

Research Paper

Anxiety and Fear of Falling in Older Adults With Fall-related Orthopedic Surgery



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ABSTRACT

Objectives Old age is associated with various health threats, including falls which have psychological, physical, and social consequences. One of these consequences is the fear of falling especially after orthopedic surgery. This study aims to evaluate the fear of falling and anxiety in older adults with a history of fall-related orthopedic surgery.

Methods & Materials In this descriptive-correlational study with cross-sectional design, 280 older people with a history of fall-related orthopedic surgery referred to the selected hospitals affiliated to Iran University of Medical Sciences were selected using a convenience sampling method. Data collection tools were a demographic form, the Abbreviated Mental Test (AMT), the Fall Efficacy Scale-International (FES-I), and the subscale of Anxiety from the Depression, Anxiety and Stress Scale-21 (DASS-21). Data were analyzed using descriptive and inferential statistics such as independent t-test, Pearson correlation test, one-way ANOVA, and linear regression analysis in SPSS v. 20 considering a significance level of $P \leq 0.05$.

Results The Mean±SD age of participants was 69.50±4.29 years and 65% were female. Most of them (99%) reported a high fear of falling level; 47.9% reported moderate anxiety and 26% reported severe to very severe level of anxiety. Their Mean±SD anxiety score (11.88±4.18) was higher than the cut-off point (10). Anxiety was significantly correlated with gender, educational level, marital status, history of fallin, and history of chronic diseases ($P < 0.05$). According to the results of Pearson correlation test, There was a statistically significant direct correlation between fear of falling and anxiety ($r = -0.254, P = 0.001$). According to the results of linear regression analysis, being female had the greatest effect on anxiety ($\beta = 0.183$), while being female and single, having good economic status, and living with spouse had the greatest effect on the fear of falling ($\beta = 0.236, 0.545, 0.047, \text{ and } 0.545$, respectively).

Conclusion Fear of falling seems to be high in older adults with a history of fall-related orthopedic surgery. Given the adverse consequences of the fear of falling and the high prevalence of anxiety in these people, it is recommended that counseling programs be provided for them at the time of discharge from the hospital.

Extended Abstract

1. Introduction



Old age is associated with various health threats, including falling, which have psychological, physical and social con-

sequences, one of which is the fear of falling, especially after orthopedic surgery. On the other hand, reduced psychological and social activities of people in old age can increase feelings of hopelessness, isolation, anxiety, stress, low self-esteem and even death [1]. Effective planning in this area requires full knowledge and awareness of the fear of falling in the elderly and eliminating the factors

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that may be related to it. Therefore, this study aims to investigate the level of anxiety and fear of falls in the elderly with a history of fall-related orthopedic surgery.

2. Methods & Materials

In this descriptive correlational study with cross-sectional design, participants were 280 elderly men and women with a history of fall-related orthopedic surgery referred to the orthopedic clinic of hospitals affiliated to Iran University of Medical Sciences in 2018 who were selected using a convenience sampling method. The sample size

(n=280) was determined at 95% confidence level using the **Formula 1**:

$$1. n = \frac{z^2_{1-\alpha/2} \times \sigma^2}{d^2}$$

Inclusion criteria were: age 60-75 years (younger elderly according to WHO classification), having an Abbreviated Mental Test (AMT) score of 7 out of 10, ability to answer questions, no any neurological disorders (e.g. stroke), ability to communicate, and no any known mental illness. Data collection tools were a demographic form (surveying age, gender, level of education, marital status,

Table 1. Correlation of fear of falling with sociodemographic characteristics of the elderly

