



The Impact of Cigarette Packaging Health Warning Labels on Smokers in Bandar Abbas, South Iran

Ali Asadian¹, Teamur Aghamolaei^{2*}, Abdul Hussian Madani² and Amin Ghanbarnejad²

¹Student Research Committee, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

²Department of Public Health, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

* Corresponding author's Email: taghamolaei@yahoo.com

ABSTRACT: One of the principal methods for informing tobacco consumers about the risks of smoking is the warning message on each cigarette package. The purpose of this study was to determine the effect warning labels cigarette on smokers. This cross-sectional was conducted on 300 male smokers residing in city Bandar Abbas, south Iran, in 2013. Subjects cluster random sampling from 10 urban districts. Data collection tools included demographic characteristics, attitudes, reaction and pattern of smoking on smokers. The collected data was analyzed by SPSS software 19 and descriptive and inferential test. The mean age of smokers was 36.8 years with a standard deviation of 9.9 and range varied from 18 to 70 years. The mean history of smoking was 13.6 years and average number of cigarettes smoked daily was 13.3. Respectively terms of education, most of smokers had a high school diploma. Descriptive statistic revealed 2 percent poor, 44 percent moderate and 54 percent of smokers had good attitude towards health message. 44 percent of smokers had good reaction (notice, talk about messages, reminders, disgust, and fear) to health warning message. Chi-square test showed a significant relationship ($P < 0.001$) between smokers, reaction to health messages and their attitude. Smokers have a good attitude to messages, their attention was drawn to the message, when smoking messages were remembered and talked about the messages and messages leading to fear and hate them of smoking. Based on the results, it is suggested to strengthen features such as attract attention, raising awareness, remember effects of smoking, thinking about the effects of smoking, raising concern, fear and hate in health warning message on cigarette packages that response to the message and will be followed to reduce smoking.

Key words: Health Warning Labels, Attitude, Reaction, Smoking

INTRODUCTION

Use of tobacco products is the most important preventable cause of early deaths in the world (Heydari et al., 2011). Tobacco consumption in any way is lethal. Tobacco smoke not only causes physical and mental harms to the smoker himself but also affects others exposed to it (passive smokers). Tobacco kills up to half of its users Tobacco kills nearly 6 million people each year. More than five million of those deaths are the result of direct tobacco use while more than 600 000 are the result of non-smokers being exposed to second-hand smoke. Unless urgent action is taken, the annual death toll could rise to more than eight million by 2030. Nearly 80% of the world's one billion smokers live in low- and middle-income countries. Consumption of tobacco products is increasing globally, though it is decreasing in some high-income and upper middle-income countries (Control., 2008). According to the most recent statistics reported the WHO, the rate of consumption of tobacco products among the age group of 15-64 years old in Iran was 14.2% in the year 2005 out of which 24% were males and 4.3% were females. For years, Cigarette manufacturers used cigarette packaging as a means to attract more consumers This was

reversed by the placement of pictorial health warning labels on the packaging (Hammond, 2009). It is the best way for health authorities to communicate with smokers and their family members time and again during a day (Borland et al., 2009; Fong et al., 2009). Prior cigarette warning research in marketing has covered an array of different topics (Goldberg et al., 1999). Canada was the first country to introduce graphic warnings in 2001. Warning labels provided health information and served as an important strategy for the comprehensive tobacco control program in Canada. Cross-country studies showed that Canadian graphic warning labels were most effective in informing smokers about the health hazards of smoking compared with smaller text-only warnings (Hammond et al., 2007; Borland et al., 2009). Surveys conducted by Hammond on the Canadian smokers showed that Warning Labels decreased smoking (Hammond et al., 2004).

Pictorial health warnings are particularly required to target the illiterate population of the world. Studies in Australia, Belgium, Brazil, Canada, Thailand and some other countries show that health warnings on cigarette packs especially the graphic ones are an important source

