

Interaction of Fear and Humor on Self-efficacy

A Thesis  
SUBMITTED TO THE FACULTY OF  
UNIVERSITY OF MINNESOTA  
BY

Yun Peng

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF ARTS

Adviser: Dr. Jennifer Ball

April, 2015



## **Acknowledgements**

I would like to express my special appreciation and thanks to my advisor Professor Dr. Jennifer Ball. You are an awesome mentor not only for my research, but also for my whole life! I appreciate your kind words regarding any of my little achievements in academic research and in industry career. I also thank so much for your encouragement when I encountered difficulties in research and industry working. You are the best advisor I've ever met. I am so lucky to meet you and became your student.

I would also like to thank my committee members, Professor Marco Yzer and Toben Nelson for serving as my committee members and giving so many valuable suggestions.

A special thanks to my family. Even words cannot express how grateful I am to my mother, father, brother and my uncles for all of the efforts that you've made to help my study in U.S.

In the end I would like express appreciation to my boyfriend Yifan Feng, who spent sleepless nights with me and was always my support in the moments when there was no one to answer my questions.

## **Dedication**

This thesis is dedicated to my parents, Hongbin Peng and Jiaping Cai, who have always loved me and supported me unconditionally. This work is also dedicated to my boyfriend, Yifan Feng, who has been a constant source of support and encouragement since I came to U.S.

## **Abstract**

Fear appeal's effects on advertisement responses were studied often. Self-efficacy was also researched together with fear appeal as a moderator frequently. But there has been no research examining fear appeals' effects on individuals' self-efficacy. Moreover, even though there were some studies investigating humor appeal's effects on information processing and persuasion, none of them incorporated fear and humor appeal in the same study or tested the interaction of fear and humor on self-efficacy or message acceptance.

This study examines the interaction of fear and humor on individuals' self-efficacy, attitude and behavioral intention, using the drinking and driving topic. An online experiment was conducted with 230 participants. The results showed that all hypotheses were rejected. Since the humor manipulation also failed, the results mean fear and humor's interaction on the influence of self-efficacy were not found. Their effects on attitude and behavioral intention were not demonstrated either. Then this study talks about alternative explanations of the failure of the hypotheses tests, from theoretical and methodological perspectives.

## Table of Contents

List of Tables	vi
<b>Chapter 1: Introduction</b>	1
<b>Chapter 2: Literature Review</b>	
• Theories and Studies about Fear Appeal	6
• Theories and Studies about Self-efficacy	8
• Previous Research on Fear and Self-efficacy	11
• Theories and Studies about Humor Appeal	13
• Previous Research on Fear Appeal and Humor Appeal	17
• Previous Research on Humor appeal and Self-Efficacy	19
• Previous Research on Humor, Fear and Self-Efficacy	20
<b>Chapter 3: Hypotheses and Research Questions</b>	22
<b>Chapter 4: Method</b>	
• Design	26
• Stimuli Development	26
• Main Experiment	30
<b>Chapter 5: Results</b>	
• Variable Construction and Reliability Tests	35
• Manipulation Check	35
• Descriptive Statistics for Key Variables	37
• Results by Hypotheses	38
<b>Chapter 6: Summary and Discussion</b>	

• Summary of Findings	51
• Limitations	52
• Suggestions for Future Research	58
<b>References</b>	<b>61</b>
<b>Appendix 1 Drunk Driving Crash Pictures</b>	<b>69</b>
<b>Appendix 2 Humor-absent Excuses</b>	<b>72</b>
<b>Appendix 3 Humor-present Excuses</b>	<b>73</b>
<b>Appendix 4 Questionnaire for Fear Stimulus Test</b>	<b>74</b>
<b>Appendix 5 Questionnaire for Humor Stimulus Test</b>	<b>82</b>
<b>Appendix 6 Questionnaire for Main Experiment</b>	<b>87</b>
<b>Appendix 7 The Experimental Advertisements</b>	<b>91</b>

## List of Tables

TABLE 1: Descriptive Statistics for Fear Appeal Images	28
TABLE 2: Statistics for Paired Sample T-test of Fear Appeal Images	28
TABLE 3: Descriptive Statistics for Humor-present Excuses	30
TABLE 4: One-way ANOVA Test Results for Fear Appeal Manipulation	36
TABLE 5: Results for Humor Appeal Manipulation	37
TABLE 6: Descriptive Statistics for Key Variables	37
TABLE 7: The Effects of Humor and Fear Levels on Self-efficacy, Mean Level and Two-way ANOVA Results	39
TABLE 8: The Effects of Humor and Fear Levels on Perceived Stress, Mean Level and Two-way ANOVA Results	41
TABLE 9: The Effects of Humor and Fear Levels on Attitude toward the Ad, Mean Level and Two-way ANOVA Results	44
TABLE 10: The Effects of Humor and Fear Levels on Behavioral Intention, Mean Level and Two-way ANOVA Results	45
TABLE 11: Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Self-efficacy	46
TABLE 12: Regression Analysis for Fear and Humor Predicting Self-efficacy	47
TABLE 13: Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Perceived Stress	47
TABLE 14: Regression Analysis for Fear and Humor Predicting Perceived Stress	48
TABLE 15: Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Attitude toward the Ad	49
TABLE 16: Regression Analysis for Fear and Humor Predicting Attitude toward the Ad	49
TABLE 17: Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Behavioral Intention	50



TABLE 18: Regression Analysis for Fear and Humor Predicting Behavioral Intention 50

## CHAPTER 1 INTRODUCTION

A lot of studies (Frandsen, 1963; Hewgill & Miller, 1965; McCroskey & Wright, 1971; Sutton, 1982; King & Reid, 1989; Tay & Watson, 2002; Cooper, Goldenberg, & Arndt, 2014) have researched fear appeal's effects on message acceptance. Message acceptance includes attitude, intention and behavior change after viewing the ads (Witte & Allen, 2000). Those studies basically argued that fear appeal has positive effects on persuasion, and self-efficacy was often researched as a moderator between fear appeal and message acceptance. For example, Cooper, Goldenberg and Arndt (2014) used self-efficacy as one of the moderators in their study of fear appeal's effects on behavioral intention change. Perceived self-efficacy is defined by Bandura (1977, 1991) as people's confidence in their abilities to control their own action level and events that influence them. A theoretical framework that was used frequently to explain self-efficacy's moderating effects of fear appeal's influence on message acceptance is the EPPM model. According to the EPPM model (Witte, 1992; Witt & Allen, 2000), in the high fear condition, if individuals' self-efficacy level is low, the fear control process will be activated and then individuals will have maladaptive changes; if the self-efficacy level is high, individuals will activate the danger control process and then have adaptive changes, which indicates message acceptance.

Moreover, according to Bandura (1977), fear can impact self-efficacy through emotional arousal. High arousal will lead to high perceived stress and then less self-efficacy. High arousal will also cause primitive short-term avoidance (Folkman & Lazarus, 1984; Passyn & Sujana, 2006). That will impede individuals' development of

coping skills, because they will not have a chance to learn coping strategies which are sources of self-efficacy. If that happens, their self-efficacy will be lower than the individuals who have an opportunity to learn the coping skills (Bandura, 1977; Witte, 1992; Witte & Allen, 2000).

Furthermore, conclusions of some studies (Shurcliff, 1968; Monahan, 1994; Lefcourt et al., 1995) indicate that humor can also influence self-efficacy. Specifically, humor first attracts attention (Sternthal and Craig, 1973; Madden & Weinberger, 1982; Weinberger & Gulas, 1992) and also reduces physiological arousal and the feeling of anxiety, and then perceived stress. Humor also helps individuals gain a sense of mastery (Frankl, 1969; Kuiper, McKenzie, & Belanger, 1995) through being more optimistic (Gordon, 1958; Martin and Dobbin, 1988; Kuiper, Martin, & Olinger, 1993; Kuiper, McKenzie, & Belanger, 1995). Through those ways, humor impacts self-efficacy.

Even though theories and studies suggested fear and humor's effects on self-efficacy respectively, until now, there has not been a study examining the interaction of fear and humor on self-efficacy. The most similar study is the one that was conducted by Kavanagh and Bower in 1985. In their study, positive and negative moods' effect on self-efficacy was tested, but the interaction of fear and humor appeal was not researched directly. There is a gap of the literature that investigates fear and humor's effects on self-efficacy.

Fear, humor and self-efficacy were studied under health topics sometimes. Drinking and driving is one of the topics. Drinking and driving is a severe social problem. According to a report released by the National Highway Safety Administration

(2013), there were 10,076 alcohol-related fatalities in 2013, which was 31% of the total traffic accidents in that year. Every 52 minutes, there was an alcohol-related car accident in 2013. Lastovicka, Murry Jr, Joachimsthaler, Bhalla and Scheurich (1987) argued that the drinking and driving problem was extremely serious among young people. The statistics from NHTSA were consistent with their argument. NHTSA (2013) reported that the highest percentage of drivers in the alcohol-related car accidents were young people between 21 and 24 years old.

Over the past few decades, a lot of campaigns were launched to prevent the drinking and driving behavior (Walen, 1982; Watts, 1983). Those campaigns either advocated to avoid drinking before driving or to stop driving after drinking. Threat messages were used in the anti-drinking and driving ads to convince the public. The threat messages were about the negative consequence of drinking and driving, including social threats and physical injury (Atkin, Garramone, & Anderson, 1986; Reid & King, 1986). The physical injury threats were found to be used more frequently than the social threats (Reid & King, 1986).

There were some studies either about the anti-drinking and driving campaigns, or the drinking and driving behavior itself. Some scholars (Murry, Stam, & Lastovicka 1993; Badovinac, 1994; Wilkins, 2000; Elder et al., 2004) examined and found the effects of media campaigns on the decrease of drinking and driving behavior, and alcohol-related accidents. Some scholars included fear appeal or self-efficacy in their studies of drinking and driving behaviors. King and Reid (1989) studied the effects of fear appeal levels and harmful outcome focuses on individuals' attitude toward anti-

drinking and driving messages and behaviors, but did not find a significant difference. Santa and Cochran (2008) examined the effectiveness of anti-drinking and driving messages using empathy or fear arousals, or an informational approach, considering individuals' different characteristics. They concluded that the fear arousal was less influential than the empathy approach. Hennessy, Lanni-Manley and Maiorana (2006) concluded that the drinking and driving likelihood of individuals with higher self-efficacy decreased more after using the fatal vision Goggles, which aim to discourage the drinking and driving behaviors.

Only a few research studies studied humor appeal under the drinking and driving topic. For example, humor appeals were used in the Fatal Vision Goggles program, which is an anti-drinking and driving program. Through their study, Hennessy, Lanni-Manley and Maiorana (2006) argued that humor appeals might weaken the perceived seriousness of the Fatal Vision Goggles program.

In general, even though fear and humor appeals were studied together regarding their effects on other public health campaigns such as the sunscreen usage promotion campaigns (Mukherjee and Dub  $\text{\textcircled{E}}$  2012), they have not been incorporated under the topic of drinking and driving. Moreover, although college students who are 21-24 years old are susceptible to drinking and driving problems (Watts 1983; Walen 1982), not many studies researched anti-drinking and driving campaigns targeting them.

To sum, there is a gap of the literature regarding how fear and humor appeals interact to impact self-efficacy, and especially under the drinking and driving topic. But if it is tested and successfully demonstrated, the theory about self-efficacy, fear and

humor will be greatly developed, and the insights of the anti-drinking and driving campaigns will be greatly deepen. This study aims to test fear and humor's effects on self-efficacy and then on other potential persuasion effects.

