

Effects of Anti-Smoking Advertisements on Young People: Role of Gender and Level of Smoking

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The main argument for using a fear-appeal message is that fear appeal is designed to stimulate anxiety in the audience, with the expectation the audience members will attempt to reduce this anxiety by adopting a specified course of action as suggested in the communication. Among adolescents, negative effect of fear-appeal, which is called "boomerang" effect, has been reported. The present study focused on this "boomerang" effect among young adults. Also, this study tried to test the moderating effect of the level of smoking on this boomerang effect.

Keywords: boomerang effect, fear appeal, moderating effect of smoking.

Introduction

Although the smoking rate in the world has declined since 1999 from 45% to 20% in 2015, most countries have faced a similar problem on smoking – increase of smoking rate in adolescents, college students, and young females (WHO, 2015). Especially, the smoking rate among young people (15-25) has not declined, despite of many anti-smoking campaigns run by the government in many countries.

Most of the campaigns trying to dissuade non-smokers from smoking and to encourage smokers to quit smoking, have used scare tactics (scare people to change their behavior). Although previous studies have shown that fear-appeal advertisements are effective in producing self-protective behaviors across a variety of health issues (Morman, 2000; Roberto, Meyer, Johnson, Atkin, & Smith, 2002; Witte, 1992), some studies have shown that scare tactics may not work among young people, because young people tend to respond to fear messages differently than adults (Pechmann, Zhao, Goldberg, & Reibling, 2003). That is, young people tend to feel they are unable to cope with fear-inducing information, because of their limited attention span. Indeed, teens and adolescents may simply choose maladaptive responses, such as denial of the serious problem, because they are incapable of processing the fear appeal messages. Also, studies have shown that negative effects of fear appeal among young people occur when strong fear appeal is used (e.g., Schneider et al., 2001). That is, when the level of fear (or threat) is too high, its impact on adolescents becomes negative. This negative effect (it has been called the boomerang effect) has been reported by some studies in the fear appeal study (Schneider et al., 2001).

Although this boomerang effect has been addressed in fear appeal literatures, results have not been consistent, and the boomerang effect has not been consistently confirmed in studies. Some studies have shown that the boomerang effect occurs only when the fear appeal is low or moderate, not high (Lennon,

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Rentfro, & O'Leary, 2010). However, other studies have shown that the effects of the fear appeal message on adolescents are linear (Ferguson & Phau, 2013), which tells us that there is no boomerang effect at all. In addition to these contradictory results, another main issue in anti-smoking literature is that there are not many studies addressing this boomerang effect on young people, considering that the smoking rate increases only among young people.

This study has two main goals; first, to empirically test whether the negative effect of fear appeal (boomerang effect) really occurs among young people, and second, to test whether personal differences (gender and level of smoking) have a moderating effect on message acceptance. Through this empirical test, we believe this study can provide a solid explanation on the fear appeal effect on young people in fear appeal literature.

Literature Review

Fear Appeal

Fear is an affective state that protects us against danger and a motivational state leading us away from danger. Communications using fear appeal are designed to stimulate anxiety in the audience, with the expectation that the audience members will attempt to reduce this anxiety by adopting, continuing, discontinuing, or avoiding a specified course of thought or action as suggested in the communication (Spence & Moinpour, 1972). In most communication researches, negative fear appeals (addressing negative effect of certain behavior, such as smoking) have proven to be more effective in certain situations than their positive appeal counterparts. For example, Robberson and Rogers (1988) found that those who read disease-prevention messages containing negative effect indicated greater intentions to begin a regular program of exercise than those who had received health enhancement, or positive appeal, messages. In terms of the persuasive effects of fear appeals, scholars typically have believed that moderate fear appeals are more persuasive than either weak or strong fear appeals. This is because weak appeals create too little tension or drive to action, and strong appeals create too much tension or drive to action. Janis and Feshbach (1953) proposed a curvilinear theory on the persuasive effects of fear appeals. He proposed that the relationship between fear and persuasion is an inverted U-shaped curve, indicating that moderate fear appeal messages would be optimal for the greatest audience persuasion.

