November-December 2019
ISSN: 0193-4120 Page No. 319 - 334

Which Anti-Smoking Ads is More Effective, Second-Hand or Direct? From the Altruism & Collectivism

Jin-Sun Park[1], Gwi-Gon Kim*[2]
[1]Dept. of Consulting, Kumoh National Institute of Technology, +82, Korea
*[2]Dept. of Business Administration, Kumoh National Institute of Technology, +82, Korea
metjin@naver.com[1], metheuskim@daum.net*[2]
*Corresponding author : mobile Phone: +82-010-2085-5643

Article Info
Volume 81
Page Number: 319-334
Publication Issue:
November-December 2019

Abstract

Background/Objectives: The aim of this research is to examine the effect of smoking type in anti-smoking advertisements on attitude toward advertising, and especially prove that anti-smoking advertisements on second-hand smoking are effective. This research also examines moderating effect of altruism and personal value propensity (individualism vs. collectivism) on between smoking type and attitude toward advertising. Finally, it wants to examine the effect of attitude toward advertising on change of smoking attitude.

Methods/Statistical analysis: The experimental design as follows: 2(smoking type: first-hand vs. second-hand) × 2(altruism: low vs. high) × 2(personal value propensity: individualism vs. collectivism). Actual anti-smoking advertisements were referenced to produce stimuli expressing first-hand and second-hand damages from smoking using male and female models. This research conducted a survey to 480 adults in Daegu and Gyeongbuk province. The ages of respondents ranged from 20 to 70, and had various jobs like college students, graduate school students, office workers, and housewives. A total of 406 questionnaires were used for the final analysis.

Findings: This research found out the followings. First, smoking type does not make any difference in attitude toward advertising. Second, there was moderating effect of altruism.In second-hand smoking, attitude toward advertising was better when altruism was higher. In the case of first-hand smoking, attitude toward advertising was better when the altruism was low. Third, the moderating effect by personal value propensity was also confirmed. In second-hand smoking, attitude toward advertising was better in collectivism. In the case of first-hand smoking, attitude toward advertising was better among individualists. Finally, attitudes toward anti-smoking advertisements by smoking type were found to have a negative effect with attitude toward smoking.

Improvements/Applications: From social cost perspectives, anti-smoking advertisements also implies that second-

November-December 2019
ISSN: 0193-4120 Page No. 319 - 334

handadvertisementis more effective than first-handadvertisement.Therefore, this research suggests the followings. First, it is necessary to highlight damages and risks on human body and social cost of second-hand smoking in anti-smoking advertisement. Second, the research on the second-handsmokingadvertisementin the specific situation (heavy smoker vs. light smoker) is required.

Keywords: Attitude toward Smoking, Anti-Smoking Advertisement, Altruism, Individualism, Collectivism, External diseconomy.

Article History
Article Received: *3 January 2019*
Revised: *25 March 2019*
Accepted: *28 July 2019*
Publication: *22 November 2019*

1. Introduction

First-hand smoking means that smokers inhale their own cigarette smoke and second-hand smoking is a case in which non-smokers inhale cigarette smoke emitted by smokers regardless of their own will. Second-hand smoking includes both the mainstream smoke that come out of smokers when they smoke and the side stream smoke that is the smoke from the end of the cigarette. In comparison with the mainstream smoke, the side stream smoke that does not pass through the filter contains more harmful substances, and the damage of the second-hand smoking mainly occurs in the side stream smoke [1]. Since the 1970s, studies have been undertaken to elucidate the correlation between second-hand smoking and the risk of death from lung cancer, and Second-hand smoking has also been found to be a major cause of premature death[2,3,4,5].More than 6 million people worldwide die each year from smoking, ofwhich more than 600,000 die from second-hand smoking[6]. Second-hand smoking has the same hazard as first-hand smoking, regardless of ones will.Therefore, the only way to reduce the damage to second-hand smoking is smoking cessation. However, smoking cessation is not easy. Therefore, government should protect non-smokers from smokers by showing their commitment to more first-hand smoking cessation policies. However, prior to strongly enforcing legal measures against smoking cessation, the socio-cultural approach to motivate and opportunity for smoking cessation should be more emphasized. Second-hand smoking is a bad influence on the health of others. Information on second-hand smoking damage may be an incentive to quit smoking for the health of others. For example, parents who smoke show abstaining from smoking in front of their children. Young children / infants and children whose parents smoke cigarettes are said to have a higher incidence of acute respiratory disease or lung cancer than non-smoking families. Children exposed to parental tobacco smoke are four times more likely to smoke, and second-hand smoking is associated with a higher risk of developing symptoms of asthma, otitis media, pneumonia, and sudden infant death syndrome, and is associated with a higher risk of developing attention deficit hyperactivity disorder (ADHD)[7].Smokers who are exposed to this information will abstain from smoking to protect their children from second-hand smoking. This is why the adult second-hand smoking rate (Male; 26.9%, Female; 19.4%) in public places is different from the second-hand smoking rate in the home (4%, Female; 7.9%) in 2015. It means that one can give up one's own joy for their children. Thus, the degree of influence of second-hand smoking ads will be different depending on the altruism tendency to consider others than one's own convenience. Furthermore, if altruism is strong, attitude toward smoking for second-hand smoking can be made even more negative. On the other hand,Koreans have a collectivist tendency that considers groups more than individuals[8]. At present, Korea's individualism index is 18 points in terms of 100 points in 2018. Compared to the US (91), it is leaning much more towards collectivism [Figure1].

