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DEVELOPMENT OF EXERCISE BEHAVIOR MODIFICATION MODEL FOR SOCIAL-BOUNDED ELDERLY WITH OBESITY IN CHACHOENGSAO PROVINCE

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Abstract

The objectives of this developmental study are 1) To study causes and factors affecting exercise behaviors of social-bounded elderly with obesity in Chachoengsao Province. 2) To develop a model to modify the exercise behavior of social-bounded elderly with obesity that is consistent and appropriate to the context in Chachoengsao Province. 3) To assess the use of exercise behavior modification model of social-bounded elderly with obesity in Chachoengsao Province. The results showed that four factors affect exercise behavior of social-bounded elderly people with obesity in Chachoengsao Province: (1) support from community organizations, family, friends, health workers from exercise, (2) knowledge, (3) self-efficacy about exercise and obesity, and (4) results expectations regarding exercise and obesity, found that community organizations, family, friends, health workers from exercise has the highest predictive power (Beta=0.388, p-value <0.001) followed by knowledge. (Beta=-0.104, p-value=0.031) self-efficacy about exercise and obesity (Beta=0.220, p-value< 0.001) and results expectations regarding exercise and obesity (Beta=-0.184,p-value=0.003) at the statistical significance level of 0.05. The researcher used the above variables as a framework for developing a model to modify the exercise behavior of social-bounded elderly people with obesity. When using the model to study the effectiveness, it was found that after the experiment, the social-bounded elderly people between the experimental group and the control group found that behavior modification, waist circumference, and body mass index were different. The experimental group had higher scores than the control group. Statistically significantly at the 0.05 level.

Keywords: Modification model; Obesity; Exercise behavior; Physical exercise.

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INTRODUCTION

At present, advancements in public health and medicine have been continuously developed. As a result, the number of elderly people is increasing. By forecasting the trend of the number of elderly people around the world in the year 2030, it was found that elderly people outnumber children under 10 years old and the number of elderly people aged 80 and over will more than triple in 2017-2050, from 137 million to 425 million most of the elderly live in developing countries. (United nations, 2017)

From the situation of the increasing number of elderly people at present, it is found that there are a number of elderly people who are at risk of becoming obese or some elderly people are already in the obese group, according to the survey, BMI will increase by 82% globally, but will increase by 198% in East Asia and the pacific. At the same time, in 2010, it was found that having a high body mass index (BMI) is considered one of the factors contributing to the health loss index and is considered the 6th risk factor in the world out of 25 and having a high body mass index (BMI) is a risk factor for heart disease. blood circulation and diabetes which is one of the major causes that result in poor health. (Institute for health metrics and evaluation university of Washington human development network the world bank, 2013). At the same time, the incidence of overweight and obesity in Thailand also affects overall health expenditures, it can be found that in the year 2009 there were expenses worth as high as 5,580.8 million baht of this amount the expenses incurred from treatment in the outpatient department amounted to 847.4 million baht and in the inpatient department in the amount of 4,733.4 million baht. (Paiboon Pittayareaanan et al, 2011).

At the same time the lack of exercise of the elderly will cause less energy to burn cause excess food from eating and accumulation in the state of fat 15 percent of body weight and may cause obesity the incidence of obesity is associated with vascular disease. broken heart by the occurrence of more or less violence this will depend on the lack of exercise. Therefore, the elderly need to be careful about taking care of their physical condition. and exercise regularly Because exercise is considered important for the elderly (Sirawit Nichachotisarit, 2018).

The results of the 2021 survey found that 1.3% of the elderly were bedridden, 1.8% stuck at home, and 96.9% stuck in society. (National Statistical Office, 2022). The elderly group who are addicted to society is considered a group that can help themselves well. The goal of proactive management of the elderly addicted to society is to promote health and slow down deterioration from aging. (Suphada Khamsuchat, 2017).

Meanwhile, Chachoengsao province which is one of the provinces in Thailand found that elderly people with health problems related to abdominal obesity and waist circumference exceeding 39.64 percent, the results were assessed by body mass index (BMI), It was also found that the elderly had a body mass index (BMI) over the threshold of 35.06 percent. In addition, it was found that the elderly had undesirable health behaviors. about exercising less than 3 days a week, 15-30 minutes at a time. (Chachoengsao provincial public health office, 2015).

Therefore, the to develop a modification model the exercise behavior of social-bounded elderly people with obesity it can help reduce obesity in the elderly in the future this will benefit and help the elderly live a long life and can reduce premature loss if knowing the root cause of the real problem.

LITERATURE REVIEW

Exercise in the elderly

Exercise in the elderly will have a positive effect on the body which will benefit the body in various systems including the circulatory system, respiratory system, blood biochemical system, musculoskeletal system, nervous system and mind. Exercise benefits causing the body of the elderly to burn energy from excess food that has been eaten. (Sirima Khemaphet, 2016).

