired effects but, also any meaningful shifts in the subject's cognitive responses to the messages.

Counterargumentation Hypothesis 2c proposed that mild fear treatments would generate less counterargumentation than high fear treatments, and much less than the control condition. Table 9 reveals that the level of counterargumentation was in the predicted direction with mild fear treatments eliciting the least

counterargumentation, followed by strong fear treatments, and then the control condition.

Table 9

Counterargumentation by Fear Intensity

Group Means:

	Mild	Strong	Control
Counterargumentation*	2.42	2.43	2.72

* a lower score means a lower level of counterargumentation.

Contrasts for Counterargumentation:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	-.04	.46	-.10	270	.918
Mild Fear with Control	-1.23	.55	-2.22	127	.028
Strong Fear with Control	-1.18	.60	-1.95	162	.053

The results of the pairwise contrasts demonstrate that the difference between mild fear treatments and the control condition was statistically significant at the .05 level ($t=-2.22$, $p<.05$). However, the difference between strong fear treatments and the control condition was slightly less than the .05 baseline for statistically significance ($t=-1.95$, $p=.053$). Although the two experimental treatments elicited a very similar level of counterargumentation (2.42 for mild fear treatments, and 2.43 for strong fear treatments), both experimental treatments provoked weaker

counterargumentation than the control condition (2.72). This means that the depiction of negative consequences of drunk driving in a message generated significantly fewer thoughts against the given message than did a message without such portrayal of negative consequences. In other words, the depiction of negative consequences of drunk driving seems to suppress thoughts against the given message. This finding is in contrast to what a previous study found (King and Reid, 1989).

Table 10

Recommendation Convincingness by Fear Intensity

Group Means:

	Mild	Strong	Control
Recommendation Convincing	4.46	5.24	4.20

Contrasts for Recommendation Convincing:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	-.78	.17	-4.63	291	.000
Mild Fear with Control	.26	.23	1.15	139	.251
Strong Fear with Control	1.04	.22	4.68	130	.000

One possible source of the higher level of counterargumentation manifest in the control condition may be the lack of the perceived convincingness of the

recommendation. For instance, if the recommendation is perceived as less convincing, then subjects may discount the message and further generate criticisms or counterarguments against the message. This possibility was explored by examining the perceived convincingness of the recommendation (See Table 10). It was revealed that the recommendation in the strong fear treatments was perceived as being significantly more convincing than mild fear treatments ($t=4.63$, $p < .001$) or control condition ($t=4.68$, $p < .001$). This finding suggests a negative relationship between how convincing a recommendation is and the level of counterargumentation.

Spot Evaluation Hypothesis 2d proposed that PSAs with mild fear appeals would be more favorably evaluated than PSAs with high fear appeals, and much more favorably evaluated than a PSA with no fear appeal in terms of the following six characteristics - informative, interesting, on-target, motivating, focused, and relevant.

As Table 11 reveals, the evaluation of the control condition (i.e., the PSA with no consequence scene) was least favorable ($M=4.07$), compared to both mild fear treatments ($M=4.49$) and strong fear treatments ($M=4.67$). This finding supports Hypothesis 2d only partially. Contrary to the prediction, the strong fear treatments were slightly more favorably evaluated than the mild fear treatments, although the difference between the two

experimental treatments were not statistically significant.

Table 11

Spot Evaluation by Fear Intensity

Group Means:

	Mild	Strong	Control
Spot Evaluation	4.49	4.67	4.07

Contrasts for Spot Evaluation:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	-1.13	.77	-1.48	291	.141
Mild Fear with Control	2.52	.98	2.57	137	.011
Strong Fear with Control	3.65	1.00	3.67	142	.000

It is interesting to compare results from the cognitive evaluation of strong fear treatments with the results from the emotional responses generated by strong fear treatments. Although strong fear treatments generated a moderate level of negative emotional reactions (3.76 on a seven-point scale), they also generated a fairly positive evaluation (4.67 on a seven-point scale) from the same subjects. This finding may support the idea that cognitive reactions work fairly independently of emotional reactions, as previous models suggest (Leventhal, 1970; Rogers, 1983; Witte, 1990), at least within the range investigated in the present study.

Janis (1967) argued that communications containing strong emotional appeals may generate extremely high emotional arousal, to the point that cognitive impairment takes place. The finding seems to refute the argument.

Recommendation Evaluation Evaluation of the recommendation is, in effect, the perceived effectiveness and feasibility of the recommendation. While prior literature fails to provide a precise definition for response efficacy, the evaluation of the recommendation in this study is similar to the concept of response efficacy. The evaluation included five criteria - easy to do, practical, reasonable, effective, and convincing.

Table 12

Recommendation Evaluation by Fear Intensity

Group Means:

	Mild	Strong	Control
Recommendation Evaluation	5.03	5.12	4.80

Contrasts for Recommendation Evaluation:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	-.43	.62	-.70	290	.487
Mild Fear with Control	1.15	.82	1.41	137	.161
Strong Fear with Control	1.58	.81	1.96	133	.053

Table 12 indicates that the recommendation given in the

strong fear treatments (5.12) were more favorably evaluated than the recommendation in the mild fear treatments (5.03) or the one in the control condition (4.80), even though the given recommendation is the same. The control condition was the least favorably evaluated, and its difference from the strong fear treatments was just below the .05 level of statistical significance (t=1.96, p=.053). However, mild fear treatments failed to distinguish themselves from strong fear treatments or the control condition.

Outcome Evaluation The perceived believability of the portrayed outcome was evaluated for the two experimental treatments since the control condition did not portray any negative consequences. Thus, a t-test was performed with strong fear treatments and mild fear treatments.

Table 13

Outcome Evaluation by Two Experimental Groups

	Group Mean	t-value	DF	p
Mild Fear	4.32	-3.20	292	.002
Strong Fear	4.60			

As Table 13 discloses, the portrayed outcomes in the strong fear treatments were evaluated to be much more believable than the portrayed outcomes in the mild fear treatments. This means that when the intensity of fear was as high as in the strong fear treatments of the present study, the

portrayed outcome was perceived as more believable, severe, and reasonable.

Behavioral Intent Hypothesis 2e proposed that the impact of fear intensity or the consequence type on behavioral intent would be smaller than the impact on cognitive or evaluative responses. Behavioral intent was measured by one item: one's own behavioral intent to drink and drive.

Table 14

Behavioral Intent by Fear Intensity

Group Means:

	Mild	Strong	Control
Behavioral Intent:Drink and Drive*	2.63	2.46	2.79

* a higher score indicates a stronger intent to drink and drive

Contrasts for Behavioral Intent:

Contrast	Value	SE	t	df	p
Mild Fear with Strong Fear	.17	.19	.90	293	.371
Mild Fear with Control	-.16	.21	-.76	168	.447
Strong Fear with Control	-.33	.21	-1.56	164	.120

Table 14 suggests that there are some group difference among the three treatments. As hypothesized, the control treatment elicited the strongest behavioral intent to drink and drive, but the differences from the mild fear treatments (t=-.76, p=.45) and the strong fear treatments were not

statistically significant (t=-1.56, p=.12).

Main Effects II: Consequence Type

Results of hypothesis tests for the main effects by the type of consequence on one's emotional, cognitive and evaluative responses are now discussed.

Hypothesis Three: On Emotional Responses

Hypothesis 3 and 4 proposed main effects by the type of portrayed negative consequences. More specifically, it was proposed that legal negative consequence treatments have a more favorable impact on one's emotional (that is, more strong emotional responses in this case), cognitive, and evaluative responses than the physical consequence treatments.

Table 15 demonstrates that the results from the nonorthogonal contrasts performed on three combinations of the groups indicate significant main effects of consequence type on negative emotional responses. As Hypothesis 3 proposed, Table 15 reveals that the physical consequence treatments were significantly more emotionally arousing than legal consequence treatments (3.01 v. 4.33, t=9.54, p <.001), and both experimental treatments were significantly more emotionally arousing than the control condition (M=2.57), which did not contain a negative consequence scene (t=2.86, p <.01 for the legal consequence treatments, and t=11.08, p <.001 for the physical consequence treatments).

This indicates that the PSAs depicting bodily injury or death lead subjects to feel more tense, uncomfortable, worried, fearful, emotional, anxious, disturbed, upset, uptight, and concerned than PSAs depicting an arrest or imprisonment.