ORIGINAL ARTICLE
Received 14 Dec. 2013
Accepted 12 Jan. 2014

of information for young smokers in low education countries (Borland., 1997; Hammond et al., 2006; Heydari et al., 2011). Article 5 of the National Comprehensive Law on Tobacco Control in Iran banned the use of words like “light” or “low tar” on cigarette packets and asked cigarette manufacturers whose products are administered in Iran to allocate at least half the front and back covers of the packets to pictorial warning (Advocacy., 1996). The Ministry of Health designed the pictures and asked cigarette manufacturers to print these pictures on their locally manufactured and imported products from February 2009. Since then, the Iranian Tobacco Company has been placing these pictures on all Iran made and imported cigarette packets (Abdolahinia et al., 2010). In Iran, a study in Tehran, in 2009, indicated that health warning labels need to reform (Heydari et al., 2011) and another study in Tehran city showed support most of the smoker for messages (Abdolahinia et al., 2010). However, few studies evaluated tobacco control policies in Iran. This study aimed to evaluate the effect of cigarette packs’ health warning labels on the attitude, reaction and pattern of smoking on many smokers residing in Bandar Abbas city, south Iran.

MATERIALS AND METHODS

This cross-sectional study was conducted to evaluate the effect of cigarette warning labels on the attitude, reaction and smoking pattern of male smokers residing in Bandar Abbas city, south Iran, in 2013. In this study used cluster random sampling method for this purpose, the city were divided into ten cluster then random sampling in each cluster done from cigarettes retail. The data collection tool was a researcher-made questionnaire, which was filled out by interview with the participants. The questionnaire consisted of four parts. The first part included 5 questions related to demographic characteristics such as Age, marital status, education, History of smoking, the number of daily consumption. The second part included 11 five-choice questions (Completely disagree/ Disagree/ No idea/ Agree/ completely agree) related to smokers' attitude toward health warning labels of cigarette packets such as “thinking about the effects of

smoking. The third part included 7 two-choice questions (Yes/No) related to smokers' reaction of health warning labels such as “warning labels lead to fear of smoking”. The fourth part included 2 questions about reduction and quit smoking.

A panel of experts in the field of health education and epidemiology evaluated, discussed and validated the questionnaire. The reliability of the questionnaire was evaluated by a pilot study including 30 individuals. The value of Cronbach's alpha was 0.81 for questions of attitude and 0.69 for questions of reaction toward health warning message of cigarette packets.

For estimating of the smokers' attitude toward health warning, each five-choice question was scored from one to five that made a total score ranged from a minimum of 11 to a maximum of 55 for each smoker. Then, the average score of the smokers' attitude toward health warning was calculated for all subjects. Attitude divided in three parts, good attitude with score of 41-55, the medium attitude with score of 26-40 and weak attitude with score 11-25. Smoker with higher score have better attitude toward health warning.

For estimating of the smokers' reaction toward health warning each two-choice question was scored from zero to one that ranged from a minimum of zero to a maximum of 7 for each smoker. Reaction toward health warning divided to three groups, without reaction with zero score, weak with score 1-3 and good reaction with score 4-7.

After obtaining consent from smoker, questionnaires were filled out. Collected data were analyzed using SPSS Ver.19 software. Relative distribution and frequency of the variables were calculated. Chi square test were used for relationship between variables.

RESULTS

The population age ranged from 18 to 70 years (mean 36.8 years) with a standard Deviation of 9.9. The average history of smoking was 13.6 years with a rate of 13.3 cigarettes per day. In respect of education, most of them (41.3%) had high school diploma (Table 1).

Table1. Demographic characteristics of smoker

Variable		Number	Percent	Average	SD
Age				36.8	9.9
Marital Status	Single	48	16		
	Married	239	79.7		
	Divorced	13	4.3		
Education	Under Graduate Diploma	86	28.7		
	High School Diploma	124	41.3		
	University Degree	90	30		
History Of Smoking (year)				13.6	9.5
Cigarette Consumption (Daily)				13.3	6.9

According to the results, 2%, 44% and 54% of the population had weak, medium and good attitude, respectively on the health messages on cigarette packets.

There was no statistically significant relation between the cases' attitude on the messages and their age (P-value = 0.4) while the score of the attitude variable was different in different age groups. For example, the score was higher in the age group of 30-50. A significant relation was observed (P-value < 0.05) between attitude and matrimony variables. In other words, married people had a more positive attitude on health messages on cigarette packets than singles. A significant relation (P-value < 0.001) was observed between the cases' educations and attitude so that the individuals with

university degree had more disagreeable attitude than those with high school diploma or lower. A statistical significant relation (P-value < 0.05) was observed between smoking background and attitude so that more smoking background more positive attitude on health messages. Again, a positive relation (P-value < 0.001) was observed between attitude and the number of smoked cigarettes. The individuals who was smoking 10 to 20 cigarettes per day had more positive attitude than those with a daily smoking rate of <10 cigarettes while the people with a daily smoking rate of more than 20 cigarettes had more disagreeable attitude than those with a daily smoking rate of 10 to 20 cigarettes (Table 2).