Chapter 2 will provide a literature review of the theoretical foundation and mechanisms that help the development of the hypotheses proposed in Chapter 3. Chapter 4 introduces the methodology that was used to test the hypotheses and to answer the research questions. And Chapter 5 analyzes data collected and discusses the results and the reasons of hypotheses rejections. In the end, some suggestions for further study are given in Chapter 6.

## CHAPTER 2 LITERATURE REVIEW

The review of relevant literature on fear appeal, self-efficacy and humor guides this study to develop hypotheses for the interaction of fear and humor on self-efficacy and ask research questions about their effects on attitude to toward the ad and behavioral intention.

### **Theories and Studies about Fear Appeal**

Fear appeal can be defined either based on the contents or the consequences. Fear appeal can be defined as a message either presenting fearful elements or causing negative response from the audiences (O'Keefe, 1990). Witte (1992) and Hale and Dillard (1995) gave similar definitions to fear appeal. They conceptualized fear appeal as a persuasive message that emphasizes the dangerous consequences if individuals don't accomplish recommended behaviors. Fear is a negative emotion aroused by threats (Tanner, Hunt, & Eppright, 1991; LaTour & Rotfeld, 1997; Mukherjee & Dubé 2012 ). Lee and Ferguson (2002) emphasized the emotion arousing function of fear appeal, by defining it as a message that presents negative consequences and elicits negative emotions. Based on above studies, I would like to define fear appeal as a persuasive message that emphasizes the negative consequences if individuals don't accomplish behaviors recommended, and that elicits negative emotions. Negative emotions include fear, tense, scare, nausea and discomfort.

A lot of studies (Frandsen, 1963; Hewgill & Miller, 1965; McCroskey & Wright, 1971; Sutton, 1982; King & Reid, 1989; Tay & Watson, 2002) argued that fear appeal has positive effects on persuasion, through limiting the elaboration of proposed solutions

(Keller & Block, 1996) . The earliest theory discussing this topic is the fear-drive theory (Hovland, Janis & Kelley, 1953; Janis, 1967). It indicates that fear appeal has positive effects on obedience. But this theory was gradually ignored by most scholars (Beck and Frankel, 1981), since it does not consider the effects of defensive reactions, which are caused by tension arousal. Later, more theories considering the tension arousal and defensive responses caused by fear appeal were developed. The Arousal Theory (Henthorn, LaTour, Nataraajan, 1993; LaTour and Tanner 2003) states that high fear appeal causes negative attitude toward ads through tension arousal. The Protection Motivation Theory (Rogers 1975; Tanner, Hunt, & Eppright, 1991), which studies the effects of threat level, threat occurrence probability and response efficacy on attitude and intention change, argues that high fear appeal causes defensive responses. The Parallel Response Model (Leventhal 1970; Witte & Allen, 2000) illustrates that high fear appeal has weaker persuasion effects because of the activation of message denial.

Some empirical studies supported these theories. For example, Berelson and Steiner (1964) concluded that high fear appeal has weaker persuasion effects than low fear appeal, because of the tension arousal. Strong and Dubas (1993) found that high fear appeal reduced individuals' intention to adopt the recommended coping skills, compared to moderate fear appeal. Keller and Block (1996) illustrated that high fear appeal has weaker effective persuasion compared to low fear appeal, because the heavy problem elaboration in the high fear condition reduces individuals' processing of the recommended coping strategies, which lead to less positive attitudes.



## **Theories and Studies about Self-efficacy**

The concept of self-efficacy was proposed by Bandura. Bandura (1977, 1981, 1982) at first defined efficacy expectation as people's beliefs that they are capable of performing the behavior required to produce the outcomes. Later, Bandura (1991) defined perceived self-efficacy as people's confidence in their abilities to control their own level of action and events that influence them. In 1998, Bandura made a small change to the concept of self-efficacy by defining it as the confidence of one's capability to take actions required to produce certain outcomes (Bandura, 1998). Compared to the former definition, Bandura gave more emphasis to controlling the outcome. Bandura's definition of self-efficacy in 1998 will be adopted in this study. In his definition of self-efficacy, Bandura (1998) stated that there are three operational dimensions of self-efficacy: generality, strength and level. The generality of self-efficacy is usually measured by one's belief of his ability in various domains, situations, and aspects (Bandura, 1977). The strength of self-efficacy refers to how much an individual insists on his efficacy belief. Weak efficacy belief may easily disappear when an individual has disconfirming experiences, while strong efficacy belief helps an individual maintain his belief and overcome difficulties and obstacles (Bandura, 1977; Bandura, 2006). The level of self-efficacy is the third dimension. It is usually measured by the amount of activities an individual thinks he is able to do based on a designated value of efficacy strength. Sometimes, in a self-efficacy scale, the difficulty, complexity and stressfulness of a task are measured to help identify the level of an individual's self-efficacy (Bandura, 1977; Bandura, 2006).

Bandura (1977) stated four major resources of self-efficacy. They are “performance accomplishments”, “vicarious experience”, “verbal persuasion” and “emotional arousal” (p.195). Performance accomplishments mean that, an individual’s previous accomplishments of an action influence his/her self-efficacy of the following similar actions. Vicarious experience generally means that, an individual’s role models’ actions and accomplishments influence his/her self-efficacy of the action. Vicarious experience includes 2 induction modes: “live modeling” and “symbolic modeling”. Verbal persuasion influences one’s self-efficacy by trying to persuade one to believe that he is capable of performing the behavior, which is usually used in the coping strategy part in an ad. Verbal persuasion has four induction modes: “suggestion”, “exhortation”, “self-instruction” and “interpretive treatments” (p. 195). Emotional arousal usually means the situation that individuals are concerned about their mastery under stress and pressure. Emotional arousal also has four induction modes: attribution, relaxation, symbolic desensitization and symbolic exposure. Attribution refers to the strategy that helps individuals attribute their emotional arousal to a non-emotional resource, so that their perceived-anxiety is reduced and they behave more bravely. Relaxation is the process of reducing anxiety. Symbolic desensitization and exposure aim to extinguish emotional arousal. More specifically, desensitization usually comes after extensive exposure to aversive situation.

In addition, studies showed that humor can reduce perceived stress and increase relaxation by distancing individuals from threats, through the reduction in physiological arousal (Shurcliff, 1968) and lead to more positive assessments of the situation (Dixon,

1980; Kuiper & Martin, 1998). Humor distances individuals from the highly aversive arousal by helping individuals take their experiences less seriously, thus reducing emotional reactions to threats (Monahan, 1994; Lefcourt et al., 1995), and therefore decreases the paralyzing feeling of anxiety and powerlessness. In that way, stresses to perform the coping behaviors are reduced. Humor also helps individuals view difficulties in a more optimistic way (Gordon, 1958; Martin and Dobbin, 1988; Kuiper, Martin, & Olinger, 1993; Kuiper, McKenzie, & Belanger, 1995). Therefore individuals gain a sense of mastery (Frankl, 1969; Kuiper, McKenzie, & Belanger, 1995). Generally, above arguments support the assertion that humor is another factor that could affect self-efficacy through reducing emotional arousal.

Self-efficacy has frequently been studied together with fear appeal and persuasion effects in advertising research. Some scholars viewed self-efficacy as a moderator of fear's effects on persuasion. The self-efficacy theory (Bandura, 1977; Bandura & Adams, 1977) states that self-efficacy helps overcome fear. Protection motivation theory (Rogers, 1975; Maddux & Rogers, 1983) argues that perceived self-efficacy is the most powerful predictor of individuals' attitude change and intention to adopt recommended coping strategies in fear condition. Self-efficacy interacts with other two factors, the probability of threats' occurrence and the effectiveness of a coping response, to affect individuals' intention and attitude change. The EPPM (Witte, 1992; Witte & Allen, 2000) argues that self-efficacy acts as a moderator through determining whether individuals process the danger control procedure or the fear control procedure, and thus affects the persuasion effects.

Some studies researched self-efficacy's effects on intention change and behavior change, which are two indicators of persuasion. Specifically, Lee (2010) showed that a self-efficacy statement is associated with a more significant intentional change for anti-alcohol abuse ads. Sniehotta, Scholz and Schwarzer (2005) found that self-efficacy is a mediator between intention change and behavioral change. More specifically, some scholars focused on the effects of the level of self-efficacy on persuasion. Vries, Dijkstra and Kuhlman (1988) stated that the level of self-efficacy positively predicts individuals' intention and behavior change. In the Transtheoretical Model (Prochaska & DiClemente, 1983; Prochaska & Velicer, 1997) and the Health Belief Model (Rosenstock, Strecher, & Becker, 1988), the level of self-efficacy is concluded to be positively associated with behavioral change.

### **Previous Research on Fear and Self-efficacy**

Many theories incorporate fear appeal and self-efficacy. Some include the two concepts in the same study, but do not examine their interaction. For example, the Protection Motivation Theory was first proposed and examined in the fear arousing conditions (Rogers, 1975), and later combined self-efficacy theory in the further test (Maddux & Rogers, 1983). But it does not examine the relationship between fear and self-efficacy.

Some focus on the role of self-efficacy in fear appeal's persuasion effects and examine the interaction of the self-efficacy and fear appeal. The Parallel Response Model (Leventhal, 1970) argues that high fear with low self-efficacy decreases persuasion effects. The Extended Parallel Process Model (Witte, 1992; Witte & Allen, 2000)

states that perceived efficacy moderates fear appeal's persuasion effects. Perceived efficacy includes self-efficacy and response efficacy. Response efficacy refers to individuals' belief about whether the recommended coping strategies avert the threats. When perceived efficacy is low, high fear causes defensive motivation and maladaptive change. Individuals then start the fear control process, which is an emotional process of controlling fear through threat avoidance or denial. If perceived efficacy is high, high fear causes protective motivation, the motivation to protect themselves, and adaptive change (Witte, 1992; Witte, 1993). Individuals then go through the danger control process. Adaptive change means the change that adopts the recommendations of persuasion messages while maladaptive change does not. Danger control process is the cognitive process to deal with danger (Witt, 1992). More specifically, the Extended Parallel Process Model (Witte, 1992; Witte & Allen, 2000) states that high fear appeal with high-efficacy leads to the greatest behavior change; high fear appeal with low-efficacy produces the highest levels of defensive avoidance.

Many empirical studies incorporated fear and self-efficacy, but few of them discussed the relationship between self-efficacy and fear appeal explicitly. Some briefly studied the relationship between self-efficacy and fear appeal. For example, McAuley, Mihalko and Rosengren (1997) and Fry (2003) illustrated that the self-efficacy is a significant predictor of individuals' fear emotion. The higher individuals' self-efficacy is, the lower their fear is.

In the meantime, some research (Li et al., 2002; Li, Fisher, Harmer, & McAuley, 2005) clearly concluded that self-efficacy is a mediator between fear and behaviors.

Specifically, fear affects the level of self-efficacy, and then self-efficacy has a significant positive effect on behavior outcomes (Li et al., 2002).

Some other scholars studied self-efficacy's moderating effects. Snipes, LaTour, and Bliss (1999) demonstrated that perceived self-efficacy moderates fear level's effects on perceived ethicality of an ad with fear appeal. Cooper, Goldenberg and Arndt (2014) illustrated that perceived efficacy (self-efficacy and response-efficacy) moderate behavioral intention when thoughts related to fear appeals are activated.

Moreover, Hoeken and Geurtts (2005) studied the moderators between fear and self-efficacy and concluded that exemplars moderate fear appeal's influence on self-efficacy.