Table 15

Emotional Responses by Consequence Type

Group Means:

Consequence Type	Means	SD
Legal	3.01	1.15
Physical	4.33	1.20
Control	2.57	1.08

Contrasts for Emotional Responses:

Contrast	Value	SE	t	df	p
Legal with Physical	13.19	1.38	9.54	288	.000
Legal with Control	4.46	1.56	2.86	161	.005
Physical with Control	17.65	1.59	11.08	168	.000

Hypothesis Four: On Cognitive, Evaluative, and Behavioral Responses

Belief Hypothesis 4a proposed that legal consequence treatments were more effective than physical consequence treatments, and much more effective than the control condition in generating a belief that drunk driving leads to

negative consequences. The group means shown in Table 16 suggest that contrary to the prediction, legal consequence treatments (average mean = 5.38, as opposed to 5.43 for physical consequence treatments, and 5.49 for the control condition) were the least effective among the three different treatments in producing anti-drunk driving related beliefs, although it appeared that the differences among the treatments were insignificant.

Table 16

Drunk Driving Related Beliefs by Consequence Type

Group Means:

"A belief that drunk driving leads to:"

Portrayed Outcome	Treatment Condition Legal	Physical	Control
Arrest	5.24	5.29	5.46
Bodily Injury	5.99	6.06	6.05
Death	5.47	5.53	5.62
Imprisonment	4.82	4.85	4.84

Contrasts for Arrest:

Contrast	Value	SE	t	df	p
Legal with Physical	-.05	.16	-.32	292	.753
Legal with Control	-.22	.18	-1.25	158	.212
Physical with Control	-.17	.18	-.96	166	.341

Table 16 (cont'd)

Contrasts for Bodily Injury:

Contrast	Value	SE	t	df	p
Legal with Physical	-.07	.12	-.60	293	.576
Legal with Control	-.06	.15	-.41	157	.684
Physical with Control	.01	.14	.06	153	.953

Contrasts for Death:

Contrast	Value	SE	t	df	p
Legal with Physical	-.06	.15	-.43	292	.670
Legal with Control	-.15	.17	-.88	173	.378
Physical with Control	-.09	.17	-.52	163	.601

Contrasts for Imprisonment:

Contrast	Value	SE	t	df	p
Legal with Physical	-.03	.18	-.15	293	.882
Legal with Control	-.02	.21	-.09	153	.932
Physical with Control	-.01	.21	-.04	157	.969

As the results from the contrast testing in Table 16 reveal, all of the contrasts failed to yield statistical significance. This means that the type of portrayed negative consequences in anti-drunk driving PSAs made little

difference in impacting one's belief that drunk driving leads to negative consequences.

Attitude A brief glance at the group means in Table 17 suggests that there is little difference among the three different treatments.

Table 17

Drunk Driving Related Attitude by Consequence Type

Group Means:

	Legal	Physical	Control
Attitude	4.96	5.00	4.89

Contrasts for Attitude:

Contrast	Value	SE	t	df	p
Legal with Control	-.10	.42	-.24	293	.810
Physical with Control	.23	.52	.45	148	.651
Legal with Physical	.34	.52	.65	151	.519

Pairwise contrasts revealed no statistical significance in all of the comparisons, although both experimental treatments were slightly more effective than the control condition, and the physical consequence treatments were slightly better than the legal consequence treatments in generating an anti-drunk driving attitude. These results indicate that the depiction of different types of negative consequences of drunk driving made little impact on the

generation of a varying degree of an attitude toward anti-drunk driving messages. In other words, regardless of the type of negative consequences portrayed in anti-drunk driving PSAs, the attitude toward drunk driving resulting from the exposure to the three different treatments was almost equally unfavorable.

In order to shed some light on this finding, scores of an attitude item measured both in pretest and posttest are compared in Table 18.

Table 18

Pretest and Posttest Scores on an Attitude Item

	Legal	Physical	Control
Pretest	5.55	5.44	5.58
Posttest	5.43	5.56	5.54

Table 18 shows no observable systematic pattern with one exception. Unlike legal consequence treatments and the control condition, whose posttest measures were actually lower than the pretest measures, physical consequence treatments showed some increase in the attitude in the posttest measurement, but not big enough to be statistically meaningful.

Counterargumentation Hypothesis 4c proposed that legal consequence treatments would generate less counterargumentation than physical consequence treatments,

Table 19

Counterargumentation by Consequence Type

Group Means:

	Legal	Physical	Control
Counterargumentation	2.59	2.25	2.72

Contrasts for Counterargumentation:

Contrast	Value	SE	t	df	p
Legal with Physical	1.37	.46	3.00	291	.003
Legal with Control	-.52	.57	-.91	140	.363
Physical with Control	-1.89	.58	-3.24	147	.001

and much less than the control condition. Contrary to the prediction, physical consequence treatments evoked the least amount of counterargumentation. Pairwise contrasts demonstrate that physical consequence treatments were statistically different from both legal consequence treatments ($t=3.00$, $p < .01$) and the control condition ($t=-3.24$, $p < .01$), while the difference between legal consequence treatments and the control condition was not statistically significant ($t=-.91$, $p=.36$). It is interesting to note that a much higher level of negative emotional arousal elicited by the physical consequence treatments (4.33 v. 3.01 for the legal consequence treatments, and 2.57 for the control condition) was not carried over to the cognitive responses to the given

message.

Spot Evaluation Hypothesis 4d proposed that PSAs depicting legal consequences would be more favorably evaluated than PSAs portraying physical consequences, and much more favorably evaluated than the control condition without any consequence scene.

Table 20

Spot Evaluation by Consequence Type

Group Means:

	Legal	Physical	Control
Spot Evaluation	4.19	4.97	4.07

Contrasts for Spot Evaluation:

Contrast	Value	SE	t	df	p
Legal with Physical	-4.67	.72	-6.52	290	.000
Legal with Control	.77	.98	.78	138	.437
Physical with Control	5.44	.96	5.68	127	.000

Contrary to the prediction, however, physical consequence treatments scored much more favorably than legal consequence treatments (4.97 v.4.19). The results from pairwise contrasts shown in Table 20 reveal that the differences between physical consequence treatments and both legal consequence treatments ($t=-6.52$, $p < .001$) and the control condition ($t=5.68$, $p < .001$) were statistically significant.

The legal consequence treatment and the control treatment did not significantly differ from each other (t=.78, p=.44). This means that PSAs depicting bodily injury or death were perceived as more informative, interesting, on-target, motivating, well-focused, and relevant than PSAs depicting arrest or imprisonment, and much more so, compared to a PSA with no negative consequence portrayal.

Recommendation Evaluation A similar pattern is observed with respect to the evaluation of the given recommendation. The recommendation given in all of the treatments, "Don't Drink and Drive," was evaluated as being significantly more practical, realistic, easy to do, effective, and convincing, in both experimental treatments depicting either legal or physical consequences, compared to the control treatment which simply gives the same recommendation without showing negative consequences that may result from drunk driving.

The results from pairwise contrasts as seen in Table 21 indicate that the recommendation in the physical consequences treatment was much more favorably evaluated than the same recommendation given both in the legal consequence treatment (5.23 v. 4.92, t=-2.51, p <.05) and the control condition (5.23 v. 4.80, t=2.64, p <.01). However, the recommendation in the legal consequence treatments did not differ at a significantly significant level from the same recommendation given in the control

condition (t=.75, p=.45).

Table 21

Recommendation Evaluation by Consequence Type

Group Means:

	Legal	Physical	Control
Recommendation Evaluation	4.92	5.23	4.80

Contrasts for Recommendation Evaluation:

Contrast	Value	SE	t	df	p
Legal with Physical	-1.53	.61	-2.51	290	.013
Legal with Control	.61	.81	.75	134	.454
Physical with Control	2.14	.81	2.64	134	.009

Outcome Evaluation Two types of outcomes were compared in a t-test to investigate which type of negative consequence was evaluated as being more credible.

Table 22

Outcome Evaluation by Consequence Type

	Group Mean	t-value	DF	p
Legal Consequence	4.13	-8.41	275	.000
Physical Consequence	4.79			

As Table 22 shows, physical consequences such as bodily injury and death were perceived as more believable, severe,

and reasonable, compared to legal consequences such as arrest and imprisonment as an outcome of drunk driving (t=-8.41, p <.001).

Behavioral Intent Hypothesis 4e proposed that the impact of fear intensity or the consequence type on behavioral intent would be insignificant. Table 23 suggests that the behavioral intent to drink and drive was the strongest with the control condition which does not contain any negative consequences of drunk driving (M=2.79). Although the physical consequence treatment induced the weakest behavioral intent to drink and drive (M=2.49), the difference from the control condition was not statistically significant (t=-1.40, p=.16).

Table 23

Behavioral Intent by Consequence Type

Group Means:

	Legal	Physical	Control
Behavioral Intent:Drink and Drive	2.60	2.49	2.79

Contrasts for Intent to Drink and Drive:

Contrast	Value	SE	t	df	p
Legal with Control	-.19	.21	-.91	160	.365
Physical with Control	-.30	.21	-1.40	172	.163
Legal with Physical	.11	.19	.60	291	.548

Interaction Effects: Fear Intensity and Consequence Type

Hypothesis 5 proposed that there would be interaction effects between fear intensity and the types of depicted consequences on the subject's cognitive, evaluative, and behavioral responses. More specifically, it was proposed that for strong fear appeals, the legal consequence treatment would be more effective (H6a), and for mild fear appeals, no significant difference will be found between the legal and physical consequence treatments (H6b). Two-way ANOVA was performed to examine whether significant interaction effects were observed.

