

# Fear of Falling and Activity Restriction: The Survey of Activities and Fear of Falling in the Elderly (SAFE)

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*A new instrument was developed to assess the role of fear of falling in activity restriction. The instrument assesses fear of falling during performance of 11 activities, and gathers information about participation in these activities as well as the extent to which fear is a source of activity restriction. The instrument demonstrated good internal consistency reliability and showed convergent validity with other fear of falling measures. Concurrent (empirical) validity was demonstrated in that the scale was effective in differentiating among those who were expected to be afraid vs. not afraid of falling. Criterion validity was examined in relation to quality of life variables. Fear of falling was shown to be related to lower quality of life, even when controlling for related background factors. One advantage of this measure over existing measures is the possibility for differentiating fear of falling that leads to activity restriction from fear of falling that accompanies activity. This may provide useful information for those interested in treating fear of falling or promoting activity among the elderly.*

FALLS are among the leading causes of death among the elderly (Baker & Harvey, 1985; Tinetti, 1995). In recent years, there has been increased attention to the role of falls as a public health problem. One of the possible side effects of this public awareness is an increase in the incidence of fear of falling. In several studies, the prevalence and intensity of fear of falling have been found to be high, and it appears that fear of falling is not only experienced by those who have had actual falls (Arfken, Lach, Birge, & Miller, 1994; Howland et al., 1993).

One of the major consequences of fear of falling is activity restriction, which is itself a risk factor for falls because it can lead to muscle atrophy or deconditioning and, ultimately, reduced health and physical functioning (Tinetti, 1995). Fear of falling also can compromise quality of life, such as by limiting social contacts or leisure activities (Arfken et al., 1994; Howland et al., 1993). Although some degree of fear of falling may, in fact, be adaptive if it leads to increased caution, in its extreme forms, fear of falling becomes a problem when it is immobilizing or creates debilitating anxiety that distracts focus from or interferes with an activity. Thus, it is clear that fear of falling is a construct that needs to be assessed, understood, and treated in its own right. The goals for the present study were (a) to develop a new instrument to enable assessment of fear of falling in relation to activity restriction and (b) to examine the relationship between fear of falling and quality of life.

## Assessment of Fear of Falling

The most common approach to assessment of fear of falling has been to ask directly, "How afraid of falling are you?" Although this method has been informative, it may underesti-

mate the incidence and it can not detect possible variation in levels of fear across situations (Howland et al., 1993).

Another approach to assessing fear of falling utilizes a self-efficacy framework (Bandura, 1977). The Falls Efficacy Scale (FES; Tinetti, Richman, & Powell, 1990) examines the degree of confidence one has for completing 10 activities of daily living (ADLs) without falling. A related measure, the Activities-specific Balance Confidence (ABC) Scale (Powell & Myers, 1995), assesses the confidence that one can engage in a broader range of ADLs, including more difficult ones and those that are performed outside the home (Myers et al., 1996), without losing balance or becoming unsteady.

Although these self-efficacy scales may allow for a more differentiated assessment than a direct one-item question about fear of falling, there are some shortcomings. First, the response format is sometimes difficult to use. The FES (Tinetti et al., 1990) uses a 10-point rating scale from 0 (no confidence) to 10 (completely confident). The ABC uses the more standard self-efficacy assessment (Bandura, 1977), with a 0 (no confidence) to 100% (complete confidence) scale. In our experience with these measures, we have found that older adults, especially those with limited educational levels, had difficulty responding to the 10-point or 100-point confidence ratings. One problem was that subjects were unsure how to use the full scale because only the two ends of the scale had response labels. This may be a problem especially when there is a need for a format that can be successfully used over the telephone or in a self-administered questionnaire with a diverse sample, because there is little or no opportunity for an interviewer to explain the rating scale procedure. Indeed, in previous studies (Tinetti et al., 1990; Powell & Myers, 1995), these instruments usually have been administered in face-to-

face interviews, when interviewers can give instructions and use probes.

Another problem with administration of the FES arises when the participant does not engage in a given activity included in the instrument. Using an example from the FES, some individuals do not go up and down stairs, perhaps because they are in wheelchairs or because they only go to places with one floor or with elevators. Tinetti et al. (1990) have developed a set of probes to encourage subjects who do not do a particular activity to answer hypothetically, that is, to answer regarding their concerns about falling if they were to do the activity. However, we found that many participants were unable or resistant to think about such hypothetical situations. Moreover, this form of administration does assess whether the person actually does the activity, one of the important risk factors associated with fear of falling.

