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ORIGINAL ARTICLE

The Effectiveness of the Health Promotion Program for the Development of Elderly Health literacy and Quality of Life in the Princess Maha Chakri Sirindhorn Medical Center's Area of Responsibility

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ABSTRACT

This quasi-experimental research study was conducted to measure the effectiveness of the health promotion program for the development of elderly health literacy and elderly quality of life in the HRH Princess Maha Chakri Sirindhorn Medical Center's area of responsibility. The sample consisted of elderly males and females living in the Ongkharak district, Nakhon Nayok Province. These individuals were divided into a control and an experimental group, each consisting of 46 people who were selected by the specified criteria. The health promotion program was developed by applying the quality of life concept together with health literacy, the World Health Organization (WHO)'s Quality of Life Assessment (WHOQOL-BREF-THAI), and the Health Literacy and Behavioral Evaluation according to the 3E2S of the Health Education Division, Thailand's Ministry of Public Health. The statistics measured in this study were percentage, mean score, standard deviation, and t-test. The results indicated that, after completion of the health promotion program, the members of the experimental group had a better quality of life compared to the control group, statistically significant at 0.01 level. Also, after completing the health promotion program, the members of the experimental group had better health literacy and health behavior according to the 3E2S than the control group, statistically significant at the level of 0.01.

Key words: elderly, health promotion, quality of life, health literacy

INTRODUCTION

Elderly individuals differ from other age groups. Because it is an age of late life, all aspects of elderly persons' problems, particularly social and public health issues, are different from those of other groups. Currently, the number of elderly persons continues to grow in Thailand and globally. The Thai government, along with other governments across the world, realize the magnitude of this reality, hence their ongoing efforts and campaigns for public awareness and understanding, as well as a readiness to provide care to the elderly that is equal to those of other population groups.[1] Currently, the size of the elderly population is increasing across the world, including Thailand, which is experiencing a declining younger population. The proportion of the population over the age of 60 has increased to 10 percent of the total population, and by 2035, the elderly population will be approximately 25 percent of Thailand's total population.[2] Elderly individuals are human assets because they possess knowledge and experiences that can be passed to their children. They are beneficial to society and can be leaders of society if they are physically and mentally fit. They are revered by their families and are positive role models who can pass on cultural heritage to future generations.[3] Elderly people experience changes in their physical, emotional, and mental systems, along with lifestyle and socioeconomic shifts. Changes occur in their body systems such as cardiovascular, respiratory, digestive, excretory, orthopedic, and their nervous systems, etc.[4]

'Quality of life' refers to a person's level of wellbeing, their levels of happiness and satisfaction with living conditions in their society, along with intellect,[5] body, mind, social relations, and environment.[6] As for satisfaction, it is achieved by meeting the basic needs of society's members both at the micro and macro levels. This depends on society's overall capability to respond to individuals' physical and mental needs.[7]

Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being.[8] A person's lifestyle can be selective for health-promoting behaviors, whether at the individual, organizational, or community level.[9] Lessons learned from the ThaiHealth.or.th, in collaboration with the Foundation of Thai Gerontology Research and Development Institute (TGRI), indicate that adding to the academic body of knowledge about health care for the body and mind to develop active aging potential and to reduce the dependence of the elderly, as stated by related literature review on quality of life and health promotion, resulted in a better quality of life for the elderly. In previous literatures, they showed that elderly people are affecting the quality of life by interventions that can promote active aging, such as designing of age-friendly public spaces and pleasant social environments should be considered. Moreover, policy to improve quality of life towards the elderly should be seriously implemented.[10]

Health literacy is the intellectual process and social skill of a person’s motivation and ability to reach, to understand, and to use the information they

acquire to constantly promote and maintain personal health (WHO, 1998). This term also refers to intellectual and social skills that trigger motivation and the ability of each individual to obtain and use information through regularly promoting and maintaining good health.[11]

The related literature review and preliminary survey within this study provided no evidence that any integrated research on health literacy and quality of life development for community-based health promotion exists for the elderly. The research team conducted a group discussion about health issues with ten community leaders including the community head (1 person), head of the elderly school (1 person), head of the elderly group (1 person), head of the community health volunteers (1 person), public health personnel (1 person), senior citizen (2 persons), and community health volunteers (3 persons). The results of this discussion showed that problems surrounding the quality of life for elderly residents in the area with increased aging affected the potential to promote health and decreased the quality of life improvement of the elderly.