Exercise patterns in social-bounded elderly

1. Aerobic exercise to help increase lung function, heart and vascular system, format suitable for the elderly are as follows: 1.1 walking or jogging It's the easiest way. which will make the body fit and active increases the use of calories within the body. Help burn energy in the body, helps control appetite, muscle tightening and also results in the body feeling relaxed (Somchai Lithongin, 2005). 1.2 Cycling is an exercise to increase the power of the leg muscles according to the research study of Sukanya Charoenwattana, (2014) found that the elderly exercise by cycling It has a good effect on reducing fat accumulation. 1.3 Dancing is a broad movement dance moves should have a low impact and if that with high knees one foot should be on the floor at all times, don't jump. (Arisa Sukwatjani, 2012).

2. Exercises to increase muscle strength and endurance use different body movements make more muscle mass in the body improves the energy efficiency of the body (Health center 2, department of health and the office of the health promotion foundation, n.d.) According to the study of Krairat Nakkham, (2017). A study was conducted on effects of an empowerment program and resistance exercise on the vulnerability of the elderly in the community. The sample was people

aged 60 years and over, it was found that the average score in each aspect was weight loss, muscle weakness, ability to walk, decreased than the group receiving normal care.

Operations exercise and obesity.

Thailand has a variety of policies and agencies related to the promotion of exercise, including: 1. Physical activity is promoted for people of all age groups in the public health service system, Ministry of Public Health have taken Diet and Physical Activity Clinic : DPAC and non-communicable disease clinics in state hospitals across the country for the modification of people with chronic non-communicable diseases or those who are obese with the principle of 3 A these include diet, exercise, and mood. At the same time, in Thailand, there is also a goal to prevent and reduce the disease burden from morbidity and mortality from chronic non-communicable diseases on a voluntary basis in 2010-2025 of the world health organization. Obesity is in the second target group, namely risk factors for chronic non-communicable diseases, including overweight and obesity of the indicators of the world health organization and Thailand must not have an increase in overweight or obese population. (Institute for population and social research Mahidol University, office of the health promotion foundation and office of the national health commission, 2014). From a review of the literature on exercise and obesity. It was found that the past operations had a policy, projects, goals and support for many exercises and obesity. Which was prepared to support, promote, change exercise behavior and make people who are obese realize the importance of exercising, but for planning, policies may not be integrated and work in the same direction.

According to the literature review, the researcher found that in the elderly should be supported Encourage the elderly to exercise continuously and has been conducted in a specific group of social-bounded elderly with obesity.

Self-Efficacy Theory

Self-Efficacy Theory It is the theory of Bandura (1997) which is described a human being or person showing a particular behavior and when human expressions or the person will become aware of their abilities and learn the consequences of their behavior. So, there will be a decision to act on the behavior. self-efficacy theory the key concepts are self-efficacy and outcome expectations.

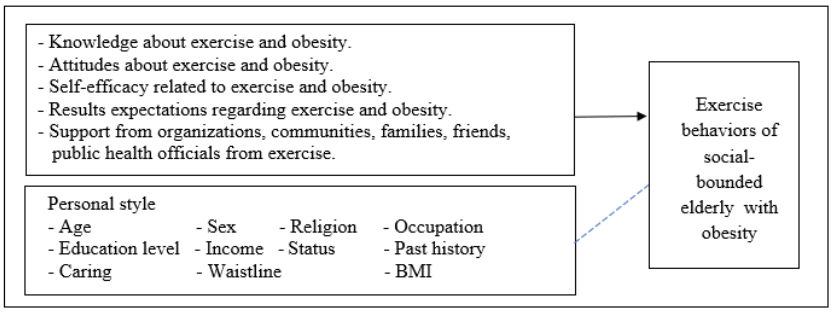
Research Objectives

1) To study causes and factors affecting exercise behaviors of social-bounded elderly with obesity in Chachoengsao Province.

2) To develop a model to modify the exercise behavior of social-bounded elderly with obesity that is consistent and appropriate to the context in the study area in Chachoengsao Province.

3) To assess the use of exercise behavior modification model of social-bounded elderly with obesity in Chachoengsao Province.

Figure 1 proposed conceptual framework Objective 1



RESEARCH METHODOLOGY

Participants and Procedure

1) To study causes and factors affecting exercise behaviors of social-bounded elderly with obesity in Chachoengsao Province.

Research method quantitative: Use analytical methods multiple regression analysis by using the independent variables into the model by stepwise.

Population and sample: The population is the elderly social-bounded elderly in Chachoengsao Province which has 11 districts and 92 sub-districts.

