Fear of Falling and its Relationship with Anxiety and Depression Among Older People in Malaysia

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Abstract

Fear of falling (FOF) among older people is often linked to various risk factors, including anxiety and depression. Therefore, this study aimed to examine the prevalence of fear of falling and determine the association between anxiety and depression on one hand and FOF on the other among older people. A cross-sectional study was conducted among 241 older people in the community of Kuantan, Pahang. A four-part questionnaire was used for data collection, consisting of sociodemographic background, anxiety, depression and FOF. The data was analysed via SPSS version 27.0, using descriptive and inferential data analysis. Of the 241 participants, 56% reported a high prevalence of FOF, 40% reported moderate FOF and 4% showed low FOF. A significant association was found between anxiety (p <0.0001) and depression (p= 0.007) with FOF. Further investigation and preventive measures should be taken into consideration to prevent this situation from affecting the activities of daily living of older people.

Keywords: *Anxiety, Depression, Fear of Falling, Older People, Malaysia*

INTRODUCTION

Older people often suffer from falls due to their declining physical capabilities over time (Su et al., 2021). Most happen between midnight and noon, possibly due to nighttime toileting and increased morning activity (Ministry of Health Malaysia, 2019). In the Malaysian community, it was revealed that one of every six older Malaysians had experienced at least one fall within the previous 12 months (Sahril et al., 2020).

Older people who have experienced falls might develop a sequence of fear of falling (FOF), which has been categorised as a psychological and behavioural phenomenon commonly associated with older people (Pena et al., 2019; Turhan Damar & Demir Barutcu, 2022). FOF is defined as a cautious concern about falling that ultimately results in activities associated with daily life being restricted (Drummond et al., 2020). Based on 46 studies involving older populations worldwide, the prevalence of FOF among older people in the community ranges from 25.9% to 45.7% (MacKay et al., 2021). This wide range of prevalence might be due to the diverse study populations in terms of cultural, social, economic, and environmental factors because certain communities might have better infrastructure, better access to healthcare, or support systems that lower FOF, while others might not have these resources (MacKay et al., 2021).

FOF leads to activity restriction, loss of confidence, and depression, and it notably increases the risk of falls (Lavedán et al., 2018; Saidani et al., 2022). The presence of FOF in older people could lead to serious psychological, medical, and social changes, including reduced functional activity, loss of autonomy and independence in daily activities, limited social engagement, as well as feelings of weakness and insecurity (Ivanović & Trgovčević, 2018). Depression, a common mental health problem among various age groups, including older people, was associated with FOF (Badrasawi et al., 2022; Gambaro et al., 2022; S. Lee et al., 2018). The decreased physical activity and social engagement resulting from depression in older people may impair their functional abilities, thereby increasing the risk of developing FOF (Basharkhah et al., 2020; Saidani et al., 2022). FOF has also been linked to reduced life expectancy, anxiety, and decreased ability to perform daily tasks (Birhanie et al., 2021; Larina et al., 2021). Difficulties in carrying out activities may intensify feelings

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of anxiety about future tasks, subsequently contributing to the experience of FOF during such activities (Adamczewska & Nyman, 2018).

Limited studies have focused on the association between FOF, anxiety, and depression among older people. A previous study on this topic involved hospitalised older people, with significant associations found between anxiety, depression, and FOF (Turhan Damar & Demir Barutcu, 2022). The same significant associations were also found among married older people living in the community (Rakhshani et al., 2019). Given the lack of studies regarding FOF among older people living in the community, the present study aimed to investigate its prevalence and its association with anxiety and depression. Therefore, the study aimed to assess the prevalence of fear of falling and determine the association between anxiety, depression, and fear of falling among older people living in the community.

METHODS

Study Design

A cross-sectional study was conducted in Kuantan, Malaysia between March and May 2022.

Participants

The study used a convenience sampling method involving 241 participants. The inclusion criteria were individuals aged 60 years and above. Individuals living outside of Kuantan, Pahang, as well as those with intellectual disorders such as dementia or Alzheimer's disease were excluded. The sample size was determined using Raosoft software. Considering the estimated total population of older people in Kuantan, Pahang, in 2018, which was approximately 34,598, a sample of 245 participants was deemed necessary for the study.

Data Collection

The questionnaire was distributed to the community of older people in Kuantan using two methods, an online questionnaire and face-to-face interviews. The questionnaire was issued to the village head of Kampung Pandan 2, Kuantan, who shared it among the residents through a WhatsApp group. This approach allowed the researchers to gather data before directly approaching the subjects.

Hand-distributed questionnaires were also used, with face-to-face interviews used to obtain the information. Participants who met the inclusion criteria and were willing to participate were given the participant information sheet, consent form, and questionnaire. The participant information sheet included a brief description of the study's objectives, the significance of the research, and the inclusion criteria. Before answering the questions, the participants provided informed consent, which was indicated by their ticking a statement to agree to participate in the study. Where older individuals were unable to respond to the questionnaire on their own, they were assisted by their caregivers and the researchers.

