ASI Asia Social Issues ASIA SOCIAL ISSUES 2026; 19(1): 283139
https://doi.org/10.48048/asi.2026.283139 RESEARCH ARTICLE

Development of Programs Promoting Active Ageing among the Older Adults

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Received: 22 March 2025, Revised: 16 May 2025, Accepted: 25 May 2025, Published: 9 July 2025

Abstract

The researchers recognize the significance of developing older adult individuals, as projections indicate they will become the majority of the population shortly. The study aimed to develop and evaluate an active aging program for older adults, comparing outcomes between participants who engaged in the program and those who did not. The sample consisted of older adult individuals from southern Thailand, with a control group of 40 people and an experimental group of 40. The instruments were an active aging assessment and an active aging promotion training program. Data analysis, including percentage, means, standard deviation, independent samples test, and paired samples t-test. For qualitative study, they collected satisfaction data through purposive sampling interviews with participants who had completed the program. The data were analyzed using a comparative analysis approach. The results showed that the average active aging level of the experimental group increased from a relatively low to a relatively high level after participating in the active aging promotion program. Furthermore, a statistically significant difference was found at the 0.05 level when comparing the pre-and post-training active aging scores. After three months of the experiment, the control and experimental groups exhibited significantly different average scores. The Active Ageing program, grounded in the World Health Organization's framework, has significantly enhanced various aspects of older adults' well-being. These findings initiatives are to be adapted and expanded in future research and practice to address the diverse needs of the aging population.

Keywords: Active aging, Older adults development program, Older adults

Introduction

Demographers project that the global population aged 60 and older will increase from approximately 1.1 billion in 2023 to 1.4 billion by 2030 and further to 2.1 billion by 2050. By the late 2070s, the number of individuals aged 65 and older is expected to reach 2.2 billion, surpassing the number of children under. A significant proportion of older adults experience chronic health issues that affect their ability to carry out daily activities and impair their quality of life. Psychological issues, notably depression and anxiety, often compound these physical health challenges. Some older adults also face feelings of loneliness and lack support from family or community. Additionally, some have insufficient income and lack a stable source of revenue, along with inadequate financial planning (Ni et al. 2024, Carrasco et al, 2024).

Thailand is moving towards becoming a fully aging society. The current data, there are 13,064,929 older adults in the country, accounting for 20.08% of the population (Department of Older Persons, 2023). Many older adults are expected to have significant social, economic, and public health impacts. Many older adults experience physical deterioration and may be unable to support themselves financially, leading to increased government spending on welfare and healthcare—nearly 100 billion baht annually (Department of Older Persons, 2023). However, many older adults still possess the potential to contribute to their families,

communities, and society. Promoting their physical and mental health, and capabilities can improve their quality of life, ensuring they remain healthy and live happily.

The 13th National Economic and Social Development Plan (2023-2027) (NESDB, 2022) emphasizes the importance of developing high-quality human resources by promoting lifelong learning and enhancing individual capabilities, including promoting the older adult to develop their physical health and social group activities to improve their quality of life. This aligns with the principles of active aging, which focuses on two important behaviors among older adults: physical activity and social interaction, which deeply affect their health and quality of life (Luo et al., 2020).

There are efforts to develop multi-dimensional processes to improve older adults' well-being, such as social technologies for healthy and active aging. This initiative helps older adults acquire internet skills for easier access to information, ranging from health care to online shopping and memory-enhancing games, through training programs promoting modern technologies (Aleksandra, 2024). However, older adults often face challenges in navigating digital technologies, which can lead to difficulties in using them correctly and increase their vulnerability to fraud. This lack of digital literacy makes them susceptible to online scams, posing significant risks to their financial and personal well-being (Pituk, 2025). The World Health Organization (WHO) guides these programs through its pillars of active aging: health, participation, and security (Wongsala, 2021). A literature review revealed that most existing active aging promotion programs primarily focus on enhancing physical health, mental well-being, and social participation. However, there appears to be a lack of programs incorporating content related to self-protection against fraud and scams. In light of the increasing number of older adults falling victim to various forms of deception, it is essential to equip them with knowledge and skills to protect themselves. Such preventive education would improve their daily lives safety and security.