A third issue centers around the lists of activities that are included in the FES and ABC scales. The FES includes 10 global ADLs, which are fairly basic (e.g., get dressed and undressed) and do not discriminate well among higher functioning community-residing seniors (Powell & Myers, 1995). The ABC includes a wider array of 16 ADL and instrumental activities of daily living (IADLs) with higher levels of difficulty and more detailed activity descriptions. However, neither instrument contains items that focus on exercise (e.g., going for a walk) or social activity (e.g., visiting friends). Although the ADLs are basic and critical for independent living, the consequences of fear of falling may begin in more advanced activities, which may not be essential for independent functioning. Nevertheless, avoiding such activities could contribute to reduced quality of life, eventual functional decline, or slow deterioration of ADL functions because of activity restriction and physical deconditioning. Thus, we were interested in expanding the range of activities to tap instances of fear of falling that result in curtailment of social and recreational activities.

#### *Fear of Falling as Activity Restriction*

Our conceptual approach to fear of falling is to focus on the undesirable consequences of this fear (i.e., activity restriction and/or poor quality of life). The underlying assumption is that fear alone is not typically damaging unless it leads to sedentary behavior or restriction of important activities, interferes with good judgment, and/or preoccupies the person's thoughts. At the same time, we acknowledge that people may restrict activities for reasons other than fear of falling.

The goal of the present study was to develop and test an instrument that would operationalize fear of falling, assess activity restriction, and enable examination of the relationship of fear of falling to activity restriction and quality of life. In summary, there were several goals for development of a new fear of falling instrument: (a) use a simple rating scale with descriptors for all response choices, (b) avoid hypothetical ratings, (c) identify whether activities are engaged in or not, (d) identify the sources of activity avoidance (i.e., whether or not it is fear of falling), and (e) expand the range of activities beyond basic ADLs.

## METHODS

### *Sample*

Participants were residents of public senior housing devel-

opments in six communities in eastern Massachusetts (Attleboro, Brockton, Canton, Dedham, Milford, and Plymouth). These communities were selected because their housing authorities were participants in a university internship program. All of the housing authorities granted permission to conduct the survey.

The sampling frame consisted of a list of all senior housing units with residents 62 years of age and older in these communities. A random sample of 60 buildings was selected. In total, the sample included 427 housing units.

The residents of the selected units were subsequently contacted by a letter explaining that a study of elderly health status was being conducted and that they would be contacted through a follow-up telephone call to determine if they would be willing to participate. If a unit was occupied by more than one eligible resident, one respondent was randomly selected. Subjects were offered \$1.00 for their participation and the chance to participate in a random drawing for an additional \$50 at each housing authority. Participants were interviewed in their homes (or at another location of their choosing) after providing informed consent.

The response rate was 63%. The primary reasons for exclusion from the study were (a) non-English speaking, (b) too young, (c) no one living in the unit, and (d) no telephone. The most common reasons for refusal were being either sick or too busy.

A total of 270 men (22%) and women (78%) between the ages of 62 and 93 (Mean age = 76.16,  $SD = 7.91$ ) participated. The average level of education was 10 years ( $SD = 2.67$ ) with a range of 0 to 18 years of schooling. The sample was 97% white, and 10% of the participants were currently married. On a self-rated health measure using a 5-point scale (excellent, very good, good, fair, or poor), 57% of the sample rated their health as good or better. Out of a possible 16 common medical conditions (e.g., diabetes, hypertension), the sample had a mean of 3.87 ( $SD = 2.31$ ) conditions. Thirty-seven percent of the participants reported using a walking aid, such as a cane or walker.

Fall history was also assessed. Seventeen percent of the participants reported that they had fallen to the ground in the past 3 months, whereas 36% reported falls that required medical attention sometime in the past 5 years. More than one third (39%) knew of a friend or relative who had had a serious fall.