Table 24

Interaction Effects between Fear and Consequence Type

	Group Means					
	Mild Fear		Strong Fear			
Dep. Variable	Legal	Physical	Legal	Physical	F	p
Emotions*	3.15	4.01	2.89	4.66	10.97	.001
Belief	5.39	5.51	5.36	5.37	.26	.609
Attitude	4.98	4.85	4.92	5.10	1.26	.263
Counterargument	2.47	2.26	2.53	2.31	.00	.983
Spot Evaluation	4.17	4.80	4.19	5.15	1.83	.177
Recomm Eval.	4.82	5.24	5.02	5.22	.77	.381
Outcome Eval.	4.61	5.86	4.85	5.99	.18	.676
Behavior	2.66	2.58	2.53	2.40	.02	.886

Table 24 suggests that fear intensity and the consequence type interacted only on one dependent variable, emotions ($F=10.97$, $p < .05$). The lack of interaction effects has been fairly well demonstrated in the prior fear appeal literature.

Table 25

TWO-WAY ANOVA for Emotional Responses

Source of Variation	SS	DF	MS	F	p
Main Effects	12793	2	6397	47.31	.000
Fear Intensity	252	1	252	1.87	.173
Consequence Type	12541	1	12541	92.74	.000
Interaction Effects	1484	1	1484	10.97	.001
Explained	14277	3	4759	35.19	.000
Residual	38402	284	135		
Total	52679	287	184		

In the present study, as Table 25 shows, fear intensity and the type of consequence interacted in generating different effects on emotions mainly due to the large difference between the physical consequence treatment and the legal consequence when the fear intensity was strong. Another factor is the small difference observed between the two treatments when the fear intensity was mild. However, the interaction is in the opposite direction from the prediction, so Hypothesis 5 was rejected.

CHAPTER FIVE - CONCLUSION

In this chapter a brief summary of the research findings and their implications are presented. Limitations and some suggestions for the future research are also discussed. The research findings are presented for both fear intensity-related results and consequence type-related results.

Summary of the Findings and their Implications

Main Effects by Fear Intensity

Emotional Responses Overall, the strength of emotional responses demonstrated by subjects was medium to low, ranging from 4.66 to 2.57 on a seven-point scale. This finding is consistent with the findings of many previous fear appeal studies. As predicted in hypothesis 1, the group exposed to the control treatment showing no consequences of drunk driving gave the least negative emotional reactions, while the strong fear treatments generated a higher level of negative emotional responses than the mild fear treatments. Although the difference between the two experimental conditions was not statistically significant, the results indicate that the use of fear appeals can be effective in arousing negative

emotional responses, which some researchers consider as an important element in persuasion. If the goal of a message is to arouse negative emotions, then the findings of this study suggest that some explicit portrayal of negative consequences of an undesirable behavior will be more effective in a television PSA than leaving people to make an inference on their own regarding possible negative outcomes.

Cognitive Responses It was predicted that there would be a curvilinear relationship between the fear intensity and cognitive responses such as beliefs, attitudes, and counterargumentation in that mild fear appeals would be most effective in eliciting favorable anti-drunk driving cognitive reactions. In general, the findings suggest that varying the intensity of fear has limited impact on cognitive responses. For example, the PSAs containing specific negative consequences of drunk driving failed to demonstrate any meaningful enhancement of the subjects' beliefs on or attitudes toward drunk driving. In other words, subjects exposed to three different treatments of different fear intensity level held a fairly even level of anti-drunk driving attitudes, regardless of how strong the fear appeals were. In contrast to the curvilinear relationship predicted in Hypothesis 2b, a linear relationship was found between the intensity of fear appeals and the attitude toward drunk driving although the relationship was fairly weak. The strong fear treatments

were the most effective in generating unfavorable attitude toward drunk driving, and the control condition was least effective. However, the differences among the groups were not statistically significant. As is the case with beliefs, it appears difficult to change attitudes with a brief exposure to a television PSA.

One of the most noteworthy findings concerns the relationship between the fear intensity and the level of counterargumentation among different groups. As hypothesized, the mild fear treatments were the most effective in suppressing counterarguments, and the control condition was least effective. The difference between the control condition and the mild fear treatments was statistically significant at the .05 level, while the difference between the control condition and the strong fear treatments was slightly short of the same statistical significance level ($p = .053$). The two experimental treatments were almost equally effective in suppressing counterarguments, contrary to the prediction. Although the findings provide partial support for the hypothesis, they suggest that the explicit depiction of negative consequences of drunk driving was more effective than the control condition in suppressing thoughts against the given message.

Evaluative Responses The message was evaluated in terms of the overall spot, the given recommendation, and the portrayed outcome (for the two experimental groups only).

It was hypothesized that the mild fear treatments would be more favorably evaluated than strong fear treatments, and that the control condition would be the least favorably evaluated.

As predicted, the evaluation of the spot showing no negative consequences of drunk driving was less favorable than the evaluation of the two experimental treatments at statistically significant levels. The subjects perceived the two experimental treatments portraying negative consequences of drunk driving as being significantly more informative, interesting, on-target, motivating, focused, and relevant than the control condition which simply told the viewer not to drink and drive without showing any negative consequences of drunk driving. Although the difference between the mild fear and strong fear treatments was minimal and in the opposite direction to the prediction, the clear depiction of negative consequences of drunk driving seems to induce a positive reaction to the message. This may suggest that the portrayal of negative consequences of an undesirable behavior in a health-related message may be effective in building favorable reaction to the message or credibility of the source of the message. This is interesting, given that most alcohol industry-sponsored television public service messages are often criticized for not showing negative side effects of alcohol consumption in their so-called PSAs.

In case of the evaluation of the recommendation itself, the group differences became weaker. Despite the fact that the given recommendation was identical for all groups, it is interesting to note that the recommendation embedded in the strong fear treatments was the most favorably evaluated, followed by the mild fear treatments, and then by the control condition, although the difference between the most and least favorable evaluations barely missed a statistical significance ($p = .053$). The finding seems to suggest that the creative execution of the whole advertisement, rather than the message itself, can play an important role in public service advertising as well.

The evaluation of the portrayed outcome was performed with two experimental treatments only, since the control condition did not portray any negative consequences of drunk driving. The subjects perceived the outcomes portrayed in the mild fear treatments (bodily injury and arrest), as significantly less believable, severe, and reasonable than the outcomes portrayed in the strong fear treatments (death and imprisonment). This may suggest that as the fear level increases in a health-related public message, the believability of the negative outcomes portrayed in the message may increase. It should be pointed out, though, that the finding may be useful only within the range of fear appeals used in this study. Additional investigation is needed to determine whether the believability of the

portrayed outcomes will continue to increase as the fear intensity rises to a much higher level than the one examined in this study.

Behavioral Response Although the difference from the experimental treatments was not statistically significant, the results indicated that the strongest behavioral intent to drink and drive was achieved among those who were exposed to the control condition showing no negative consequences of drunk driving. This suggests that PSAs portraying negative consequences of drunk driving can contribute to weaken intent to drink and drive more effectively than PSAs showing no such consequences.

The findings of the present study seems to support the positive relationship between fear intensity and persuasion. However, it should be noted that the level of fear arousal in this study was fairly moderate.

Main Effects by Consequence Type

The lack of empirical support for the usefulness of portraying physical consequences in previous studies has suggested a need to examine the potential impact of the portrayal of social or legal consequences on the effectiveness of persuasive message in a health-related public campaign. This study attempted to provide some preliminary investigation on the relative impact of different types of consequences of drunk driving.

Emotional Responses Hypothesis 3 proposed that PSAs portraying physical consequences would produce more strong negative emotional responses than PSAs depicting legal consequences, and much more than the control condition. As predicted, the PSAs showing bodily injury or death generated significantly more negative emotional responses than PSAs showing arrest or imprisonment, and much more negative emotional responses than a PSA showing no negative consequences of drunk driving. Thus, it can be said that people tend to fear the physical consequences of drunk driving to a much greater extent than the legal consequences of drunk driving. This findings contradicts a speculation that people may find social or legal consequences to be more damaging to their life at least in case of drunk driving.

Cognitive Responses It was hypothesized that the legal consequence treatments would be more effective than the physical consequence treatments, and much more effective than the control condition, in generating anti-drunk driving cognitive responses. Contrary to the prediction, the legal consequence treatments were least effective in strengthening a belief that drunk driving leads to negative consequences. However, the differences among the groups were not significant. This means neither physical not legal consequences of drunk driving affected the strength of the belief that drunk driving leads to any of the following negative consequences: arrest, bodily injury, death, or

imprisonment.

