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Developing and Promoting Health Literacy of the Elderly with Participation of Local Administrative Organizations, Chachoengsao Province, Thailand

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Abstract

This mixed methods research, between qualitative and quantitative approaches, was aimed to study 1) problems, needs, and solutions about health literacy of the elderly with participation of local administrative organizations in Chachoengsao Province, 2) analyzing and determining guidelines for developing and promoting health literacy among the elderly with participation, and 3) the guidelines for developing and promoting health literacy among the elderly with participation of local administrative organizations in Chachoengsao Province. The sample for qualitative approach included elderly people and their families, local administrative organization executives, sub-district health promotion hospital directors, village heads or village chiefs, totaling 73 people. The sample for quantitative approach included 520 elderly people and their families. The tools used were in-depth interviews and questionnaires. The qualitative data were analyzed using content analysis and interpretation while the quantitative data were analyzed in frequency, percentage, mean, standard deviation, t-test, and f-test. The study findings were in the following: 1) Problems, needs, and solutions regarding health literacy of the elderly with participation revealed that the problems stemmed from the elderly's lack of knowledge and understanding about searching and accessing health information through technology, leading to incorrect health care behaviors. The solution was to involve all parties in solving the problem by organizing practical training based on the principles of 3E2C (Eating, Exercise, Emotion, alcohol Consumption, and tobacco Consumption) including cooking experiments and calorie calculations from favorite menus to make it easy to remember and understand self-care and care for others, and to recommend others to keep up with changes for health behavior adjustment affecting quality of life. 2) Analyzing and determining guidelines to develop and promote health literacy of the elderly with participation of local government organizations (LGOs) found that the overall development and promotion of health literacy of the elderly was at a high level, with the highest to lowest mean values being decision-making skills, self-management skills, media literacy skills, access to health information, communication skills, and health knowledge and understanding. Different gender, age, education level, and chronic diseases did not affect the development of health literacy of the elderly in Bang Khla District, Chachoengsao Province. However, marital status, occupation, community position, and years of residence in the community affected the development of health literacy of the elderly in Bang Khla District, Chachoengsao Province, significantly. 3)

Guidelines for developing and promoting health literacy among the elderly with participation of LGOs found that after applying the guidelines to develop and promote health literacy of the elderly with LGOs' participation, the post-development and promotion mean values of health literacy of the elderly were higher than the pre-development and promotion mean values of health literacy of the elderly, resulting in a complete guideline evaluated by experts. This included empowering individuals and communities to feel empowered to control and manage to change their communities, involving all personnel in developing and promoting health literacy of the elderly, including sub-district municipalities, sub-district administrative organizations, health personnel, village heads, elderly people and their families, village health volunteers, and caregivers, to have health literacy in six areas: access to health information, health knowledge and understanding, communication skills, decision-making skills, media literacy skills, and self-management skills. Other agencies could use the results to formulate policies to drive health literacy in the elderly by instilling health behaviors through activities, promoting new knowledge and extending the guidelines to the national and international levels.

Keywords: Health Literacy, Elderly, Participation, Local Administrative Organizations, Chachoengsao Province

Introduction

Since 2005 to 2021, Thailand has become an aging society; that is to say, the proportion of the population aged 65 and over is more than 7% compared to the total population of the country as defined by the United Nations (UN). In 2021, the Thai population aged 65 and over accounted for 12.8%. Among the members of ASEAN, Thailand has the second-highest proportion of elderly population after Singapore. It is expected to be the first developing country in the world to enter a complete aging society due to the continuous decline in the birth rate, as well as the delay in marriage and the increasing unwillingness to have children. If this trend continues in the next few years, Thailand will move up to a hyper-aged society, or the proportion of the elderly population will approach 20%, taking only 9 years after becoming a complete aging society, which is considered a faster rate than Japan, which took 11 years (Kasikorn Research Center, 2021). The changes in the population structure have affected the direction of trade, investment, and consumption, and the number of the working-age population tends to decrease. As the dependency ratio of the working-age population to the elderly increases, the demand for goods and services decreases, the production sector will also decrease, having a knock-on effect on the investment sector because there might be no incentive to produce due to that the return on investment is low. In addition, the elderly do not have a savings plan system, increase the household debt ratio. This would cause the government to spend more budget to take care of rights, welfare, nursing care and services during retirement for the elderly, affecting the budget for other national developments (Ananya Chaisong, 2017).

Chachoengsao Province is one of the provinces in the Eastern Economic Corridors (EEC). The province is comprised of 11 districts, 93 sub-districts, and 892 villages. As of August 2020, it had a total population of 721,880 people, with a total of 281,778 households. The local government organizations were comprised of one provincial administrative organization, one municipality, 33 sub-district municipalities, and 74 sub-district administrative organizations (Chachoengsao Provincial Office, 2022, page 9). Itspopulation structure had a bulge in the middle, with the 40–44-year-old group having the largest population (7.9 percent of the total population). If the population structure was

divided by age range, it was found that there were children (aged 0-14 years), working-age population (aged 15-59 years), and the elderly (aged 60 and over) at 17.3 percent, 65.6 percent, and 17.1 percent of the total population, respectively. As a result, Chachoengsao has fully entered the Aged Society and is stepping into becoming a "complete aging society". For the past 5 years, the working-age population has tended to decrease while the elderly population has tended to increase continuously. The population structure of the province will affect the future economic situation and potential, as the province's economy depends on the working-age population, namely the ratio of the children and the elderly to the working-age population, or so-called “dependency ratio” is one of the indicators used to analyze and determine various policies in the future because in economics, the working-age population is seen as the ones who earn income to take care of the children and elderly population (Chachoengsao Provincial Office, 2022, pages 65 - 67). Bang Khla District has a population of 42,314 people, of which 8,696 are elderly, accounting for 20% of the total population of Bang Khla District. Bang Khla District has entered the ultimate aging society (Bang Khla District Public Health Office, 2018). From the study of the Department of Health Service Support, it conducted an assessment of health literacy and health behavior, focusing on changing the behavior of 3 E (eating, exercise, emotion) and 2 C (consumption of alcohol and cigarettes) to control five dangerous chronic diseases: diabetes, hypertension, cardiovascular disease, and cancer with the target group of working-age people nationwide living in the villages of the Health Management Subdistrict, a village that has implemented health behavior modification to reduce five chronic diseases covering 76 provinces. The assessment results found that the working-age group still lacked health literacy and had behaviors in food consumption, exercise, and stress management at a worrying level. As for smoking and drinking behavior, it was at a moderate level (Phanuwat Panket, 2017).