### **Theories and Studies about Humor Appeal**

According to Chapman and Foot (1976), humor appeal was conceptualized as a message which takes advantage of incongruity to generate laughter, pleasure and happiness. Humor is defined as a way to deal with a paradox, which also helps an individual to gain a feeling of liberation, proficiency and self-respect when he encounters difficulties (Mindess, 1971). The mechanism of how humor works is that an ad first presents an incongruity, and then resolves the incongruity in a playful way. Incongruity means the situation that elements in a stimulus cannot be integrated by a single logic, or the situation that the stimulus event does not match individual's expectations. In that process, individuals feel the humor (Raskin, 1985; Speck, 1991; Wyer and Collins, 1992; Alden, Hoyer, & Lee, 2000). Different from Chapman and Foot (1976), Aaker, Batra and Myers (1992) did not include incongruity as a part of humor

appeal, but defined humor appeal as an advertising approach which aims to induce feelings of pleasure. Lee and Ferguson (2002) emphasized the attention attraction function, by defining humor appeal as a message that takes advantage of humor to attract individuals' attention and to elicit positive affect. Since humor appeal has many other functions besides attention-gaining, the specific attention attraction function will not be included in the definition of humor appeal of this study. By combining above definitions, humor appeal is defined as a message that takes advantage of incongruity to generate positive affect, such as pleasure, amusement and happiness in this study.

More focus of research studying humor in ads has been on humor's effects on attention attraction, comprehension deepening, persuasion effects, source credibility and ad or brand liking for ads (Weinberger & Gulas, 1992). Generally, many study argued that humor helps attract attention (Madden, 1982; Madden & Weinberger, 1982; Gelb & Pickett, 1983; Duncan & Nelson, 1985; Stewart & Furse, 1986). Especially, humor has been shown to have positive effects on attention attraction in print ads (Madden & Weinberger, 1982; Speck, 1987). Humor that directly related to the product or message being advertised was found to be more effective compared to unrelated humor. (Lull, 1940; Duncan, 1979; Madden, 1982). Based on the above findings, Weinberger and Gulas (1992) stated that the inserted humor appeal has a weaker impact on attention attraction than the integrated humor appeal. Integrated humor means the humor is completely consistent with the stimuli message and its background. Inserted humor is the one that is less consistent with the message and background.

As for the effects of humor on comprehension in advertising, some scholars believed there is a positive effect (Duncan, Nelson, & Frontczak, 1984; Stewart & Furse, 1986; Weinberger & Campbell, 1990; Zhang & Zinkhan, 1991) while others believed that the effect is negative (Cantor & Venus 1980; Lammers, Leibowitz, Seymour, & Hennessey, 1983; Gelb & Zinkhan, 1986). Weinberger and Gulas (1992) argued that the discrepant findings of those scholars were caused by the inconsistent definition and measurement of comprehension, humor type and product type, after reviewing the research of humor's effect on ad from year 1967 to 1992. Specifically, compared to the research using a single measurement of comprehension, those studies using multiple measurements are more likely to find positive effects of humor on comprehension (Weinberger & Gulas, 1992). Products can be categorized as either actual or fictional, or high involvement-feeling or low involvement-feeling. Specifically, compared to studies using fictional products, those promoting actual products are more likely to conclude that humor has positive effects on comprehension (Speck, 1987; Weinberger & Campbell, 1991; Zhang and Zinkhan, 1991). In addition, humor leads to negative comprehension as of the high involvement-feeling product (Cantor & Venus, 1980; Gelb & Zinkhan, 1986)

Regarding the persuasion effect of humor in advertising, there still has not been a unified conclusion. Some scholars believed that humor leads to persuasion (Scott, Klein, & Bryant, 1990; Sternthal & Craig, 1973). However, Sternthal & Craig (1973) argued that the persuasion of humor appeal is not stronger than other appeals, such as serious appeal. Brooker (1981) stated that the humor appeal is more effective



in persuasion than the fear appeal, but not more effective than a straight forward message. Some other scholars either did not find the persuasion effect of humor (Brooker, 1981) in a print ad, or argued that the unrelated humor is not more effective on persuasion than non-humor (Stewart & Furse, 1986). Other scholars (Markiewicz, 1972; Bryant, Alan, Silberberg, & Elliott, 1981) found that message intensity moderates humor's persuasion effects. Message intensity refers to humor level and message intensity. Both humor level and message intensity enhances humor's persuasion effects.

Humor has mixed effects on source credibility of ads. Variables such as source nature and humor nature are moderators between humor and source credibility. (Weinberger & Gulas, 1992) Specifically, gender of source is a division of source nature, and type of humor is a subordinate of humor nature. For example, humor messages from male professors were shown to have higher source credibility than female professors (Bryant, Comisky, Crane, & Zillmann, 1980). The humor type, "sentimental humor", was shown to earn more "trustworthiness", a dimension of credibility, than other humor types under the same humor level (Speck, 1987).

Some research has shown that humor not only increases the positive attitude toward ads (Gelb & Pickett, 1983; Duncan & Nelson, 1985; Speck, 1987), but also the positive attitude toward brands being advertised (Gelb & Pickett, 1983; Duncan & Nelson, 1985; Gelb & Zinkhan, 1986; Weiberger & Gulas, 1992). Moreover, some studies stated that that positive attitude toward ads significantly predicts ad

effectiveness and sales success (Biel & Bridgwater, 1990; Haley & Baldinger, 1991; Weinberger & Gulas, 1992).

Some other studies also focus on humor's effects on stress reduction and counter-argument relief. They indicated that in a fear-present condition, when individuals elaborate the coping strategy, humor can reduce perceived stress by distancing individuals from threats, and through the reduction in physiological arousal (Shurcliff, 1968) and the increase of positive assessments of the situation (Dixon, 1980; Kuiper & Martin, 1998). Humor distances individuals from the highly aversive arousal by helping individuals take their experiences less seriously, thus reducing emotional reactions to threats (Lefcourt et al., 1995). This decreases the individuals' feeling of anxiety and powerlessness. In that way, stresses to accomplish the coping behaviors are reduced. Humor also helps individuals view difficulties in a more optimistic way (Gordon, 1958; Martin and Dobbin, 1988; Kuiper, Martin, & Olinger, 1993; Kuiper, McKenzie, & Belanger, 1995). Therefore individuals gain a sense of mastery (Frankl, 1969; Kuiper, McKenzie, & Belanger, 1995). Moreover, humor also decreases counter-argument by arousing positive affect (Lammers, Leibowitz, Seymour, & Hennessey, 1983).

### **Previous Research on Fear Appeal and Humor Appeal**

There has been some research examining the interaction of fear appeal and humor appeal in general. Ventis, Higbee and Murdock (2001) directly researched humor's effects on fear, and showed that humor reduces the level of fear by conducting an experiment. They argued that there are two theoretical reasons to

explain the reduction effects of humor on fear. First, humor causes laughter, which relieves the tension and apprehension arousal (Koestler, 1964; Ventis, Higbee & Murdock, 2001). Thus, the fear arousal is reduced. Second, since positive emotion causes greater self-efficacy (Kavanagh & Bower, 1985), and self-efficacy helps overcome fear (Bandura, 1977; Bandura & Adams, 1977), humor assists in fear reduction (Ventis, Higbee, & Murdock, 2001). In addition, Mukherjee and Dub € (2012) researched the interaction of fear and humor on persuasion, and concluded that humor improves the persuasive effects of fear through reducing individuals' defensive responses. Besides, several studies have compared the effects of humor and fear appeals. Some scholars examined the effects of fear appeal and humor appeal at that same time, and concluded that fear appeal is more effective than humor appeal in increasing intention to adopt healthy behaviors (Struckman-Johnson, Struckman-Johnson, Gilliland, & Ausman, 1994; Kim, Sorcar, Um, Chung, & Lee, 2009). Besides, scholars such as Lee and Shin (2011) researched the effects of humor and fear appeals regarding the moderating effects of sensation seeking tendency (Lee & Shin, 2011), and concluded that in spite of sensation-seeking tendency, fear appeals were more cognitively effective, whereas humor appeals were more emotionally effective. The difference was moderated by sensation seeking tendency, which means the higher the sensation seeking tendency was, the bigger the differences were. In addition, Capelli, Sabadie and Trendel (2012) compared the effects of humor and fear appeals in political campaigns, and concluded that humor appeals were more effective

as for undecided voters or supporters, while fear appeals were more persuasive as for opponents.

### **Previous Research on Humor appeal and Self-Efficacy**

Some scholars studied humor and self-efficacy together, and had some conclusions regarding their relationship. For example, Crawford and Caltabiano (2011) researched whether humor increases individual's happiness through the improvement of "self-efficacy", "positive thinking", "optimism" and the "perception of control". They found that humor had a positive relationship with self-efficacy, but this was not a study that focused on the research of humor's effects on self-efficacy. Some scholars, such as Lee (2010), included humor and self-efficacy in the same study, but did not research their relationship. Lee (2010) researched whether adding self-efficacy statements to humorous anti-alcohol abuse ads would influence rebellious individuals' perceived risks of drinking, perceived fear and self-efficacy, behavioral intention and attitude to the ads. He concluded that perceived risks, fear and behavioral intention were decreased in the end. But in his study, humor was only a constant and the focus was not the relationship between humor and self-efficacy.

Some scholars studied the relationship between sense of humor and self-efficacy. For example, Marziali, McDonald and Donahue (2008) argued that the sense of humor enhances self-efficacy. However, sense of humor is a character of individuals, instead of an emotional appeal or consequence.

Despite the few amount of research regarding the direct relationship between humor and self-efficacy, a lot of research studied the relationship between positive affect

and self-efficacy. Most of them concluded that positive affect has positive relationship with self-efficacy (Tate, Petruzzello & Lox 1995; Tritter, Fitzgeorge, Cramp, Valiulis & Prapavessis, 2013; Schutte, 2014; Yeung & Lu, 2014). Kavanagh and Bower (1985) had a clearer conclusion by arguing that positive affect causes greater self-efficacy. Similarly, Welch, Hulley and Beauchamp (2010) stated that self-efficacy is a significant predictor of positive affect. According to above findings, since humor appeal can lead to positive affect, humor might have positive effects on self-efficacy.

### **Previous Research on Humor, Fear and Self-efficacy**

Fear appeal, humor appeal and self-efficacy were rarely investigated together. Even though some studies included them together, not each of them was studied as a variable. As described previously, Lee (2010) included fear, humor and self-efficacy in the same study and concluded that after adding self-efficacy statements to humorous anti-alcohol abuse ads, perceived risks, fear and behavioral change intention were decreased. But in his study, humor was only a constant. Participants were rebellious students, which was too specific to make a general conclusion. His study did not examine the three-way interaction and could not provide insights on how fear and humor work together to influence self-efficacy.

Some scholars included all three concepts as variables, but self-efficacy was only viewed as a moderator instead of the dependent variable. For example, in a study conducted by Mukherjee and Dub é(2012), they tested whether self-efficacy and humor moderate fear appeal's persuasive effects. They concluded that self-efficacy does not moderate fear appeal's persuasion effects. But the level of fear has positive effects on

persuasion, when humor is present; the level of fear has negative effects on persuasion when humor is absent. The interaction of fear and humor is mediated by defensive responses.

While did not incorporate fear and humor appeal and self-efficacy in their study, Kavanagh and Bower (1985) researched positive and negative mood and self-efficacy together. They tested positive and negative mood's impact on self-efficacy respectively, and found that sadness significantly reduces perceived-efficacy whereas happiness only marginally increased perceived-efficacy, compared to neutral mood. However, the interaction of fear and humor appeal was not investigated and discussed in the study.

Therefore, there is a gap in the literature examining the relationship between fear and humor appeal in regards to their effects on self-efficacy. This study seeks to investigate whether the use of humor in recommending coping strategies combined with different levels of fear appeals will affect individuals' level of self-efficacy for executing that coping strategy, and also their attitude toward ads and the behavioral intention.

