

Health and Safety Status of the Elderly in Pa Phayom Sub-District, Phatthalung Province, Thailand

Thitima na Songkhla¹ and Suttama Suwanmanee^{2*}

¹ Department of Occupational Health and Safety, Faculty of Health and Sports Science, Thaksin University, Phatthalung, Thailand 93210

² Department of Public Health, Faculty of Health and Sports Science, Thaksin University, Phatthalung Campus, Phatthalung, Thailand 93210

Received November 15, 2022
Accepted March 8, 2023
Published April 30, 2023

***Corresponding author:**

Suttama Suwanmanee, Department of Public Health, Faculty of Health and Sports Science, Thaksin University, Phatthalung Campus, Phatthalung, Thailand 93210

E-mail:

suttsuwan86@gmail.com

©2023, Na Songkhla, T and Suwanmanee, S

This is an Open Access article published under a Creative Commons (CC BY-NC-ND 0.4) license.



ABSTRACT

Background: The proportion of the aging population, the elderly, is rapidly increasing throughout the world including Thailand. Being the elderly, people are vulnerable to many health problems due to the deterioration of physical and mental health including living in poor environment. The study aimed to investigate health and safety statuses of the elderly living in Pa Pha Yom Sub-District Phatthalung Province.

Methods: A cross-sectional study was applied to gather information by a validated questionnaire among people aged 60 and over who lived in Pa Pha Yom Sub-District Phatthalung Province. Data were collected between February and April 2021. Data were analyzed in descriptive fashion, and interpreted properly.

Results: A total of 278 participants were recruited into the study; 68.7% were female, mean age was 71.47 years (SD=7.84), 66.19% were married and 52.16% lived in nuclear families. 26.97% were overweight and obese, 61.51% were having underlying disease, and 34.71% were hypertension. More than half (55.76%) had a vision problem, 70.14% were having a street-crossing problem, 52.16 % had poor sanitation of living areas, and 28.42% had an accident in the past year. One-fourth (23.33%) lived in poor health and safety status.

Conclusion: Promoting the elderly people to live in health and safety statuses is critical for all stakeholders including family and community members. Public health interventions that focus on improving the elderly living environment are extremely and urgently recommended.

Keywords: Health, Safety, Community-dwelling elderly

Introduction

According to the improvements of medical and public health technologies, the proportions of people aged over 60 years are rapidly increasing in all regions of the world. It is expected that the number of the people in these categories will rise from one billion in 2020 to 1.4 billion by 2030 [1]. The scenario of the increase of the aging population is also observed in Thailand and also almost all countries in the Southeast Asian [1]. Thailand has a very unique pattern of the increase of the aging population, 14.9% in 2014 to 16.7% in 2017, before reaching up to 19.4% in 2021 [3]. Thailand has been completely met the definition of the complete aging society in 2022 [4].

Having a large proportion of the aging population, it could lead to several challenges, especially health, economic issues, and physical and mental care services to the populations. In late 2019, coronavirus disease-2019 (COVID-19) was reported and followed by a large number of infected persons and deaths. The elderly has been recognized as the critical risk population for the infection due to the deterioration of physical and mental health. The Ministry of Public Health (MOPH) reported that 11.0% of the people aged 60 years and over have been infected by COVID-19, and 69.8% of deaths were the elderly people [5]. The National Statistical Office (NSO) of Thailand reported that 18.3% of the Thai population were classified at the age of 60 years and over in January 2022 [6]. While, 19.3% of people lived

in Pa Pha Yom Sub-district Phatthalung Province, Thailand [7] were aged 60 years and over which is nearly to the line of aging society.

