# Factors Of Accidental Falls Among In Elderly Living Alone In Phetchaburi Province Thailand

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**KEYWORDS**

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**ABSTRACT**

This research was to study the factors of accidental falls among elderly living alone. The researcher conducted a mixed methods research (Mixed Methods Research) to study factors affecting the incidence of falls and falls in elderly people who live alone. The research results found that Factors that result in falls and falls in elderly people who live alone. Phetchaburi Province has a total of 5 main factors and 24 sub-factors, consisting of main physical factors. Sub-factors were eye disease ($p = 0.001$, $\beta = 1.063$), osteoarthritis ($p = 0.001$, $\beta = 0.955$), urinary system intelligence ($p = 0.001$, $\beta = 1.588$), frequently going to the bathroom at night ($p = 0.001$, $\beta = 1.236$) Congenital disease ($p = 0.001$, $\beta = 1.638$) Regular hospital visits ($p = 0.001$, $\beta = 1.494$) Main behavioral factors Sub-factors include taking medicine to treat chronic diseases ($p = 0.001$, $\beta = 2.959$), using alcoholic beverages ($p = 0.001$, $\beta = 4.014$), not exercising ($p = 0.001$, $\beta = 5.350$), wearing comfortable shoes. Inappropriate ($p = 0.001$, $\beta = 2.723$) Inappropriate clothing ($p = 0.001$, $\beta = 3.574$) Main environmental factors Sub-factors: regularly using stairs ($p = 0.001$, $\beta = 3.354$), two-story house ($p = 0.001$, $\beta = 4.571$), split-level house ($p = 0.001$, $\beta = 2.296$), light switch not nearby. mattress ($p = 0.001$, $\beta = 2.363$) main economic and social factors The sub-factor was frequently attending social events ($p = 0.001$, $\beta = 6.633$), missing home visits from the health service unit ($p = 0.001$, $\beta = 3.916$). The main factor was caregiver. The sub-factor is living with offspring ($p = 0.001$, $\beta = 6.019$ ) and having to live alone ($p = 0.001$, $\beta = 1.002$ ).

## 1. Introduction

Health problems for the elderly often occur as a result of physical deterioration. In particular, falls are a problem because the elderly have reduced muscle fibers that cause atrophy and cause the muscles to lack strength. Resulting in loss of body balance and falling more easily. In foreign countries, it has been found that 1 in 3 elderly people fall at least once a year and more than half have repeated falls. In Thailand, falls occur in 1 in 5 elderly people. It can happen both inside and outside the home. The important thing that follows a fall is broken bones. causing loss of ability to move Therefore, falls are a major cause of illness, disability, and death of the elderly. It also affects the physical, mental and social aspects, such as fear of falling again (Fear of falling), so avoid doing daily activities. rely on family members Avoid doing activities outside the home. Loss of confidence in life is considered a psychological threat that may lead to depression as a result. In addition, falls also cause a burden on medical expenses and care for both the health service system and the burden of dependency from the family.[1] Falls are the second leading cause of death after Injuries from road accidents (In the group of unintentional injuries), more than 1,000 elderly people die, or an average of 3 people per day. Males have a death rate more than 3 times higher than females. Most of the causes are from slipping, tripping, and missteps, which result in cause injury Disability and death This can affect the economy of the family, people around them, and caregivers. [2] There was an outpatient report (OPD) in 2022 that

found 1,966 elderly people who had falls in Phetchaburi Province, accounting for 2.73 percent, and an inpatient report (IPD) found that elderly people had falls. There were 668 falls, accounting for 0.92 percent.

**Research objectives**

To study factors affecting fall accidents among elderly people living alone in Phetchaburi Province.

**Definition**

Elderly living alone means an elderly person who is 60 years of age or older and who lives alone or with a person who is 60 years of age or older, as well as an elderly person who is not accompanied by a caregiver for more than 4 hours or more.

Falls accidents in the elderly refer to falls both on walkways and on the ground. Including accidental falls from chairs or high places by elderly people.

## 2. Methodology

To study factors affecting fall accidents in elderly people who live alone. Conducting research using a mixed method research method, parallel design (Convergent design), both qualitative and quantitative research. The study was conducted among elderly people living in Phetchaburi province.

Phase 1.1 Qualitative research: Collect data in group 1, elderly people aged 60 years and over who live in Phetchaburi province, and group 2, elderly people who have experienced accidents and falls while they were alone. 10 people

Phase 1.2 Quantitative research (Quantitative research) collected data among 789 elderly people living in Phetchaburi Province.