The sample group was elderly people living in obese and non-obese society aged between 60-69 years old, both male and female, awareness, good consciousness, able to communicate in Thai and understand ,self-help in daily activities normally, able to move the body well, there may be a chronic disease, but it can be controlled. Samples must be social-bounded elderly people living in Chachoengsao Province that are willing to cooperate in the study. The sample method used is simple random. Total number of sample group was 400.

Research method qualitative: use content analysis by analyzing literature review and in-depth interview.

Population and sample: consist of 2 main groups of informants: group 1: Elderly social-bounded elderly both male and female living in Chachoengsao Province, 13 people and group 2: Caregivers living in families of social-bounded elderly both male and female living in Chachoengsao Province, 5 people. Total number of samples was 18.

2) To develop a model to modify the exercise behavior of social-bounded elderly with obesity that is consistent and appropriate to the context in Chachoengsao Province. Qualitative research purposive

sampling were used in Sanam Chai Khet District which is a district where the elderly has undesirable health behaviors.

The researcher then used the data from objective 1 to determine the focus group discussion to develop modification model the exercise behavior of social-bounded elderly with obesity that is consistent and appropriate to the context in Chachoengsao Province.

Which is divided into 3 main issues, consisting of: 1. What should be the pattern for modifying the exercise behavior of social-bounded elderly with obesity. 2. Caregivers in elderly families stuck in obesity society, community organizations, friends' groups, volunteers, public health officials should be promoted or support develop in some areas. 3. The elderly are addicted to social-bounded. should be supported, promoted or developed in any areas.

Populations and key Informants: There are 3 groups in total, 10-12 people in each group. Use method homogeneous sampling. Research tool is a focus group discussion.

Group 1: Elderly people living in society with obesity both males and females. Living in Chachoengsao province, 10 people

Group 2: 10 family caregivers of obese elderly males and females.

Group 3: Public health officers, community leaders, village health volunteers, 10 people.

3) To assess the use of exercise behavior modification model of social-bounded elderly with obesity in Chachoengsao Province. Research quasi - experimental research type the two-group pretest - posttest design. The sample group studied was the elderly in social-bounded with obesity. Divided into 2 sample groups, namely the experimental group and the comparison group, 35 people each.

Ethical Considerations

This research project was approved by Human Research Ethics Committee Naresuan University according to the research project number 0768/62 and was approved for the research No. 046/2020 dated January 23, 2020.

RESEARCH FINDINGS

1) To study causes and factors affecting exercise behaviors of social-bounded elderly with obesity in Chachoengsao province.

Research method quantitative:

Table 1 The results of the analysis of factors affecting the exercise behavior of social-bounded elderly with obesity in Chachoengsao Province, Multiple regression analysis was used to import independent variables into the model by stepwise method (n = 400)

Variable	B	Beta	t	P-value
1. Support from organizations, communities, families, friends, public health officials from exercise.	0.229	0.388	8.467	<0.001*
2. High knowledge (reference = little knowledge)	0.882	-0.104	2.160	0.031*
3. Self-efficacy related to exercise and obesity.	0.116	0.220	3.645	<0.001*
4. Results expectations regarding exercise and obesity.	-0.097	-0.184	-3.010	0.003*

*P-value<0.05, Constants=22.013, Adj R^2 =.219

Table 1. The results of the analysis of factors affecting exercise behaviors of social-bounded elderly people with obesity in Chachoengsao Province. Found 4 factors that affecting exercise behaviors of social-bounded elderly people with obesity in Chachoengsao Province. Explain the variables of predictive power as follows: community organizations, family, friends, health workers from exercise have the highest predictive power (Beta=0.388, p-value <0.001) followed by a lot of knowledge. (Beta=-0.104, p-value=0.031) self-efficacy about exercise and obesity. (Beta=0.220, p-value< 0.001) and results expectations regarding exercise and obesity (Beta= -0.184,p-value=0.003) at the statistical significance level of 0.05.

Research method qualitative:

1. Factors causing obesity in the elderly include: Lack of knowledge makes you fat, eating food makes you fat, lack of exercise makes you fat. not exercising to control weight.

2. Causes of family caregivers who care for the socially addicted elderly that cause obesity include: Awareness of obesity, attitude towards obesity.

From objective 1, in-depth interview data from social-bounded elderly with obesity and family caregivers of obese elderly people. The data were used to support the causes and factors affecting the exercise behavior of the elderly and bring to develop a model to modify the exercise behavior of social-bounded elderly people with obesity that is consistent and appropriate to the context in the study area in Chachoengsao Province.

2) To develop a model to modify the exercise behavior of social-bounded elderly with obesity that is consistent and appropriate to the context in the study area in Chachoengsao Province.