Most of the anti-smoking studies have manipulated the level of threat to determine their effectiveness regarding either attitude or behavior changes (Beck & Davis, 1978; Leventhal, Watts, & Pagano, 1967; Rogers & Mewborn, 1976). For instance, Beck and Davis (1978) manipulated the level of threat and topic relevance for anti-smoking messages on attitude, and Leventhal et al. (1967) manipulated the level of threat of the anti-smoking message on both attitude and behavior. Other popular message types used in fear appeal studies manipulated the level of fear or threat using social risk or personal/physical risk (Laroche, Toffoli, Zhand, & Pons, 2001; Murray-Johnson et al., 2001). Rather than manipulating the actual level of

fear, these studies manipulated the types of fear, suggesting different potential risks to the message receiver – for example, social fear versus personal fear. Laroche et al.'s study used social fear messages (the threat of the intensity of social rejection) versus physical fear messages (the threat to one's physical body, health and life) to test cultural differences. The reaction to the message differences was compared between subjects from two countries – China and the United States. Murray-Johnson et al. (2001) also tested the effects of different types of fear messages regarding AIDS prevention. In their study, they manipulated fear-inducing messages using self-threatening messages versus family threatening messages. Their results were similar to those of the Laroche et al. study. They found that family threatening messages were more effective for teens in collectivistic culture (Mexican immigrants in their study), and self-threatening messages were more effective for teens in individualistic cultures.

Level of Smoking on Severity of Threat and Probability of Threat

Personality difference has been explored in many different disciplines. In general, it is agreed among scholars that personality difference moderates the effect of a persuasive message (e.g., Petty and Cacioppo's Need for Cognition in persuasive message process). Those personal variations include cognitive aspects, such as level of personal involvement, level of personal knowledge, need for cognition, to affective aspects such as emotion or attitude. In the area of fear appeal, however, the effects of personal variations or difference on message acceptance or behavior change have been extremely rare, since most scholars have focused on cognitive aspects of the message processing of fear appeal advertisement. Schoenbachler and Wittler (1996) tested the impact of sensation seeking (defined as individual's varying need for arousal) on the process of fear appeal anti-smoking ads among adolescents. Because they were interested in the subject's emotional responses in the process of fear appeal messages, they tested the role of varying need for arousal. More recently, Morman (2000) tested the effects of level of masculinity on performing the testicular self-exam. He found that the more a man approves of the traditional masculine gender role, the less positive his attitudes are toward performing the testicular self-exam.

Smoking and Self-Image

Most people perceive themselves in terms of the role, or roles, they play. Much of their behavior consists of acts designed to demonstrate to others and to themselves that they really carry out the demands of their roles. People structure their actions and statements in order to guide the impression they want to form of themselves. In sociology, cigarette smoking is considered a very important symbolic behavior and an important source of role definition (Starr, 1984). In particular, cigarette smoking among young people has a symbolic meaning of "quasi-adult" behavior, and smoking cigarettes has the image of masculinity to the young smokers (Starr, 1984). Most of the communication scholars agree that mass

media has played an important role in creating a masculine image of smoking cigarettes (Starr, 1984). In American society, cigars and cigarettes have become an accepted accouterment of a masculine man and smoking has long been part of the masculine self-concept (Starr, 1984).

In anti-smoking fear appeal literature, it is agreed among scholars that smokers are different from non-smokers, heavy smokers are different from light smokers, male smokers are different from female smokers (Pflaum, 1965). For instance, smokers are more likely to be characterized as being extroverted, thrill-seeking, independent, and energetic (Pflaum, 1965). In contrast, non-smokers are characterized as being stable, dependable, religious, and conservative. Furthermore, male smokers tend to be less masculine (Fisher, 1976), and female smokers tend to be more masculine and independent (Fisher, 1976). These personality differences suggest a possible moderating effect of personality on evaluating threat in the process of fear-appeal message. That is, we can infer that smokers (since they are more likely to be thrill-seeking) will evaluate the threat by fear-appeal messages less than non-smokers, and the same to the probability of threat. Smokers, these days, are considered as lower class people and lower educated people (Starr, 1984).

However, this personal difference has not been directly tested in anti-smoking fear appeal context. Recently, Chung and Ahn (2016) tested the level of smoking in their test of structural model, based on Extended Parallel Process Model (EPPM). Their findings partially supported the possible moderating effects of personal difference in the process of anti-smoking fear appeal. However, because not all of the hypotheses were supported in their study, we cannot empirically conclude that the level of smoking will moderate the effects of anti-smoking ads.

Few studies in fear appeal literature have shown the relationship between the degree of smoking experience and the process of coping responses. Some studies have shown that message acceptance would be different by a person's level of experience (e.g., smoking, drug, alcohol etc). Schoenbachler and Whittler (1996) and Morman (2000) found that the fear appeal message was more effective (accepted) to people who had a lower level of drug experience than a higher level of experience. That is, people with less experience with drugs, alcohol, or smoking are more likely to accept the fear appeal message and are more willing to accept the message (quitting drugs, alcohol, or smoking) than people with more experience with drug, alcohol, or smoking (Schoenbachler & Whittler, 1996). Therefore, it will be reasonable to assume that the relationship between the level of smoking (or degree of smoking) and process of coping responses, such as threat appraisal of the fear appeal message and perceived fear of anti-smoking ads, will be different, depending on an individual's level of smoking experience. Further, selecting responses to anti-smoking advertisements would be different by an individual's degree of smoking. For example, if an individual smoked in the past, he or she may be tempted to repeat the experience, when the third party offers a cigarette in a social occasion.

