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Mobility Level and Fall in The Elderly

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Abstract

Objective: To determine the level of mobility and falls in elderly people living in nursing homes.

Methods: 137 cross-sectional individuals were included in this cross-sectional study. The research data were collected using the Rivermead Mobility Index.

Results: 83.1% of the elderly individuals with an average age of 78 ± 8.0 have fallen at least once in the last year and 79.6% are fearful of falling. Elderly individuals aged 81 years and older who had a fear of falling were lower in the average score of the Rivermead Mobility Index ($p<0.05$) and the mobility problem of these aged people is higher.

Conclusion: The elderly people living in nursing homes have a high frequency of falls and the majority of the elderly are in fear of falling. It is important to support older people in exercising regularly to prevent falls and to raise awareness among elderly people about behaviors that can lead to falls in order to prevent/reduce fear of falling.

Keywords: Aging; Fall; Rivermead mobility indexn

Introduction

The ever-growing elderly population is in many ways at risk. One of the most important of these risks is the fall. Falls are considered as an important health problem because they cause high mortality, disability and loss of work force. Fall is a health problem that poses a significant burden for families and society, as well as the health problems and disability that can arise in the falling person, as well as the cost of care they create [1].

Falling is the most important cause of death and disability among elderly individuals. The incidence of falls in people aged 65 years and older living in their own homes is between 28% and 35%, with complications related to frequency, severity and falls increasing with age progression and addiction; it is up to 50% in individuals aged 80 and over [2-4].

Studies show that the problem of falling of elderly living at nursey homes as well as at home is very serious. In a prospective study conducted by Apaydın Kaya et al. [5] the incidence of an annual, first-time or recurrent fall in elderly people living in nursing homes was 33.9%, and decreased within the last 6 months, 3.7 times the risk of falling again [5]. It is reported that the most common type of accident in nursing homes is due to falls with 63.3% in the study of Altıparmak and Horosan [6] in a study by Owens et al. [7] about one in ten of the elderly were admitted to the emergency room due to fall injuries, one of every eight injuries was hip fracture, and the elderly individuals were dependent on the bed for a long time due to hip fracture; total hospital cost is reported to reach 6.8 billion dollars per year [7]. Besides the physical injuries and deaths caused by the fall, there are also psychological and social consequences [1]. A study by Apaydin Kaya et al. [5] found that 35% of the elderly were experiencing fear of falling [5]. As a result of this study, it was found that the fear of repetition of the fall event is an important dimension. The fear of falling causes the elderly person to move, reduce independence and self-confidence. It is stated that more than 50% of falling seniors are actively avoiding activities such as traveling, shopping, traveling, as well as daily activities such as bathing, dressing, cleaning and cooking [8,9]. Fear of falling, especially walking and balance disorder are more common in elderly individuals. As falls are caused by fear in the elderly individual, their relatives are also anxious and stressed [10].

It is possible to prevent falls or minimize damage. In the prevention of falls, it is important to know the risk factors that can cause fall [11]. The evaluation of the elderly person in terms of the risk of falls and the identification of interchangeable risk factors is the most basic approach to prevent falls in the elderly. Health care workers, especially nurses who have the chance to observe the elderly person and the environment they live in, have the opportunity to recognize the risks that may cause accidents and falls and to take the necessary precautions. One of the most important preventive measures for the fall problem is to determine the physiological changes that occur due to age and cause the falls and take the necessary precautions.

In this context, determining the mobility of the nurses who are evaluating the elderly, especially the elderly and the avoidance of behaviors that may lead to falls, will enable them to recognize the current and potential risks and take the necessary precautions.

Methods

A total of 220 elderly individuals are living in the nursing home and all of the 137 elderly except individuals who are dependent on the bed, demented persons (the institutional health records and the doctors of the institution are taken into consideration), and/or who cannot be communicated are aimed to participate, the sample was not selected. In order to be able to do the study, the permission was obtained from the institution where the study took place and elderly people who participated.

The research data were collected by face-to-face interviewing with the participants taking volunteer-based considerations into account. The research data consist of 28 questions developed by the researchers; data collection form, which questioned demographic information, health status and social relations of elderly individuals, was collected using the Rivermead Mobility Index (RMI).

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Rivermead Mobility Index (RMI): The RMI was developed by Collen et al. [12]; Akın and Emiroglu conducted Turkish validity and reliability. The test-retest reliability coefficient (r=0.98) (p<0.001) and the KR-20 reliability coefficient (r=0.91) RMI is a one-dimensional index that evaluates a range of activities from turning in the bed to running. The index consists of 14 questions and an observation and can be used in hospital, outpatient clinic or home environment. In the answers to the questions, the individual's declaration is intrinsic, only Article 5 (standing without support) is observed and evaluated by the interviewer. Indekste is given a score of "1" for every "yes" response and the score varies between 0-15 points. A total score of 15 indicates that there is no problem with mobility, 14 points and below indicate a mobility problem [13].

Statistical analysis

Statistical Package for Social Sciences (SPSS) 20.0 software was used for statistical analyses. Descriptive statistics, t-test were used in the analysis of the data. Statistical significance was accepted as p<0.05.

Inclusion criteria: In this study were included the elderly communicable individuals without neurological disorders, dementia and bed dependent.

Exclusion criteria: The elderly individuals who have neurological disorders, dementia, bed dependent and noncommunicable were not included in the study.

Results

54.7% of the elderly individuals participating in the survey are women, 46.7% are in the 71-80 age group and 34.3% are not literate. 75.9% of the elderly people have their social security and 78.8% of them have at least one chronic illness (Table 1).