The group of leaders arranged their priorities and need for development as follow: psychological aspects of aging included physical self-perception, anxiety, and loneliness. The physical aspect consisted of body deterioration with age as well as lower awareness of daily life and chronic illness. The environmental aspect of aging involved the organization of the environmental risk of accidents among the elderly at home. The social relations aspect dealt with a lack of meaningful relationships between elderly individuals and their neighbors/communities. As for health literacy on health promotion, findings revealed that knowledge and understanding about health, expertise-boosting communication, condition management, decision making, and health promotion behaviors had not been sufficient or proper for health promotion, especially for elderly individuals with diabetes, hypertension, and high cholesterol. As for the issue of access to health care services, this study discovered that communication problems and information searches for decision-making on 3 Or 2 Sor principles (guideline to promoting health in elderly, based on 5 main concepts: food, exercise, emotion ,not smoking and don't drink alcohol). leading to health behaviors that are in appropriate for the lifestyle of the elderly at Ongkharak district.

Such problems drew the attention of the researchers. The present study was conducted on the outcomes of an integrated model of community-based health promotion for the development of health literacy, together with the promotion of increased quality of life for the elderly. Emphasis was placed on the participation process of the local health leaders who were stakeholders in the community. This was done to achieve collective thinking, working, and problem-solving, to benefits older persons' quality of life improvement, and to innovate health promotion per the Thailand 4.0 development goals. these goals aimed to raise the quality of life of all Thai population groups, which was a policy vision for the economic development of the Thailand 4.0. model. This happened when everyone took part in the community perspective[12] to pursue development strategies for the nation such as strengthening and developing Thai human capital potential, along with a proposed research framework that was financially supported by the budget for social policy on elderly issues: elderly management in Thailand and organization of aging society; on public health issues: health promotion and disease prevention. By experimenting with health promotion programs for

improving the quality of Life and health Literacy of the eldery within the HRH Princess Maha Chakri Sirindhorn Medical Center's area of responsibility, within the field of study for public health care students in the Health Science Program of Srinakharinwirot University. This study intends to research the effectiveness of a health promotion program along with literacy development on elderly persons' quality of life within the HRH Princess Maha Chakri Sirindhorn Medical Center's area of responsibility.

METHODS

Population and Sample

The sample population of this study consisted of males and females above 60 years of age who had been living in Ongkharak district, Nakhon Nayok Province for at least one year. A theory on sample size calculation was employed in this medium quasi-experimental or correlation research (ES=0.5). Hypotheses were tested and conclusions were drawn with statistical significance at the practical level of 95 percent reliability. In this study, the 43 samples in both the experiment and control group were adjusted to 50 samples by the researchers using purposive sampling. The qualified samples in this study were voluntary elderly persons.[13]

Inclusion Criteria

1. Voluntary older persons with no chronic illness or with only non-serious illnesses who able to participate in the research activities
2. Voluntary older persons with the ability to speak and respond in the Thai language

Exclusion Criteria

1. Background inquiries and preliminary health examination results that prevent older persons from participating in the research activities, such as those with heart disease, diabetes, or uncontrolled hypertension
2. Older persons with no chronic illness or with a non-serious illness who declined to participate in this research
3. Voluntary older persons eligible for the health promotion program but absent from more than three activities, etc.

Research Instruments

Data Collection Tools

1. The WHO Quality of Life Assessment Form (WHOQOL-BREF-THAI) with the reliability of Cronbach's alpha coefficient of 0.8406 and the validity of 0.6515
2. The Health Literacy and Behavior Assessment Form of 3 Or 2 Sor by the Health Education Division, Thailand Ministry of Public Health
3. There was no contaminated data collection between the two groups of samples because the groups were in two separate villages, 15 kilometers apart. Hence, there were no external factors from the transfer of the experiments between the groups.