### *Scale Development*

The Survey of Activities and Fear of Falling in the Elderly (SAFE) contained 22 activities representing ADLs and IADLs (taking tub bath or shower, using the toilet, getting out of bed, dressing by self, going to the store, cleaning the house, preparing simple meals); mobility (walking for exercise, going out when it is slippery, going up and down stairs, taking public transportation, getting in and out of a car, going to the doctor, reaching for something overhead, walking inside, walking outside, bending down); and social activities (visiting friends or relatives, going to social events, going to places with crowds, and going to movies or shows). Using existing disability instruments (Coroni-Huntley, Brock, Ostfeld, Taylor, & Wallace, 1989; Hubert, Bloch, & Fries, 1993; Katz, 1983) administered in large scale surveys, all items that involved some physical activity or movement were identified. Based on judgements

made by three experts, a pool of 43 items was compiled. Of these, 22 non-overlapping items that required some level of physical motion or activity were selected for the first version of the new instrument.

For each activity several questions were asked: (a) Do you currently do it (yes or no); (b) If you do the activity, when you do it how worried are you that you might fall (0 = not at all worried, 1 = a little worried, 2 = somewhat worried, and 3 = very worried); (c) If you do not do the activity, do you not do it because you are worried (0 = not at all worried; 3 = very worried) that you might fall; (d) If you do not do the activity because of worry, are there also other reasons that you do not do it (if yes, specify); (e) For those not worried, what are the reasons that you do not do it (specify); (f) Compared to 5 years ago would you say that you do it (1 = more than you used to, 2 = about the same or 3 = less than you used to).

The first step in developing the scale was to determine the psychometric properties and to reduce the number of items, if possible, without compromising reliability. After identifying the best set of items, and establishing reliability of the shortened instrument, the validity was examined. Multiple forms of validity (criterion and construct) were examined: (a) convergent validity with other measures of fear of falling, (b) the relationship of fear of falling and activity restriction, (c) identification of groups who vary in fear of falling as expected based on past research findings, and (d) concurrent (empirical) validity of the new fear of falling measure in relation to quality of life, as compared with two existing measures. Finally, the usefulness of the new scale for identifying alternative sources of activity restriction was considered.

#### Interview

All participants were interviewed in a face-to-face interview by one of six interviewers, who were students in Public Health and were participating in two-year internship programs at the housing authorities where they conducted the surveys. All interviewers received a daylong training session in interviewing the elderly. The interview times ranged from 10 to 100 minutes with a mean of 45.2 ( $SD = 14.7$ ) minutes. The survey was administered between September 1995 and June 1996.

In addition to the new SAFE instrument, the interview included assessment of background information, four measures of quality of life, and two other measures of fear of falling.

#### Quality of Life

*The MOS Short Form 36 (SF-36).* — This instrument developed by the Medical Outcome Study (MOS; Ware, 1993) includes eight subscales: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health. The standard scoring was used (Ware, 1993). Higher scores indicate better health and functioning on all scales.

*Social support.* — The instrument used by the Normative Aging Study (Bosse, Aldwin, Levenson, Spiro, & Mroczek, 1993) was included to measure degree of contact with friends and relatives. Participants were asked how often (1 = nearly everyday to 6 = less than every year or never) they see or speak to seven types of people (parents, children, grandchild-

ren, brothers and sisters, other relatives, close friends, and doctors/nurses). A mean score was calculated, with higher scores indicating less contact. They also were asked if there was anyone else living with them (1 = no, 2 = yes) and to what extent they could rely on family members or friends for help in a crisis (1 = completely, 5 = not at all).

*Leisure time activities.* — The leisure instrument developed for the Kansas City Studies of Aging (Neugarten, 1968) and used by the Normative Aging Study (Bosse et al., 1993) was included. Three indexes were computed: active (sports, home repairs, volunteer work, and going to entertainment events); inactive (reading books, doing hobbies, watching TV) and social (visiting with friends or family, taking care of family members, helping friends or neighbors). Ratings for how often they did the activities were made on a scale from 1 (daily) to 7 (once a year or less). A mean score was computed for each index, with higher scores indicating less frequent leisure time activity.

*Overall life rating.* — Respondents rated their overall life these days on a scale from 0 (worst possible life) to 10 (best possible life). This item has been used as a measure of happiness in several national surveys (Midlife Development Inventory [MIDI], 1994; Myers and Diener, 1996).

#### Fear of Falling

*Fear of falling items.* — Three items developed by Howland et al. (1993) were included. (1) Afraid item: How afraid are you that you will fall and hurt yourself in the next year (1 = very afraid to 4 = not at all afraid); (2) Are there things you don't do because you might fall? (1 = no, 2 = yes); and (3) Are there things you have stopped doing because you are worried that you might fall? (1 = no, 2 = yes).