Health Literacy is a cognitive and social process which generates motivation and ability of individuals to access, understand, and use information to promote and maintain their health (WHO, 1998). Therefore, developing and enhancing the health literacy of the elderly will help them gain knowledge, understanding, and change their health behaviors positively. This could reduce the incidence of diseases in the elderly or lessen the severity of diseases, allowing them to live a normal life without being burdened by illnesses, and die with dignity and peace naturally. This could help avoid unnecessary medical expenses for families. The Health Education Division (2016) has classified health literacy into six components: 1) Health knowledge and understanding, 2) Access to health information, 3) Communication skills, 4) Decision-making skills, 5) Self-management skills, and 6) Media literacy skills. Those with health literacy not only know and understand information but can also argue, change their behavior, and inform others. The National Reform Steering Assembly's Health and Environment Reform Committee (2015) found that personal and family factors are related to people's health literacy, leading to health outcomes such as health behaviors, health decisions, individual health empowerment, health status, and appropriate health expenses. This reflects the need to develop and promote health literacy among the elderly to enable them to take care of themselves effectively, reduce illness burdens, and urgently promote health. With the decentralization to local areas, communities or localities could quickly address community problems. Local administrative organizations play a crucial role, especially in improving the quality of life of the elderly, in line with various funds that support elderly care, such as sub-district health promotion hospitals, elderly families, village heads, and villagers, to ensure the elderly in the community have a good quality of life. Therefore, developing and promoting health literacy among the elderly, addressing problems and involves participation, must come from the cooperation of all relevant parties. This could promote the quality of life of the elderly and their families and help create a new, high-quality elderly society.

The research team comprised of instructors from Rajabhat Rajanagarindra University. The university is for local development and social service; it is the only university in Chachoengsao Province and its teaching center is in Bang Khla District, Chachoengsao Province. The university is aware of the problems and needs of the people. In addition, there has never been a serious and comprehensive study about health literacy of the elderly with the LAOs' participation. Therefore, researchers are interested in studying the development and promotion of health literacy of the elderly with participation from local administrative organizations in Bang Khla District, Chachoengsao Province, Thailand. The results of this research could provide guidelines for the development and promotion of health literacy of the elderly with LAOs' participation in Bang Khla District and Chachoengsao Province and will be a good model for the development of health literacy and quality of life of the elderly in other provinces.

Research Objectives

1. To study the problems, needs, and guides for solutions related to the health literacy of the elderly with the participation of local administrative organizations in Chachoengsao Province.
2. To analyze and identify guidelines to develop and promote the health literacy of the elderly with the participation of local administrative organizations in Chachoengsao Province.
3. To study the guidelines for developing and promoting the health literacy of the elderly with the participation of local administrative organizations in Chachoengsao Province.

Conceptual framework for this research

This study was participatory action research (PAR). The researchers applied the concept of health literacy components of the Health Education Division (2016) as the research conceptual framework as shown in Figure 1 below.

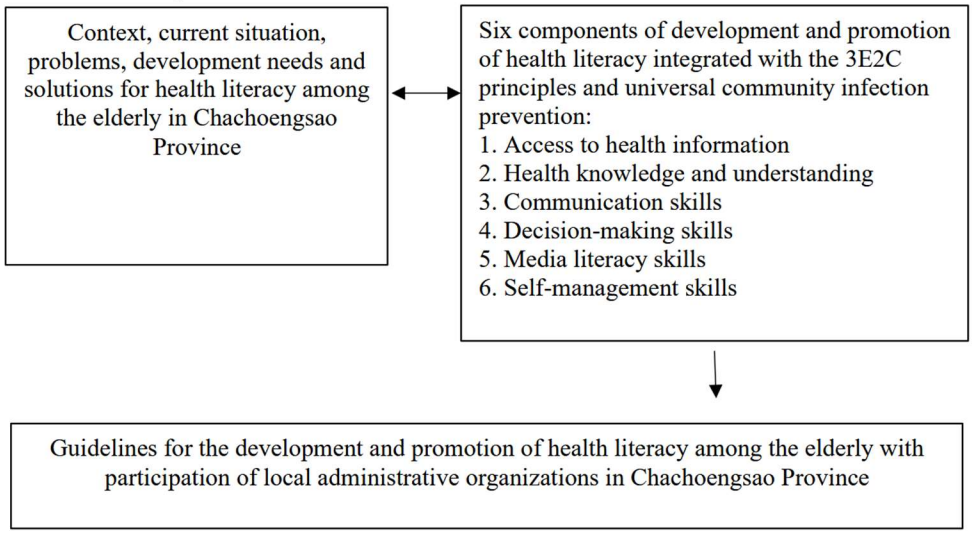

Figure 1 Research conceptual framework

Research Methodology

This study was participatory action research using the PDCA process with 6 steps as follows:

(P) - Step 1: Surveying and identifying problems are done by surveying problems and needs for developing and promoting health literacy among the elderly to know the context, current conditions,

problems, development needs and solutions to health literacy among the elderly in Bang Khla District, Chachoengsao Province. The interviews are involved with the elderly, their families, the mayor of the subdistrict administrative organization, the mayor of municipality, the director of the subdistrict health promotion hospital, *kamnan*, village headman, village health volunteers, elderly clubs, and community health networks.

(P) - Step 2: Data analysis is proceeded by using the interview results and comments received from Step 1 to analyze the current situation, problems, solutions, and needs to develop and promote the health literacy among the elderly in Chachoengsao Province. Then, it is to plan development methods, design development topics, or guidelines for developing and promoting health literacy among the elderly to be consistent with real problems and needs.