Characteristics		No.	Mean±SD	Test results
Gender	Female	182	45.81±7.24	t=4.902 df=278 P<0.001
	Male	98	41.14±8.22	
Age (y)	60-64	22	44.22±7.40	F=6.095 P=0.003
	65-69	143	42.64±7.84	
	70-75	115	46.04±7.72	
Education	Primary	144	43.54±7.13	F=3.681 P=0.013
	High school diploma	72	42.40±7.89	
	Higher than high school	64	42±8.38	
Marital status	Married	171	43.12±7.66	F=5.85 P=0.001
	Widow/widower	91	46.86±7.96	
	Single	18	42.27±6.21	
Economic status	High	11	44.72±10.07	F=3.514 P=0.031
	Moderate	133	42.87±7.71	
	Poor	136	45.40±7.77	
Living arrangements	With spouse	168	42.86±7.62	F=4.474 P=0.0004
	With children	62	46.12±7.58	
	Alone	44	45.70±8.86	
	With caregiver	6	49.66±3.01	
Employment status	Unemployed	46	41.81.41±8.28	F=9.533 P>0.001
	Retired	70	43.84±8.52	
	Employed	32	40.15±5.98	
	Housekeeper	132	46.52±7.15	

economic status, employment status, living arrangements, the number and type of diagnosed chronic diseases, and history of orthopedic surgery), AMT, 16-item Falls Efficacy Scale International (FES-I) [2], and the Depression Anxiety Stress Scales-21 (DASS-21) where items 2, 4, 7, 9, 15, 19, 20 are used to measure anxiety [3].

3. Results

This study consisted 280 elderly participants with a Mean±SD age of 69.05±4.29 years, 182 females and 98 males. Results reported that 98.6% of the elderly had high fear of falling (FES-I score >32). According to the results of regression analysis, being female, being single, good economic status and living with a spouse with standard coefficients of 0.236, 0.545, 0.047, and 0.545, respectively, had the greatest effect on «fear of falling». According to the results, the fear of falling was significantly higher in the elderly with chronic diseases (P=0.013). Moreover, it had a statistically significant relationship with the number of medications for chronic diseases (P=0.020). Fear of falling was significantly higher in the elderly who had more than one chronic disease (P=0.001). Fear of falling was significantly higher among the elderly with high blood pressure (P=0.035), blood lipids (P=0.007) and pelvic surgery history (P=0.015).

Results also showed that about 80% of the elderly had mild to severe anxiety (DASS-21 score >10). According to the results of Scheffe test, anxiety was significantly higher in illiterate subjects than in those with high school diploma (P=0.004); in widow/widower subjects compared to married ones (P=0.013); in subjects with poor economic status compared to those with moderate economic status (P<0.001); In subjects who live with children compared to those living with spouse (P=0.002); In housekeepers compared to employed ones (P=0.010); and in unemployed subjects compared to retired ones (P=0.014). According to the results of linear regression analysis, being female with a standard coefficient of 0.183 had the greatest effect on «anxiety».

4. Conclusion

Most of the elderly with a history of fall-related orthopedic surgery has high fear of falling. There is statistically significant and direct relationship between fear of falling and anxiety in them. The results of this study can be helpful in the field of nursing education and management as well as in the clinical studies, and can be the basis for developing comprehensive care programs and educational/counseling interventions to prevent and reduce the fear of falling in the elderly. Due to the significant relationship

between anxiety in the elderly with chronic diseases and the drug use following these diseases, it seems that promoting health screening and educational programs especially for hypertensive diseases, diabetes and psychological diseases, can be useful to improve the quality of life of the elderly and achieve a healthy and successful old age.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by Iran University of Medical Sciences (Code: IR.IUMS.REC.1397.505).

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Authors' contributions

Conceptualization: Saeedeh Hajati, Farideh Bastani; References: Saeedeh Hajati; Supervision and management: Farideh Bastani, Raziye Sadat Hosseini; Research: Farideh Bastani, Saeedeh Hajati; Editing and finalizing: Saeedeh Hajati; Financing: Farideh Bastani, Saeedeh Hajati, Raziye Sadat Hosseini; Sample collection: Saeedeh Hajati.

Conflicts of interest

The authors declared no conflict of interest.