November-December 2019
ISSN: 0193-4120 Page No. 319 - 334

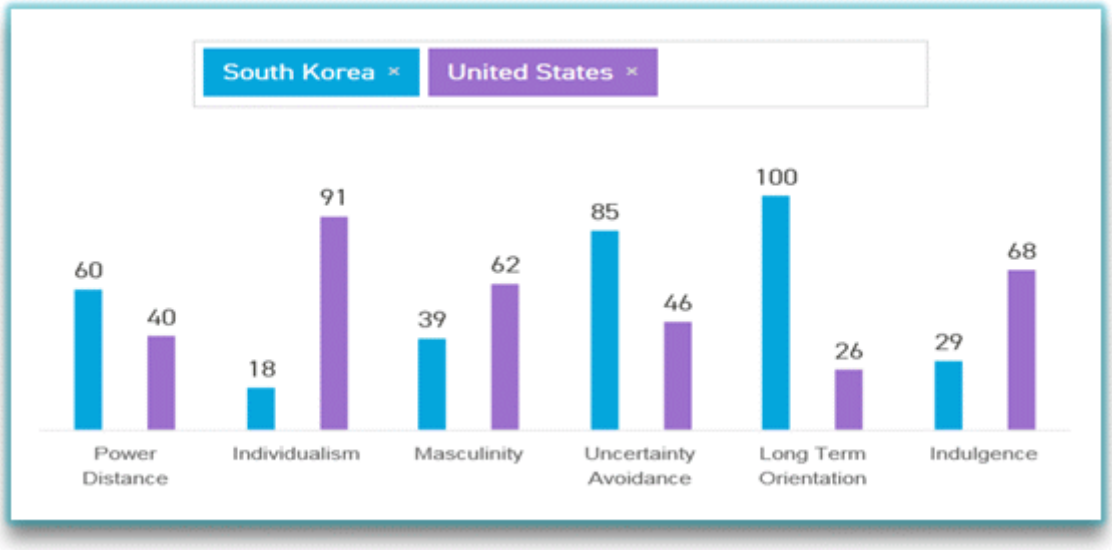

Figure 1. Comparison of cultural dimension between Korea and USA
Source: *https://www.hofstede-insights.com/* **(Search date: March 22, 2018) [8]**

The viewpoint of the advertisement may be different depending on whether individual tendency is individualism or collectivism. This effect can be expected to be greater in the collectivism tendency than in the altruism tendency. In the meantime, there are many studies dealing with the effects of anti-smoking advertisements. However, studies on the difference in attitude toward advertising between first-hand smoking and second-hand smoking are rare. There are also few studies on the effects of anti-smoking advertisements by smoking type, attitude toward advertising and attitude toward smoking according to individualism / collectivism and altruism levels. In this study, the attitude toward each advertisement and the attitude on the smoking will be compared through the comparison of anti-smoking advertisement for the first-hand smoking and the second-hand smoking, through which it was intended to verify that the smoking prevention effect of the second-hand smoking advertisement is no less than that of first-hand smoking advertisement. That is, it was intended to demonstrate that the anti-smoking advertisement on the second-hand smoking damage could be as same or higher that on the first-hand smoking advertisement damage differently from existing research results. And whether the effect of the second-hand smoking advertisement is mediated by the altruism, inclination of personal value (the individualism and the collectivism) is examined.

2. Theoretical background and Hypotheses

2.1. *Anti-smoking advertisements*

The United States uses PSA (Public Service Advertising) as a word for public service advertising. It is the concept that prioritizes the purpose of the publicity which notifies the public line and the norm, rather than a simple advertisement. In a previous study on the purpose of public service advertising, the focus was on social issues and that the purpose was behavioral habits change and improvements of attitudes for public interest. It represents a communication pathway for solving social problems based on public good and profit. Because anti-smoking advertisements effectively induce smoking cessation by informing the harm of smoking, many prior studies have addressed cigarette smoking as an important communication tool for smoking cessation and prevention of smoking [9]. Inserting a warning phrase or image into anti-smoking advertisements is an effective way to pass information about smoking to smokers as well as non-smokers. Therefore, anti-

smoking advertisements aim to increase the intention of smoking cessation to smokers, and to prevent smoking in nonsmokers. The reason why anti-smoking advertisements are public service ads is because smoking costs the society as a whole. According to personal preferences, smoking is a social problem that is transferred to actual behavior because of health problems caused by second-hand smoking. For example, second-hand smoking increases the incidence of lung cancer without smoking. IARC'sreport states that 'there is ample evidence that second-hand smoking causes lung cancer in humans'[10]. This is because it is not something that can be hidden at home or at work, nor is it able to distinguish between vulnerable subjects or groups, whether children or elderly people or students or workers. Numerous studies have reported that smoking affects not only individuals but also the health of others, and smoking is now a social issue that threatens the health of the smoker as well as the health of others and should be addressed from a national policy perspective that excludes individual responsibility. Therefore, it is necessary to develop various anti-smoking advertisements to inform smoking cessation and to aid smoking cessation and prevent smoking.

2.2.*External effect and second-hand smoking*

External effect represents that the economic activity of a producer or consumer affects the economic activity or life of a third party directly or indirectly, not by market transactions. External effects can occur between producers or between consumers and producers. External effects may have external diseconomy, where one action generates costs to the other, and there may be an external economy where one action generates profit on the other. Applying this external effect to second-hand smoking, external diseconomy occurs in the consumption side because smokers' smoking behavior causes second-hand smoking to non-smokers. In this case, it is necessary to distinguish the marginal cost of smoking from the private marginal cost (PMC) and social marginal cost (SMC). Private marginal cost (PMC) indicates how much the actual cost of each smoker increases when the amount of smoking increases by one unit, and social marginal cost (SMC) shows how much the cost of social assessment increases when the amount of smoking increases by society as a whole. Private marginal cost and social marginal cost (SMC) do not match if there is an external effect. Therefore, the higher the smoking rate, the higher the socially payable costs, and social marginal cost (SMC) increases more than private marginal cost (PMC). The inefficiency of the external effect can be solved by government regulation, by negotiation between the parties involved, or by legally suing someone who has suffered damage by the external effect. For example, there is a lot of disagreement with the neighboring secondhand smoke problem as well as the current interlayer noise. Tobacco smoke in the neighborhood comes into the house through the ventilator, veranda, or open doorway. If smokers insist on the right to smoke, nonsmokers also have a fundamental right to a healthy environment without second-hand smoke. Since the amendment of the Apartment Housing Management Act, it has been regulating smoking within the home since February 2018. The government has shown a tendency to expand the scope of public places that regulate smoking as a way to address external diseconomy and to strengthen the regulation of smoking. However, legal regulation alone has a limit to reducing the secondhand smoke rate. Interest in second-hand smoking, which is emerging in recent years, and the resulting interest on increase in social costs are increasing. That is, the tobacco consumption by smoker threaten the health of nonsmoker but direct recompense is not been made. Rather, the country is paying most of the medical expenses by the deterioration in health not only for the non-smoker but also for the smoker. It is necessary to actively reflect these contents and interests in anti-smoking advertisements, thus leading to national and