## 3. Results and discussion

Table **1** shows the results of the analysis of physical factors that result in falls and falls in elderly people who live alone.

| **Initial variable** | **B** | **SE** | **β** | **T** | **P** | **Zero-order** |
|---|---|---|---|---|---|---|
| **(**Constant**)** | 1.098 | .122 | | 9.013 | .000 | |
| Physical factors | | | | | | |
| Having eye disease | 1.788 | .131 | 1.063 | 13.671 | .000 | .116 |
| Having osteoarthritis | 1.498 | .285 | .955 | 5.261 | .000 | -.233 |
| **มีปัญหาระบบทางเดินปัสสาวะ** | 2.723 | .221 | 1.588 | 12.324 | .000 | -.260 |
| bathroom at night | 2.034 | .234 | 1.236 | 8.692 | .000 | -.020 |
| congenital disease | 2.494 | .218 | 1.638 | 11.419 | .000 | -.203 |
| Regular hospital admission | 2.434 | .228 | 1.494 | 10.679 | .000 | .107 |

Table **2** shows the results of the analysis of behavioral factors that contribute to fall accidents in elderly people living alone

| **Initial variable** | **B** | **SE** | **β** | **T** | **P** | **Zero-order** |
|---|---|---|---|---|---|---|
| **(**Constant**)** | 1.098 | .122 | | 9.013 | .000 | |
| Behavioral factors | | | | | | |
| Taking medicine to treat chronic illnesses | 5.224 | .436 | 2.959 | 11.973 | .000 | .071 |
| Having health problems after using alcoholic beverages | 16.769 | 1.451 | 4.014 | 11.558 | .000 | .109 |
| lack of regular exercise | 8.719 | .740 | 5.350 | 11.788 | .000 | -.038 |
| Wearing inappropriate shoes | 6.371 | .614 | 2.723 | 10.371 | .000 | .272 |
| Wearing inappropriate clothing | 5.436 | .474 | 3.574 | 11.472 | .000 | -.039 |

Table **3** shows the results of the analysis of environmental factors that result in falls and falls among elderly people living alone

| **Initial variable** | **B** | **SE** | **β** | **T** | **P** | **Zero-order** |
|---|---|---|---|---|---|---|
| **(**Constant**)** | 1.098 | .122 | | 9.013 | .000 | |
| Environmental factors | | | | | | |
| Regular use of stairs | 5.192 | .439 | 3.354 | 11.818 | .000 | .257 |
| Having a two-story house | 7.092 | .664 | 4.571 | 10.674 | .000 | -.049 |
| Having different levels of folk | 3.677 | .254 | 2.296 | 14.471 | .000 | .057 |
| Having a light switch that turns on and off is not near the bed. | 4.647 | .362 | 2.363 | 12.835 | .000 | .021 |

Table 4 shows the results of the analysis of economic and social factors that result in falls among elderly people living alone

| Initial variable | B | SE | **β** | T | P | Zero-order |
|---|---|---|---|---|---|---|
| **(**Constant**)** | 1.098 | .122 | | 9.013 | .000 | |
| Economic and social factors | | | | | | |
| Donating and supporting things to the community | 13.043 | .992 | 6.633 | 13.150 | .000 | -.057 |
| Donating and supporting things to the community | 3.167 | .300 | 1.934 | 10.552 | .000 | -.126 |
| Receiving home visits from health services | 5.982 | .455 | 3.916 | 13.157 | .000 | -.011 |
| Using the health service unit near your home | 7.670 | .561 | 5.039 | 13.661 | .000 | .038 |

Table **5** shows the results of the analysis of caregiver factors that contribute to fall accidents among elderly people living alone.

| **Initial variable** | **B** | **SE** | **β** | **T** | **P** | **Zero-order** |
|---|---|---|---|---|---|---|
| **(**Constant**)** | 1.098 | .122 | | 9.013 | .000 | |
| Caregiver factors | | | | | | |
| living with grandchildren | 9.808 | .894 | 6.019 | 10.968 | .000 | .102 |
| To live alone | 1.770 | .172 | 1.002 | 10.299 | .000 | .054 |

*p-value < 0.05, Constant = 1.098, R square = 0.971, Adjusted $R^2$ = 0.951, F = 47.43

