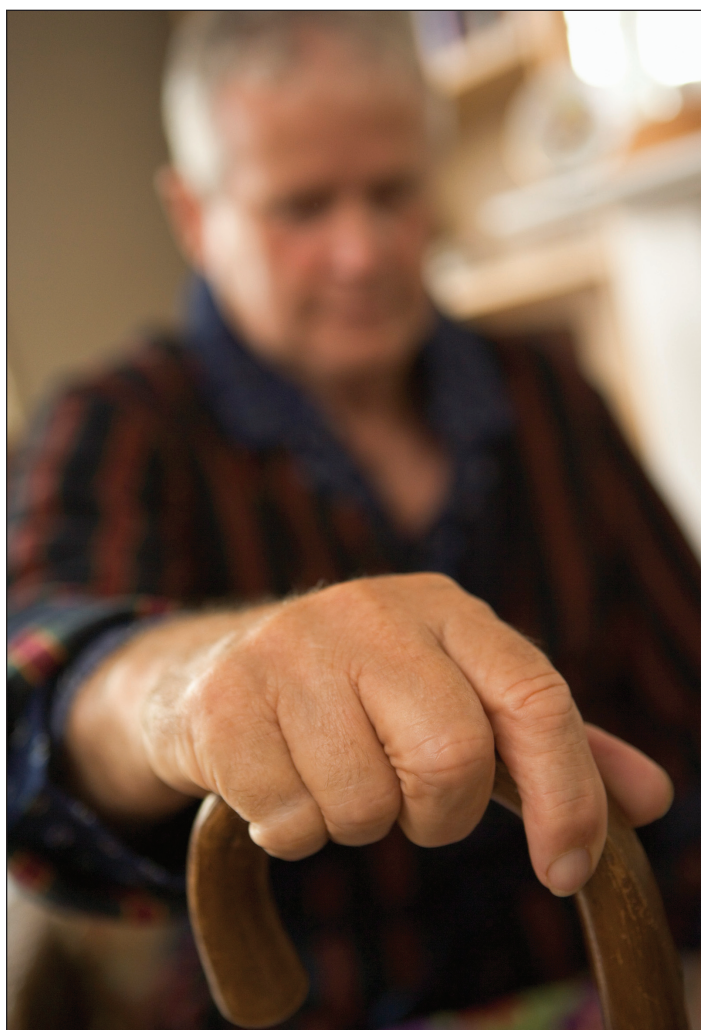


# Physical and Psychosocial Correlates of Fear of Falling Among Older Adults in Assisted Living Facilities

## ABSTRACT

Fear of falling is the most common reported fear among older adults. Nevertheless, little is known about whom among this population develops fear of falling and why. This study aims to identify physical and psychosocial correlates of fear of falling among older adults in assisted living facilities. Data were collected from interviews with 208 residents using measures of fear of falling, physical and social functioning, depression, and state and trait anxiety. Results revealed that 48.6% of the participants had moderate to severe concern about falling. Stepwise multiple linear regression analysis revealed that use of a walking device, depression, balance impairment, trait anxiety, female gender, and a previous history of a fall or falls were independent factors associated with fear of falling. It is suggested that improving physical fitness and balance control and increasing one's self-efficacy and sense of control over the environment can decrease these sources of fear among older adults.

Falls are among the most common and serious health problems facing older adults (Evitt & Quigley, 2004). It has been suggested that nursing home residents are approximately three times more likely to fall than their community-dwelling counterparts, approximately 1.5 falls per bed per year (Vu, Weintraub, & Rubenstein, 2005). Studies have estimated that between 25% and 55% of community-dwelling older adults are afraid of fall-



© 2008/BananaStock, Jupiter Images Corporation

Amira Y. Sharaf, DNSc; and Hanaa S. Ibrahim, DNSc

ing (Lach, 2005; Zijlstra et al., 2007). Among nursing home residents, the prevalence of fear of falling can be as high as 50% to 65% (Gillespie & Friedman, 2007; Kressig et al., 2001). One of the major consequences of fear of falling is activity restriction (Deshpande et al., 2008; Zijlstra et al., 2007), which is itself a risk factor for falls because it can lead to muscle atrophy, deconditioning, and ultimately reduced health and physical



functioning (Delbaere et al., 2006). Moreover, self-imposed activity restriction can compromise quality of life by limiting social contact or leisure activity (Li, Fisher, Harmer, McAuley, & Wilson, 2003).

## BACKGROUND AND PURPOSE

In the geropsychiatric literature, two approaches have emerged for measuring self-reported fear of falling. The most common has been to ask the single direct question, "How afraid of falling are you?" (Fletcher & Hirdes, 2004; Gagnon, Flint, Naglie, & Devins, 2005). Although this method has been informative, it may underestimate the incidence of fear of falling, and it cannot detect possible variation in levels of fear across situations (Chou, Yeung, & Wong, 2005). Thus, a more nuanced approach, using a framework based on Bandura's (1987) theory of self-efficacy, is reflected in the Fall Efficacy Scale (FES) (Tinetti, Richman, & Powell, 1990), in which fear of falling is defined as "low perceived self-efficacy at avoiding falls during essen-

tial, non-hazardous activities of daily living" (p. P239).

