ORIGINAL ARTICLE

Healthy Ageing and Associated Factors among the Older Adults Living in Government Social Welfare Home for Older Persons in Southern Thailand: An Analytical Cross-Sectional Study

Mustura Yacob, MSc[1], Pissamai Homchampa, MPH, PhD[2], Teabpaluck Sirithanawutichai, MD[2], Nattee Boonjan, PhD[3]

[1] Doctor of Philosophy Program in Health Science, Faculty of Medicine, Mahasarakham University, Maha Sarakham, Thailand; [2] Faculty of Medicine, Mahasarakham University, Maha Sarakham, Thailand; [3] Physical Education Department, Faculty of Education, Prince of Songkla University Pattani Campus, Pattani, Thailand

Background: Institutionalized older adults tend to experience higher levels of impaired health conditions compared to older persons living in the community. Healthy ageing is a global objective, however, there is limited knowledge about promoting healthy ageing specifically among older persons in social welfare homes.

Objective: To examine the prevalence and factors associated with healthy ageing among institutionalized older adults in government social welfare home for older persons (GSWHOP) in the complex societies of the Southern region of Thailand.

Materials and Methods: The present study was an analytical cross-sectional study that included 126 older participants aged 60 years or older capable of self-help activities. The present study defined healthy ageing as having independent physical function, good mental health status with no depression, normal nutrition status, and good quality of life.

Results: Approximately 33.3% of the older residents who were capable of self-help activities achieved healthy ageing. There was no significant difference in the prevalence of healthy ageing between men at 36.2% and women at 30.9% ($p>0.05$). After controlling for other covariates, the present study found that factors such as length of institutional stay, knowledge of health promotion behavior (HPB), perceived stress, received HPB related information, and exercise were significantly associated with healthy ageing ($p<0.05$ to $p<0.001$).

Conclusion: The present study revealed that approximately one in three institutionalized older residents in southern Thailand met the criteria for healthy ageing. The findings indicate the importance of social welfare staff, administrators, and policymakers in implementing effective solutions. These include providing practical knowledge of HPBs, promoting regular exercise, and implementing stress management strategies for institutionalized older adults. Targeting individuals after their first year of institutional stay is crucial. These measures can improve the health and well-being of institutionalized older adults in the region.

Keywords: Healthy ageing; Institutionalized older adults; Health promotion behaviors; Educational and ecological factors; Quality of life; Southern Thailand

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The population is growing older in most countries throughout the world. Increased longevity has brought both benefits and challenges to society, especially socioeconomic conditions, and healthcare service system[1]. Healthy ageing (HA), a continuation of the global framework of "active ageing" policy initially adopted by the World Health Organization (WHO) in 2002, has served as an important driving force to reach the 2016 to 2030 sustainable development goals of all member states of the United Nations (UN)[2]. It encourages all societal sectors to support older persons to promote and maintain their functional abilities for wellbeing, to raise appropriate ageing related values, and to assure sufficient supportive resources for older adults in health services.

Thailand has recently become a complete aged society, with the share of an older person of 20.0% of a total population of 71.7 million, and the country will

Correspondence to:

Homchampa P.

Faculty of Medicine, Mahasarakham University, 79/99 Nakornsawan Road, Talad Subdistrict, Mueang District, Maha Sarakham 44000, Thailand.

Phone: +66-91-8282223, **Fax**: +66-43-722991

Email: pissamaih@gmail.com

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become a "super-aged society" where the share of the older person reaches 28.0% by 2031[3,4]. Population ageing, coupled with such conditions (2002, 2014 to 2021) as the dramatically decline of supportive working-age population per one older person (7.0%, 4.5% to 3.3%) and older persons who engaged in social activities (71.8%, 67.9% to 49.3%), as well as the increasing number of older adults who lived alone (6.3%, 8.7% to 12.0%) and those who lived with solely couple (16.0%, 19.0% to 24.0%) have made Thailand in need of effective older assistance[4,5]. Currently, there are approximately 1.3 million older persons who lived alone, of which some of them were abandoned and/or in need of assistance[5,6].