In inducing an anti-drunk driving attitude, both experimental treatments were slightly more effective than the control condition. However, none of the differences among the groups reached statistical significance.

In contrast to the results on beliefs and attitudes, the relationship between consequence type and the level of counterargumentation seems interesting. It was hypothesized that the legal consequence treatments would be the most effective in suppressing thoughts against the given message, followed by physical consequence treatments, and then the control condition. However, the results show that PSAs showing bodily injury or death evoked a significantly lower amount of counterargmentation than PSAs depicting arrest or imprisonment, and that a PSA portraying no negative consequences produced a slightly higher level of counterargumentation than the legal consequence treatments, although the difference was rather insignificant. This suggests that if a public service announcement explicitly shows negative consequences of an undesirable behavior, negative thoughts about the message may be more likely to be suppressed. More interestingly, it also demonstrates the potential superiority of physical negative consequences over the legal negative consequences in terms of weakening counterargumentation within the range of the fear intensity examined in this study.

Evaluative Responses It was hypothesized that PSAs depicting legal consequences would be more favorably evaluated than PSAs portraying physical consequences, and much more favorably evaluated than the control condition showing no negative consequences of drunk driving.

With respect to the evaluation of the spot, contrary to the prediction, the physical consequence treatments were perceived as being significantly more informative, interesting, on-target, motivating, well-focused, and relevant than the legal consequence treatments, and were much more favorably perceived, compared to the control condition. On the sum of all these dimensions, the legal consequence treatments were not so much favorably evaluated compared to the control condition. The results indicate that when the goal of persuasive message is to gain favorable reactions to the message, the depiction of negative consequences, especially negative physical consequences, of a behavior can be effective, perhaps more so than could be achieved by simply telling people not to perform the behavior.

The physical consequence treatments scored much higher than the legal consequence treatments in terms of the believability of the portrayed outcomes. That is, physical consequences such as bodily injury and death were perceived as significantly more believable, severe, and reasonable than legal consequences such as arrest and imprisonment when

portrayed in television PSAs. This may explain why the depiction of physical consequences was more effective in general than the depiction of legal consequences in this study. However, if such portrayals exceed the range of fear intensity demonstrated in this study, the results may not hold true.

Behavioral Response As hypothesized, the impact of the different types of consequences on the strength of the intent to drink and drive was not large. The control condition generated the strongest intent to drink and drive, while the physical consequence treatments produced the weakest intent, but the difference between the treatments was not significant.

Interaction Effects between Fear Intensity and Consequence Type

Despite the lack of the prior empirical support for interaction effects in fear appeal research, this study attempted to predict specific interaction effects based on the available literature. In particular, it was proposed that for strong fear appeals the legal consequence treatment would be more effective, while no significant difference would be found between the legal consequence treatments and the physical consequence treatments using mild fear appeals. Overall, no interaction effects were found between the fear intensity and the consequence type, as previous studies have often found. The only exception was found in the emotional

responses. In case of the emotional responses, a significant interaction effect was detected, but not in the predicted manner; instead, the effect was mainly due to the much higher score difference found between the physical consequence treatment and the legal consequence treatment when the fear intensity was strong, and the much lower score difference between the physical consequence treatment and the legal consequence treatment when the fear intensity was mild.

Implications

A number of additional implications arise from the results of this study. First, the results seem to suggest that the role of emotional arousal should be reevaluated in fear appeal studies since the results showed the potential superiority of mild or strong fear appeals over the control condition, especially in suppressing unfavorable thoughts about the message and in generating favorable message evaluation. Although such superiority was not sufficiently supported by the results with respect to beliefs, attitudes, or behavioral intent, the results seems to hint that even in those cases, fear appeals were slightly more effective than the control condition.

A second implication of this research is that it appears that the use of fear appeals does not always provide the desired effects. This points to a need to clearly

define a goal when using fear appeals in public service announcements. Depending on what goal is intended, the level of fear intensity needs to be modified in order to optimize effectiveness.

A third implication is that the presence of ceiling effects in beliefs and attitudes toward drunk driving found in the study suggest that it may be more worthwhile for public health campaigners to attempt to change social norms than to reinforce already held beliefs or attitudes in their message. Based on a comparison of the pretest and posttest scores of beliefs and attitudes, subjects' beliefs and attitudes toward drunk driving were already fairly unfavorable, therefore, a brief exposure to a PSA would not move their score to a noticeable level. Given that the topic is familiar to them, and that drunk driving is perceived as socially undesirable, it was not unexpected. Therefore, it is important to recognize what is a real hindrance to performing a desirable health-related behavior.

Finally, it can be concluded that in general strong fear intensity and the portrayal of physical consequences as used in this study tended to be more effective than mild fear intensity and the depiction of legal consequences. This finding may be useful to those who design television PSAs dealing with drunk driving issues.

Limitations

A number of limitations can be found in this study in research method, variables used, and subjects. The use of laboratory setting used in the study led to a forced exposure from subjects who may normally be much less attentive to the message transmitted through television. Since the topic is vary familiar to the subjects, they come to the experiment setting with their already held ideas and attitudes. It was not possible to control for prior beliefs, ideas, and attitudes with brief exposure to thirty or fifteen second long messages.

Since the study deals with a fairly sensitive topic among the age group who participated in the study, it is possible that some responses might not reflect the subjects' true feelings. The guarantee of confidentiality was, however, designed to mitigate this potential problem.

Both the independent and dependent variables examined in this study were primarily drawn from the prior research. However, the lack of empirical research on the topic of drunk driving and the lack of efforts to apply fear appeal theories to the specific area have led to the generation of some items in the measuring instrument that may need refinement. One of the sources of the lack of precision can be found in the fact that some of the available theories on fear appeals were of little use because they were based on preventive personal health care issues such as AIDS or

dental hygiene. Drunk driving is clearly a health issue, but it is crucial to recognize its distinctive nature rather than being under the huge umbrella of other health issues.

The use of college students can be justified in the context of this study because they represent a large proportion of drunk driving offenders. However, the results of the study should be limited to the sample used in the study. Younger children who are not familiar with drunk driving issues or older adults may respond differently to the same study.

Another limitation is that this study manipulated only one PSA in which a spokesperson simply delivers a message. The results might be different if different kinds of PSAs (for example, so-called lifestyle PSAs showing people at a party) were used.

Suggestions for Future Research

This study attempted to examine the effectiveness of both the fear intensity and the type of negative consequences portrayed in an anti-drunk driving television PSA by using a forced exposure. Future research should examine emotional, cognitive, or evaluative responses of subjects to fear appeals in normal media environments in order to enhance external validity of the study. Investigating the effectiveness of fear appeals when used in radio announcements would be particularly interesting since

many people drive while listening to a radio.

Although the use of fear appeals is still questionable, many television PSAs still resort to images designed to create fearful reactions. The limited impact of fear appeals found in this study, however, calls for a shift in research direction in order to determine whether negative approaches such as fear appeals are actually more effective than positive approaches, which are often neglected by public health campaigners. Given that people tend to perceive current media environment as becoming more violent, a frequent use of fear appeal may turn off viewers.

The PSAs used in this study relied heavily on image rather than information, as many television announcements do. It will be interesting to see whether information-charged fear appeals (for example, by emphasizing statistics of casualties of drunk driving, specific legal penalties of drunk driving) are more persuasive than image-oriented fear appeals. Since the length of the messages used in this study were different, future studies may consider using experimental stimuli of the same length.

It is also important to examine similar issues with a wide variety of populations. The sample of college students has its own idiosyncracies which may have been reflected in the results of the study. Therefore, different groups of people should be used to identify such differences existent in each group in order to design better targeted health

campaigns.

It would be also useful to investigate whether other types of PSAs, not a talking head type of PSA as was used in this study, may generate a different impact when fear appeals are used.