Although fear and falling are correlated (Lach, 2005), several studies have shown that fear of falling is common even among older adults who have not actually experienced a fall (Gillespie & Friedman, 2007; Scheffer, Schuurmans, van Dijk, van der Hooft, & de Rooij, 2008). This indicates that factors other than previous fall experience play a role.

## Among nursing home residents, the prevalence of fear of falling can be as high as 50% to 65%.

Growing evidence from research conducted with community-dwelling older adults has identified the following factors as independently associated with fear of falling: female gender (Legters, 2002), physical frailty (Fletcher & Hirdes, 2004), perception of poor health (Zijlstra et al., 2007), and lack of emotional support (Murphy, Dubin, & Gill, 2003). Although the phrase *fear of falling* implies an affective phenomenon, psychological aspects of fear of falling have received relatively little attention (Mann, Birks, Hall, Torgerson, & Watt, 2006). One exception is the finding by Gagnon et al. (2005) that depression and anxiety were significantly and independently associated with fear of falling.

The study reported in this article was undertaken to identify physical and psychosocial correlates of fear of falling among older adults in assisted living facilities. The future premise, for subsequent confirmation, is that knowledge of these correlates may equip nurses to teach clients effective ways to reduce fear of falling, thereby potentially modifying un-

necessary physical and psychosocial functional decline in older adults. In the current study, two research questions were addressed:

- Are there significant relationships between fear of falling and sociodemographic, physical, and psychosocial status in a sample of older adults residing in assisted living facilities in Alexandria, Egypt?
- What are the physical and psychosocial factors independently associated with fear of falling?

## METHOD

### Design and Sample

A cross-sectional design was used in this study. Participants were recruited from all governmental assisted living facilities for older adults in Alexandria, Egypt. In addition, two private facilities in which Arabic is the mother tongue were also selected. In Egypt, the terms *assisted living facilities* and *elderly homes* are used interchangeably to denote residential housing and personalized supportive services for older adults, including nutritional, social, occupational, recreational, psychological, and non-acute health care services. These services are provided by a health care team that includes physicians, nurses, social workers, dietitians, caregivers, and administrative staff under the supervision of the Ministry of Social Affairs.

Eligibility criteria for admission to these facilities include being age 60 and older, independent or semi-independent and able to care for themselves, mobile with or without assistance, and free from any cognitive or physical impairment, psychiatric disease, or infection. However, under certain rare circumstances, the homes can accept individuals as young as age 55. In addition, assisted living facilities in Egypt can provide personal care and related health services for older adults who become unable to care for themselves after being admitted to the homes (e.g., being bedridden, cognitively impaired, wheelchair bound).

The total number of residents in the above-mentioned settings was 378 (228 from governmental facilities and 150 from private ones). All residents age 60 and older, able to ambulate independently with or without walking aids (walker or cane), and able to communicate in a coherent and relevant manner were included in the study; this totaled 238 older adults. Of these, 10 residents were included in the pilot study and 20 in the test-retest reliability study with an interval of 2 weeks between administrations. The remaining older adults ( $N = 208$ ) represent the study participants ( $n = 144$  from governmental facilities and  $n = 64$  from private facilities). A total of 54 from governmental facilities and 86 from private facilities were either not eligible for or refused to participate in the study.

### Instruments

**Sociodemographic Factors.** Age, gender, marital status, and years of education were assessed by a sociodemographic data sheet developed by the investigators.

**Fear of Falling.** Two measures were used to assess fear of falling:

- A single-item question (“Are you afraid of falling?”) rated on an ordinal scale from 1 (*not at all afraid*) to 4 (*severely afraid*). Test-retest reliability of this single-item question has been established in previous studies (Murphy et al., 2003; Yardley & Smith, 2002).

- The Modified Falls Efficacy Scale (MFES). This scale, developed by Tinetti et al. (1990) and modified by Buchner et al. (1993), was used to assess level of concern about the possibility of falling while performing 10 activities of daily living, such as taking a bath or shower, getting dressed and undressed, preparing simple meals, going up and down stairs, and so forth. Each question is rated from 1 (*not at all concerned*) to 4 (*severely concerned*). The total score of the MFES ranges from 10 to 40, with a high score indicating

**TABLE 1**  
**RELATIONSHIP BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND FEAR OF FALLING ( $N = 208$ )**

Characteristic	$n$ (%)	Mean (SD) MFES Score	Statistical Test
Age			$F = 2.36$
60 to 74	116 (55.8)	20.58 (9.37)	
75 to 84	70 (33.7)	22.13 (10.88)	
$\geq 85$	22 (10.6)	25.59 (12)	
Gender			$t = -4.49^{***}$
Men	83 (39.9)	17.88 (10.23)	
Women	125 (60.1)	24.12 (9.54)	
Marital status			$t = -5.01^{***}$
Unmarried	191 (91.8)	22.30 (10.3)	
Married	17 (8.2)	14.06 (6.06)	
Years of education			$F = 5.05^{**}$
0	57 (27.4)	24.82 (10.66)	
1 to 6	41 (19.7)	21.63 (10.66)	
7 to 12	59 (28.4)	22.19 (10.07)	
$\geq 13$	51 (24.5)	17.41 (8.37)	

Note. MFES = Modified Falls Efficacy Scale.  
\*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

greater fear of falling. Scores higher than 20 reflect a moderate to severe degree of concern about falling. Test-retest reliability of the MFES was 0.70 (Buchner et al., 1993).

