Original article

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The Development of Health Promotion Program towards the Well-being in Center of Excellence for Health Promotion among the Elderly, Boromarajonani College of Nursing, Nakhon Si Thammarat, Thailand

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Abstract

A health promotion program for the elderly was developed at the Boromarajonani College of Nursing, Nakhon Si Thammarat, Thailand. This study design is an action research. The objectives of our research study were to 1) develop a program of health promotion activities for the elderly, and 2) compare the health of the elderly participants before and after taking part in the health promotion activity program. The sample consisted of 50 elderly aged 60 years and over who had been all participants were members of the Center of Academic Excellence by using purposive sampling. The research instruments consisted of 1) focus group discussions to study the problems and needs of health promotion activities and model development, 2) trial of health promotion activities and 3) assessment of the elderly's health status with 14 indicators. Data were analyzed using descriptive statistics, qualitative data were analyzed through content analysis, and comparisons of health status before and after. The intervention were conducted using Paired Sample T-test. The results showed that styles that are appropriate for specific individuals or groups of elderly people. The sample group wanted activities that were concrete, clear, and continuous. The health promotion activities models were: 1) Assessment of the health status of the elderly in all 4 dimensions: physical, mental, intellectual and cognitive, social and environmental aspects Before and after activities 2) Health education: nutrition Brain exercise game, Oral health care 3) Demonstration, and 4) procurement of food, Knee joint exercise manuals/pamphlets. It was found that the overall health promotion activities had a high average of satisfaction ($\bar{x}$ = 3.84, SD = 0.65), and participants joined in the activities regularly. The results of using the health promotion model, assessed by comparing well-being before and after developing the model for 24 weeks, it was found that the variable of eating delicious food; there is a statistically significant decreasing trend ($p < 0.05$). The sample group had suggestions for developing health promotion activity models. The recommendation to better suit the preferences of the elderly, ensuring that the activities are concrete and continuous.

Keywords: Elderly health assessment, Elderly health promotion, Health promotion activity program

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Introduction

In 2021, Thailand became a completely aging society, with 20.0% of its population being elderly (Glanz K & Bishop DB., 2021). According to population forecasts by the Office of the National Economic and Social Development Board, in 2035, Thailand is expected to have an ultimate aging society, with the elderly increasing up to 30.0% of the total population (Office of the National Economic and Social Development Council, 2021). When a person enters old age, there will be deterioration in the body's various systems, including skin, hair, nails, eyesight, hearing, the strength of muscles and bones, functioning of the digestive system, urinary system, cardiovascular system, as well as the nervous system (Sawatsuk A., 2021). These changes cause diseases in the elderly. In 2020, 53.2% of the elderly had hypertension, followed by problems with belly fat (49.4%), obesity (35.4%), and joint degeneration (22.5%). The elderly also had other health problems such as hyperlipidemia, diabetes, depression, gout, myocardial ischemia, and cerebrovascular diseases (Thai Elderly Research and Development Institute Foundation, 2022)

Elderly people experience natural decline in all systems. Health promotion is therefore an important concept that results in the greatest reduction of dependency among the elderly. The Department of Health promoted the public health for the elderly with the motto: "Do not fall, do not forget, do not get depressed, and eat delicious foods". This motto is based on the concept that when the elderly can maintain good health longer, they are able to avoid entering long term care (Department of Health, Ministry of Public Health, 2021). The literature review, it was found that There was a study using this concept to promote the health of the elderly. It was found that the health status of the elderly before and after the trial of the curriculum. There was a trend of improvement with statistical significance at the .05 level. Blood pressure in the group above the threshold decreased and no complications of the disease were found Desired health behaviors. There was a statistically significant increase in the mean score. No risk of depression and suicide was found. (Thai Elderly Research and Development Institute Foundation, 2022; Sangrueng S. et al., 2023).

Boromarajonani College of Nursing Nakhon Si ThammaratFaculty of Nursing Praboromarajchanok Institute. It is a higher education institution that operates according to the academic service mission of developing a Center of Excellence for Health Promotion for the elderly. There is still no concrete model for health promotion for the elderly in academic centers of excellence. The research team therefore brought this idea as a concept for carrying out health promotion activities for the elderly and to develop activities to promote the health of the elderly and compare the health of the elderly in the Center of Excellence for Health Promotion Before and after receiving the health promotion activity model. Research results are transferred knowledge of health promotion to the elderly themselves. The model encourages the elderly to have the ability and skills to properly care for their health. Having good health prevents the elderly from having dependency on others and encourages them to happily live in society.