Data Analysis

Descriptive statistics including frequency, mean, percentage, and standard deviation were applied in the analysis phase of this study. The paired-samples t-test was used to compare the quality of life, and health literacy and health behavior according to 3E2S between, before, and after the experiments of the experimental group and the control group. The

independent samples t-test was used to compare the quality of life, and health literacy and health behavior according to 3E2S between the experimental group and the control group using the SPSS application program (document information, more support for SPSS Statistics Software version 25.0, document number 589145, modified date 07 December 2020).

Experiment Tools

The participating program on health promotion for older persons' quality of life improvement using quality of life and health literacy development for older persons' health promotion concept was comprised of four aspects. Quality of life development included health literacy for physical fitness, psychological wellbeing, social relationship, and environment. Experimental schemes were as follows:

Experiment Group	T1E1	E2	E3	E4	E5	E6T2
Control Group	T3	~X				T4
Weeks	wk1-2	wk3-4	wk5-6	wk7-8	wk9-10	wk11-12

T1-T3 refers to the pre-test data collection of the experiment group and control group.
T2-T4 refers to the post-test data collection of the experiment group and control group.
E1-E6 refers to activity deployment following a health promotion program.
Wk1-12 refers to 12 weeks of organizing activities and data collection stages.

Participants were divided by researchers into two groups that lived about 15 kilometers from one another. Each group received health care from a subdistrict health-promoting hospital. For example, the control group that consisted of older persons within the Bung San subdistrict received a usual program from public health personnel from a subdistrict health-promoting hospital. After 12 weeks, they were asked to complete the quality of life assessment for the elderly and health literacy assessment. The experiment group that consisted of older persons within the Thamnop subdistrict received health promotion programs to improve quality of life and health literacy. Five activities, each ranging from one to two hours, were organized on the first two-day intensive seminar. Sessions two through five included an appointment, follow-up, review, wrap-up, reinforcement, resolution, and home visit for implemented activities. A sixth session involved an appointment, review, and wrap-up on all activities performed, as well as post-test data collection.

The activities were as follows:

Activity 1: Quality of life development activities focusing on the physical aspect involved muscle building and yoga for older persons. The media used in this activity included leaflets. A designated coach prepared participants with body warm-up exercises prior to introducing lessons. The target group learned by following the coach's demonstrations. The coach taught simple yoga postures that appropriately catered to the physical abilities of the group, who were able to participate without feeling faint or uncomfortable from physical overexertion. After training with the coach, group members had learned how to repeat the gestures so they could do the exercises later in their homes.

Activity 2: Quality of life development activities focusing on the mental aspect were used to promote mind health and improved self-respect for the

elderly participants. The activity “My worth as who I am” applied a concept from Carl Roger's theory that "the organized, consistent set of perceptions and beliefs about oneself". It consists of all the ideas and values that characterize 'I' and 'me' and includes perception and valuing of'what I am' and 'what I can do'.[16]

Carl Rogers classified personalities into three types: 1) 'Self concept' indicates one’s own view or perception about themselves; 2) 'Real self' means a fact-based perception about one's self; 3) 'Ideal self' denotes being one’s own aspiration. The three types of activities would facilitate the ability of the elderly individuals to realize their own self-worth and importance in many qualities, such as the ability to care for themselves daily, being a spiritual supporter to their children, and the ability to make themselves happy. The media used in this activity included leaflets, gears used for games, Live lectures by experts on psychology, and Perform activities "Message in a Bottle" that will help the elderly to perceive and understand their self-worth through analyzing and evaluating characteristics, behaviors or abilities. Leading to benefit oneself, people around him and society.

Activity 3: Quality of life development activities focusing on social relationships included recreational activities for the elderly like ice breakers, along with relationship-building activities like playing games from experts on recreational activities for the elderly. Such as game to deliver eggs in a spoon by dividing the elderly groups into 2 teams, giving out spoons to each person, giving 1 boiled egg, holding a spoon with boiled egg, and walking for the elderly on the other side. The team that finishes quickly wins and has awards.