In the current study, the single-item question about fear of falling and the MFES had a high test-retest reliability in a sample of 20 older adults (Kappa = 0.81; and  $r = 0.78$ , respectively). In addition, for all study participants ( $N = 208$ ), the MFES had high internal consistency (Cronbach's alpha coefficient = 0.94) and high concurrent validity with the single-item question about fear of falling ( $r = 0.90$ ).

**Fall History.** Fall history includes the number of previous falls since age 60; falls resulting in fractured bone, injury, or dislocation; and difficulty getting up alone after falling. Test-retest reliabilities in the current study using Kappa were 0.90 for each.

**Physical and Social Status/Functioning.** These were measured by a

structured interview schedule, developed by the investigators after a thorough review of the literature, to obtain information about physical functioning and health status, such as the presence and type of any chronic diseases, vision problems, use of a walking device, and self-rated perception of health. One physical factor, balance, was assessed by observing the participants for instability while they stood on both feet with eyes closed for 20 seconds (D'Amico & Barbarito, 2007). Social functioning was assessed using questions about participants' need for instrumental support (e.g., need for assistance with activities of daily living, such as climbing stairs or taking a bath or shower), emotional support, visiting patterns, and leisure activities. In the current study, test-retest reliabilities using Kappa ranged from 0.80 to 0.93.

**Psychological Status.** Psychological status was measured using the:

**TABLE 2**

**RELATIONSHIP BETWEEN PHYSICAL FUNCTIONING AND PERCEPTION OF HEALTH AND FEAR OF FALLING (N = 208)**

Variable	n (%)	Mean (SD) MFES Score	t Test
Presence of chronic disease			
Cardiovascular			-1.66
Yes	123 (59.1)	22.61 (10.55)	
No	85 (40.9)	20.21 (9.71)	
Diabetes mellitus			0.56
Yes	57 (27.4)	20.98 (9.99)	
No	151 (72.6)	21.87 (10.38)	
Osteoarthritis			-3.56***
Yes	81 (38.9)	24.72 (9.98)	
No	127 (61.1)	19.66 (9.98)	
Digestive diseases			-1.74
Yes	35 (16.8)	24.37 (10.44)	
No	173 (83.2)	21.08 (10.17)	
Glaucoma			-2.03*
Yes	19 (9.1)	26.16 (10.96)	
No	189 (90.9)	21.17 (10.11)	
Vision problems			2.36*
Yes	33 (15.9)	25.45 (10.92)	
No	175 (84.1)	20.91 (10)	
Use of a walking device			-8.36***
Yes	72 (34.6)	28.71 (9.62)	
No	136 (65.4)	17.88 (8.48)	
Balance impairment			8.17***
Yes	37 (17.8)	32.51 (7.21)	
No	171 (82.2)	19.27 (9.27)	
Perception of health			-4.42***
Fair/good	160 (76.9)	19.98 (9.9)	
Poor	48 (23.1)	27.13 (9.59)	

Note. MFES = Modified Falls Efficacy Scale.

\*p < 0.05; \*\*\*p < 0.001.

• Geriatric Depression Scale (GDS). This was developed by Yesavage et al. (1982-1983) to assess affective, cognitive, behavioral, and physical disturbances associated with depression among older adults. The scale comprises 30 yes-or-no questions, with a total score ranging from 0 to 30, with a higher score

indicating greater depression. The standardized Arabic version used in the current study was translated by Abaza (2000), who documented high test-retest reliability and concurrent validity with the Beck Depression Scale ( $r = 0.81$  and  $0.75$ , respectively).

• State-Trait Anxiety Inventory (STAI). This inventory was

developed by Spielberger, Gorsuch, Lushene, Vagg, and Jacobs (1983) and includes separate measures of state and trait anxiety. Each measure is composed of 20 statements that are rated on a 4-point Likert-type scale, with a total score ranging from 20 to 80; high scores represent more state or trait anxiety. The standardized Arabic version translated by Abd El-Khalek (1992) was used in this study. The Arabic version of the STAI has high test-retest reliability, internal consistency, and concurrent validity with the Taylor Manifest Anxiety Scale (state anxiety:  $r = 0.57$ , Cronbach's alpha coefficient =  $0.94$ , and  $r = 0.55$ ; trait anxiety:  $r = 0.82$ , Cronbach's alpha coefficient =  $0.91$ , and  $r = 0.68$ , respectively). In the current study, test-retest reliabilities for state and trait anxiety were  $0.72$  and  $0.85$ , respectively.

**Procedures**

Official consent was obtained from the Ministry of Social Affairs in Alexandria and from the directors of the assisted living facilities included in the study. The MFES was translated into Arabic. The Arabic version of the MFES was reviewed for accuracy of the translation and tested for content validity by four bilingual professors in psychiatric and gerontological nursing at the city university. A pilot study was conducted with 10 older adults to ensure the clarity and the applicability of the study measures with no modifications required in this respect.

