

The Health Belief Model and Self-Care Behavior Influencing on Health Preventive Behavior in a Senior Club, Bangtoey Sub-District, Samphran District, Nakhon Pathom Province

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Abstract

This research was to study levels of individual beliefs based on Health Belief Model, levels of self-care behavior, levels of health preventive behavior and to study influential relationship between levels of Health Belief Model and levels of self-care behavior, and levels of health preventive behavior. This study is a quantitative research. A study population comprises of 231 seniors (aged 60 years old or above) in a senior club of Bangtoey sub-district, Nakhon Pathom Province. The researcher employed a questionnaire, synthesized from relevant literature. Obtained data were then analyzed by SPSS, based on a sample size of 197 seniors from a simple random sampling technique.

The findings revealed that most seniors were married female, with 71 years old, having a monthly income of 1,239 baht, on average. Most of them finished primary school. More than half of the participants (i.e., 51.30%) was classified into a ‘unhealthy’ condition group, which could be subcategorized into a self-assisted and a non self-assisted groups. Most seniors demonstrated high levels on Health Belief Model. Most of them have a ‘rarely practice’ level of self-care behavior, of which an environmental hygiene subcategory ranked first at ‘often’ level, while

doing exercise subcategory ranked last at ‘rarely practice’ level. Regarding health preventive behavior, most seniors showed that they were at ‘often’ level, of which diabetes preventive behavior subcategory ranked first. The influential relationship by stepwise regression analysis of Health Belief Model and self-care behavior, and health preventive behavior revealed that there were positive influential variables on health preventive behavior: (1) self-care behaviors on environmental hygiene, (2) food, (3) emotion, and (4) Health Belief Model on perceived susceptibility. These four variables accounted for 50.10% of predictive power on health preventive behavior among seniors.

Keywords: Health Belief Model; Self-care behavior; Health preventive behavior; Senior Club

Introduction

Thailand realizes and focuses on quality of life development among seniors. Thailand's human resource development act aligns with the United Nations' Universal Declaration of Human Rights article 25(1), which is stated that:

"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control... (Thanathitti, 2006: 7-8).

In accordance to the article, Thailand issued its first plan for senior development, entitled the National Development Plan for Seniors B.E. 1982 – 2001. This plan emphasized on basic welfare subsidization for homeless or neglected seniors. Later, in 1997, Thailand constitution has first ever stated rights and protection for seniors under its chapter 3 article 54 that:

"... A person whose age of over 60 cannot earn enough income for living shall receive welfare from the state..."

And under chapter 5 article 80 stated that

"... the state shall give welfare for seniors, underprivileged, and disabled persons for their better life and self-reliance..." (The Secretariat of the Cabinet, 1997: 12-16).

In 1999, Thailand designated the Declaration for Seniors, emphasized on supporting senior to learn for health self-monitoring. In addition, universal access for health care service should be available. As can be seen from the Declaration, by that time Thailand has focused on providing welfare for seniors as a compensation plan.

Later, a National long-term plan for Seniors B.E. 2002-2022 has been initiated on July 5th, 2002 designated a strategy in senior protection for self-assisted and dignity of living among seniors. Health-promoted activities for seniors have to be a process that enhances seniors' self-assisted potential for better health conditions, physically, mentally, and socially

(Department of Health, Ministry of Public Health, 2004). It is clear that this second National long-term plan for Seniors designates for seniors' capability for self-assisted on better health conditions.

In the near future, Thailand population structure will have a higher proportion of seniors because of declining birth rates, resulted from a birth control policy and economy-related problems that cause a birth rate drop. Chayovan (2005) studied the fragile senior group in Thailand, she found that one-fourth of Thai seniors were classified as deprived group (i.e., having less than THB 10,000 or US\$ 330 annual income). Additionally, she found that 13.7% of seniors are poor and have inadequate income.