However, it is important to note that the concept of successful is influenced by cultural context, as it varies based on each community's cultural, social, and religious conditions (Estebsari, 2020). In this study, the researchers examined the context of rural Thai communities in response to local policies that promote and improve the quality of life for older adults. Thai cultural and social structures influence perceptions of aging in ways that diverge from Western paradigms. Buddhism plays a pivotal role in shaping these perceptions; older adults are esteemed for their life experiences and actively involved in religious and local ceremonies, contributing to their mental well-being and sense of purpose (Pituk, 2025). The researchers aligned the findings of this study with community-level policies to improve the well-being of the older adult by involving the community in the strategies employed. This participatory approach allows communities to recognize problems, plan actions, and evaluate the development of active aging, ultimately serving as a model for other communities.

Objectives

1. To develop a program to promote the active aging level of older adults.
2. To analyze the program's effectiveness in promoting the older adults' active aging level.

Literature review

This study aimed to develop a program to enhance the active aging level among older adults. The researchers conducted a review of relevant literature; as follows;

Individuals aged 60 years and over (United Nations, 2002; World Health Organization, 2002). According to the official definition in Thailand, older persons are individuals aged 60 years and above (Department of Older Persons, 2022). This definition recognizes that aging can lead to various physical, psychological, and social changes, potentially impacting the quality of life and daily living activities. These health and social dynamics shifts underscore the need for supportive measures to maintain the well-being and active engagement of older adults in society.

Active aging refers to older adults who maintain good health, agility, and the ability to move efficiently. They are capable of self-care, possess a high quality of life, contribute positively to others and society, and maintain harmonious relationships with their families, communities, and society, including intergenerational interactions (Foundation of Thai Gerontology Research and Development Institute, 2008). Active aging

comprises three key components: Health, Promoting actions to reduce risk factors that contribute to health issues, encouraging healthy behaviors, and fostering protective factors to prevent the onset of diseases. Participation: Supporting individuals' active involvement in societal, economic, cultural, and spiritual activities, aligned with their fundamental human rights and their capacities to contribute. Security: Ensuring safeguards for individuals as they age, including protection, respect, and care for those who can no longer care for themselves (World Health Organization, 2002; Miller (2006) . In addition, integrating multiple factors to promote quality aging has led to the development of the 5P framework, an ecological approach encompassing five key components: person: and individual characteristics, including physical health, mental well- being, and economic status. Process: lifelong learning and participation in activities. Place: an environment conducive to daily living. Policymaking: formulation of public policies that support older adults. Prime: overall promotion of quality of life (Lak, 2020)

Development of Older Adults Care in Thailand

The development of older adult care in Thailand aligns with the principles of the Madrid International Plan of Action on Ageing, focusing on three main areas:

1) Older Persons and Development: This principle emphasizes policy mechanisms to ensure welfare, protection, and support for older adults. It also includes promoting financial security and honoring community elders with traditional knowledge, known as " local sages."

2) Advancing Health and Well-being into Old Age: Thailand's Universal Health Care Scheme enables older adults to access free healthcare services, with additional programs to promote health and wellness throughout aging process.

3) Ensuring, Enabling, and Supportive Environment: The Thai government is dedicated to creating an environment that supports "Ageing in Place", consistent with United Nations guidelines. This involves establishing safe, accessible facilities for older adults and modifying homes and community spaces to accommodate their needs (Aruntippaitune, 2017; Thanaroong et al., 2022)

In addition, Thailand's 20-year National Strategy (2018-2037) includes goals relevant to older adults care, such as:

1) Human Resource Development: The aim here is to develop citizens across all ages to be morally and intellectually capable, self- disciplined, responsible, and equipped with 21st century skills, including English and a third language. It encourages lifelong learning, aiming to produce a skilled and self-sufficient population.

2) Social Equality: This strategy seeks to strengthen community resilience, encouraging self-management and preparing Thai citizens for quality aging in terms of health, economy, and social integration, enabling them to contribute positively to their families, communities, and society for as long as possible (Department of Older Persons, 2017).