All residents in the aforementioned settings were screened for eligibility by reviewing their admission and health-related records. Adults who were younger than age 60, deaf, mute, bedridden, wheelchair bound, or who had mental retardation or cognitive impairment were excluded from the study. Confidentiality was guaranteed, and informed consent was obtained from all residents who were eligible and willing to participate in the study. Over a period of 4 months, the researchers met with residents in a private place (either



the resident's room or a conference room) and applied all measures by individual interview, which took 45 to 60 minutes per resident.

### Data Analysis

Data were analyzed using SPSS version 13.0. Descriptive statistics, such as percentages, means, and standard deviations were used to summarize the data. Analysis was performed in two steps to answer the research questions. First, the *t* test, analysis of variance (ANOVA), and simple Pearson coefficient (*r*) were used to examine the relationship between sociodemographic factors, physical and psychosocial status, and fear of falling as measured by MFES. Second, variables significantly associated with fear of falling were entered into stepwise multiple regression analysis to test the independent association of each variable with fear of falling. All reported *p* values are two tailed. The level of significance was set at 0.05.

## RESULTS

### Sociodemographic Characteristics

Participants' ages ranged from 60 to 102, with a mean age of 73.21 (*SD* = 8.86 years). Nearly two thirds of the sample (60.1%) were women. Unmarried participants constituted 91.8% of the total sample. The older adults' years of education ranged from 0 to 20 (mean = 8.18 years).

### Fear of Falling Measurements

According to the single-item question, more than half of the participants (52.9%) admitted they were moderately to severely afraid of falling. Approximately half of the participants (48.6%) were rated similarly on the MFES (i.e., MFES score > 20), with a total mean score of 21.63 (*SD* = 10.26).

### Research Question 1: The Relationship Between Sociodemographic Characteristics; Physical, Social, and Psychological Status; and Fear of Falling

Table 1 shows the relationship between sociodemographic characteris-

Fall Experience	n (%)	Mean (SD) MFES Score	Statistical Test
Previous history of fall			<i>t</i> = 4.35***
Yes	116 (55.8)	24.28 (9.82)	
No	92 (44.2)	18.29 (9.87)	
Number of previous falls ( <i>n</i> = 116) <sup>a</sup>			<i>F</i> = 4.83*
One	37 (31.9)	20.27 (9.38)	
Two	27 (23.3)	25.93 (9.74)	
Three or more	52 (44.8)	26.27 (9.47)	
Health-related consequences of falling ( <i>n</i> = 116) <sup>a</sup>			<i>F</i> = 1.64
None	35 (30.2)	21.80 (10.11)	
Fracture or dislocation	40 (34.5)	25.63 (10.37)	
Wound or hematoma	41 (35.3)	25.07 (8.81)	
Experiencing difficulty getting up alone after falling ( <i>n</i> = 116) <sup>a</sup>			<i>t</i> = 2.91**
Yes	94 (81)	25.52 (9.47)	
No	22 (19)	18.95 (9.71)	

Note. MFES = Modified Falls Efficacy Scale.  
\* *p* < 0.05; \*\* *p* < 0.01; \*\*\* *p* < 0.001.  
<sup>a</sup> Includes only those who had previous history of a fall or falls.

tics and fear of falling. A statistically significant association between fear of falling and gender, marital status, and years of education was reported. The mean score of fear of falling was significantly high among women (mean = 24.12, *t* = -4.49, *p* < 0.001), those who were unmarried (mean = 22.30, *t* = -5.01, *p* < 0.001), and those with no education (mean = 24.82, *F*[3, 204] = 5.05, *p* < 0.01).

Concerning the relationship between physical functioning and perception of health and fear of falling, Table 2 shows that fear of falling was more significantly experienced among older adults who had osteoarthritis (*t* = -3.56, *p* < 0.001), glaucoma (*t* = -2.03, *p* < 0.05), vision problems (*t* = 2.36, *p* < 0.05), used a walking device (*t* = -8.36, *p* < 0.001), had balance impairment (*t* = 8.17, *p* < 0.001), and had a perception of poor health (*t* = -4.42, *p* < 0.001).

Regarding the relationship between fall experience and fear of falling (Table 3), it was found that more than half of the older adults (55.8%) had a previous history of at least one fall, with a total mean of 3.03 falls. This group had significantly greater fear of falling than those who had not experienced previous falls (*t* = 4.35, *p* < 0.001). Among those who had previous falls, the mean fear of falling scores were significantly increased as the number of previous falls increased: mean = 20.27 (*SD* = 9.38) among those who had one fall experience to mean = 26.27 (*SD* = 9.47) among those who had three or more falls (*F*[2, 205] = 4.83, *p* < 0.05). In addition, experiencing difficulty getting up alone after falling, which characterized 81% of the participants, significantly increased the current fear of falling (*t* = 2.91, *p* < 0.01).

