

# Effect of Cigarette Warning Sign Attached to Cigarettes on Smoking Cessation Effects

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## 담배에 부착된 담뱃갑 경고 그림이 금연효과에 미치는 영향

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**Abstract** This study is a descriptive study conducted to investigate the effect of smoking cigarette sign sold in Korea on the smoking cessation effects and to use it as a basis for future smoking cessation and health related health data. To this end, we surveyed 500 men and women over 20 years of age on the Internet Naver web using Naver form questionnaire for 10 days from October 1, 2018 using blogs and cafes. The analyzed data were analyzed by factor analysis, T-test and correlation using SPSS WIN20.0. The main findings were as follows: First, the cigarette warning picture harmful to human body had the biggest influence on the smoking cessation effect. Second, the smoking cessation effect had the highest correlation with the pre-question consciousness about the cigarette warning picture. This indicates that the cigarette pack warning is considered the most sensitive part of smokers. Based on the results of this paper, diversification of cigarette warning picture and regular replacement of warning picture are expected to provide useful basic data for suggesting practical measures to prevent smoking, do. Therefore, the smoking warning picture is widely promoted through the media and the media, which has a positive effect on the practice of quitting smoking to the public, and is also used as a basic data for the health policy for the health promotion of the public.

**Key Words** : Tobacco, Warning picture phrase, Smoking cessation induction, No smoking effect

**요약** 본 연구는 국내에서 판매되고 있는 담뱃갑 흡연 '담뱃갑경고그림'이 흡연자의 금연효과에 미치는 영향을 조사하여 향후 금연 및 건강관련 보건자료의 기초로 사용할 목적으로 시행된 서술적 조사연구이다. 이를 위해 인터넷 네이버 웹상에서 20세 이상 성인 남녀 500명을 대상으로 네이버 폼 설문지를 이용해 블로그와 카페 등을 이용하여 2018년 10월1일부터 10일간 조사하여 응답이 미흡한 설문지를 제외하고 500부를 본 연구에 사용하였다. 분석된 데이터는 SPSS WIN20.0을 이용한 요인 분석, T-검정 및 상관관계를 분석하였다. 주요 연구 결과는 첫째, 인체해 유해한 담뱃갑 경고 그림이 금연효과에 가장 큰 영향을 미친 것으로 나타났다. 둘째, 금연효과는 담뱃갑 경고그림에 대한 설문 전 의식과 가장 높은 상관관계를 보였다. 이는 '담뱃갑 경고그림'이 흡연자에게는 가장 민감한 부분으로 받아들여지고 있음을 나타낸다. 본 논문의 결과를 토대로 담뱃갑 경고 그림의 다양화와 경고그림의 정기적인 교체 등은 금연 본능을 억제시키는 기전으로 작동함에 따라 향후 금연예방의 실천적 방안을 제안 할 수 있는 유용한 기초자료를 제공할 것으로 기대된다. 따라서 흡연경고 그림은 언론이나 매체를 통해 널리 홍보하여 국민들에게 금연을 실행하는데 긍정적인 영향을 미치며, 나아가 국민들의 건강 증진을 위한 보건정책의 기초자료로 활용될 것으로 사료된다.

**키워드** : 담배, 담뱃갑 경고그림, 흡연, 금연 유도, 금연 효과

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## 1. Introduction

Today, the daily smoking rate of Korean adult men is more than 37%, the second highest among OECD countries[1-5]. In order to lower the smoking rate in Korea, tobacco product ingredients and disclosure regulations, product packaging and labeling regulations, advertisements for smoking cessation, promotion of smoking cessation programs and promotion of smoking cessation programs are being promoted[1-3,7,8]. The Graphic Pictorial Health Warning is a social system that regulates the purchase of tobacco, and is largely an institutional and environmental factor[5-8,11]. A cigarette warning picture is a type of warning sign that allows smokers and non-smokers to recognize the dangers of smoking by inserting a picture that highlights the dangers of smoking. According to the results of foreign studies, cigarette warning pictures help to understand the dangers of smoking and convey the harmful effects of smoking more effectively[3-7,9,11,12]

