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Original Article

Fear of Falling and Related Factors in a Community-based Study of People 60 Years and Older in Thailand☆

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SUMMARY

Background: This cross-sectional study was conducted to examine prevalence of fear of falling and their association with measures of health conditions, functional impairment and activities of daily living.
Methods: The data were collected from 386 Thai community-dwelling adults aged 60 or older during July–December 2010. Fear of falling was measured with a single-item instrument. Participants were asked about basic activities of daily living by using the modified Barthel ADL and they were assessed functional capacities including a balance test and visual acuity test. The data of chronic diseases and the number of medications were collected by reviewing the patients' medical records.
Results: Half of the older adults reported a fear of falling sometime, and 36% expressed that they very often had a fear of falling. Fear of falling had highly significant relationships with perceived general health, visual impairment, mobility impairment, balance impairment, stroke, hypertension, antihypertensive drug, number of medications, history of falls, and activities of daily living. In the multivariate analysis, factors associated with fear of falling were balance impairment (OR 3.14; 95% CI 1.74–5.67, $P < 0.001$), illiteracy (OR 2.18; 95% CI 1.08–4.41), female gender (OR 1.87; 95% CI 1.08–3.23), and poor general health perception (OR 1.77; 95% CI 1.11–2.84).
Conclusion: Identifying the risk factors of fear of falling can help health care providers developing a screening program and may be useful in developing multidimensional strategies which focus on improving balance performance, literacy, activities of daily living and health perception.

1. Introduction

Fear of falling is a problem that may be caused by a wide variety of physiological, psychological and environmental factors. Fear of falling is often a psychological consequence of a fall, but it may also affect non-fallers.[1] Fear of falling defined as a lack of self-confidence that one may avoid falls while doing everyday activities[2] and excessive fear of falling may have serious consequences for older persons such as falling, isolation and decreased quality of life.[3,4] The prevalence rate of fear of falling is between 12% and 65% in older people who have never fallen[5,6] and between 29% and 92% in those who have fallen.[5,7] The prevalence rate of fear of falling appeared to increase in Asian older adults. In addition, fear of falling tends to occur more often in women than men, and advanced aged, illness and older adults who have fallen in the past year.[8,9] Also, among elders hospitalized or living in nursing homes, the incidence of fear of falling increases.[10]

There have been a number of studies identifying particular factors that are related to fear of falling. Major risk factors related to a variety of physical, psychological and functional changes that occur in older adults. Several studies in the community suggested that advanced age, female, history of falls, gait and balance impairment, and medication use, history of falls, activity of daily living increased the risk of fear of falling.[6,8,9,11,12] Although fear of falling is a serious problem among older adults, there is a little knowledge about the prevalence and correlated factors among people 60 years and older in Thailand; even though, older adults as a majority group need to access quality health services and socio-economical supports from the government. Restrictive health services and socio-economical supports also are associated with

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greater fear of falling. This cross-sectional study was conducted to examine prevalence of fear of falling and their association with measures of health conditions, functional impairment and activities of daily living. Identifying the risk factors of fear of falling can help health care providers develop a screening program, promoting awareness and may be useful in developing multidimensional strategies that reduce fear of falling.

2. Materials and methods

2.1. Samples and recruitments

The target population was older adults aged 60 years and over who lived in rural communities. A simple random sampling method was used to recruit community-dwelling adults aged 60 years and older from a province of Southern Thailand. The data were collected from 386 participants during July–December 2010. This study was approved by the Committee on Human Rights related to Researches involving Human Subjects, Walailak University (Number 35/2009).