A government social welfare home for older persons (GSWHOP) has been set up in Thailand in 1953[7]. These facilities provide in-house services for needy older citizens at no cost, which included accommodation and meals, day-care, counseling, basic healthcare, and rehabilitation services, as well as religious and recreational activities. Currently, there are 27 GSWHOPs in the entire country[8]. Those provide social welfare services for over 2,300 older residents and approximately 150 daycare service utilizers. There are two categories of GSWHFOPs. One category is under the responsibility of the Department of Older Persons (DOP) of the Ministry of Social Development and Human Security (MSDHS). It has 15 facilities. The other category is under the Provincial Administration Organization (PAO) of the Ministry of Interior (MI). It has 12 facilities. The limited number of the GSWHOPs for the older residents in the entire country could be the result from the embedded filial obligation in Thai society[9] that grateful adult children took care of their older parents or relatives, coupled with the emphasis of HA policies on ageing in place. However, because of the growing number of older persons, coupled with the declining filial obligation trend, and the difficult living circumstances, the Thai government had recently approved new measures to support the ageing society. These measures included building new housing facilities for older persons and improving the existing ones[10].

Institutionalized older persons tended to have higher impaired health psychologically and socially on top of the degenerative physical conditions accompanying ageing than the non-institutionalized older peers. This situation might be resulting from distraction from their acquainted families and social networks, perceived internal stigma towards living outside one own home, and institutional adjustment on the part of the institutionalized older residents. Factors such as age, gender, income, knowledge, marital status, attitude and perception, self-efficacy, having underlying disease, length of institutional stay, and lifestyle related health practices were important factors affecting health status of this older group[11-14]. Additionally, institutional environment and organizational management also served as factors impacting health behaviors and quality of life of the older residents[15,16].

In the past, health promotion for older adults was often ignored because changing habits seemed difficult. However, there is growing evidence that health promotion can help older people improve their health, longevity, and quality of life[17,18]. Moreover, a large body of literature indicates that health promotion behaviors (HPBs) could help older persons to improve health and longevity, as well as to achieve better quality of life in ageing processes[17-20].

The present study specifically concentrated on HA prevalence and associated factors among institutionalized older adults residing in GSWHOP in southern Thailand. Additionally, the present study aimed to explore the role of HPBs as contributing factors to HA among institutionalized older adults in this setting. Healthy ageing in the present study was defined based on the WHO's framework. It refers to the promotion and maintenance process that older individuals, along with their families and society, undertake to sustain their functional abilities derived from physical and mental capacities. This process requires sufficient supportive resources and environmental conditions, including access to health services that are suitable for fostering values that enable well-being in older age[2,21]. Consequently, HA encompasses key components. Firstly, it involves maintaining good physical health and capability. This includes preserving physical functions and abilities as one grows older. Secondly, it encompasses good psychological health, particularly the absence of depression and other mental health issues. Finally, HA is also associated with a high quality of life, which reflects perceptions and overall conditions of physical, psychological, and social health, all within the environmental context in which an individual lives[22]. In the present study, HPBs were examined through the lens of Pender's Health Promotion Model (HPM). The HPM encompasses six practices that contribute to overall health and well-being. These practices include healthy eating, regular exercise, stress management, spiritual enhancement, self-care practices, and social engagement[23].

Furthermore, the PRECEDE (Predisposing, Reinforcing, and Enabling Constructs in Educational/ Ecological Diagnosis and Evaluation) Framework[24] was employed to examine multiple factors that could either facilitate or hinder HPBs, as well as the overall well-being of the institutionalized older residents. This framework encompasses predisposing, enabling, and reinforcing factors, which include the individual's personal characteristics, the availability of resources and support, and the motivating factors that contribute to the adoption of HPBs.

Additionally, the Social Support Theory (SST) was utilized to explore the role of social support in facilitating HPBs and enhancing the quality of life of the institutionalized older residents. This theory recognizes the significance of support from various sources, including the institutional staff, caretakers, and older peers, in promoting and maintaining HA[25,26].

By adopting a holistic approach that considered multiple dimensions, the present study viewed institutionalized older residents in GSWHOPs as motivated individuals whose conditions of HA and quality of life were influenced by personal characteristics, lifestyle related HPBs, living environment, and social support from staff, caretakers, and peers. Findings of the present study were expected to provide valuable insights for institutional staff and policymakers to develop targeted interventions, policies, and practices that promote and support the institutionalized older residents in maintaining longer periods of active and independent living with optimal health and well-being.

Objective

The aims of the present study were to determine prevalence of HA and the factors associated with it among the institutionalized older residents in GSWHOP.