The deterioration of physical and mental health among the people aged 60 years and over could lead to falling which is one of the major drivers of disable in the elderly. Monitoring individuals' health including behaviors, access to health services while in need, and living environment are very significant. The information could be used for public health implementation in individual, family, community and national levels. A study conducted in Thailand among the elderly on their perception of health, only 3.30% reported that they were in a very good health stage [3]. Definitely, being falling into the elderly stage, non-communicable diseases (NCDs) are the major health problems. According to the latest Thai Health Survey, it was reported that 60.70% and 20.4% of the elderly population in Thailand were suffering from hypertension (HT) and diabetes mellitus (DM), respectively. Becoming the elderly people, they are also considered as the vulnerable population for accidents due to limited mobility. A study conducted in Thailand reported that 15.3% of the elderly population reported having fallen in the past 6 months [8]. The falls happened in their house [8]. Falling has been clearly known as the common and major factor to the disability of the elderly [9].

Living environment is an important factor to determine the health and wellbeing of people [10, 11]. Living in a safe environment should be the first concern of all people, particularly the elderly people while they spend almost all their time in their house. Adjustment or modification of the living environment, a house, could protect unpredictable events to the elderly's health. Avoiding accidents for the elderly could support their lives to have a better quality of life in the whole life-course of a person [12, 13]. Therefore, this study aimed to investigate health and safety statuses of the elderly living in Pa Phayom Sub-District Phatthalung Province.

Methodology

Study design and study setting

A cross-sectional study was applied to gather information about the elderly people living in Pa Phayom Sub-District Phatthalung Province.

Study population and study sample

In 2021, a total of 1,123 elderly people lived in seven (7) villages in the study areas. The sample size was calculated by using the proportion formula of Lemeshow et al. [14] for a cross sectional study, details as following;

$$n = \frac{z^2_{1-\alpha/2} P(1-P)}{d^2}$$

where,

n is a sample size, P is an estimated proportion of safety and convenience in living at home at a high level = 80.0%, $P = 0.80$ [12], d is a desired precision = 0.05, and $Z_{1-\alpha/2}$ is a standard error associated with confidence intervals (95% = 1.96)

Based on the selected formula, the following sample size was calculated:

$$\begin{aligned} n &= \frac{(1.96)^2 [(0.8) (0.2)]}{(0.05)^2} \\ &= 245.76 \text{ and rounding to } 246 \end{aligned}$$

At least 246 samples were required. Considering adjustment for loss follow up in the study, 10.0% were added up. Thus, at least 278 samples were required for the study.

People aged 60 years and over, lived in the study area, and able to communicate were met the inclusion criteria. However, those who lived in the study areas less than six (6) months were considered to exclude from the study. Proportional stratified random sampling was performed in seven villages, with a 25% proportion of the total elderly population in each village, to get the samples of the study.

Data collection

A structured and validated questionnaire was used to collect the information. Questionnaire had two parts. Part-I, it was used to collect personal data: sociodemographic data and comorbidity. Part-II, it was used to collect health, and safety status: six (6) questions were used to collect personal health conditions and risk behaviors; four (4) question were used to collect living conditions; ten (10) questions were used to collect housing environment information; and eight (8) questions were used to collect information of having accidents in the past one year. The content validity index (CVI) was used to validate the questions by three experts in the field. The result of CVI was detected at 0.82, which was fairly considered to be use the study. Prior to data collection, a pilot study of 30 elderly with similar characteristics to the sample was also conducted. The Cronbach's Alpha of the health, and safety status questionnaire was found at 0.8. Data were collected in a face-to-face method between February and April 2021.

Data analysis

The descriptive analysis was conducted for all sections of the questionnaires using the SPSS version 24. The data were presented in form of percentage in all categorical data, while in the continuous data were presented by mean ($\bar{x}$) and standard deviation (SD). Variables in part-II were analyzed and interpreted in five (5) levels on individuals' health and safely statuses: very low while scored 0%-20%, low while scored 21%-

40%, moderate while scored 41%-60%; high while scored 61%-80%; and very high while scored 81%- 100%.