November-December 2019
ISSN: 0193-4120 Page No. 319 - 334

social recognition shifts, and promote the voluntary motivation of smokers. In other words, the smoking cessation intention of the smoker is important. It is therefore necessary to allow smokers to discourage individual benefits and to be aware of their responsibility for increasing social costs. In order to change the perception of smokers, the government should actively promote the positive effects of smoking cessation, social risks, and economic costs, as well as risks of secondhand smoke through advertising. The decline in the smoking rate is very important not only in terms of public welfare but also in economic terms.

2.3.*Smoking type and attitude toward advertising*

It is possible to divide smoking stages into 1st degree smoking (first-hand smoking), 2nd degree smoking (second-hand smoking) and 3rd degree smoking (exposure to tobacco particles without being exposed to smoke). In this study, the aim is to compare 1st degree first-hand smoking and 2nd degree second-hand smoking. Second-hand smoking refers not to direct smoking but to ‘forced smoke’ or ‘forced smoking’. On the other hand, first-hand smoking means that smokers are directly exposed to tobacco smoke. Exposure to tobacco smoke increases the risk of many diseases and premature deaths, causing serious social and economic damage. First-hand smoking means that you are exposed to various illnesses and social and economic risks through your own smoking, and second-hand smoking is exposure to a negative risk due to other people who smoke. Smoking cessation of smokers is the best way to reduce the harm of smoking. Therefore, the government is trying to develop various smoking cessation advertisements in order to inform smoking cessation and to prevent smoking. Most anti-smoking advertisements use 'vivid and disgusting images' of cigarette damage that the warning picture shows to try to increase the effectiveness of advertising by making fear of smokers or nonsmokers exposed to advertising. This is due to the vividness effect. Vivid information is emotionally interesting and specific, reminiscent of images, and close to sensuous, temporal, and spatial.Information that attracts attention or stimulates image associations and has a greater impact on reasoning and judgment than abstract or pallid information. However, since the attribute of the smoking is related to the personal preference, the smoker is aware of the negative risk of the first-hand smoking and although the level of fear would be raised, the fear appeal may not be effective in case of heavy smoker. In this case, if the level of fear is same, rather the smoker's attitude toward the advertisement would be more effective. Since in the attitude toward the smoking, the preference and the belief are included, it is not changed easily. Since the smoking has adverse impact on the national health and is leaded to increase of medical expenses, the role of anti-smoking is important. However, although the anti-smoking advertisement is viewed, the first-hand smoking advertisement may not be effective if the smoker may recognize that the personal benefit is greater than the expenses by the smoking. This is expanded not only to the individual economic and physical loss for the smoker but also to the deterioration of national competitiveness and the damage to the non-smoker by the second-hand smoking. To prevent this, it needs to change the smoker's recognition from around individual benefit to around the damage to the others. Therefore, it is important to diffuse the damage and the risk of the second-hand smoking effectively through the anti-smoking advertisement. If the smokers read the information that the cause of the external diseconomy is the smoking, they will analyze the cost and the benefit whether it is consciously or unconsciously. They will see the anti-smoking advertisement not only in the perspective of personal cost and benefit but also in the perspective of social cost and benefits. Since while the social cost is increased by the damage of the second-

hand smoking, the benefit is remained as personal benefit, there is no change in the benefit. Then, the smoker understand that the social cost is greater than the personal benefit and can change the attitude toward the smoking as negative. Therefore, exposing the smoker to the information on the damage to the others caused by their smoking through the anti-smoking advertisement on the second-hand anti-smoking would be effective to change the attitude. In the meantime, as in the position of non-smoker, the smoking of others does not have any benefit for him/her and it increases not only his/her physical damage but also the social cost, the attitude toward the advertisement on the second-hand smoking will be high. Therefore, the anti-smoking advertisement on the second-hand smoking can be more effective for both the smoker and non-smoker than the anti-smoking advertisement on the first-hand smoking. Therefore, according to this rationale, it was hypothesized as follows:

H1. Attitude towards advertising for second-hand smoking will be higher than for first-hand smoking.

2.4. *Moderating effect of altruism*

Altruism is the act of sacrificing oneself and being interested in the happiness of others, or being synchronized according to such interests, and it is voluntary and intentional action to benefit others without seeking external compensation[14,15].It is a voluntary act that is intended to provide benefits to others without the need for other external compensation. The higher the altruism tendency, the more the behavior that considers the interests of others than the interests of oneself. Altruistic propensity has a positive effect on altruistic behavior[16]. In other words, the person with high altruism level has a higher attitude and intention to care for others even if the return to self is low. On the other hand, recipients with low altruism levels may behave differently depending on the situation. Taken together, altruism is a voluntary, behavioral goal that is for others and does not want reward, helping others, or doing pro-social behavior that is a socially desirable behavior. Thus, altruism can be a very powerful antecedent to predicting pro-social behavior,and the higher the altruism level, the greater the likelihood of pro-social behavior[17,18]. Therefore, he sacrifices himself or herself for others' satisfaction or compensation rather than satisfaction or compensation. It emphasizes the interests of others and expresses their perceptions of rational values and responsibilities for others. If one applies it to anti-smoking advertisements, it can be said that you are thinking of others through advertising, looking at the emotional pain or physical harm caused by smoking from the point of view of the family or people around you, not yourself.In addition, it is expected that attitude towards advertising will be higher as the altruism tendency of advertisement recipient is higher than that of self-interest. In other words, when exposed to an advertisement that poses a threat to the health of others by their own smoking, attitude toward advertising will differ according to the level of altruism of the smoker.According to this rationale, it was hypothesized as follows.