Research Methodology

We conducted an action research study to develop a model of health promotion for the elderly. We used the concept of 4 smart goals: "Never fall, don't forget, don't get depressed, and eat delicious food." by sample group There were 50 elderly people who were members of the Center of Academic Excellence in Elderly Health Promotion, randomly selected by a Purposive Election selected according to the specified criteria: (1) Age 60 years and up. Be a member of the Center of Excellence (2) Can speak Thai (3) You can voluntarily participate throughout the project until all steps are complete. Criteria for exclusion are: The sample group was unable to participate in all steps of health promotion activities throughout the 24 weeks. The tool used to collect data is a personal information questionnaire. and an four assessments to assess the goals: 1) Never fall: participant

interview using a questionnaire, elderly and muscle strength testing Snellen chart (VA) vision test, and knee osteoarthritis screening with clinical osteoarthritis screening. We also used the Walking and Stability Test (TUGT) and Fall Risk Assessment (Thai-FRAT). 2) Don't forget: Mini-Cog dementia test and the Primary Dementia Assessment Scale (MMSE - Thai 2002: Mini-Mental State Exam-Thai 2002). 3) Don't get depressed: screening assessment. Filter for depression using 2 questions (2Q) followed by a 9-question depression assessment form (9Q). In the situation where a participant was at risk using the 2Q, we assessed for depression in the elderly in Thailand (Thai Geriatric Depression Scale, TGDS) using the 9Q. 4) Eat delicious food: Measured waist circumference, blood pressure, blood sugar. We also checked participants' oral and dental health using an oral health assessment. We conducted nutritional status screening (MNA®)

Data were collected using a 4-step quality development process: (1) Planning process (Plan) Study and design activities to promote the health of the elderly using group discussions, brainstorming, and reviewing relevant literature from searching academic documents and research both Thai and foreign by the committee. Center of Academic Excellence in Elderly Health Promotion of eight people analyzed academic data according to the concept of "Never fall, don't forget, don't get depressed, eat delicious food" by content analysis, (2) Operating Procedures (Do) Carry out the guidelines and action plan set out in step 1 according to the format that has been set up as follows. Carrying out health assessments for members in the Center of Excellence Before carrying out the activity Using the 4-sided assessment tool 1) Never fall, 2) Don't forget, 3) Don't get depressed, and 4) Eat delicious food. Conduct activities in the form of health promotion for the elderly using the principles of "Don't fall, don't forget, don't get depressed, eat delicious food" in promoting the health of the elderly. Elderly consists of 5 activities: 1) 60 hours of exercise activities 2) Brain development activities 36 hours 3) Recreational activities 72 hours 4) Activities promoting physical and mental health 24 hours 5) Academic knowledge activities 48 hours, totaling 240 hours for 24 weeks., (3) Follow-up and evaluation process (Check) Conducted by (1) continuously monitoring the elderly's participation in activities according to the designed format; (2) monitoring and evaluating their health status during the activities 2 times in the 8^{th} and 24^{th} weeks using tools Assessment form to evaluate 4 areas, (4) Improvement Procedure (Act) by group discussion Center committee team Group speakers are five nursing professors and ten elderly representatives to analyze operations, including problems, obstacles, and find solutions. as well as data analysis Compare the scores for assessing the four health conditions of the elderly before and after implementing health promotion activities. The results of health assessments for the elderly participating in health promotion activities were analyzed by descriptive statistics, i.e. percentage. We used content analysis to analyze the qualitative data and compared scores from the elderly health assessment before and after they participated in the program by using the paired t-test.

Ethical Approval

This study was approved by the Research Ethics Committee, Boromarajonani College of Nursing, Nakhon Si Thammarat (Ethics number: F-02/2565, Approval date: April 26, 2022). The researcher has protected the rights of the participants by clarifying the details about the following information: 1) name and information about the researcher, 2) objectives and benefits obtained from the research, 3) process of collecting health assessment data, including duration and number of times, 4) keeping information confidential, 5) overall research presentation, 6) right to accept or decline research participation, as well as right to withdraw from the research at any time. All data will be destroyed within 1 year after the research results are published.