Ethics consideration

This study and its protocols had been granted the approval on conducting research in human subjects by the Human Research Ethics Committee of Thaksin University (COA No. TSU 2021-045, REC No. 0030). All participants were clearly explained the research objectives and processes, confidentiality, risks, benefits, and participants' rights before obtaining the informed consent in written form.

Results

General characteristics of participants

Majority of the participants were females (68.71%), 45.68% were aged 60 to 69 years (mean age =71.47, SD=7.84), 98.92% were Buddhist, and 66.19% were married. One-fourth (26.97%) were overweight and obese, 61.51% had underlying disease, and hypertension was classified as the major underlying disease among the participants (Table 1).

Table 1 Characteristics of participants (n=278)

Characteristics	n	%
Sex		
Male	87	31.29
Female	191	68.71
Age (years)		
60 – 69	127	45.68
70 – 79	106	38.13
80 and over	45	16.19
<i>Mean (SD)= 71.47 (7.84)</i>		
Religion		
Buddhist	275	98.92
Christian	3	1.08
Marital Status		
Single	18	6.47
Married	184	66.19
Divorced/ Separated	17	6.12
Widow	59	21.22
Family type		
Nuclear family	145	52.16
Extended family	133	47.84
Caregiver		
Spouse	146	52.05
Child	223	80.20
Grandchild	143	51.40
Relative	25	9.00
Other	10	3.60
BMI		
Underweight (BMI < 18.5)	36	12.95
Normal weight (BMI 18.5 - 24.90)	167	60.08
Overweight (BMI 25 - 29.90)	55	19.78

Characteristics	n	%
Obesity (BMI > 30)	20	7.19
Having underlying disease		
Yes	171	61.51
No	107	38.49
Type of disease		
Hypertension	104	37.41
Diabetes	51	18.35
heart and coronary	19	6.83
Dyslipidemia	36	12.95
Other	17	6.12

Health and safety problems

According to personal health conditions and risk behavior, more than half (55.76%) had a vision problem, 26.62% had hearing loss problem, 44.60% had mobility problem, 12.23% used alcohol, and 14. 03% smoked. The overall health was indicated in low or poor levels (Table 2).

In the living life aspect, the majority (83.81%) did not have a problem with access to health services, 97.84% did not have a problem of lack of caregiver, 70.14% had a problem crossing a street, and 32.01% had a problem of poor economics. Overall, the elderly had a low or poor level of living life (Table 2).

In the aspect of housing environment, 20.86% had slop problem that not support the elderly daily life, 13.31% had a problem regarding a bathroom use, 9.35% had a poor ventilation, 12.23% had insufficient lights, 25.54% had a poor sanitation with waste water for mosquito breeding, 15.115 had uncleared path, 12.59% has a poor waste management, and 20.14% had bad smell from poor sanitary. Overall, the elderly lived in poor housing environments (Table 2).

Regarding health problems, a large proportion (28.42%) of the elderly had experienced on having accident in the past year, 16.55% had experience on falling, 7.91% had experience in chemical exposed, 7.19% had experienced in traffic accident, and 6.12 had experienced in ever faced a disaster. The overall health problem was indicated at a very low level. Then the overall scale on all aspects was indicated in low level (Table 2).

Table 2 Health and safety problem (n=278)

Statement	Yes		No		Level
	n	%	n	%	
Personal health conditions and risk behaviors					
Vision problem	155	55.76	123	44.24	Moderate

Statement	Yes		No		Level
	n	%	n	%	
Hearing loss problem	74	26.62	204	73.38	Low
Balance/mobility/or walking problem	124	44.60	154	55.40	Moderate
Underlying disease problem	151	54.32	126	45.68	Moderate
Alcohol use	34	12.23	244	87.77	Very Low
Smoking	39	14.03	239	85.97	Very Low
Average		34.59		65.41	Low
Living life					
Accessing health services problem	45	16.19	233	83.81	Very Low
Having a caregiver in life problem	6	2.16	272	97.84	Very Low
Street-crossing problem	195	70.14	83	29.86	High
Cost-of-living problem	89	32.01	189	67.99	Low
Average		30.13		69.87	Low