H2. The effect of smoking type on attitude toward advertising will be adjusted according to altruism level.

H2a. In the case of second-hand smoking, the attitude toward advertising will be higher when the altruism level is higher.

H2b. In the case of first-hand smoking, the attitude toward advertising will be higher when the altruism level is lower.

2.5. *Moderating effect of individualism and collectivism*

Individualism and collectivism are representative factors that distinguish the culture of a particular group. Individualism and collectivism are based on distinguishing the roles and identities of individuals and groups in society[14]. Individualism means "the degree to which people in one country prefer to act as individuals rather than as members of a

group". It also emphasizes individual independence, desire, and individual emotional independence. Therefore, it gives preference to individual interests rather than collective interests and thinks oneself is 'I'. The concept that is on the other side is collectivism. A collectivist society prefers collective interests to personal interests. One thinks of oneself as part of a group called 'we'. Collectivism represents low individualism, and individualism is low collectivism[14]. Individualism tendency is concerned with individual responsibility and freedom of choice, personal individual attitude and opinion, autonomous behavior independent of the group, personal success, ascension and competitiveness[15,16,17]. On the other hand, the collectivist tendency is an important determinant of social behavior, giving value to the norm, high interdependence among the members of the organization,and high tendency to sacrifice their interests for the organization[18,19,20]. These factors of classifying the culture can be applied to the individual level. A person with a strong individualism view sees an independent individual as the basic unit of society[21]. In addition, since individual goals have priority over those of 'my' group, individuals need to achieve their goals and obtain autonomy through fair competition. Therefore, all cognition and emotion are centered on oneself. On the other hand, those with a strong collectivism tend to view the basic units of social cognition as a group. Since a group's goal is prioritized over an individual's goal, the individual is in harmony with the group's goals and wants to cooperate with the members of the group. Finally, they have more cognitive and emotional types centered on others than oneself. Looking at the attitude toward purchasing products based on cultural variables, individualist people purchases products based on individual taste and values[22]. It is less likely to be affected by others. If it is applied to anti-smoking advertisements, one may expect that attitude towards first-hand smoking toward attitude toward you are high because you are physically harmed by smoking. Collectivism, on the other hand, is influenced by people around when buying a product and does not purchase products based on individual preferences and values. Collectivism is also relevant to social norms. Therefore, a person with a high collectivism tendency is judged on a group basis rather than himself / herself, and more attention is paid to the damage suffered by others, so attitude towards advertising for second-hand smoking will be higher. Because of the importance of relationship with others, harmony, and sense of belonging, it will be more influenced by indirect smoking. Therefore, the second-hand smoking damage, which gives damages from smoking to others, is more effective in collectivism than individualism. According to this rationale, it was hypothesized as follows.

H3. The effect of smoking type on attitude toward advertising will be moderated by personal value propensity.

H3a.In the case of second-hand smoking, attitude toward advertising will be higher in collectivism thanindividualism.

H3b. In the case of first-hand smoking, attitude toward advertising will be higher in individualism than collectivism.

2.6. *Attitude toward advertising and attitude toward smoking*

Attitude toward advertising is a benign or asymmetrical emotional response to the entire ad[23]. In previous studies, as a variable explaining the effect of the advertisement, the attitude is formed based on the feeling of the consumer towards the advertisement. When consumers are exposed to advertising, they will perceive the clues. Perceived cues lead to a positive, neutral or negative attitude toward the product or brand in the ad. Generally, positive feelings about advertising make product more positive. In other words, the ad recipient will have an influence on attitude toward smoking through the various feelings and thoughts that it has through anti-smoking advertisements. Attitude toward smoking is composed of beliefs and values about smoking and also has an important relationship with smoking behavior. Recently, the

November-December 2019
ISSN: 0193-4120 Page No. 319 - 334

recognition of tobacco as a consumable has created a social atmosphere to accept smoking. Attitude toward smoking is a combination of attitude toward smoking and self-perceived subjective norms, leading to changes in smoking intent and behavior. By expanding thinking through various information and improve individual ability, attitude toward smoking will be able to change. So far, anti-smoking advertisements have revealed the danger of smoking. The ultimate goal of anti-smoking PSA is to make smokers fully aware of the hazards of smoking, thereby affecting their attitude toward smoking. Therefore, if the attitude toward advertising is high, a change in attitude toward smoking may be expected. According to this rationale, it was hypothesized as follows.

H4. Higher attitude toward advertising will have a negative impact on attitude toward smoking.

3. Materials and Methods

3.1.*Study subjects and study design*

Four types of questionnaires (for two types of smoking and two types of gender) were distributed to undergraduate and graduate students of four year universities, office workers and housewives in Daegu, Gyeongbuk, Of the total of 480 copies that were collected online and offline, 406 copies in the end were analyzed after excluding those with insufficient responses. As such, this study was designed as a 2(smoking type: first-hand vs. second-hand) * 2(Altruism level: high vs. low) * 2(personal value tendencies: Individualism vs. Collectivism) study.

3.2.*Development of stimuli and manipulation check*

As a measure with the greatest appeal in warning the dangers of smoking, lung cancer which has the highest incidence rate was selected. The categorization of first-hand smoking and second-hand smoking was done by producing an ad that combined a photo with the warning phrases and images. The final stimuli selected were as seen in [Figure 2].