Results

The results of the research consisted of 5 parts: (1) Results from development of the health promotion activity model for the elderly, (2) General information about participants, (3) Health assessment results for participants before and after the use of the health promotion activity model for elderly health, (4) Comparison of health assessment results of participants before and after the model development, and (5) Results of using the health promotion activity model.

Part 1: Results of the development of activities to promote health of the elderly

During this study, we developed various activities to promote happiness and improve the condition of the elderly. Our health promotion model for the elderly used the principles of "Never Fall, Never Forget, Not Depression, Eat Delicious Food." To improve the daily life of our elderly participants, we applied the principles in the following ways: 1) not falling: physical activities such as dancing, line dancing, and yoga to prevent falls; 2) not forgetting: brain development activities; learning about the 10 warning signs of dementia, and brain exercises 3) not depressed: recreational activities involving creative music and conserving nature and the environment, and 4) eat delicious food: have nutrition activities such as changing your diet to improve your body, learning about recommended daily amounts of energy and nutrients, 5 main food groups, nutrition flags, food exchanges, and proper food arrangement. Participants also learned about oral health, including oral health assessment, as well as oral and dental health care. We chose the duration and selection of all activities was chosen based on the first health assessment and the interests of the elderly participants. The activities were carried out over a period of 24 weeks and follow up and evaluate activities 2 times in weeks 8th and 24th.

Part 2: General information about participants

Our study included 50 elderly people. Among the participants, 88.2% were female, 76.0% were married, and 78.0% were educated at the bachelor's degree level. Most of them (78.0%) were pensioners; 62.0% used civil servant rights to pay for medical treatment. All of the participants had debt. 40.0% of the participants had an average family income was in the range of 10,001 – 15,000 baht per month. All (100.0%) participants 4 followed the Buddhist religion, and had annual health checks. 40.0% of participants reported that they had no underlying diseases. Most (80.0%) of participants reported that they didn't drink alcohol or smoke cigarettes. Most (80.0%) of participants used regular medications, while 94.0% denied having drug allergies and 100.0% denied having other food allergies. Most were vaccinated against influenza, COVID-19 and shingles. Almost all participants (98.0%) had normal vital signs. 56.0% of females had waist circumference > 80 cm); 56.0% of males had waist circumference > 90 cm. Only 8.0% of the subjects had blood sugar levels within normal limits; however, 66.0% of participants had BMI levels in the range from overweight to obese at Level 2 (Table 1).

Table 1. Descriptive statistics for demographic characteristics of elderly participants (n = 50)

Characteristics	n	%
Sex		
Male	6	11.80
Female	44	88.20
Age (years) (*Mean* = 65.80, *SD* =10.53, *Max*=79, *Min* = 60)		
60 – 69	35	66.70
70 – 79	15	33.30
Highest educational level		
High school	3	6.00

Table 1. Descriptive statistics for demographic characteristics of elderly participants (n = 50)

Characteristics	n	%
Bachelor's degree	39	78.00
Postgraduate	8	16.00
Marital Status		
Single	6	12.00
Married	38	76.00
Widowed	6	12.00
Method of payment for medical care		
Pay yourself	12	24.00
Gold card	7	14.00
Civil servant	31	62.00
Income (Thai Baht) (Min-Max=2,000-30,000 Median=10,000, IQR=14,000)		
1,001 – 5,000	2	4.00
5,001 - 10,000	14	28.00
10,001 - 15,000	20	40.00
15,001 - 20,000	12	24.00
More than 20,000	2	4.00
People living with the elderly participant		
Spouse	37	74.00
Child	5	10.00
Close relatives	4	8.00
Alone	4	8.00
Chronic diseases		
None	27	54.00
HT	8	16.00
HT/DLP	5	10.00
DM/HT/DLP	1	2.00
DM/ HT/DLP/BPH	1	2.00
DLP	4	8.00
Coronary artery disease	1	2.00
Breast cancer	1	2.00
Diabetes/coronary heart disease	1	2.00
Asthma/SLE	1	2.00
Regularly take ≥ 5 types of drugs		
Yes	40	80.00
No	10	20.00
Vital signs		
Normal	49	98.00
Abnormal	1	2.00
Waist circumference for females (centimeters)		
> 80	28	63.63
≤ 80 (normal)	16	36.30
Waist circumference for males (centimeters)		
> 90	4	66.66
≤ 90 (normal)	2	33.34
Body mass index		
< 18.50 (Underweight)	1	2.00
18.5 – 22.99 (Normal)	16	32.00
23 – 24.99 (Overweight)	8	16.00
25 – 29.99 (Obese, Level 1)	19	38.00
≥ 30 (Obese, Level 2)	6	12.00