In recent years, many countries around the world have focused on cigarette pack warnings as a means of strengthening smoking cessation policies. In the report of Lee Sung-kyu (2013), by 2012, more than 60 countries around the world have already introduced warning pictures on cigarette packs instead of warning signs. In addition to countries such as Canada, Brazil, Singapore and Australia, many countries around the world are focusing on cigarette pack warnings as a means of strengthening smoking cessation policies (Lee Sung-kyu, 2013). After many years of controversy in Korea, the government has implemented a warning package for cigarette packs since 2016. In the face of the implementation of the

policy to attach a picture warning to the actual cigarette case, the domestic smokers' opposition was also severe[3,5,8,10].

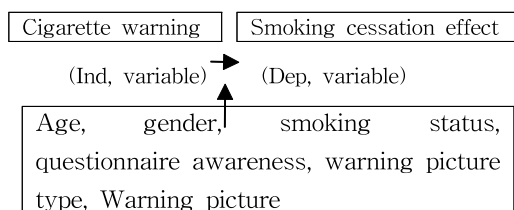
Because. Therefore, most of previous studies on the effectiveness of cigarette warning pictorials have been conducted in foreign countries, and only a few studies have been conducted on the effects of cigarette warning pictorials in Korea. This is probably because it is only a few years since the cigarette warning system was implemented in Korea. Therefore, in Korea, studies on cigarette warning picture effect have been diversified in full-fledged studies on smoking perception and behavior, suggesting the need for objective data that can be used as basic data for improving and promoting national health through smoking cessation. Therefore, the purpose of this study was to investigate the effect of cigarette smoking warning picture sold in Korea on the smoking cessation effect and to use it as a basis for future smoking cessation and health related health data.

## 2. Materials and Methods

### 2.1 Research Mode

Based on the literature on smoking cessation effects, a research model such as Fig. 1, was set up to examine the relationship between cigarette warning and smoking cessation effects. Gender was divided into male and female, and smoking was classified into three categories: non-smokers, smokers, and non-smokers. Non-smokers are those who have smoked in the past but do not currently smoke. For the rituals before the questionnaire, we examined whether the cigarette warning pictorials were known and

whether the warning pictorials were known. Again, the types and moods of the warning pictures were examined for those who saw the warning signs. There are five types of warning picture: lung cancer, laryngeal cancer, oral cancer, heart disease, and others.



\* Ind, variable : Independent variable  
 \* Dep, variable : Dependent variable

**Fig 1. Research model**

### 2.2 Research Design and Target

The subjects of this study surveyed adult males and females over 20 years old by exposing the structured questionnaire to blogs and cafes frequently visited by adults using the Naver Form Survey program on the Internet. The survey was conducted for about 10 days from November 26, 2018 to December 5, 2018. A total of 526 questionnaires were collected and 500 parts were used for this study except 26 which did not have sufficient responses. The analyzed data were analyzed statistically using SPSS WINDOW 21.0 for factor analysis, T test and correlation analysis.

### 2.3 Research Tool and Content

This study is a cross-sectional survey that analyzes the effect of cigarette warning picture on smoking cessation effect using structured questionnaire for adults on internet web. The measuring tool of [1] was modified to fit this study in order to measure attitudes about cigarette packs, cigarette pack purchase intentions, and smoking cessation intention. A

survey was conducted using the 5-point Likert scale for age, gender, smoking status, awareness of the warning picture before the questionnaire, the subject of the warning picture, and mood after seeing the warning picture. The Cronbach's  $\alpha$  value of this study is .892, which shows high reliability.