**TABLE 4****RELATIONSHIP BETWEEN SOCIAL FUNCTIONING AND FEAR OF FALLING (N = 208)**

Social Functioning Variable	n (%)	Mean (SD) MFES Score	Statistical Test
Need for emotional support			$t = -0.79$
Yes	169 (81.3)	21.90 (10.19)	
No	39 (18.7)	20.46 (10.61)	
Need for instrumental support			$t = -6.18^{***}$
Yes	45 (21.6)	29.33 (9.71)	
No	163 (78.4)	19.50 (9.38)	
Visiting pattern by family/friends			$F = 0.83$
Regular	146 (70.2)	22.05 (10.34)	
Irregular	31 (14.9)	19.45 (9.89)	
None	31 (14.9)	21.84 (10.33)	
Engaged in leisure activities			$t = 4.54^{***}$
Yes	166 (79.8)	20.08 (9.69)	
No	42 (20.2)	27.76 (10.28)	

Note. MFES = Modified Falls Efficacy Scale.

\*\*\*  $p < 0.001$ .

**TABLE 5****STEPWISE MULTIPLE LINEAR REGRESSION ANALYSIS OF FACTORS INDEPENDENTLY ASSOCIATED WITH FEAR OF FALLING (CORRELATES) (N = 208)**

Correlates of Fear of Falling	B	SE	$\beta$
Use of a walking device (yes = 1, no = 0)	6.42	1.22	0.30 <sup>***</sup>
Depression	0.40	0.08	0.29 <sup>***</sup>
Balance impairment (yes = 1, no = 0)	6.09	1.53	0.23 <sup>***</sup>
Gender (men = 0, women = 1)	2.96	1.04	0.14 <sup>**</sup>
Trait anxiety	0.13	0.05	0.14 <sup>*</sup>
Previous history of a fall or falls (yes = 1, no = 0)	2.14	1.02	0.10 <sup>*</sup>
	$R^2 = 0.55$		$F = 41.30^{***}$

Note. Values in parentheses are codes of dummy variables.

SE = standard error of the unstandardized coefficient (B).

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Regarding the relationship between social functioning and fear of falling (Table 4), older adults who needed instrumental support (21.6%) had a significantly higher mean score on the MFES than those

who did not need such support ( $t = -6.18, p < 0.001$ ). On the other hand, participants who were engaged in leisure activities had a lower fear of falling than those who were not ( $t = 4.54, p < 0.001$ ).

Concerning the relationship between psychological status and fear of falling, results indicated that fear of falling had a significant positive correlation with depression ( $r = 0.57, p < 0.001$ ), trait anxiety ( $r = 0.44, p < 0.001$ ), and state anxiety ( $r = 0.43, p < 0.001$ ).

**Research Question 2: Physical and Psychosocial Factors Independently Associated with Fear of Falling**

The stepwise multiple linear regression analysis results (Table 5) revealed that the strongest factor independently positively associated with fear of falling was the use of a walking device ( $\beta = 0.30, p < 0.001$ ), followed by depression ( $\beta = 0.29, p < 0.001$ ), balance impairment ( $\beta = 0.23, p < 0.001$ ), female gender ( $\beta = 0.14, p < 0.01$ ), trait anxiety ( $\beta = 0.14, p < 0.05$ ), and previous history of falls ( $\beta = 0.10, p < 0.05$ ).

**DISCUSSION**

The findings of this study support that functional decline, evidenced by balance impairment and use of a walking device, was independently associated with fear of falling. Clearly, lack of confidence in the ability to maintain balance can increase the probability of an actual fall experience, which in turn, could lead older adults to have an increased awareness of their surroundings and vigilance about behavioral safety, contributing to more psychological tension and worry. Yardley (1998) extensively studied fear of falling among individuals with dizziness and balance disorders and proposed that disturbance in balance produces autonomic arousal that creates anxiety. Similarly, studies conducted by Lach (2005) and Yardley et al. (2005) support the relationship between balance impairments and fear of falling.

The experience of a fall increases the likelihood of developing fear of falling, according to the results of this study. A previous history of a fall or falls may trigger a fear of physical harm, loss of independence,

functional disability, pain, suffering, and social embarrassment, which might increase older adults' concern about falling. In addition, a large portion of these study participants had difficulty getting up alone after falling and required assistance. This indicates that falling might be publicly witnessed and hence potentially socially embarrassing. In this regard, Yardley and Smith (2002) stated that the perceived functional and social consequences of falling were greater among older adults who had fallen once during the past year. In contrast, Murphy et al. (2003) did not find falls to be predictive of fear of falling.

Concerning gender, women were more likely than men to be fearful of falling. However, this finding may be attributed to the cultural influence on Egyptian men, who may feel inhibited about expressing fear due to the perceived stigma attached to the admission of weakness. More specifically, Egyptian men are figures of power, independence, and productivity; their masculinity is reinforced with the proof of their ability to provide financial and psychological security for the entire family. Therefore, admitting to a feeling of fear may remind them of their declining functions, which heighten feelings of powerlessness and dependence. Because of this, men may be reluctant to openly acknowledge and discuss their fears related to falling. Fletcher and Hirdes (2004) reported that being a woman significantly increased the probability of fear of falling.