(D) - Step 3: Operation in collaboration with the local administrative organizations of Bang Khla District. This step is carried out in accordance with the development methodology plan specified in Step 2, namely, determining the topics to be trained for development, including date, time, place, sub-district, number of people, trainers, training methods, and evaluation methods. The operations have been proceeded separately in each sub-district and what are the roles of the sub-district administrative organizations responsible for participating in this development.

(C) - Step 4: Evaluation and conclusion. This step is an evaluation after development by collecting qualitative data through interviews and quantitative data from questionnaires. Data must be collected both before and at least one month after development to know about changes in health behavior.

(C) - Step 5: Analysis of statistical data of the questionnaires and content analysis of the interviewed data to summarize the results of the development and promotion of health literacy among prototype health literate elderly leaders in Bang Khla District, Chachoengsao Province. Then, the next process is to summarize the development results into a draft of the development guidelines found, presented to a focus group meeting with experts from many related fields to provide additional suggestions, and then summarize the guidelines found.

(A) - Step 6: Further improvement and planning. This step is to return information to the community by taking the guidelines for developing and promoting health literacy among the elderly with participation of local government organizations in Chachoengsao Province, obtained from Step 5, and summarizing them into a book and reporting them at a meeting with executives of local government organizations and relevant parties to acknowledge information and development guidelines found and problems, and suggestions for further improvement.

Population and Sample

Population

The population in the study was the elderly and their families in Bang Khla District, counting 1 person, totaling 8,614 people, 9 local government executives, 8 sub-district health promotion hospital directors, 9 *kamnans*, and 56 village headmen, totaling 8,696 people.

Participants of qualitative approach

Key informants for in-depth interviews included 30 elderly people and their families, 7 local government executives (80% of the total), 6 directors of sub-district health promotion hospitals (80% of the total), and 30 village headmen (Creswell, 2007), totaling 73 people.

The experts in the focus group discussions included community leaders, sub-district health promotion hospital representatives, village health volunteers, local government organization

representatives, and academic representatives, totaling 5 people.

Quantitative research sample

The sample group or health literacy development participants consisted of 520 elderly people and their families, using a selection criterion of 6% from the total population of 8,696 people, with 100-120 people trained per class. Key informants were selected using the purposive sampling method, which had the most relevant characteristics to the research objectives, and the snowball technique.

The criteria for selecting the number of key informants refer to the sample group selection for the study to create a theory because there is a pattern created from the data gathered (Grounded Theory) (Creswell, 2007, 2013 cited in Chamnian Chuangtrakul, 2018, p 8) by the method of selecting a sample group which does not follow statistical chance (Non-Probability Sampling). Qualitative data collection does not emphasize the number. If the data is found to be saturated, data collection can be ceased.

Tools used for data collection

The tools used in collecting qualitative data include the researchers and the interview guide. Since qualitative research is an important tool for collecting data, the researchers have self-prepared before going to the actual area by preparing knowledge of the content of qualitative research methods by reading documents, textbooks, works, and related research to cover the issues to be used in the interview.

Finding the quality of qualitative data collection tools

The quality of the instrument in terms of content validity was checked by 3 experts who were not in the actual data collection area. The interview form were tested with 3 elderly people who were not in the sample group as a guideline to adjust the questions for understanding before actual use.

The equipment used for data collection included: 1) a camera, in which the researcher selected photos related to the topic under study; 2) a voice recorder; and 3) a notebook. Permission was requested and consent was obtained from the informants and relevant persons every time. Tools used to collect quantitative data: The researchers used the set of researcher-created questionnaires exploring factors affecting the development and promotion of health literacy among the elderly in Bang Khla District, Chachoengsao Province, from 520 respondents. The questionnaires were divided into two parts:

Part **1:** General information of the respondents included general information about gender, age, marital status, education level, occupation, chronic diseases, position in the community, and number of years living in the community.

Part 2: The questionnaires about level of health literacy of the elderly in Bang Khla District, Chachoengsao Province, consisted of two parts. Part 1: Personal factors included gender, age, education level, occupation, chronic diseases, position in the community, and number of years living in the community. Part 2: Development and promotion of health literacy of the elderly included 1) access to health information, 2) health knowledge and understanding, 3) communication skills, 4) decision-making skills, 5) media literacy skills, and 6) self-management skills. The answers to the questions were graded as a 5-rating scale.

Finding the quality of quantitative data collection tools

1. Content validity was examined by presenting the set of questionnaires to five public

administration experts to review its completeness, accuracy, and consistency, and to calculate the index of item objective congruence (IOC). The content validity was 0.90.

2. Determining the reliability of the questionnaire using Cronbach's Alpha-Coefficient (Cronbach, 1990, pp. 202-204) was done by taking the set of questionnaires with approval of content validity for tryout among 30 people with similar characteristics to the sample group of Bang Pakong District, Chachoengsao Province. If the value is higher than 0.75, it could be used to collect actual data, resulted in a reliability value of 0.937.

Data collection

Qualitative data were collected through in-depth interviews with key informants until the data obtained were saturated. Other methods of data collection included non-participant observation and notes. Data reliability was checked by using the same data triangulation method, such as annual reports, newspapers, and analysis of related documents. Reflexive notes were recorded after data collection to record ideas, beliefs based on data, and connections found in the data collection to use them in data analysis completely and accurately. The data were then analyzed, and a guideline was drafted for focus group discussions with five experts to provide comments on the conclusions and evaluate the components of health literacy development for the elderly, including useful suggestions.

Quantitative data collection using questionnaires included the following steps. 1) The researcher requested a letter requesting permission to collect data from the sample group. 2) The letter was presented to the mayor or the sub-district administrative organization president for consideration and approval and facilitation of further data collection. 3) Data were collected using self-administered questionnaires.