Abbreviations HT= Hypertension; DLP= Dyslipidemia; DM =Diabetes Mellitus; BPH= Benign Prostatic Hyperplasia, Abbreviations: SLE = Systemic Lupus Erythematosus

Part 3: Health assessment results for the elderly before and after taking part in the health promotion activity program

During this study, we assessed the participants' risk of not falling using the Fall Risk Assessment (TUGT), ophthalmic health screening, clinical osteoarthritis screening, and osteoporosis risk screening. There was a difference in risk of falling before using the health promotion activity model compared to after using the activity pattern. After completing the activity program, participants had a lower risk of falling and a reduced risk of moderate osteoporosis. The group had a higher likelihood of low risk of osteoporosis after performing health-promoting activities. (Table 2)

We also assessed the cognitive and mental health of participants. The brain condition test (Mini-Cog) and the Thai version of the primary brain assessment (MMSE – Thai 2002) were all normal (100.0%) (Table 3). We checked for depression using the screening for depression 2 questions (2Q), assessing depression 9 questions (9Q), and the scale for assessing depression in the elderly in Thailand (Thai Geriatric Depression Scale (TGDS)). All the participants in our study did not have depression (100.0%). (Table 4)

We measured the nutritional status of the participants by assessing their BMI and waist circumference. When comparing the participants before versus after program participation, there was an increase from 32.0% to 60.0% of participants that were in the normal weight range. There was a decrease from 66.0% to 20.0% of participants with body mass index ranging from overweight to obese, level 2. When comparing participants before versus after program participation, there was an increase in the percentage of participants within the normal range of waist circumference for females (from 36.30% to 84.0%) and males (from 33.34% to 100.0%).

We found that all participants had adequate oral health. However, after program participation, the elderly who had to be referred to a dentist decreased by 50.0%. Based on our assessment, we recommended that all participants oral health care prevention (100.0%). We also found that all participants had normal nutritional status based on the nutritional status screening using the Mini Nutritional Assessment: MNA (Table 5).

Table 2. Number and % of elderly participants that are at risk of falling before and after taking part in health promotion activity program to prevent falling (n = 50)

Never fall	Before		After	
	n	%	n	%
Risk of falling (TUGT)				
Have Risk	2	4.00	0	0.00
No risk	48	96.00	50	100.00
Eye health screening				
No risk	48	96.00	50	100.00
Refer to ophthalmologist	2	4.00	0	0.00
Risk of falling (Thai – FAST)				
Have risk	0	0.00	0	0.00
No risk	50	100.00	50	100.00
Clinical screening for osteoarthritis				
Have osteoarthritis	26	52.90	5	10.00
No have osteoarthritis	24	47.10	45	90.00
Osteoporosis risk screening				
No risk	1	2.00	1	2.00
Low risk	15	29.40	23	46.00
Moderate risk	28	54.90	20	40.00
High risk	6	11.80	6	12.00

Table 3. Number and % of elderly participants showing cognitive impairment before and after taking part in the "Don't Forget" health promotion activity program (n = 50)

Don't Forget	Before		After	
	n	%	n	%
Cognitive impairment Test: Mini-Cog				
Have a cognitive impairment	0	0	0	0
Normal	50	100.00	50	100.00
MMSE – Thai 2002				
normal	50	100.00	50	100.00

MMSE = Mini-Mental State Examination –Thai version (MMSE-Thai)

Table 3. Number and % of elderly participants showing cognitive impairment before and after taking part in the "Don't Forget" health promotion activity program (n = 50)

Don't Forget	Before		After	
	n	%	n	%
Brain cognitive Test: Mini-Cog				
Have a cognitive impairment	0	0	0	0
Normal	50	100.00	50	100.00
MMSE – Thai 2002				
normal	50	100.00	50	100.00