Table2. Relationship between attitudes with demographic variables of smokers

Demographic Variables		Attitude						P.value
		Good		Medium		Weak		
		Number	%	Number	%	Number	%	
Age	<30	51	31.1	51	39.2	3	50	0.4
	30-50	99	10.4	68	52.3	2	33.3	
	>50	14	8.5	11	8.5	1	16.7	
Marital Status	Single	26	59.9	21	16.2	1	16.7	0.002
	Married	138	84.1	97	74.6	4	66.7	
	Divorced	0	0	21	9.2	1	16.7	
Education	Under Graduate Diploma	54	32.9	31	23.8	1	16.7	<0.001
	High School Diploma	83	50	39	30	2	33.3	
	University Degree	27	16.5	60	46.2	3	50	
History Of Smoking(year)	< 10	63	38.4	73	56.2	4	66.7	0.01
	10-20	55	35.5	35	26.9	0	0	
	>20	46	28	22	16.9	2	33.3	
Cigarette Consumption (Daily)	<10	61	37.2	64	49.2	3	50	<0.001
	10-20	99	60.4	52	40	2	16.7	
	>20	4	2.4	14	10.8	1	33.3	

Among the population, 44 percent showed a good reaction to the messages, 48 percent showed a weak reaction while 8 percent showed no reaction. A statistical significant relation was obtained between reaction and age (P-value < 0.001). +50 aged people showed weaker reaction to the messages. No significant relation (P-value = 0.15) was obtained between reaction and matrimony. A statistical significant (P-value < 0.05) relation was obtained between reaction and smokers' education level so that the smokers with high school diploma showed good reaction to the messages.

A statistical significant relation (P-value < 0.05) was observed between reaction and smoking background so that the people with a 10 to 20-year background in

smoking showed better reactions to the messages. Again, a statistical significant relation (P-value < 0.001) was observed between reaction and smoking rate so that the people with a daily smoking rate of 10 to 20 cigarettes showed better reactions to the message (Table 3).

A significant relation was observed (P-value < 0.001) between smokers' reactions and their attitude and smokers with more positive attitude on the messages have better reactions (Table 4).

In current study, 49% of people stated that health messages caused them to reduce their smoking rate and 42.7% stated the messages a factor stimulating them to quit smoking in next one to six months.

Table 3. The Relationship between smokers' reactions with demographic variables of smokers

Demographic Variables		Reaction						P. Value
		No Reaction		Medium		Good		
		Number	%	Number	%	Number	%	
Age	<30	17	16.2	47	44.8	41	39	<0.001
	30-50	7	4.2	80	47.3	82	48.5	
	>50	0	0	17	65.4	9	34.6	
Marital Status	Single	8	16.7	21	43.8	19	39.6	0.15
	Married	16	6.7	116	48.5	107	44.8	
	Divorced	0	0	0	53.8	6	46.2	
Education	Under Graduate Diploma	5	8.5	43	50	38	44.2	0.004
	High School Diploma	5	4	54	43.5	65	52.4	
	University Degree	14	15.6	47	52.2	29	32.2	
History Of Smoking (year)	< 10	17	12.1	69	49.3	54	38.6	0.03
	10-20	5	5.6	37	41.1	48	53.3	
	>20	2	2.9	38	54.3	30	42.9	
Cigarette Consumption (Daily)	<10	16	12.5	57	44.5	55	43	<0.001
	10-20	7	4.6	70	46.1	75	49.3	
	>20	1	5	17	85	2	44	

Table 4. Relationship between attitude and reaction of smokers toward health messages on cigarette packets