Materials and Methods

Study design, research setting, and participants

The present study was an analytical cross-sectional study conducted in the Southern region of Thailand. There were 381 older residents living in five GSWHOPs in 2017-2018. Of which, three GSWHOPs were under the supervision of the DOP having 235 older residents and 84 staff and care takers, and two GSWHOPs were under the supervision of the PAO having 146 older residents and 56 staff and care takers. One hundred twenty-six samples were required based on a calculation using the G*Power (power of test=0.95, level of significance α=0.05, effect size=0.3)[27], with 15.0% of an additional sample to substitute the ones who might not be able to complete the research study. The study employed a cluster random sampling to recruit 126 institutionalized older participants who were currently residing in four out of five GSWHOP that shared typical culture, including GSWHOP at Songkhla, Yala, Narathiwas, and Phuket. Inclusion criteria of the participants were having an age of 60 years or over who were able to communicate either in Thai or in Yawi or both, able to self-help (Barthel ADL score of 12 or greater), having resided at the study GSWHOP for at least three months, and willing to participate in the project.

Data collection

Data collection used the survey interview guide and the HA assessment tools. First, the survey interview guide comprised five parts, namely, 1) Personal characteristics as age, gender, education, marital status, religion, home of origin, family background, reason for- and duration of institution stay, having underlying disease, and retaining at least 20 teeth, 2) Lifestyle related HPBs (45Q) within the last three months, including six categories as healthy eating (9Q), exercise (6Q), self-care practices (8Q), stress management (10Q), spiritual enhancement (7Q), and social engagement (5Q) with the rating scale questions, from never to highly practice with 0 to 4 points, and conversely for the negative questions. Based on a total maximum score of 180 points, HPBs were divided into three levels, namely low, moderate, and high, 3) Educational and ecological factors (55Q), comprising three subcategories of questions as 3a) predisposing such as knowledge of HPB using a dichotomous answer (20Q), perceived stress using the Suan Prung Stress Test for Thai population (20Q), with a rating scale question from least to most stressful (1 to 4 points), and perceived stress was divided into four levels, namely low, moderate, high, and severe[28], attitude towards HPB (15Q) and perceived HPB benefit (10Q). Of which, the latter two categories were using a rating scale question from none to highly available (0 to 4 points) and each category was divided into three levels, namely low, moderate, and high, 3b) Enabling factors (15Q) comprising two categories of a rating scale question related to perceived institutional HPB support facilities (10Q) and activities (5Q), from none to highly available (0 to 4 points), with a total maximum score of 60 points, an enabling factors being divided

into three categories, namely low (20 points or less), moderate (21 to 40 points), and high (41 points or more), 3c) Reinforcing factors (10Q) reflecting received health promotion related information of an institutionalized older participant, at least one to two times a week, with in the last three months from ten categories of health promotion related information sources such as print, radio, television, and personal media, with a total maximum score of 10 points, enabling factors being divided into three levels, namely low (1 to 2 sources), moderate (3 to 4 sources), and high (5 or more sources).

Content validity of the questions in the survey interview guide was established by five specialists. The overall index of item objective congruence (IOC) of all the questions in this tool was 0.60, indicating an acceptable level of content validity (>0.50). Reliability of all the rating scale questions based on 30 institutionalized older residents in the tryout period at one GSWHOP revealed the overall Cronbach's alpha coefficient of 0.98, indicating an acceptable level of reliability (>0.70).

Second, the HA assessment tools comprised three categories with four criteria, including; 1) Good physical health and capability with 1a) Normal nutrition status, assessed by the body mass index (BMI) following the WHO's BMI criteria for Asian population with the cutoff point of 18.5 to 22.9 kg/m² as a normal BMI level, and 1b) Physically independence, assessed by the abilities to perform basic activities of daily living (ADL) using the Barthel Index (BADL)[29], which had 10 domains of rating capability scale from completely unable or with partial help (0 or 1 points), to without help (2 or 3 points), covering feeding, dressing, grooming, ability to walk, transferring in and out of bed, self-bathing, going to the bathroom, stair climbing, and controlling bladder and bowel, with a total maximum score of 20 points being considered to be physically independence; 2) Psychological health reflecting no depression based on the use of the Patient Health Questionnaire-9 (PHQ-9) to screen for depressive symptoms, comprising nine questions asking about duration of experience of an individual in the past two weeks, from not at all, last several days, more than half of the days, to nearly every day (0 to 3 points) in regards to having depressed mood, anhedonia (i.e., down, depressed, or hopeless feeling), sleep problems, tiredness feeling or having little energy, poor appetite or overeating, bad feeling or failure, concentration problems, slowly speaking or moving that other people could have noticed, and suicidal idea, with a total maximum score of 27 points, a score less than 9 points indicated the person had no depression[30,31]; 3) Good quality of life, assessed by the WHOQOL-BREF-THAI questionnaire with 26 rating scale questions from not at all or the least to the most (1 to 5 points), score being reversed for negative questions, to measure two perceptions regarding an overall QOL and a general health and four broad domains of physical health, psychological health, social relationships, and environmental condition, with a total maximum score of 130 points. The individual's QOL was divided into three levels, namely poor (26 to 60 points), fair (61 to 95 points), and good (96 points or more), and the scores of more than 60 points being considered as having good quality of life[23,32].