MMSE = Mini-Mental State Examination –Thai version (MMSE-Thai)

Table 4. Number and % of elderly participants showing depression risk before and after taking part in health promotion activity program to prevent depressed (n = 50)

Don't get depressed	Before		After	
	n	%	n	%
Depression risk: 2 questions (2Q)				
Have risk	0	0	0	0
No risk	50	100.00	50	100.00

Table 5. Number and % of elderly participants in different categories of body mass index before and after taking part in health promotion activity program on eat delicious food (n = 50)

Eat delicious food	Before		After	
	n	%	n	%
Body mass index				
< 18.50 (Underweight)	1	2.00	1	2.00
18.5 – 22.99 (Normal)	16	32.00	30	60.00
23 – 24.99 (Overweight)	8	16.00	6	12.00
25 – 29.99 (Obese, Level 1)	19	38.00	4	8.00
≥ 30 (Obese, Level 2)	6	12.00	0	0.00

Table 5. Number and % of elderly participants for different waist circumference, blood sugar levels, oral health levels, nutrition levels before and after using the health promotion activity program on eat delicious food (n = 50)

eat delicious food	Before		After	
	n	%	n	%
Waist circumference for females (centimeters)				
> 80	28	63.63	7	15.90
≤ 80 (normal)	16	36.30	37	84.09
Waist circumference for males (centimeters)				
> 90	4	66.66	0	0.00
≤ 90 (normal)	2	33.33	6	100.00

Table 5. Number and % of elderly participants in different categories of body mass index before and after taking part in health promotion activity program on eat delicious food (n = 50)

Eat delicious food	Before		After	
	n	%	n	%
Blood sugar levels pierced from the fingertips				
> 110 mg/dl	0	0.00	0	0.00
< 80 mg/dl	50	100.00	50	100.00
Assessment of oral health				
Oral health care prevention	25	50.00	50	100.00
dental procedure	25	50.00	0	0.00
Mini Nutritional Assessment Screening: MNA				
normal nutrition	50	100.00	50	100.00

Part 4: Comparing health assessment results for elderly participants before and 24 weeks after the program participation using the paired t-test

We found results of using the health promotion model Comparing well-being before and after developing the model for 24 weeks, it was found that after using the model. The side variable does not fall. Do not forget about intellectual and perceptual disabilities and Don't get depressed no different But the variable of eating delicious food There is a statistically significant decreasing trend ($p < 0.05$). (Table 6).

Table 6. Comparison of the elderly's health assessment results before and 24 weeks after the health promotion model was developed using the paired t-test (n = 50)

variable	Before		After		t	p-value
	$\bar{x}$	SD	$\bar{x}$	SD		
Don't fall	9.41	0.99	9.41	0.99	3.024	< .001
Don't forget	5.85	0.98	5.85	0.98	2.156	< .001
Don't get depressed	5.06	2.31	5.06	2.31	8.308	< .001
Eat delicious food	8.42	2.05	7.87	.196	3.646	< .001

**Sig.* $p < 0.001$

Part 5 Results of using the health promotion activity model

From focus group discussions by the researcher and sample groups. And analysis of content analysis found that the sample group was interested in activities. and participate in activities together the most when grouped in dance lessons But the elderly will be especially fatigued when doing activities continuously for more than 1 hour, causing them to have to take breaks from their activities periodically, and spend more time doing activities than other activities.

"I like dancing activities, it's fun and I get to meet a lot of friends. Train your brain to remember postures. Interact with friends Make new friends, but dancing for a long time will be tiring and cause knee pain. I want you to dance every day and I want this activity to continue. feeling sweaty and the body becomes more active and stronger" (E1)

Theory activities such as risk factors for falls in the elderly, 10 warning signs of dementia, physical changes, energy and nutrients in one day, 5 main food groups, nutrition flags, and food exchange. It is an activity that makes the elderly concentrate on listening but still unable to remember the details of the content as well as they should must give advice repeatedly and allow the elderly to provide feedback As for practical activities such as dancing, line dancing, and yoga, these are activities that the elderly can continuously concentrate on. and remembers details of practice very well.

