Differences in Preventive Activities among Smokers

Kapseon KIM [1]

[1. First Author and Corresponding Author] Assistant Professor, Faculty of Liberal Arts, Jungwon University,
Republic of Korea. E-mail: kapskim@jwu.ac.kr

Abstract

The purpose of this study was to develop strategies and policies for smoking prevention that are tailored to the characteristics of different groups of smokers. The structured survey was conducted with regular smokers. The results were as follows: It has been demonstrated that Risk Perception Attitude framework can be used as a major research framework to predict behavioral changes related to the prevention of smoking. The smokers were divided into four attitude groups based on perceived risks and self-efficacy: indifference, proactive, avoidance, and responsive. The smoker groups showed significant differences in information seeking, information avoidance, prevention behavior and addiction degree. Especially, the difference in prevention behavior depended on the self-efficacy when the perceived risk level was high. Information avoidance was the lowest when the perceived risk level was high and the self-efficacy was low. Information seeking was lowest when the perceived risk level was low. When the level of self-efficacy was high, if the perceived risk level was high, prevention behavior was actively performed. Therefore, the self-efficacy was related to preventive behavior, and the perceived low-risk played a role in hindering information seeking. Smoking prevention strategies are important to raise awareness of the risk of smoking and to improve the positive willingness of smokers to quit smoking through self-efficacy

Keywords: Smoker Information Seeking, Information Avoidance, Prevention Behavior; Risk Perception Attitude Framework

Major classifications: Public Health, Health Policy and Economy

1. Introduction

Health information seeking can be regarded as part of preventive activities. It is can lead to effective healing and prevention by providing an understanding of health maintenance and disease symptoms and reducing uncertainty. This study, based on the assumption that health information seeking is part of preventive activities, aims to identify the types of preventative activities of smokers and to help them explore strategies for preventive activities

Although the smoking rate among adults in Korea is continuing to decline, smoking is still considered a major threat to national health. Cigarettes are known to contain about 70 types of carcinogens, and smoking is known to cause 20 percent of all cancers and 30 percent of cancer deaths. Continued smoking is known to cause several types of cancer, including lung cancer, oral cancer, phosphorus and posterior cancer, pancreatic cancer and bladder cancer (Jo & Kim, 2015). A sophisticated and ground-breaking smoking cessation program is needed to reduce the smoking rate amid the worsening smoking environment, including the aggressive launch of new cigarettes such as e-cigarettes.

Previous research on smoking can be divided into three types in terms of the study focus. There are studies on the causes of smoking and how to stop smoking (Shin & Cho, 2017), the seriousness of the threat to health of smoking, and the preferred source of information for smokers (Finney Rutten et al., 2009). These studies have enhanced understanding of smoking behavior and ways to prevent smoking.

However, a limitation of previous studies is that they have treated smokers as a single group and have not analyzed individual differences in smokers' attitudes or behavior, or the implications of these differences. To change the attitudes or behavior of smokers, the smoking population should be further subdivided so that prevention strategies can be tailored to their characteristics. This study attempts to examine the issue of smoking, which is recognized as a personal and social problem, in the context of seeking health information. This study aims to apply the Risk Perception Attitude (RPA) framework, which has strengths in subdividing public groups according to health information behavioral characteristics as a particularly useful framework for health communication.

This study is based on the premise that the starting point of smoking prevention is that of tailoring prevention strategies to individual attitudes related to smoking. The RPA framework (Rimal, 200l; Rimal & Real, 2003) was developed to describe the attitudes of individuals toward disease prevention activities, and is a useful framework for explaining the behavior of smokers, who are now recognized as having a disease.

The purpose of this study was to provide basic data on effective smoking prevention strategies by classifying the types of behavior of smokers and identifying how preventive activities differ depending on types of behavior using the RPA framework, a measurement instrument for predicting people's disease prevention activities.

The specific research questions of this study are as follows:

(1) Can smokers be classified into different attitude groups depending on their perception of the risk of smoking and their efficacy beliefs regarding preventing smoking?

(2) How do these different attitude groups differ in terms of their level of information seeking, information avoidance, prevention behavior, and addiction?

(3) What are the appropriate prevention strategies for the attitude groups?