The emergent findings of the current study show that fear of falling is not exclusively determined by physical vulnerability. There are also psychological factors, such as depression and trait anxiety, which contribute to fear of falling. Depression may erode one's sense of independence and feeling of confidence to perform activities, which may lead to activity restriction and social isolation. This can make older adults less secure and

## KEYPOINTS

# FEAR OF FALLING

Sharaf, A.Y., & Ibrahim, H.S. (2008). *Physical and Psychosocial Correlates of Fear of Falling Among Older Adults in Assisted Living Facilities*. *Journal of Gerontological Nursing*, 34(12), 27-35.

- 1 Fear of falling—low perceived self-efficacy at avoiding falls during essential, nonhazardous activities of daily living—is the most common reported fear among older adults.
- 2 Although fear and falling are correlated, several studies have shown that fear of falling is common even among older adults who have not actually experienced a fall, indicating that factors other than previous fall experience play a role.
- 3 The results of the current study revealed that the strongest factor independently positively associated with fear of falling was the use of walking devices, followed by depression, balance impairment, female gender, trait anxiety, and previous history of a fall or falls.
- 4 Improving physical fitness and increasing one's self-efficacy and sense of control over the environment can decrease these sources of fear among older adults.

focused on their physical abilities, resulting in fear of falling. In addition, depressive symptoms, such as lack of concentration and decreased attention to surroundings, can predispose older adults to fall, which can also increase fear of falling. In this regard, Means, O'Sullivan, and Rodell (2003) documented that depression may increase the risk of subsequent falls and fear of falling. A significant association between depression and fear of falling was also supported in studies by Austin, Devine, Dick, Prince, and Bruce (2007) and Chou et al. (2005).

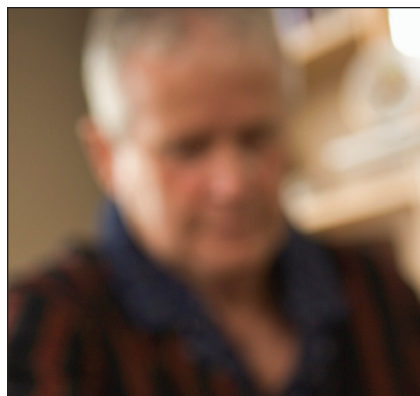
Although the phrase *fear of falling* suggests an anxiety state, the results of the current study confirm that only trait anxiety was independently associated with fear of falling. In this respect, some researchers have suggested that fear of falling may actually be an expression of generalized anxiety comparable with other fears that plague older adults (Lawrence et al., 1998). Accordingly, older adults who have trait anxiety may perceive the

aging process, as well as their entire life situation, as threatening. Mann et al. (2006) found that neuroticism was an important psychological factor in the experience of fear of falling. On the other hand, studies have suggested that state anxiety in late life is frequently associated with depression (Flint, 1994). Thus, in the current study, the link between state anxiety and fear of falling may have been mediated by depression. Further study is needed to clarify the relationship between fear of falling, state and trait anxiety, and depression.

This study is an important step in understanding physical and psychosocial correlates of fear of falling. The strengths of the current study lie in its recruitment of all facility residents who speak Arabic who met eligibility criteria and the high participation rate for eligible participants, which minimizes participant bias. Furthermore, the selection of independent variables was based on a systematic and thorough review of the literature.

## LIMITATIONS

There are a number of limitations that warrant discussion. First, as with other cross-sectional studies, the design of the current study limits interpretation of the results with regard to causality between physical and psychosocial correlates and fear of falling. Thus, these findings must be interpreted with caution as evidence of association and not explicitly as causal. In addition, this study did not



investigate the cyclical relationship between fear of falling and avoidance of activity. A longitudinal study may be useful in examining the causal relationship between fear of falling and physical and psychosocial correlates, and avoidance of particular activities. Second, this study is limited to a sample of ambulatory older adults living in assisted living facilities. Therefore, the current findings cannot be generalized to a wider older adult population living in the community. Third, given that the data were collected using interviews, social desirability, especially among men, may have influenced responses to questions related to fear of falling. Finally, the measures used in this study did not provide an in-depth assessment of the pattern of previous falls, such as location, time, circumstances, and the specific activity the person was engaged in at the time of the fall.

## IMPLICATIONS FOR INTERVENTION

Despite these study limitations, the results provide important in-

formation for nurses and open an avenue for improved clinical practice. Maintaining and improving the physical fitness of older adults has been the hallmark for fall risk reduction and fear of falling prevention programs (Legters, 2002; Li, Fisher, Harmer, & McAuley, 2005). Ongoing assessment of previous fall patterns and risk factors for fall-related injury should be incorporated into daily nursing practice. In ad-

## Assessment of fear of falling while performing activities of daily living should be an integral part of the nursing care plan for older adults.

dition, nurses in different care facilities can serve a key function in identifying older adults with balance problems and implementing exercise programs to improve individuals' lower extremity strength and balance control. A minimum of two to three exercise sessions per week is needed to reduce fall risk (Carter et al., 2002). In fact, the role of exercise as a means of reducing falls and improving fall-related efficacy has been the focus of considerable recent research (Stathi & Simey, 2007; Steadman, Donaldson, & Kalra, 2003). Also, participation in exercise programs is known to be associated with decreased symptoms of depression and anxiety that are combined with fear of falling in older adults (Means et al., 2003).