Theoretical Background

Smoking has been promoted as a tool of showing a person's masculinity and macho image in mass media including movies (Starr, 1984). Hence, smoking becomes more of a man's thing instead of a woman's thing. As Hunt, Hannah, and West (2004) found, the masculinity score was much higher for smokers (male and female smokers) than non-smokers. The theory of psychological reactance (Brehm, 1966) supports the above argument why fearful anti-smoking ads do not work for high-masculine smokers (heavy smoker vs. medium smoker vs. light smoker vs. non-smoker). According to Brehm (1966), messages that are perceived to reduce or threaten personal freedoms (in this case, decide to smoke or keep smoking) arouse a motivational state (in other word, reactance) which directs individuals toward re-establishing the loss of threatened freedom. Bensley and Wu (1991) showed the reactance effects among college undergraduate students using alcohol drinks (beer). That is, undergraduates actually rated high-threat ads more negatively than low-threat ads, and, eventually, undergraduate students consumed more beer after exposure to high-threat ads than to low-threat ads. Hence, exposure to high-threat ads actually created the opposite behavior. Since threatened or eliminated freedoms seem more attractive to young people, behaviors prohibited or perceived to be off limits for certain audiences are more attractive to audience members to whom the restriction applies. For instance, one study found that simple warning labels outside video tapes have shown to make violent movies more appealing to young age groups (Bushman & Stack, 1996). Further, these young age groups showed more attraction to the films with the warning labels by US Surgeon General.

If young people respond differently to fear appeal anti-smoking ads, we can expect that level of smoking may work as a moderator in the process of anti-smoking ads. That is, we can expect different responses on anti-smoking ads by subjects' level of smoking. Based on the results of the previous studies, we can also expect that anti-smoking ads will work negatively among high-smokers, because high-smokers will show greater masculinity (Hunt et al., 2004). So, in this study, we expect high-smokers to have a negative emotional response and a negative message acceptance to the fear-appeal ads than the non-smokers.

Research Questions and Hypotheses

For this study, we try to answer the following questions and hypotheses that were developed based on previous studies and theories. Overall, the research question is on whether there are negative effects of fear appeal ads on young people. Because the results on negative effects have been contradictory, we try to empirically re-test this effect by using three different levels of fear. Another research question is on whether the level of smoking has a negative impact on processing the message. We expect negative impact by level of smoking on emotional response and cognitive response, based on the results of previous studies on personality difference. Hence, the following hypotheses were tested for this study:

- H1:** Overall, among young people, fear appeal will not work positively.
- H2:** The effects of fear appeal, measured as an emotional response, risk perception and behavioral intention, will be different by gender. Fear appeal will not work positively among male subjects.
- H3:** There will be negative effects of fear appeal, among subjects. That is, the effects of fear appeal to young people will be reduced as fear appeal becomes higher.
- H4:** The level of smoking will negatively affect the severity of threat and probability of threat.
- H5:** Difference in smoking will negatively affect a person's emotional response (fear arousal).

Method

Overview

This study was conducted in Japan in October through December, 2017, at a private university in Fukuoka, Japan. Japan was selected to test the fear appeal anti-smoking ads for several reasons. First, the Japanese government has never run an anti-smoking campaign targeting young people. Hence, young people have no knowledge on anti-smoking ads. Second, the smoking environment and smoking culture is much different from those of other developed countries. Although the adult smoking population decreased overall during the 1990's and 2010's from 56% to 19% (Japan Health Net, 2017), male smoking is still over 31%, which is more than the world average of 20% (Japan Health Net, 2017). Especially, in adolescents and young adults, the smoking rate in Japan is still strong and consistent (young males at 31% and young females at 10%). Although Japan has strong regulations over the legal smoking age (for example, the legal age for smoking is over 20 years old in Japan, compared to 18 in the USA), the culture of smoking in Japan is very different from that of other developed countries. Unlike in Europe and North America, where mandatory smoking bans apply in restaurants, bars, and public areas; smoking in public places, such as a restaurant, park, or buildings, in Japan is not illegal yet. In addition to this, the decline rate among young people is not as fast as that of old people. Some studies show there is no actual decrease in smoking among adolescents and young college students, especially among female adolescents and college students. And finally, Japanese is said to be a collectivistic culture (Ho, 1998), in which peer or group pressure is much greater than in an individualistic culture. If a group is generous to smoking, then, people may process anti-smoking messages differently than people in an individualistic culture. We administered a quasi-experiment during those time periods.