2. Risk perception attitude framework

Protective motivation theory (PMT) (Rogers, 1975; Rogers, 1983) and the Health Belief Model (HBM) (Abraham & Sheeran, 2005; Janz & Becker, 1984; Rosenstock, 1974), both prominent in health communication theory, present perceived risk a key factor that can predict health behavior. Perceived risk consists of perceived severity of a disease and perceived susceptibility to infection with it. The perceived risk of a disease affects an individual's response to it. However, the RPA framework maintains that perceived risk alone is insufficient to predict behavior, and that efficacy beliefs need to be measured as well (Rimal, 2001). Based on the Extended Parallel Process Model (EPPM), the RPA model distinguishes four groups of individuals based on the attitudes they hold in terms of risk perception and efficacy. According to the EPPM, efficacy is a modulator that regulates the relationship between perceived risk and health behavior (Witte, 1992; 1994). Efficacy refers to attitudes relating to how effective preventive health actions are in preventing diseases that individuals feel threatened by, and self-efficacy refers to beliefs people have about their own capacity for effective preventive health behaviors.

According to the EPPM, people engage in health actions only when they have a strong sense of efficacy and they perceive significant risks. When efficacy is weak, they do not perform health actions despite perceived risks. The perception that

there is a significant risk of disease creates an incentive to act, to address the threat, but what preventive action is taken is controlled by the individual's sense of efficacy (Witte, 1994). Therefore, EPPM assumes that how people respond to a particular disease can be predicted by two variables: perceived risk and efficacy belief. Based on this assumption of the EPPM, the RPA model distinguishes four attitudes—responsive, avoidant, proactive, and indifferent (Figure 1) — and argues that each of these four attitudes leads to different actions with regard to disease prevention, enabling prediction of health behaviors (Rimal & Real, 2003).

This study applies the RPA to smokers. Smoking, like a real disease, can cause mental, physical and social risks and losses for individuals as soon as the addiction occurs. The perception of risk creates an incentive to prevent smoking, and high self-efficacy regarding prevention creates a strong commitment to the prevention of smoking.
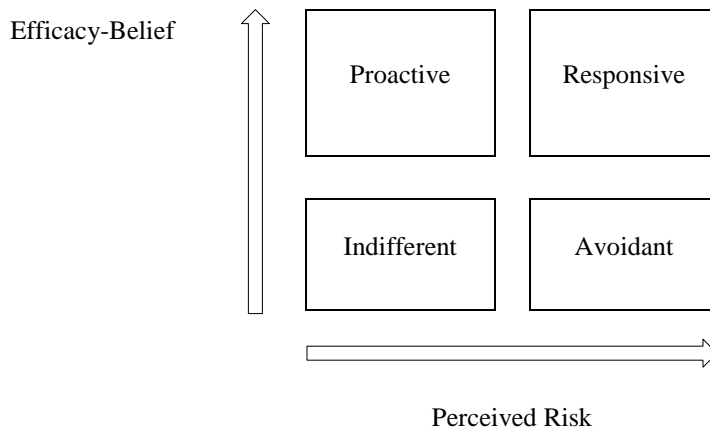
Figure 1. Risk Perception Attitude(RPA) Framework (Rimal & Real, 2003)

3. Research method

3.1. Operational definition

The operational definitions applicable to this study are as follows:

(1) Perceived risk: According to the Extended Parallel Process Model (EPPM) and RPA framework, perceived risk refers a personal idea about the severity and likelihood of disease. In this study, perceived risk was defined specifically in terms of individuals' thoughts regarding the risk of smoking addiction. To measure this concept, the three-item scale developed by Rimal and Juon (2010) was modified for our study's research purposes, and was worded as follows:

1. Smoking addiction will hurt both me and my family.
2. I think smoking addiction is a very serious disease.
3. I think smoking addiction is more serious than any other addiction.

(2) Efficacy: This study defines self-efficacy as an individual's perceived ability to control himself/herself to prevent disease. In this study, the definition of efficacy is modified to suit the purpose of the study. Self-efficacy is defined as the knowledge and ability possessed by individuals that enables prevention of smoking addiction. To measure this concept, the five-item scales developed by Rimal and Juon (2010) and Van Beuningen et al. (2009) were modified and used for research purposes. The modified items included:

1. I can prevent smoking addiction well.
2. I can stop smoking whenever I want.
3. I think there are many things I can do to prevent smoking addiction.
4. I have the ability to protect myself from smoking.