Conceptual framework

A survey of the problems faced by older adults in the area revealed multiple issues, including a lack of knowledge regarding health care, insufficient skills for safe living, and a tendency toward homebound lifestyles. Upon reviewing relevant theoretical concepts, these findings led to the development of a conceptual framework aimed at creating a program to enhance active aging among older adults as follows:

Methodology

Participants

The population for this study consisted of 757 older adults residing in the Maifad Subdistrict, Sikao District, Trang Province. Most of the older adults in this area tend to be homebodies, rarely participate in social activities, and have health problems. A sample of 80 older adult participants was selected and divided into two groups: a control group of 40 people and an experimental group of 40 people. The sample size calculation was based on a minimum of 10% of the population, or at least 40 participants per group (Gay, 1996). The selection process employed simple random sampling.

The inclusion criteria for the study were individuals aged between 60-75 years. Researchers often refer to this age group as the "young- old", characterized by relatively intact communication abilities, active social engagement, and the capacity to

participate effectively in various activities (World Health Organization, 2015). who were not suffering from chronic diseases that would impede participation; participants were individuals with normal intellectual capacity capable of making informed decisions regarding their participation, had no prior training in active aging programs, were homebound, and voluntarily agreed to join the activities promoting active aging. The exclusion criteria were participants who experienced physical or emotional discomfort or could not continue participating in the activities.

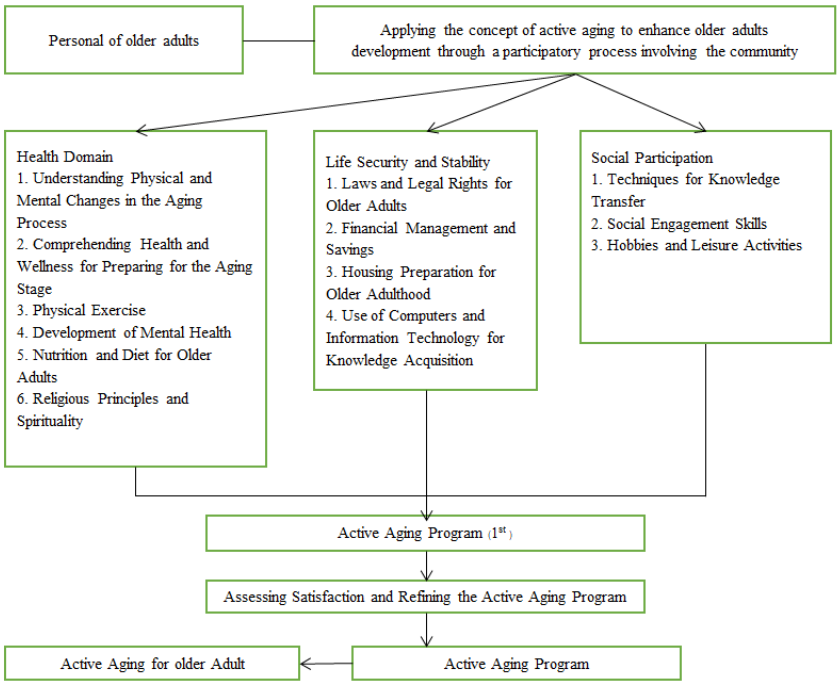

Figure 1 Conceptual framework of the research

Research instrument

The instrument used for data collection in this study consisted of the following:

Set 1: The active aging assessment questionnaire

Part 1: A questionnaire designed to collect the respondents' demographic information, including gender, age, education level, marital status, occupation, average monthly income, place of residence, and number of family members, totaling nine items.

Part 2: Buys and Miller (2006) developed the Active Ageing Assessment Questionnaire based on the components of active ageing they proposed. It contained 39 items focusing on three main dimensions:

1. Health Dimension: Includes physical and mental health. (18 items)
2. Participation Dimension: Considers social interaction, relationships with others, self-improvement, and work engagement. (9 items)
3. Security Dimension: Includes legal knowledge and awareness of the rights of older adults, financial literacy, and knowledge of digital safety and cybersecurity. (12 items)

The questionnaire employed a 4-point Likert scale with responses ranging from

"frequently" (4 points) to "never" (1 point). The researchers set the scoring criteria for each dimension as follows (Pinij Faa-Amnuaypol, 2020):

Active ageing interpretation

75.01% - 100.00% = Level 4 (High)

50.01% - 75.00% = Level 3 (Moderately High)

25.01% - 50.00% = Level 2 (Moderately Low)

0.00% - 25.00% = Level 1 (Low)

Set 2: The active ageing program.