### CHAPTER 3 HYPOTHESES AND RESEARCH QUESTIONS

Bandura (1977) argued that individuals' physiological arousal impacts their judgment of their anxiety and stress. Fear appeal can be a way of leading to aversive physiological arousal, which is an influencing factor of self-efficacy. First, fear appeal causes further fear of upcoming stressful situations through anticipatory self-arousal. Then, evoked by the fear, individuals doubt their competency and therefore exaggerate the stress they will encounter, and then their self-efficacy was weakened. If fear appeal is too high, individuals will activate a primitive short-term avoidance (Folkman & Lazarus, 1984; Passyn & Sujana, 2006), which means they simply ignore the ad. Avoidance of stressful activities will impede the exposure of suggested coping skills. According to Bandura (1977), verbal suggestion is a source of self-efficacy, and could help the development of perceived self-efficacy. If the fear is too high and primitive avoidance happens, individuals' self-efficacy may not be strengthened.

Given Bandura's (1977) argument, if the fear appeal is too high, individuals' self-efficacy will be decreased. I would like to test his argument. The perceived-stress will also be tested as one of the mediators. Hence, the following two hypotheses were proposed:

**H1:** When humor is not present, a high fear appeal causes lower level of perceived self-efficacy of performing the recommended behaviors, compared to a moderate or low fear appeal.

**H2:** When humor is not present, a high fear appeal causes higher perceived stress related to the recommended behaviors, compared to a moderate or low fear appeal.

However, as what was discussed previously, humor could be a factor that impacts self-efficacy. Specifically, many studies have showed that, humor helps catch individual's attention to related information or the brand (Sternthal & Craig, 1973; Madden & Weinberger, 1982; Weinberger & Gulas, 1992), because of its incongruent characteristics (Kellaris, Cox, & Cox, 1993).

Moreover, during the process individuals think about the coping strategies, humor can reduce perceived-stress by distancing individuals from threats, through the reduction in physiological arousal (Shurcliff, 1968) and more positive judgments of the situation (Dixon, 1980; Kuiper & Martin, 1998). Humor distances individuals from the highly aversive arousal by helping individuals take their experiences less seriously, thus reducing emotional reactions to threats (Monahan, 1994; Lefcourt et al., 1995), and therefore decreases the paralyzing feeling of anxiety and helplessness. In that way, stresses to accomplish the coping behaviors are reduced. Humor also helps individuals view difficulties in a more optimistic way (Gordon, 1958; Martin & Dobbin, 1988; Kuiper, Martin, & Olinger, 1993; Kuiper, McKenzie, & Belanger, 1995). Therefore individuals gain a sense of mastery (Frankl, 1969; Kuiper, McKenzie, & Belanger, 1995).

Based on the above argument, the following hypothesis was proposed:



**H3:** When a high fear appeal is used, humorous coping strategies lead to a higher level of perceived self-efficacy of performing the recommended behaviors, compared to non-humorous coping strategies.

Perceived-stress was tested as one of the mediators that explain how humor impacts fear's influence on perceived self-efficacy.

**H4:** When a high fear appeal is used, humorous coping strategies lead to lower perceived stress related to the coping behaviors, compared to non-humorous coping strategies.

In addition, the Arousal Theory (Henthorn, LaTour, & Nataraajan, 1993; LaTour & Tanner, 2003) states that high fear appeal causes negative attitude toward ads through tension arousal. But the supporting evidence is limited. The lack of clear support makes it difficult to develop hypotheses, so the research questions were developed instead.

**Research Question 1:** Would a high fear appeal leads to lower positive attitude toward the ad, compared to a moderate or low fear appeal?

Some scholars' studies (Strong & Dubas, 1993; Keller & Block, 1996) stated that high fear reduces individuals' intention to adopt recommendations of ads. Therefore, the second research questions were as follows.

**Research Question 2:** Would a high fear appeal decrease the intention to perform the recommended behaviors, compared to a moderate or low fear appeal?

According to Mukherjee and Dubé (2012), humor moderates fear appeal's effects on attitude toward the brand. In addition, based on above hypotheses, high fear with humor leads to higher perceived self-efficacy. And since self-efficacy also moderates

fear's persuasive effects (Witte, 1992; Witte & Allen, 2000), whether humor also moderates fear's effects on attitude toward the ad and behavioral intention were tested. However, since there have not been strong supports, the following research questions were asked instead.

**Research Question 3:** When a high fear appeal is used, would humorous coping strategies lead to higher positive attitude toward the ad, compared to non-humorous coping strategies?

**Research Question 4:** When a high fear appeal is used, would humorous coping strategies increase the intention to perform the recommended behaviors, compared to non-humorous coping strategies?

## CHAPTER 4 METHOD

### **Design**

This study employed a 3 (fear tension arousal: high vs. moderate vs. low)\*2 (humor: absent vs. present) between subjects factorial experimental design. The study aims to test the interaction of fear and humor on individuals' perceived self-efficacy and also their attitude and intention. A pilot study was conducted to develop fear and humor stimuli. Based on the result of pilot study, six ads were developed for the main experiment.

The dependent variables were perceived self-efficacy, attitude toward the ad and behavioral intention. Perceived stress was also included as a mediator variable.

### **Stimuli Development**

#### *Participants*

In the pilot study, the convenience sampling method was used. 60 participants were recruited from the Coffman Union, Mechanical Engineering lab and the Anderson Hall and 51 participants returned their questionnaires. 41% of them were male and 59% were female. The average age was 23 years old. 90.20% of participants were white, 3.92% were Asian or Pacific Islander, 1.96% were Hispanic or Latino, another 1.96% were Native American or American Indian, and other 1.96% were other.

#### *Procedure*

In the pilot study, 30 participants were recruited for the fear tension stimuli test and other 30 participants were recruited for the humor stimuli test. Once they agreed to participate, a paper survey was distributed. In the fear tension stimuli test, nine drunk

driving crash pictures collected from Google Image were shown (see Appendix 1). Participants were asked to rate their feeling of fear, tense, scare, nausea and discomfort based on a five item six-point scale (1=Not at all, 6=Extremely) after seeing each of the nine fear tension stimuli, and also provide their demographic information. Similarly, as of the humor-present condition, participants were shown eight ways to turn down a drink, which were collected from HubPages (Simone H. S., 2011) and WikiHow (“How to Turn Down a Drink”, 2014), and asked to rate their feeling of pleasure, amusement and happiness after seeing those coping strategies on a three item six-point scale (1=Not at all, 6=Extremely) (Chattopadhyay & Basu, 1990; Mukherjee & Dubé 2012).

After excluding incomplete and unusable questionnaires (e.g. gave neutral points to every questions), a total of 24 responses were analyzed for the fear stimulus test and a total of 26 responses were analyzed for the humor stimulus test. The mean fear rating of the images ranged from 1.79 to 4.44. According to table 1, image 5 had the highest mean fear rating ( $M=4.44$ ), and image 7 had the lowest mean fear rating ( $M=1.79$ ). The mean fear ratings of image 4( $M=3.5$ ) and 2( $M=3.46$ ) were close to the mid-point of the 7-point scale, which indicate moderate fear. Then, to choose the high, moderate and low fear stimulus, three paired sample t-tests were conducted to test the significance of difference between Image 5 and 4, Image 5 and 2, Image 2 and 7. See table 2 for full results.

**TABLE 1**  
**Descriptive Statistics for Fear Appeal Images ( $N = 24$ )**

<b>Image</b>	<b><i>M</i></b>	<b><i>SD</i></b>
1	3.96	1.04
2	3.46	1.41
3	3.06	1.38
4	3.53	1.43
5	4.44	1.48
6	3.17	1.64
7	1.79	1.23
8	2.36	1.26
9	3.24	1.38

**TABLE 2**  
**Statistics for Paired Sample T-test of Fear Appeal Images ( $N = 24$ )**

<b>Image</b>	<b><i>T</i></b>	<b><i>P</i></b>
5 vs. 4	3.91	0.0005
5 vs. 2	4.29	<0.01
2 vs. 7	7.46	<0.01

According to the results shown in table 2, the mean rating of fear of Image 5 was significantly higher than that of Image 4 and Image 2 ( $p=0.0005<0.05$ ;  $p<0.01$ ). The mean rating of fear of Image 2 was significantly higher than that of Image 7 ( $p<0.01$ ). In

the end, Image 5, 2 and 7 were chosen as high, moderate and low fear tension stimuli, respectively.

As for the humor-present excuses (See Appendix 2), the average humor rating ranged from 2.45 to 3.47. See table 3 for full results. The statistical analysis also showed that none of the humor mean values of the eight excuses is higher than the neutral point 3.5. It was thought to be caused by the limited representativeness of the pilot study sample. In the end, the excuses whose mean humor ratings were larger than 3.0 were chosen and combined together as humor appeals for this study. They are Excuse 2 “I’m training for the Olympics!”, Excuse 3 “No thanks, I’m still digesting that napkin.”, Excuse 1 “See that dude over there? He’s drinking for the both of us. Just send drinks his way.” and Excuse 6 “Nah-I get my jollies from watching everyone else get wasted and make fools of themselves--now where'd I put my video camera???”

**TABLE 3**  
**Descriptive Statistics for Humor-present Excuses ( $N = 26$ )**

<b>Excuse</b>	<b><i>M</i></b>	<b><i>SD</i></b>
1	3.13	1.30
2	3.47	1.36
3	3.22	1.25
4	3.00	1.33
5	2.69	1.51
6	3.01	1.69
7	2.45	1.17
8	2.94	1.23

Humor-absent coping strategies (See Appendix 3) were also from HubPages (Simone H. S., 2011) and WikiHow (“How to Turn Down a Drink”, 2014). They were “No thanks, I’m on a diet”, “I’m already feeling a bit tipsy”, “ I had a terrible experience with alcohol a while back...still recovering from it” and “I’m so hungry right now. Could I finish this burger first?” The choosing of non-humor coping strategies were chosen directly without statistical test.

### **Main Experiment**

#### *Participants*

An online experiment was conducted for the main experiment with 230 participants. Participants were recruited from undergraduate students of University of Minnesota-Twin Cities who were part of the School of Journalism and Mass Communication (SJMC) subject pool. They received extra credits for their voluntary

participation according to the SJMC Research Participation rules. The average age of the participants was 20.91 years old ( $SD=1.82$ ), ranging from 18 to 33 years old. The median age was 21 years old. 33% were male and 67% were female. 75.7% of participants were White, 3% were Hispanic or Latino, 2% were Black or African American, 0.5% were Native American or American Indian, 16.8% were Asian or Pacific Islander and 2% were other.

### *Procedure*

A total of six ads were created for the main study to represent each of the study conditions. They were composed of one of the fear appeal stimuli that describes drunk driving car crashes, a description of three situations in which drinking is easy to happen, and either the humor appeal composed of four humorous excuses or the non-humor stimulus composed of four neutral excuses that suggests the way to turn down a drink before driving.

Participants were randomly assigned to one of the six groups by the computer program. First, a consent form was shown on the first page of the online survey site. After participants agreed to take part in the study, an advertisement was presented. They were allowed to view the ad as long as they wished. After being exposed to the advertisement, participants were asked to fill in a questionnaire regarding the fear tension arousal, humor arousal, self-efficacy, perceived stress, attitude toward the ad and behavioral intention. In the end, questions regarding the demographic information were asked.

### *Measures*



This study adopted previously established measures from the existing studies, and paraphrased some measures to fit in this specific study. The questionnaire includes questions regarding self-efficacy, humor appeal, fear appeal, perceived stress, attitude toward the ad and behavioral intention.