From the focus group discussion results of the participants, it can be concluded that: The modification model of exercise behaviors social-bounded elderly with obesity include exercise such as walking, swinging arms and legs, cycling, club dancing, playing soft dance music.

In addition, to make the social-bounded elderly with obesity. There is a change in exercise behavior. Conversation participant It has been proposed to those involved in caring for the elderly who are addicted to society with obesity. Must work together in an integrated area and clearly divided the roles and responsibilities by:

1. The social-bounded elderly with obesity should get knowledge support from organizations, communities, families, groups of friends, health workers from exercise gained self-efficacy on exercise and obesity and establishing expectations for outcomes related to exercise of social-bounded elderly with obesity.

2. Caregivers of the elderly in the family should get knowledge about the negative effects of obesity physical changes of the elderly understand the pros and cons of exercise and have been trained educate about technique how to exercise in addition, caregivers should be educated on food nutrition.

3. Group of public health officials' public health volunteers or officer those involved should go in to educate, train, procedures, methods of exercising the model may be demonstrated, demonstrated, and shown to family caregivers of the elderly as well encouraging public health officials and related officials to educate about obesity and food nutrition.

Which such activity will cause elderly people with obesity to change their exercise behavior in the elderly.

3) To assess the use of exercise behavior modification model of social-bounded elderly with obesity in Chachoengsao Province. Research quasi - experimental research type the two-group pretest - posttest design. Number of groups: 35 people.

Table 2 The results of comparison mean values, exercise behavior, body mass index, waistline of social-bounded elderly with obesity between the experimental group and the comparison group after the experiment (n=35)

Study variables after the experiment	$\bar{x}$	S.D.	Mean Difference	t	df	P-value
Behavior						
Experimental group	48.57	2.66	6.91	33.52	68	0.001*
Comparison group	28.28	2.39				
BMI						
Experimental group	35.20	5.84	-6.91	-6.47	68	0.001*
Comparison group	28.29	2.39				
Waistline						
Experimental group	91.34	9.14	-3.88	-2.07	68	0.042*
Comparison group	95.23	6.29				

*p-value <0.05

Table 2. Comparison of mean values of exercise behavior, body mass index, waistline of social-bounded elderly with obesity between the experimental group and the comparison group after the experiment (n=35) It was found that exercise behavior, waist line, and body mass index were different. The experimental group had higher scores than the comparison group. (p-value=0.001, 0.001, and 0.042, respectively.

Table 3 The results of comparison mean values, exercise behavior, body mass index, waistline of social-bounded elderly with obesity before and after in the experimental group (n=35)

Study variables after the experiment	$\bar{x}$	S.D.	Mean Difference	t	df	P-value
Behavior						
Experimental group	35.20	5.84	6.91	16.59	34	0.000*
Comparison group	48.57	2.66				
BMI						
Experimental group	35.20	1.88	-6.91	5.84	34	0.000*
Comparison group	26.78	1.81				

Waistline						
Experimental group	93.63	7.52	4.071	-2.07	34	0.000*
Comparison group	91.34	9.14				

*p-value <0.05

Table 3. Comparison of mean values results of exercise behavior, body mass index, waistline of social-bounded elderly with obesity before and after in the experimental group (n=35) It was found that the experimental group had no difference in mean values exercise behavior, body mass index and waist line. (p-value=0.000)

DISCUSSION AND CONCLUSION

Support from community organizations, family, friend groups, health workers from exercise, knowledge about exercise and obesity, self-efficacy related to exercise and obesity all 3 variables if increased by 1 unit, will increase exercise behavior and outcome expectations regarding exercise and obesity, decrease will decrease exercise behavior.

The model for modification the exercise behavior of social-bounded elderly with obesity was found from the results of focus group discussion It can be concluded that the elderly group is addicted to social-bounded elderly with obesity. should gain knowledge about eating makes you fat lack of exercise makes you fat exercises for weight control include exercise such as walking, swinging arms and legs, cycling, turn on soft dance music, krabi krabong dance. Caregivers in families of social-bounded elderly should be recognized. attitude obesity, awareness of obesity. Throughout the group of public health officials' public health volunteers or officer related should go in to educate about obesity and food nutrition with training, steps, exercise methods, there may be a model to show, demonstrate, to social-bounded elderly with obesity and their family caregivers about exercise.

The results of the quality examination of the draft model for assessing the suitability of the exercise behavior modification model for social-bounded elderly with obesity consistency index accuracy and clarity of content, coverage and completeness, found that the IOC results were between 0.71-1.0.

Conclusion

There should be a network to change exercise behavior in the elderly to encourage the elderly to participate in physical activity continuously and to encourage the elderly to participate in physical activity continuously.

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