## 3. Results

### 3.1 Demographic characteristics

Respondents' responses to the survey are shown in Table 1. In terms of gender, 58.0% are male and 42.0% are female, and 52.0% are under 25 years old, 38.0% are 26 to 30 years old, 0.0% are 31 to 35 years old, 0.0% are 36 to 40 years old, 2.0% are older than 41 and 41 years old. Accounted for 8.0%. If we divide age into two, it seems appropriate to be under 25 years old and over 26 years old.

**Table 1. General characteristics**

Division	Frequency (persons)	Composition ratio (%)
System	500	100
Gender	Man	58.0
	Woman	42.0
Age	Under 25 years	52.0
	26years or older	48.0

### 3.2 Difference in the effect of smoking

According to age and gender, there was a

slight difference between smoking cessation and smoking cessation, as shown in Table 2, but it was not significantly different from 25 years old (2.62) and 26 years old (2.83). Although there were no significant differences in other parts, it was found that the results of 'short-term smoking cessation effect' were close to the significance probability though not significant.

**Table 2. Differences in Smoking Cessation Effect by Gender and Age.**

Variable	No smoking effect				
	N	M	SD	T	P
Man	29	2.90	1.23	1.233	1.223
Woman	21	2.48	1.12		
Under 25 years	26	2.62	0.90	0.628	0.534
25 years or older	24	2.83	1.46		

\* M : mean, SD: Standard Deviation  
T: T-test P: P-value

### 3.3 Analysis of the correlation of each item of smoking cessation effect

As shown in Table 3, the most correlated items were short-term smoking cessation and long-term smoking cessation ( $r = 0.864$ ), which was statistically significant. Conversely, the items with the lowest correlation were the types of pre-survey rituals and warning pictures ( $r = 0.012$ ), which is not statistically significant. The results of the analysis of the items related to the smoking cessation effect of this study showed the highest correlation between the smoking cessation effect and the pre-survey ration ( $r =$

0.406), the type of smoking cessation effect and warning picture ( $r = 0.101$ ) Showed the lowest correlation. It was found that the pre-questioning consciousness of the warning picture was accepted as the most sensitive part among the factors influencing the smoking cessation effect, and it was statistically significant.

According to the results of the analysis, the positive and negative correlations were found between the various smoking cessation effects and the factors affecting them. The results of the analysis of each item on smoking cessation showed that the first was the feeling of smoking and the feeling of seeing the warning picture, the second was the correlation of the type of warning picture and the warning picture, showed positive (+) correlation. In addition, the presence of smoking showed a correlation between pre-survey rituals, types of warning pictures, intention to purchase cigarettes, possibility of tobacco purchase, short-term smoking cessation, and long-term smoking cessation effect. The pre-questionnaire showed a positive correlation with the effect of smoking cessation, intention to buy cigarettes, possibility of tobacco purchase, short-term smoking cessation, and long-term smoking cessation effect. The mood showed a positive correlation with smoking cessation, short-term smoking cessation, and long-term smoking cessation. There was a positive correlation between the effects of smoking cessation, intention to buy cigarettes, possibility of purchasing tobacco, effects of short-term smoking cessation, and long-term smoking cessation.

**Table 3. Analysis of the correlation of each item of smoking cessation effect**

Variable	Smoking	Pre-survey ritual	Types warning pictures	Feeling alert	No smoking effect
Smoking	1.000				
Pre-survey ritual	.47**	1.000			
Types warning pictures	.322*	.012	1.000		
Feeling alert	-.190	.113	-.138	1.000	
No smoking effect	.257	.406**	.101	.313*	1.000

\*P<0.05, \*\*P<0.01

### 3.4 Differences in smoking cessation effectiveness by gender and age

The results of the t-test were as follows to test hypothesis 1, which is the difference in smoking cessation effect according to demographic characteristics. The lower the value of M in the Table 4 below, the more effective the smoking. First, we analyzed the differences in gender and age among the overall smoking cessation effect and demographic characteristics. The results were as follows: male (2.90) and female (2.48). The female smoking cessation rate was slightly higher than that of male, but the significance was 0.223, which was not statistically significant. However, there was no significant

difference in the 'intention to buy cigarettes' and 'long-term smoking cessation', but the results were close.