The researcher determined health preventive behavior from Thai senior risk factor index, developed by the Ministry of Human Securities in 2006. The five top risks among seniors in Thailand are hypertension, osteoarthritis, diabetes, eye problems, and coronary and artery disease. Health related issue is another problem among seniors. According to Thailand's National Statistic Bureau, Female seniors had higher tendency of disability, as compared to male seniors. It is clear that female seniors have higher rate of living with disabilities than male seniors (National Statistical Office, 2011).

Based on abovementioned situations, it is evident that if the seniors lack self-care behaviors, they will be at risk of being disabled, and ill from various diseases. Health-promotion behaviors are, therefore, significantly important for the seniors to develop self-care behaviors for their better health and long life.

To have a concrete pattern of self-care behavior among local seniors, the research entitled "the Health Belief Model and self-care behavior influencing on health preventive behavior in a Senior Club, Bangtoey Sub-District, Sampran District, Nakhon Pathom Province" was conducted. The rationale that the research team focused on the Senior Club in Bangtoey Sub-District was because this senior club was awarded as the provincially outstanding senior club and always got a support on activities for better life from Bangtoey Sub-District Administration. This study was

a pilot study for health-related self-care behaviors among local seniors for other regions in Thailand.

Objectives of the Study

1. To investigate 4 components of Health Belief Model: perceived susceptibility, perceived severity, perceived benefits and costs, and motivation on health among seniors in Bangtoei, Samphran, Nakhon Pathom province.
2. To investigate self-care behaviors: food, exercise, emotion, environmental hygiene, and refraining from drugs among seniors in Bangtoei, Samphran, Nakhon Pathom province.
3. To investigate level of health preventive behavior: hypertension, osteoarthritis, diabetes, eye problems, and coronary and artery disease.
4. To investigate influential relationship between Health Belief Model, self-care behaviors, and health preventive behavior of seniors.

Hypothesis

Health Believe Model and self-care behaviors have influential relationship with health preventive behavior among seniors in Bangtoei, Samphran, Nakhon Pathom province.

Literature Review

The researcher has studies theories, frameworks, and related studies on Health Belief Model, self-care behaviors, and health preventive behavior among seniors as a framework of the study, which are described as following:

Health Belief Model

The researcher synthesized the Health Believe Model (Becker, 1974: 409-415) to studied variables in the current study, including perceived susceptibility, perceived severity, perceived benefits and costs, and health motivation.

Self-Care Behaviors

The researcher synthesized associated variables from the Theory of Self-care (Orem, 1985) and the Protection Motivation Theory (Rogers and Prentice-Dunn, 1997) and the health protection campaign “Health Thailand” of Thailand’s ministry of public health, started from 2005. Self-care behavior was determined into five subcategories: food, exercise, emotion, environmental hygiene, and refraining from drugs.

Health Preventive Behavior

The researcher determined health preventive behavior from Thai senior risk factor index, developed by the ministry of human securities in 2006. The five top risks among seniors in Thailand are hypertension, osteoarthritis, diabetes, eye problems, and coronary and artery disease (Ministry of Public Health, 2007). Therefore, preventive behaviors to these five diseases are considered as health preventive behavior in this study.

Conceptual Framework

According a state of the art review, the researcher determined a conceptual framework of the study as followings:

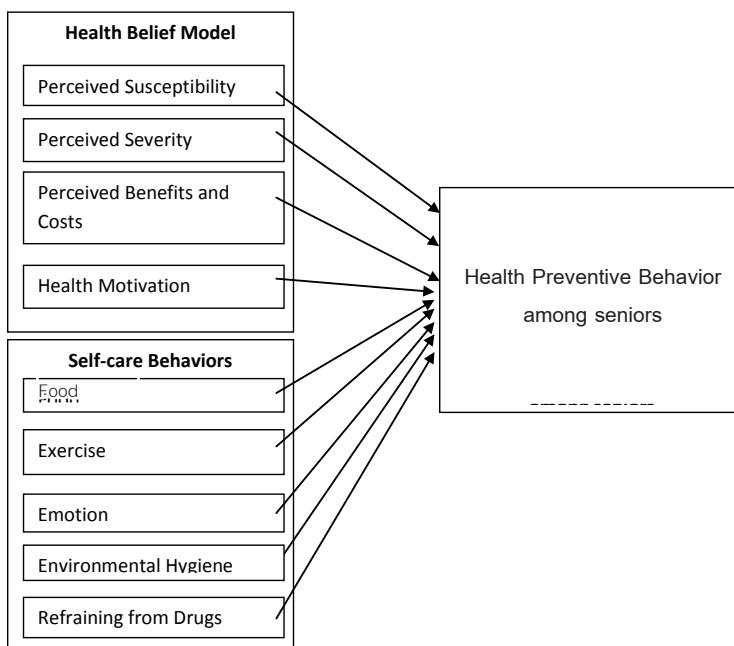


Figure 1: Conceptual framework

Methodology

This quantitative study was conducted to fulfill three objectives of the study: (1) to investigate 4 components of Health Belief Model, (2) to investigate self-care behaviors, (3) to investigate level of health preventive behavior, and (4) to investigate influential relationship between Health Belief Model, self-care behaviors, and health preventive behavior of seniors.

Population and Sample

A population in the study is 231 over-60-year-old seniors in Bangtoei sub-district, Samphran district, Nakhon Pathom province. A sample group of 146 seniors were recruited by Yamane criterion, at a sampling error level of .05. To increase sampling creditability, the researcher determined the sample group of 200 seniors.

Sampling Procedure

A simple random sampling method was conducted for participant recruitment. The researcher contacted a senior club. There were 197 copies of questionnaire completed by the sample group.

Research Instruments

A questionnaire, developed by the researcher, synthesized from relevant studies, consisted of four parts as follows:

Section 1: Questions regarding demographic data

Section 2: Five-rating scale questions regarding Health Belief Model, including perceived susceptibility, perceived severity, perceived benefits and costs, and health motivation. Interpretation of answers was categorized into five levels: very high, high, moderate, low, and very low.

Section 3: Three-rating scale questions regarding self-care behaviors, including food, exercise, emotion, environmental hygiene, and refraining from drugs. Interpretation of answers was categorized into three levels: often practice, occasionally practice, and rarely practice.

Section 4: Three-rating scale questions regarding health preventive behavior, including hypertension, osteoarthritis, diabetes, eye problem, and coronary artery disease. Interpretation of answers was

categorized into three levels: often practice, occasionally practice, and rarely practice.

Validity and Reliability of the Instrument

The questionnaire was validated by three experts in the field. A pilot trial was conducted with a group of 30 seniors, who were not in a sample group. The researcher contacted the sub-district administrative office to inform the objectives of the research study and also explained how to complete the questionnaire to all seniors in the trial group. The answers from the pilot trial were tested for its reliability by Cronbach's α Coefficient. The reliability of the questionnaire was at a satisfactory level of 0.84. In addition, the questionnaire had been submitted and approved for research ethics compliance by for Mahidol University Institutional Review Board (IRB).

Data Analysis

Statistical Package for the Social Sciences (SPSS) was used to analyze gathered data as following:

1. Descriptive statistics (frequency, percentage, mean, and standard deviation) was used for demographic data analysis.
2. Descriptive statistics (mean and standard deviation) was used to analyze the level of Health Belief Model, level of self-care behaviors, and level of health preventive behavior among seniors.
3. A stepwise multiple regression analysis was used to analyze influential relationship between Health Belief Model, self-care behaviors, and health preventive behavior among seniors.

Research results

There are three sections of the research results: (1) demographic data, (2) levels of Health Belief Model, self-care behaviors, and health preventive behavior among seniors, and (3) influential relationship between Health Belief Model, self-care behaviors, and health preventive behavior.

Part 1 Demographic Data of the Sample Group

A descriptive statistics revealed that most of correspondents were female (55.30%), having average age of 70.63, having a monthly income of 1,239 baht, married and living with their couples (57.40%), finished primary education (95.50%). Regarding their general health condition, it is found that most of them were in a good condition and capable for self-dependency (49.7%) as shown in Table 1.