5. I think there are many ways to prevent smoking addiction.

(3) Information seeking: Information seeking can be defined as the extent to which patients pay attention to disease-related stories in the media such as in newspapers, on television, or on the Internet (Rimal & Real 2003). In this study, a measure of information seeking was modified to suit the purpose of the study, and is defined as the extent to which smokers pay attention to information about smoking-related diseases and addiction in the mass media and on the internet. To measure this concept, four of the five measurement items developed by Rimal and Real (2003) were modified and used for research purposes, including:
1. I will pay a lot of attention if I find information about my addiction to smoking in newspapers, on television, or on the Internet.
2. I want to talk to my friends, family and doctor about my addiction to smoking.
3. I need more information about my smoking addiction.
4. I will actively look for information about my smoking addiction.

(4) Information avoidance: Individuals avoid information when they hope not to encounter information that calls into question their beliefs or suggests undesirable outcomes are likely. In this study, information avoidance is defined as the extent to which smokers avoid smoking addiction-related information. This was measured by four items regarding intentions to avoid information, developed by Alexander (2003), including:
1. I don't want to think about smoking addiction.
2. I want to avoid information about smoking addiction.
3. I'm not going to look for information about smoking addiction in newspapers, on television, on the Internet, etc.
4. I don't want to be more specific about my smoking addiction.

(5) Prevention behavior: Prevention behavior includes all actions taken to control, reduce or avoid perceived risks. In this study, a measure of prevention behavior was modified to suit the purpose of the study and defined as all actions taken by smokers to prevent smoking addiction. To measure this concept, six items from the 12-item scale developed by Chan et al. (2005); Chen and Guo (2006) were modified and used for research purposes.
1. I have prevented smoking addiction for a long time by limiting the number of cigarettes.
2. I'm trying to develop healthy activities, to replace smoking.
3. I often stop smoking for my health.
4. The comfort I get from the reality of being smoke-free is more important than the psychological comfort I get from smoking.
5. I will get help from a professional counseling agency if smoking continues to cause maladaptation or conflict.
6. I limit smoking to smoking only on certain days or at certain times.

(6) Smoking Addiction: This study defined smoking addiction as the extent to which family and interpersonal relationships are disturbed and the individual is having social life and health problems due to excessive smoking. To measure this concept, five items from the 21-item Game Addiction Scale (GAS) developed by Lemmens, Valkenburg and Peter (2009) were modified and used for research purposes. The modified items included:
1. Even when I don't smoke, I keep thinking about smoking.
2. I'm smoking more than I used to.
3. I smoke to forget reality.
4. I can't stand to see people smoke when I can't.
5. I experience friction with my family because of my smoking.

3.2. Measurement tool

A descriptive survey method was used in this study. The structured survey questionnaire consisted of seven sections and 34 items. The seven sections were concerned with perceived risk (three items; 7-point Likert scale) (Rimal & Juon. 2010; Witte, 1994), efficacy belief (five items; 7-point Likert scale) (Bandura, 1986; Rimal & Juon, 2010; Van Beuningen et al.,2009), information seeking(four items; 7-point Likert scale) (Rimal & Real, 2003), information avoidance (four items; 7-point Likert scale) (Alexander, 2003), prevention behavior (six items; 7-point Likert scale) (Chan et al., 2005; Chen &

Goo, 2006), smoking addiction (five items; 7-point Likert scale) (Lemmens, Valkenburg & Peter, 2009), and demographic data(seven items).

3.3. Respondents

The respondents were adult regular smokers in South Korea who voluntarily participated in this online survey. They were selected by convenience sampling.The criteria for selection were those who were recognized and recommended by people around them as smokers, or those who participated in online smoking cessation clubs.