Analysis of Data

Analysis of Qualitative Data: Coding the data and using the method of interpreting and creating the meaning of the data and creating concepts by comparing with theories and research results was proceeded according to the qualitative data analysis (Content analysis) with 3 steps according to the guidelines of Strauss and Corbin (1998) as follows: 1) Open coding is the step of coding or indexing. Consider opening the code line by line; If there is any text that indicates the guideline for developing and promoting health literacy of the elderly according to the research objectives, it will be coded. 2) Axial coding is the step of coding by processing the types of data and characteristics of the types of data together. It is creating a relationship between the data of each code in the first step. 3) To select coding is the step of selecting events. That is the key to leading to the conclusion of the findings of decoding from the data obtained from the interview. It is the step of summarizing the characteristics of the relationship of the guidelines for developing health literacy of the elderly that are discovered.

Finding the credibility of data: By examining data by triangulation, interviewing at different times, places and persons, checking the consistency of data with the informants both during data collection and at the end of data collection, including in studying the same issue using interviews with various groups of people, finding the same information from multiple sources.

Quantitative data analysis: The researcher used the SPSS program.

Statistics used in data analysis as follows: 1) Qualitative research is a content analysis. 2) Quantitative research included frequency, percentage, mean ($\bar{x}$), standard deviation (S.D.), and t-test and analysis of variance (f-test).

Research Results

1. Problems, needs, and solutions about health literacy of the elderly with LAO's participation in Chachoengsao Province: It was found that from the qualitative data on the

developing and promoting health literacy for the elderly, it was arisen from the problem of lack of knowledge, understanding, information search, and access to health information. Since the elderly have a slow learning rate, they must be closely monitored and closely followed their health care behaviors, the solution should organize a practical training to provide practical knowledge based on the practice of the 3E2C principles, experiment with cooking and calculating calories from favorite menus, such as papaya salad. By dividing them into different groups to compete in a healthy menu competition with calories suitable for the elderly. It would be easy to remember and to understand how to take care of their own health and others, and then go back to expand the results to recommend to others in the family. Access to various desired and reliable information results in people in the community making decisions, knowing how to manage themselves in terms of health, changing behaviors effectively, and being able to have a good quality of life happily, along with continuous and consistent public relations on health and various diseases, keeping up with the changes in the current era, such as practicing the 3E2C health care for themselves and others by eating healthy food, exercising, managing the environment inside and outside their house. They also had village health volunteers provide health knowledge along with monitoring and evaluating the actual situation to obtain real information, leading to solving problems affecting the quality of life of the elderly. The government and related agencies were driving the development of health literacy for the elderly to solve problems successfully, it should require the participation and cooperation of the government, private sector and community.

2. Results of analysis and identifying guidelines for developing health literacy among the elderly with LAOs' participation in Chachoengsao Province

2.1 Results of general data analysis of the respondents: It was found that most of them were female, aged between 51 - 60 years, married, had completed secondary school/vocational certificate, worked as housewives, househusbands, and just stayed home. They had chronic diseases such as diabetes, blood pressure, glaucoma, cholesterol, allergies, asthma, breast cancer, gout, and heart disease. They did not have positions in the community and lived in the community for 46 - 60 years.

2.2 Results of the analysis of the level of health literacy development among the elderly in Bang Khla District, Chachoengsao Province: It was found that the development and promotion of health literacy among the elderly in Bang Khla District, Chachoengsao Province, was at a high level overall. The areas with the highest average scores were decision-making skills, self-management skills, media literacy skills, access to health information, and communication skills. The area with the lowest average score was health knowledge and understanding.

2.3 Comparative results of health literacy development of the elderly in Bang Khla District, Chachoengsao Province, classified by gender, age, marital status, education level, occupation, chronic disease, position in the community, and number of years living in the community: It was found that gender, age, education level, and underlying diseases were different, and the development of health literacy of the elderly in Bang Khla District, Chachoengsao Province was not different at a statistical significance. However, if marital status, occupation, position in the community, and number of years living in the community were different, the development of health literacy of the elderly in Bang Khla District, Chachoengsao Province was different at a statistical significance.

3. Guidelines for developing health literacy among the elderly with LAOs' participation in Chachoengsao Province: It was found that the guidelines for developing and promoting health literacy among the elderly with participation of local administrative organizations in Chachoengsao

Province consisted of the power of all personnel involved in developing and promoting health literacy among the elderly and using the results obtained from the analysis of quantitative research results with the lowest average value in each area as the focus point that should be developed by instilling behavior through organizing activities that promote new knowledge under the PDCA quality control process, which has the following details:

Empowerment was implemented through the process where individuals and communities feel empowered to control and manage in order to change their own communities by involving all personnel in developing and promoting health literacy among the elderly. They included municipalities or sub-district administrative organizations (SAOs), health personnel, village headmen, village elders, the elderly and their families, village health volunteers, and CG or caregivers or caregivers who are responsible for caring for the elderly and patients to have health literacy in 6 areas: access to health information, health knowledge and understanding, communication skills, decision-making skills, media literacy skills, and self-management skills.

Cultivating health behaviors was proceeded through organizing activities that promote knowledge and understanding in caring for one's own health and that of others under the PDCA quality control process, including:

Access to health information: The point which should be improved because of the lowest average value was the method of searching and using technology. That is, the elderly should know how to search and use technological devices to search, such as computers and mobile phones, because the advancement in technology is considered to have a great influence on people's behavior in searching for information to take care of and promote their own health that is correct and appropriate in line with their age and to prevent themselves from various diseases. Health knowledge and understanding, the point that should be developed because of the lowest average value is the analyzing and comparing data. That is, guidelines for the development of the elderly should be set in terms of receiving various information which could be analyzed and compared with the received data with reason and showing correct health care behavior related to disease prevention for the elderly, such as not buying medicine or health products that advertise exaggerated results according to various online media.

Communication skills: The point that should be developed because it received the lowest average is communication and behavior for health. That is, guidelines should be set for developing the ability of the elderly to communicate by verbal persuasion or writing information about behavior for others to practice taking good care of their health or creating a relationship of help, support, and encouragement, which will help and facilitate new behaviors.

Decision-making skills: The point that should be developed because of the lowest average value is the refusal and avoidance. That is, guidelines for developing the elderly should be set so that they have sufficient necessary health information to use in making decisions to refuse or avoid incorrect practices which would have negative effects on their own health, so that they are aware of taking care of their health and change to have appropriate health behaviors.