Reaction	Reply	Attitude						Total	P. Value
		Good		Medium		Weak			
		Number	Percent	Number	Percent	Number	Percent		
Attention to the message when buying cigarettes	Yes	95	62.5	56	36.8	1	0.7	152	<0.001
	No	69	46.6	74	50	5	3.4	148	
Attention to the message when Removing the cigarette from the pack	Yes	72	75	24	25	0	0	96	<0.001
	No	92	45.1	106	52	6	2.9	204	
Recalling messages when smoking	Yes	88	75.9	28	24.1	0	0	116	<0.001
	No	76	41.3	102	55.4	6	3.3	184	
Speaking about the messages when smoking with others	Yes	71	73.2	26	26.8	0	0	97	<0.001
	No	93	45.8	104	51.2	6	3	203	
Hate of smoking following visit the messages	Yes	126	73.3	46	26.7	0	0	172	<0.001
	No	38	29.7	84	65.6	6	4.7	128	
Fear of smoking following visit the messages	Yes	127	66.5	62	32.5	2	1	191	<0.001
	No	37	33.9	68	62.4	4	3.7	109	
Just pay attention to the messages included in the first month	Yes	90	53.3	76	45	3	1.8	169	<0.001
	No	74	56.5	54	41.2	3	2.3	131	

DISCUSSION

Warning message on cigarette packets is an effective way informing smokers the problems of smoking. Printing the messages on cigarette packets is effective way exposing smokers to the potential problems of smoking (Abdolahinia et al., 2010).

Previous studies in Iran (Abdolahinia et al., 2010; Heydari et al., 2011) have not considered the relation of demographic variables like age, matrimony, education, history of smoking and smoking rate with the attitude and reaction of people. The results of this study, however, indicated the relation between most of the demographic variables with attitude and reaction. This implies that

attitude and reaction of smokers to the health messages on cigarette packets are under the influence of education, history of smoking and smoking rate and demographic variable are very important in the effectiveness of the messages. Therefore, it could be claimed that various health messages should be designed on the basis of target group's properties. For example, the messages should be designed considering different education and age groups which ultimately makes the messages more effective.

In the current study, 38% of population was in favor of printing warning messages on cigarette packets. In the study of Abdolahinia et al. carried out in a quit smoking clinic in Tehran, 62% of smokers supported the messages (Abdolahinia et al., 2010). The vast majority of the current study's population believed that health messages on cigarette packets enhance the knowledge of people about smoking problems. According to the studies carried out in Australia (Hammond et al., 2006), Belgium, Brazil (Borland, 1997) and Canada (Heydari et al., 2011).

The vast majority of this study's population (64.4%) stated that health messages have reminded smoking problems. According to a study carried out in Australia, warning messages is a powerful reminder about smoking problems (Miller et al., 2009). This study showed that the messages stimulated a main part of the population (68.3%) to think about smoking problems. This agrees with Bansal et al. study (Bansal-Travers et al., 2011). The studies of White, et al (White et al., 2008), Etter (Etter, 2009) and Bernald (Borland et al., 2009) revealed that the messages make people to think about smoking problem more which in turn results in stopping smoking. This agrees with the current study's results. According to this study, enhancing awareness, concerns about smoking problems, reminding smoking problems and thinking about problems are very important factors in designing such warning messages. To have a better attitude on the messages and to make them more effective, highlighting the mentioned factors in the design of such warning messages is recommended.

This study revealed that there is a statistical significant relation between daily cigarette use and paying attention to the messages in the time of buying cigarette packets. The individuals with a daily smoking rate of 10 to 20 cigarettes paid more attention to the messages compared with those with a daily rate of less than 10 cigarettes. More than half of the population of this study (57.3%) expressed that health messages lead to fear from smoking and the vast majority of them (63.7%) stated that the messages have intimidated them. Kees et al. (Kees et al., 2006). More likely, a daily smoking rate of 10 to 20 cigarettes exposes people to the messages more which in turn attracts their attentions and causes hate and fear sense in people.

The current study revealed that health messages have reduced smoking rate. This agrees with the studies

carried out on other countries (Kees et al., 2006) as well as the study of Abdolahinia, et al. (Abdolahinia et al., 2010) while it does not agree with the study of Heydari, et al (Heydari et al., 2011) carried out in Iran. One reason of this difference could be attributed to the fact that Heydari study was conducted during the 1st year of printing such messages and people were not familiar with them. This study, similar to Abdolahinia and Heydari studies (Advocacy, 1996), showed that smokers expressed that the messages have stimulated them to quit smoking. According to this study, the vast majority of smokers had a positive attitude on health messages and most of them had responded to them. However, the index of quit smoking probability, due to the messages, has been slightly increased compared with the previous studies carried out in Iran. Although about half of this study's population (49%) stated they have decreased their daily smoking rate but this point is considerable that 43% of smokers stated that printing the messages has been resulted in cigarette price increase. It is probable that this has indirectly decreased smoking rate and it may reduce the effectiveness of health messages, if continued, because smokers may go after cigarettes without health message. To avoid this, the policy makers of health area should better control the manner of printing the messages on cigarette packets.

