ORIGINAL ARTICLE

PREVALENCE OF FALLS AMONG OLDER PEOPLE ATTENDING A PRIMARY CARE CLINIC IN KUALA LUMPUR, MALAYSIA

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ABSTRACT

Introduction : The aim of this study was to determine the prevalence and the pattern of falls in community dwelling older people attending a primary care clinic in Kuala Lumpur, Malaysia.

Methods : A cross sectional study was conducted in an urban primary care clinic. Participants aged 60 years and older were included in the study. A structured questionnaire, assessing socio-demographic variables, medical and falls history was administered by one investigator over a 3-month period in 2004.

Results : A total of 151 respondents participated in this study with a response rate of 72%. The prevalence of falls was 47.0% over the previous 12-months period. Fifty-seven percent reported experiencing recurrent falls. Majority (61%) of falls occurred in the home and the two most common places were the bathroom (27%) and stairs (27%). Sixty-one percent of older people who fell, sustained an injury and most sought medical attention.

Conclusion : In conclusion, falls are common amongst older people attending this primary care clinic. It occurred commonly in the home in the bathroom and near stairs. However, a larger local community study is warranted to determine the prevalence and risk factors for falls in Malaysia.

Keywords : Falls, Older People, Primary Care, Malaysia

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INTRODUCTION

Community dwelling older people are prone to fall and this can lead to injury and even death. [1, 2] It has been reported that up to one third of community dwelling older people (≥65 years) fell in their own home in any one year and this risk increases with age. [1, 2] In another study, the falls-induced injury incidence rate were high at 1398 per 100000 people in 1995. [3] For every ten falls, one fall can result in injuries such as subdural haematomas, fractures or soft tissue injuries. [4] The complication of falls is costly not only to the individual with increased morbidity but also to the community. It has been estimated that direct medical costs from falls related injuries in community dwelling older people in the United States of America were approximately between six to eight billion dollars per year.[5]

The causes of falls are often multiple and are often as a result of complex interactions between individual and environmental factors. [4] Multidisciplinary evaluation can often reveal treatable factors and addressing these may reduce an individual's risk of falling. Individual risk is influenced by age, co-morbid medical illnesses, medications, impairment of senses (i.e. proprioception, vision), mood, cognition, strength and mobility.[4] Changes to the environment with regards to surface modification (e.g. non-slip bathmats), improved lighting, railings and walking aids are also important.

A study in Singapore found that approximately 17% of community dwelling older people had fallen and of these one-third had fallen recurrently in that 12-month period. [6] In that study, age, medication use and impairment of physical function were associated with increased falls risk whilst exercise was associated with a reduced risk of falling. To the best of our knowledge, there are no Malaysian prevalence figures for falls in community dwelling older people. It is very likely that similar to Singapore, falls amongst community dwelling older people in Malaysia is common. The Malaysian population is ageing and so falls rates are likely to increase. [7,8,9] The extent of this syndrome must be defined and management strategies should be put in place within the Malaysian primary and public health care systems.

This study was conducted to determine the prevalence and the pattern of falls amongst a group of community dwelling older people presenting to a primary care clinic at an urban hospital in Malaysia.

MATERIAL AND METHODS

This study was conducted in an urban, tertiary, teaching hospital-based primary care clinic in Kuala Lumpur, Malaysia between March and May 2004. A universal sampling method was used, where all patients aged 60 years and above who attended the clinic were screened by the clinic's triage staff. Those who were mobile and lived in the community were invited to participate in the study. The following people were excluded: individuals with severe acute illness on the day of interview, those with dysphasia, dysarthria, cognitive impairment or severe psychiatric disorders. Cognitive impairment was screened using the Elderly Cognitive Assessment Questionnaire (ECAQ).[10] Subjects scoring less than seven were considered as cognitively impaired and excluded from this study. Written informed consent was obtained from each participant. The hospital's Medical Research Ethics Committee approved this study.