3.4. Data analysis

Statistical Package for Social Science 22 (SPSS 22) was used to compute frequencies and describe the statistics related to the scales.
(1) Demographic data for respondents were calculated including frequencies and percentages within different categories.
(2) To identify smokers in the four groups based on the RPA framework, cluster analysis method called Ward's method was performed.
(3) To analyze differences in information seeking, prevention behavior, information avoidance, and addiction degree among the four groups, ANOVAs were conducted.
(4) To analyze differences between RPA groups in detail, a multi-range test was performed using the Duncan test.

4. Results

4.1. Respondent characteristics

The respondents were 129 smoking adults, included on a nationwide basis. There were 105 males (81.4% of the sample) and 24 females (18.6%). Participants were widely distributed in terms of age: 27.9% were in their 20s, 14.7% were in their 30s, 20.9% were in their 40s, 20.9 % were in their 50s, and 11.6% were in their 60s. In terms of education, 42.6 % were college graduates, 38.8 % were high school graduates, and 10.1% had a graduate degree. The overwhelming majority (93%) of participants first smoked between the ages of 19 and 29. The majority (54.3%) had smoked for more than 20 years. In terms of daily smoking volume (cigarette count), 31.8% smoked more than 20 cigarettes per day, 44.2% smoked 10-19 cigarettes per day, and 24% smoked less than nine cigarettes per day. The majority (61.2%) of participants smoked their first cigarette less than 30 minutes after waking up in the morning, and 40.3% smoked their first cigarette more than 30 minutes after waking up (Table 1).

4.2. Reliability and validity analysis of variables

This study examined the reliability and validity analysis of the six variables: perceived risk, efficacy beliefs, information seeking, prevention behavior, information avoidance, and addiction degree. The analysis found that Cronbach's alpha values of all the variables were 0.7 or higher (between 0.856 and 0.931), thus ensuring the reliability of the measures. The convergent validity of the variables was established, since the item-total correlation value (minimum value of 0.682) was greater than or equal to the reference value of 0.4. Since the checks of singularity of questionnaire items and factor loading values were above the standard 0.5 value, the discriminant validity of the variables is also ensured

4.3. Classification of smoker types according to level of perceived risk and efficacy beliefs

The results of the cluster analysis using the Ward's method after determining the number of clusters as four are shown in Table 2. Thus, respondents could be classified into four groups of risk perception frames based on the criteria of perceived risk and efficacy. The Responsive group (n = 49) had high values for both perceived risk (mean = 6.42) and efficacy (mean = 5.40).   The Avoidant group (n = 26) had a high value for perceived risk (mean = 6.57) while efficacy had a low value (mean = 2.49). The Proactive group (n = 14) had a low value for perceived risk (mean = 4.02), but a high value for efficacy

(mean = 6.04), and the Indifferent group (n = 49) had low values for both perceived risk (mean = 4.38) and efficacy (mean = 3.27).

Table 1: Characteristics of the respondents

Variable	Property	N (%)
Gender	Female	24 (18.6)
	Male	105 (81.4)
Age (years)	19	5 (3.9)
	20-29	36 (27.9)
	30-39	19 (14.7)
	40-49	27 (20.9)
	50-59	27 (20.9).
	≥ 60	15 (11.6)
Education level	Less than high school	8 (6.21)
	High school graduate	50 (38.8)
	College graduate	55 (42.6)
	Graduate school	13 (10.1)
	No response	3 (2.3)
Age at which Smoking started	19-29	120 (93)
	30-39	5 (3.9)
	40-49	4 (3.1)
Number of years as a smoker	1-9	39 (30.2)
	10-19	20 (15.5)
	≥ 20	70 (54.3)
Number of cigarettes smoked per day	1-9	31 (24)
	10-19	57 (44.2)
	≥ 20	41 (31.8)
Time until smoke first cigarette after waking up in the morning	under 30 minutes	78(61.2)
	more than 30 minutes	51 (40.3)

Table 2: Smoker types based on perceived risk and efficacy beliefs

Group Type	Indifferent	Proactive	Responsive	Avoidant	Mean	*p-value*
Perceived Risk	4.38 (Low)	4.02 (Low)	6.42 (High)	6.57 (High)	5.41	0.00
Efficacy Belief	3.27 (Low)	6.04 (High)	5.40 (High)	2.49 (Low)	4.07	0.00
N=129	49 (37.9%)	14 (10.8%)	40 (31.0%)	26 (20.1%)		

4.4. Differences in information seeking, prevention behavior, information avoidance, and addiction degree according to smoker types

Analysis of Variance (ANOVA) were conducted to analyze the differences in information seeking, prevention behavior, information avoidance, and addiction degree among the four groups. The analysis results showed significant differences between the RPA groups in information seeking (F = 72.505, p < 0.001), prevention behavior (F = 43.701, p <0.001), information avoidance (F = 25.500, p < 0.001), and addiction degree (F = 2.909, p < 0.05).