Participants who met all of four criteria above for HA were categorized as being a HA participant.

Data analyses

Descriptive statistics were applied to describe personal characteristics, educational and ecological factors, lifestyle related HPBs, and HA across gender. Univariate logistic regression analyses were performed to initially assess associations between all study factors and HA. Of which, all factors with a p-value less than 0.20 were forwarded for subsequent multivariate regression analyses to assess the final association model. Data analyses using IBM SPSS Statistics, version 22.0 (IBM Corp., Armonk, NY, USA) were based on the 95.0% confidence level ($p<0.05$).

Ethical considerations

The present study was approved by the Ethics Committee of Mahasarakham University (Ref. No. 031/2016), Thailand. Results of the individual interviews and health status information were kept confidential with assigned codes and pseudo names, and the consent to participate in the present study of all participants was voluntary.

Results

Personal characteristics

One hundred twenty-six institutionalized older participants were included in the present study with 58 men and 68 women. Their ages ranged from 61 to 87 years with the mean age (±SD) of 72.9±6.2 years. Over half of the participants (57.1%) were in a middle-old group, while 28.6% and 14.3% were in a youngest-old-, and an oldest-old age group, respectively. There were no differences in personal

Table 1. Personal characteristics of the institutionalized older participants by gender (n=126)

Personal characteristics	Men; n (%)	Women; n (%)	Total; n (%)
Sex	58 (100)	68 (100)	126 (100)
Age (years)			
60 to 69	19 (32.8)	17 (25.0)	36 (28.6)
70 to 79	30 (51.1)	42 (61.8)	72 (57.1)
≥80	9 (15.5)	9 (13.2)	18 (14.3)
Mean±SD (min, max)		72.9±6.2 (61, 87)	
Marital status			
Single	14 (24.1)	11 (16.2)	25 (19.8)
Ever married (i.e., divorced, separated, widowed)	44 (75.9)	57 (83.8)	101 (80.2)
Education level			
No school attainment	12 (20.7)	21 (20.9)	33 (26.2)
Primary	32 (55.2)	37 (54.4)	69 (54.8)
Secondary or higher	14 (24.1)	10 (14.7)	24 (19.0)
Religion			
Buddhism	50 (86.2)	63 (92.6)	113 (89.7)
Islam	7 (12.1)	3 (4.4)	10 (7.9)
Christianity	1 (1.7)	2 (2.9)	3 (2.4)
Place of origin			
Southern provinces	42 (72.4)	46 (67.6)	88 (69.8)
Other provinces	16 (27.6)	22 (32.4)	38 (30.2)
Length of institutional stay (years)			
<1	12 (20.7)	17 (25.0)	29 (23.0)
1 to 5	34 (58.6)	28 (41.2)	62 (49.2)
6 to 10	8 (13.8)	15 (22.1)	23 (18.3)
≥11	4 (6.9)	8 (11.8)	12 (9.5)
Mean±SD (min, max)		4.4±4.8 (0.8, 30.0)	
Having personal income			
No	44 (75.9)	50 (73.5)	94 (74.6)
Yes	14 (24.1)	18 (26.5)	32 (25.4)
Having underlying disease(s)			
No	17 (29.3)	16 (23.5)	33 (26.2)
Yes (more than one answer)	41 (70.7)	52 (76.5)	93 (73.8)
• Hypertension	19 (46.3)	36 (69.2)	55 (59.1)
• Diabetes	9 (22.2)	18 (34.6)	27 (29.0)
• Hyperlipidemia	5 (12.2)	5 (9.6)	10 (10.8)
• Heart disease	2 (4.9)	7 (13.5)	9 (9.7)
• Cerebrovascular accident	3 (7.3)	6 (11.5)	9 (9.7)
Retaining 20 teeth or over			
No	47 (81.0)	53 (77.9)	100 (79.4)
Yes	11 (19.0)	15 (11.9)	26 (20.6)

SD=standard deviation

characteristics among the institutionalized older participants both men and women, p>0.05. Even though the institutionalized older participants were not different significantly in having underlying diseases such as diabetes, hyperlipidemia, heart disease, and cerebrovascular accident based on gender (p>0.05), women differed significantly in the prevalence of hypertension compared to men at 69.2% versus 46.3%, p<0.05 (Table 1).