This program was developed based on a review of related theories, concepts, and research to promote active aging among older adult participants. Includes

three dimensions: health dimension, participation dimension, and security dimension.

Set 3: Satisfaction Interview.

A structured interview containing 10 questions to assess participants' satisfaction with the active program.

Development and Validation of Research Instruments

1. Literature Review: The development of the questionnaire was guided by a review of relevant theories and research, adapting these concepts to the context of this study.

2. Validity Testing: Five experts reviewed the questionnaire to assess content validity and appropriateness of language, and the researchers revised it for clarity.

4. Reliability Testing: The researchers piloted the active ageing questionnaire with 30 older adults from the target population, who were excluded from the main sample.

The researchers calculated the Cronbach's alpha coefficient, which an overall reliability score of 0.827. For each dimension, the health dimension was a reliability score of 0.843, the security dimension had 0.842, and the participation dimension scored 0.842.

Data collection

For the data collection, the researcher followed these steps:

Step 1: The researcher explained the details of the ongoing research, which included clearly articulating the research objectives, detailing participant procedures, and obtaining informed consent by established ethical guidelines.

Step 2: The researchers conducted a pre-activity assessment of active aging levels using the Active Aging Assessment Questionnaire, which they administered through interviews. In the questionnaire, the researchers requested participants to provide personal demographic information, including gender, age, marital status, educational attainment, occupation, monthly income, and primary sources of income. Subsequently, the questionnaire assesses three dimensions of active aging: health, life security and stability, and social participation. The entire data collection process is designed to be completed within approximately 20 minutes.

Step 3: Control group: In an experimental study, participants assigned to the control group were selected through randomization to ensure comparability with the experimental group. Eligibility criteria for the control group included individuals who had not previously participated in similar programs and did not partake in the intervention administered to the experimental group. Instead, the control group received standard care or relevant basic information, serving as a baseline for comparison. Data collection for the control group was conducted concurrently with the experimental group to facilitate accurate assessment of the intervention's effectiveness.

Experiment group: The researchers conducted training based on the developed active aging program by organizing group session.

Step 5: The active aging promotion program for older adults was revised based on the satisfaction analysis results. The researchers finalized the program for actual implementation after making the necessary improvements and refinements.

Data analysis

Quantitative data were analyzed using descriptive statistics, including percentage, mean, and standard deviation. Inferential statistics, such as the independent samples t-test, were employed to test the research hypotheses. The researchers assessed the normality of the data using the Shapiro-Wilk test, and the results indicated that the data were normally distributed ($p > 0.05$), justifying the use of an independent samples t-test.

The constant comparative method was applied for the qualitative data to systematically analyze and interpret recurring patterns and themes across the participants' responses.

Safeguarding the rights of research participants

The Human Research Ethics Committee of Walailak University approved this research. (Certificate No. WUEC-24-202-01, dated May 30, 2024). The researchers respected the privacy and safeguarded the rights of all participants by providing clear explanations regarding the research objectives, procedures, expected benefits, participant responsibilities, and confidentiality of information. Participation in the study was entirely

voluntary. Participants had the right to refuse participation without any consequences, and they could withdraw from the study at any time if they wished to discontinue their involvement.

Results

The active aging enhancement program based on the review of relevant literature and research, the active aging enhancement program was designed and developed with a focus on eight key activities:

Health aspect

1. Pre-older adults: Preparing individuals for aging by addressing anticipatory concerns and providing knowledge about aging.

2. Physical Health Care*:* Promoting physical well-being through activities and education related to maintaining bodily health and preventing age- related conditions.

3. Mental Health Care*:* Focusing on the mental and emotional aspects of ageing, such as stress management, mindfulness, and cognitive health.

Aspects of security and life stability

4. Plan for Stability: Developing strategies for financial stability and planning for economic security in old age.

5. Plan for Safety*:* Addressing personal and home safety to ensure a secure living environment for older adults.

Aspects of social participation

6. Social Relations*:* Encouraging social interaction, fostering relationships, and preventing isolation among older adults.

7. Social Health*:* Promoting active participation in the community, volunteerism, and contributing to societal well-being.