*Falls Efficacy Scale (FES).* — The scale developed by Tinetti et al., (1990) was used. It included 10 ADL items and asked, "How confident or sure are you that you can do the activity without falling?" The answers were rated on a scale from 0 (not at all sure) to 10 (completely sure). The mean across all ratings was computed, with higher scores indicating more confidence or less fear of falling.

The order of the three fear of falling instruments was counterbalanced to examine any potential carryover effects. There were three orders of administration randomly distributed across participants, so that each instrument was administered an equal number of times as the first, second, and third instrument in the sequence.

## RESULTS

#### Descriptive Data

The frequency data for each of the 22 activities in the SAFE instrument are presented in Table 1. More than 85% of the participants engaged in each of the following eight activities: preparing simple meals, going to doctor or dentist, using the toilet by yourself, getting out of bed, getting in and out of a car, getting dressed by yourself, bending down to get something, walking indoors around home or building. The mean fear score for each item is

also presented in Table 1. Higher scores indicate greater fear.

The highest level of fear was found for “going out when it is slippery,” followed by “taking a tub bath.” As for restriction of activities, at least half of the respondents said that they clean, walk for exercise, go out when it is slippery, walk several blocks outside, and go out to a movie or show less than they did five years ago.

*Psychometric Properties*

The internal consistency reliability of the worry scale was computed for the 22 items, including activities that were performed and not performed. The adjusted item-to-total correlations varied from .49 to .77. The coefficient alpha was .95. One of the goals was to determine if items could be dropped to shorten the scale without compromising the psychometric quality of the scale.

To guide item reduction, a two-step procedure was used to maximize the breadth of items while ensuring good internal consistency. First, the total fear score was used as the dependent variable, and a forward regression procedure was used to enter the 22 fear items individually, until more than 95% of the total score variance was accounted for. Seven items were required to capture 96% of the total score variance. The second step examined the item-to-total correlations and the coefficient alpha. The goal was to achieve an alpha greater than or equal to .90. With the 7 items from the regression model, the reliability was .89. Items were added to the scale using the forward

regression results, until a reliability of at least .90 was achieved. This procedure resulted in the selection of 4 additional items, 11 items in total. The coefficient alpha was .91. The 11 items retained for the final version of the scale are noted with a superscript in Table 1.

A principal axis factor analysis was conducted on the 11 items. One eigenvalue was greater than one, therefore a one-factor solution was accepted. Factor loadings and adjusted item-to-total correlations are presented in Table 2.

In computing scale scores, item responses were averaged (possible range: 0 = not at all worried to 3 = very worried), with higher scale scores indicating more fear. The mean score for fear across the 11 items was .66 (*SD* = .69, range 0 to 2.91). Scores were also computed for the number of activities each person did across the 11 activities (Activity Level *M* = 7.98, *SD* = 2.37, range 0 to 11). “No” responses and nonresponses were counted as not doing the activity. Activity restriction was examined by computing the number of activities that the person reported they did less than they had over the past 5 years (Activity Restriction *M* = 3.98, *SD* = 3, range 0 to 10).

Order of scale administration did not affect the scores for the FES or the SAFE instrument. However, respondents reported less fear on average when the question asking, “How afraid are you that you might fall?,” was presented as the first fear instrument.

*Scale Validation*

The SAFE fear score was significantly correlated in the expected directions with the Tinetti FES scale (−.76) and the one-item afraid question (−.59), showing evidence for convergent validity (see Table 3).

Table 1. Frequencies for Activities and Mean Fear of Falling Score

Activity	% Who do activity <sup>a</sup>	% Who do activity less than 5 years ago	Fear of falling score <sup>b</sup>	
			<i>M</i>	<i>SD</i>
Go to the store*	85	44	.45	.80
Clean your house	79	50	.38	.82
Prepare simple meals*	96	32	.19	.57
Go to a doctor or dentist	94	13	.21	.60
Take a tub bath*	43	31	.89	1.21
Take a shower	76	14	.68	1.02
Use toilet by yourself	100	1	.21	.59
Get out of bed*	100	2	.50	.89
Take a walk for exercise*	62	51	.56	.98
Go out when it is slippery*	42	54	1.92	1.16
Go up and down stairs	58	45	.79	1.14
Take public transportation	51	25	.29	.70
Get in and out of car	99	28	.30	.70
Visit a friend or relative*	80	35	.26	.61
Go to a community activity	59	42	.33	.76
Get dressed by yourself	99	4	.21	.60
Reach for something over your head*	81	32	.79	1.12
Go to a place with crowds*	74	40	.45	.88
Walk indoors around your home or building	88	22	.38	.80
Walk several blocks outside*	47	50	.60	.99
Bend down to get something*	92	30	.70	1.04
Go out to a movie or show	26	49	.26	.69

<sup>a</sup>Missing data coded as not doing.