Table 1: Descriptive statistics (frequency, percentage, mean, and standard deviation) of demographic data analysis.

Demographic data		frequency (n=197)	percentage (100)
Sex	male	88	44.70
	female	109	55.30
Age			
	$\bar{x} = 70.63$	S.D. = 7.06	Min = 60 Max = 90
A monthly income			
	$\bar{x} = 1239$	Min = 0	Max = 14500
Government subsistence allowance			
	no	15	7.60
	get	182	92.40
Marital status			
	single	15	7.60
	married (living with their couples)	113	57.40
	widowed	62	31.50
	divorced	3	1.50
	married (not living with their couples)	4	2.00
Education			
	uneducated	1	0.50
	primary school	188	95.50
	junior high school	4	2.00
	senior high school	4	2.00
General health condition			
	healthy (good condition and capable for self-dependency)	98	49.70
	unhealthy	99	50.30

Part 2 Levels of Health Belief Model, Self-Care Behaviors, and Health Preventive Behavior among Seniors

Health Belief Model

The data analysis revealed that most seniors have a high level of Health Belief Model ($\bar{x} = 3.87$, S.D. = 0.43). Participants rated their perceived severity ($\bar{x} = 4.05$, S.D. = 0.47), higher than their health motivation ($x = 4.00$, S.D. = 0.42), perceived benefits and costs ($\bar{x} = 3.75$, S.D. = 0.51), and perceived susceptibility ($\bar{x} = 3.63$, S.D. = 0.57) respectively as shown in Table 2.

Table 2: Mean and Standard Deviation of Health Belief Model

Health Belief Model	\bar{x}	(S.D.)	Level of Perceived	(n = 197)
Perceived Susceptibility	3.63	0.57	high	
Perceived Severity	4.05	0.47	high	
Perceived Benefits and Costs	3.75	0.51	high	
Health Motivation.	4.00	0.42	high	
Total	3.87	0.43	high	

Self-Care Behaviors

The analysis revealed that most seniors showed their self-care behaviors at occasionally practice ($\bar{x} = 2.23$, S.D. = 0.15). The environmental hygiene ranked first at often practice level ($\bar{x} = 2.79$, S.D. = 0.32), followed by food at often practice level ($\bar{x} = 2.71$, S.D. = 0.23), refraining from drugs at occasionally practice level ($\bar{x} = 2.31$, S.D. = 0.37), emotion at occasionally practice level ($\bar{x} = 2.29$, S.D. = 0.24), and exercise at rarely practice level ($\bar{x} = 1.55$, S.D. = 0.34), respectively as shown in Table 3.

Table 3: Mean and Standard Deviation of Self-Care Behaviors

(n = 197)

Self-Care Behaviors	\bar{x}	(S.D.)	Level of Practice
Food	2.71	0.23	often
Exercise	1.55	0.34	rarely
Emotion	2.29	0.24	occasionally
Environmental Hygiene	2.79	0.32	often
Refraining from Drugs	2.31	0.37	occasionally
Total	2.23	0.15	occasionally

Health Preventive Behavior

The analysis revealed that most seniors had an average health preventive behavior at often practice level ($\bar{x} = 2.51$, S.D. = 0.19). The diabetes preventive behavior ranked first at often practice level ($\bar{x} = 2.60$, S.D. = 0.30), followed by eye problem behavior at often practice level ($\bar{x} = 2.55$, S.D. = 0.30), coronary artery disease at often practice level ($\bar{x} = 2.50$, S.D. = 0.31), hypertension at often practice level ($\bar{x} = 2.49$, S.D. = 0.24), and osteoarthritis at often practice level ($\bar{x} = 2.44$, S.D. = 0.28), respectively as shown in Table 4.

