Development Strategy of Communication on Cardiovascular Disease Prevention for Risk Group

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Abstract: *The research objectives were 1) to construct development strategy of communication on cardiovascular disease prevention for risk group in Chainat Municipality, 2) to experiment the constructed development strategy of communication on cardiovascular disease prevention for risk group in Chainat Municipality, and 3) to determine satisfaction level of experiment group for implementation development strategy of communication on cardiovascular disease prevention for risk group in Chainat Municipality. The research design was mixed methods of quantitative and qualitative approaches. The purposive sampling was used for sampling 310 community peoples of risk group in Chainat Municipality, Chainat Province on perception on. The qualitative research with focus group discussion and in-depth Interview were conduct with stakeholders from risk group in Chainat Municipality, community leaders, health volunteer and experts from Jainad Narendra Hospital included professional nurses of Department of Medicine, public health personnel, nutritionists, physicians, risk group and handlers. The purposive sampling was employed for selection of 53 community people from risk group for Quasi-experimental research. The results were as followings: the constructed economic status elevation based on SEP comprised 3 system units included 1) Risk Assessment, 2) Risk Management and 3) Monitoring the Results. The mean scores of posttest in aspects of risk opportunity, severity of cardiovascular disease, and self-health toward cardiovascular disease were higher than pretest at statistically significant level of 0.01, 0.01, and 0.01. Their whole satisfaction level was at very good level for risk communication model, content, media and equipments to raise awareness.*

Keywords: *Development Strategy / Communication / Cardiovascular Disease/ Prevention / Risk Group*

1. Introduction

Among globalization with unbalancing development of economic, social and environment of globe, the high competition of economic has occurred from materialism and capitalism after industrial age period from 1750 to 1850 where changes in agriculture, manufacturing, mining, transportation, and technology had a profound effect on the social, economic and cultural conditions of the times. It began in the United Kingdom, then subsequently spread throughout Western Europe, North America, Japan, and eventually the rest of the world. Industrialization) is the period of social and economic change that transforms a human group from an agrarian society into an industrial one (Wikipedia, 2012, & Thiengkamol, 2007). These are origin of non-communication diseases such as cardiovascular disease, heart attack, atherosclerosis, hypertension, diabetes, obesity, and cancer due to mental stress, hurry lifestyles, non-exercise and consume few fruits, vegetable, grain and high fiber foods. Particularly, the fast food, instant food, readymade food and semi-finished noodle are provided widely and conveniently in fast food shop and department store including fried, grill and toast foods from food stands across the urban and city center of all provinces in Thailand with day and night time, therefore, whenever you go out you can buy any food as you wish. All kinds of these malnutrition foods are high sodium and sugar, and then it can

cause obesity, diabetes, hypertension, kidney failure, and cardiovascular disease. Consequently, the mental stresses due to economic competition and hurry up lifestyles have also affected lack of exercise, and alcohol drinking to release stress. Moreover, lack of city planning has impacted to traffic congestion, inadequate mass transportation system and wrong value of personal car use.   WHO estimated that in 2005, death of 58 millions of global citizen, about 60% would die from chronic disease of non-infectious diseases and death of cardiovascular disease would be about half of them (29%). Furthermore in 2022, death of 25 millions or 80% would be in developing countries or poor countries and it will be important cause of death in work-force age group. This will be cause of family, social and national losses and disability adjusted life year from 6 in top 10 diseases (Wikipedia, 2012).

From research of disease status and health risk factors of Thai citizen in 2003, the loss was occurred with 65% of total loss, mainly, they were cardiovascular disease, atherosclerosis, and cancer. Besides, it also discovered that top ten diseases occurred from risk factor of wrong way of living as important orders that were alcohol drinking and smoking. Hypertension, obesity and high cholesterol were occurred due to less fruits and vegetable consumption with inadequate exercise. In 2008, the rate of patients with hypertension, diabetes, cardiovascular disease, cancer, and atherosclerosis were 1,149, 845, 684, 505, and 257 per 100,000 peoples and as out- patients with 14,328, 9,702, 2,565, 1,023, and 980 per 100,000 peoples. In 2009, cause of death of Thai citizen as top ten disease were cancer, and subsequences were cardiovascular disease, atherosclerosis, diabetes and hypertension with rate of 88.3, 29.0, 21.0, 11.1 and 3.6 per 100,000 peoples respectively.