<sup>b</sup>Higher scores indicate greater fear of falling (range 0–3).

\*Item included in final version.

Table 2. Factor Loadings and Item to Total Correlations for Fear of Falling Items

Item <sup>a</sup>	Factor loading	Adjusted item-to-total correlation
Walk outside	.80	.76
Bend down	.78	.74
Go out in crowds	.77	.73
Go to store	.71	.66
Walk for exercise	.74	.70
Visit	.70	.65
Tub bath	.72	.69
Go out when slippery	.52	.50
Prepare meals	.65	.59
Reach over head	.68	.66
Get out of bed	.64	.61

<sup>a</sup>Items are listed in order of entry into forward regression model.

Table 3. Correlations of SAFE Subscales with Falls Efficacy Scale (FES) and Afraid Item

	1	2	3	4	5
1. SAFE no. of activities	—				
2. SAFE fear of falling	−.57	—			
3. SAFE do less of	−.57	.50	—		
4. FES	.69	−.76	−.59	—	
5. Afraid item	.30	−.59	−.29	.43	—

*Fear of falling and activity restriction.* — Further evidence of construct validity was obtained by looking at fear in relation to activity restriction. Those who had higher fear scores engaged in fewer activities (−.57) and were more likely to have reduced their activities over the past 5 years (−.57) (see Table 3).

Three fear groups were created using the three Howland et al. (1993) items: (a) not afraid of falling, (b) afraid of falling but do not limit activities, and (c) afraid of falling and do limit activities (don't do or stopped doing activities). A one-way analysis of variance was conducted to determine whether the SAFE fear score would vary as a function of the fear group. A significant difference was found,  $F(2, 263) = 92.10, p < .001$ , and post hoc tests indicated that all three groups differed significantly from each other. As expected, the greatest amount of fear was found for the group who said they were afraid and restricted activities ( $M = 1.27, SD = .71$ ), followed by the afraid group without restrictions ( $M = .66, SD = .58$ ), and then the not-at-all-afraid group ( $M = .24, SD = .32$ ). These results provide additional evidence that the fear scale can differentiate among different levels of fear as well as among those who do and don't restrict activities. Further evidence for this distinction is provided in Table 4. These results indicate that fear scores are significantly higher for those who say they do not

engage in a given activity than for those who do engage in the activity.

*Fear of falling in relation to other variables.* — Additional empirical validity information was obtained for the new fear of falling scale by examining variations in fear in relation to variables identified as relevant in previous research (see Table 5). As expected, women and those who were older had higher fear of falling. Those who had experienced a previous fall, used a walking aid, or had more medical conditions were also more afraid of falling. Those who knew of a friend or family member who had fallen were not more afraid of falling compared to those who did not.

Table 4. Comparison of Fear of Falling Scores for Those Who Do (Yes) and Don't Do (No) Activities

Activity Status	M	SD
Go to the store***		
Yes	.56	.58
No	1.20	.94
Prepare simple meals*		
Yes	.64	.67
No	1.12	1.00
Take a tub bath**		
Yes	.54	.59
No	.76	.74
Take a walk for exercise***		
Yes	.50	.51
No	.93	.84
Go out when it is slippery***		
Yes	.33	.43
No	.90	.74
Visit a friend or relative***		
Yes	.53	.56
No	1.19	.89
Reach for something over your head***		
Yes	.52	.57
No	1.29	.80
Go to a place with crowds***		
Yes	.52	.57
No	1.08	.83
Walk several blocks outside***		
Yes	.41	.46
No	.89	.78
Bend down to get something***		
Yes	.56	.57
No	1.85	.83

Note. Because all subjects reported that they “get out of bed,” this item could not be included in this analysis.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  [for difference between those who do (yes) and do not do (no) activities].