"If it's an activity where you sit and listen to a lecture, it's good, you gain knowledge, and it can be useful in taking care of your health. But I can't quite remember. Must be emphasized often Can be put into practice Such as exercise postures to slow down knee osteoarthritis. Do that every day. Do it and your knee pain will go away. I went to cook food but my waistline still didn't reduce" (E2)

"Unlike the styles of Line Dench and yoga, it's fun and makes you focus better. Feel relaxed, practice memory, remember poses, and can teach friends too. This is very good. I wish there were more activities like this. Make it possible to participate" (E3)

And found that the format was suitable only for individuals or groups of elderly people The sample group needs concrete activities. Clearly individualized and continuous The format of health promotion activities includes: 1) Assessment of the health status of the elderly in all 4 dimensions: physical, mental, intellectual impairment aspects, Social and environmental aspects 2) Providing health and nutrition knowledge Brain exercise game Oral health care 3) Demonstration teaching 4) Receiving manuals/brochures on food, exercise, and knee joint management. There was a high level of satisfaction with the activity format ($\bar{x}$ = 3.84, SD = 0.65) and participate in activities regularly The sample group had suggestions on Adding activities that involve the elderly, such as field trips, emphasizing changing postures, listening to music, singing, and water aerobics, and various documents or media for the elderly to continue learning or practicing by themselves at home. Distribute it to friends in the community of the elderly who did not participate in the activity.

Discussion

We developed a health promotion activity model for the elderly using the concepts of "Never Fall, Don't Forget, Don't Depression, Eat Delicious food" We assessed elderly participants in our program using 14 items that covered 4 aspects of assessment. In our study, we found that all of the elderly were socially dependent, which included being pensioners in an urban community (78.0%). All participants got their annual health check for chronic diseases such as high blood pressure, diabetes, lipids and heart disease. We found that 50.0% of the participants in our study had chronic diseases. This finding is consistent with the study by Sangrueng S et al. (2023) which found that the most common illnesses among the elderly were hypertension, followed by osteoarthritis, gout, rheumatoid arthritis, cataracts, diabetes and stomach disorders, and gastritis. Similarly, the study by Ratanamongkolkul and colleagues also found that the elderly was more likely to suffer from the top three chronic diseases, namely cardiovascular disease, endocrine disease,

and musculoskeletal diseases. Diseases of the musculoskeletal system, tendons, bones and joints, as well as cardiovascular diseases, and endocrine diseases continue to rise (Thai Elderly Research and Development Institute Foundation, 2022; Ekplakorn W et al., 2020).

Before participating in the activities from the health promotion model, 54.90% of the elderly participants in this study were at risk for falls, and they have a moderate-high risk of osteoporosis. In terms of BMI levels, 66.0% of participants were in the range from overweight to obese level 2 (66.0%). 63.3% of females had higher than normal waist circumference (>80 cm) (63.03%) and males has higher than normal waist circumference (>90 cm). 66.66% of participants had normal blood glucose levels, when measured from fingertips. The percentage of participants who were referred to a dentist after oral health assessment the elderly who had to refer to a dentist decreased by 50.0%. We recommended that all participants should promote oral health care (100.0%); all participants also had normal nutritional status based on screening using the Mini Nutritional Assessment: MNA. And the health of the elderly in terms of not forgetting and not being depressed is in normal condition with no risk. and the results of using health promotion models Compare health status before and after developing the 24-week model found that the health of the sample group after using the model The side variable does not fall. Do not forget about intellectual and perceptual disabilities and not depressed no different But the variable of eating delicious food there is a statistically significant decreasing trend *($p < 0.05$)*. Consistent with the study of Khaenork S., Kaewmanee J., & Suphon T. (2024), studying the health promotion program "Don't fall, don't forget, don't get depressed, eat delicious food." Includes fall prevention Preventing dementia Depression Prevention and nutrition in the elderly by organizing activities once a week for 12 consecutive weeks. It was found that elderly people had average walking and balance scores. Basic brain function, depression, nutritional status, and quality of life in the elderly. It was significantly higher than before joining the program ($p < .05$). Our findings were consistent with the study by Phonngam P., Chanruang T. & Suton C. (2020) The study found that after 6 months of participation in activities, the elderly in the community of all activities had high satisfaction and benefited from participating in activities. They found the most benefit from joining group activities in which they could relieve stress, have fun, meet friends, and talk about suffering. A program called “Worrying brings more comfort” (Songphak K., Sinsuphan N. & Isarangkun N W.,2019; Ngamdee P., Limpsenee W., & Rodaree P., 2020) as well as study by Ngowsiri K et al., (2020) studied the effect of a holistic health promotion program on the quality of life of the elderly. This study was found that the elderly in the experimental group had improved health behaviors. The experimental group had improved health and quality of life with increased physical activity and exercise. They demonstrated a drop in blood pressure, less muscle weakness, better shoulder joints, and improved circulatory and respiratory endurance. The experimental group had a better quality of life in terms of physical health and the environment compared to the control group ($p<0.05$). Their quality of life was also improved (Sararak M et al., 2021).