Media literacy skills, the point that should be developed because the average score is the lowest, is the assessing and suggesting health information. That is, guidelines should be set for developing the elderly to be able to evaluate messages or information received from various media that are correct and appropriate about risky behaviors that will lead to health hazards if they continue with the same health behaviors and do not change themselves. They could also be used to suggest ways for people around them or people in the community or society to change their health care behaviors. If it is done, it would result in positive results for themselves, their families, and society.

Self-management skills, the point that should be developed, because the average score is the

lowest, is the telling and recommending others. That is, the development guidelines for the elderly should be set to be individuals who are aware that they can control their behavior and will have less risky health behaviors than those who do not realize their abilities, including problem management, emotions, and stress reduction. They also could tell others by recommending others to behave to take care of their own health and protect or protect from various risk factors, such as love, concern from family and social support can prevent negative environmental influences.

Cultivating behavior is proceeded through activities that develop and promote health literacy, i.e. training to provide knowledge and understanding regularly 1 - 2 times a year, resulting from the cooperation of the community in creating an environment conducive to caring for the elderly, disseminating correct health information, introducing the elderly to use technology to find the information they need, with monitoring, evaluating success, praising, presenting goodness for others. These things lead to changes in health behavior that are correct and appropriate for the elderly, for the development and promotion of sustainable health benefits until it becomes a health culture. This is a result of knowledge, beliefs, attitudes, and health practices of each individual, family, community, and society. Behavior is something that is sensitive because it is a matter related to human life and mind. In creating health behavior, there must be an understanding of the steps and various components to apply the concepts appropriately. Health behavior is very important because it is related to everyone, every department, every organization of the country, and it affects the development of the country to be stable. Therefore, if the elderly are health literate, they will have appropriate and correct health behaviors, resulted in that person changing and supporting health behaviors. When individuals are healthy, it will positively result in their families, communities, and society having good health, and their quality of life will also improve, as shown in the picture.

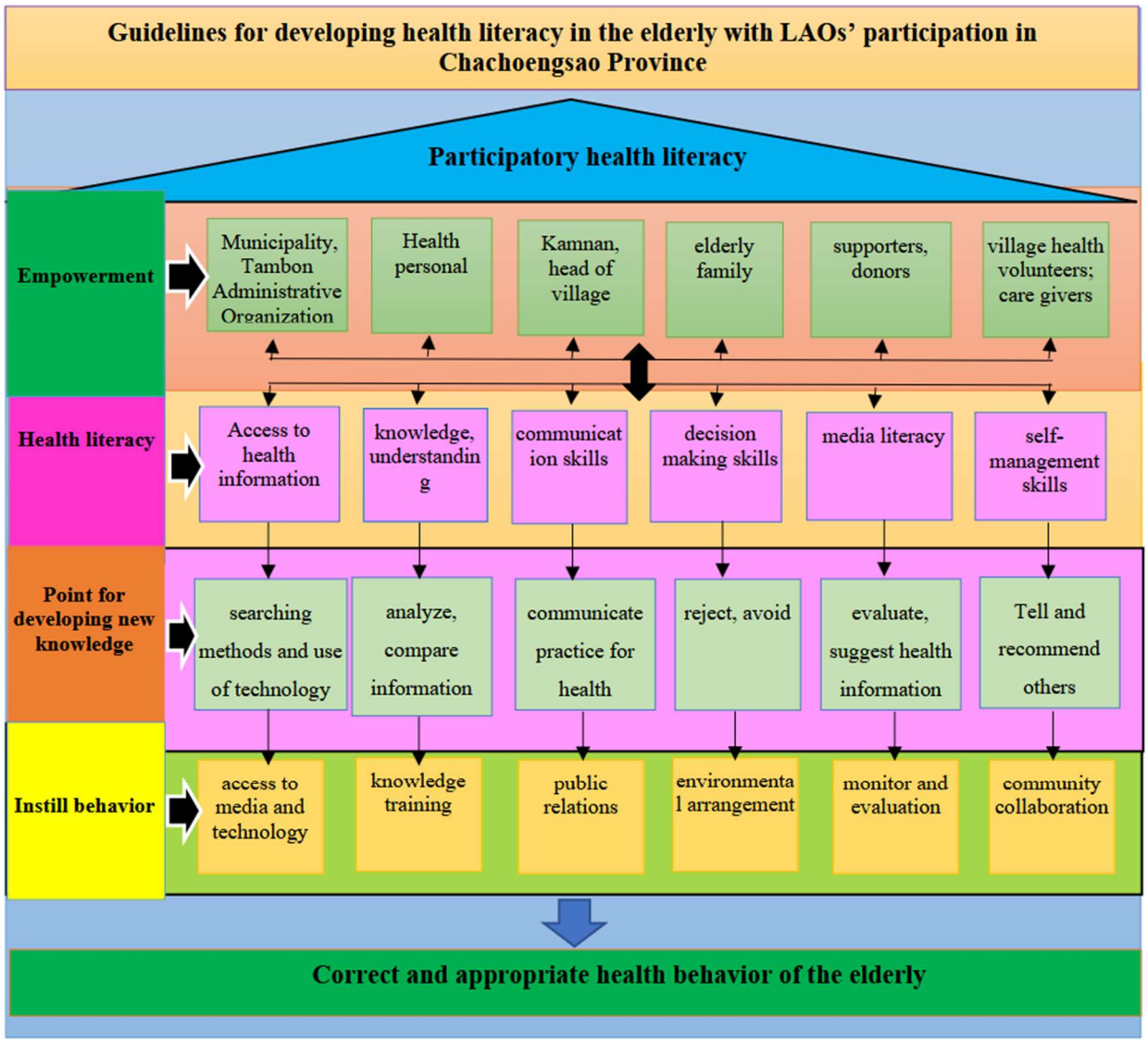

Figure 1 Guidelines for the development and promotion of health literacy among the elderly with participation of local administrative organizations in Chachoengsao Province