8. Hobbies: Encouraging engagement in leisure activities and hobbies that promote physical and mental stimulation, leading to overall well-being.

Table 1 presents the detailed structure of the program.

Table 1 Presents the results of the designed program schedule aimed at promoting active aging among older adult.

Activity	Objective	Activity Description	Timeframe for Execution
Health aspect			
Activity 1: Older adults	1. To help older adults understand the nature of aging, including the physical and mental changes associated with the aging process. 2. To enable the older adult to comprehend the natural changes in health, emphasizing the importance of appropriate nutrition for their age, adequate rest, and the significance of regular health check-ups or keeping medical appointments.	The group discussion activity for the older adults is “Understanding physical and mental changes when entering old age” and “Understanding health to prepare for aging.	Week 1: Activity Duration - 2 hours, 10:00 AM to 12:00 PM
Activity 2: Physical health care	1. To equip older adults with knowledge of age-appropriate nutrition, reducing the risk of disease or mitigating the severity of existing conditions, and promoting overall physical health.	A hands-on workshop on “How to Eat for Health” and “Exercise Techniques for Older Adults” will be conducted, allowing older adults to present local dishes that are beneficial for health and engage in practical exercise techniques.	Week 1, the same day as Activity 1, lasts 2 hours from 1:00 to 3:00 PM.

Activity	Objective	Activity Description	Timeframe for Execution
	2. To help older adults recognize the importance of exercise and choose appropriate forms of physical activity suited to their age.		
Activity 3: Mental health care	1. To enable older adults to understand methods for maintaining their mental health, learn stress-relief techniques, and apply these in their daily lives. 2. Encourage older adults to incorporate principles from their respective religions to nurture their mental well-being.	Group discussion activity for older adults focusing on the topics "My Happiness" and "Dharma and Spiritual Development" facilitated by a group instructor to guide the conversation.	Week 2, with a duration of 2 hours, from 10:00 AM to 12:00 PM.
Aspects of security and life stability			
Activity 4: Plan for stability	1. To ensure the safety of the older adults in their lives and property. 2. To provide older adults with a clean home and a good living environment, which will sustainably impact their physical health. 3. To help the older adults manage their finances appropriately.	The workshop "Preparing Homes for the "Older Adults" and "Finance and Saving for the Older Adults" workshop will encourage older adult participants to engage in group discussions, exchanging their perspectives and insights on these topics.	Week 2 will involve activities scheduled for 2 hours, from 1:00 PM to 3:00 PM.
Activity 5: Plan for safety	1. To prevent older adults from falling victim to fraud. 2. To ensure that older adults are aware of their legal rights. 3. To enable older adults to use computers and information technology for knowledge acquisition and entertainment.	The workshop activity on "Laws for the Older Adults and "Techniques for Using Online Media for the Older Adults" will involve participants engaging in group discussions to exchange perspectives and insights on these subjects.	Week 3, coinciding with Activity 5, will occur over 2 hours, from 10:00 AM to 12:00 AM.
Aspects of social participation			
Activity 6: Social Relation	1. To enable older adults to utilize their potential for social activities and to promote relaxation. 2. To allow older adults to spend time communicating, conversing, storytelling, and exchanging experiences with peers of the same age.	The activity involves a group discussion among older adults on "My Happiness" and "Buddhist Teachings and Mental Development," encouraging participants to share and exchange their perspectives and insights.	Week 3, on the same day as Activity 3, will take 2 hours from 1:00 PM to 3:00 PM.
Activity 7: Social Healthy	1. Older adults are capable of imparting knowledge to younger generations. 2. Older adults can communicate effectively.	The workshop activity titled "Techniques for Knowledge Transmission for Older Adults" will involve older adults practicing in groups.	Week 4 is set for is 2 hours, from 10:00 AM to 12:00 PM.

Activity	Objective	Activity Description	Timeframe for Execution
	3. Older adults experience a sense of pride in themselves.		
Activity 8: Hobbies	1. To provide older adults with activities that alleviate loneliness, reduce stress, and generate personal income. 2. To enable seniors to utilize their leisure time productively, leading to greater well-being.	The group discussion activity among older adult participants on "Awakening My Potential" and "Peers of the Same Age" encourages seniors to engage in a dialogue where they can share perspectives and exchange opinions within a group setting.	Week 4, coinciding with Activity 7, will hours from 1:00 to 3:00 PM.