Research Instrument

The questionnaire used for this study consisted of four parts. Part A comprised sociodemographic information about the participants. The items included gender, age, educational level, marital status, and previous history of falling. Part B included the Geriatric Anxiety Inventory (GAI), a scale consisting of 20 "Yes or No" items designed to assess common anxiety symptoms (Pachana et al., 2007). The GAI has demonstrated good internal consistency, with a Cronbach's Alpha of 0.904 among older people. The scoring system for this questionnaire ranged from 0 (minimum) to 20 (maximum). Anxiety levels were measured using 20 items involving questions, whose total score ranged from 0 to 20. The subjects were then categorised into groups, whereby participants who scored >8 were categorised as people with high levels of anxiety and those who scored <8 categorised as having low levels of anxiety.

Part C comprised the 15-item Depression Scale (M-GDS-15) (Ewe & Che Ismail, 2000), with participants responding "yes" or "no" to each question. The M-GDS-15 has exhibited good psychometric properties, with a Cronbach's Alpha coefficient of 0.723. The total score for these items ranged from 0 to 15. The depression level was assessed using 15 questions with a total score range of 0 to 15, after which depression was classified

as normal, mild, moderate, or high, depending on the score. Part D consisted of the Fear of Falling Scale (FES-I), which comprised 16 questions. The FES-I has demonstrated good reliability and validity, with a Cronbach's Alpha of 0.841. The items were scored on a scale of 1=*not all concerned*, 2=*somewhat concerned*, 3=*fairly concerned*, and 4=*very concerned*. The scores were then totalled, resulting in overall scores ranging from 16 to 64. The questionnaire was translated into Malay and English using back-translation, which is a quality control approach that ensures the clarity and accuracy of a translated text (Maneesriwongul & Dixon, 2004). The authors who originally developed the study instrument granted permission to use the scales.

Data Analysis

The collected data underwent various processes, such as coding, before being entered into the software programme Statistical Package for Social Sciences (SPSS) version 27.0. Descriptive analysis was used to analyse categorical data such as gender, living status, and fear of falling, which is presented as frequency and percentage (%), while continuous data such as age is presented as mean and standard deviation (SD). Inferential statistics - the Fisher's Exact test - were used to analyse the association between anxiety and fear of falling, as well as the association between fear of falling and depression. The data is presented in Chi-squares values, degrees of freedom, p-values, frequency, and the percentage of each category.

Ethical Consideration

This study received ethical approval from the relevant university (IREC 2023-KON/NURF57). The aim of this study was explained to the participants, and it was emphasised that the data used was strictly for academic purposes. The subjects were informed that their participation was voluntary and that they could refuse to participate without incurring any consequences.

RESULTS

Sociodemographic Characteristics

Table 1 shows the sociodemographic background of the participants. The total number of participants in this study was 241 (N= 241), of which 130 were female (53.9%), while the remaining 111 were male (46.1%). The mean age was 68 years. Almost half of the participants (n=119) had attended secondary school (49.4%), 65 of the participants had graduated from university (27.0%), 47 participants had completed primary school (19.5%), and the remaining ten participants had no formal education (4.2%). Most participants were married (70.1%) and living with family members (82.2%). More than half of the participants had at least two previous histories of falling (51.5%), followed by those with three to five histories of falling (20.6%) and those with more than five histories of falling (19.9%). Of the participants, 55.2% reported having no diseases, whereas 44.8% indicated having diseases such as hypertension or diabetes. A significant number of older people (64.3%) were not currently taking medication, while the remainder had been prescribed medications such as labetalol, insulin, or simvastatin.

Table 1: The sociodemographic background of participants

Sociodemographic characteristics		No. (%)	Mean [Standard Deviation SD)]
Gender	Male	111 (46.1)	
	Female	130 (53.9)	
Age			68.0 (6)
Level of education	No formal education	10 (4.1)	
	Primary school	47 (19.5)	
	Secondary school	119 (49.4)	
	University	65 (27.0)	
Marital status	Single	10 (4.2)	
	Married	169 (70.1)	
	Divorced/Widowed	62 (25.7)	
Living arrangement	Living alone	43 (17.8)	
	Living with family members	198 (82.2)	
Previous history of fall	0-2	124 (51.5)	
	3-5	69 (28.6)	
	>5	48 (19.9)	
Health status	Have disease	108 (44.8)	
	No disease	133 (55.2)	

Medication intake	Have medication	86 (35.7)
	No medication	155 (64.3)

Prevalence Of Fear of Falling, Anxiety, And Depression

It was found that 135 participants (56%) reported high FOF, as demonstrated by a total FES-I score of between 28 and 64, followed by 97 participants (40.2%) who had moderate FOF and nine participants with low FOF (4%). Meanwhile, the majority of the participants (N=145) (60.2%) reported low levels of anxiety, followed by 96 participants (N=96) (39.8%) who developed high levels of anxiety. In terms of depression, most participants (44.0%) experienced mild depression, followed by 37.8% who reported normal depression and 17.4% who had moderate depression; the remaining participants (0.8%) had high depression. Table 2 illustrates the fear of falling distribution among the participants. The greatest proportion of concerns related to fear of falling, at 18.7% (classified as "very concerned"), was associated with walking up or down a slope, followed closely by 18.4% (also categorised as "very concerned"), which referred to concerns about going up or down stairs.