In our study, the development of a health promotion model for the elderly consisted of 4 activities based on their preferences and health conditions. This is consistent with the use of behavioral science theory, which emphasizes activities to promote the practical implementation of the public health model (Glanz K & Bishop DB., 2021). Examples in our study include exercises, dance, line dancing, yoga, and 6 exercises to prevent osteoarthritis. The activities for not forgetting include 10 warning signs of Alzheimer's disease, and brain management techniques. The group discussion results found that styles that are appropriate for specific individuals or groups of elderly people. The sample group needs clear, concrete activities and continuity. The format of health promotion activities includes 1) assessing the health status of the elderly in all 4 dimensions, 2) providing nutrition health education, 3) teaching demonstrations, 4) receiving manuals/brochures. The elderly

were satisfied with the activities at a high level ($\bar{x}$= 3.84, SD = 0.65) and participated in the activities regularly. This is in line with the Ministry of Public Health's recommendations to enable the elderly to know their health status, and behave in different ways to stimulate the brain and reduce the risk of dementia. However, it is necessary to do long-term activities for about 3-6 months to continuously promote the brain potential of the elderly. Activities to prevent depression include both creative music and conservation of nature and the environment. These activities are in line with caring for the elderly at risk or with depression. In line with the recommendations of Ministry of Public Health (2021) enabling the elderly to know their own health status and behave in various ways To stimulate the brain to reduce the risk of dementia. However, it is necessary to have long-term activities of approximately 3 - 6 months in order to continuously promote the brain potential of the elderly. Non-depressive activities both creative music and preserve nature and the environment. Our findings were consistent with a previous study on the development of health promotion models for the elderly. This past study found that the elderly participants were satisfied with the health promotion activities they participated in and developed appropriate health promotion behaviors. The participation of the elderly in the activities affected the perceptions of their health. The activities were both academic and practical. Participants in activities needed clear information on the date, time and place of activities. The elderly people were capable of learning to do activities by themselves at home; furthermore, they could apply knowledge and skills to spread the word to others. (Kittiphiboon W. & Boontanon N., 2020; Ngamdee P., 2020; Junchom1 K., Boontiam N., Sinsap N., Chankra C. & Jaimun B., 2022).

Research Implications

1. Develop a model for promoting the health of the elderly with clear and concrete activities. Specific to the individual based on the health condition of the specific elderly person.

2. The format of the activity needs to be consistent with the context of the participants. For example, the elderly people may have different needs depending on whether they live in urban areas, semi-urban communities, or rural communities. A screening application may be required. Activities may need to be adapted to be more in line with the context.

3. Organize a forum for exchanging knowledge between researchers and the sample group presented the results from the research. Apply it within the context of the area and transfer activities to promote health to the elderly.

Suggestions for the further study

1. Important and necessary health promotion activities for the elderly It should be supported and conveyed to agencies at all local levels as basic activities that the elderly should receive in order to prevent consequences or complications that will follow.

2. Organizing health promotion activities for the elderly should involve family and relatives in helping and stimulating them in doing various health promotion activities such as exercising. Brain management, etc. while at home To ensure continuity and correct practice, resulting in higher quality research results.

3. There should be research and development of health promotion models for the elderly with family and community participation. To be a social support factor for the elderly to have sustainable good health behaviors.

4. There should be a comparative study. Compare the elderly between groups receiving the program with the group that did not receive it to develop the model to be of even greater quality.

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References

Bernstein M, Luggen AS. Nutrition for the Older Adults. Massachusetts: Johns & Bartlett; 2020.