Cardiovascular disease is a class of diseases that involve the heart or blood vessels (arteries, capillaries and veins). Cardiovascular disease refers to any disease that affects the cardiovascular system, principally cardiac disease, vascular diseases of the brain and kidney, and peripheral arterial disease. The causes of cardiovascular disease are diverse but atherosclerosis and/or hypertension are the most common (Maton, 1993, & Bridget, & Valentin, 2010).

Cardiovascular diseases remain the biggest cause of worldwide deaths, though over the last two decades, cardiovascular mortality rates have declined in many high-income countries. At the same time cardiovascular deaths and disease have increased at an surprisingly speedy rate in low- and middle-income countries (Mendis, Puska, & Norrving, (editors), 2011). Even though cardiovascular disease regularly affects older adults, the antecedents of cardiovascular disease, notably atherosclerosis begin in early life, making primary prevention efforts necessary from childhood (McGill, McMahan, & Gidding, 2008). Therefore, emphasis was increased on preventing atherosclerosis by modifying risk factors, such as healthy eating, exercise, and avoidance of smoking (Wikipedia., 2012).

Almost all cardiovascular disease in a population can be explained in terms of a limited number of risk factors: age, gender, high blood pressure, high serum cholesterol levels, tobacco smoking, excessive alcohol consumption, family history, obesity, lack of physical activity, psychosocial factors, diabetes mellitus, and air pollution (Bridget, & Valentin, 2010). While the individual contribution of each risk factor varies between different communities or ethnic groups the consistency of the overall contribution of these risk factors is remarkably strong (Yusuf, et al., 2004 & Wikipedia., 2012). Some of these risk factors, such as age, gender or family history are undeniable, however many important cardiovascular risk factors are modifiable by lifestyle change, drug treatment or social change. Such as consumption pattern of Thai people during three decades, particularly people who have lived in urban area have hurry lifestyles due to traffic congestion. Hence, they have little time exercise because they have tired with long time traveling to go work place. Moreover, the imitation to western lifestyle with fast food consumptions providing widely in department store and food stands over urban and center of city, these have also accelerated the consumption changing behavior. The non-infectious disease like as cardiovascular become extended important health problem for Thai citizen (Thiengkamol, 2009c).

Additionally, cardiovascular disease consumes time to express its symptom. Although, it can be prevented but on one knows when disease will attack. It can be easily prevented by adjusting way of life with eating more fruits and vegetables, regularly exercise, and decreasing high fat and carbohydrate foods consumption including avoiding sweet beverage and alcohol drinks. WHO forecasts that the fruits and vegetable lesser than 400-600 grams/person/day in developing countries is a major cause of death of people more than 2.5 million per year and it also related to cardiovascular disease, atherosclerosis, heart attack or stroke, and cancer. According to the World Health Organization, chronic diseases are responsible for 63% of all deaths in the world, with cardiovascular disease as the leading cause of death (WHO, 2011).

Jainad Narendra Hospital is tertiary hospital level with 367 beds under control of Ministry of Public Health, Thailand. It provides health promotion, prevention, treatment, and rehabilitee together with promotion and health network connection. It reported that cause of sick of patients who admitted at top ten diseases in hospital are hypertension since 2009-2011 were 3,064, 3,004 and 3,450 cases respectively. The cardiovascular disease with third order were 3,288, 3,118, and 3,257 cases respectively. Atherosclerosis were 929, 960, and 1,211 cases respectively. The tendency is increasingly, particularly, cause of death was happened from myocardial infarction with third order of death from top ten since 2009-2011 were 70, 63, and 60 cases respectively. Atherosclerosis with the forth order were 58, 59, and 63 cases respectively.