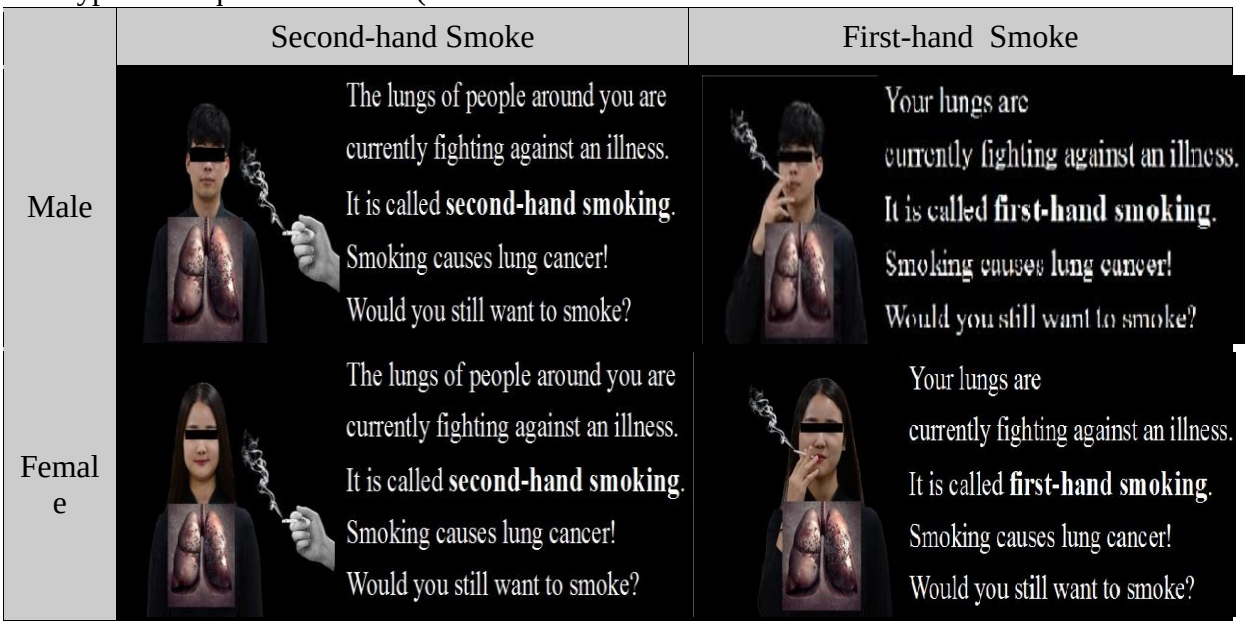

Figure 2. Stimuli

In this study, the harms caused by first-hand smoking and second-hand smoking will be compared, as used in anti-smoking ads. The stimuli consisted of warning phrases and images, and defined cases where my smoking caused harm to others as second-hand smoking, while cases where my smoking caused harm to myself was defined as first-hand smoking. That is, ads were produced so that the harms by second-hand smoking and first-hand smoking would be easily perceived. No

manipulation check was conducted. To remove external variables according to gender, both gender models were used.

3.3.*Measurement of variables*

For altruism, the 20 question scale, with responses measured on a 7 point Likert scale from 'not at all' scoring 1 point to 'very much so' scoring 7 points[24]. Based on the overall mean, the top 30% was defined as high altruism, the bottom 30 % was defined as low altruism, and the Altruism tendencies was clearly classified excluding the middle 40%.Individualism and Collectivism were measured using the 16 questions (8 questions on Individualism 8 and 8 questions on Collectivism) using a 7 point Likert scale from 'not at all' scoring 1 point to 'very much so' scoring 7 points[25]. Based on the overall mean, the top 30% was defined as collectivism, the bottom 30 % was defined as individualism, and the Individual Valuetendencieswas clearly classified excluding the middle 40%.Advertisement attitude was measured using the 10 items in Measure Attitude Toward Advertisements (appeal, impression, reliability, attraction, information, clarification, attention-drawing, positive, persuasive, overall feel)[26]. A 7 point Likert scale was used, with 'not at all' scoring 1 point and 'very much so' scoring 7 points. Smoking attitude was measured using 'Attitudes Towards Smoking Scale'(ATS-18)[27]. On a total of 18 questions (10 questions on negative attitude, disadvantages of smoking, 4 questions on positive attitude and psychological benefits of smoking and 4 questions on smoking evaluation), a 7 point Likert scale was used with 'not at all' scoring 1 point and 'very much so' scoring 7 points. A higher score indicates a higher smoking attitude. The variance in smoking attitude before and after exposure to stimuli was measured for an analysis on change.

4. Results and Discussion

4.1.*Socio-demographic characteristics and smoking status of the sample*

There were 308 male subjects (75.9%) and 98 female subjects (24.1%) in this study. Among them, a total of 161 people (39.7%) were smokers. Details can be found in Table 1.

Table1. Characteristics of respondents

Category		Frequency (number of people)	Percentage (%)
Gender	Male	308	75.9
	Female	98	24.1
Age	20age under	39	9.6
	21~30age	179	44.1
	31~40age	121	29.8
	41~50age	41	10.1
	51age more	26	6.4
Smoking	Smoker	161	39.7
	Non-smoker	245	60.3
Total		406	100

4.2.*Validity of the scales and reliability test*

Before verifying the hypotheses of the study, first a factor analysis was conducted to see if variables that are highly correlated would be bundled into the same factor. Among the 20 items for altruism, three (I changed myself for a stranger, I gave a stranger a ride in my car, I took care of a neighbor's pet or child without compensation) were excluded as they were found to be different factors. Individualism and Collectivism each consisted of 8 items and 2 factors. Of the 10 items for advertisement attitude, 3 items (attractive, favorable, and good) were measured and reverse-coded with the same concept, leading to a final single factor being

verified. For smoking attitude, 10 negative attitude items and 8 positive attitude items (4 items for psychological benefit and 4 items for smoking evaluation) and 3 factors were identified. The 2 factors for positive attitude were integrated into a single concept, and reverse-coded into a final single concept. Factor loading was found to be higher than 0.5, indicating that all factors were verified as significant variables. To secure internal consistency for each variable, a reliability test was conducted based on the extracted factors. The test results showed all of them to have Cornbrash's α>.7, indicating sufficient reliability. The reliability coefficient for altruism was a very high 0.935, with the detailed factors scoring as follows: Individualism (Cornbrash's α = .904), Collectivism (Cranach's α=.930), advertisement attitude (Cornbrash's α =.967), smoking attitude before ad (Cranach's α =.934), Smoking attitude after ad (Cranach's α =.904).