#### *Perceived Self-Efficacy*

Self-efficacy is the confidence of one's capability to take actions required to produce certain outcomes. There are three operational dimensions of self-efficacy: generality, strength and level (Bandura, 1998). Based on the self-efficacy's definition and three dimensions mentioned about, a self-efficacy scale developed by Bandura (1977) was adapted in this study. Only the specific dimensions and items that fit in the topic and context of this study were kept. In the end, a three item six-point scale (1=not at all, 6=extremely) were used to measure the perceived self-efficacy by asking the participants to which extent they were sure that they could avoid drinking before driving in each situation : (1) When at a party (2) When feeling bad (3) When feeling excited. The three situations are consistent with the situations described in the ad shown to them.

#### *Humor Appeal*

Based on the definition of humor appeal, positive effects such as pleasure, amusement and happiness were measured to indicate the presence of humor. A three item nine-point humor scale (1=not at all, 6=extremely) proposed by Chattopadhyay and Basu (1990) and used by Mukherjee and Dub e(2012) was adopted. In addition, two more items about participants' feeling of "happiness" and "pleasure" according to my

definition were added. In the end, a five items six-point scale (1=not at all, 6=extremely) was used to measure regarding the excuses recommended for turning down a drink at a party by the ad, to which extent they agreed with the following statements: (1) Those excuses are funny (2) I feel happy after reading those excuses (3) Those excuses are amusing (4) Those excuses are humorous (5) I feel pleased after reading those excuses.

### *Fear Appeal*

According to the definition of fear appeal, negative affect, such as fear, tense, scare, nausea and discomfort, were measured to indicate fear arousal. This study adapted a fear arousal scale proposed by Mewborn and Rogers (1979), validated by Keller and Block (1996), and used by Mukherjee and Dub e(2012) to measure fear arousal. The original scale is a four item nine-point scale anchored by “very unafraid/afraid, relaxed/tense, calm/agitated and restless/excited”. In this study, the four items were split into nine items and a nine item six-point scale (1=not at all, 6=extremely) was developed. Participants were asked to state, regarding the image of a victim of drunk driving crash presented, to which extent they agree with the following statements (from not at all to extremely): (1) I feel fearful (2) I feel tense (3) This image is scary (4) I feel nauseated (5) I feel uncomfortable (6) I feel relaxed (7) I feel scared (8) I feel calm (9) I feel excited.

### *Perceived Stress*

There has not been a definition of perceived stress, maybe because it is self-explanatory. According to previous studies (Cohen, Kamarck, & Mermelstein, 1983; Abel, 2002), perceived stress was defined as individuals’ feeling about whether things

are unpredictable, uncontrollable and overwhelming in this study. According to the definition of perceived stress, a four item version of the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) was adapted, based on the stimuli in this study. In the end, a nine item six-point scale was used (1=not at all, 6=extremely). Participants were asked to which extent they experience the following emotions when they think about trying to perform the recommended behaviors: (1) I feel stressful (2) I feel unpredictable (3) I feel uncontrollable (4) I feel overwhelmed.

#### *Attitude Toward The Ad*

A scale from Mukeherjee and Dubé (2012)'s study was adapted to assess the attitude toward the ad. In the end, a three item six-point scale (1=not at all, 6=extremely) was used to ask participants to which extent they agree with the following statements as for the ad they viewed: (1) This ad is good (2) I like this ad (3) This ad is desirable.

#### *Behavioral Intention*

A scale validated by Keller (2006) and used by Mukeherjee and Dubé (2012) were adopted to measure participants' intention to perform the recommended behaviors. It is a three items six-point scale (1=not at all, 6=extremely) which asks participants to rate to which extent they agree with several statements. In this study, participants were asked to rate their agreement to the following statements after viewing the ad: (1) I intend to always avoid drinking before driving when attending a party (2) I intend to always avoid drinking before driving even if feeling bad (3) I intend to always avoid drinking before driving even if feeling excited.

## CHAPTER 5 RESULTS

This chapter reviews the results for abovementioned hypotheses and research questions, and discusses the findings. Those hypotheses and research questions including same variables were tested together in the data analysis.

### **Variable Construction and Reliability Tests**

This study used summated scores for each variable by averaging scores of the multiple items. The Cronbach's alpha coefficients of each summated variables are as follows: Perceived self-efficacy scale (0.910), perceived stress scale (0.901), fear appeal manipulation scale (0.734), humor appeal manipulation scale (0.905), behavioral intention scale (0.960), attitude toward the ad scale (0.918). All Cronbach's alpha scores indicate acceptable measurement reliability.

### **Manipulation Check**

The fear tension arousal manipulation and humor arousal manipulation were checked in the main study. After excluding incomplete and unusable questionnaires (e.g. gave neutral points to every questions), a total of 203 responses were analyzed.

First, to check whether the manipulation of fear tension arousal was successful, a one way between-subjects ANOVA was conducted to test the differences the mean fear ratings among different fear conditions in absence of humor. The results (see Table 4) show that the mean fear rating in high fear appeal condition ( $M=4.58$ ) was significantly higher than moderate ( $M=3.67$ ;  $p<0.001$ ) and low fear appeal condition ( $M=3.64$ ;  $p<0.001$ ). However, the mean fear rating in moderate fear condition ( $M=3.67$ ) was not significantly higher than that in low fear condition ( $M=3.64$ ;  $p=0.98>0.05$ ). That means

the manipulation of the difference between high and moderate fear condition was successfully, while the manipulation of the difference between moderate and low fear condition was not successful. But for exploratory purposes, the three conditions were still used to test the hypotheses.

**TABLE 4 One-way ANOVA Test Results for Fear Appeal Manipulation (N=203)**

<b>Comparison</b>	<b>Mean Difference</b>	<b><i>p</i></b>	<b><i>F</i></b>
High vs. Moderate	0.91	<0.001	18.92
Moderate vs. Low	0.03	0.98	
High vs. Low	0.94	<0.001	

To check whether the manipulation of humor arousal was successful, an independent t-test was conducted to test the difference significance of mean humor rating between humor-present and humor-absent condition, and a one sample t-test was conducted to test the difference significance of mean humor rating between humor-present condition and the mid-point (3.5) of the seven-point scale.

Results presented in Table 5 show that the humor arousal value in humor-present group ( $M=2.88$ ) was not significantly higher than that in humor-absent group ( $M=2.86$ ), since the p-value was 0.46 and larger than 0.05. In the meantime, there was not a significant difference between the humor rating in humor-present group ( $M=2.88$ ) and the midpoint (3.5). That means the manipulation of humor failed. But for exploratory purposes, the two conditions were still used to test the hypotheses.

**TABLE 5 Results for Humor Appeal Manipulation (N=203)**

<b>Comparison</b>	<b><i>T</i></b>	<b><i>p</i> (Two-sided)</b>	<b><i>p</i> (Right-sided)</b>
Humor-present vs. Humor-absent	0.104	0.917	0.46
Humor-present vs. Mid-point(3.5)	-4.197	<0.01	0.99

**Descriptive Statistics for Key Variables**

The descriptive statistics for key variables were examined. The results presented in Table 6 show that the mean score of perceived self-efficacy ( $M=4.66$ ) was higher than the mid-point (3.5). The mean score of participants' perceived stress ( $M=1.78$ ) fell below the mid-point (3.5). Participants in generally had negative attitude toward ads, since the mean attitude value ( $M=2.59$ ) was lower than the neutral point (3.5). Participants had high intention to perform the recommended behaviors, because the mean intention score ( $M=5.23$ ) was much higher than the mid-point (3.5).

**TABLE 6 Descriptive Statistics for Key Variables (N = 203)**

<b>Variables</b>	<b><i>M</i></b>	<b><i>SD</i></b>
Self-efficacy	4.66	1.51
Humor Appeal	3.00	1.22
Fear Appeal	4.00	1.09
Perceived Stress	1.78	1.03
Attitude Toward The Ad	2.59	1.22
Behavioral Intention	5.23	1.25

## Results by Hypotheses

Because Hypothesis 1 and 3 involves same variables, they were tested together. Similarly, hypothesis 2 and 4 were tested together.

**H1:** When humor is not present, a high fear appeal causes lower level of perceived self-efficacy of performing the recommended behaviors, compared to a moderate or low fear appeal.

**H3:** When a high fear appeal is used, humorous coping strategies lead to a higher level of perceived self-efficacy of performing the recommended behaviors, compared to non-humorous coping strategies.

Hypothesis 1 predicts that the rating of perceived self-efficacy in high fear condition will be lower than that in moderate fear condition, when humor is absent. Hypothesis 3 predicts that the rating of perceived self-efficacy in high fear and humor-present condition will be higher than that in high fear and humor-absent condition. A two-way ANOVA was conducted to test the abovementioned hypotheses. The results presented in Table 7 show that when humor was not present, the p-value indicating the significance between the perceived self-efficacy in high fear and that in moderate fear was 0.09, which was larger than 0.05. Since the p-value was below 0.10, it indicates a moderately significant difference. And there was a significant difference between the perceived self-efficacy in high and low fear level, when humor was absent ( $p=0.02<0.05$ ). However the first hypothesis was still rejected, because the results show that the self-efficacy level in high fear condition was even higher than that in moderate and low fear condition, which is opposite to the hypothesis. As of Hypothesis 3, when

fear was high, a significant difference between the mean rating of perceived efficacy in humor-present and that in humor-absent condition was found ( $p=0.03<0.05$ ). However, the difference is in the opposite direction of what was hypothesized. So Hypothesis 3 was rejected either. In addition, according to table 7, there was a significant interaction between fear level and humor level on self-efficacy ( $p=0.03<0.05$ ), but according to the abovementioned analyses, the way they interacted was not as what was hypothesized, so in general, hypothesis 1 was rejected. Moreover, according to the results, fear level had a main effect on self-efficacy ( $p=0.01<0.05$ ). Specifically, when humor was present, high fear led to a significant lower self-efficacy than moderate fear ( $p=0.02<0.05$ ).

**TABLE 7 The Effects of Humor and Fear Levels on Self-efficacy, Mean Level and Two-way ANOVA Results (N=203)**

Self-Efficacy	Humor-Absent		Statistics		
N=203	High Fear	Moderate Fear	<i>P</i>		
Mean Level	5.18	4.64	0.09		
(Standard Deviation)	(0.22)	(0.23)			
	Humor-Absent		Statistics		
N=203	High Fear	Low Fear	<i>P</i>		
Mean Level	5.18	4.34	0.02		
(Standard Deviation)	(0.22)	(0.26)			
	Fear Level			Statistics	
N=203	High	Moderate	Low	<i>F</i> -Value	<i>P</i>



Mean Level	4.81	4.93	4.16	5.34	0.01
(Standard Deviation)	(0.18)	(0.18)	(0.18)		
	Humor Level		Statistics		
N=203	Present	Absent	<i>F</i> -Value	<i>P</i>	
Mean Level	4.55	4.72	0.67	0.41	
(Standard Deviation)	(0.15)	(0.14)			
	Fear Level * Humor Level			Statistics	
N=203			<i>F</i> -Value	<i>P</i>	
			3.69	0.03	
	Humor-Present		Statistics		
N=203	High Fear	Moderate Fear	<i>P</i>		
Mean Level	4.45	5.23	0.02		
(Standard Deviation)	(0.24)	(0.24)			
	High Fear		Statistics		
N=203	Humor-Present	Humor-Absent	<i>P</i>		
Mean Level	4.45	5.18	0.03		
(Standard Deviation)	(0.24)	(0.22)			
** Significant at $p \leq 0.05$					

**H2:** When humor is not present, a high fear appeal causes higher perceived stress related to the recommended behaviors, compared to a moderate or low fear appeal.