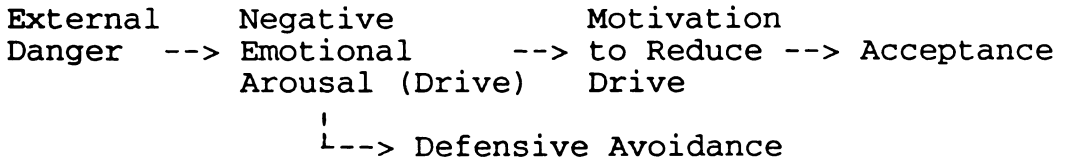
APPENDIX A

DIAGRAMS OF THE MODELS

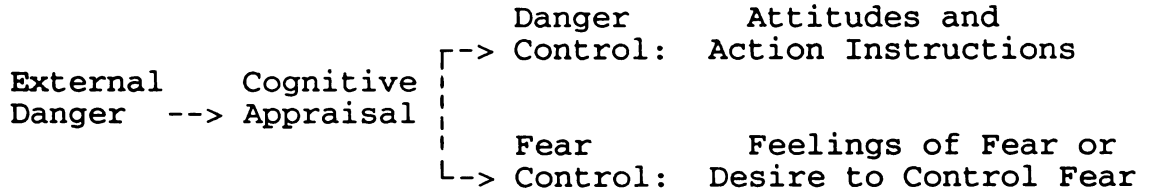
APPENDIX A

Diagrams of the three models

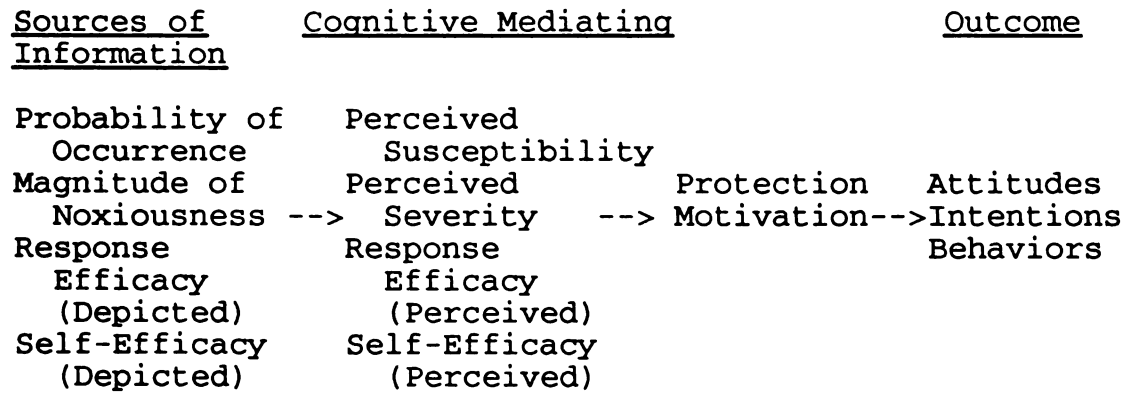
1. The Drive Model:



2. Parallel Response Model (adopted from Leventhal,1971):



3. Protection Motivation Model (adopted from Roger, 1975, 1983):



APPENDIX B

EXPERIMENTAL STIMULI (TRANSCRIPTS)

APPENDIX B

Experimental Stimuli

1. Mild Fear with Legal Consequence: Arrest

A car is pulled over by the police on a dark road, which indicates it is late at night. Two policemen get out of their patrol car and walk to the car in which a young driver is seen behind the wheel. Both of them are shown carrying a flashlight in their hands. One policeman walks around the driver's side of the car, and the other policeman walks around the passenger side of the car. While both policemen shine their flashlight from both directions, they appear to talk to the driver about something. Though an actual arrest is not made in the scene, it is obvious to an average viewer that the driver is in trouble with the police. Throughout the scene, a police siren sounds loudly, which signals a threatful situation.

2. Mild Fear with Physical Consequence: Bodily Injury

A small passenger car is shown chained to a tow truck. Its front has been badly damaged, and its back appears to be unaffected. This indicates an automobile accident has taken place, but not a deadly one. Next, a woman is shown lying in a hospital bed, which implies that she was involved in the accident. Bandages are all over her face. Then, she is seen struggling her way up a stairway. One can see she is young. Her face looks slightly deformed, and her legs are so shaky she has to hold on to the rail to climb the stairs. Sad music is played throughout the scene.

3. Strong Fear with Legal Consequence: Imprisonment

In the beginning, a person's fingers are printed by a policeman on some type of form at a police station. Subsequently, the person is shown while his mugshot is being taken. He holds some kind of police identification number with both of his hands. He looks rather unconscious. At this point, it becomes obvious that the person is a young male. He is subsequently taken to a prison cell, and he is covering his face in despair while sitting down on the end of a bed in the cell. In the meantime, the door of the cell

4. Strong Fear with Physical Consequence: Death

A car is shown burning wildly on a street. A group of firemen are shown trying to extinguish the fire. In a close-up, a scorched body beyond recognition is shown sitting behind the wheel in the car. While this close-up is being shown, a scary sound is heard as the body is being magnified to the viewer.

APPENDIX C

MEASURING INSTRUMENT

APPENDIX C

Pretest Measuring Instrument (ALL GROUPS)

Class and Time_____
Instructor's Name_____
Student # (last 4 digits)_____

--- This is a two-page questionnaire. The following statements concern various issues many college students think about. Please indicate how much you agree or disagree with EACH of the following statements by marking X:

A. It is important for people to control their weight.

Strongly Agree	Agree	Slightly Agree	**Neutral**	Slightly Disagree	Disagree	Strongly Disagree

B. Most drunk drivers get arrested sooner or later.

Strongly Agree	Agree	Slightly Agree	**Neutral**	Slightly Disagree	Disagree	Strongly Disagree

C. Higher priority should be given to research on AIDS.

Strongly Agree	Agree	Slightly Agree	**Neutral**	Slightly Disagree	Disagree	Strongly Disagree

D. Smoking should be totally banned from the campus area.

<-----Agree **N** Disagree-->

E. Sometimes it is OK to resort to illicit drugs for temporary relief.

<-----Agree **N** Disagree-->

F. Driving after two drinks is dangerous.

<-----Agree **N** Disagree-->

G. People are afraid to talk about AIDS because they may be perceived as promiscuous.

<-----Agree **N** Disagree-->

H. It is embarrassing to talk about sexually transmitted diseases.

<-----Agree **N** Disagree-->

I. Additional measures need to be taken concerning campus safety.

<-----Agree **N** Disagree-->

J. Stricter punishment should be given to drunk drivers.

<-----Agree **N** Disagree-->

K. AIDS should be treated as everyone's problem.

___:___:___:___:___:___:___
<-----Agree N Disagree-->

--- How much control do you think you have with respect to protecting yourself from the negative consequences of the following incidents?:

	total control			moderate control			no control
AIDS	6	5	4	3	2	1	0
Smoking-related lung cancer	6	5	4	3	2	1	0
Violent crimes	6	5	4	3	2	1	0
Illicit drugs addiction	6	5	4	3	2	1	0
Stress	6	5	4	3	2	1	0
High cholesterol	6	5	4	3	2	1	0
Dental problems	6	5	4	3	2	1	0
Drunk driving-related accidents	6	5	4	3	2	1	0

Posttest Measuring Instrument I (Arrest)

Class and Time _____
Instructor's Name_____
Student # (last 4 digits)_____

THIS IS A SIX-PAGE QUESTIONNAIRE. PLEASE ANSWER ALL QUESTIONS TRUTHFULLY AND COMPLETELY. YOUR ANSWERS ARE CONFIDENTIAL. THANK YOU FOR YOUR PARTICIPATION.

---Please indicate your own reactions to the drunk driving spot you have just watched by circling one number for EACH of the following items.

- While watching the drunk driving TV spot, did you feel.....?

not at all			not sure			very much	
1	2	3	4	5	6	7	... TENSE
1	2	3	4	5	6	7	COMFORTABLE
1	2	3	4	5	6	7	... WORRIED
1	2	3	4	5	6	7	FEARFUL
1	2	3	4	5	6	7	... EMOTIONAL
1	2	3	4	5	6	7	ANXIOUS
1	2	3	4	5	6	7	... DISTURBED
1	2	3	4	5	6	7	UPSET
1	2	3	4	5	6	7	... RELAXED
1	2	3	4	5	6	7	CONCERNED

--- How strongly do you believe that drunk driving will lead to **each** of the following:

	very strongly			neutral			not at all
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How likely do you think you personally are to encounter **each** of the following incidents if you drive after having too much to drink?

	very likely			not sure			very unlikely
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How able are you in effect to avoid becoming a drunk driver by performing **each** of the following?:

	very able			neutral			very unable
Taking a **taxi**:	7	6	5	4	3	2	1
Arranging a **designated driver** before drinking:	7	6	5	4	3	2	1
Sticking to a **drinking limit** before driving:	7	6	5	4	3	2	1
Sobering up before driving:	7	6	5	4	3	2	1

--- After viewing the announcement, what are the chances that you would drink and drive?

very high			not sure			very low
7	6	5	4	3	2	1

--- How likely is it for you to recommend to others that they should not drink and drive?

very likely			not sure			very unlikely
7	6	5	4	3	2	1

---Please indicate how much you either agree or disagree with each of the given statements by marking X:

A. People should not drive after drinking any amount of alcohol.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. People should not ride with a driver who has been drinking even if (s)he appears sober.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. Most drunk drivers get arrested sooner or later.