Activity 4: Quality of life development activities focusing on the environment aspect used lectures on home organization and environment to prevent older persons from falling. The media used in this activity were Power Point slides. Lectures were given by researchers with environmental sanitation expertise. Follow-ups were carried out by evaluation through home visits.

Activity 5: Activities focusing on health literacy development comprised 3 Or 2 Sor health literacy concept development through Pender's health promotion theory and Self-Care Theory such as knowledge on access to health care services, communication, self-management, media literacy, decision-making, and health behaviors of older persons. Media used in this activity were lectures by experts on health promotion, along with PowerPoint presentations, scenarios, and case studies on the subject.

Conceptual Research Framework

Upon completing the literature review, the researchers applied the concept of Orem's self-care theory that states “self-care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being.”[14] This concept was used in conjunction with Pender's health promotion theory[15], which is based on the concept of cognition that expects the outcome caused by behaviors or outcome expectancies. The researchers applied Rogers' (1959) theory is the notion of self or self-concept. This is defined as" the organized, consistent set of perceptions and beliefs about oneself". It consists of all the ideas and values that characterize 'I' and 'me' and includes perception and valuing of 'what I am' and 'what I can do'.[16]

By promoting mental health activities in the area of self – esteem by allowing the elderly to consider themselves that will enable them to perceive their own values and priorities in various fields. Both the ability to take care of themselves in daily

life. This can result in greater levels of self-recognition, leading to a higher quality of life at an older age. To be happy in life. That will help the elderly to change their view towards themselves creatively. They are enthusiastic about taking care of their health and able to develop themselves to be elderly with better mental health. The conceptual framework for the research was as follow: Figure 1