Department of Health, Ministry of Public Health. (2021). *Elderly health promotion and dementia Prevention guide for People "do not fall, do not forget, do not get depressed, eat delicious food".* Nonthaburi: Department of Health, Ministry of Public Health; Retrieved May 26, 2021, from http://203.157.212.7/ltc/ document/m002.pdf.

Department of Medicine, Ministry of Public Health. screening for the elderly [internet]. 2021. [Accessed 20 May 2064]. Accessed from: https://hdcservice.moph.go.thYongwanichkorn B., Prasertsom P. 2018. The relationship of health factors to the quality of life of the elderly. *Public Health Dentistry,16*(1): 57-73.

Ekplakorn W., (Ed.). (2020). Report of the 6th Thai Health Examination Survey 2019 – 2020.

Glanz K., & Bishop DB. (2021). The role of behavioral science theory in development and implementation of public health interventions. *Annu Rev Publ Health, 31*: 399-418.

Junchom1 K., Boontiam N., Sinsap N., Chankra C. & Jaimun B. (2022). Development of health promotion activity model and foot care for the elderly with diabetes in Pathum Subdistrict Health Promoting Hospital. *Journal of Educational Innovation and Research, 6*(2): 504-519.

Khaenork S., Kaewmanee J., & Suphon T. (2024). Effectiveness of Elderly Health Promotion Program “No Falling, No Forgetting, No Depression and Good Eating” on Quality of Life among Elderly in Mueang Mai Subdistrict Municipality, Mueang District, Nakhon *Ratchasima Province. Regional Health Promotion Center* 9 Journal, *8*(2): 651-665.

Kittiphiboon W. & Boontanon N. (2020). Developing a screening model and promoting well-being in order to prevent entering the disease. Relying on the elderly according to the concept of "not falling, not forgetting, not depressed, eating delicious food". *Journal of Health Centers 9, 14*(34): 158-171.

Ngamdee P., Limpsenee W., & Rodaree P. (2020). Assessment of health promotion clubs. Elderly people in urban areas: Nonthaburi. *Vajiravej and the Journal of Urban Medicine, 64*(5): 357-364.

Ngowsiri K., Naphapong K. & Sonnam W. (2020). Effects of a holistic health promotion program on the quality of life of the elderly. in Bangkok. *Journal of Sports Science and Healt, 21*(3): 418-431.

Office of the National Economic and Social Development Council. (2022). Statistics of the elderly 2022. Economic data and Bangkok society. Retrieved August 14, 2024, from https://www.nesdc.go.th/main.php?filename=social.

Phonngam P., Chanruang T. & Suton C. (2020). Development of activities to promote mental health for the elderly in the community, Loei Province. *Journal of Demography, 36*(1): 48-59.

Songphak K., Sinsuphan N. & Isarangkun N W. (2019). Developing a model of health promotion for the elderly by community participation, Ban Chaisor, Chai Sub-District. Chum Phae District, Khon Kaen Province. Human Thai Health Project. (2019). Thai Health 2019. Nakhon Pathom: Institute for Population and Social Research Mahidol University; 2019.

Sararak M., Nganchamang T.& Krasuethong N. (2021). Effectiveness of development activities. Elderly Potential To promote healthy behaviors of the elderly In Ban Non Kheng, Kham Kwang Sub-district, Warin Chamrap District Ubon Ratchathani Province. *Srinakarin Vejsan*, *36*(2): 157-165.

Sangrueng S. et al. (2023). Results of using the curriculum Don't fall, don't forget, don't get depressed, eat delicious food. With Personalized Wellness Plan Cooperative in Elderly 9 risk groups. *Journal of Health and Environmental Eucation, 8*(4): 233-243.

Sawatsuk A. (2021). *Development of Activitivs to Promote the Well-Being of Older Persons: Case study of Chatuchak Youth Center.* (Master of degree of social work department of social work). Thammasat University, Faculty of social administration.

Thai Elderly Research and Development Institute Foundation (TISTR). (2022). *Situation of the Thai elderly 2021.* Nakhon Pathom: Institute for Population and Social Research Mahidol University.

Thai Health Project. (2021). *And Thai Health*. Nakhon Pathom: Institute for Population and Social Research Mahidol University.