Statement	Yes		No		Level
	n	%	n	%	
Housing environment					
Stair condition (corridor area/slope)	58	20.86	220	79.14	Low
Bathroom condition	37	13.31	241	86.69	Very Low
Poor housing ventilation	26	9.35	252	90.65	Very Low
Insufficient lights	34	12.23	244	87.77	Very Low
Poor sanitation with waste water	71	25.54	207	74.46	Low
Cleanliness of the house area	145	52.16	133	47.84	Moderate
Slippery or uneven floors	69	24.82	209	75.18	Low
Uncleared path	42	15.11	236	84.89	Very Low
Waste management	35	12.59	243	87.41	Very Low
Poor smell from waste water	56	20.14	222	79.86	Low
Average		20.61		79.39	Low

Statement	Yes		No		Level
	n	%	n	%	
Health problems					
History of accident in the past year	79	28.42	199	71.58	Low
Falling	46	16.55	232	83.45	Very Low
Electric shock	9	3.24	269	96.76	Very Low
Walking into or bumping into something	20	7.19	258	92.81	Very Low
Sharp injury	31	11.15	247	88.85	Very Low
Chemical exposure	22	7.91	256	92.09	Very Low
Heat exposure	13	4.68	265	95.32	Very Low
Traffic Accident	20	7.19	258	92.81	Very Low
Accident from disaster	17	6.12	261	93.88	Very Low
Average		10.27		89.73	Very Low
Health and safety status		23.90		76.10	Low

Discussion

The study showed that personal health conditions and risk behaviors of the elderly were indicating in good physical health because a large proportion having no hearing problems (73.38%), having normal BMI (76.9%), and majority of them no alcohol consuming (83.7%) and no smoking (85.5%). However, more than

half of the participants had vision problems (54.3%) and underlying disease problems (54.32%). This would be because more than half of them age 70 and over (54.3%) which was in the middle old and the oldest old groups. Increasing age will lead to the elderly having more vision problems and underlying disease [3, 8, 12]. Although 61.51% of the participants had underlying diseases, only 54.32% of them reported that it was a problem. This would be due to the fact that they could deal with their health problems. Therefore, it did not affect their ability to perform in daily life. In addition, the majority of participants were no alcohol consuming (83.7%) and no smoking (85.5%) which could reduce the risks of developing more severe NCDs. While hypertension was found to be the commonest underlying diseases among the respondents (37.3%). This coincides with a study conducted in 2021 [3] which reported that the most common chronic disease among the elderly was hypertension (60.7%).

Our study indicated that living life problem of the elderly was low. Almost all (96.5%) of the elderly had a caregiver to take care when they were sick. The main caregiver of them were their children (80.20%), despite the fact that more than half (52.16%) of them were living in nuclear families. This could be explained that according to traditional values of parental care in Thailand, children would take care of their parents when they get older. Hence, the elderly will stay with their children in the same area or close to their relatives. Most of them tend to live together with their children or live very close to at least one child [15]. Therefore, the elderly would have a caregiver to take care when they are sick although they live in a nuclear family.

Another important finding from our study was a large proportion of the elderly had a street-crossing problem (70.14%). This seems to be due to their aging-related deterioration, in which the elderly pedestrians would experience greater safety challenges for crossing streets [16]. The elderly faced more risks when crossing streets because they made delayed decisions, slow walking, and had difficulty choosing safe distances and adopting enough safety margins [17]. It could also be related to vision and hearing loss problems as well. Based on the findings of this study, the elderly had vision (55.76%) and hearing loss problems (26.62%). As a result, the elderly would face more difficulty when crossing streets. Thus, this would be affecting their daily life and making the elderly lived insecure in their life.