As for educational and ecological factors, there were no gender differences among older participants in knowledge of HPB, attitude toward HPB, perceived HPB benefit, perceived stress, perceived institutional support for HPB, and received

Table 2. Educational and ecological factors and lifestyle related health promotion behaviors (HPB) of the institutionalized older participants by gender (n=126: men=58, women=68)

Factors	Men; n (%)	Women; n (%)	Total; n (%)
Educational and ecological factors			
Predisposing factors			
• Knowledge of HPB			
Moderate	10 (17.2)	13 (19.1)	23 (18.3)
High	48 (82.8)	55 (80.9)	103 (81.7)
• Attitude toward HPB			
Moderate	5 (8.6)	3 (4.4)	8 (6.3)
High	53 (91.4)	65 (95.6)	118 (93.7)
• Perceived HPB benefit			
High	58 (100)	68 (100)	126 (100)
• Perceived stress			
Mild	36 (62.1)	35 (51.5)	71 (56.3)
Moderate to high	22 (37.9)	33 (48.5)	55 (43.7)
Enabling factor			
• Perceived institutional HPB support facilities/activities			
Moderate	38 (65.5)	41 (60.3)	79 (62.7)
High	20 (34.5)	27 (39.7)	47 (37.3)
Reinforcing factor			
• Received HPB related information			
Low	20 (34.5)	17 (25.0)	37 (29.4)
Moderate	29 (50.0)	35 (51.5)	64 (50.8)
High	9 (15.5)	16 (23.5)	25 (19.8)
Lifestyle related HPB			
Healthy eating			
• Low	22 (37.9)	32 (47.1)	54 (42.9)
• Moderate	25 (43.1)	22 (32.4)	47 (37.3)
• High	11 (19.0)	14 (20.6)	25 (19.8)
Exercise			
• Low	45 (77.6)	51 (75.0)	96 (76.2)
• Moderate	9 (15.5)	11 (16.2)	20 (15.9)
• High	4 (6.9)	6 (8.8)	10 (7.9)
Self-care practices			
• Low	31 (53.4)	44 (64.7)	75 (59.5)
• Moderate	25 (43.1)	23 (33.8)	48 (38.1)
• High	2 (3.4)	1 (1.5)	3 (2.4)
Stress management			
• Low	57 (91.3)	67 (98.5)	124 (98.4)
• Moderate	1 (1.7)	1 (1.5)	2 (1.6)
Spiritual enhancement			
• Low	13 (22.4)	17 (25.0)	30 (23.8)
• Moderate	31 (53.4)	33 (48.5)	64 (50.8)
• High	14 (24.1)	18 (26.5)	32 (25.4)
Social engagement			
• Low	32 (55.2)	33 (48.5)	65 (51.6)
• Moderate	21 (36.2)	24 (35.3)	45 (35.7)
• High	5 (8.6)	11 (16.2)	16 (12.7)
Total HPB			
• Low	37 (63.8)	51 (75.0)	88 (69.8)
• Moderate-high	21 (36.2)	17 (25.0)	38 (30.2)

Table 3. Number and percentage of institutionalized older participants meeting healthy ageing criteria by gender (n=126)

Criteria	Men; n (%)	Women; n (%)	Total; n (%)
Normal nutrition status	25 (43.1)	29 (42.6)	54 (42.9)
Physically independence	51 (87.9)	53 (77.9)	104 (82.5)
No depression	56 (96.6)	68 (100)	124 (98.4)
Good quality of life	58 (100)	68 (100)	126 (100)
Perceived general health	58 (100)	68 (100)	126 (100)
Perceived overall quality of life	58 (100)	68 (100)	126 (100)
Physical domain	58 (100)	68 (100)	126 (100)
Psychological domain	58 (100)	68 (100)	126 (100)
Social domain	58 (100)	68 (100)	126 (100)
Environmental domain	58 (100)	68 (100)	126 (100)
Healthy ageing	21 (36.2)	21 (30.9)	42 (33.3)

HPB related information ($p>0.05$). They also had no significant differences in lifestyle related HPBs ($p>0.05$). Notably, there were higher proportion of the institutionalized older participants who practiced total HPBs in a low level among women than men at 75.5% versus 63.8%, but such a difference did not reach its significant level ($p<0.05$). There were also no significant differences of quality of life among men and women ($p>0.50$). Their quality of life ranged from fair (52.4%) to good (47.6%) (Table 2).