Table 5. Differences in Fear of Falling by Demographic and Health Variables and Fall History

	M	SD
Age*		
Young-old (62–75)	.51	.57
Old-old (76–93)	.80	.76
Gender		
Men	.52	.68
Women	.70	.69
Fall Incidence*		
No falls	.45	.54
Had fall	.95	.76
Assistive Device*		
No walking aid	.49	.54
Use walking aid	.96	.81
Fear and Activity Restriction*		
Not afraid of falling	.24	.32
Afraid of falling with no restriction	.66	.58
Afraid of falling with restriction	1.27	.71
Medical Conditions*		
0–3	.44	.55
4–10	.85	.74
Vicarious Fall Experience		
Friend or relative has fallen	.72	.64
No one has fallen	.62	.72

\* $p < .001$ .

Table 6. Correlations of SAFE Fear of Falling Scale, FES, and Afraid Item with Quality of Life Variables

Quality of Life Variables	SAFE	FES	Afraid Item
SF-36 physical functioning	−.55**	.67**	.32**
SF-36 role physical	−.39**	.41**	.18*
SF-36 pain index	−.42**	.46**	.29**
SF-36 general health	−.32**	.37**	.33**
SF-36 vitality	−.44**	.44**	.35**
SF-36 social	−.52**	.52**	.34**
SF-36 role emotional	−.27**	.24**	.17*
SF-36 mental health	−.37**	.34**	.28**
Social support <sup>a</sup>	.23**	−.18*	−.13*
Can rely on others <sup>a</sup>	.27**	−.21**	−.13*
Active leisure <sup>a</sup>	.32**	−.44**	−.23**
Inactive leisure <sup>a</sup>	.17*	−.29**	−.07
Social leisure <sup>a</sup>	.26**	−.34**	−.21**
Overall life rating	−.31**	.35**	.26**

<sup>a</sup>Higher scores indicate less interaction or activity.

\* $p < .05$ ; \*\* $p < .001$ .

*Relationship between fear of falling and quality of life.* — Another approach to construct validation was to examine fear of falling in relation to indicators of quality of life, and to compare these relationships for the three measures of fear (SAFE, FES, Afraid item). Lower quality of life was an expected concomitant of fear of falling. Correlations were in the expected direction, in that more fear was associated with a poorer quality of life, as determined by both health and social indicators (see Table 6). Those who were more afraid of falling had poorer physical functioning and mental health. Also, those who were more afraid had fewer social contacts with friends and family and were less likely to engage in leisure activities. All three instruments showed correlations of similar magnitude (see Table 6).

Next the relationship between fear and the quality of life variables was examined in multiple regression analyses, controlling for demographics, fall history, and health factors. For the health quality of life (SF-36) analyses, the regression equation included the following control variables: age, gender, fall history (ever had a fall), and number of health conditions. For the social support, leisure activity, and life satisfaction analyses the control variables included age, gender, fall history, number of medical conditions, and health rating (5-point scale).

For each dependent variable, a model including only the demographic control variables was fit. Then the three measures of fear of falling were added to the base model in separate regressions. The Afraid item was entered using dummy variables. The new SAFE scale accounted for comparable variance in quality of life as the two existing measures. In most cases, the fear of falling measures were significantly correlated with the quality of life variables while controlling for all background variables. Thus, fear of falling was shown to be an independent risk factor for poor quality of life in the

physical health, mental health, and social realms. For each dependent variable, the total  $R^2$  for each of the four models is reported in Table 7. To determine the percent of variance contributed by the fear of falling measure, the demographic percent variance can be subtracted from the total percent variance of the three models.

#### *Alternative Sources of Activity Restriction*

One of the goals for the new instrument was to identify the extent to which activity restriction was tied to fear of falling. The SAFE instrument allows for an analysis of when activities are avoided due to fear alone, due to fear along with other reasons, or due only to reasons other than fear. In Table 8, information is provided about the extent to which activities are avoided for fear alone as well as for reasons in addition to fear. Among those who did not perform the activity, the cases not included in the table are those for whom nonperformance of the activities was not at all due to fear of falling. The two activities most often avoided because of fear alone are going out when it is slippery and reaching overhead. For several items, avoidance was generally not because of fear: preparing simple meals, taking a tub bath, taking a walk for exercise, visiting friends or relatives, going places with crowds, and walking several blocks outside. Rather, the avoidance was expressed as due to (a) personal preference (47%), e.g., prefers showers to baths; (b) physical limitations (25%), e.g., cannot bend because of bad knees; (c) external constraints (10%), e.g., financial or transportation problems; or to (d) other reasons (9%), e.g., don't visit because friends and family always visit me.