Analysis of pre-training active aging levels among the control group

The analysis of the active aging levels among older adults in the control group before participating in the Active aging Enhancement Program revealed that both the control and experimental groups exhibited relatively low levels of active aging across all dimensions, both overall and within individual components. The findings are summarized in Table 2, which presents the mean scores, standard deviations, and the respective levels of active aging for older adults in the control group prior to the training program.

Table 2 Mean, standard deviation, and active aging levels of older adults in the control group before participating in the active aging enhancement program.

Active aging	Group type	$\bar{X}$	S.D.	proportional score range	Level of active aging
Health aspect	Control	30.67	3.30	42.59	moderately low
	Experimental	31.32	2.81	40.94	moderately low
aspects of security and life stability	Control	18.02	2.21	40.95	moderately low
	Experimental	18.72	2.14	42.54	moderately low
aspects of social participation	Control	14.02	1.94	35.05	moderately low
	Experimental	14.55	1.92	36.37	moderately low
Overall active aging	Control	62.72	5.50	40.20	moderately low
	Experimental	64.60	3.95	41.41	moderately low

Comparison of mean active aging levels before participating in the active aging enhancement program between the control and experimental groups

The analysis comparing older adults' mean active aging levels before participating in the active aging enhancement program between the control and experimental groups revealed no significant statistical difference at the 0.05 level. This was consistent overall and across the individual components of active aging. Table 3 presents the findings, showing the comparison of mean active aging levels before the training program between the control and experimental groups.

Analysis of the mean, standard deviation, and active aging levels of older adults after participating in the active Aging enhancement program (experimental group, 3 Sessions)

The analysis of the mean, standard deviation, and active aging levels of older adults after participating in the active aging enhancement program over three sessions showed that older adults had a "moderately high" level of active aging overall and across individual

components, in all three sessions (1^{st}, 2^{nd}, and 3^{rd}). The scores ranged from 56.50 to 72.84, falling within the moderately high level. Table 4 presents the results, outlining the mean, standard deviation, and active aging levels of older adults after participating in the enhancement program over three sessions.

Table 3 Comparison of mean active aging levels before participating in the active aging enhancement program between the control and experimental groups.

Active aging	Group type	$\bar{x}$	S.D.	t	p
Health aspect	Control	30.67	3.30	-0.94	0.34
	Experimental	31.32	2.81		
aspects of security and life stability	Control	18.02	2.21	-1.43	0.15
	Experimental	18.72	2.14		
aspects of social participation	Control	14.02	1.94	-1.21	0.22
	Experimental	14.55	1.92		
Overall active aging	Control	62.72	5.50	-1.75	0.08
	Experimental	64.60	3.95		

Table 4 Mean, standard deviation, and active aging levels of older adults after participating in the active enhancement program (experimental group, 3 sessions).

Active aging	$\bar{x}$	S.D.	proportional score range	Level of active aging
at 1 month				
Health aspect	52.12	1.20	72.38	moderately high
aspects of security and life stability	31.67	4.91	71.97	moderately high
aspects of social participation	22.60	3.38	56.50	moderately high
Overall active aging	106.40	8.70	68.20	moderately high
at 2 months				
Health aspect	52.45	1.33	72.84	moderately high
aspects of security and life stability	31.77	4.69	72.20	moderately high
aspects of social participation	22.67	3.34	56.67	moderately high
Overall active aging	106.90	8.40	68.52	moderately high
at 3 months				
Health aspect	52.40	1.37	72.77	moderately high
aspects of security and life stability	31.95	5.00	71.34	moderately high
aspects of social participation	23.10	3.78	57.75	moderately high
Overall active aging	107.45	8.94	68.87	moderately high

Comparison of mean active aging levels of the experimental group after three months of participation in the active aging enhancement program with the control group

The analysis comparing older adults mean active aging levels of the experimental group after three months of participation in the Active Aging Enhancement Program with the control group revealed significant differences. The experimental group showed statistically significant improvements in active aging levels, overall and across individual components, at the 0.05 significance level. The researchers observed this difference in all areas of active aging.