From Top to bottom and left to right:

1. Guidelines for developing health literacy in the elderly with NAOs' participation in Chachoengsao Province
2. Participatory health literacy
3. Empowerment: municipality, Tambon Administrative Organization; Health personal; Kamnan, head of village; elderly family; supporters, donors; village health volunteers; care givers
4. Health literacy: Access to health information; knowledge, understanding; communication skills; decision making skills; media literacy; self-management skills
5. Point for developing new knowledge: searching methods and use of technology; analyze, compare information; communication and practice for health; reject, avoid; evaluate, suggest health information
6. Instill behavior: access to media and technology; knowledge training; public relations; environmental arrangement; monitor and evaluation; community collaboration

7. Correct and appropriate health behavior of the elderly

When the guidelines of the elderly health literacy development with participation of local administrative organizations in Chachoengsao Province was piloted, it appeared that the average value of the elderly health literacy development in Bang Khla District, Chachoengsao Province after the training was higher than the average value of elderly health literacy development in Bang Khla District, Chachoengsao Province before the training.

Discussion

1. Problems, needs and solutions on health literacy of the elderly with participation of local government organizations in Chachoengsao Province: It was found that from the qualitative data on the development and promotion of health literacy for the elderly, problems were due to lack of knowledge, understanding, information search, and access to health information. The elderly have a slow learning pace; they should be closely monitored and closely followed. They have some health care misbehaviors, so the solution is to organize a practical training to provide practical knowledge based on the practice of the 3E2C principles, practicing cooking and calculating calories of favorite dishes, such as papaya salad, by dividing groups to compete in a healthy menu competition with calories suitable for the elderly, so that it is easy to remember and to understand how to take care of their own health and others. Then, they could go back to recommend the menu to others in the family. Access to various desired and reliable information results in people in the community making decisions, knowing how to manage themselves in terms of health, changing behaviors effectively, and being able to have a good quality of life, along with continuous and consistent public relations on health and various diseases, keeping up with the changes in the current era, such as practicing the 3 E 2 C health care of themselves and others by eating healthy food, exercising, managing the environment inside and outside the home, having village health volunteers provide health knowledge along with monitoring and evaluating the actual situation to obtain real information, which will lead to solving problems that are in line with the problems, which will affect the good quality of life of the elderly. The government and related agencies are driving the development of health literacy for the elderly to solve problems. To be successful, it requires participation and cooperation from both the government sector, private sector and community. This is consistent with Montchai Anowanphan (2021, p. 20) who stated that as a result of physical deterioration, along with the influence of Thai culture and the environment, the elderly lack thorough knowledge and understanding of health information, as well as the skills to search, select, classify and analyze information, and compare, which are health literacy skills to improve their quality of life. This is consistent with Chatree Matsi and Siwilai Wanaratwichitra (2017, p. 96) who stated that due to the changing economic, social and environmental situations, the way of life of Thais at the individual, family and community levels in the context of the environment is full of health risks, causing health problems and a tendency for chronic non-communicable diseases to become more severe. As a result, people must rely more on the medical service system. Therefore, it is necessary to have a guideline to promote and support people to take care of themselves appropriately, have the ability to access health news and knowledge from various sources, have an understanding and be able to assess the credibility and appropriateness of various contents until they can be applied to themselves, have the judgment to think logically in giving importance to such news and knowledge, and lead to the decision to try it out and evaluate the results

of the experiment until it can be applied in daily life. This may be because Thailand has entered a complete aging society. The government is interested in the quality of life of the elderly and is aware of the need to improve their quality of life. Therefore, a policy has been set to drive the development of health literacy so that the elderly and the public can develop health behaviors of the elderly towards good health in terms of physical, emotional, social, intellectual, and environmental aspects from participation from all sectors for the goal of having good health for Thai people. This is consistent with what the Health Education Division (2018) stated, in driving the development of health literacy to success, resulting in people being able to rely on themselves in terms of health and developing health behaviors towards good health sustainably, it must come from participation from all sectors, with integration that is consistent and in the same direction for the goal of having good health for Thai people.

2. Analysis and finding guidelines for developing and promoting health literacy among the elderly with participation of local administrative organizations in Chachoengsao Province

2.1 Results of the analysis of the level of development and promotion of health literacy among the elderly in Bang Khla District, Chachoengsao Province

From the quantitative data on the development and promotion of health literacy among the elderly in Bang Khla District, Chachoengsao Province, the overall level was at a high level. It was found that the aspect with the highest average value was health knowledge and understanding, followed by self-management skills, decision-making skills, media literacy skills, and health information access. The aspect with the lowest average value was communication skills. This is consistent with Prakan Khaeng, Nanthaya Onkong, and Maneerat Wongphum (2016, p. 34) who studied the comparative study of health literacy and health behavior according to the 3E2C principle in the risk group for diabetes and hypertension in urban and rural areas of Uttaradit Province which was found that the level of health literacy was at a high level.

This might be because the hospital had screened for diseases according to the Ministry of Public Health's policy. When a patient was found, the staff would immediately provide knowledge to the patient, allowing them to review their previous knowledge and added new knowledge according to the situation. They also explained how to manage and took care of themselves, learned how to prevent and control risk factors threatening their health, so they could make appropriate decisions and access correct information. These would help the elderly make decisions to practice good health behaviors and avoid risk behaviors, resulting in good health and quality of life for the elderly. This is consistent with Krongklao Rattanachanakorn, Palinrada Thanaphanthivakul, and Klaokorn Rattanachanakorn (2023, p. 85), who stated that the elderly therefore need to have skills in knowledge and understanding of health information, communication, access to health information and services, media and information literacy, and good decision-making skills. Good decision-making skills arise from knowledge and understanding of health information that the elderly have gained from their past experiences, which helps the elderly choose to practice good health behaviors and avoid risky behaviors, leading to good health and quality of life. This is consistent with Chatree Matsi and Siwilai Wanaratwichitra (2017, p. 99), who stated that health literacy is a person's ability in terms of knowledge, thinking, and life skills, including seeking various methods to lead themselves to have physical, mental, social and intellectual perfection, with knowledge and awareness of things that will have positive and negative effects on health, which would lead to appropriate behaviors in health care

management, including health promotion, disease and danger prevention, and access to health services in all aspects. If people had a deficiency in perceiving and learning information, there woud be limitations in perceiving, thinking and choosing ways to behave appropriately according to the situation in various areas for good health.