4.3. Verification of hypotheses

4.3.1. Verification of H1

H1 concerns the verification of preference in advertisement attitude in accordance with smoking type. That is, whether the preference for a first-hand smoking ad or a second-hand smoking ad was preferred was reviewed. Therefore, a stimulus where two types were manipulated to be independent variables was set and a t-test was conducted with the measured advertisement attitude as the dependent variable. The results were as seen in Table 2.

Table 2. Smoking type and advertisement attitude (t-test)

Independent Variables	*n*	*mean*	*S.D*	*t*	*p*
second-hand smoking	213	4.21	1.53	.469	.639
first-hand smoking	193	4.14	1.50		

The analysis showed that the advertisement attitude was higher for first-hand smoking (M_{second} =4.21, p>.05, M_{first}=4.14, p>.05). Therefore, H1 was not significant, it was dismissed level of .05.

4.3.2. Verification of H2

H2 concerns the verification of the moderating effect of altruism in the effect of smoking type on advertisement attitude. That is, it reviews how the advertisement attitude to two types of public ads differ depending on the level of altruism tendencies (high vs. low). To that end, the two types of ads were set as independent variables and the advertisement attitude was set as a dependent variable. Altruism tendencies was set as a moderating variable for the ANOVA analysis. The results were as seen in Table 3.

Table 3. Correlation between smoking type and altruism (ANOVA)

Source	Sum of square of type III	df	Square of mean	F	p
Revised model	766.74[a]	3	255.58	1102.24	.00
Cross section	5046.10	1	5046.10	21762.29	.00
Smoking type	84.20	1	84.20	363.16	.00
Altruism	11.25	1	11.25	48.53	.00
Smoking type * Altruism	666.13	1	666.13	2872.81	.00
Error	59.36	256	.23		

Total	5409.10	260
Revised total	826.10	259

a. R^2=.928(Adjusted R^2=.927)

The main effects of smoking type, as in hypothesis 1, was significant with *F=363.16, p<.05.* The main effect of altruism, too, was significant with *F=48.53, p<.05*. The correlation between smoking type and the effect of altruism on advertisement attitude, too, was significant with *F=2872.81, p<.05*. The verification of H2a and H2b concerns the verification of advertisement attitudes according to the level of altruism (high vs. low). When altruism was high, the two types of ads were set as independent variables and the advertisement attitude was set as a dependent variable. The same variables were used for when altruism was low to conduct a t-test. The results were as seen in Table 4, Figure 3.

Table 4. Advertisement attitudes according to altruism tendencies (t-test)

Smoking type	Altruism level	*n*	*mean*	*S.D*	*t*	*p*
Second-hand ads.	Low	77	2.07	.485	-47.40	.00
	High	63	5.77	.436		
First-hand ads.	Low	45	6.51	.191	37.24	.00
	High	75	3.66	.614		

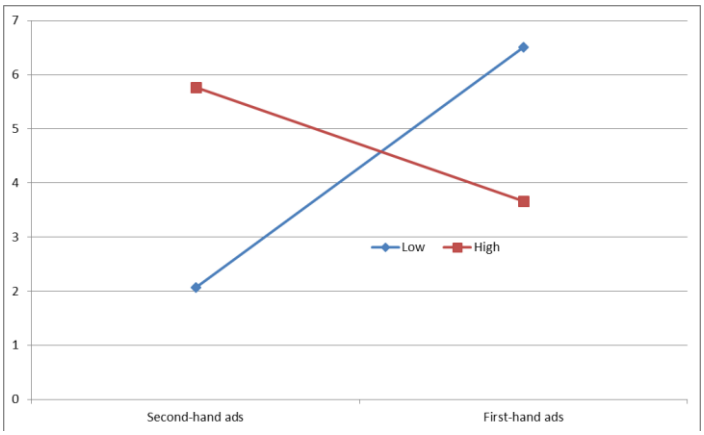

Figure3. Advertisement attitudes according to altruism tendencies (t-test)

For second-hand smoking, attitude toward advertising was higher when the altruism level washigher(M_{low}=*2.07*, M_{high}=*5.77*, *p<.05*). Meanwhile, for first-hand smoking, the attitude toward advertising was higher when the altruism level was lower (M_{low}=*6.51*, M_{high}=*3.66*, *p<.05*). As such, H2a and H2b were both adopted at a significance level of .05.

4.3.3. Verification of H3

H3 concerns the verification of the moderating effects that individual value tendencies have on effect of smoking type on attitude type. That is, it reviews how the advertisement attitude towards two types of smoking varies according to Individualism and Collectivism tendencies. To that end, two types of warnings were set as independent variables and Individualism and Collectivism were set as moderating variables to conduct an ANOVA. The results were as seen in Table 5.

Table5. Correlation between smoking type and individual value tendencies (ANOVA)

Source	Sum of square of type III	df	Square of mean	F	*p*
Revised model	711.96[a]	3	237.32	570.43	.00
Cross section	4308.52	1	4308.52	10356.26	.00
Smoking type	57.45	1	57.45	138.10	.00
Individual value tendencies (Individualism vs. Collectivism)	7.32	1	7.32	17.61	.00
Smoking type *Individual value tendencies	537.51	1	537.51	1292.00	.00
Error	99.01	238	.41		
Total	5093.30	242			
Revised total	810.97	241			

a. R^2=.878(Adjusted R^2=.876)

The main effects of smoking type, as in H1, was significant with *F=138.10, p<.05*. The main effects of individual value tendencies (Individualism vs. Collectivism), too, were significant with *F=17.61, p<.05*. The verification of Hypothesis3a and Hypothesis 3b verifies the advertisement attitude according to Individualism tendencies vs. Collectivism tendencies. In the case of Individualism tendency, two types of advertisements were set as independent variables and the attitude to advertisements was set as the dependent variable. For Collectivism tendency, too, the same variables were used to conduct a t-test. The results were as seen in Table 6, Figure 4.