Even though, Jainad Narendra Hospital and network have implemented to support policy and to solve urgent problems that is health promotion to decrease impact from non-infectious disease. Principally, communication to people with public relation and holding campaign of knowledge giving with aim to adjust to have proper behavior by emphasizing on content about risk factors, severity, and impact of diseases. Method or mean of communication model, personal media, and channel to reach people, it was disclosed that communication on cardiovascular disease cannot make people to perceive and to be aware the danger of disease. Even though, there is proactive policy with campaign of communication to make peoples change their behaviors to decrease non-infectious diseases but it was also found that people with risk has increased every year. This indicated that media campaign use cannot change people behavior to decrease risk factors of cardiovascular disease and atherosclerosis. This might be as following causes of lack of analysis the different receiver characteristics of education level, occupation, living, environment, cultural context and belief. Additionally, they might have wrong belief that cardiovascular disease and atherosclerosis are not severe diseases or lack of time due to busy with work. Nevertheless, media were defined and construct by health personnel so it might be difficult for general people to understand or it is not direct to general people but communication was passed through health volunteers or they might not accept health volunteers since there are wide rage capability of health volunteers.

Chainat Municipality is a large community with 18 communities and it is semi-urban therefore, they have good relationship among them and have rather good economic status. Main agriculture is rice farming by using water resource from Chao Phaya River and households have pipe water for consumption. There are group establishment both formal and private to cooperate for implantation different activities and they have temple as mind center of community and have Jainad Narendra Hospital as big hospital in community, municipality public health center, and various clinics. Most of them consume three meals a day with having rice, boil, fried, and toast food with flavor high fat pork and they flavor sweet, oily, salty tastes and they put fish sauce and seasoning before eating without tried the taste first. They drink coffee with sugar and cream in the morning and evening everyday and drink beverage at least one bottle a day. Some of them drink beer or alcoholic drink at party or at home every day. Some drinks herbal liquor and they like to have dinner outside because there were a lot of food shop and not expensive. Their favorite foods are pork hot plate, oysters fried in egg batter, green mussel fried in egg batter, oyster omelet and various kinds of desserts

In order to accomplish cardiovascular disease prevention, it needs to develop strategy of risk communication model through focus group discussion with brain storming of stakeholders of health management group and risk group including survey perception of community people on cardiovascular disease and experiment would be conducted with purposive risk group who are interested to prevent cardiovascular disease to test proposed development strategy of risk communication by system approaches. Therefore, it will achieve the effective strategy to communicate to risk group in Chinat Municipality with health management team of Jainad Narendra Hospital to adjust health behavior of risk group to prevent cardiovascular disease effectively and meet quality of life of people in Chinat Municipality.

2. Objective

2.1 To construct development strategy of communication on cardiovascular disease prevention for risk group in Chainat Municipality
2.2 To the constructed development strategy of communication on cardiovascular disease prevention for risk group in Chainat Municipality.
2.3 To determine satisfaction level of experiment group for implementation development strategy of communication on cardiovascular disease prevention for risk group in Chinat Municipality. .

3. Methodology

The research design was implemented in steps by step as followings:

3.1 The qualitative research was used for searching knowledge, risk factors of severity and impact of cardiovascular disease through brain storming process integrated with SWOT (Strength, Weakness, Opportunity and Threat) analysis (Thiengkamol, 2011a).
3.2 Questionnaire for through systematic approach for development strategy of risk communication of Jainad Narendra Hospital on cardiovascular disease prevention for risk group in Chainat Municipality, there were 3 system units included as followings:

System Unit 1: **Risk Assessment composed of 2 Sub- system Units.**
Studying Real Situation
Creating Model of Communication on Cardiovascular Disease

System Unit 2: Risk Management composed of 3 Sub- system Units.
2.1 Construct Manual for Self-care for Cardiovascular Disease Prevention and Manual of communication to prevent Cardiovascular Disease for Public Health Personnel.
2.2 Training on Knowledge for Cardiovascular Disease Prevention

System Unit 3: Monitoring Results composed of 2 Sub- system Units.
3.1 Conclusion of Strategic Experiment
3.2 Propose the Strategy of Distribution, Transferring, and Communication of Risk and establish the club of "Community Leader of Heart and Vascular Care" . These were verified by stakeholders from risk group in Chainat Municipality, community leaders, health volunteer and experts from Jainad Narendra Hospital included professional nurses of Department of Medicine, public health personnel, nutritionists, physicians, risk group and handlers.
3.3. The quantitative research was used for experiment of the development strategy of risk communication of Jainad Narendra Hospital on cardiovascular disease prevention for risk group in Chainat Municipality. The experimental group came from 53 community peoples in Chainat Municipality.