Prevalence of healthy ageing

The results indicated that 33.3% of the institutionalized older participants achieved healthy ageing. Among them, 42.9% had a normal nutrition status, 82.5% were physically independent, 98.4% did not experience depression, and all of them reported a good quality of life. Gender differences in healthy ageing were not significant with men at 36.2% and women at 30.9% ($\chi^2=0.16$, df=1, $p>0.05$). There were no gender differences in the four criteria of healthy ageing, with comparable proportions of normal nutrition status with men at 43.1% and women at 42.9% ($p>0.05$). However, more men than women had physical independence at 87.9% versus 77.9%, while more women than men did not experience depression at 97.1% versus 93.1%. Both genders reported a good quality of life (Table 3).

Associated factors of healthy ageing

In the univariate logistic analyses, the presence of underlying diseases was found to be associated with healthy ageing ($p<0.05$) (Table 4). Additionally, educational and ecological factors, specifically perceived stress as a predisposing factor, were linked to HA. Institutionalized older participants with mild stress were significantly more likely to be healthy agers compared to those with moderate to higher perceived stress ($p<0.001$) (Table 4).

The present study did not find a significant association between HPBs practiced by institutionalized older participants and healthy ageing ($p>0.05$). However, it is worth noting that older participants engaged in regular and rigorous exercise had a higher proportion of healthy agers compared to those with low to moderate exercise levels (Table 4).

In the final model of multivariate logistic regression analysis, after controlling for other covariate variables, several factors were found to be associated with achieving HA. These factors included having knowledge of HPB (AOR 8.07, 95% CI 1.86 to 35.07), having milder perceived stress (AOR 3.64, 95% CI 1.18 to 11.19), and engaging in a high level of exercise (AOR 10.00, 95% CI 2.23 to 16.85), $p<0.05$ to $p<0.01$. On the other hand, having a length of institutional stay between one and five years (AOR 0.26, 95% CI 0.09 to 0.80) and highly received HPB related information (AOR 0.03, 95% CI 0.01 to 0.14) were associated with a lower likelihood of achieving HA ($p<0.05$ and <0.001) (Table 5).

Discussion

The present study focused on HA and its associated factors among institutionalized older residents in four out of five government social welfare homes for older persons in southern Thailand. The data collection took place between 2017 and 2018, before the onset of the COVID-19 pandemic in Thailand in late 2019[33]. The personal characteristics of the institutionalized older residents in the present study indicated an age range of 60 to 87 years. Over half of the participants were aged 70 to 79 years, and they were within the first five years of their institutional stay. In addition, the personal characteristics of these

Table 4. Univariate logistic regression analyses of selected factors associated or potentially associated with healthy ageing among institutionalized older adults (n=126)