According to the housing environment problem, more than half of the elderly suffered from cleanliness of the house area (52.16%), which might relate to their accident experience. The result of this study pointed out that the most common accident among the elderly was falling (16.55%). According to the Thai Health Survey by Physical Examination 6th between 2019 -2020, falling in elderly males occurred outside the house (70.3%), meanwhile the elderly females tend to fall

inside the house (45.3%) [8]. However, the rate of falling in males was less than females [3,18,19]. In addition, 55.0 % of the elderly reported that they had a sit to stand problem that might have made them have more of a chance to fall. It is clearly known that falling is a major problem in the elderly and could lead to serious injury or death eventually [3]. Furthermore, falling down among the elderly is one of the most common and serious issues, and it is the second cause of unintentional injury and mortality worldwide [20]. Thus, falling is a factor to indicate health and safety status among the elderly. Slippery or blocked floor, insufficient lighting, and stair condition were the external risk factors of elderly fall [21]. Our findings confirm the significance of home environment to be a predictive factor of perceived safety and convenience of living at home [12].

Our study demonstrated that the health and safety status problem among the elderly was at a low level (23.33%). These could be the elderly who had good physical health and being living in a high level of safety housing environment. The elderly was detected on having normal BMI, having no mobility/or walking problems, no hearing problems, no alcohol consuming, and no smoking. Only two health problems faced among the elderly; having poor vision, and having underlying disease. It was supported by Kortawat, et al. [12] reported that 75.0% of the elderly faced problems of poor vision in daily life, and almost all of the elderly had at least one NCD.

Regarding the life living issue, the elderly had no problem with access to health care services and a person taking care of them while in need. Only street-crossing problem was detected with the poor or low level and needed to be improved. While some issues of the housing were also indicated in poor levels such as ventilation, non-sufficient lighting, improper system of household waste management, poor condition on use of a bathroom, bad smell from poor waste water management. In the aspect of accidents, there was only 28.4% of the elderly who had experienced at least one type of accident in the past year. This was supported by a scoping review related to risk management for safety in integrated care programs among elderly, it was found that the elderly who lived in good conditions had a low level of getting into accidents in their life [22].

Conclusion

The elderly people who are living in Pa Pha Yom Sub-District, Phatthalung Province, Thailand live in low or poor health and safety statuses. A large proportion of the elderly live with vision problem, underlying disease, and mobility problem. In aspect of living life, most of the elderly face with street-crossing problem. In addition, the elderly lives in poor and unsafe living environments with poor sanitation in their house. While many of them have experienced falling, accidents, and

chemical hazards exposed, promoting health and safety status of the elderly is in the crucial stage. All relevant organizations need to establish the activities that promote health and safety statuses for the elderly including modifying the living housing to support safety in daily life activities for the residents.

Acknowledgements

We would like to present our sincere gratitude to the Faculty of Health and Sports Science, Thaksin University for the grant. Additionally, we would like to thank village health volunteers, the Pa Pha Yom Sub-district Administrative Organization, and community leaders in Pa Pha Yom Sub-district. We also would like to thank the elderly Pa Pha Yom Sub-District for their participation in this study.