<-----Agree N Disagree-->

D. Stricter punishment should be given to drunk drivers.

<-----Agree N Disagree-->

E. Driving after two drinks is dangerous.

<-----Agree N Disagree-->

F. Getting locked up in jail is a horrible experience.

<-----Agree N Disagree-->

---Please indicate how much you either agree or disagree with each of the following reactions to the message by marking X.:

A. Despite watching the spot, I would still drive after drinking.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. The spot accurately portrayed the consequences of drinking and driving.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. I know for a fact that if I drink and drive, I will not encounter an arrest.

<-----Agree N Disagree-->

D. The issue of drinking and driving is as serious as the spot made it sound.

<-----Agree N Disagree-->

E. In fact, many people drink and drive without experiencing an arrest.

<-----Agree N Disagree-->

F. As long as a drunk driver drives carefully, no one will be harmed.

<-----Agree N Disagree-->

--- How would you evaluate the spot?

SPOT

	VERY			NEUTRAL			VERY	
INFORMATIVE	____:	____:	____:	____:	____:	____:	____	UNINFORMATIVE
DULL	____:	____:	____:	____:	____:	____:	____	**INTERESTING**
ON-TARGET	____:	____:	____:	____:	____:	____:	____	OFF-TARGET
MOTIVATING	____:	____:	____:	____:	____:	____:	____	NOT MOTIVATING
DISTRACTING	____:	____:	____:	____:	____:	____:	____	**WELL-FOCUSED**
IRRELEVANT	____:	____:	____:	____:	____:	____:	____	**RELEVANT**

--- How would you evaluate the recommendation in the message, "Don't Drink and Drive?"

RECOMMENDATION: DON'T DRINK AND DRIVE

	VERY			NEUTRAL			VERY	
CLEAR	____:	____:	____:	____:	____:	____:	____	UNCLEAR
EASY TO DO	____:	____:	____:	____:	____:	____:	____	DIFFICULT TO DO
IMPRACTICAL	____:	____:	____:	____:	____:	____:	____	**PRACTICAL**
SPECIFIC	____:	____:	____:	____:	____:	____:	____	GENERAL
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
EFFECTIVE	____:	____:	____:	____:	____:	____:	____	INEFFECTIVE
SOCIALLY ACCEPTABLE	____:	____:	____:	____:	____:	____:	____	SOCIALLY UNACCEPTABLE
UNCONVINCING	____:	____:	____:	____:	____:	____:	____	**CONVINCING**

--- How would you evaluate the outcome portrayed in the spot (arrest)?

PORTRAYED OUTCOME (ARREST)

	VERY			NEUTRAL			VERY	
BELIEVABLE	____:	____:	____:	____:	____:	____:	____	UNBELIEVABLE
UNAVOIDABLE	____:	____:	____:	____:	____:	____:	____	**AVOIDABLE**
SEVERE	____:	____:	____:	____:	____:	____:	____	LIGHT
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
CONTROLLABLE	____:	____:	____:	____:	____:	____:	____	UNCONTROLLABLE

--- As s result of seeing the public service announcement, do you believe that there is a higher likelihood of any of the following happening to you if you drink and drive?

	NO	**slightly** higher likelihood	**somewhat** higher likelihood	**much** higher likelihood
Arrest?	1	2	3	4
Bodily injury?	1	2	3	4
Death?	1	2	3	4
Imprisonment?	1	2	3	4

---PLEASE GIVE THE FOLLOWING INFORMATION ABOUT YOURSELF.

GENDER: MALE FEMALE

AGE: _____

THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU AGAIN FOR YOUR PARTICIPATION.

Posttest Measuring Instrument II (Control Group)

Class and Time _____
Instructor's Name_____
Student # (last 4 digits)_____

THIS IS A FIVE-PAGE QUESTIONNAIRE. PLEASE ANSWER ALL QUESTIONS TRUTHFULLY AND COMPLETELY. YOUR ANSWERS ARE CONFIDENTIAL. THANK YOU FOR YOUR PARTICIPATION.

---Please indicate your own reactions to the drunk driving spot you have just watched by circling one number for EACH of the following items.

- While watching the drunk driving TV spot, did you feel.....?

not at all			not sure			very much	
1	2	3	4	5	6	7	... TENSE
1	2	3	4	5	6	7	COMFORTABLE
1	2	3	4	5	6	7	... WORRIED
1	2	3	4	5	6	7	FEARFUL
1	2	3	4	5	6	7	... EMOTIONAL
1	2	3	4	5	6	7	ANXIOUS
1	2	3	4	5	6	7	... DISTURBED
1	2	3	4	5	6	7	UPSET
1	2	3	4	5	6	7	... RELAXED
1	2	3	4	5	6	7	CONCERNED

--- How strongly do you believe that drunk driving will lead to **each** of the following:

	very strongly			neutral			not at all
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How likely do you think you personally are to encounter **each** of the following incidents if you drive after having too much to drink?

	very likely			not sure			very unlikely
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How able are you in effect to avoid becoming a drunk driver by performing **each** of the following?:

	very able			neutral			very unable
Taking a **taxi**:	7	6	5	4	3	2	1
Arranging a **designated driver** before drinking:	7	6	5	4	3	2	1
Sticking to a **drinking limit** before driving:	7	6	5	4	3	2	1
Sobering up before driving:	7	6	5	4	3	2	1

--- After viewing the announcement, what are the chances that you would drink and drive?

very high			not sure			very low
7	6	5	4	3	2	1

--- How likely is it for you to recommend to others that they should not drink and drive?

very likely			not sure			very unlikely
7	6	5	4	3	2	1

---Please indicate how much you either agree or disagree with each of the given statements by marking X:

A. People should not drive after drinking any amount of alcohol.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. People should not ride with a driver who has been drinking even if (s)he appears sober.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. Most drunk drivers get arrested sooner or later.

<-----Agree N Disagree-->

D. Stricter punishment should be given to drunk drivers.

<-----Agree N Disagree-->

E. Driving after two drinks is dangerous.

<-----Agree N Disagree-->

F. Getting locked up in jail is a horrible experience.

<-----Agree N Disagree-->

---Please indicate how much you either agree or disagree with each of the following reactions to the message by marking X.:

A. Despite watching the spot, I would still drive after drinking.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. The spot accurately portrayed the consequences of drinking and driving.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. I know for a fact that if I drink and drive, I will not encounter negative consequences of drunk driving.

<-----Agree N Disagree-->

D. The issue of drinking and driving is as serious as the spot made it sound.

<-----Agree N Disagree-->

E. In fact, many people drink and drive without experiencing negative consequences of drunk driving.

<-----Agree N Disagree-->

F. As long as a drunk driver drives carefully, no one will be harmed.

<-----Agree N Disagree-->

--- How would you evaluate the spot?

SPOT

	VERY			NEUTRAL			VERY	
INFORMATIVE	____:	____:	____:	____:	____:	____:	____	UNINFORMATIVE
DULL	____:	____:	____:	____:	____:	____:	____	**INTERESTING**
ON-TARGET	____:	____:	____:	____:	____:	____:	____	OFF-TARGET
MOTIVATING	____:	____:	____:	____:	____:	____:	____	NOT MOTIVATING
DISTRACTING	____:	____:	____:	____:	____:	____:	____	**WELL-FOCUSED**
IRRELEVANT	____:	____:	____:	____:	____:	____:	____	**RELEVANT**

--- How would you evaluate the recommendation in the message, "Don't Drink and Drive?"

RECOMMENDATION: DON'T DRINK AND DRIVE

	VERY			NEUTRAL			VERY	
CLEAR	____:	____:	____:	____:	____:	____:	____	UNCLEAR
EASY TO DO	____:	____:	____:	____:	____:	____:	____	DIFFICULT TO DO
IMPRACTICAL	____:	____:	____:	____:	____:	____:	____	**PRACTICAL**
SPECIFIC	____:	____:	____:	____:	____:	____:	____	GENERAL
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
EFFECTIVE	____:	____:	____:	____:	____:	____:	____	INEFFECTIVE
SOCIALLY ACCEPTABLE	____:	____:	____:	____:	____:	____:	____	SOCIALLY UNACCEPTABLE
UNCONVINCING	____:	____:	____:	____:	____:	____:	____	**CONVINCING**

--- As s result of seeing the public service announcement, do you believe that there is a higher likelihood of any of the following happening to you if you drink and drive?

	NO	**slightly** higher likelihood	**somewhat** higher likelihood	**much** higher likelihood
Arrest?	1	2	3	4
Bodily injury?	1	2	3	4
Death?	1	2	3	4
Imprisonment?	1	2	3	4

---PLEASE GIVE THE FOLLOWING INFORMATION ABOUT YOURSELF.

GENDER: MALE FEMALE

AGE: _____

THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU AGAIN FOR YOUR PARTICIPATION.