79.6% of the elderly are fear of falling, 49.6% of them are falling in the last one year, 83.1% at least once. Bathrooms (73.2%) and rooms where they live (17%) were at the beginning of the places where the falling takes place (Table 2).

The mean RMI score of elderly individuals was found to be 10.12 ± 4.19 (Table 3). A statistically significant difference was found in the average RMI scores of the elderly people living in the nursing home,

Characteristics	n	%
Sex		
Female	75	54.7
Male	62	45.3
Age		
61-70 years	21	15.3
71-80 years	64	46.7
81 years and more	52	38.0
Level of education		
Illiterate	47	34.3
Elementary school	52	38.0
Middle school and above	38	27.7
Social insurance		
Available	104	75.9
Unavailable	33	24.1
Chronic disease		
Yes	108	78.8
No	29	21.2
Total	137	100

Table 1: Distribution of some characteristics related of to socio-demographic of the elderly people (n=137).

Fear of Falling	n	%
No	28	20.4
Yes	109	79.6
Fall situation in the last year		
No fallen	69	50.4
Fallen	68	49.6
Number of falls * (n=71)		
For once	59	83.1
Twice	8	11.3
Three times and more	4	5.6
Fall place* (n=71)		
Bathroom	52	73.2
Room	12	17
Corridor	5	7.0
Garden	2	2.8
Total	137	100
* Evaluation was performed on place of fall and number of falling		

Table 2: Distribution of characteristics related to fear of falling and stories of fall in elderly people (n=137).

Scale	$\bar{X}$± SS	Min-Max
RMI	10.12 ± 4.19	0–15

Table 3: RMİ score average.

and the average of the scores of the males was higher than the average of the females (p<0.05). A statistically significant difference was found between the mean RMI scores according to age and fear of fall (p<0.05). There was no statistically significant difference between chronic disease, fall situation and RMI score averages (p>0.05) (Table 4).

Discussion

In the study conducted in order to determine the frequency of falls and related factors in the elderly people living in nursing homes, it was determined that about half of the elderly (49.6%) fell in the last one year and 83.1% of them fore once. Studies of falls in elderly indicate that the prevalence of falls varies between 28% and 35% in older elderly people living in the home, and that the frequency of falls in elderly people living in rest homes is higher (30% to 50%) [14,15]. Apaydın Kaya et al. [5] found that the incidence of falls in a prospective study was 33.9% [5]. Another problem that is as important as the least falls and negatively affects the lives of elderly individuals is fear of falling. It has been reported that the prevalence of fear of falling in ages varies between 20% and 85% [16-21]. These differences in prevalence can be attributed to the methods of measurement of fear of falling, the description of fear of falling, the characteristics of the studied population, age and gender differences. Our study results are similar to the results of the research mentioned and support that fear of falling and falling in the elderly is a widespread problem.

Mobility and balance issues play an important role among the factors that cause fear of falling and falling. Elderly individuals are known to have increased mobility problems as they age. In our study, the mobility levels of elderly individuals were assessed using RMI. Taking into consideration that this index is less than 15 points in mobility problem, it is obvious that elderly individuals participating in our research have mobility problems ($\bar{X}$=10.12 ± 4.19). Mollaoglu, Ozkan Tuncay and Kars Fertelli found that the mobility problem was due to the fact that the elderly individuals were under 15 points in the study using the same index [22]. Similarly, in the study of Tütün Yumin et al. elderly individuals were found to have mobility problems ($\bar{X}$=13.73 ± 1.60) [23].

Socio-Demographic Characteristics	n	RMI Score Average	Statistical Value
Sex			
Male	62	12.00 ± 2.59	t=5.186, p=0.000
Female	75	8.57 ± 4.63	
Age			
61-70 age	21	12.90 ± 1.57	f=6.624, p=0.002
71-80 age	64	10.03 ± 4.26	
81 age and more	52	9.11 ± 4.39	
Chronic disease			
Yes	108	11.00 ± 3.81	t=1.268, p=0.207
No	29	9.88 ± 4.28	
Fear of falling			
No	28	13.25 ± 0.96	t=4.753, p=0.000
Yes	109	9.32 ± 4.33	
Fall situation			
No fallen	69	10.50 ± 4.25	t=1.076, p=0.284
Fallen	68	9.73 ± 4.14	

Table 4: Comparison of socio-demographic characteristics and RMİ point average of the elderly.

A statistically significant difference was found between gender, age, fear of falling and RMI average scores (Table 4). In other studies on this subject, our findings were supported. Studies have indicated that mobility problems are more prevalent in women, elderly elderly, health problems or chronic illnesses, when physical activity is inadequate [22,23].

The chronic illness of elderly individuals is a major risk factor for falling. Diseases such as arthritis and diabetes cause falls by negatively affecting mobility [24].

Fear of falling is one of the major problems that directly affect mobility. Elderly individuals limit their activities as much as possible with the concern they will fall. So much so that they can refuse simple activities such as walking, walking around the house, and even avoiding daily activities of daily living [22,25,26].

Conclusions and Implications

The elderly people living in nursing homes are found to have a high frequency of falls and the majority of the elderly live in fear of falling. Seniors with low mobility averages and low mobility levels are at risk of falling. Moreover, being a woman and being in advanced age increases the risk of falling. Supporting the elderly people to exercise regularly to prevent falls and assessing the living environment in terms of risk of falling, making necessary arrangements; As well as measures to prevent/reduce fear of falling.

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