Table 4: Mean and Standard Deviation of Health Preventive Behavior

(n = 197)

Health Preventive Behavior	\bar{x}	(S.D.)	Level of Practice
Hypertension	2.49	0.24	often
Osteoarthritis	2.44	0.28	often
Diabetes	2.60	0.30	often
Eye problem	2.55	0.30	often
Coronary artery disease	2.50	0.31	often
Total	2.51	0.19	often

Part 3 Influential Relationship between Health Belief Model and Self-Care Behaviors and Health Preventive Behavior among Seniors in Bangtoei Sub-District, Samphran District, Nakhon Pathom Province

Before stepwise regression analysis was conducted to identify the influential relationship between the dependent and independent variables, a Pearson's Product Moment Correlation Coefficient had been tested to examine the relationship among all independent variables. The Pearson's correlational test was found that the correlational coefficients among all 9 variables were below .50, so they all were non-multicollinearitous. Therefore, all 9 independent variables were taken for the stepwise regression analysis of influential relationship with the dependent variable: health preventive behavior among seniors (Y_{tot}).

The relationship between independent variables and health preventive behavior was preliminary tested. Positive relationships ranging from very low to high levels (Davis cited in Traimongkolkul and Chatraphorn, 2010) were found, significantly at .01 level, as shown in Table 5.

Table 5: Correlational Coefficients between Independent variables and Dependent

Variables	Correlational with health preventive behavior	Level
Health Belief Model		
Perceived Susceptibility	.29*	low
Perceived Severity	.40*	medium
Perceived Benefits and Costs	.28*	low
Health Motivation.	.34*	medium

Self-Care Behaviors

Food	.47*	medium
Exercise	.07*	very low
Emotion	.42*	medium
Environmental Hygiene	.50*	high
Coronary artery disease	.02*	very low

The stepwise regression analysis revealed that self-care behaviors on environmental hygiene, food, emotion, and Health Belief Model on perceived susceptibility positively influence on health preventive behavior at a significant level of .01 as shown in Table 6.

Table 6: Influential relationship between Health Belief Model and self-care behaviors, and health preventive behavior

(n = 197)

Model	b	Beta	R ²	R ²	F	Sig	Rank
Change							
Constant	.425						
Environmental Hygiene	.285	.463	.247	.247	64.02	.000	1
Food	.207	.243	.402	.155	50.33	.000	2
Emotion	.186	.226	.464	.062	22.32	.000	3
Perceived Susceptibility	.074	.210	.501	.037	14.19	.000	4

R = .708 R² = .501 Adjusted R² = .491 S.E. = 0.144 F = 48.215 Sig F = .000

Stepwise regression equation of raw scores is Y_{tot} (health preventive behavior) = .425 (constant value) + .285 (environmental hygiene) + .207 (food) + .186 (emotion) + .074 (perceived susceptibility)

An analysis of influential relationship between Health Belief Model and self-care behaviors, and health preventive behavior from

R^2 in Table 6 revealed that the most influential predictor of health preventive behavior were environmental hygiene, which accounted for 24.7%. Food was the second influential predictor, which accounted for additional 15.5%. Emotion was the third influential predictor, which accounted for additional 6.2%. Perceived susceptibility was added as a fourth variable into the equation and accounted for additional 3.7%. These four influential predictors, altogether, accounted for 50.1% of predictive power on health preventive behavior among seniors.

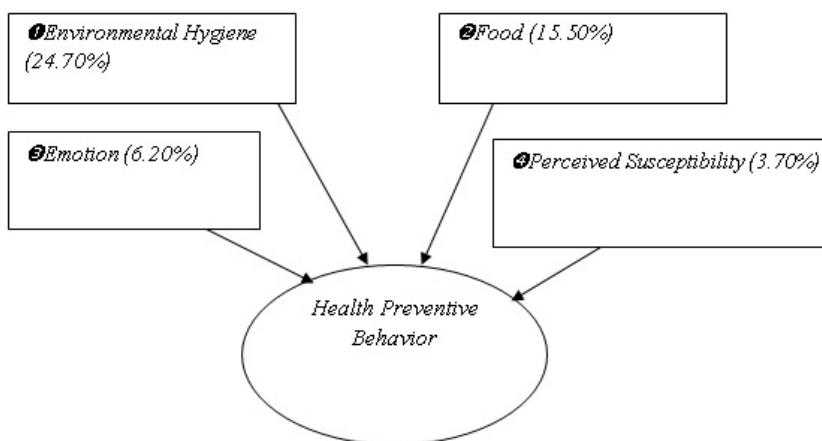


Figure 2: Influential relationship between Health Belief Model and Self-Care Behaviors, and Health Preventive Behavior, altogether predict for Health Preventive Behavior among Seniors.