Table 5 Comparison of mean active aging. levels of the experimental group after three months of participation in the active aging enhancement program with the control group

Active Aging	Group type	$\bar{x}$	S.D.	t	p
Health aspect	Control	34.56	1.42	19.06	0.01*
	Experimental	52.40	5.09		
aspects of security and life stability	Control	20.83	2.24	9.37	0.01*
	Experimental	31.95	6.19		
aspects of social participation	Control	14.59	1.99	10.27	0.01*
	Experimental	23.10	4.28		
Overall active aging	Control	70.00	3.86	14.48	0.01*
	Experimental	107.45	4.00		

Satisfaction of older adult

The older adults were delighted with all training activities as follows:

Activity 1: Older Adults: The older adults were very satisfied with the training activities on the topic of Older Adults and believed that the older adults who to could participate in these activities could live happier lives.

Activity 2: Physical health care. The older adults were very satisfied with the training activities on the topic of Physical health care because they learned how to do exercises easily at home. After changing their eating habits, their body movements became more flexible.

Activity 3: Older adults feel satisfied with mental health care activities because they change their perspective on life for the better.

Activity 4: Plan for stability; the older adults feel satisfied with Social Relations activities because they have more friends of the same age and feel more social.

Activity 5: Safety plan; the older adults was satisfied with the Plan for Stability activity because it provided them with knowledge about home safety management and financial planning.

Activity 6: Social Relation: The older adults were very satisfied with the Plan for Safety activity because they learned how to deal with scammers and used their phones more for entertainment.

Activity 7: Socially Healthy: Older adults are satisfied with socially healthy activities because they improve their ability to communicate more appropriately.

Activity 8: Hobbies: The older adults are satisfied with Hobbies and activities because they learn how to use their free time beneficially.

The research results concluded that the Active Aging program effectively increased the Active Aging level, and the sample group was satisfied with the program after participating.

Discussion

This study on the development of a program to enhance the active aging levels of older adults in Mai Fad Sub-district, Sikao District, Trang Province, reveals several key insights, as presented in the following analysis:

The study compared the active aging levels between the experimental group, which participated in the designed program, and the control group. The results indicated that the experimental group showed a significantly higher level of active aging than the control group, which did not undergo the program. This demonstrates that the program had a positive impact on enhancing the active aging levels of older adults. This finding aligns with the WHO·s active aging framework, particularly the components physical health, mental well-being, and social engagement. This is consistent with the findings of Gómez et al. (2020), who studied "The WHO active aging pillars and its association with survival", which focused on assessing the impacts of active aging on life expectancy. Their research found that survival was closely related to physical health components, including morbidity; work capacity, cognitive status, lifestyle, lifelong learning, social activities, and institutional support.

Moreover, the study aligns with Ayoubi-Mahani (2023), whose research titled "Active aging needs from the perspectives of older adults and geriatric experts" identified three key components and thirteen categories: (1) basic individual needs, including physiological, psycho-emotional, and spiritual needs; (2) managerial needs, encompassing political-legal, socio-economic, cultural-spiritual infrastructure, academic strategies, an age-friendly environment, technological services, and specialized services for older adults; and (3) educational needs, including self-care training, self-efficacy, empowerment of healthcare workers, and family support.

These findings support the notion that enhancing active aging involves addressing a broad range of needs, from physical and mental health to social participation and lifelong learning, highlighting the importance of comprehensive programs like the one in this study for improving the quality of life and well-being of older adults.

2. The results of developing and testing the program for enhancing the active aging levels of older adults indicate that the designed program is effective in increasing the active aging levels. This outcome is likely due to the alignment of the program's content with the principles of gerontology, which encompass a variety of topics crucial for older adults. These include understanding physical and mental changes that occur with aging, health promotion, exercise, mental health development, nutrition, spiritual principles, knowledge transmission techniques, hobbies, legal rights for older adults, financial planning, home modifications for, aging and using computers and information technology for knowledge acquisition.