To analyze the differences between four groups in detail, a multi-range test was performed using the Duncan test (Table 3). At this time, it was shown that each group had a significant difference at a significance level of 0.05.

Information seeking was lowest in the Proactive group, and next lowest in the Indifferent group. On the other hand, there was no significant difference between the Avoidant group and the Responsive group. Prevention behavior was highest in the Responsive group, and lowest in the Avoidant group. On the other hand, there was no significant difference between the avoidant group and the indifferent group. Information avoidance was highest in the proactive group, and lowest in the avoidant. On the other hand, there was no significant difference between the avoidant group and the responsive group, or between the responsive group and the indifferent group. Addiction Degree was significantly different between the Proactive group and the avoidant group (proactive group < avoidant group). The Responsive group and the indifference group did not significantly differ from the other two groups.

Table 3: The differences in information seeking, prevention behavior, information avoidance, and addiction degree among the smoker groups

Information Seeking Mean					
	RPA Groups	N	Subset for *P=.05*		
			1	2	3
Duncan*,**	Proactive	14	2.374		
	Indifferent	49		3.5979	
	Avoidant	26			5.9077
	Responsive	40			5.9833
Significance Probability			1.000	1.000	.796

Prevention Behavior Mean					
	RPA Groups	N	Subset for *P=.05*		
			1	2	3
Duncan*,**	Avoidant	26	3.0385		
	Indifferent	49	3.6224	3.6224	
	Proactive	14		3,7976	
	Responsive	40			5.8417
Significance Probability			.061	.572	1.000

Information Avoidance Mean					
	RPA Groups	N	Subset for *P=.05*		
			1	2	3
Duncan*,**	Avoidant	26	2.1635		
	Responsive	40	2.9875	2.9875	
	Indifferent	49		3.6633	
	Proactive	14			6.3750
Significance Probability			.052	.110	1.000

Addiction Degree Mean			
	RPA Groups	N	Subset for *P=.05*

Duncan*,**			1	2
	Proactive	14	3.0454	
	Responsive	40	3.5336	3.5336
	Indifferent	49	3.5903	3.5903
	Avoidant	26		4.1938
Significance Probability			.140	0.73

Means for groups in homogeneous subsets are displayed
* Use harmonic mean sample size 25.757.
** Unequal group size. Harmonization average usage of group size. Type I error level not guaranteed

5. Discussion

5.1. High risk group: comparison of responsive group and avoidant group

The Responsive group and the Avoidant group had high perceived risk of disease. These two groups are motivated to act to escape the threat of disease. However, the two groups significantly differed in preventive behavior because of differences in their degree of efficacy belief.

The Responsive group comprised people with a high perceived risk of disease and high self-efficacy with regard to overcoming it. The study indicated that people in the Responsive group were significantly the highest preventive action among attitude groups. The results of this study suggest that successfully promoting smoking prevention activities requires a preventive strategy that both increases perceived risk of smoking and improves self-efficacy.

In contrast, the Avoidant group were motivated to act because their perception of risk was the same as that of the Responsive group but, because of a weak sense of self-efficacy, their motivation to engage in specific health behaviors was weakened. Instead, the combination of lower efficacy and high risk perception promoted avoidance behaviors.