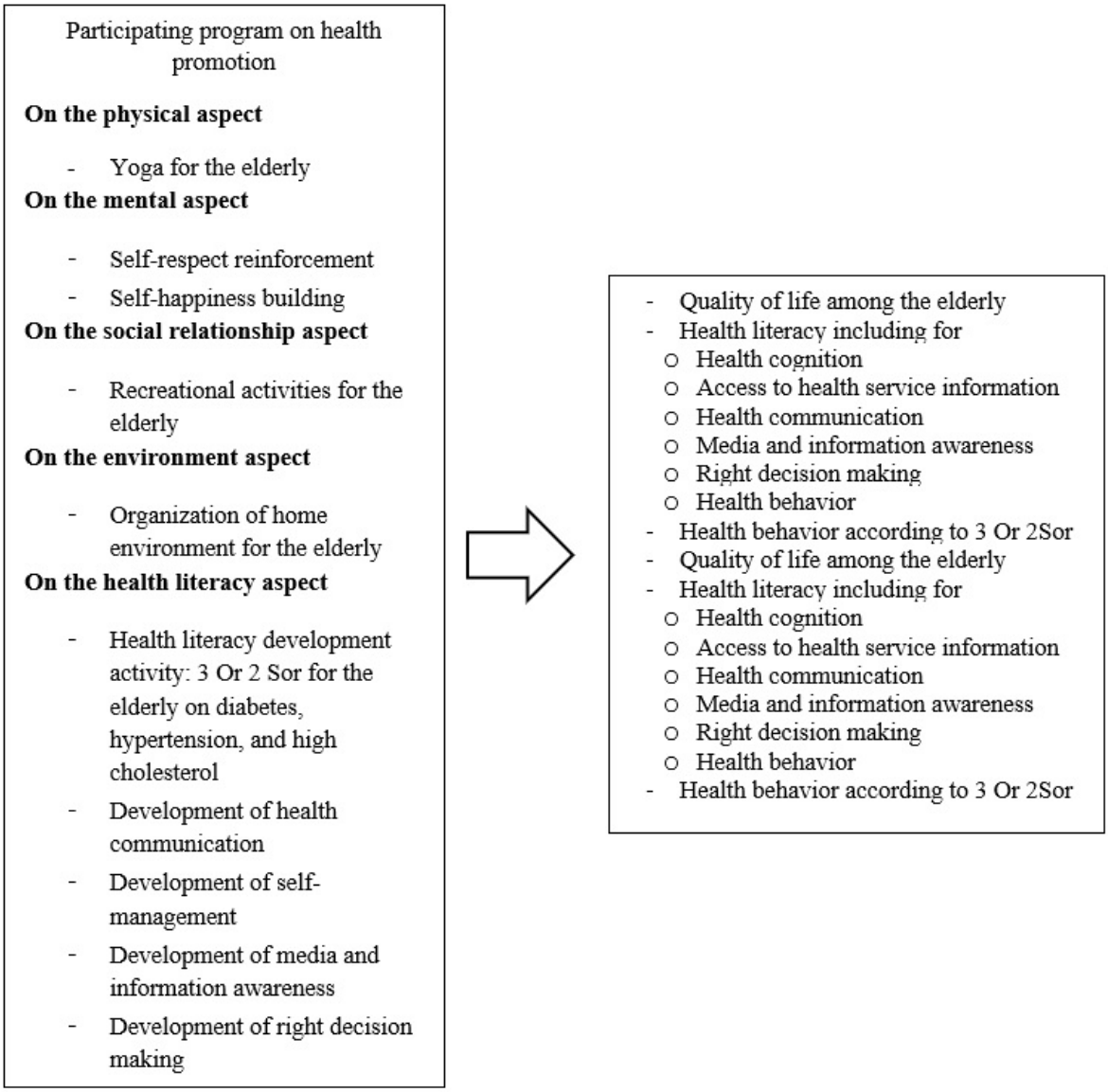


Figure 1 Research Framework

Human Research Ethics

This was a voluntary research study and researchers obtained willing consent to join the project from every sample participant. According to the right protection document, the research team prepared the right disclaimer document requesting cooperation in responding to the research questionnaire. The right disclaimer document stated that the information was voluntarily provided by the sample group,

and all information obtained was confidential. The sample group had the right to answer or refuse. When participants were willing to accept, they could also cancel the provision of information without any restrictions. If members of the sample group had any questions about the research, researchers were willing to respond throughout the ethics review program under the Human Research Ethics Committee, Srinakharinwirot University SWUEC/E - 357/2019, certified date 14/04/2019.

RESULTS

Table 1 Test of Normality of Overall life quality between Experiment and control groups.

Overall life quality	Shapiro-Wilk		
	Statistic	**Df**	**p**
Pre test			
Experiment group	.938	46	.17
Control group	.973	46	.367
Post test			
Experiment group	.950	46	.045
Control group	.981	46	.652

Table 1, it found that, when statistically tested with the normality test by Shapiro-Wilk in the case of sample size less than 50, both experiment and control groups in overall life quality are not statistically significant at the level of .01. That is experiment and control groups are normal distribution

Part 1: Demographic information

Most of the seniors in the experimental group were females (98.50%). The majority (63%) were between 60 and 70 years of age. 79.30 percent of the participants were married and the majority of them (84.20%) graduated with primary education. The sample's main occupations were farming, gardening, and horticulture at 72.20 percent.

Most of the seniors in the control group were also females (96.20%). The majority (67%) were between 60 and 70 years of age. 75.80 percent of the participants were married and the majority of them (80.90%) graduated with primary education. The sample's main occupations were farming, gardening, and horticulture at 75.80 percent.

Quality of life, health literacy, and health behavior according to 3E2S of the elderly in the experimental group (n = 46) and control group (n = 46).

Part 2: Quality of life, health literacy, and health behavior

Table 2 The comparison of the average quality of life score among the elderly.