These aspects are consistent with the United Nations' Global Goals for Sustainable Development for the 2015-2030 periods, which include 17 key development issues (United Nations, 2020). Additionally, the World Health Organization (WHO) has proposed a strategy for healthy aging, emphasizing four key components: physical, mental, social, and spiritual well-being (World Health Organization, 2020). Furthermore, Shahla et al. (2023) identified that key factors in designing programs for older adults include their active participation, health maintenance, health promotion, leisure activities, and the use of technology. A successful program must be accessible, voluntary, supported by social networks, and focused on lifelong learning. The outcomes of such programs should enhance awareness, knowledge about activities, quality of life, and life satisfaction, particularly from a psychological, physical, and behavioral perspective. Additionally, Lak (2020) proposed a 5P framework for promoting healthy aging through careful ecological considerations, improving methods to support older adults in all contexts. The study identified 15 subthemes, including personal characteristics, physical health, social environment, mental health, and economic factors, emphasizing the importance of holistic development. In conclusion, the program's content and ~~its~~ results align with theoretical frameworks and relevant research. The significant difference in active aging levels between the experimental and control groups, along with positive feedback on post-training satisfaction, clearly demonstrates the program's effectiveness. Participants reported feeling more satisfied, happier, and better equipped with practical principles for living a higher quality life. Organizing various activities aimed at enhancing the quality of life for older adults often leads to increased satisfaction and happiness among participants. When these activities are designed to align with the specific needs and lifestyles of the older adult, they become particularly valuable and genuinely beneficial. Rodsoda et al. (2021) supported this finding by reporting that older adult participants expressed moderate satisfaction with the curriculum and activities provided. Participants recommended tailoring activities to meet their individual needs to maximize effectiveness and satisfaction.

Conclusion and recommendation

The program's development process effectively enhances the levels of capability among older adults. Consequently, relevant organizations can implement this training program for other groups of older adults. The researchers can apply the results of this study to benefit the following areas:

1. Community Engagement

1.1 Encourage the involvement of local leaders, village health volunteers (VHVs), and families in program activities.

1.2 Establish support networks among older adults to foster mutual assistance and social connection.

2. Institutional Support

Coordinate with public health agencies, local administrative organizations (LAOs), or older adult care centers to secure long- term funding and structural support for program implementation.

3. Continuous Monitoring and Evaluation

Implement a systematic and ongoing evaluation process addressing health outcomes, satisfaction, and quality of life to ensure the program remains relevant and responsive to the needs of older adults.

4. Capacity Building

Train and empower local volunteers or personnel to independently organize and sustain activities, while promoting continuous learning and development.

5. Flexible Program Design

Design a flexible program framework that can be adapted to meet the diverse needs of older adults, integrating various activities such as physical exercise, digital literacy, legal education, and social interaction.

Recommendations for future research

1. Examine factors influencing older adult participation in community activities.

Future research should explore the motivational factors, barriers, and communication styles that affect the level of participation among older adults. Researchers recommend using a qualitative approach to culturally and socially relevant strategies for each community context.

2. Compare program outcomes across different population contexts

Comparative studies between older adults in urban and rural areas or between communities with strong versus weak social structures would help identify contextual differences in program effectiveness and levels of engagement.

3. Develop and evaluate long-term holistic health programs

Future research may focus on designing and assessing comprehensive health promotion programs integrating physical, mental, social, and economic well-being. Experimental or quasi- experimental designs should examine the outcomes over 6-12 months.

4. Investigate the impact of digital technology on older adults quality of life

Studies should assess the use of health applications and online activities, particularly among older adults living alone or with limited mobility, to determine their influence on physical and mental health and social connectivity.

5. Analyse the cost- effectiveness of program implementation

Researchers should conduct economic evaluations to assess the cost-effectiveness of the intervention programs. Findings can inform scalable policy recommendations and guide long- term support from public sector agencies locally and nationally.

Conflict of interest

The author declares that there is no conflict of interest.

Acknowledgments

The research team would like to thank the Faculty of Science and Fisheries Technology, Rajamangala University of Technology Srivijaya, and the Science, Research, and Innovation Promotion Fund for their financial support of this study. The researchers extend special thanks to the Maifad Sub- district Health Promoting Hospital, the village head, the deputy village head, the Village Health Volunteers (VHV) of Village 3, Maifad Sub-district, Sikao District, and all others who facilitated the research process. Lastly, the researchers thank the participants who generously contributed their time and information, which was essential for the successful completion of this study.

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