Analysis of age and smoking cessation showed that there was a slight difference between the age of 25 (2.62) and 26 (2.83), but it was not significant. Although there were no significant differences in other parts, it was found that the results of 'short-term smoking cessation effect' were close to the significance probability though not significant.

**Table 4. Differences in smoking cessation effectiveness by gender and age**

Variable	No smoking effect				
	N	M	SD	T	P
Man	290	2.90	1.23	1.233	.223
Woman	210	2.48	1.12		
Variable	Intention to buy cigarettes				
	N	M	SD	T	P
Man	290	3.10	1.40	1.703	0.095
Woman	210	2.43	1.36		
Variable	Possibility to buy cigarettes				
	N	M	SD	T	P
Man	290	3.41	1.30	1.026	0.310
Woman	210	3.00	1.55		
Variable	Short-term effect of smoking				
	N	M	SD	T	P
Man	290	3.03	1.40	1.579	0.121

Variable	Long-Term Smoking Cessation Effect				
	N	M	SD	T	P
	Woman	210	2.43	1.25	
Man	290	3.45	1.27	1.722	0.091
Woman	210	2.81	1.33		

\*P<0.05, \*\*P<0.01

#### 4. Discussion

The purpose of the 'packet warning pictogram', which has been implemented since 2016 in Korea, is to induce smokers to quit smoking more effectively by conveying the risk of smoking to consumers more effectively and not to smoke[3,9]. Most of the previous studies on cigarette warning pictorials have been conducted in foreign countries, and studies conducted in Korea were mainly conducted by young people[2,4,6,8]. The findings of this paper support that cigarette warning pictures have a positive effect on adolescents' awareness of smoking and behavior[1,7,10,12].

Long-term studies by Harris et al. [11] have shown that after the introduction of warning plots in Canada, the effects of reducing smoking, attempting to quit smoking, and success of smoking cessation have been consistently shown. It has been reported that this tobacco purchase was reduced and motivated to quit smoking. This result is the same in this study and is consistent with the results of cigarette smoking cessation picture. Based on this study, further research is needed to expand the number of subjects and regions and follow-up studies to increase the effectiveness of smoking cessation programs.

#### 5. Conclusion

The purpose of this study was to investigate the effects of the cigarette warning picture conducted in 2016 on the smoking cessation effects of smokers in Korea and to use it as a basis for future smoking cessation and health data.

The results are as follows.

First, there was a difference in the smoking cessation effect of 'cigarette warning picture' according to the age of the study subjects according to the demographic and sociological characteristics, but it was not statistically significant.

Second, the difference in the smoking cessation effect of the cigarette warning picture according to gender was higher in women than on average, but statistically insignificant.

Third, as a result of the t-test with the smoking cessation effect, among the four variables of smoking status, consciousness before the questionnaire, the type of warning picture, and the mood of the warning picture, the three variables except the type of warning picture were related to the smoking cessation effect. Was most significant in the order of consciousness before the questionnaire, mood of seeing warning picture and smoking status.

Fourth, the smoking cessation effect showed the highest correlation with the pre-question consciousness on the cigarette warning picture. Among the factors affecting the smoking cessation effect, it was found that the consciousness before the questionnaire about the cigarette warning picture was accepted as the most sensitive part, and it was also statistically significant.

In conclusion, this study found that the highest smoking cessation effect and statistically significant variable was 'consciousness of cigarette warning picture'. Therefore, it is necessary to raise awareness among the public through the media and media that the cigarette warning picture has a positive effect on smoking cessation.

Based on this study, future researchers will need to study how the government's cigarette pack warning policy interacts with other smoking cessation policies, such as price increases or smoking cessation programs.

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