In this study, because of its high perception of risk and low efficacy, the Avoidant group had the highest level of addiction to smoking, took a significantly the lowest preventive action among other groups, and led to the lowest approach to information avoidance. The fact that the Avoidant group had a low degree of information avoidance suggest that high risk perception did not lead to active information seeking in this study, and the group was interested in information about smoking cessation and smoking diseases, but preferred passive ways of seeking information. The results of this study suggest the Avoidant group should be a key target of the prevention strategies because they did not avoid information in passive preventive activities,

5.2. Low risk group: comparison of proactive group and indifferent group

The lowest-risk perception group, the Proactive group, show high self-efficacy with regard to taking specific preventive action, but weak motivation for engaging in action, because of low perceived risk. In this study, the Proactive group had lower addiction to smoking, the lowest level of information seeking and the highest level of information avoidance. This group tend not to seek information actively because of their low perceived risk and sense of high efficacy, and they avoid information. Strategies targeting members of this group should aim to increase their perception of risk and induce them to feel comfortable seeking information and preventive action. .

The Indifferent group have a low perception of risk and lack efficacy in preventive action, so they have the lowest motivation to take preventive action. In this study, it was found that this group had a low level of information-seeking behavior. Prevention strategies targeting those who are in this group require enhancement of both the perceived risk of smoking and efficacy regarding prevention behaviors

5.3. Comparison of information seeking and avoidance

Information seeking by smokers is an effort to reduce uncertainty and a recognition that their current knowledge is insufficient to solve smoking related health problems and quit smoking. Information seeking by smokers can be an important starting point in preventing these diseases.

In this study, both the Proactive group and the Indifferent group, with their low perception of risk, were the lowest in information seeking behavior despite differing in efficacy. The Proactive group also had the highest level of information avoidance. On the other hand, the Avoidant group, with their high level of perceived risk and low efficacy, had the lowest level of information avoidance.

These results showed that if perceived risk is low and efficacy is high, then not only do smokers not seek information but they also actively avoid information. In other words, if perceived risk is low, the level of interest in information is low, little information will be sought out. In addition, low risk recognition combined with high efficacy increases information avoidance. On the other hand, if the perception of risk is high and efficacy is low, then there is a decrease in information avoidance. This means passive information seeking will occur.

Information seeking and information avoidance can be considered to be conflicting motives. The results of this study show that risk recognition was related to information seeking and information avoidance. Low risk recognition led to less information being sought. However, although high risk recognition in this study significantly reduces information avoidance, high risk recognition was not associated with actively seeking information in this study. The results of this study showed that seeking information regarding smoking addiction had more to do with perceived risk than with a person's efficacy. In addition, the findings of this study support the results of previous studies that found that perceived risk affected health information-seeking activities.

The results of this study suggest that inducing the public to seek health information and take preventive measures requires, first of all, reduction of information avoidance. It is necessary, in other words, to turn proactive individuals into responsive individuals, and indifferent individuals into avoidant with high risk perception and low efficacy

5.4. Comparison of prevention behavior

In this study, the degree of preventive behavior differed between the high-risk groups, the Responsive group, and the Avoidant group, because of their differing efficacy beliefs. The Responsive group were active and the Avoidant group passive in preventive activities. The results of the study, showing that the responsive group showed a strong intention to engage in preventive activities, are consistent with the basic assumption of the RPA model. This suggests that, to encourage preventive behavior, it is most effective to increase both risk perception and sense of efficacy. Strategies aimed at avoidant individuals should focus on enhancing their efficacy, while strategies aimed at proactive individuals should be focused on increasing their risk perception. In addition, it is necessary to increase both perceived risk and self-efficacy among those who exhibit indifference.

6. Conclusion

This study attempts to examine the issue of smoking, which is recognized as a personal and social problem, in the context of seeking health information. This study aims to apply the Risk Perception Attitude (RPA) model, which has strengths in subdividing public groups according to health information behavioural characteristics as a particularly useful framework for health communication. Using a RPA framework, this study supported the use of different strategies and policies for smoking prevention according to the characteristics of the smoker groups outlined here. The analysis identified four groups of smokers with different attitudes regarding perceived risks and efficacy. The differences in information seeking, information avoidance, and prevention behavior and addiction degree between these groups were analyzed empirically. The results of this study indicate that smoking prevention strategies be developed to emphasize the perceived risk of smoking so that prevention activities and health information seeking may be enhanced.

This study provide guidelines for establishing preventive measures to suit the characteristics of smokers. Because previous research did not distinguish among smokers with different attitudes, policies to address smoking addiction have been premised on a one-size-fits-all-smokers approach. However, since the characteristics of smokers vary, these solutions or policies were clearly limited. Therefore, this study may have implications for policy developers who wish to develop more realistic and nuanced smoking prevention policies, health information services, public health campaign, and cessation program.