4. Results

4.1 Searching risk communication on cardiovascular disease prevention through brain storming process integrated with SWOT, the results were as followings.

From focus group discussion was implemented with 26 health personnel composed of 9 health volunteers, 7 representatives of patients and handlers, and 10 nurses and public health persons who took responsibility for non-infectious disease. They proposed knowledge, risk factors of severity and impact of cardiovascular disease, communication model, and communication channels to community people as followings;
1) Target problem was lack of proper risk communication model for cardiovascular disease prevention.
2) Develop communication model with community participation in every steps of implementation including contents, media, channels and manual self-care construction.
3) Holding training activities about knowledge of cardiovascular disease, risk factors of severity and impact of cardiovascular disease by introducing theory of motivation for disease prevention.
4) Evaluation knowledge information perception on severity and impact of cardiovascular disease.
5) Promotion for risk group to change health behaviors to prevent cardiovascular disease.

4.2 Perception of Community People on Cardiovascular Disease

Interviewing was conducted with 310 community peoples. It was revealed that their perceptions on risk of cardiovascular disease, they were able to control food consumption at most level with mean of 2.79. Subsequences were peoples who had over weight or obesity both sexes was at most level with mean of 2.77 and Alcohol drinking person was at moderate level with 2.08.
    Perception of severity of cardiovascular disease, they were cigarette smoker at least level with mean of 1.69. Subsequence was person who could not control food consumption was at moderate level with mean of 1.89.
    Health Behavior in positive aspect when they faced with problem, they would solve by consulting and talking with others or going to temple at moderate level with mean of 1.83. Subsequence was exercise at least 3 times a week at least level with mean of 1.47. For negative aspect, they put fish sauces before eating every time at moderate level with mean of 2.32. Subsequence was dinking sweet beverage at moderate level with mean of 2.23.
    Belief on cardiovascular disease, most of them did not know that cardiovascular disease can be prevented with 43.5% and believed that it occurred for only old age with 31.9%.

4.3 Training for Risk Group of 53 Community Peoples in Chainat Municipality

Training was conducted with risk communication model proposed by community participation on perception of cardiovascular disease and severity of disease for risk group of 53 Community Peoples in Chainat Municipality. It was found that perception of risk opportunity, severity of cardiovascular disease, and self-health toward cardiovascular disease were presented in table 1.

Table 1 Comparison between Pretest and Posttest of 53 Community Peoples in Chainat Municipality

Perception	Posttest		Pretest		t	p
	X̄	S.D.	X̄	S.D.		
Risk Opportunity	2.98	.055	2.79	.180	7.553	.000**
Severity of Cardiovascular Disease	2.86	.178	2.54	.291	7.644	0.00**
Self-health toward Cardiovascular Disease	2.77	.481	2.22	.313	10.39	0.00**

** Statistically significant at level of .01

4.4 Monitoring afterTraining

Monitoring risk group of 53 Community Peoples in Chainat Municipality was conducted. It was found that health behavior and health management in aspects of consumption on carbohydrate foods and put fish sauces or others seasoning were no different between pretest and posttest at statistically significant at .05 level and the others were different between pretest and posttest at statistically significant at .05 level as presented in table 2.

Table 2 Comparison between Pretest and Posttest of Experimental Group Health Behavior and Health Management for Cardiovascular Disease Prevention for Monitoring

Health behavior and Health Management for Cardiovascular Disease Prevention	Pretest		Posttest		t	p
	X̄	S.D.	X̄	S.D.		
1. Consumption on carbohydrate foods	1.89	.670	1.83	.427	.490	.626
2. Drink alcohol mixed at least 2 glasses a day	2.72	.455	1.26	.445	-15.858	.000**
3. Drink sweet beverage	2.08	.615	1.83	.612	2.094	.041*
4. Put fish sauces or others seasoning	1.83	.700	1.81	.521	0.163	.871
5. Prefer to consume high fat food	2.09	.564	1.62	.596	4.433	.000**
6. Use force or movement at least 30 minutes a day	1.47	.575	2.72	.455	-11.591	.000**
7. Exercise with different activities	1.83	.753	2.57	.605	-5.677	.000**
8. Decrease smoking cigarette or others	2.91	.405	1.04	.192	30.893	.000**
9. Control weight by eating fruits and vegetables	1.70	.638	2.53	.608	-7.318	.000**
10. When you had stress, you consulted others and went to temple	1.87	.590	2.53	.504	-5.632	.000**