Study limitation

This study was conducted only in Bandar Abbas urban area, south Iran with an almost limited population. This is one of the limitations of it. To study the influence of health messages on cigarette packets more comprehensively, studies with great populations and within a wider area are recommended.

Acknowledgment

We are very grateful the members deputy of research and technology Hormozgan University of Medical Sciences, Bandar Abbas, Iran and we also gratefully all participants that were in this study.

Funding

This research was funded by Student Research Committee, Hormozgan University of Medical Sciences, and Bandar Abbas, Iran.

REFERENCES

- Abdolahinia, A, et al. (2010). "Pictorial Warning Labels and Quit Intention in Smokers Presenting to a Smoking Cessation Clinic." *Tanaffoz*, 9(4): 48-52.
- Advocacy, R. (1996). "Comprehensive tobacco control legislation and national campaign." *criminal law*.
- Bansal-Travers, M., Hammond, D., Smith, P., Cummings, K.M. (2011). "The impact of cigarette packs design, descriptors, and warning labels on risk perception in

- the US." *American journal of preventive medicine*, 40(6): 674-682.
- Borland, R. (1997). "Tobacco health warnings and smoking-related cognitions and behaviours." *Addiction*, 92(11): 1427-1435.
- Borland, R., Wilson, N., Fong, G.T., Hammond, D., Cummings, K.M., Yong, H.H., Hosking, W., Hastings, G., Thrasher, J. & McNeill, A. (2009). "Impact of graphic and text warnings on cigarette packs: findings from four countries over five years." *Tobacco control*, 18(5): 358-364.
- Borland, R., Yong, H., Wilson, N., Fong, G.T., Hammond, D., Cummings, K.M., Hosking, W. & McNeill, A. (2009). "How reactions to cigarette packet health warnings influence quitting: Findings from the ITC Four-Country survey." *Addiction*, 104(4): 669-675.
- Control, R. f. I.T. (2008). WHO report on the global tobacco epidemic, World Health Organization?
- Etter, J. & Cornuz, J. (2009). "Are graphic warnings on cigarette packs useful?]" *Revue médicale Suisse*, 5(210): 1476.
- Fong, G.T., Hammond, D. & Hitchman, S.C. (2009). "The impact of pictures on the effectiveness of tobacco warnings." *Bulletin of the World Health Organization*, 87(8): 640-643.
- Goldberg, M.E., Liefeld, J., Madill, J. & Vredenburg, H. (1999). "The effect of plain packaging on response to health warnings." *American Journal of Public Health*, 89(9): 1434-1435.
- Hammond, D. (2009). "Tobacco labelling & packaging toolkit: a guide to FCTC article 11." Waterloo, ON: Tobacco Labelling Resource Centre.
- Hammond, D., Fong, G.T., McNeill, A., Borland, R. & Cummings, K.M. (2006). "Effectiveness of cigarette warning labels in informing smokers about the risks of smoking: findings from the International Tobacco Control (ITC) Four Country Survey." *Tobacco control*, 15(3): 19-25.
- Hammond, D., Fong, G.T., Borland, R., Cummings, K.M., McNeill, A. & Driezen, P. (2007). "Text and graphic warnings on cigarette packages: findings from the international tobacco control four country studies." *American journal of preventive medicine*, 32(3): 202-209.
- Hammond, D., Fong, G.T., McDonald, P.W., Brown, K.S. & Cameron, R. (2004). "Graphic Canadian cigarette warning labels and adverse outcomes: evidence from Canadian smokers." *American Journal of Public Health*, 94(8): 1442-1445.
- Heydari, G.R., Ramezankhani, A. & Talischi, F. (2011). "The Impacts of Cigarette Packaging Pictorial Warning Labels on Smokers in the City of Tehran." *Tanaffos*, 10(1): 40-47.
- Kees, J., Burton, S., Andrews, J.C. & Kozup, J. (2006). "Tests of graphic visuals and cigarette package warning combinations: implications for the framework convention on tobacco control." *Journal of Public Policy and Marketing*, 25(2): 212.