Stimulus Materials

To maximize the chances of obtaining a real fear effect, unlike previous studies, this study used actual advertisements, through online searches for

antismoking campaigns in the world. Great care was given to select an advertisement the subjects would not have likely seen previously (most of the anti-smoking ads on the internet in Japan were excluded and this was validated through a pilot test using a five 7-scale semantic differential questions). Advertisements were first screened by this criterion, and then rated by twenty undergraduate students in terms of degree of fear. Three advertisements from high level of fear (average 5.86), medium level of fear (average 4.62), and one from low level of fear (average 2.43) were selected based on the students' rating (because we needed to have all different levels of ads, we used t-statistic to test the difference between each level). Visuals from those selected ads were used for this study, and message types were manipulated in the body copies. To manipulate high-fear, medium-fear and low-fear, this study focused on manipulating threat and severity. In the theory of motivation protection (Rogers & Mewborn, 1976; Rogers, 1983), fear-appeal can consist of fear, threat and efficacy. Most of the studies have manipulated threat as a main tool to create the mood of fear. This study also manipulated the threat of smoking to smokers' health to create fear-appeal.

The stimuli consisted of two parts: (1) two photographs (in the upper half), and (2) textual messages (in the lower half). On the upper left side, one photo shows a smiling healthy young man, which corresponds to the original situation before smoking. On the upper right side, the other photo shows the same person with advanced skin cancer due to his long time smoking, which corresponds to the disease-and-suffering situation. We manipulated the latter picture of the cancer patient. For the high fear-provoking advertisement, a color photo with a severely deteriorated tumor on his neck was used. For the medium-fear ad, we used a color photo with severely damaged smoker's teeth, and for the low-fear ad, a color photo with a patient in bed with several tubes was used. These pictures were rated as high, medium, and low by students in the pilot test.

For high fear, headlines and body copies addressed the issues of 5 different diseases, illnesses, and other effects caused by smoking cigarettes. Headlines warned that death could result by those who smoked cigarettes: "Smoking, Shortcut to Fast Death." In the body copy, the actual person's name, who is suffering from many cancers caused by smoking cigarettes for a long time, was used. And, in another body copy, all the possible diseases caused by smoking were listed, with the indication of high death rate. All the information in the message was accurate, and to increase the credibility of the message, a third party (such as Japan Cancer Society) was quoted in the body copies. For medium-fear, the same headlines as in the high-fear were used. Sub headlines were changed from 6 months left to "he has problems inside his mouth and teeth". In the body copies, the number of diseases caused by smoking was reduced to 2 and the indication of high death rate was removed. Finally, for the low-fear, headlines and sub-head were rewritten from direct death message to indirect message, such as "Quit smoking to live longer." Also, in the body copy, all diseases were removed and just the possibility by smoking was addressed.

Procedures

The samples consisted of undergraduate students at a major private university in Japan. Data were collected from several different majors (business administration, management, English, English literature, etc.) to increase the diversity of the sample. After obtaining a complete list of the program curricula, the courses were randomly split into three groups, each of which was assigned the high, medium, or low fear-provoking stimuli. With prior permission from the instructors, researchers visited classes and students were told that the researchers were conducting a preliminary study to develop an effective campaign for Japan's first anti-smoking legislation. This was used to keep the students' involvement level constant. Students were completely unaware of the study purposes. No incentives were given. Then, each group of students was shown the respective advertisement and asked to complete the questionnaire after exposure.

Dependent Measures

Degree of fear, message acceptance, health risk perceptions, attitude toward the advertisement, attitude toward smoking, and behavioral intention were all measured. Most variables were measured with a seven-point Likert scale, or seven-point semantic differential scale, where "1" equals "strongly disagree" and "7" equals "strongly agree." Items representing the same construct were averaged to create an index score. Those items measured include:

1. *Manipulation Checks*. Perceived fear was measured with five seven-point Likert scales (in the pilot test, the same scales were used to select advertisements): fearful, worried, frightened, anxious, scared ($\alpha=.93$) (Chug & Ahn, 2016; Laroche et al., 2001).
2. *Attitude toward the Advertisement*. A multi-item, seven-point semantic differential scale that was used to measure attitude toward the advertisement in several fear message studies was also used to measure attitudes toward the anti-smoking advertisements (e.g., Schoenbachler & Whittler, 1996). These include the following anchors: Bad-Good, Unpleasant-Pleasant, Useless-Useful, Worthless-Valuable, Not Beneficial-Beneficial ($\alpha=.75$).
3. *Attitude toward Smoking*. This was measured using a multi-item seven-point Likert-type scale, where "1" equals negative values (very undesirable, very unfavorable, not at all beneficial) and "7" equals positive values (very desirable, very favorable, very beneficial). Negative values were later reverse-coded ($\alpha=.83$).
4. *Behavioral Intention*. Behavioral intentions to quit smoking were measured through two seven-point Likert-type questions, which were adopted from Murray-Johnson et al.'s study, with "1" indicating "strongly disagree" through "7" indicating "strongly agree" (e.g., "I plan to quit smoking soon" and "I plan to stop people from smoking") ($\alpha=.90$).
5. *Risk Perceptions*. Perceived severity of the health risks of smoking was

measured in the same way used in the Pechmann et al.'s study. We selected five items which focused on disease and death from the nine items used in that study: dying early, contracting diseases, breathing poisons, premature aging, and causing others to die or become ill. Subjects were asked to mark each outcome as "very serious" or "not at all serious" ($\alpha=.61$).