Educating older adults about environmental safety, strategies that foster a healthy degree of caution during activities, and how to be assertive and ask for assistance when in a situation where they are fearful can all contribute to decreasing unnecessary life-threatening falls and fear of

falling in older adults. Assessment of fear of falling while performing activities of daily living should be an integral part of the nursing care plan for older adults. These data can be useful for early monitoring of the fear before it becomes an obsession and detrimental. Nurses can also suggest ways individuals can alter their activities and therefore feel more secure. Moreover, implementing a cognitive-behavioral intervention program can play a crucial role in reducing fear of falling (van Haastregt et al., 2007). Applying cognitive strategies to identify misconceptions about falls and restructure self-defeating thoughts into self-motivating thoughts can build up older adults' confidence in their ability to overcome fear of falling.

Early detection and timely management of symptoms of depression and excessive anxiety can help increase older adults' ability to relax. This can be achieved by applying stress management techniques (e.g., breathing exercises, massage, distraction) and spiritual activities and by helping older adults express painful feelings and identify personal accomplishments (Dehlin, 2004).

## CONCLUSION

Fear of falling among older adults in assisted living facilities is considerably high and associated with decline in physical and psychological health. Balance impairment, use of walking devices, and previous history of falls are all indicative of physical frailty and reduced health status, and these have the potential to increase fear of falling. In addition, depression and trait anxiety independently contribute to this source of fear.

## REFERENCES

- Abaza, A.A. (2000). *Geriatric Depression Scale: Standardized Arabic version*. Cairo, Egypt: Egyptian Anglo Library.
- Abd El-Khalek, A.M. (1992). *State-Trait Anxiety Inventory: Standardized Arabic version* (2<sup>nd</sup> ed.). Alexandria, Egypt: Egyptian Anglo Library.