**Summary of research results**

Study the factors affecting fall accidents in elderly people who live alone.It was found that the majority of personal data were female, 455 people, accounting for 57.70 percent, and male, 334 people, accounting for 42.30 percent. The majority of the sample was between 60 -69 years old, 401 people, accounting for 50.82 percent, followed by They were between the ages of 70 and 79, numbering 258 people, accounting for 32.69 percent. As for the status of the elderly, most were married and still living together, numbering 298 people, accounting for 37.80 percent, followed by widow status, 209 people, accounting for 26.50 percent, and Living together but not married, 157 people, accounting for 19.90 percent. As for the educational level, most of the elderly graduated from primary school and below, numbering 657 people, accounting for 83.30 percent, followed by not attending school and graduating from secondary school. No. 59,52 people, accounting for 7.50, 6.59 percent, respectively. For the majority of elderly people, the income is less than 10,000 baht, 632 people, accounting for 80.10 percent, followed by elderly people with no income, 89 people, accounting for 80.10 percent. 11.28 As for the residences of the elderly, the majority are their own homes, 679 people, accounting for 86.10 percent, followed by living with their children and grandchildren, 88 people, accounting for 11.20 percent. The type of homes of the majority of the elderly are two-story houses, 394 people. accounting for 49.90 percent, followed by single-story houses, 371 people, accounting for 47.00 percent. Most of the elderly have congenital diseases, 443 people, accounting for 56.10 percent, and have experienced falls and falls, 175 people, accounting for a hundred. 22.17 each

Displays the results of stepwise multiple regression analysis. It was found that factors that contribute

to accidental falls in elderly people who live alone Phetchaburi Province has a total of 5 main factors and 24 sub-factors, consisting of:

1. Main physical factors The physical sub-factor is eye disease ($p = 0.001$, $\beta = 1.063$), the physical sub-factor is osteoarthritis ($p = 0.001$, $\beta = 0.955$), the physical sub-factor is intellectual, urinary system ($p = 0.001$, $\beta = 1.588$) Physical sub-factor of frequently going to the bathroom at night ($p = 0.001$, $\beta = 1.236$). Physical sub-factor of being sick with congenital disease ($p = 0.001$, $\beta = 1.638$). Physical factor of being hospitalized. regularly ($p = 0.001$, $\beta = 1.494$)

2. Main behavioral factors The behavioral factor of taking medicine to treat chronic illnesses ($p = 0.001$, $\beta = 2.959$), the sub-factor of the behavior of having health problems after using alcoholic beverages ($p = 0.001$, $\beta = 4.014$), the sub-factor of the behavior of lacking alcohol ($p = 0.001$, $\beta = 4.014$). Regular exercise ($p = 0.001$, $\beta = 5.350$), sub-factor of inappropriate shoe-wearing behavior ($p = 0.001$, $\beta = 2.723$), sub-factor of inappropriate clothing-wearing behavior ($p = 0.001$ , $\beta = 3.574$)

3. Main environmental factors The environmental sub-factor is using stairs regularly ($p = 0.001$, $\beta = 3.354$). The environmental sub-factor is having a two-story house ($p = 0.001$, $\beta = 4.571$). The environmental sub-factor is having a different-level house ($p = 0.001$, $\beta = 2.296$) Environmental subfactor, having the light switch not turned on or off near the bed ($p = 0.001$, $\beta = 2.363$)

4. Main economic and social factors Economic and social sub-factors: Recognition from society ($p = 0.001$, $\beta = 6.633$) Economic and social factors Being able to donate and support things to the community ($p = 0.001$, $\beta = 1.934$) economic and social sub-factors Receiving a home visit from a health service unit ($p = 0.001$, $\beta = 3.916$). Economic and social sub-factors Using the health service unit near home ($p = 0.001$, $\beta = 5.039$ )

5. Main factors in caregivers The sub-factor of caregivers being with their children and grandchildren ($p = 0.001$, $\beta = 6.019$) and the sub-factor of caregivers being alone ($p = 0.001$, $\beta = 1.002$) can participate in predicting factors that result in accidents. Falls in elderly people living alone were 95.1% (Adjusted $R2 = 0.951$), with statistical significance at the 0.05 level

## 4. Conclusion and future scope

Summary of research results Study of factors affecting fall accidents in elderly people who live alone. It was found that factors affecting the incidence of falls in elderly people who live alone include:

1. Physical factors It is the inconvenience of movement that results from aging and physical deterioration in the elderly. Including having a congenital disease that requires taking medicine continuously For the majority of elderly people's vision is corrected by using glasses, and some have had cataract surgery and there is no hindrance to their vision. This is consistent with the effectiveness of a multifactorial fall prevention program in elderly people living in the community.[3] It was found that a multifactorial fall prevention program can be used to promote and prevent falls in elderly people. Elderly people who can effectively It can increase the level of knowledge and behavior to prevent falls. ability to balance and physical ability and can reduce the fear of falling for the elderly. Therefore, health service providers working in the community can apply the program to conduct activities to promote self-care ability to prevent falls for the elderly. Elderly people who are at risk of falling both at home and in the community and in line with the [4] Preventing falls for elderly people in the community: the role of nurses and health care at home, falls. of the elderly is a public health problem that is increasingly common due to the increase in the number of elderly people. Falls are one of the causes. Cause injury, disability, or death. The causes of falls among elderly people in the community have two important factors: factors within the person which includes physical factors and psychological factors and factors outside the person, such as areas that appear unsafe inappropriate lighting etc. Falls affect the health of the elderly physically, mentally, and socially. They also affect the economy,

especially the health service system.

2. Behavioral factors It is the use of medicine for the continuous treatment of congenital disease. Which has some side effects but not severe ones. Most were only slightly dizzy. As for exercise, it was found that most elderly people rarely exercise according to their exercise plans. There are only walks around the house some days. From the main behavioral aspects, it was found to be consistent with the work of M. K. Karlsson & H. Magnusson & T. von Schewelov & B. E. Rosengren. The research results found that Risk factors affecting falls include: Personal factors include Using medicine from congenital disease and Development of a model for preventing falls for the elderly with community participation. It was found that the collaborative fall prevention model was effective.[5] It arises from important communication channels through community forums and information transfer through village health volunteers (VHVs) under a friendly atmosphere and enthusiastic teamwork, consisting of 1) situation analysis and vision creation 2 ) multi-factor risk management, 3) continuous evaluation of processes and campaigns, and 4) summarizing results. The results of using the prevention model, the sample group has the ability to maintain stability and preventive behavior. Statistically significantly improved

3. Environmental factors It was found that most elderly people have problems with floors and stairs that are at risk of falls. Including having a 2-story house makes it more risky when walking up the stairs. From the main environmental factors, it was found that the provision of a physical environment for the elderly, Baan Yim for the People Project, Phase 3, Department of Public Works, Bangkok. (Recommendations of the Physical Environment for Elderly People in the 3rd. Phase of Smiling Houses for Citizen Project, Department of Public Work, Bangkok, 2017)[6] The results of the research found that the principles of designing housing for the elderly (Aging-In-Place Design) important things include convenience and comfort in use. Easy to understand in use, investment, and most importantly: Safety by dividing the elderly into 2 large groups: the elderly who can do activities by themselves but are under supervision and the elderly group Can't help myself

4. Economic and social factors It was found that most of the elderly still work to earn money to spend in their daily lives. Most of them earn less than 10,000 baht per month. Most of their work is done as a job copying leaves from people sitting at home. Use few movements But the problem is that sitting for a long time causes dizziness when standing up often. From the main economic and social factors, it was found to be consistent with Model for preventing and reducing violence from accidents. in the elderly of Mae Sariang Subdistrict Municipality Mae Sariang District Mae Hong Son Province[7] found that The community has two types of management: (1) prevention and reduction of violence from accidents; in the elderly by the elderly and their families, and (2) prevention and reduction of violence from accidents in the elderly by the community, consisting of 3 parts: prevention and reduction of violence by local administrative organizations Community organization groups and health service units

5. Caregiver factors: It was found that most elderly people live with their children and grandchildren. There will be periods of time spent alone at home sometimes because the children and grandchildren go out to do business, but it will not last for 3 to 4 hours. As for planning assistance, it is found that the elderly and their families have no other plans than Asking for help from 1669 in an emergency From the main factors of caregivers, it was found to be consistent with The experience of living alone among the elderly: a qualitative study.[8] It was found that there are 2 main methods that enable the elderly to live alone: 1) relying on themselves as much as possible, and 2) relying on others as necessary. Relying on yourself as much as possible can be done by adapting to changes and retention for living the same

life Relying on others as necessary This can be done by requesting assistance. acceptance of testimony Unsolicited help and hiring Suggestions.

1. A fall and fall accident prevention committee should be established at the community level in order to control, supervise, and monitor the implementation of fall and fall accident prevention at the community level.

2. Subdistrict Health Promoting Hospital There should be an evaluation and screening for the risk of falls and falls twice a year, along with defining a low risk group. Intermediate and advanced levels for easy following. and to make the elderly aware of their own risk level

3. Prepare a manual/booklet to track the risk of accidents and falls for each person. Contains personal information Risk level for accidents and falls Guidelines for behavior in preventing accidents and falls and guidelines for asking for help in the event of an emergency.

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