Variables	Mean	Level	SD	t	p
Overall life quality					
Within Group					
Experimental group					
Before experiments	88.89	Middle	13.25	2.470*	.01
After experiments	96.30	Good	13.34		
Control group					
Before experiments	85.26	Good	10.51	2.399	.02
After experiments	85.50	Good	10.78		
Between groups					
Before experiments					
Experimental group	88.89	Middle	13.25	58.211	<.01
Control group	85.26	Middle	10.51		
After experiments					
Experimental group	96.30	Good	13.34	57.556	<.01
Control group	85.50	Middle	10.78	*	

** statistically significant different*

Table 2 found that before the experiment, the elderly participants had a mean quality-of-life score of 88.89 (SD = 13.25) and a score of 96.30 (SD = 13.34) after the experiment. The control group before the experiment had a quality-of-life mean score of 85.26 (SD = 10.51) and after the experiment was 85.50 (SD = 10.78). When statistically tested with the dependent samples t-test, it was determined that the members of the experimental group had a better quality of life after receiving the health promotion program than the control group. The results showed a statistically significant difference at the 0.01 level.

Before the experiment, the elderly participants had a mean quality-of-life score of 88.89 (SD = 13.25) and a score of 96.30 (SD = 13.34) after the experiment. The control group before the experiment had a quality-of-life mean score of 85.50 (SD = 10.78). When statistically tested with the dependent samples t-test, it was determined that the elderly in the experimental group had a better quality of life after receiving the health promotion program than the control group, statistically significant at the level of 0.01.

Table 3 The comparison of the differences between the mean score of health literacy and health behavior per 3Or2Sor, the elderly before and after the experiment within the experimental and control groups.

	Health Literacy and Health Behavior per 3Or2Sor	Sample Group		Mean	SD	t	p
1.	Health cognition	Experimental group	Before exp.	2.10	1.10	13.22*	0.01
			After exp.	4.95	1.01		
		Control group	Before exp.	2.28	1.27	0.17	0.86
			After exp.	2.23	1.09		
2.	Access to health service information	Experimental group	Before exp.	2.07	0.80	23.75*	0.01
			After exp.	4.91	0.21		
		Control group	Before exp.	1.98	0.49	1.70	0.09
			After exp.	2.04	0.52		
3.	Health communication	Experimental group	Before exp.	3.00	0.63	20.60*	0.01
			After exp.	4.91	0.16		
		Control group	Before exp.	1.92	0.47	1.33	0.18
			After exp.	1.76	0.66		
4.	Self-management	Experimental group	Before exp.	3.27	0.98	11.02*	0.01
			After exp.	4.86	0.19		
		Control group	Before exp.	2.02	0.47	1.94	0.60
			After exp.	2.09	0.43		
5.	Media and information awareness	Experimental group	Before exp.	3.51	1.00	8.03*	0.01
			After exp.	4.77	0.32		
		Control group	Before exp.	1.98	0.49	4.25*	0.01
			After exp.	1.63	0.35		
6.	Right decision making	Experimental group	Before exp.	3.00	0.70	0.80	0.42
			After exp.	3.17	0.78		
		Control group	Before exp.	1.89	0.43	6.15*	0.01
			After exp.	1.55	0.34		
7.	Health behavior	Experimental group	Before exp.	3.16	0.62	4.18*	0.01
			After exp.	3.73	0.64		
		Control group	Before exp.	1.97	0.36	4.13*	0.01
			After exp.	2.17	0.44		

** statistically significant different*

Table 3 indicated that the mean scores of the health literacy within the experimental group were at the low to moderate level before the experiment (mean=2.07 to 3.51), while the mean scores were higher after the experiment (mean=3.17 to 4.95). However, in the control group, most of the scores were at the low level (mean =1.89 to 2.28) before the experiment as well as after the experiment (mean =1.55 to 2.23). When the health literacy mean score was compared within the experimental group, it was found that after the experiment, five of the six health literacy components had higher mean scores than before the experiment, with the statistical significance at the .01 level. These were health cognition, access to health service information, health

communication, self-management, and media and information awareness.

In addition, the mean score of health behavior within the experimental group was at the moderate level (mean =3.16, SD =0.62) before the experiment, while it was at the high level (mean=3.73, SD =0.64) after the experiment, statistically significant at the level of 0.01. The mean score of health behavior within the control group was at the low level before the experiment (mean=1.97, SD =0.36), while after the experiment, it was at the middle level (mean =2.17, SD = 0.44).

Table 4 The comparison of the differences between mean score, health literacy, and health behavior per 3E2S of the elderly between the experimental and control groups.