2.2. Measurements

Fear of falling was measured with a single-item instrument. The questionnaire assessed fear of falling (Are you afraid/fear of falling? How afraid/fear you are that you will fall?), and participants indicated the frequency. All the participants were also questioned in relation to the occurrence of falls during the previous years. A fall was defined as "an episode of unintentionally coming to rest on the ground or lower surface that was not the result of dizziness, fainting, sustaining a violent blow, loss of consciousness, or other overwhelming external factor".[4]

Participants were asked about basic activities of daily living by using the modified Barthel ADL and they were assessed functional capacities including a balance test, mobility and visual acuity test. For balance impairment, the participant were asked to perform full tandem tested balance. It was dichotomized as participant able to perform full tandem for ten seconds versus unable to perform full tandem for ten seconds.[13,14] Mobility was classified into 4 groups: a) bedbound; b) homebound; c) able to walk outside with assistive device or physical assistance from others; d) able to walk outside independently. Visual impairment is impaired vision acuity worse than 6/12 which was tested using a Snellen chart.[15,16] The data of chronic diseases and the number of medications were collected by reviewing the patients' medical records. Chronic diseases affecting balance system were stroke, Parkinson's disease, and hypertension. Fall-associated medication was assessed in terms of number and types of medications: sedatives/hypnotics, psychotropics, antihypertensives, and diuretics.

2.3. Data collection

The researchers made an appointment with participants and gave information about the study objectives, expected research outcomes, the data collection processes, as well as the subject's rights to refuse or participate in the study. Participants were assured that the data would be kept confidentially and the results would be reported as group data. If some data adversely affecting subject's health was identified during data collection, the researcher promptly responded to each individual. In addition to being given a description of the study, the participants were assured that his/her participation or nonparticipation would not have effects on him/her. Participants were interviewed about sociodemographic data, health conditions, activities of daily living, and history of falls. Following this interview, examination of visual acuity, mobility and balance were given. Total time spent in giving instruction, interviewing, and giving examination were about 45–60 min per participant. The data of chronic diseases and the number of medications were collected by reviewing the patients' medical records.

2.4. Data analysis

Data was analyzed with SPSS for Windows version 17.0 (SPSS, Inc. Chicago, IL). Descriptive statistics were performed to describe the baseline demographic data. Chi-square tests were used to find the associations between the demographic data, daily activities, health conditions, functional impairment and participants with and without fear of falling. Bivariate logistic regression analyses were then used to study the association between each factors and participants with and without fear of falling. The variables revealing significance in the bivariate regression were put into the multivariate model. Odd ratios and the corresponding 95% confidence intervals were calculated for bivariate and multivariate logistic regression model. Statistical significance was defined as a P value of <0.05.

3. Results

The sample comprised of 386 community-dwelling older adults, with the mean age of 71.11 ± 7.73 years, and 16.6% were aged 80 years and older. Data showed that most of the individuals were female (64.5%), married (63.7%), had a literate education (86%), had financial problem sometimes (48.4%), and lived with spouse and/or adult children (79.1%). There were significant differences among age, gender, and education between the non-fear of falling and fear of falling groups ($P < 0.05$) (Table 1).

Regarding the fear of falling prevalence rates, 50% of the older adults' individual reported fear of falling sometime, and 36% expressed that they were often to very often fear of falling. Only 14% of the participants reported no fear of falling (Table 2). All of daily activities including eating, bathing, dressing, toileting, and transferring had a significant differences between the non-fear of falling and fear of falling groups ($P < 0.01$) (Table 3). Fear of falling had highly significant relationships with perceived general health, visual impairment, mobility impairment, balance impairment, stroke, hypertension, antihypertensive drug, number of medication, history of falls, and activities of daily living (Table 4).

Logistic regression analyses showed that participants who were female, illiterate and poor general health perception had more than two times likely to have a fear of falling as those male, literate, and good general health perception ($P < 0.05$). In addition, participants with balance impairments were over more three times likely to have a fear of falling than those without balance impairments ($P < 0.001$), as shown in Table 5.

4. Discussion

This is one of the few studies to investigate the prevalence and factors associated with fear of falling among community-dwelling older adults in Thailand. The findings confirm those from other cross-sectional studies,[17–23] longitudinal studies[24–26] and systematic reviews.[9,27] The prevalence rate of fear of falling is comparable to the range of prior studies. More than 50% of Asian older adults have a fear of falling and the prevalence rates are higher than those in Western older adults.[19–22] It may indicate that environment and cultural backgrounds affect the prevalence rate of fear of falling. The Thai-style house which has high-steep stairs was an important risk factor of falls in a national study.[28,29]