Posttest Measuring Instrument III (Death)

Class and Time _____
Instructor's Name_____
Student # (last 4 digits)_____

THIS IS A SIX-PAGE QUESTIONNAIRE. PLEASE ANSWER ALL QUESTIONS TRUTHFULLY AND COMPLETELY. YOUR ANSWERS ARE CONFIDENTIAL. THANK YOU FOR YOUR PARTICIPATION.

---Please indicate your own reactions to the drunk driving spot you have just watched by circling one number for EACH of the following items.

- While watching the drunk driving TV spot, did you feel.....?

not at all			not sure			very much	
1	2	3	4	5	6	7	... TENSE
1	2	3	4	5	6	7	COMFORTABLE
1	2	3	4	5	6	7	... WORRIED
1	2	3	4	5	6	7	FEARFUL
1	2	3	4	5	6	7	... EMOTIONAL
1	2	3	4	5	6	7	ANXIOUS
1	2	3	4	5	6	7	... DISTURBED
1	2	3	4	5	6	7	UPSET
1	2	3	4	5	6	7	... RELAXED
1	2	3	4	5	6	7	CONCERNED

--- How strongly do you believe that drunk driving will lead to **each** of the following:

	very strongly				neutral		not at all
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How likely do you think you personally are to encounter **each** of the following incidents if you drive after having too much to drink?

	very likely			not sure			very unlikely
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How able are you in effect to avoid becoming a drunk driver by performing **each** of the following?:

	very able			neutral			very unable
Taking a **taxi**:	7	6	5	4	3	2	1
Arranging a **designated driver** before drinking:	7	6	5	4	3	2	1
Sticking to a **drinking limit** before driving:	7	6	5	4	3	2	1
Sobering up before driving:	7	6	5	4	3	2	1

--- After viewing the announcement, what are the chances that you would drink and drive?

very high			not sure			very low
7	6	5	4	3	2	1

--- How likely is it for you to recommend to others that they should not drink and drive?

very likely			not sure			very unlikely
7	6	5	4	3	2	1

---Please indicate how much you either agree or disagree with each of the given statements by marking X:

A. People should not drive after drinking any amount of alcohol.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. People should not ride with a driver who has been drinking even if (s)he appears sober.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. Most drunk drivers get arrested sooner or later.

<-----Agree N Disagree-->

D. Stricter punishment should be given to drunk drivers.

<-----Agree N Disagree-->

E. Driving after two drinks is dangerous.

<-----Agree N Disagree-->

F. Getting locked up in jail is a horrible experience.

<-----Agree N Disagree-->

---Please indicate how much you either agree or disagree with each of the following reactions to the message by marking X.:

A. Despite watching the spot, I would still drive after drinking.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. The spot accurately portrayed the consequences of drinking and driving.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. I know for a fact that if I drink and drive, I will not encounter death.

<-----Agree N Disagree-->

D. The issue of drinking and driving is as serious as the spot made it sound.

<-----Agree N Disagree-->

E. In fact, many people drink and drive without experiencing death.

<-----Agree N Disagree-->

F. As long as a drunk driver drives carefully, no one will be harmed.

<-----Agree N Disagree-->

--- How would you evaluate the spot?

SPOT

	VERY			NEUTRAL			VERY	
INFORMATIVE	____:	____:	____:	____:	____:	____:	____	UNINFORMATIVE
DULL	____:	____:	____:	____:	____:	____:	____	**INTERESTING**
ON-TARGET	____:	____:	____:	____:	____:	____:	____	OFF-TARGET
MOTIVATING	____:	____:	____:	____:	____:	____:	____	NOT MOTIVATING
DISTRACTING	____:	____:	____:	____:	____:	____:	____	**WELL-FOCUSED**
IRRELEVANT	____:	____:	____:	____:	____:	____:	____	**RELEVANT**

--- How would you evaluate the recommendation in the message, "Don't Drink and Drive?"

RECOMMENDATION: DON'T DRINK AND DRIVE

	VERY			NEUTRAL			VERY	
CLEAR	____:	____:	____:	____:	____:	____:	____	UNCLEAR
EASY TO DO	____:	____:	____:	____:	____:	____:	____	DIFFICULT TO DO
IMPRACTICAL	____:	____:	____:	____:	____:	____:	____	**PRACTICAL**
SPECIFIC	____:	____:	____:	____:	____:	____:	____	GENERAL
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
EFFECTIVE	____:	____:	____:	____:	____:	____:	____	INEFFECTIVE
SOCIALLY ACCEPTABLE	____:	____:	____:	____:	____:	____:	____	SOCIALLY UNACCEPTABLE
UNCONVINCING	____:	____:	____:	____:	____:	____:	____	**CONVINCING**

--- How would you evaluate the outcome portrayed in the spot (death)?

PORTRAYED OUTCOME (DEATH)

	VERY			NEUTRAL			VERY	
BELIEVABLE	____:	____:	____:	____:	____:	____:	____	UNBELIEVABLE
UNAVOIDABLE	____:	____:	____:	____:	____:	____:	____	**AVOIDABLE**
SEVERE	____:	____:	____:	____:	____:	____:	____	LIGHT
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
CONTROLLABLE	____:	____:	____:	____:	____:	____:	____	UNCONTROLLABLE

--- As s result of seeing the public service announcement, do you believe that there is a higher likelihood of any of the following happening to you if you drink and drive?

	NO	**slightly** higher likelihood	**somewhat** higher likelihood	**much** higher likelihood
Arrest?	1	2	3	4
Bodily injury?	1	2	3	4
Death?	1	2	3	4
Imprisonment?	1	2	3	4

---PLEASE GIVE THE FOLLOWING INFORMATION ABOUT YOURSELF.

GENDER: MALE FEMALE

AGE: _____

THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU AGAIN FOR YOUR PARTICIPATION.

Posttest Measuring Instrument IV (Imprisonment)

Class and Time _____
Instructor's Name_____
Student # (last 4 digits)_____

THIS IS A SIX-PAGE QUESTIONNAIRE. PLEASE ANSWER ALL QUESTIONS TRUTHFULLY AND COMPLETELY. YOUR ANSWERS ARE CONFIDENTIAL. THANK YOU FOR YOUR PARTICIPATION.

---Please indicate your own reactions to the drunk driving spot you have just watched by circling one number for EACH of the following items.

- While watching the drunk driving TV spot, did you feel.....?

not at all			not sure			very much	
1	2	3	4	5	6	7	... TENSE
1	2	3	4	5	6	7	COMFORTABLE
1	2	3	4	5	6	7	... WORRIED
1	2	3	4	5	6	7	FEARFUL
1	2	3	4	5	6	7	... EMOTIONAL
1	2	3	4	5	6	7	ANXIOUS
1	2	3	4	5	6	7	... DISTURBED
1	2	3	4	5	6	7	UPSET
1	2	3	4	5	6	7	... RELAXED
1	2	3	4	5	6	7	CONCERNED

--- How strongly do you believe that drunk driving will lead to **each** of the following:

	very strongly			neutral			not at all
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How likely do you think you personally are to encounter **each** of the following incidents if you drive after having too much to drink?

	very likely			not sure			very unlikely
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How able are you in effect to avoid becoming a drunk driver by performing **each** of the following?:

	very able			neutral			very unable
Taking a **taxi**:	7	6	5	4	3	2	1
Arranging a **designated driver** before drinking:	7	6	5	4	3	2	1
Sticking to a **drinking limit** before driving:	7	6	5	4	3	2	1
Sobering up before driving:	7	6	5	4	3	2	1

--- After viewing the announcement, what are the chances that you would drink and drive?

very high			not sure			very low
7	6	5	4	3	2	1

--- How likely is it for you to recommend to others that they should not drink and drive?

very likely			not sure			very unlikely
7	6	5	4	3	2	1

---Please indicate how much you either agree or disagree with each of the given statements by marking X:

A. People should not drive after drinking any amount of alcohol.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. People should not ride with a driver who has been drinking even if (s)he appears sober.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. Most drunk drivers get arrested sooner or later.

<-----Agree N Disagree-->

D. Stricter punishment should be given to drunk drivers.

<-----Agree N Disagree-->

E. Driving after two drinks is dangerous.

<-----Agree N Disagree-->

F. Getting locked up in jail is a horrible experience.

<-----Agree N Disagree-->

---Please indicate how much you either agree or disagree with each of the following reactions to the message by marking X.:

A. Despite watching the spot, I would still drive after drinking.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. The spot accurately portrayed the consequences of drinking and driving.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. I know for a fact that if I drink and drive, I will not encounter imprisonment.

<-----Agree N Disagree-->

D. The issue of drinking and driving is as serious as the spot made it sound.

<-----Agree N Disagree-->

E. In fact, many people drink and drive without experiencing imprisonment.

<-----Agree N Disagree-->

F. As long as a drunk driver drives carefully, no one will be harmed.

<-----Agree N Disagree-->

--- How would you evaluate the spot?