Table6. Advertisement attitudes according to Individualism and Collectivism tendencies (t-test)

Independent Variables	Individual Value tendencies	*n*	*mean*	*S.D*	*t*	*p*
Second-hand ads.	Individualism	83	2.16	.53	-43.02	.00
	Collectivism	88	5.55	.49		
First-hand ads.	Individualism	47	6.28	.63	17.25	.00
	Collectivism	62	3.87	.82		

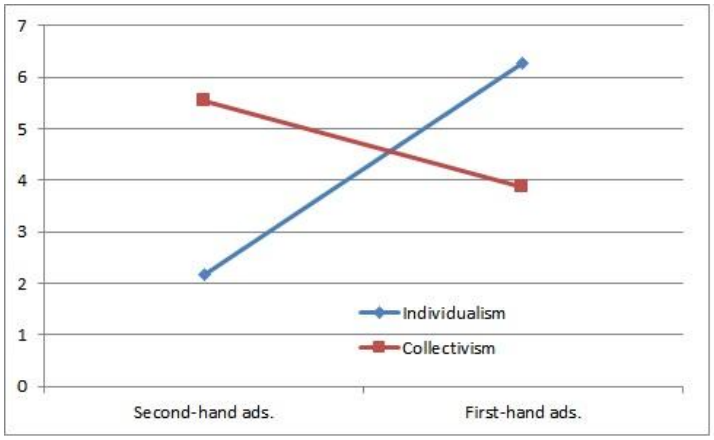

Figure 4. Advertisement attitudes according to Individualism and Collectivism tendencies (t-test)

For second-hand smoking, attitude toward advertising was higher in collectivism thanindividualism ($M_{individualism}$=2.16, $M_{collectivism}$=5.55, $p<.05$). Meanwhile, for first-hand smoking, the attitude toward advertising was higher in individualism than collectivism($M_{individualism}$=6.28, $M_{collectivism}$=3.87, $p<.05$). As such, H3a and H3b were both adopted at a significance level of .05.

4.3.4. Verification of H4

H4 concerns the verification of smoking attitude according to advertisement attitude. Advertisement attitude was set as an independent variable and the measured smoking attitude was set as a dependent variable to conduct a regression analysis. The results were as seen in Table 7.

Table 7. Advertisement attitude and smoking attitude (regression analysis)

Independent variable	Dependent variable	S.D	β	*t*	*p*	Statistics
Advertisement attitude	(Constant)	.357		3.34	.00	R=.299[a]
	Smoking attitude	-.141	-.299	-6.28	.00	R^2=.089 Revised R^2=.089 F=39.54, p=.00

The analysis shows that for advertisement attitude, β=-.141, t=-6.28, $p<.05$, indicating that advertisement attitude had a negative effect on smoking attitude. As such, H4 was adopted.

5. Conclusion

In this study, each attitude toward the advertisement was compared by classifying the smoking into first-hand smoking and the second-hand smoking according to the anti-smoking advertisement type. The attitude toward the smoking type was compared according to the high altruism and low altruism and the inclination to collectivism and individualism. The effect of attitude toward advertising on attitude toward smoking was also examined. And the attitude toward the smoking on the first-hand smoking and the second-hand smoking was compared. The results of this study are summarized as follows. First, there was no difference in attitude toward advertising between second-hand smoking and first-hand smoking (H1). Second, recipients with a high altruism tendency showed a higher response to second-hand smoking, where one's own smoking threatens the health of others (H2a). Recipients with low altruism showed higher attitude toward advertising in first-hand smoking (H2b). It matches the results of a previous study reporting that recipient with a low altruism tendency focuses more on himself than on others. Third, individualism tendency was high for attitude toward advertising on first-hand smoking damages (H3a). Collectivist tendency showed higher attitude toward advertising for second-hand smoking (H3b). If the collectivist tendency is high, the advertisement for second-hand smoking is effective. If the individualism tendency is high, the advertisement for first-hand smoking is effective. Fourth, better attitude toward advertising had a negative effect on attitude toward smoking. As a result, better attitude toward advertising had a negative effect on attitude toward smoking (H4). Therefore, summing up the results of H1, H2, H3, and H4, in Korea, anti-smoking advertisements that actively inform smokers about second-hand smoking are expected to have a positive effect on reduction of smoking rate, guarantee of smoking cessation rights of non-smokers, and prevention of smoking. There is already social awareness of the negative physical harm of smoking. Effective anti-smoking

PSAs depend on the social and economic environment and emotions of the people. Therefore, in order to lower the smoking rate, it is necessary to change the social and public awareness. It shows that both government regulations and anti-smoking advertisements should be concurrently addressed in solving second-hand smoking problems. In addition, the results of the study will be useful data for the development of anti-smoking advertisements, the change of attitude toward smoking and ultimately the development of realistic advertisement that lowers the smoking rate of Korea. This study has significance in that it verified that secondhand smoke advertisement has positive effect on forming negative attitude toward smoking in a smoker. In addition, these study results provide the following theoretical and practical implications. First, it examine the effect of anti-smoking advertisement of the second-hand smoking as the effect of external diseconomy in the aspect of consumption, differently from existing researches. Second, it suggested the theoretical basis that the policy to change the attitude toward the smoking should be changed through the anti-smoking advertisement of the second-hand smoking. It suggested the needs of policy to change the attitude toward the smoking through the change of national recognition theoretically together with the regulation by law and that the second-hand smoking advertisement can be effective for the change of recognition. Third, it analyzed and applied the individualism and collectivism in the individual level. Particularly, it showed that the second-hand smoking advertisement can be more effective than the first-hand smoking advertisement in the country having higher collectivism like Korea. This study has several limitations in spite of the theoretical and practical implication indicated above. First, the difference in the attitude toward the advertisement between the first-hand smoking and the second-hand smoking did not appear significantly different from the expectation. The reason was examined through addition analysis. In the additional analysis results of H1,the smoker showed slightly higher attitude toward the advertisement of the second-hand smoking than the first-hand smoking, it was not significant. The non-smoker showed slightly higher attitude toward the advertisement of the second-hand smoking than the first-hand smoking, it was not significant. For this reason, although the attitude toward the advertisement of the second-hand smoking was higher than that of the first-hand smoking, since it was not significant, it was dismissed. The results of the study showed that both the smoker and non-smoker can received the greater impact from the second-hand smoking advertisement. In future, the research, which directly compared the two conditions is required not by analyzing them additionally like this study. Second, the additional research is needed on the change of attitude by specific situation by classifying the smoker and non-smoker and by segmenting the smoking level (heavy vs. light) of the smoker. Third, anti-smoking advertisements are shown in media such as TV, radio, cigarette cases, posters, billboards, newspapers and magazines. This study only focused on paper advertisement. Therefore, it is not enough to obtain generalized results. Finally, this study excluded the effects of third-hand smoke. Secondhand smoke also includes the effects of third-hand smoke. Further studies involving damage due to third-hand smoke are needed. It is also necessary to study a variety of anti-smoking advertisements for second-hand smoking that considers the health of others using altruism, individualism, and collectivism.