- Austin, N., Devine, A., Dick, I., Prince, R., & Bruce, D. (2007). Fear of falling in older women: A longitudinal study of incidence, persistence, and predictors. *Journal of the American Geriatrics Society*, 55, 1598-1603.
- Bandura, A. (1987). Reflection on self-efficacy. In S. Rachman (Ed.), *Advances in behaviour research and therapy* (pp. 237-269). Oxford, United Kingdom: Pergamon Press.
- Buchner, D.M., Hornbrook, M.C., Kutner, N.G., Tinetti, M.E., Ory, M.G., Mulrow, C.D., et al. (1993). Development of the common data base for the FICSIT trials. *Journal of the American Geriatrics Society*, 41, 297-308.
- Carter, N.D., Khan, K.M., McKay, H.A., Pettit, M.A., Waterman, C., Heinonen, A., et al. (2002). Community-based exercise program reduces risk factors for falls in 65- to 75-year-old women with osteoporosis: Randomized controlled trial. *Canadian Medical Association Journal*, 167, 997-1004.
- Chou, K.L., Yeung, F.K., & Wong, E.C. (2005). Fear of falling and depressive symptoms in Chinese elderly living in nursing homes: Fall efficacy and activity level as mediator or moderator? *Aging & Mental Health*, 9, 255-261.
- D'Amico, D., & Barbarito, C. (Eds.). (2007). *Health and physical assessment in nursing*. Upper Saddle River, NJ: Pearson Education.
- Dehlin, C.M. (2004). Anxiety, depression and delirium. In M.L. Matzo & D.W. Sherman (Eds.), *Gerontologic palliative care nursing* (pp. 317-351). St. Louis: Mosby.
- Delbaere, K., Van den Noortgate, N., Bourgois, J., Vanderstraeten, G., Tine, W., & Cambier, D. (2006). The Physical Performance Test as a predictor of frequent fallers: A prospective community-based cohort study. *Clinical Rehabilitation*, 20, 83-90.
- Deshpande, N., Metter, E.J., Lauretani, F., Bandinelli, S., Guralnik, J., & Ferrucci, L. (2008). Activity restriction induced by fear of falling and objective and subjective measures of physical function: A prospective cohort study. *Journal of the American Geriatrics Society*, 56, 615-620.
- Evitt, C.P., & Quigley, P.A. (2004). Fear of falling in older adults: A guide to its prevalence, risk factors, and consequences. *Rehabilitation Nursing*, 29, 207-210.
- Fletcher, P.C., & Hirdes, J.P. (2004). Restriction in activity associated with fear of falling among community-based seniors using home care services. *Age and Ageing*, 33, 273-279.
- Flint, A.J. (1994). Epidemiology and comorbidity of anxiety disorders in the elderly. *American Journal of Psychiatry*, 151, 640-649.
- Gagnon, N., Flint, A.J., Naglie, G., & Devins, G.M. (2005). Affective correlates of fear of falling in elderly persons. *American Journal of Geriatric Psychiatry*, 13, 7-14.
- Gillespie, S.M., & Friedman, S.M. (2007). Fear of falling in new long-term care enrollees. *Journal of the American Medical Directors Association*, 8, 307-313.
- Kressig, R.W., Wolf, S.L., Sattin, R.W., O'Grady, M., Greenspan, A., Curns, A., et al. (2001). Associations of demographic, functional, and behavioral characteristics with activity-related fear of falling among older adults transitioning to frailty. *Journal of the American Geriatrics Society*, 49, 1456-1462.
- Lach, H.W. (2005). Incidence and risk factors for developing fear of falling in older adults. *Public Health Nursing*, 22, 45-52.
- Lawrence, R.H., Tennstedt, S.L., Kasten, L.E., Shih, J., Howland, J., & Jette, A.M. (1998). Intensity and correlates of fear of falling and hurting oneself in the next year: Baseline findings from a Royal Center fear of falling intervention. *Journal of Aging and Health*, 10, 267-286.
- Legters, K. (2002). Fear of falling. *Physical Therapy*, 82, 264-272.
- Li, F., Fisher, K.J., Harmer, P., & McAuley, E. (2005). Falls self-efficacy as a mediator of fear of falling in an exercise intervention for older adults. *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 60, P34-P40.
- Li, F., Fisher, K.J., Harmer, P., McAuley, E., & Wilson, N.L. (2003). Fear of falling in elderly persons: Association with falls, functional ability, and quality of life. *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 58, P283-P290.
- Mann, R., Birks, Y., Hall, J., Torgerson, D., & Watt, I. (2006). Exploring the relationship between fear of falling and neuroticism: A cross-sectional study in community-dwelling women over 70. *Age and Ageing*, 35, 143-147.
- Means, K.M., O'Sullivan, P.S., & Rodell, D.E. (2003). Psychosocial effects of an exercise program in older persons who fall. *Journal of Rehabilitation Research and Development*, 40, 49-58.
- Murphy, S.L., Dubin, J.A., & Gill, T.M. (2003). The development of fear of falling among community-living older women: Predisposing factors and subsequent fall events. *Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*, 58, M943-M947.
- Scheffer, A.C., Schuurmans, M.J., van Dijk, N., van der Hooft, T., & de Rooij, S.E. (2008). Fear of falling: Measurement strategy, prevalence, risk factors and consequences among older persons. *Age and Ageing*, 37, 19-24.
- Spielberger, C.D., Gorsuch, R.L., Lushene, R., Vagg, P.R., & Jacobs, G.A. (1983). *Manual for the State-Trait Anxiety Inventory (form Y)*. Palo Alto, CA: Consulting Psychologist.
- Stathi, A., & Simey, P. (2007). Quality of life in the Fourth Age: Exercise experiences of nursing home residents. *Journal of Aging and Physical Activity*, 15, 272-286.
- Steadman, J., Donaldson, N., & Kalra, L. (2003). A randomized controlled trial of an enhanced balance training program to improve mobility and reduce falls in elderly patients. *Journal of the American Geriatrics Society*, 51, 847-852.
- Tinetti, M.E., Richman, D., & Powell, L. (1990). Falls efficacy as a measure of fear of falling. *Journal of Gerontology*, 45, P239-P243.
- van Haastregt, J.C., Zijlstra, G.A., van Rossum, E., van Eijk, J.T., de Witte, L.P., & Kempen, G.I. (2007). Feasibility of a cognitive behavioral group intervention to reduce fear of falling and associated avoidance of activity in community-living older people: A process evaluation. *BMC Health Services Research*, 7, 156.
- Vu, M.Q., Weintraub, N., & Rubenstein, L.Z. (2005). Falls in the nursing home: Are they preventable? *Journal of the American Medical Directors Association*, 6(Suppl. 3), S82-S87.
- Yardley, L. (1998). Fear of imbalance and falling. *Reviews in Clinical Gerontology*, 8, 23-29.
- Yardley, L., Beyer, N., Hauer, K., Kempen, G., Piot-Ziegler, C., & Todd, C. (2005). Development and initial validation of the Falls Efficacy Scale-International (FES-I). *Age and Ageing*, 34, 614-619.
- Yardley, L., & Smith, H. (2002). A prospective study of the relationship between feared consequences of falling and avoidance of activity in community-living older people. *The Gerontologist*, 42, 17-23.
- Yesavage, J.A., Brink, T.L., Rose, T.L., Lum, O., Huang, V., Adey, M., et al. (1982-1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37-49.
- Zijlstra, G.A., van Haastregt, J.C., van Eijk, J.T., van Rossum, E., Stalenhoef, P.A., & Kempen, G.I. (2007). Prevalence and correlates of fear of falling and associated avoidance of activity in the general population of community-living older people. *Age and Ageing*, 36, 304-309.

---

#### ABOUT THE AUTHORS

Dr. Sharaf is Lecturer, Psychiatric Nursing and Mental Health Department, and Dr. Ibrahim is Lecturer, Gerontological Nursing Department, Faculty of Nursing, University of Alexandria, Alexandria, Egypt.

Address correspondence to Amira Y. Sharaf, DNSc, Lecturer, Psychiatric Nursing and Mental Health Department, Faculty of Nursing, Admon Fermon Street, Smouha, Alexandria, Egypt; e-mail: amira\_psych@yahoo.com.

Copyright of Journal of Gerontological Nursing is the property of SLACK Incorporated and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.