Limitations of the study are as follows: first, because the number of respondents was small, the representative quality of the population of adult smokers in South Korea was limited. Second, the study failed to take into account various factors related to the prevention of smoking. Follow-up studies should include a variety of variables related to prevention of smoking.

References

Abraham, C., and Sheeran, P. (2005). *The health belief model. In: Conner, M. and Norman, P., (Eds). Predicting Health Behavior: Research and Practice with Social Cognition Models*(2nd Edition). Open University Press, Maidenhead, 28-80.

Alexander, F. (2003). Evaluation of the UK colorectal cancer screening pilot. Final report. *http://www. cancerscreening. nhs. uk/bowel/finalreport. pdf*.

Bandura, A. (1986*). Social Foundation of Thought and Action*. Englewood Cliffs: Prentice-Hall.

Chan, Y. E., Culnan, M. J., Greenaway, K., Laden, G., Levin, T., & Smith, H. J. (2005). Information Privacy: Management, marketplace, and legal challenges. *Communications of the Association for Information Systems, 16*(1), 12.

Chen, J., and Guo, C. (2006). Online detection and prevention of phishing attacks, *2006 First International Conference on Communications and Networking in China,* (pp. 1-7), Beijing, China.

Finney Rutten, L. J., Augustson, E. M., Doran, K. A., Moser, R. P., & Hesse, B. W. (2009). Health information seeking and media exposure among smokers: a comparison of light and intermittent tobacco users with heavy users. *Nicotine & Tobacco Research*, *11*(2), 190-196.

Janz, N. K., and Becker, M. H. (1984). The health belief model: a decade later. *Health Education Behavior, 11*(1), 1-47.

Jo, E.J., and Kim, N.Y. (2015). The related factors of adolescent smoker's cancer preventive behaviors. *Journal of Korea Academia-Industrial Cooperation Society, 16*(8), 5287-5295.

Lemmens, J. S., Valkenburg, P. M., and Peter, J. (2009). Development and validation of a game addiction scale for adolescents. *Media Psychology, 12*(1). 77-95.

Rimal, R. N. (2001). Perceived risk and self-efficacy as motivators: understanding individuals' long-term use of health information. *Journal of Communication, 51*(4), 633-654.

Rimal R. N., and Juon, H. S. (2010). Use of the risk perception attitude framework for promoting breast cancer prevention, *Journal of Applied Social Psychology, 40*(2), 287-310.

Rimal R. N., and Real, K. (2003). Perceived risk and efficacy beliefs as motivators of change: use of the Risk Perception Attitude (RPA) framework to understand health behaviors. *Human Communication Research, 29*(3), 370–399.

Rimal R. N., Brown, J., Mkandawire, G., Folda, L., Böse, K., & Creel, A.H. (2009). Audience segmentation as a social marketing tool in health promotion: use of the risk perception attitude framework in HIV prevention in Malawi. *American Journal of Public Health, 99*(12), 2224–2229.

Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Behavior, 2*(4), 328-335.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *The Journal of Psychology, 91(1)*, 93-114.

Rogers, R. W. (1983). Cognitive and physiological processes in fear appeals and attitude change: a revised theory of protection motivation. In J. Racioppo and R. Petty (Eds). *Social Psychophysiology*. New York: Guilford, 153–76.

Shin, T. S., and Cho, Y.C. (2017).Analysis of health behavioral factors affecting to the interest in smoking cessation among male smokers using the health belief model. *Journal of Korea Academia-Industrial Cooperation Society, 18*(5), 456-466.

Van Beuningen, J., de Ruyter, K., Wetzels, M., & Streukens, S. (2009). Customer self-efficacy in technology-based self-service: assessing between-and within-person differences. *Journal of Service Research*, *11*(4), 407-428.

Witte, K. (1992). Putting the fear back into fear appeals: the extended parallel process model. *Communication Monographs, 59*(4), 329-349.

Witte, K. (1994). Fear control and danger control: a test of the extended parallel process model (EPPM), *Communication Monographs, 61*(2), 113-134.