Results

Data collected were analyzed first in terms of univariate descriptive statistics and multivariate normality. The data was satisfactory in terms of univariate descriptive statistics, for there was no case outside of ± 3 standard deviations, and specific univariate outlying cases were not found in univariate descriptive statistics. A manipulation check was conducted for "fear." After the manipulation check, ANOVA was conducted to test the suggested hypotheses.

Descriptive Statistics

A total of 216 subjects completed the study. They ranged in age from 18 to 25 and the average age was 20 with a 2.05 standard deviation. 125 participants were females and 91 were males. As expected, they represented a wide variety of academic majors. 68.8% were non-smokers and 31.1% were smokers, and this rate was a little bit higher than national average 29%. The percentage of male smokers was 52.8% and of female smokers was 15.3%. Both were higher than the national average. Among smokers, 13.2% identified themselves as heavy-smokers, 50% as moderate-smokers and 36.8% said they were light-smokers.

Manipulation Checks

The manipulation was checked for perceived fear and threat severity. Because this study used both visual and message to manipulate fear in different levels, we used perceived fear to check the overall fear levels and threat severity to check the message manipulations. Our results confirmed the manipulations for overall fear were effective. Participants in a high-fear manipulation ($M=5.32$, $SD=1.06$) showed greater perceived-fear than participants in medium-fear ($M=4.34$, $SD=1.36$) and in a low-fear manipulation ($M=2.66$, $SD=1.09$) ($F=83.32$, $p<.01$). Results on threat severity also confirmed our manipulation on the message worked. Participants in the high-threat showed the highest threat severity evaluations ($M=4.97$, $SD=1.32$) than those participants in the medium-threat ($M=4.29$, $SD=1.51$) and those participants in the low-threat ($M=2.27$, $SD=.99$). And the difference among groups was significant ($F=74.23$, $p<.01$).

Hypothesis 1 – Fear Effects

In fear appeal literature, the effect of fear appeal on message acceptance was not consistent. As stated above, some scholars support the linear effect of fear

appeal and others support the so called, boomerang effect. In this study, we argued that strong fear appeal will not create a linearly positive impact on message acceptance. To test the first hypothesis, we used three variables – attitude toward the ad, attitude toward smoking, and behavioral intention. On attitude toward the ad, results show that participants prefer medium-fear appeal and message. Mean scores on attitude toward ad was highest among participants in medium-fear ($M=4.91$, $SD=.83$), followed by low-fear ($M=3.97$, $SD=1.05$) and high-fear ($M=3.24$, $SD=.97$). The difference was statistically significant [$F(2, 213)=104.29$, $p<.01$].

On the attitude toward smoking, results show participants in the medium-fear showed the highest mean scores on attitude toward smoking. Mean scores were highest among participants in the medium-fear ($M=4.14$, $SD=.81$), followed by low-fear ($M=4.07$, $SD=1.17$) and high-fear ($M=3.67$, $SD=1.12$). The difference was statistically significant [$F(2, 213)=5.42$, $p<.01$]. However, unlike the attitude toward the ad, the difference between the medium-fear and the low-fear was not significant, which means participants actually think that the medium-fear and the low-fear messages are more effective on persuasion.

On behavioral intention, results show that no significant difference among groups exists on intention to quit. Mean scores of each group were not significantly different and ANOVA test did not show any difference among groups.

Therefore, hypothesis 1 was not fully supported. However, regarding the attitude toward the ad and the attitude toward smoking, results confirm our expectation that fear appeal effect is not linear among young people.

Hypotheses 2 – Gender Difference

The second hypothesis expects the difference on the message acceptance by gender. As tested in previous studies, response to the fear message was different between male and female. We, in this study, also expect that the response to the strong fearful message will be different by gender. To test the hypothesis, a mean difference test (t-test) was conducted on overall dependent measures. The results show that there are significant differences between genders on intention to quit and attitude toward smoking. As we expected, females show a higher intention to quit and a lower attitude toward smoking. However, regarding perceived fear and threat severity, there was no significant difference between genders. Although mean scores are a little higher for females on both measures, the differences were not statistically significant. Therefore, hypothesis 2 was not supported by the data. Unlike our expectations, there was no difference between gender on perceived fear and threat severity. One interesting finding is that females showed higher mean scores on response efficacy, but lower mean scores on self-efficacy measurements. This shows that the fearful message actually increases females' response to the message, but they do not feel as they are able to do (quitting smoking in this case). In other words, males have high self-efficacy, but are not persuaded as much as females by the fearful message.