Health Literacy and Health Behavior per 3Or2Sor	Experiment	Sample Group	Mean	SD	T	p
1. Health cognition	Before exp.	Exp gr	2.10	1.10	12.12*	0.01
		Cont gr	2.28	1.27		
	After exp.	Exp gr	4.95	1.01	13.81*	0.01
		Cont gr	2.23	1.09		
2. Access to health service information	Before exp.	Exp gr	2.07	0.80	26.98*	0.01
		Cont gr	1.98	0.49		
	After exp.	Exp gr	4.91	0.21	26.35*	0.01
		Cont gr	2.04	0.52		
3. Health communication	Before exp.	Exp gr	3.00	0.63	27.75*	0.01
		Cont gr	1.92	0.47		
	After exp.	Exp gr	4.91	0.16	17.94*	0.01
		Cont gr	1.76	0.66		
4. Self-management	Before exp.	Exp gr	3.27	0.98	28.95*	0.01
		Cont gr	2.02	0.47		
	After exp.	Exp gr	4.86	0.19	32.93*	0.01
		Cont gr	2.09	0.43		
5. Media and information awareness	Before exp.	Exp gr	3.51	1.00	26.98*	0.01
		Cont gr	1.98	0.49		
	After exp.	Exp gr	4.77	0.32	31.72*	0.01
		Cont gr	1.63	0.35		
6. Right decision making	Before exp.	Exp gr	3.00	0.70	29.59*	0.01
		Cont gr	1.98	0.49		
	After exp.	Exp gr	3.17	0.78	30.41*	0.01
		Cont gr	1.55	0.34		
7. Health behavior	Before exp.	Exp gr	3.16	0.62	37.02*	0.01
		Cont gr	1.97	0.36		
	After exp.	Exp gr	3.73	0.64	33.50*	0.01
		Cont gr	2.17	0.44		

** statistically significant different*

Table 4 found that before the experiment, the mean scores of health literacy between the experimental and control group were at the low-to-moderate level. The experimental group had health literacy mean scores between 2.07 to 3.51, while the control group had scores between 1.92 to 2.28. The results of the independent t-test samples indicated the statistically significant difference at the 0.01 level.

After the experiment, most of the mean scores of the five health literacy components among the experimental group were at the high level (mean = 4.77 to 4.95), while the control group was at the moderate level (mean = 3.17). Meanwhile, the control group had a mean score of health literacy components at the low level (mean = 1.55 to 2.23). When the mean scores of health literacy components were compared between the experimental and control groups, the statistically significant difference was at the 0.01 level.

In addition, the mean score of health behavior before the experiment revealed that the experimental group was at the moderate level (mean = 3.16) and the control group was at the low level (mean = 1.97), with a statistically significant difference at the 0.01 level. After the experiment, the mean score of health behavior among the experimental group was at the moderate level (mean =3.73). Conversely, the mean score among the control group was at the low level (mean = 2.17), with the statistically significant difference at the 0.01 level.

DISCUSSION

The t-test effectiveness results of an integrated program on quality of life and health literacy of the elderly within the HRH Princess Maha Chakri Sirindhorn Medical Center's area of responsibility indicated better quality of life than pre-test and the control group at statistical significance. The key finding obtained from this study is participating in community stakeholder groups to assess the needs and problems of the elderly. The approaches attained therein were then used to develop a program to guide personal health-promoting behaviors like self-care and the need for self-care, using Orem's self-care theory and Pender's health promotion theory. Key concepts from Carl Rogers' theory were also applied to enable the elderly to recognize their self-worth and the importance of many aspects of their lives like being able to routinely care for themselves, to live sophisticatedly, to act as a spiritual supporter for their children, and to stay happy. Examples of activities developed in a community context different from other studies are: development of community food activities according to the nutritional flag principles that are consistent with the eating culture to be suitable for the age and disease of the elderly in the community.This research adhered to a study on older persons' quality of life development by the Elderly Excellence Center, Boromaratchachonnani College of Nursing, Nakhon Si Thammarat (2016). Results from that workshop showed that 93.33 percent of the seniors who passed the elderly school program had a better quality of life. The findings of all four aspects of older persons' quality of life are as follows: 1) The physical aspect indicated that the elderly possessed knowledge of health care and an ability to take care of themselves, they were strong and in good health, were not a burden to their children, and saw their symptoms from chronic diseases improve. 2) The psychological aspect suggested that there was more pride, confidence, memory, and concentration among the elderly participants of the experiment group. 3) Social relationships created opportunities for participants to make friends, smile, and have peace of mind and happiness in joining volunteer activities in their elderly