6. References

1. SohnHJ, OhAR, KimOG, & LeeKY. Secondhand smoke exposure in commercial personal computer rooms. Korean Journal of Environmental Health Sciences.2010 Jun;36(4):288-293.
2. US Department of Health and Human Services. The health consequences of smoking—50 years of progress: a report of the Surgeon General. 2014[cited

November-December 2019
ISSN: 0193-4120 Page No. 319 - 334

2017Dec26]. Available from:https://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf.
3. Hirayama T, Cancer mortality in nonsmoking women with smoking husbands based on a large-scale cohort study in Japan.Preventive medicine. 1984 Nov;13(6):680-690.
4. Hackshaw AK, Law MR, &WaldNJ. The accumulated evidence on lung cancer and environmental tobacco smoke. BMJ. 1997 Oct;315(7114):980-8.
5. U. S. Department of Health and Human Services. Health, United States, 2016: With Chart book on Long-term Trends in Health. National Center for Health Statistics (US). 2016 [cited 2017Dec28]Availablefrom:https://www.cdc.gov/nchs/data/hus/hus16.pdf.
6. Öberg M, Jaakkola MS, Woodward A, Peruga A, &Prüss-Ustün A. Worldwide burden of disease from exposure to second-hand smoke: a retrospective analysis of data from 192 countries. The lancet. 2011 Jan [cited 2017Dec22];377(9760):139-146. Availablefrom:https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(10)61388-8.pdf.
7. Okah FA, ChoiWS, Okuyemi KS, & Ahluwalia JS. Effect of children on home smoking restriction by inner-city smokers.Pediatrics. 2002 Feb;109(2):244-249.
8. Hofstede, G., &Minkov,M.Values Survey Module 2013 Manual. 2013[cited 2018Mar22]. Availablefrom https://www.hofstede-insights.com
9. HammondD. Health warning messages on tobacco products: a review. Tobacco control. 2011 Sep;20(5):327-337.DOI:10.1136/tc.2010.037630.
10. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Tobacco Smoke and Involuntary Smoking: International Agency for Research on Cancer.IARC 2004[cited 2018Jan18];83. Availablefrom:https://monographs.iarc.fr/ENG/Monographs/vol83/mono83.pdf.
11. LoureiroML, &LotadeJ. Do fair trade and eco-labels in coffee wake up the consumer conscience?.Ecological economics, 2005;53(1), 129-138. DOI: 10.1016.
12. Kopfman J.E, &SmithSW.Understanding the audiences of a health communication campaign: A discriminant analysis of potential organ donors based on intent to donate.Journal of Applied Communication Research, 1996;24(1), 22-49.
13. Morgan SE, &MillerJK. Beyond the organ donor card: The effect of knowledge, attitudes, and values on willingness to communicate about organ donation to family members. Health communication, 2002;14(1):121-134. DOI**:**10.1207/S15327027HC1401_6.
14. HofstedeG.Cultural constraints in management theories. Academy of Management Executive, 1993 Feb;7(1):81-94.
15. WatermanAS. Individualismand Interdependence. American psychologist. 1981 Jul;36(7):762-773.
16. OysermanD&MarkusHR. The sociocultural self. In social perspective. Psychological perspectives on the self, 1993;4:187-220.
17. ChiouJS. Horizontal and vertical individualism and collectivism among college students in the United States, Taiwan, and Argentina. The Journal of social psychology. 2001;141(5): 667-678.
18. TriandisHC. The psychological measurement of cultural syndromes. American psychologist.1996 Apr;51(4):407-415.
19. Morling B, &FiskeST.Defining and measuring harmony control. Journal of Research in Personality. 1999 Dec;33(4):379-414.
20. SingelisTM.The measurement of independent and interdependent self-construals. Personality and social psychology bulletin.1994;20(5):580-591.
21. TriandisHC, Bontempo R, BetancourtH, Bond M, LeungK, BrenesA& Sinha

JB.The measurement of the etic aspects of individualism and collectivism across cultures. Australian journal of Psychology.1986 Dec;38(3):257-267.
22. HofstedeG.National cultures in four dimensions: A research-based theory of cultural differences among nations. International Studies of Management & Organization.1983;13(1-2):46-74.
23. Lutz RJ, MacKenzieSB& Belch GE.Attitude toward the ad as a mediator of advertising effectiveness: Determinants and consequences. Advances in Consumer Research. 1983;10:532-539
24. Rushton JP, ChrisjohnRD&FekkenGC.The altruistic personality and the self-report altruism scale. Personality and individual differences.1981;2(4):293-302.
25. TriandisHC&Gelfand MJ. Converging measurement of horizontal and vertical individualism and collectivism. Journal of personality and social psychology.1998;74(1):118.
26. DonthuN. Comparative advertising intensity. Journal of advertising research. 1992 Nov;32(6):53-58.
27. Etter JF, HumairJP, Bergman MM&PernegerTV. Development and validation of the Attitudes Towards Smoking Scale (ATS-18). 2000 May;95(4):613-625.DOI: 10.1046/j.1360-0443.2000.95461312.x.