**H4:** When a high fear appeal is used, humorous coping strategies lead to lower perceived stress related to the coping behaviors, compared to non-humorous coping strategies.

Hypothesis 2 predicts that the rating of perceived stress in high fear condition will be higher than that in moderate fear appeal, when humor is absent. Hypothesis 4 predicts that in high fear condition, the mean rating of perceived stress in humor-present condition will be lower than that in humor-absent condition. A two-way ANOVA was conducted to test the abovementioned hypotheses. The results presented in Table 8 show that when humor was absent, there was not a significant difference between the mean rating of perceived stress in high and moderate fear conditions ( $p=0.87>0.05$ ) or between that in high and low fear conditions ( $p=0.79>0.05$ ). So the Hypothesis 2 was rejected. Similarly, when fear was high, the mean values of perceived stress in humor-present and humor-absent conditions did not have a significant difference ( $p=0.57>0.05$ ). Hypothesis 4 was rejected either. Moreover, according to the results shown in table 8, neither fear ( $p=0.31>0.05$ ) nor humor ( $p=0.37>0.05$ ) had a main effect on perceived stress. There was not a significant interaction between fear and humor on perceived stress either ( $p=0.65>0.05$ ).

**TABLE 8 The Effects of Humor and Fear Levels on Perceived Stress, Mean Level and Two-way ANOVA Results (N=203)**

Perceived Stress	Humor-Absent		Statistics
N=203	High Fear	Moderate Fear	<i>P</i>
Mean Level	1.70	1.66	0.87

(Standard Deviation)	(0.17)	(0.18)			
	Humor-Absent			Statistics	
N=203	High Fear	Low Fear	<i>P</i>		
Mean Level	1.70	1.77	0.79		
(Standard Deviation)	(0.18)	(0.18)			
	Fear Level			Statistics	
N=203	High	Moderate	Low	<i>F-Value</i>	<i>P</i>
Mean Level	1.77	1.64	1.92	1.17	0.31
(Standard Deviation)	(0.13)	(0.13)	(0.13)		
	Humor Level			Statistics	
N=203	Present	Absent	<i>F-Value</i>		<i>P</i>
Mean Level	1.84	1.71	0.80		0.37
(Standard Deviation)	(0.11)	(0.10)			
	Fear Level * Humor Level			Statistics	
N=203				<i>F-Value</i>	<i>P</i>
				0.43	0.65
	High Fear			Statistics	
N=203	Humor-Present	Humor-Absent	<i>P</i>		
Mean Level	1.84	1.70	0.57		
(Standard Deviation)	(0.18)	(0.17)			
** Significant at $p \leq 0.05$					

**Research Question1:** Would a high fear appeal leads to lower positive attitude toward the ad, compared to a moderate fear appeal?

**Research Question 3:** When a high fear appeal is used, would humorous coping strategies lead to higher positive attitude toward the ad, compared to non-humorous coping strategies?

The first research question asks whether the ad with high fear appeal would lead to lower positive attitude, compared to the ad with moderate fear appeal. The third research question inquiries whether humor increases positive attitude toward the ad when fear is high.

A two-way ANOVA was conducted to answer these research questions and the results were presented in Table 9. The results show that there was not a significant difference between the positive attitude values in high and moderate fear conditions, or that in high and low fear conditions when humor was absent ( $p=0.12>0.05$ ;  $p=0.87>0.05$ ). Moreover, the behavior intention did not change significantly when humor was present in the high fear condition ( $p=0.48>0.05$ ).

**TABLE 9 The Effects of Humor and Fear Levels on Attitude toward the Ad, Mean Level and Two-way ANOVA Results (N=203)**

Attitude Toward The Ad	Humor-Absent		Statistics
N=203	High Fear	Moderate Fear	<i>P</i>
Mean Level	2.68	2.26	0.12
(Standard Deviation)	(0.19)	(0.19)	
	Humor-Absent		Statistics
N=203	High Fear	Low Fear	<i>P</i>
Mean Level	2.68	2.72	0.87
(Standard Deviation)	(0.21)	(0.22)	
	High Fear		Statistics
N=203	Humor-Present	Humor-Absent	<i>P</i>
Mean Level	2.48	2.68	0.48
(Standard Deviation)	(0.20)	(0.19)	
** Significant at $p \leq 0.05$			

**Research Question 2:** Would a high fear appeal decrease individuals' intention to perform the recommended behaviors, compared to a moderate fear appeal?

**Research Question 4:** When a high fear appeal is used, would humorous coping strategies increase individuals' intention to perform the recommended behaviors, compared to non-humorous coping strategies?

The second research question asks whether the mean intention rating in high fear condition will be lower than that in moderate fear condition. The fourth research question

inquiries whether humor increases behavioral intention when fear is high. A two-way ANOVA was conducted to answer these research questions and the results were presented in Table 10. The results show that when humor was absent, the mean rating of behavioral intention in high fear condition was lower, but not significantly lower, than that in moderate or low fear conditions ( $p=0.33>0.05$ ;  $p=0.60>0.05$ ). In addition, the behavioral intention did not change significantly when humor was present in the high fear condition ( $p=0.47>0.05$ ).

**TABLE 10 The Effects of Humor and Fear Levels on Behavioral Intention, Mean Level and Two-way ANOVA Results (N=203)**

Behavioral Intention	Humor-Absent		Statistics
N=203	High Fear	Moderate Fear	<i>P</i>
Mean Level	5.15	5.43	0.33
(Standard deviation)	(0.20)	(0.21)	
	Humor-Absent		Statistics
N=203	High Fear	Low Fear	<i>P</i>
Mean Level	5.15	5.31	0.60
(Standard deviation)	(0.22)	(0.23)	
	High Fear		Statistics
N=203	Humor-Present	Humor-Absent	<i>P</i>
Mean Level	5.19	5.41	0.47
(Standard deviation)	(0.22)	(0.22)	
** Significant at $p \leq 0.05$			

Considering the manipulation of low fear and the humor conditions failed, to explore more regarding the hypotheses and research questions, multiple linear regression analyses were also conducted to test the moderating effect of humor on fear's effects on self-efficacy and answer the questions about humor's moderating effect on fear's effects of attitude toward the ad and behavioral intention. The manipulation check measures of fear responses and perceived humor were used as the independent variables. The measurements of self-efficacy, attitude toward the ad, and behavioral intentions were used as separate dependent variables. The results were shown in tables 11 through 18.

According to table 11, there was not a significant interaction between fear and humor appeal on self-efficacy, so the hypothesis 3 was rejected ( $p=0.45>0.05$ ).

**TABLE 11 Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Self-efficacy ( $N = 203$ )**

Predictors	<i>B</i>	<i>P</i>
Fear	0.01	0.98
Humor	-0.05	0.87
Fear * Humor	0.45	0.45
Adjusted R <sup>2</sup>	0.02	
Model Statistics	$F(3, 190)=2.54; P=0.06$	

\*\* $p < 0.05$

Since the interaction of fear and humor on self-efficacy was not significant, the regression analysis was ran again to test whether fear and humor are significant predictors of self-efficacy. According to table 12, fear had a moderately significant

positive relationship with self-efficacy ( $p=0.09>0.05$ ), which was opposite to the hypothesis 1, so the first hypothesis was rejected. In addition, according to table 12, humor had a significant positive relationship with self-efficacy ( $p=0.05$ ).

**TABLE 12 Regression Analysis for Fear and Humor Predicting Self-efficacy ( $N = 203$ )**

Predictors	<i>B</i>	<i>P</i>
Fear	0.17	0.09
Humor	0.18	0.05
Adjusted $R^2$	0.03	
Model Statistics	$F(2, 191)=3.54; P=0.03$	

\*\* $p < 0.05$

Similarly, the interaction of fear and humor on perceived stress was tested by regression analysis and the results were shown in table 13. Since  $p$ -value for interaction is 0.28, no significant was found.

**TABLE 13 Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Perceived Stress ( $N = 203$ )**

Predictors	<i>B</i>	<i>P</i>
Fear	0.28	0.07
Humor	0.28	0.17
Fear * Humor	-0.05	0.28
Adjusted $R^2$	0.02	
Model Statistics	$F(3, 189)=2.17; P=0.09$	



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**\*\* $p < 0.05$**

Whether fear and humor are significant predictors of perceived stress were also tested by a regression analysis. The results in table 14 show that fear had a significant positive relationship with perceived stress ( $p=0.05$ ). However, the regression analysis cannot indicate causal relationship, so the significant positive relationship between fear and perceived stress does not mean the third hypothesis was not rejected.

**TABLE 14 Regression Analysis for Fear and Humor Predicting Perceived Stress ( $N = 203$ )**

Predictors	<i>B</i>	<i>P</i>
Fear	0.12	0.05
Humor	0.07	0.21
Adjusted $R^2$	0.02	
Model Statistics	$F(2, 190)=2.66; P=0.07$	

**\*\* $p < 0.05$**

The interaction of fear and humor on attitude toward the ad was also tested and the results were shown in table 15. Since the p-value is 0.5, no significant interaction was found.

**TABLE 15 Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Attitude toward the Ad (N = 203)**

Predictors	<i>B</i>	<i>P</i>
Fear	0.14	0.43
Humor	0.11	0.64
Fear * Humor	0.04	0.50
Adjusted R <sup>2</sup>	0.12	
Model Statistics	<i>F</i> (3, 191)=9.50; <i>P</i> <0.01	

\*\**p* < .05

Moreover, according to table 16, fear and humor had significant positive relationships with attitude toward the ad (*p*<0.01; *p*<0.01). However, those were not certainly causal relationships.

**TABLE 16 Regression Analysis for Fear and Humor Predicting Attitude toward the Ad (N = 203)**

Predictors	<i>B</i>	<i>P</i>
Fear	0.26	<0.01
Humor	0.27	<0.01
Adjusted R <sup>2</sup>	0.02	
Model Statistics	<i>F</i> (2, 192)=14.06; <i>P</i> <0.01	

\*\**p* < .05

In the end, fear and humors' interaction on behavioral intention and their predicting of behavioral intention were tested and the results were shown in table 17 and 18. In general, there was not a significant interaction of fear and humor on behavioral

intention ( $p=0.93>0.05$ ), and fear and humor were not significant predictors of behavioral intention ( $p=0.36$ ;  $p=0.98$ )

**TABLE 17 Regression Analysis for Testing Moderating Effect of Humor on Fear's Effects on Behavioral Intention ( $N = 203$ )**

Predictors	<i>B</i>	<i>P</i>
Fear	0.06	0.77
Humor	-0.02	0.93
Fear * Humor	0.01	0.93
Adjusted R <sup>2</sup>	-0.01	
Model Statistics	$F(3, 191)=0.29$ ; $P<0.84$	

\*\* $p < .05$

**TABLE 18 Regression Analysis for Fear and Humor Predicting Behavioral Intention ( $N = 203$ )**

Predictors	<i>B</i>	<i>P</i>
Fear	0.08	0.36
Humor	<0.01	0.98
Adjusted R <sup>2</sup>	-0.01	
Model Statistics	$F(2, 192)=0.43$ ; $P=0.65$	

\*\* $p < .05$

## CHAPTER 6 SUMMARY AND DISCUSSION

### Summary of Findings

To research the effects of fear and humor on self-efficacy, the study developed four hypotheses. In addition, four research questions were asked to study the effects of fear and humor on ad attitude and behavioral intention. In general, six variables were included in this study. They are fear appeal, humor appeal, perceived self-efficacy, perceived stress, attitude toward the ad and behavioral intention.