Hypothesis 3 – Boomerang Effect

Hypothesis 3 states the "boomerang" effect or "inverted-U curve" effect of the fear message. To test this hypothesis, we used three dependent measures – intention to quit, attitude toward smoking and attitude toward the ad.

ANOVA was conducted on all three measures. Results showed partial support for the hypothesis. Regarding attitude toward the ad, subjects in the medium fear showed the highest mean score ($M=4.91$, $SD=.82$), followed by low-fear ($M=3.98$, $SD=.51$) and high-fear ($M=3.24$, $SD=.76$). The difference was statistically significant [$F(2, 213)=104.77$, $p<.01$]. Also, attitude toward smoking results showed the similar pattern. That is, subjects in the medium fear showed the highest mean score ($M=4.18$, $SD=.81$), followed by low-fear ($M=4.06$, $SD=1.10$) and high-fear ($M=3.67$, $SD=1.11$). The difference was also statistically significant [$F(2, 213)=5.42$, $p<.05$]. However, regarding behavioral intention, the difference among groups was not statistically significant [$F(2, 213)=2.28$, $p>.106$]. Group comparison shows that, on the attitude toward the ad, the differences among all three groups were significant. Regarding the attitude toward smoking, the difference between medium-fear and high-fear was significant, but the differences between low and medium and between low and high were not significant. Regarding behavioral intention, there was no significant difference among all group comparisons.

These results show very important implications. That is, the medium fear message will be more persuasive to young people than the high-fear message.

Hypothesis 4 and 5 – Moderating Effect of Level of Smoking to Fear Message

Hypothesis 4 and 5 expect the moderating effect of the level of smoking on the fearful message. In previous studies (e.g., Chung & Ahn, 2016), the level of smoking has been tested as a moderating variable on the effects of the fear appeal message. However, those results were not consistent in overall fear appeal literature. In this study, we re-tested the effects of the person's level of smoking on message acceptance and emotional response. As in the previous studies, we expected the effects of a fearful message on message acceptance and on a person's emotional response to be different between smokers and non-smokers. For this study, we also tested the difference between heavy smokers and light/medium smokers. Because there is no clear distinction in the definition of heavy-, medium-, and light-smokers, we, in this study, used self-identification through giving smokers a choice of heavy- or medium/light-smoker in the question.

First, we ran a t-test to see the difference between smokers and non-smokers. For this test, those who identified themselves as either heavy or medium/light smokers, were re-coded as smokers. The results show that between smokers and non-smokers, there were significant differences between groups on most of the dependent measures, except the attitude toward the ad. Table 1 shows the means for each group and the results of the t-test between groups. As you see in the table, mean differences on most of dependent measures were significant, except the attitude toward the ad. This was a little different result, since we expected the

difference on attitude toward the ad by smoking.

Table 1. Results of the t-tests on Dependent Variables

Dependent Measures	Groups	Mean (SD)	t	p
Perceived Fear	Non-smokers	4.41 (1.50)	2.51	.013
	Smokers	3.81 (1.74)		
Threat Severity	Non-smokers	4.17 (1.61)	2.54	.011
	Smokers	3.54 (1.83)		
Attitude toward smoking	Non-smokers	4.03 (1.01)	4.05	.000
	Smokers	3.46 (.75)		
Behavioral Intention	Non-smokers	5.08 (.65)	6.18	.000
	Smokers	4.38 (.99)		

Second, after t-test, we ran One-Way ANOVA to test smoking main effect, and then, we also ran group comparisons to see where the differences are coming from. The group comparison was mainly used to see whether there is any boomerang effect by the level of smoking. Table 2 shows mean scores of each level and F-test statistics. As seen in the table, there were significant differences among groups on dependent measures. However, most of the differences were coming from the difference between non-smokers and smokers, not between heavy-smokers and light-smokers, except the behavioral intention. Although there were mean differences between heavy- and light-smokers, those differences were not statistically significant. On threat severity and occurrence probability, the overall difference was significant, but there was no difference between each group. Therefore, the boomerang effect was not confirmed on the subjects' risk perceptions - threat severity and occurrence probability.