Findings and Discussions

Based on the findings, most of sample group were female seniors, with average age of 71 years old, having a monthly income of 1,239 baht, married and living with their spouse, having finished primary level. Regarding their health status, it showed that more than half of the sample group (i.e., 51.30%) were in an unhealthy, and non self-assisted condition.

Health Belief Model

The results revealed that most seniors had overall Health

Belief Model at a high level. Perceived severity subcomponent ranked first, followed by motivation, perceived benefits and costs, and perceived susceptibility.

Self-Care Behaviors

The results revealed that most sample group had overall self-care behavior at occasionally practice. Environmental hygiene subcomponent ranked first at often practice level, followed by food at often practice level, refraining from drugs and emotion at occasionally practice level, and exercise at rarely practice level.

Health Preventive Behavior

The results showed that most of seniors had overall health preventive behavior at often practice level. Regarding the subcomponents, diabetes prevention ranked first at often practice level, followed by eye problem preventive, at often practice level. Coronary and artery health prevention ranked third at often practice level, followed by hypertension at often practice, and osteoarthritis at often practice level.

Influential relationship between Health Belief Model and Self-Care Behavior, and Health Preventive Behavior among Seniors

The results showed that environmental hygiene behavior, food behavior, emotional behavior, and perceived susceptibility had positive influential relationship with health preventive behavior among seniors at a significant level of .01. These four predicting variables accounted for 50.10%. The order of influential variables were ordered as following:

Environmental Hygiene

The results revealed that the hypothesis was accepted due to the fact that environmental hygiene behavior influenced on health preventive behavior among senior. It accounted for 24.7% of all influential predicting variables. This showed that seniors were aware that environment has an impact on their health. They also believed that if they were in a good or healthy environment, they would be in a good health condition. On the contrary, if they were in unhealthy environment, it would affect their health as well. This was evident by their highest score on environmental hygiene behaviors were highest among all studied

variable. This was in line to the theory of self-care (Orem, 1985), which stated that individual who can take care of him/herself well must have some knowledge on their health and environment. They must all agree that if the deal properly with the environment, it would positively affect to his/her good health condition. It can be concluded that the sample group showed a high level of environment hygiene behavior, which led to their good health and prevented risk of getting diseases among seniors.

Food

The results showed that food behavior ranked 2nd among all predicting variables, with additional 15.5% accountability. This finding accepted the hypothesis with a positive relationship with health preventive behavior. It has been known that disease epidemiology relates to food intake. Intake food could affect health condition positively and negatively. The sample group of seniors showed that they had a high level of nutritious preventive behaviors so they were aware that food influences on health condition. If they took good food, they would have a good health condition, and reduce risks of present diseases and also prevent other diseases. On the other hand, if they took bad food, their health would be harmful. This reason was in line with preventive behavior (Rogers and Prentice-Dunn, 1997), which stated that individual perception leads to change of attitude and behavior. This theory emphasizes on perception of information and assessment of the information to health awareness. If they don't have a preventive behavior they would be at risk of getting diseases. Perceived susceptibility determines individual's intention of decreasing risk behaviors. This finding was also in line with Woithawee (2005), who studied factors affecting health behaviors of seniors in Bang Pae district, Ratchaburi province. She found that perceived health condition of the elderly could be predicted by eating behavior, exercise, and behavior when getting sick, at a significant level of .001.