2.2 Comparative results of the development and promotion of health literacy among the elderly in Bang Khla District, Chachoengsao Province, classified by gender, age, marital status, education level, occupation, chronic disease, position in the community, and number of years living in the community.

The results of the study found that gender, age, education level, and underlying diseases were not statistically significant. However, if marital status, occupation, position in the community, and number of years living in the community were different, the development and promotion of health literacy of the elderly in Bang Khla District, Chachoengsao Province were statistically significant. This is consistent with Natcha Ruangkiattikun (2022, p. 85) who studied the factors related to health literacy of Thai elderly and found that there were 5 personal factors that affected health literacy: education level, occupation, economic status, frequency of community activity participation, and travel time from home to health service centers by car. Personal factors of age, gender, marital status, underlying diseases, and members living in the same house were not related to the level of health literacy. This is consistent with Srisuda Boonkhayai (2019, p. 66) who studied A study of factors related to health literacy among Thai people aged 15 years and over, a case study of Health Region 4, found that personal factors such as gender, age, marital status, religion, and occupation, which were different, were not statistically significantly related to health literacy. However, education, income, and literacy through reading and writing were statistically significantly related to health literacy at a level of 0.05. This may be because most of the elderly are no longer working, so they stay at home and do not have a position in the community. They meet and talk to friends less and still live with their spouses, which results in less conversation or knowledge exchange. They lack awareness, lack of care, and do not like to ask questions, which may be limitations in their ability to understand health information, including seeking knowledge and making decisions about self-care. This affects the development and promotion of health literacy in the elderly. This shows that the development and promotion of health literacy consists of many factors. In studying health literacy in the elderly, it is very important to understand the social context of the elderly. This is consistent with DeCastro, Brito & Gomes (2014, p.126) who stated that those who do not work spend most of their lives at home raising their children, while those who work interact in the community, which affects their opportunities and health awareness. This makes those who work tend to have a better social status and have better processes or opportunities to develop health literacy. This is consistent with Wimonrat Boonsathian and Oratai Rianthipayasakul (2020, p.4) who stated that the elderly have fewer opportunities to participate in social activities, resulting in a lack of opportunities to learn and exchange from society. They have less awareness of information, which may lead to social isolation.

3. Guidelines for the development and promotion of health literacy among the elderly with participation from local administrative organizations in Chachoengsao Province

Guidelines for the development and promotion of health literacy among the elderly with participation of local administrative organizations in Chachoengsao Province When tested, the average value of the development and promotion of health literacy among the elderly in Bang Khla District, Chachoengsao Province after the training was higher than the average value of the development of

health literacy among the elderly in Bang Khla District, Chachoengsao Province before the training. This is consistent with Montchai Anonwanphan (2021, p. 15), who studied the development of a model for enhancing health literacy among the elderly in Uthai Thani Province. It was found that after using the health literacy enhancement model, the average health literacy score of the experimental group was higher than before the experiment and higher than the control group at a statistical significance level of 0.01 ($p <. 01$). This is consistent with Penwipa Nilnet (2021, p. 47), who studied the development of a model for enhancing health literacy and health behaviors of working-age groups in Health Region 6, finding that working-aged people had better overall health literacy than before the implementation. From a total score of 74.75 percent to 78.24 percent, consistent with Nikhom Phutta and Ployprakai Chalatlon (2022, page 47) who studied the development of a model to promote health literacy in self-care of the elderly in the new normal era, Ban Luek Subdistrict, Photharam District, Ratchaburi Province, found that after using the model, the elderly had better health literacy and self-care behavior in the new normal era than before using the model with statistical significance at the .05 level ($p < .05$).

This might be because the development and promotion of the elderly's health literacy could be developed in all 6 aspects: access to information, knowledge and understanding, communication skills, self-management skills, media literacy skills, and decision-making skills. Health literacy is enhanced with techniques and methods that are appropriate for the needs of the elderly in the community. This creates opportunities for the elderly to learn from various useful sources of information that could fully and equally increase their health potential, resulting in decisions to choose healthy choices, promote health knowledge and understanding, provide information sources that allow others to access health information, and make decisions to change their health care behaviors correctly. This is consistent with Prapan Khemkaew and Nikornrat Phakdiwiwat (2021, p. 37), who stated that appropriate health literacy development and promotion should be developed to cover access to information, knowledge and understanding, communication skills, self-management, media literacy, and decision-making by promoting people to have easy, convenient access to health information from a variety of sources, have communication skills, and be able to make decisions to choose and practice correct health behaviors. They also promote relevant agencies to develop up-to-date, reliable, and interesting health information, providing accurate and clear information to the public to take care of their own health. It was consistent with the Health Education Division (2018) stating that enhancing health literacy requires strategies to enhance health literacy that are appropriate to the needs of the people and communities, which is creating opportunities for people to learn throughout their lives and various sources of benefits that help increase the health potential of the people to the fullest and equality, which will result in people being able to make decisions to choose good choices for their health.

Suggestions

1. Suggestions from research

1) The study results found that the elderly have a high level of health literacy, both overall and in each area. However, in terms of health knowledge and understanding, the average value is the lowest. Therefore, it is recommended to urgently develop and improve health literacy by organizing training activities to provide knowledge, having health understanding, and ability to analyze or compare data rationally on correct health behaviors to prevent diseases in the elderly and promote health behaviors of the elderly so that they have skills and capability to effectively advise on health care guidelines and provide knowledge to people in the community.

2)Activities to enhance correct health knowledge and understanding should be organized in a variety of appropriate ways, such as lectures, demonstrations, hands-on practice, and skill training, etc., including increasing access to information and health services by promoting and supporting a forum for exchanging knowledge among the elderly and interested groups, building confidence in the effective application of knowledge.