Table 2. Mean Scores of Each Level

Dependent Measures	Groups	Mean (SD)	F (2, 212)	p
Perceived Fear	Non-smokers	4.41 (1.50)	3.65	.028
	Heavy-smokers	3.67 (1.68)		
	Light-smokers	4.10 (1.86)		
Threat Severity	Non-smokers	4.17 (1.61)	3.21	.041
	Heavy-smokers	3.51 (1.87)		
	Light-smokers	3.57 (1.77)		
Occurrence Probability	Non-smokers	4.67 (1.67)	4.61	.011
	Heavy-smokers	4.40 (1.05)		
	Light-smokers	3.94 (.81)		
Attitude toward the Ad	Non-smokers	4.02 (1.01)	3.09	.047
	Heavy-smokers	4.23 (1.11)		
	Light-smokers	3.59 (.63)		
Attitude toward Smoking	Non-smokers	4.03 (1.01)	8.79	.000
	Heavy-smokers	3.38 (.67)		
	Light-smokers	3.65 (.89)		
Behavioral Intention	Non-smokers	6.34 (.91)	85.96	.000
	Heavy-smokers	3.45 (1.49)		
	Light-smokers	4.59 (1.24)		

As stated above, the boomerang effect by mean difference was confirmed on perceived fear, attitude toward smoking, and behavioral intention. However, the difference came from the difference between non-smokers and smokers, not between heavy-smokers and light-smokers. Only on behavioral intention, was there a significant difference between heavy and light smokers.

Conclusion

Although a large body of fear appeal research has found that fear stimulates an individual's action, the effects of anti-smoking advertisements using fear appeal on message acceptance or on action have been inconsistent. Some studies have shown that fear appeal anti-smoking advertisements have a positive influence on smokers (Ho, 1998) and on teenagers (Pechmann et al., 2003), while other studies have reported that anti-smoking advertisements have no influence on smokers (Kothe & Mullan, 2011). Furthermore, there have not been many studies regarding the negative effects of strong fear appeal on the message acceptance.

This study initially addressed the effects of fear appeal on message acceptance. However, the main goal of this study is on testing the boomerang effects of fear appeal. As indicated above, there are some scholars who are arguing the negative effects of using strong fear appeal on subjects' message acceptance. This study is the first attempt to try to manipulate the fear appeal into three levels – high, medium, low – to test whether the effects of a fear appeal message are linear or whether a boomerang effect exists. This study also tried to test the impact on the level of smoking. As in the recent studies by Chung and Ahn (2016) and Chung, Okazaki, and Ha (2004), this study also tried to test the moderating impact of a subject's level of smoking. Chung and Ahn argued that the effect of the fear appeal message is not working, as intended, to smokers. They found in their studies that the level of smoking negatively affects the subject's message acceptance. However, the effects of smoking on the message acceptance were not directly tested in their studies. Therefore, this study was the first attempt to empirically test the effects of a person's level of smoking on the fear appeal message.

Of the five hypotheses we suggested, only two of them were fully supported by the data. The other hypotheses tested in this study were partially supported or not supported at all. First, results confirmed that there was a negative effect by a strong fear appeal message. On attitude toward the ad and smoking, results show that participants prefer medium- or light-fear appeal message over the high-fear appeal message. However, on behavioral intention, this study did not find significant difference among the high-, medium-, and light-fear appeal message. Also, there was no significant difference between the medium- and low-fear appeals on emotional response; which means that subjects perceived only the strong fear appeal negatively.

Second, the results show there are significant differences between genders on the intention to quit and the attitude toward smoking. Female subjects show a higher intention to quit and a lower attitude toward smoking. However, unlike our

expectation, there was no significant difference between males and females on emotional responses, perceived fear. One interesting finding is that females showed higher mean scores on response efficacy, but lower mean scores on self-efficacy measurements. This shows that a fearful message actually increases a females' response to the message, but they do not feel as they are able to do (quitting smoking in this case). In other words, males have a higher self-efficacy than females, but they are not persuaded as much as females by the fearful message.

Third, results showed partial support for the 'boomerang' effects of using a strong fear appeal message. Subjects in the medium fear showed the highest mean score on attitude scores, followed by low- and strong-fear appeal. Group comparison shows that the difference between medium-fear and high-fear was significant, but the differences between low-fear and medium-fear and between low-fear and high-fear were not significant. However, this boomerang effect didn't exist on behavioral intention. These results show very important implications. That is, a medium fear message will be the most persuasive to young people.

Finally, the results show that there was a significant difference between smokers and non-smokers. However, most of the differences were coming from the difference between non-smokers and smokers, not between heavy-smokers and light-/medium-smokers. Although there were mean differences between heavy- and light-/medium-smokers, those differences were not statistically different. Therefore, the boomerang effect was not confirmed on the subjects' risk perceptions – threat severity and occurrence probability.