* Statistically significant at level of 0.05, ** statistically significant at level of 0.01

4.5 Satisfaction Level of Experimental Group for Communication Model for Risk Communication on Cardiovascular Disease Prevention

Results of satisfaction level of experimental group for implementation of development strategy for risk communication on cardiovascular disease prevention, it was found that communication model in all aspects at very good level, therefore satisfaction level as a whole was at very good level respectively, as presented in table 3.

Table 3 Satisfaction of Experimental Group for Communication Model

Development Strategy	X̄	S.D.	Level
Model of Creation for Wakening for Cardiovascular Disease Prevention	4.58	0.63	Very Good
Model of Perception of Risk Factors and Awareness to Severity of Cardiovascular Disease	4.57	0.50	Very Good
Model of Gain Knowledge and Understanding for Cardiovascular Disease Prevention	4.64	0.48	Very Good
Model of Participation on Health Behavior Adjusting for Cardiovascular Disease Prevention	4.70	0.46	Very Good
Model of Knowledge and Understanding Application to Health Care Practice for Cardiovascular Disease Prevention	4.77	0.42	Very Good
Whole Satisfaction	4.65	0.38	Very Good

4..6 Satisfaction Level of Experimental Group of Media, Equipment and Others for Risk Communication on Cardiovascular Disease Prevention

Results of satisfaction level of experimental group for implementation of development strategy for risk communication on cardiovascular disease prevention, it was found that media, equipment and others in all aspects at very good level, and whole satisfaction for three aspects was at very good level, except slide media with physician description, and lecture and demonstration were at good level as presented in table 4.

Table 4 Satisfaction of Experimental Group for Content Media and Equipments to Raise Awareness

Strategies	$\overline{X}$	S.D.	Level
1. Person Media -Hospital Health Team	4.72	0.46	Very Good
- Prototype Person	4.50	0.69	Very Good
Whole Satisfaction	4.53	0.18	Very Good
2. Equipment -Self-health Manual	4.70	0.50	Very Good
-Slide media with Physician Description	3.57	0.57	Good
- Health education board			
-Food model	4.51	0.58	Very Good
	4.77	0.42	Very Good
Whole Satisfaction	4.53	0.18	Very Good
3. Others -Knowledge Content of Risk Factors	4.56	0.50	Very Good
-Lecture and Demonstration	4.47	0.22	Good
Whole Satisfaction	4.53	0.18	Very Good

5. Discussion

Holding meeting of 53 community peoples of risk group in Chainat Municipality, Chainat Province with focus group discussion for construction development strategy for risk communication on cardiovascular disease prevention, was found that there are 3 system units included 1) Risk Assessment, 2) Risk Management, and 3) Monitoring Results. After training, posttest mean score of experimental perception of risk opportunity, severity of cardiovascular disease, and self-health toward cardiovascular disease were higher than pretest with statistically significant at level of .01. Moreover, when monitoring was conducted after training, it was found that health behavior and health management in aspects of consumption on carbohydrate foods and put fish sauces or others seasoning were no different between pretest and posttest at statistically significant at .05 level and the others were different between pretest and posttest at statistically significant at .05 level. Satisfactions of experimental group for 5 communication models were at very good level including media, equipment and others in all aspects at very good level, and whole satisfaction for three aspects was at very good level, except slide media with physician description, and lecture and demonstration were at good level. Therefore to decrease cardiovascular disease, they must not consume much carbohydrate food and avoid to put fish sauces or others seasoning in their food. In order to accomplish cardiovascular disease prevention, they should aware and practice according to decreasing carbohydrate food and eating more fruits and vegetables, and exercises at least 3 times a week. Additionally, risk assessment, risk management and monitoring for results of health behavior and health management by using 5 communication model effectively.

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