In this study, fall was defined as coming to rest on the ground on the same level or from one level to another from slipping, tripping or stumbling (codes W01, W17- 18)[11]over the preceding 12 months. In addition, participants were classified as having fallen even when associated with a loss of consciousness. [12] However, falls associated with acute paralysis, seizures, excess alcohol intake, or overwhelming external forces were excluded.

All participants were interviewed face-to-face using a pretested structured questionnaire to record information about socio-demographic details, medical and drug history and circumstances surrounding falls.

Statistical Analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) for windows version 14. Cross tabulation (χ^2 tests) for categorical variables and unpaired Student's *t* tests for equality of means for continuous variables were used. A *p* value of less than 0.05 was considered significant.

RESULTS

A total of 151 of older people participated in the study with a response rate of 72%. Forty-seven percent of the participants had

a history of at least one fall over the preceding 12 months. It was observed that there was no significant difference between those with history of fall and those without with regards to their socio-demographic variables, physical activity, co-morbidities and medication use as shown in table 1 and 2.

Table 1: The sociodemographic characteristics of the respondents

Characteristic of studied group	Those who fall (N = 71)	Those who did not fall (N = 80)	*p* value
Age : mean ± SD (years)	69.77 ± 6.010	70.04 ± 5.658	0.782*
Sex			
Males	20 (39.2%)	31 (60.8%)	0.170^{+}
Females	51 (51.0%)	49 (49 %)	
Ethnic group			
Malay	20 (48.8%)	21 (51.2%)	0.096^{+}
Chinese	27 (40.3%)	40 (59.7%)	
Indian	23 (54.8%)	19 (45.2%)	
Married	42 (46.7 %)	48 (53.3 %)	0.211^{+}
Not married	29 (47.5%)	32 (52.5%)	
Lives alone	8 (61.5 %)	5 (38.5 %)	0.272^{+}
Lives with family	63 (45.7 %)	75 (54.3 %)	

NB. * unpaired Student's *t* tests, $^{+}\chi^2$ tests, SD = standard deviation

Table 2: Comparison of older people with history of falls and without falls

Independent variables studied	Those who fall (N = 71)	Those who did not fall (N = 80)	*p* value
Home with stairs^{+}	38 (51.4 %)	36 (48.6 %)	0.296^{+}
Home without stairs	33 (42.9 %)	44 (57.1 %)	
Does regular exercise	29 (50.0 %)	29 (50.0 %)	0.562^{+}
No regular exercise	42 (45.2 %)	51(54.8 %)	
Has hypertension	51 (44.7%)	63 (55.3 %)	0.324^{+}
No hypertension	20 (40.0%)	30 (60.0%)	
Has diabetes	33 (52.4%)	30 (47.6%)	0.264^{+}
No diabetes	38 (43.1%)	50 (56.9)	
Has stroke	3(100.0%)	0 (0.0%)	0.102‡
No stroke	68 (45.9%)	80 (100.0%)	
Has arthritis of lower limbs	24 (46.2%)	28 (53.8 %)	0.877^{+}
No arthritis of lower limbs	47 (47.5%)	52 (52.5%)	
≥ 1 Co morbid conditions	61 (48.4%)	65 (51.6%)	0.514^{+}
No co morbid condition	10 (40.0%)	15 (60.0%)	
Use ≥ 4 types medications	20 (55.6 %)	16 (44.4 %)	0.240^{+}
Use < 4 types medications	51 (44.3 %)	64 (55.7 %)	

NB. * unpaired Student's *t* tests, $^{+}\chi^2$ tests, ‡ Fischer's exact test, SD = standard deviation

Table 3 describes the pattern of falls among older people who fell. Forty-one (57.7%) of the 71 older people who fell, had fallen more than once in previous 12 months. Forty-three (60.6%) of the 71 who had fall, had fallen in their homes. Most falls occurred near the stairs or in the bathroom. The most common reason given for falling was slipping. Among those who fell, 43 (60.6%) suffered some form of injuries. Almost 61% of the fallers required medical attention. Majority (80.8%) received outpatient treatment and 5 (19.2%) were hospitalised after suffering a fracture. Only 11.8% who had an injury that affected their activities of daily livings.