Emotion

The results show that emotional behavior ranked third among influential variables towards health preventive behavior. This variable provided additional positive predictable accountability of 6.2%, which

accepted the hypothesis. This showed that seniors were aware that emotional health relates to health preventive behavior. That was to say, seniors were in the changing period of physical, mental, social, environment. They are in the final stage of life. If they had emotional disturbance such as stressed or depressed, this would weaken their physical condition, or make it worse, if they already had ones. In addition, having emotional disturbance led to physical complications. This finding was in line with Thatsaeng et al. (2012), who studied the results of a support of self-management program and seniors with hypertension. They found that to practice emotional management skill affected self-preventive behavior among seniors with hypertension, reduced their blood pressure rate at a significant level of .05.

Perceived Susceptibility

The results revealed that perceived susceptibility ranked 4th, with additional 3.7 predictive power for health preventive behavior. This finding also accepted the hypothesis that perceived susceptibility had positive relationship with health preventive behavior. Based on the study, it was found that over half of sample seniors were in unhealthy condition, either being self-dependent and independent. Regarding their preventive behaviors, the seniors showed that they were in “often practice” level for the preventive behaviors. It is noteworthy that if seniors perceived susceptibility, they were more likely to have higher awareness of practicing preventive behaviors. This was also in line with Rogers and Prentice-Dunn (1997), who stated that perceived health condition leads to change of attitude and health behaviors. The finding was also supported by the study of Chanprasit (2005), who conducted an investigation of health preventive seeking behavior in Eye, Muang Chaing Mai, Chiang Mai province. She found that health preventive seeking behaviors were initiated when seniors perceived and interpreted that they were in unhealthy condition (i.e., being ill).

Conclusion

The current study has confirmed that self-care behaviors on

environmental hygiene, food, emotion, and Health Belief Model on perceived susceptibility had influential relationship towards health preventive behavior among seniors. Variables that did not have direct influential relationship with health preventive behavior among seniors included perceived severity, motivation, benefits and costs. These variables belong to Health Belief Model (Becker, 1974: 409-415), stated that self-care behaviors among seniors initiate when they perceived risks for unhealthy conditions. Next, they appraise if such disease affects their daily life. If it negatively affects their life, they are willing to treat such disease. Also, the severity of their motivation to maintain health status. Therefore, perception of these variables blended together with perceived susceptibility, the primary influential variable of health preventive behavior. The perceived susceptibility leads other health belief components. Moreover, refraining from drugs and exercise did not have direct influential relationship with health preventive behavior because they did not value doing exercise. What they value were preventive behaviors of environmental hygiene and food. This is because it is hard for unhealthy seniors to do exercises. This finding was also in line with the demographic data that over a half of sample seniors were in physically unhealthy condition. Furthermore, regarding refraining from drugs, most seniors reported that they were in “rarely practice” level. It was, therefore, unrelated with health preventive behavior among seniors.

Recommendations from the Study

Recommendations for related stakeholders are addressed as follows:

1. Health Promotion Model

A study, based on the Health Belief Model, designating model of health promotion activities for local seniors should be conducted, so it will be available for local administrators to adopt in health development for seniors.

2. Senior Development Agencies

All agencies responsible for seniors’ life quality (i.e.,

Ministry of Public Health, Ministry of Human Securities and Development, Ministry of Internal Affairs, and local administrative organizations) need to cooperatively educate seniors to perceived threats of disease so the seniors will perform a self-care behaviors for their healthy condition and disease-free life. This positive change will affect Thailand's population structure and will reduce cost to taking care of unhealthy seniors. Specifically, local administrative organization, which has a strong relationship with local seniors will be a good target to promote healthy behaviors to seniors. Therefore, the government should sufficiently support budget, human resources, and equipment for health promotion mission in local administrative organization.

3. Family

Family is the most important factor for seniors to attain healthy life. Family members should accommodate seniors with proper healthy environment, physically and mentally. Moreover, they should support senior some health preventive updates and facilitate health preventive environment such as food, exercise, emotional support, and hygiene living environment for the senior to live happily with their family.

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