Factors	Healthy ageing; n (%)		Unadjusted OR (95% CI)	p-value
	Yes	No		
Personal characteristics				
Age (years)				
• 60 to 69	14 (38.9)	22 (61.1)	1	
• 70 to 79	23 (31.9)	49 (68.1)	3.02 (0.65 to 13.93)	0.157
• ≥80	5 (27.8)	13 (72.2)	1.21 (0.51 to 9.65)	0.355
Religion				
• Others (i.e., Islam and Christianity)	4 (30.8)	9 (69.2)	1	
• Buddhism	38 (33.6)	75 (66.4)	0.47 (0.12 to 1.81)	0.273
Length of institutional stay (years)				
• <1	12 (41.4)	17 (58.6)	1	
• 1 to 5	16 (25.8)	46 (74.2)	0.35 (0.12 to 1.05)	0.061
Having underlying disease(s)				
• Yes	23 (24.7)	70 (75.3)	1	
• No	19 (57.6)	14 (42.4)	3.24 (1.23 to 8.54)	0.018*
Retaining 20 teeth or over				
• No	36 (36.0)	64 (64.0)	1	
• Yes	6 (23.1)	20 (76.9)	0.40 (0.12 to 1.36)	0.144
Educational and ecological factors				
Knowledge of HPB				
• Moderate	9 (39.1)	14 (60.9)	1	
• High	33 (32.0)	70 (68.0)	1.92 (0.72 to 5.09)	0.192
Perceived stress				
• Moderate to high	13 (23.6)	42 (76.4)	1	
• Mild	29 (40.8)	42 (59.2)	5.07 (2.21 to 11.62)	<0.001***
Perceived institutional HPB support facilities/activities				
• Moderate	23 (29.1)	56 (70.9)	1	
• High	19 (40.4)	28 (59.4)	4.66 (1.93 to 10.98)	0.194
Received HPB related information				
• Low	38 (37.6)	63 (62.4)	1	
• Moderate and high	4 (16.0)	21 (84.0)	3.06 (0.55 to 17.05)	0.201
Lifestyle related HPB				
Healthy eating				
• Low	18 (33.3)	36 (66.7)	1	
• High	4 (16.0)	21 (84.0)	0.25 (0.05 to 1.16)	0.070
Exercise				
• Low	33 (34.4)	63 (65.6)	1	
• High (rigorous)	4 (40.0)	6 (60.0)	3.06 (0.55 to 17.05)	0.201
Self-care practices				
• Low	23 (30.7)	52 (69.3)	1	
• Moderate-high	19 (37.3)	32 (62.7)	1.91 (0.83 to 4.40)	0.217

HPB=health promotion behavior; OR=odds ratio; CI=confidence interval

Data is significant at * p<0.05, ** p<0.01, and *** p<0.001

institutionalized older residents were comparable to those reported in the previous studies conducted in Thailand and neighboring countries[3,34,35]. The majority of participants were women, married or previously married, having a low level of education, and having underlying diseases. However, there was a difference in the age distribution, with over half of the institutionalized older residents in the present study

Table 5. Final multivariate logistic regression model of associated factors of healthy ageing among the institutionalized older participants (n=126)

Factors	Adjusted OR (95% CI)	p-value
Length of institutional stay (years)		
<1	1	
1 to 5	0.26 (0.09 to 0.80)	0.018*
Perceived stress		
Moderate to high	1	
Mild	3.64 (1.18 to 11.19)	0.024*
Knowledge of HPB		
Moderate	1	
High	8.07 (1.86 to 35.07)	0.005**
Received HPB related information		
Low to moderate (1 to 4 sources)	1	
High (5 sources or over)	0.03 (0.01 to 0.14)	<0.001***
Exercise		
Low-moderate	1	
High	10.00 (2.32 to 43.12)	0.002**

HPB=health promotion behavior; OR=odds ratio; CI=confidence interval

Data is significant at * p<0.05, ** p<0.01, and *** p<0.001

being aged 70 to 79 years, while the previous studies were participants aged 60 to 69 years.

The HA in the present study was defined based on four criteria, including independent physical function, good mental health status with no depression, normal nutrition status, and good quality of life. Results revealed the prevalence of HA of 33.3% among the institutionalized older residents who were capable of self-help activities residing in government social welfare homes for older persons in the Southern region of Thailand. Factors positively associated with HA were including educational and ecological factors of predisposing factor such as having knowledge of HPB and having mild perceived stress, lifestyle related HPBs, namely engaging in a high level of exercise, while personal characteristics, such as having length of institutional stay between one and five years, as well as reinforcing factor within educational and ecological condition, such as receiving HPB related information were found to negatively associated with HA.

The prevalence of HA in the present study was found to be lower compared to the previous studies, which reported a range of prevalence from 36.6% to 84.9%. This finding was lower than the rate of 50.0% reported by Southeast Asian metropolitan older adults aged 55 years and over that measure perceived HA based on self-reliance, participation and managing life security[34]. Meanwhile, it is also lower than the rate of 66.0% observed among older residents in urban Bangkok, based on five criteria of HA including nutrition, physical capability, cognitive function, depression, and quality of life[35]. It was also lower than the average rate of 60.0%, ranging from 43.8% to 80.2%, among Thai older adults aged 50 years and over in a national community-based study that assessed successful ageing using multiple dimensions[36]. Additionally, it was lower than the rate of 84.9% observed among community dwellers aged 60 years and over in an eastern province of Thailand, based on nine criteria of HA[37].