To sum, by ANOVA analysis, all hypotheses (H1, 2, 3, 4) tested in this study were rejected. That means fear appeal did not have significant effects on perceived self-efficacy and perceived stress. Moreover, humor did not moderate the relationship between fear appeal and perceived self-efficacy and perceived stress. A couple things to notice are as of Hypothesis 4, when fear was high, there was a significant difference between the mean rating of perceived efficacy in humor-present and that in humor-absent condition ( $p=0.03<0.05$ ). However, the difference was in the opposite direction of what was hypothesized. According to the argument of Hennessy, Lanni-Manley and Maiorana (2006), one possible reason might be humor weakens the perceived seriousness of the proposed problem and coping strategies, and then leads to a lower self-efficacy. In addition, there was a significant interaction between fear level and humor level on self-efficacy ( $p=0.03<0.05$ ), but the way they interacted was not as hypothesized. That might be caused by the failure of manipulation of low fear. Moreover, fear level had a main effect on self-efficacy ( $p=0.01<0.05$ ). Specifically, when humor was present, high fear led to a significant lower self-efficacy than moderate fear appeal ( $p=0.02<0.05$ ).

As of the research questions that were tested, the results show that fear appeal did not have a significant influence on ad attitude and intention to perform recommended behaviors. Humor did not moderate the relationship between fear appeal and ad attitude and behavioral intention.

Regarding the conclusion by regression analysis, hypothesis 1, 3 and 4 were rejected. The test of hypothesis 2 did not have a clear conclusion, even though the results show a significant positive relationship between fear and perceived stress. The reason is regression analysis does not indicate causal relationship. About the research questions, the analysis of the first research question concluded that fear appeal had a significant relationship with attitude toward the ad. Regarding research question 2, 3 and 4, no significant difference was found.

### **Limitations**

Several limitations may inhibit the expected results to appear. First, some theoretical limitations exist. This study was developed based on the self-efficacy theory proposed by Bandura (1977) and the research about humor's effects on information processing. Based on their argument, first, emotion arousal is an important factor of individuals' self-efficacy (Bandura, 1977); Moreover, if the fear appeal is too high, individuals will activate the primitive avoidance, which means they simply ignore the ad, stop processing the coping message or even stop thinking about problems related to the ad (Rogers, 1975; Tanner, Hunt, & Eppright, 1991; Witt, 1992; Witt & Allen 2000); However, humor helps the information processing by attracting attention (Sternthal and Craig, 1973; Madden & Weinberger, 1982; Weinberger & Gulas, 1992) and reducing

perceived stress (Shurcliff, 1968). But, the possible fact is humor does not always have positive effects on attention attraction (Weinberger & Gulas, 1992). Other two factors that impact humor's effects on attention attraction were not considered.

First, humor type also influences its attention attraction effects. Weinberger and Gulas (1992) concluded that the inserted humor appeal has a weaker impact on attention attraction, than the integrated humor appeal. Inserted humor refers to the humor that is less consistent with the message and general background. Among participants' comments about the ads, many of them mentioned that the humor in a car accident is inappropriate and irrelevant to the topic. So, it is reasonable to say that the humor in this study is an inserted humor in general, which may affect its effects on attention attraction.

Second, humor's relatedness to a message influences its effect on participants too. According to Speck (1991), there are two types of relationship between humor and message: semantic relatedness and structural relatedness. Semantic relatedness refers to the situation that humor is related to the "product-related themes". Structural relatedness indicates the syntactical function of humor in a "message-dominate ad" or of a message in a "humor-dominate ad" (p.18). Speck (1991) stated that irrelevant humor in an ad can cause three results. First, the distraction of participants; second, the humor will be judged as inappropriate; third, negative attitude toward the ad will be generated. And those results will weaken humor's effects. In the open-ended questions, many participants rated the humor appeal as "inappropriate" and "not engaging" and the argument in the humor appeal condition was commented as a

“weak argument”. The humor appeal was viewed as “inappropriate”, because many participants did not think it is strongly related to the theme of the drinking before driving topic, which indicates a weak semantic relatedness. Most comments about the humor appeal in this study are critiques of the format, organization and wording of the humor appeal, instead of the drinking and driving topic or the coping strategies, which indicates a distraction of participants. Moreover, strong negative attitude toward the coping strategies and some counter-arguments were found from those critiques. Comments such as “ineffective”, “not professional”, “lame”, “dated” appear frequently. To sum, the humor in this study was perceived as irrelevant and may lead to the rejection of the hypotheses.

Furthermore, issue involvement also impacts attention attraction. Yoon and Tinkham (2013) demonstrated that issue involvement level moderates the effects of the interaction of fear and humor appeal on individuals’ attitude toward the behavior, maladaptive responses, and behavioral intention. Issue involvement depends on the relevance (Petty & Cacioppo, 1979) and importance of an issue to an individual (Sherif & Hovland, 1961). If the issue relevance in an ad is low, the ad will fail to attract participants’ attention. Then the coping strategies will not be viewed, which in the end will weaken humor’s effects on self-efficacy, ad attitude and behavioral intention. Actually, some participants in this study commented that the victim in the picture is not a young college student. Their comments indicate low perceived issue involvement. So, it is reasonable to argue that the perceived issue involvement of

some participants in this study was low, which leads to less attention and message comprehension, so as to inhibit the effects of humor as hypothesized.

Fourth, it is possible that the high fear image forces individuals to pay more attention to the coping strategy part of the ad, because high fear image may activate individuals' primitive avoidance regarding the fearful image. Then individuals paid attention to the less fearful part of the advertisement, which is the coping strategy part. Since the coping strategy part contains the statement that would strengthen self-efficacy, individuals' self-efficacy was strengthened.

Moreover, the limitation of the methodology might also lead to the rejection of hypotheses. First, the ad design needs improvement and is distractive to many participants. According to the overview of the open questions, there are a lot of critiques about humor appeal's quality, while only a few comments are about the contents or topic of the ads. The critiques have three categories. They are critiques of the ad as a whole, of the fear appeal and of the humor appeal. Critiques of the whole ad focus on the "poor organization", "too much design" and "non-professionalism". Some participants also commented that "the picture overloads the text" and that "the humor is inappropriate for such a serious topic". The critiques of the fear appeal are about its un-relatedness to the drinking and driving topic and to the target audience-college students. Critiques of the humorous coping strategies include: the coping strategies are "non-realistic", "non-effective", "non-attractive" "non-engaging" and are "weak arguments". In general, humor appeals were not rated very highly as being humorous, thus limited the degree to which the moderating effect of humor on response to the fear appeals could be truly tested.



Specifically, there are some design limitations of the ads. First, there was not a victim image in the low fear advertisement. But in both high and moderate fear advertisements, images of victims were included. High and moderate fear appeals with victim images may lead to self-referencing. Since self-referencing attracts attention and enhances ad effects (Klein and Loftus, 1988), this may have given the high and moderate fear appeals an advantage in fostering self-referencing. In contrast, the low fear appeal would produce lower self-referencing and then might weaken the ad effects of the low fear advertisement, compared to high and moderate advertisements.

Second, in the ads of this study, the coping strategy portion of the ads contained a self-efficacy statement and that may have increased the baseline level of self-efficacy for not drinking and driving. Humor might be not as powerful as the self-efficacy statement, thus no significant difference about the perceived self-efficacy values was found between humor-present and humor-absent conditions.

Third, medium also impacts the attention attraction and message processing. The fear appeals were designed as pictures, while the humor appeals were presented as texts. Some scholars found that pictures have superior effects on attention gaining, content recall (Paivio & Csapo, 1969; Costley & Brucks, 1992), message comprehension (Wyer, Hung, & Jiang, 2008) and brand favorableness (Unnava & Burnkrant, 1991; Hung and Wyer, 2008), compared to verbal materials, if verbal materials were unlikely to elicit an image of the situation in which the advertised products or behaviors were used or conducted (Unnava & Burnkrant, 1991). According to the open-ended questions of this study, many participants commented that the humor appeal texts were “cheesy”, “dry”

and “unattractive”, which indicates the unlikelihood of eliciting an image of the advertised situation. However, according to the comments, the fear appeal picture “overshadows” the “humorous excuses” and “stuck” in their minds. So, it’s reasonable to argue that the medium of fear appeal helped it gain more attention and recall, which greatly weakened humor appeals’ effects as hypothesized.

Moreover, as of the measures, single method was used to measure each variable in this study, which may weaken the validity of measures in the study. For example, self-efficacy was measured only by a self-report three item six-point scale. However, multiple methods could greatly increase the validity. If an open question regarding the self-efficacy could have been used, the results about the difference of self-efficacy would be more valid. Similarly, if multi-methods could be used to measure humor rating, fear rating, attitude toward the ad and behavioral intention, the results could be more accurate. In addition, single analytical approaches were used to test hypotheses and answer research questions in this study. All hypotheses and research questions were tested or answered through quantitative analysis. However, if a qualitative method could have been used, the validity of this study can be greatly improved too.

The convenience sampling method is also a limitation. The use of convenient sampling may weaken the representativeness of the study, since convenience samples are not representative enough of the whole population. In addition, according to the data analysis, 67% of participants in the main study are female. It might be possible that females don’t drink and drive as much as males because they know they are not supposed to drink and drive.

Furthermore, the mean self-efficacy value in this study is 4.66, which is pretty high. Since this study did not measure the self-efficacy value before and after the main study, it's hard to tell what leads to such a high mean self-efficacy value. If the high self-efficacy value exists from the pre-test, then the failure of the study may be caused by the original high self-efficacy value. This may inhibit the appearance of the difference of self-efficacy generated by the study.

The mean intention value is 5.23, which indicates a high intention of performing the desired behavior. If that is the original mean intention value of the participants, they might be the individuals that have already had high intention to avoid drinking before driving. Then, this study might target the inappropriate individuals. That might be another explanation for the limited effects of the message variables.

Last but not the least, the research topic about drinking has been used too much. A lot of studies have been conducted as of this topic and the similar fearful artworks were used frequently in the previous research. According to Bandura's theory (1977), too much exposure leads to desensitization, which is one of the approaches to reduce individuals' anxiety. Less anxiety will to a certain extent weaken fear appeal's effects on self-efficacy and persuasion.

### **Suggestions for Future Research**

Subsequent research needs to tease apart the theoretical and methodological flaws of this study in case of failure. First, when conducting theoretical review, factors that moderate humor's effects on attention, comprehension and stress need be considered, as well as the factors which may directly influence above variables.

Second, as of the design of the ads, the same medium needs to be used for fear and humor appeal, because that helps rule out the effects of medium. And the usage of victim images in different stimuli should be consistent. In addition, more attention needs to be paid on the quality assurance of the ad, in case that the ad itself is distractive, so as to help participants focus on the contents of the study. Furthermore, a pilot study with more representative samples needs to be conducted to increase the success of manipulation of humor and fear. It's better to conduct the main study after the success of manipulation is confirmed.

Third, as of the methodology, multi-method is recommended to improve the validity of the study. Multi-method means multi-measure for a single concept and multi-analysis for a single hypothesis or research question. Moreover, pre-test and post-test about independent and dependent variables are recommended to identify the source of the changes and also exclude possible confounding variables. Furthermore, do not associate humor to self-efficacy statement, because the effects of self-efficacy statement may be much more powerful than that of humor itself.

In general, while this study was not able to demonstrate that humor in high or moderate fear condition can increase individuals' self-efficacy, positive attitude toward ads and behavioral intention, there is still a possibility for the further studies, as long as the theoretical and methodological flaws were addressed. If subsequent studies successfully demonstrate the hypotheses or answered the research questions, there will be a great theoretical development for Bandura (1977)'s argument about self-efficacy, PMT (Rogers, 1975; Tanner, Hunt, & Eppright, 1991) and EPPM model (Witt, 1992; Witt &

Allen, 2000). The theoretical development may be also beneficial to the advertising industry by revealing humor's effects on self-efficacy.