Discussion and Practical Implication

Previous research has focused on different effects of the level of fear used in the anti-smoking advertisements on message acceptance. This study attempted to test the effect of anti-smoking advertisements using fear-appeal. In particular, this study attempted to test whether there is a negative effect by the level of fear appeal. The primary purpose of the study was to test whether the boomerang effect exists among young college students and whether the level of smoking works as a moderating variable in the success of anti-smoking advertisements. As noted above, the fear-arousing anti-smoking advertisement (high-fear) works better for enhancing message acceptance (to quit smoking or consider quitting) than the low-fear advertisement. However, the results also confirmed that negative effects of fear appeal exist among college students. Although there was no significant difference on behavioral intention, young smokers actually prefer a medium-level fear appeal message, followed by low-fear. A high-fear message has the lowest attitude scores among young people. Also, the results show that there are significant differences between genders on the intention to quit and the attitude toward smoking. As the results showed, females showed higher mean scores on response efficacy, but lower mean scores on self-efficacy measurements. This shows that the fearful message actually increases the females' response to the message, but they do not feel as they are able to do (quitting smoking in this case). In other words, males have high self-efficacy, but are not persuaded as much as

females by the fearful message. Also, the results confirmed that there exists the so called boomerang effect (negative response to high-fear message) among young people. However, most of the differences came from the difference between non-smokers and smokers, not between heavy-smokers and light-smokers.

The most important findings of this study confirm the fact that there might be a boomerang effect on the fear appeal messages. Because of this finding, we wonder how we can avoid this boomerang effect, especially targeting young people. The remaining question on this effect is how we can create the right message and the right level of fear appeal. As seen in the results, young people do not like to see high fear appeal (also young people generated a strong counter-argument against the message when they see a high-fear message. This result is not reported in this study). Therefore, when we target young people using a fearful message, we have to figure out what level of fear appeal is right for young people. Also, young people do not like to see the light-fear appeal message, which means it will be very difficult for the message creator to use a right level of fear in the message. Traditionally, the main goal of using fear appeal is to scare people to persuade their behavior. And, this has been the main stream of fear appeal literature. However, studies regarding anti-smoking have found that this fear appeal might not work as expected, because of personality differences (e.g., Chung & Ahn, 2016), gender difference (Fisher, 1976), or level of smoking difference (Pflaum, 1965). As stated in the introduction, the main concerns regarding smoking are on the increasing smoking rate in adolescents and females, and on cigarette companies' targeting young people because of this trend. If young people resist the fear appeal message, reducing the smoking rate using a fearful message might not work as we expect. Therefore, when we target young people to reduce the smoking rate, communication should be developed in a different way, because using a fearful message will simply not work.

Suggestions for Future Study and Study Limitations

There are several areas that can be further explored on the effects of fear appeal advertising. First, this study was conducted in Japan, which is one of the most collectivistic cultures in the world. Cultural comparison between individualistic and collectivistic cultures has been conducted in anti-smoking literature. However, those studies did not test the boomerang effect directly in their studies. Because this study is done only in a collectivistic culture, we do not know whether this phenomenon exists in an individualistic culture. This area should be addressed in future studies.

Second, in this study, we did not address the very important issue of self-efficacy effects on coping behavior. Research has shown the effects of self-efficacy on individuals' attitudes toward the communication and behavior decisions, and most of the results confirm that providing high efficacy to the message-receivers increase the behavioral reactions suggested in the message. However, this self-efficacy has not been addressed under the boomerang effect. Since self-efficacy judgments are specific to behaviors and the situation in which they occur, it will be very important to see whether the boomerang effect will be different by self-

efficacy. Hence, future study should explore the effects of self-efficacy on the message acceptance under the concept of the boomerang effect.

Third, we, in this study, used college students. As we know, peer approval among young people is a very important factor, especially on smoking. Many studies have shown that adolescents start smoking because they look for peer approval. In particular, under the collectivistic culture (Japan), the social approval is a very important concept, due to the members' high value on the opinion of others in the group. Therefore, future studies should explore the effects of social approval among peer groups on the message acceptance, especially under the boomerang effect.

This study faced several limitations that may have influenced the findings. First, as stated above, we conducted this experiment in Japan. Because of the characteristics of Japan as a collectivistic culture, this may restrict the results of this study to those countries of individualistic culture. Second, the age range may have been somewhat restricted since we used college students as our subjects. Even though smoking among college students is increasing in Japan, the most increased smoking is on teens and adolescents, instead of college students. Since college students are more aware of its harmful effects than teens and adolescents, results from using college students are somewhat limited. Third, even though we attempted to create the most professional-looking advertisements possible using actual visuals from real anti-smoking advertisements, subjects were suspicious of the purpose of the study since the quality of the advertisements were not at the same level as advertisements in mass media. Finally, we manipulated fear in a uni-dimensional way. Since there are many different types of fear, future research should address the effects of different types of fear on the message acceptance.

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