care programs. 4) The environmental aspect related to useful information, recreational activities, and field trips that rendered better quality of life in the elderly.[17]

These findings are in agreement with a study on the health promotion program effectiveness of quality of life development based on the needs of the elderly in Nang Lae subdistrict, Muang district, Chiang Rai province (2017). This study found that the elderly participants in the experiment group who received the health promotion program had better post-test quality of life results than pre-test at a statistical significance level of 0.01. Also, the members of the experiment group had better post-test quality of life results after the health promotion program than the control group at a statistical significance level of 0.01.[18] As for health literacy, the findings indicated that the elderly in the experiment group had better post-test health literacy on 3 Or 2 Sor from the health promotion program than pre-test and the control group at a statistical significance level of 0.01. This is consistent with a study on the effectiveness of participating health promotion model for quality of life development for the elderly that reported improved overall quality of life as well as better quality of life for physical, psychological, social relationships, and environmental aspects from repeat measurements at a statistical significance level of 0.01.[19]

This research was not consistent with a study on health promotion program effectiveness on quality of life of the elderly in a senior club that uncovered results of no difference on the pre-test and post-test quality of life of the sample ($p > .05$). Psychological, social, and environmental aspects also did not change, which possibly resulted from mental quality of life, assessing positive/negative feelings, thinking, learning, memory and concentration, self-worth, self-image, and religious belief/faith. The social quality of life evaluated relationships and societal support. Environmental quality of life relates to home safety and safeguard conditions, health and public services, information accessibility, and skills practice opportunities as well as leisure/hobbies time, environmental conditions (pollutants, noise, traffic), and ease of travel[20].

RESEARCH FINDINGS

Post-test results of the health promotion program on quality of life and health literacy development for the elderly showed improved levels of quality of life and health literacy as well as health behaviors corresponding to 3 Or 2 Sor over pre-test and the control group.

RESEARCH STRENGTHS

Health literacy program development within the context of community and the needs of the elderly resulted in an appropriate program, along with health literacy and quality of life improvement. In addition, the elderly were actually able to fulfill and take part in the activities with pleasure and satisfaction such as yoga activities for the elderly. This exercise is appropriate for the physical condition and readiness of the elderly in the community. Resulting in the elderly, bringing knowledge of yoga activities goes into continuous practice. Positive perception, attitude it believes in the benefits that will be gained from practicing balance breathing exercises. There is a real pleasure in yoga. The research team *concluded* from the group discussion after the completion of the activity as follows: The results of the training alleviate the muscles that have previously had problems reduce injury more usable. The psychological effect is more mindful concentration improved

mood, less stress. Social effects increase love, understanding and warmth in the family. No complications resulted from joining the activities, thus there were no elderly absentees.

RESEARCH WEAKNESSES AND LIMITATIONS

This quasi-experimental research was conducted with samples aged 60 years and over, some of whom exhibited signs of physical deterioration. Some participants had problems answering the health literacy questionnaire and the quality of life assessment questionnaire. Most elderly individuals in the sample had poor eyesight, rendering them unable to read. This, in turn, consumed more time during the data collection process. To solve this weakness in organizing activities to focus on 2-way communication to ensure that perceptions of information are correct and consistent. Furthermore, the research was conducted in an expedited manner due to the restrictions imposed by the COVID-19 epidemic.

RECOMMENDATIONS FOR RESEARCH

Further research should cover innovative health literacy media production and its accessibility to the elderly so that the sustainability development of health literacy and quality of life of the elderly can be attained.

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