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## Appendix 1 Drunk Driving Crash Pictures

Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



Image 7



Image 8



Image 9

There are almost 300,000 incidents of drinking and driving per day. Every 53 minutes on average, someone is killed in a drunk driving crash (9,878 people in total in 2011). In 2012, 10,322 people died in drunk driving crashes. Every 90 seconds, someone is injured because of this entirely preventable crime. Teen alcohol use kills about 4,700 people each year, more than all illegal drugs combined.



## **Appendix 2 Humor-absent Excuses**

“No thanks, I’m on a diet”

“I’m already feeling a bit tipsy”

“I had a terrible experience with alcohol a while back...still recovering from it”

“I’m so hungry right now. Could I finish this burger first?”

### **Appendix 3 Humor-present Excuses**

Excuse 1: See that dude over there? He's drinking for the both of us. Just send drinks his way.

Excuse 2: I'm training for the Olympics!

Excuse 3: No thanks, I'm still digesting that napkin.

Excuse 4: Thanks, but I promised my friend I'd not embarrass him tonight.

Excuse 5: Can't drink tonight; I'm the designated driver. Would someone please help me find my car?

Excuse 6: Nah--I get my jollies from watching everyone else get wasted and make fools of themselves--now where'd I put my video camera???

Excuse 7: I'm not thirsty.

Excuse 8: LOOK! A marmoset!

## Appendix 4 Questionnaire for Fear Stimulus Test

### A Study on Drunk Driving Crash Pictures

Thank you for your time to complete this anonymous survey. This survey focuses on drunk driving crash pictures, and it will take approximately 5 minutes. After you look at pictures as follows, please indicate to which extent you agree with the statements regarding those pictures, from not at all to extremely.

IMAGE 1



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated

5. I feel uncomfortable

IMAGE 2



1. I feel fearful

Not at all

Extremely

             

2. I feel nervous

             

3. I feel scared

             

4. I feel nauseated

             

5. I feel uncomfortable

             

IMAGE 3



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated

5. I feel uncomfortable

IMAGE 4



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated

5. I feel uncomfortable

IMAGE 5



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated

5. I feel uncomfortable

IMAGE 6



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated

5. I feel uncomfortable

IMAGE 7



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated

5. I feel uncomfortable

IMAGE 8



1. I feel fearful

Not at all

Extremely

2. I feel nervous

3. I feel scared

4. I feel nauseated



- 

5. I feel uncomfortable

- 

### IMAGE 9

There are almost 300,000 incidents of drinking and driving per day. Every 53 minutes on average, someone is killed in a drunk driving crash (9,878 people in total in 2011). In 2012, 10,322 people died in drunk driving crashes. Every 90 seconds, someone is injured because of this entirely preventable crime. Teen alcohol use kills about 4,700 people each year, more than all illegal drugs combined.

1. I feel fearful

Not at all

Extremely

- 

2. I feel nervous

- 

3. I feel scared

- 

4. I feel nauseated

- 

5. I feel uncomfortable

- 

### Additional Questions:

1. What is your gender?

Male

Female

2. In what year were you born? \_\_\_\_\_

3. Please specify your ethnicity.

White

Hispanic or Latino

Black or African American

Native American or American Indian

Asian / Pacific Islander

Other

*Thank you again for taking this survey and have a good day! 😊*

## Appendix 5 Questionnaire for Humor Stimulus Test

### A Study on Excuses for Turning Down A Drink before Driving

Thank you for your time to complete this anonymous survey. This survey focuses on excuses to turn down a drink before driving, and it will take approximately 5 minutes.

Suppose you are at a party, and your friends ask you to drink. There are some excuses available for you to refuse the drink as follows. Please indicate to which extent you agree with the statements regarding those excuses, from not at all to extremely.

Excuse 1: See that dude over there? He's drinking for the both of us. Just send drinks his way.

1. This excuse is funny

Not at all

Extremely



2. I feel happy after I read the excuse

Not at all

Extremely



3. This excuse is amusing

Not at all

Extremely



Excuse 2: I'm training for the Olympics!

1. This excuse is funny

Not at all

Extremely



2. I feel happy after I read the excuse

Not at all Extremely

3. This excuse is amusing

Not at all Extremely

Excuse 3: No thanks, I'm still digesting that napkin.

1. This excuse is funny

Not at all Extremely

2. I feel happy after I read the excuse

Not at all Extremely

3. This excuse is amusing

Not at all Extremely

Excuse 4: Thanks, but I promised my friend I'd not embarrass him tonight.

1. This excuse is funny

Not at all Extremely

2. I feel happy after I read the excuse

Not at all Extremely

3. This excuse is amusing

Not at all

Extremely



Excuse 5: Can't drink tonight; I'm the designated driver. Would someone please help me find my car?

1. This excuse is funny

Not at all

Extremely



2. I feel happy after I read the excuse

Not at all

Extremely



3. This excuse is amusing

Not at all

Extremely



Excuse 6: Nah--I get my jollies from watching everyone else get wasted and make fools of themselves--now where'd I put my video camera???

1. This excuse is funny

Not at all

Extremely



2. I feel happy after I read the excuse

Not at all

Extremely



3. This excuse is amusing

Not at all

Extremely

Excuse 7: I'm not thirsty.

1. This excuse is funny

Not at all

Extremely

2. I feel happy after I read the excuse

Not at all

Extremely

3. This excuse is amusing

Not at all

Extremely

Excuse 8: LOOK! A marmoset!

1. This excuse is funny

Not at all

Extremely

2. I feel happy after I read the excuse

Not at all

Extremely

3. This excuse is amusing

Not at all

Extremely

Additional Questions:

1. What is your gender?

Male

Female

2. In what year were you born? \_\_\_\_\_

3. Please specify your ethnicity.

White

Hispanic or Latino

Black or African American

Native American or American Indian

Asian / Pacific Islander

Other

*Thank you again for taking this survey and have a good day! 😊*

## Appendix 6 Questionnaire for Main Experiment

<Screening Page>

### INSTRUCTION

First you will be shown an ad, then you need to answer some questions regarding the ad you saw. Please view the ad carefully.

*One of the six ads that combine each of the fear and of humor conditions was randomly shown to participants.*

Q1. What did you notice as for the ad presented above?

Q2. What were all the thoughts and feelings you had while viewing the ad?

Q3. To prevent drunk driving crashes, the ad advocates a strategy called "always avoid drinking before driving". When you think about trying to follow that strategy, to which extent do you experience the following emotions?

	Not At						Extremely
	All						
I feel stressful	1	2	3	4	5	6	
I feel unpredictable	1	2	3	4	5	6	
I feel uncontrollable	1	2	3	4	5	6	
I feel overwhelmed	1	2	3	4	5	6	

Q4. The following are some situations in which certain people might be tempted to drink before driving. Please indicate how certain you are sure that you could avoid drinking before driving in each situation.



	Not At					Extremely
	All					
When at a party	1	2	3	4	5	6
When feeling bad	1	2	3	4	5	6
When feeling excited	1	2	3	4	5	6

Q5, Regarding the image of a victim of drunk driving crash presented above, to which extent do you agree with the following statements?

	Not At All					Extremely
I feel fearful	1	2	3	4	5	6
I feel tense	1	2	3	4	5	6
This image is scary	1	2	3	4	5	6
I feel nauseated	1	2	3	4	5	6
I feel uncomfortable	1	2	3	4	5	6
I feel relaxed	1	2	3	4	5	6
I feel scared	1	2	3	4	5	6
I feel calm	1	2	3	4	5	6
I feel excited	1	2	3	4	5	6

Q6, Regarding the excuses recommended for turning down a drink at a party by the ad, to which extent do you agree with the following statements?

	Not At All					Extremely
Those excuses are funny	1	2	3	4	5	6
I feel happy after reading	1	2	3	4	5	6
Those excuses are amusing	1	2	3	4	5	6
Those excuses are humorous	1	2	3	4	5	6
I feel pleased after reading those excuses	1	2	3	4	5	6

Q7, After viewing the ad above, to which extent do you agree with the following statements?

	Not At All					Extremely
I intend to always avoid drinking before driving when attending a party	1	2	3	4	5	6
I intend to always avoid drinking before driving even if feeling bad	1	2	3	4	5	6
I intend to always avoid drinking before driving even if feeling excited	1	2	3	4	5	6

Q8, As for the ad you viewed, to which extent do you agree with the following statements?

	Not At All					Extremely
This ad is good	1	2	3	4	5	6
I like this ad	1	2	3	4	5	6
This ad is desirable	1	2	3	4	5	6

Q9, What is your gender?

(1)Male

(2)Female

Q10, In what year were you born?

Q11, Please specify your ethnicity.

Please specify your ethnicity.

(1)White

(2)Black or African American

(3)Native American or American Indian

(4)Asian / Pacific Islander

(5)Other

## Appendix 7 The Experimental Advertisements



### **Always Avoid Drinking Before Driving**

**Even if you are**

*At a party*  
*Feeling bad*  
*Feeling excited*  
...



*To turn down a drink,  
you can say:*

- **I'm training for the Olympics!**
- **No thanks, I'm still digesting that napkin.**
- **See that dude over there? He's drinking for the both of us. Just send drinks his way.**
- **Nah—I get my jollies from watching everyone else get wasted and make fools of themselves—now where'd I put my video camera???**

...

**A Victim of Drunk Driving Crash  
Do Not Let That Happen to You**



**Always Avoid Drinking Before Driving**

**Even if you are**

*At a party*  
*Feeling bad*  
*Feeling excited*  
...



*To turn down a drink,  
you can say:*

- **No thanks, I'm on a diet.**
- **I'm already feeling a bit tipsy.**
- **I had a terrible experience with alcohol a while back... still recovering from it.**
- **I'm so hungry right now. Could I finish this burger first?**
- ...



## Always Avoid Drinking Before Driving

Even if you are

At a party  
Feeling bad  
Feeling excited  
...



To turn down a drink,  
you can say:

- I'm training for the Olympics!
- No thanks, I'm still digesting that napkin.
- See that dude over there? He's drinking for the both of us. Just send drinks his way.
- Nah—I get my jollies from watching everyone else get wasted and make fools of themselves—now where'd I put my video camera???

...



### Always Avoid Drinking Before Driving

Even if you are

*At a party*  
*Feeling bad*  
*Feeling excited*  
...



*To turn down a drink,  
you can say:*

- **No thanks, I'm on a diet.**
- **I'm already feeling a bit tipsy.**
- **I had a terrible experience with alcohol a while back... still recovering from it.**
- **I'm so hungry right now. Could I finish this burger first?**

...



## Always Avoid Drinking Before Driving

Even if you are

*At a party*  
*Feeling bad*  
*Feeling excited*  
...



*To turn down a drink,  
you can say:*

- **I'm training for the Olympics!**
- **No thanks, I'm still digesting that napkin.**
- **See that dude over there? He's drinking for the both of us. Just send drinks his way.**
- **Nah—I get my jollies from watching everyone else get wasted and make fools of themselves—now where'd I put my video camera???**

...





## Always Avoid Drinking Before Driving

Even if you are

*At a party*  
*Feeling bad*  
*Feeling excited*  
...



*To turn down a drink,  
you can say:*

- **No thanks, I'm on a diet.**
- **I'm already feeling a bit tipsy.**
- **I had a terrible experience with alcohol a while back... still recovering from it.**
- **I'm so hungry right now. Could I finish this burger first?**

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