SPOT

	VERY			NEUTRAL			VERY	
INFORMATIVE	____:	____:	____:	____:	____:	____:	____	UNINFORMATIVE
DULL	____:	____:	____:	____:	____:	____:	____	**INTERESTING**
ON-TARGET	____:	____:	____:	____:	____:	____:	____	OFF-TARGET
MOTIVATING	____:	____:	____:	____:	____:	____:	____	NOT MOTIVATING
DISTRACTING	____:	____:	____:	____:	____:	____:	____	**WELL-FOCUSED**
IRRELEVANT	____:	____:	____:	____:	____:	____:	____	**RELEVANT**

--- How would you evaluate the recommendation in the message, "Don't Drink and Drive?"

RECOMMENDATION: DON'T DRINK AND DRIVE

	VERY			NEUTRAL			VERY	
CLEAR	____:	____:	____:	____:	____:	____:	____	UNCLEAR
EASY TO DO	____:	____:	____:	____:	____:	____:	____	DIFFICULT TO DO
IMPRACTICAL	____:	____:	____:	____:	____:	____:	____	**PRACTICAL**
SPECIFIC	____:	____:	____:	____:	____:	____:	____	GENERAL
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
EFFECTIVE	____:	____:	____:	____:	____:	____:	____	INEFFECTIVE
SOCIALLY ACCEPTABLE	____:	____:	____:	____:	____:	____:	____	SOCIALLY UNACCEPTABLE
UNCONVINCING	____:	____:	____:	____:	____:	____:	____	**CONVINCING**

--- How would you evaluate the outcome portrayed in the spot (imprisonment)?

PORTRAYED OUTCOME (IMPRISONMENT)

	VERY			NEUTRAL			VERY	
BELIEVABLE	____:	____:	____:	____:	____:	____:	____	UNBELIEVABLE
UNAVOIDABLE	____:	____:	____:	____:	____:	____:	____	**AVOIDABLE**
SEVERE	____:	____:	____:	____:	____:	____:	____	LIGHT
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
CONTROLLABLE	____:	____:	____:	____:	____:	____:	____	UNCONTROLLABLE

--- As s result of seeing the public service announcement, do you believe that there is a higher likelihood of any of the following happening to you if you drink and drive?

	NO	**slightly** higher likelihood	**somewhat** higher likelihood	**much** higher likelihood
Arrest?	1	2	3	4
Bodily injury?	1	2	3	4
Death?	1	2	3	4
Imprisonment?	1	2	3	4

---PLEASE GIVE THE FOLLOWING INFORMATION ABOUT YOURSELF.

GENDER: MALE FEMALE

AGE: _____

THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU AGAIN FOR YOUR PARTICIPATION.

Posttest Measuring Instrument II (Bodily Injury)

Class and Time _____
Instructor's Name _____
Student # (last 4 digits) _____

THIS IS A SIX-PAGE QUESTIONNAIRE. PLEASE ANSWER ALL QUESTIONS TRUTHFULLY AND COMPLETELY. YOUR ANSWERS ARE CONFIDENTIAL. THANK YOU FOR YOUR PARTICIPATION.

---Please indicate your own reactions to the drunk driving spot you have just watched by circling one number for EACH of the following items.

- While watching the drunk driving TV spot, did you feel.....?

not at all			not sure			very much	
1	2	3	4	5	6	7	... TENSE
1	2	3	4	5	6	7	COMFORTABLE
1	2	3	4	5	6	7	... WORRIED
1	2	3	4	5	6	7	FEARFUL
1	2	3	4	5	6	7	... EMOTIONAL
1	2	3	4	5	6	7	ANXIOUS
1	2	3	4	5	6	7	... DISTURBED
1	2	3	4	5	6	7	UPSET
1	2	3	4	5	6	7	... RELAXED
1	2	3	4	5	6	7	CONCERNED

--- How strongly do you believe that drunk driving will lead to **each** of the following:

	very strongly			neutral			not at all
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How likely do you think you personally are to encounter **each** of the following incidents if you drive after having too much to drink?

	very likely			not sure			very unlikely
Bodily injury?	7	6	5	4	3	2	1
Arrest?	7	6	5	4	3	2	1
Death?	7	6	5	4	3	2	1
Imprisonment?	7	6	5	4	3	2	1

--- How able are you in effect to avoid becoming a drunk driver by performing **each** of the following?:

	very able			neutral			very unable
Taking a **taxi**:	7	6	5	4	3	2	1
Arranging a **designated driver** before drinking:	7	6	5	4	3	2	1
Sticking to a **drinking limit** before driving:	7	6	5	4	3	2	1
Sobering up before driving:	7	6	5	4	3	2	1

--- After viewing the announcement, what are the chances that you would drink and drive?

very high			not sure			very low
7	6	5	4	3	2	1

--- How likely is it for you to recommend to others that they should not drink and drive?

very likely			not sure			very unlikely
7	6	5	4	3	2	1

---Please indicate how much you either agree or disagree with each of the given statements by marking X:

A. People should not drive after drinking any amount of alcohol.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. People should not ride with a driver who has been drinking even if (s)he appears sober.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. Most drunk drivers get arrested sooner or later.

<-----Agree N Disagree-->

D. Stricter punishment should be given to drunk drivers.

<-----Agree N Disagree-->

E. Driving after two drinks is dangerous.

<-----Agree N Disagree-->

F. Getting locked up in jail is a horrible experience.

<-----Agree N Disagree-->

---Please indicate how much you either agree or disagree with each of the following reactions to the message by marking X.:

A. Despite watching the spot, I would still drive after drinking.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

B. The spot accurately portrayed the consequences of drinking and driving.

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree

C. I know for a fact that if I drink and drive, I will not encounter bodily injury.

<-----Agree N Disagree-->

D. The issue of drinking and driving is as serious as the spot made it sound.

<-----Agree N Disagree-->

E. In fact, many people drink and drive without experiencing bodily injury.

<-----Agree N Disagree-->

F. As long as a drunk driver drives carefully, no one will be harmed.

<-----Agree N Disagree-->

--- How would you evaluate the spot?

SPOT

	VERY			NEUTRAL			VERY	
INFORMATIVE	____:	____:	____:	____:	____:	____:	____	UNINFORMATIVE
DULL	____:	____:	____:	____:	____:	____:	____	**INTERESTING**
ON-TARGET	____:	____:	____:	____:	____:	____:	____	OFF-TARGET
MOTIVATING	____:	____:	____:	____:	____:	____:	____	NOT MOTIVATING
DISTRACTING	____:	____:	____:	____:	____:	____:	____	**WELL-FOCUSED**
IRRELEVANT	____:	____:	____:	____:	____:	____:	____	**RELEVANT**

--- How would you evaluate the recommendation in the message, "Don't Drink and Drive?"

RECOMMENDATION: DON'T DRINK AND DRIVE

	VERY			NEUTRAL			VERY	
CLEAR	____:	____:	____:	____:	____:	____:	____	UNCLEAR
EASY TO DO	____:	____:	____:	____:	____:	____:	____	DIFFICULT TO DO
IMPRACTICAL	____:	____:	____:	____:	____:	____:	____	**PRACTICAL**
SPECIFIC	____:	____:	____:	____:	____:	____:	____	GENERAL
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
EFFECTIVE	____:	____:	____:	____:	____:	____:	____	INEFFECTIVE
SOCIALLY ACCEPTABLE	____:	____:	____:	____:	____:	____:	____	SOCIALLY UNACCEPTABLE
UNCONVINCING	____:	____:	____:	____:	____:	____:	____	**CONVINCING**

--- How would you evaluate the outcome portrayed in the spot (bodily injury)?

PORTRAYED OUTCOME (BODILY INJURY)

	VERY			NEUTRAL			VERY	
BELIEVABLE	____:	____:	____:	____:	____:	____:	____	UNBELIEVABLE
UNAVOIDABLE	____:	____:	____:	____:	____:	____:	____	**AVOIDABLE**
SEVERE	____:	____:	____:	____:	____:	____:	____	LIGHT
UNREALISTIC	____:	____:	____:	____:	____:	____:	____	**REALISTIC**
CONTROLLABLE	____:	____:	____:	____:	____:	____:	____	UNCONTROLLABLE

--- As s result of seeing the public service announcement, do you believe that there is a higher likelihood of any of the following happening to you if you drink and drive?

	NO	**slightly** higher likelihood	**somewhat** higher likelihood	**much** higher likelihood
Arrest?	1	2	3	4
Bodily injury?	1	2	3	4
Death?	1	2	3	4
Imprisonment?	1	2	3	4

---PLEASE GIVE THE FOLLOWING INFORMATION ABOUT YOURSELF.

GENDER: MALE FEMALE

AGE: _____

THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU AGAIN FOR YOUR PARTICIPATION.

LIST OF REFERENCES

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