Table 2: Fear of falling

	Not at all concerned %	Somewhat concerned %	Fairly concerned %	Very concerned %
Cleaning the house (e.g. sweep, vacuum, dust)	36.7	37.1	16.7	9.6
Getting dressed or undressed	47.1	31.3	17.1	4.6
Preparing simple meals	44.6	34.6	14.6	6.3
Taking a bath or shower	40.8	26.7	21.3	11.3
Going to the shop	40.8	31.7	17.9	9.6
Getting in or out of a chair	17.0	46.5	22.8	13.7
Going up or down stairs	11.3	47.7	22.6	18.4
Walking around in the neighbourhood	40.7	34.0	16.2	9.1
Reaching for something above your head or on the ground	28.6	43.6	18.7	9.1
Going to answer the telephone before it stops ringing	42.3	31.1	18.7	7.9
Walking on a slippery surface (e.g. wet or icy)	16.2	42.7	24.5	16.6
Visiting a friend or relative	49.0	26.6	14.9	9.5
Walking in a place with crowds	30.3	40.2	19.1	10.4
Walking on an uneven surface (e.g. rocky ground, poorly maintained pavement)	19.5	32.4	31.1	17.0
Walking up or down a slope	15.8	36.5	29.0	18.7
Going out to a social event (e.g. religious service, family gathering, or club meeting)	48.3	27.5	12.5	11.7

Association Between Anxiety and Fear Of Falling

Table 3 shows that there was a statistically significant difference between anxiety and FOF (X2= 18.815, df =2, and p-value=<0.0001). Based on the findings, most participants with high levels of anxiety developed a strong FOF.

Table 3: Anxiety and fear of falling

		Fear of falling		
		Low	Moderate	High
Anxiety	Low	6(25%)	74(30.7%)	65(27%)
	High	3(1.26%)	23(9.54%)	70(29.0%)

Association Between Depression and Fear of Falling

The Fisher's Exact test was used to analyse the association between depression and FOF. A significant association was identified between depression and fear of falling, with X2= 17.653, df= 6, and p = 0.007. Most participants with mild levels of depression developed a strong FOF (26.6%) (Table 4). The result demonstrated that there was a significant association between depression and fear of falling (X2= 16.296 and p-value = 0.007).

Table 4: Depression and fear of falling

		Fear of falling		
		Low	Moderate	High
Depression	Normal	8(3.3%)	43(17.8%)	40(16.6)
	Mild	0(0.0%)	41(17.0%)	64(26.6%)
	Moderate	0(0.0%)	13(5.5%)	29(12.0%)
	High	0(0.0%)	0(0.0%)	2(0.8%)

DISCUSSION

The prevalence of a high FOF was reported as 56%. This finding was slightly lower than the result obtained in recent research conducted among older people living in the community in Singapore, which reported (68%) (De Roza et al., 2022). The participants in the present study, with a mean age of 68 years, were slightly younger compared to those in the previous study, where the mean age was 78.3 years. This could explain the lower prevalence of FOF.

The present study found a significant association between anxiety and FOF. This result was similar to those of previous studies in which this association was identified (Birhanie et al., 2021; Rakhshani et al., 2019; Schoene et al., 2019). Researchers discovered that FOF increases among older people due to their inability to anticipate their next fall, which is in turn associated with anxiety about the uncertainty and unpredictability of fall events (Lee & Tak, 2023). A significant association between fear of falling and depression was also identified in the present study. This finding was congruent with previous studies demonstrating a similar association (Gambaro et al., 2022; Rakhshani et al., 2019). Losing a spouse, not having a good quality of life, less social support, and other factors could explain this association with depression (Gambaro et al., 2022). Experiencing episodes of stressful life events, coupled with a decline in physical functioning, may lead older people to feel depressed and inclined to develop various fears, including FOF (De Roza et al., 2022).

The use of online questionnaires and face-to-face interviews presented a significant challenge during distribution and therefore caused some difficulties in getting accurate data. The study population was only represented by older people living in the community, with those in hospitals, nursing homes or senior citizen activity centres excluded. Therefore, the findings cannot be generalised to represent the whole population.

The present study emphasises the significance of screening older people who exhibit symptoms of anxiety and depression to prevent the future onset of FOF, along with the adverse health implications linked to these conditions. Effective targeted interventions should be provided to older people who have symptoms of depression and anxiety.

CONCLUSION

Older people experiencing anxiety and depression were more likely to develop FOF. Further investigations and preventive measures to prevent fear of falling should be taken into consideration to prevent this situation from affecting the activities of daily living of older people.

Conflict of Interest

The authors declare that there was no conflict of interest.

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