Table 3: The pattern of falls among older people who fell in previous 12 months (N = 71)

Pattern of falls	Frequency (%)
Fall more than once in previous 12 months	41 (57.7)
Location of falls	
Inside the house	43 (60.6)
Outside the house	16 (22.5)
Both inside and outside the house	12 (16.9)
Location of falls	
Stairs	14 (19.7)
Bathroom	15 (21.1)
Living room	10 (14.1)
Kitchen	9 (12.7)
Bedroom	7 (9.9)
More than one location	16 (22.5)
Reason for falls	
Slipped	26 (36.6)
Tripped	20 (28.2)
Hit object	8 (11.3)
Felt dizzy	6 (8.5)
Do not know	1 (1.4)
More than one reason	10 (14.0)
Suffer some form of injuries	43 (60.6)

DISCUSSION

Almost half of the patients presenting to this primary care clinic had fallen in the preceding 12 months and almost 60% of these fallers had had more than one fall. Most falls occurred at home and the most common places were at the stairs and in the bathroom. Falling often resulted in injuries (60.6%) and many had sought medical attention. Therefore, falls in older people are associated with significant morbidity and health care costs. This study provides for the first time descriptive information about the nature of falls in older people in Malaysia.

The prevalence of falls seen in this study was much higher (47.0%) than those seen in other studies performed overseas (17.2 - 45%).[1,2,6,13] In a Korean study looking at older people presenting to community health centres, a slightly lower prevalence rate of 42% was seen.[13] This study was similar in that it evaluated an Asian population presenting to community health centres and such population groups may be frailer. In contrast to this, a larger Australian community study of older individuals found a much lower prevalence rate of 29%.[14] The differences in the falls prevalence in this study compared to other studies could be due to that this present study population was from an outpatient clinic in a tertiary centre and they are

patients attending the clinic with health related problems. In addition, in this study many falls were recurrent. Majority of the participants in this study had chronic illnesses and using multiple prescriptions as compared to those in the other studies who were healthier community-dwelling individuals; hence it increases their propensity for falling.

The majority of falls occurred inside homes near the stairs or in the bathroom as documented by other studies. [1,2,15] In a Singaporean study, the investigators noted that most subjects with recurrent falls fell in their homes. [6] In this same study, it was reported that the most common places in the home for falls were the stairs and bathroom. It is likely that the need to sit and then stand and walk on uneven surfaces is some of the reasons behind these observations. Reduced lighting in these areas may also contribute somewhat to an increased risk of falls. [16]

Similar to other studies done overseas, falls as a result of slips and trips were common in this study. [1, 12] Among those who fell, 43 (60.6 %) suffered injuries, and of these, almost two thirds required medical attention. Of those with injuries, almost one fifth sustained fractures and required hospitalisation. Only 11% of older patients presenting to this clinic reported impairments in their activities of daily living (such as mobility, washing, grooming, toileting and feeding) as a result of the fall. This is a surprisingly low value given the current believe that falls are a major cause of disability.[17] The most likely reason for this is that most people attending this clinic had minor fractures as a result of their falls and it is likely that people with more severe fractures were not seen.

In contrast to other studies, living alone was not found to be a factor associated with increased risk of falling in this study. For instance, in one study, older persons who were home alone most of the day were at increased risk of recurrent falls. [17] The most likely reason for our discrepant finding was that most patients presenting to this clinic lived with their spouse or children. The reason for not staying alone could be due to the extended family structure, financial reasons and most of the respondents were still married. However, it should also be noted that frail older people living alone are unlikely to present to this urban clinic. The pattern of falls in the present study is similar to that seen in other countries. The observed trend in the patterns of falls provides information for health care providers to focus on the falls prevention.

In conclusion, the prevalence of falls among older people in this study was high. Recurrent falls were common and many falls were associated with injuries requiring medical attention. Falls commonly occurred in the home as a result of trips and slips in the bathroom and at the stairs. This study revealed that the nature of falls in these older urban Malaysians is not so different to those seen in other western countries. However, there may be local and ethnic specific factors contributing to falls risk in Malaysians and this needs to be evaluated for in a larger community based study.

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