The lower prevalence of HA among institutionalized older participants in the present study might be attributed to a higher proportion of participants aged 70 to 79 years compared to the younger age group of 60 to 69 years, in the other three studies. Furthermore, a smaller proportion of institutionalized older adults in the present study had normal nutrition status at 42.9% compared to the other study at 89.5%. Generally, as individuals aged, there is a natural decline in physical and psychological functioning, increasing the risk of chronic diseases and impacting their overall HA status.

For the length of institutional stay, the present study showed that the institutionalized older residents resided in the social welfare homes for one to five years were more likely having a declined HA status by 74.0% compared to the ones in their first year of institutional stay. Such a finding could be explained that some institutionalized older residents might manifest with loneliness resulting from being far away from one own social network and feeling of failure in life to stay at a social welfare housing instead of one own home in this stage of life, which in turn contributing to impaired mental health conditions and HA status. For the association between education and HA, the study on prevalence and related factors of active and HA based on the Survey of Health, Ageing and Retirement in Europe (SHARE) indicated that the retired older persons with low educational background were more likely to have the absence of active and HA[38]. Lifestyle related HPBs, such as highly or rigorously exercise was found to be positively related to HA. It was consistent with the results of previous studies that emphasize the benefit of physical activity and/or exercise[36,37,39]. Active physical activity, specifically exercise, was considered a positive factor in those who exercise regularly and correctly, which in turn could reduce risks of chronic diseases such as obesity and cardiovascular diseases. Lack of physical activity

can worsen depression and reduce quality of life, especially among institutionalized older residents compared to older persons living in the community[40].

For the factors negatively associated with HA, the institutionalized older residents who perceived stress in a moderate and high level were less likely to achieve HA compared to those who perceived mild stress. The result of the present study also showed that the institutionalized older residents who received numerous information sources were less likely to achieve HA, which was found to be contrary to previous studies[14,15]. Based on observation, the present study showed that those who had health risk or illness and those who had limited ability to self-help were more likely to receive frequent attention and contacts from institutional staff and caretakers, thereby increasing number of receiving HPB related information from various sources among institutionalized older adults.

The findings did not show significant association between HA and enabling factors such as perceived institutional support for HPB, and personal characteristics such as gender, age, religion, place of origin, and lifestyle related HPB such as healthy eating, self-care practices, spiritual enhancement, stress management, and social engagement among this group of institutionalized older residents.

The present study had limitations. First, given the institutionalized older residents who could self-help and communicate being the main target group of the present study, the prevalence of HA among this population group might be higher than it should be. Important suggestions for the next research study to include those who have less capability to self-help or those with lower cognition to cover all subgroups of institutional residents. Second, this analytical cross-sectional study could only reflect the associated factors of HA, but it could not establish any causal and effect relationships.

Conclusion

The present study found that the prevalence of HA among the institutionalized older adults living in the GSWHOP in southern Thailand was 33.3%. HA associated factors included length of institutional stay, knowledge of HPB, perceived stress, received HPB related information, and lifestyle related HPB, specifically exercise. The study findings underscored the significance of social welfare service staff, administrators, and policymakers in addressing the needs of institutionalized older adults. Effective solutions should prioritize the provision of practical knowledge on HPBs using suitable resources. Promoting regular and rigorous exercise, as well as implementing effective stress management strategies, were identified as crucial factors. It is recommended to target individuals after their first year of institutional stay for these interventions. These measures can contribute to improving the health and well-being of institutionalized older adults in the region.

What is already known on this topic?

Institutionalized older persons who live in a social welfare home tend to have higher impaired psychosocial health on top of degenerative physical conditions than the non-institutionalized older peers. The prevalence rates of HA ranged from 43.8% to 84.9%, and in particular, there were 60.0% (range of 43.8 to 80.2), among the Thai older adults aged 50 years or over in the national community-based study, 66.0% among the urban older persons aged 60 years or over residing in Bangkok, and 84.9% among the community older adults aged above 60 years in one of the eastern provinces of Thailand.

What does this study add?

This study revealed that the prevalence rate of HA among the institutionalized older residents in a government social welfare home setting in the Southern region of Thailand was 33.3%, lower than the rates of HA among the non-institutionalized older population in the country. However, it is important to note that such comparison was based on diverse criteria of HA or successful ageing, thereby limiting the accuracy of comparisons of HA prevalence rates across the studies.

The present study also indicated the factors such as education, longer length of institutional stay, and rigorously exercise was increasing likelihood of HA and factors such as perceived stress and received HPB related information were decreasing likelihood to achieve HA among the institutionalized older residents.

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Conflicts of interest

The authors declare no conflict of interest.

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