References

- [1] Ageing and health [Internet]. Who.int. [cited 2022 Oct 31]. Available from: <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
- [2] Foundation of Thai Gerontology Research and Development institute (TGRI). Situation of the Thai Older Persons 2017. Nakhon Pathom: Institute for Population and Social Research, Mahidol University; 2018.
- [3] National Statistical Office. The 2021 Survey of The Older Persons in Thailand. Bangkok, Thailand: National Statistical Office; 2022.
- [4] Foundation of Thai Gerontology Research and Development institute (TGRI). Situation of the Thai Older Persons 2020. Nakhon Pathom: Institute for Population and Social Research, Mahidol University; 2021.
- [5] Foundation of Thai Gerontology Research and Development institute (TGRI). Situation of the Thai Older Persons 2021. Nakhon Pathom: Institute for Population and Social Research, Mahidol University; 2022.
- [6] Department of Older Person (DOP). Statistic of elderly. [Internet]. 2022 [cited 2022 Oct 31]. Available from: <https://www.dop.go.th/th/known/side/1/1/1159>.
- [7] HDC Phattalung. Population by gender yearly age group. [Internet]. 2022 [cited 2022 Oct 31] Available from: https://plg.hdc.moph.go.th/hdc/reports/report.php?source=formatted/pop_sex_age.php&cat_id=ac4eed1bddb23d6130746d62d2538fd0&id=710884bc8d16f755073cf194970b064a#
- [8] Aekplakorn W. Thai Health Survey by Physical Examination 6th 2019 -2020. Bangkok, Thailand: Aksorn graphic and design; 2021
- [9] Ambrose AF, Paul G, Hausdorff JM. Risk factors for falls among older adults: a review of the literature. *Maturitas* 2013; 75(1):51-61.

- [10] Champar-ngam N. Environmental Health Management: Well-Being of Elderly People Society. EAU HERITAGE Journal Science and Technology 2019; 13(2): 63-73.
- [11] Wongsawang N, Kitreerawutiwong K, Ruamsook T. Home environmental management for health among older adults: Role of community health nursing. Journal of research for health improvement and quality of life 2021; 1(1): 80-9.
- [12] Kortawat U, Silapasuwan P, Sujirarat D, Nankongnab N. Perception of Older Adults about the Safety and Convenience of Living at Home. Journal of Public Health Nursing 2018; 32(1): 77-96.
- [13] Kivimäki T, Stolt M, Charalambous A, Suhonen R. Safety of older people at home: An integrative literature review. Int J Older People Nurs [Internet]. 2020;15(1): e12285. Available from: <http://dx.doi.org/10.1111/opn.12285>
- [14] Lameshow H. et al. Adequacy of Sample Size in Health Studies. New York, John Wiley & Sons; 1990.
- [15] Knodel, J. and Ofstedal, M.B. (2002) Patterns and determinants of living arrangements. In: Hermalin, A.I., Eds., The Well-Being of the Elderly in Asia: A Four-Country Comparative Study, University of Michigan Press, Ann Arbor, MI; 2002.p.143-184.
- [16] Wei C, Yan X, Shao C, Sun J, Ma L. Choice behavior of the elderly regarding street-crossing facility. J Adv Transp [Internet]. 2018; 2018:1–8. Available from: <http://dx.doi.org/10.1155/2018/3296285>
- [17] A. Dommes, V. Cavallo, and J. Oxley. Functional declines as predictors of risky street-crossing decisions in older pedestrians. Accident Analysis & Prevention. 2013; 59: 135 - 43
- [18] Mahmoodabad SSM, Zareipour M, Askarishahi M, Beigomi A. Effect of the Living Environment on falls among the Elderly in Urmia. Open Access Maced J Med Sci [Internet]. 2018; 6(11): 2233–8. Available from: <http://dx.doi.org/10.3889/oamjms.2018.434>
- [19] Noopud P, Phrom-On D, Woradet S, & Chaimay B. Prevalence of fall risk and factors associated with fall risk among elderly people. Journal of Sports Science and Health 2020; 21(1): 125-137
- [20] Pfortmueller C, Lindner G, Exadaktylos A. Reducing fall risk in the elderly: risk factors and fall prevention, a systematic review. Minerva Med. 2014;105(4):275–81. PMID:24867188.
- [21] Departments of older persons. Falls in the elderly. [Internet]. 2022 [cited 2023 Jan 25] Available from: <https://www.dop.go.th/th/know/15/548>
- [22] Lette M, Ambugo EA, Hagen TP, Nijpels G, Baan CA, de Bruin SR. Addressing safety risks in integrated care programs for older people living at home: a scoping review. BMC Geriatr [Internet]. 2020;20(1):81. Available from: <http://dx.doi.org/10.1186/s12877-020-1482-7>