3) The health literacy of the elderly should be monitored and assessed periodically to compare and identify trends of health behavior, which will make the determination of strategies for more effective solution.

4) From the results of the study on health literacy of the elderly with LGOs' participation, it resulted in new knowledge that can be applied in practice to develop the elderly's quality of life in various aspects and can be a guideline for practice, development, promotion, support of academic work, development of knowledge management system for the elderly or those interested to be health literate, to be a center for knowledge distribution, exchange of knowledge together widely and comprehensively at the national level and result in the development of new knowledge to have potential and increase capability ready to expand to the international level.

2. Suggestions for further study

1) Quasi-experimental research should be conducted to explore the health literacy and health behaviors affecting the development of quality of life among the elderly.

2) The mixed methods study of factors affecting health literacy and health behavior in working-age people in urban and rural areas.

3) There should be studies on the application of health literacy in daily life in Thailand and other countries.

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References

Anowanphan, Monchai. (2021). Development of a model for enhancing health literacy among the elderly in Uthai Thani Province. *Journal of the Department of Health Service Support, 17*(1), 15-22.

Bangkhla District Public Health Office. (2018). *Population classified by age and gender*. Retrieved on June 7, 2021, from https://www.govesite.com/ssobangkhla /content.php? cid =20180419234018ajVVTGC

Boon-Krai, Srisuda. (2019). *A study of factors related to health literacy of Thai people aged*

15 years and over: A case study of Health Zone 4. Strategy and workforce development group, Health Center Zone 4, Saraburi, Department of Health, Saraburi.

Boonsathien, Wimonrat., & Rienthipayasakun, Oratai. (2020). Health literacy: situation and impact on the health status of the elderly. *Journal of Nursing and Health, SSOT., 2* (1), 1 – 19.

Chachoengsao Provincial Office. (2022). *Chachoengsao Provincial Development Plan (2023 – 2027)***.** Strategic and Information Work Group for Provincial Development, Chachoengsao Provincial Office, Chachoengsao.

Chantawanich, Supang. (2009). *Data Analysis in Qualitative Research*. 9th ed. Chulalongkorn University Press, Bangkok.

Chaisong, Ananya. (2560). Hot Issue…… Aging Society Perspectives and Impacts. Retrieved on September 7, 2023, from https://www.gsbresearch.or.th/wp-content/uploads /2017/11/ 6MC_hotissue_Age_Society_ex.pdf

Chuangtrakul, Chamnian. (2018). Problems in determining the sample group and sampling methods in qualitative research. *Journal of Business Administration Social Science, Ramkhamhaeng University, 1*(2), 1-21.

Committee on the Promotion of National Reform in Public Health and Environment, National Reform Commission. (2015). *Reform of Health Literacy and Communication*. Retrieved on June 7, 2021, from http//www.library2.parliament.go.th

Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 2nd ed. Thousand Oaks: Sage Publications.

Cronbach, L.J. (1990). *Essentials of psychological testing*. 5th ed. Harper Collins Publishers, New York.

DeCastro, S.H., Brito, G.N., & Gomes, M.B. (2014). Health literacy skills in type 2 diabetes mellitus outpatients from a university-affiliated hospital in Rio de janeiro, Brazil. *Dialectology and Metabolic syndrome, 6*(1), 126.

Department of Health Education. (2016). *Promotion and evaluation of health literacy and health behavior group of school-aged children, working-age children*. New Thammada Printing (Thailand) Co., Ltd., Bangkok.

Division of Health Education. (2018). *Strengthening and evaluating health literacy and health behavior***.** Division of Health Education**,** Department of Health Service Support, Ministry of Public Health, Nonthaburi.

Kasikorn Research Center. (2021). *The complete aging society...are Thais ready?* Retrieved on November 4, 2021, from https://www.kasikornresearch.com/th/analysis/k-social-media/Pages/Aging-society-FB-30-04-21.aspx

Khamkham, Prakan., Onkong, Nanthaya., & Wongphum, Manirat. (2016). A comparative study of health literacy and health behavior according to the 3A.2S. principles in the risk group of diabetes/high blood pressure in urban and rural areas of Uttaradit Province. *Journal of Disease Prevention and Control CDC 2 Phitsanulok, 4*(1), 27 – 44.

Khemkaew, Prapan., & Phakdiwiwat, Nikornrat. (2021). A study of health literacy and health promotion behavior of working-age people in Phichit Province. *Phichit Provincial Public Health Research and Academic Journal, 2*(2), 32 – 42.

Matsi, Chatree., & Wanaratwijit, Sivilai. (2017). Health literacy promotion: from concept to practice. *Journal of Boromarajonani College of Nursing, Uttaradit, 9*(2), 96 – 111.

Phutta, Nikhom., & Chalatlon, Ployprakai. (2022). Development of a model for promoting health

literacy in self-care of the elderly in the new way of life era, Ban Luek Subdistrict, Photharam District, Ratchaburi Province. *Journal of Mahachulalongkornrajavidyalaya University, 9*(3), 46 – 64.

Ruangkiattikun, Natcha. (2022). Factors related to health literacy among Thai elderly. *Journal of the Department of Medical Services, 47*(1), 80 – 86.

Nilnet, Penwipa. (2021). *Development of a model to enhance health literacy and health behavior of working-age groups in Health Region 6***.** Health Service Support Center 6 Medical Engineering Division, Department of Health Service Support, Chonburi.

Panket, Phanuwat. (2017). *The Department of Health Promotion recommends that working-aged people follow the 3 A. 2 S. principles to reduce the risk of chronic diseases***.** Retrieved on June 9, 2021, from https://hss.moph.go.th/show_topic.php?id=1456

Rattanachanakorn, Krongklao., Thanaphanthivakul, Palinrada., & Rattanachanakorn, Klaokorn. (2023). Development of health literacy of the elderly for good quality of life. *Journal of Nursing Science Christian University, 10*(1), 85 – 97.

Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. CA: Sage Publications, Inc., Thousand Oaks.

World Health Organization. (1998). *Health Promotion Glossary*. Geneva, Switzerland.