It is also useful to examine to what extent people engage in activities even though they report some fear. In Table 8 the percentage who engage in activities and report some fear is also presented. Among those who performed the activities, the cases not represented in the table are those who reported they were not at all afraid of falling. The prevalence of fear reported is similar to what is typically reported in the literature: The range is from 12 to 65%. Thus, there is evidence that people who experience fear of falling do not necessarily restrict their activities.

Table 7. Amount of Variance Accounted for in Quality of Life Regressions with Background Variables and SAFE Fear of Falling Scale, FES, or Afraid Item

Dependent Variable	$R^2$ Background Variables	Total $R^2$		
		SAFE	FES	Afraid Item
<b>SF-36</b>				
Physical functioning <sup>a</sup>	21	38*	49*	25*
Role physical <sup>a</sup>	17	25*	27*	19*
Pain index <sup>a</sup>	24	30*	33*	28*
General health <sup>a</sup>	23	26*	28*	28*
Vitality <sup>a</sup>	22	31*	31*	28*
Social functioning <sup>a</sup>	15	32*	32*	22*
Role emotional <sup>a</sup>	06	11*	10*	08*
Mental health <sup>a</sup>	12	19*	17*	16*
<b>Leisure</b>				
Active leisure <sup>b</sup>	17	20*	25*	20*
Inactive leisure <sup>b</sup>	08	09	13*	08
Social leisure <sup>b</sup>	21	22*	23*	22*
Social support <sup>b</sup>	10	13*	11	12*
Overall life rating <sup>b</sup>	22	24*	26*	23

<sup>a</sup>Adjusted for age, gender, fall history, and number of health conditions.

<sup>b</sup>Adjusted for age, gender, fall history, number of health conditions, and health rating.

\* $p < .05$ .

#### DISCUSSION

A new measure of fear of falling, the SAFE, demonstrated acceptable psychometric characteristics. Internal consistency reliability for the 11-item worry scale was .91. The instrument uses a 4-point rating scale, making it relatively simple to administer. A further advantage of this measure is that because it incorporated an assessment of activities, it is not necessary to request hypothetical ratings of fear for activities not performed. Rather, fear of falling is assessed as a possible source of activity nonperformance or restriction. Fear is assessed on the same scale for activities that are done and not done. For activities that are not performed, the instrument allows for an assessment of the source of activity restriction. This may include fear of falling alone, fear of falling along with other reasons, or other reasons without fear of falling. Further, the instrument contains a broader range of activities than do existing instruments, which either assess a general fear of falling or fear of falling in basic ADLs. Thus, the wider range of activities enables assessment of fear-related activity restriction in a com-

Table 8. Activity Restriction and Participation in Relation to Fear of Falling

Activity	Do Not Do Activity			Do Activity	
	<i>N</i>	% Due to fear of falling alone	% Due to fear of falling and other reasons	<i>N</i>	% Afraid of falling
Go to the store	41	8	46	228	25
Prepare simple meals	10	10	20	258	12
Take a tub bath	142	12	27	117	38
Get out of bed	0	—	—	262	30
Take a walk for exercise	91	14	21	168	27
Go out when slippery	122	66	30	111	65
Visit a friend or relative	48	6	33	215	13
Reach over head	46	48	30	217	31
Go to place with crowds	63	10	40	200	16
Walk several blocks outside	128	12	30	126	20
Bend down	20	45	45	248	34

munity-residing sample in which there is typically little restriction of ADL activity.

The SAFE scale format presented no administration problems in the face-to-face interviews conducted with older persons of modest educational background. However, it must be noted that the sample was drawn from public housing facilities and, therefore, is not representative of older adults from other settings. Moreover, given that the response rate was 63%, it is likely that the sample we interviewed was positively biased, further limiting the generalizability. In future studies it will be important to determine if this scale can be successfully used with more diverse samples and with other modes of administration (i.e., telephone interviews or self-administration).

Analysis of data from the new scale points to the homogeneity of the fear of falling construct. Only 11 of the 22 items were required to account for 98% of the variance in the total scale score. The item-to-total correlations were all over .50 and the internal consistency was over .9 for both the 11- and 22-item versions. This indicates the high degree of overlap across the items.

Further evidence for the homogeneity and the unidimensionality of fear of falling comes from the one-factor solution in the factor analysis. It is also evident from the high correlations between the SAFE score, the one-item fear question, and the FES scale (ranging from .43 to .76). Thus, there is an indication that fear of falling is a robust construct that seems to be consistent across many different situations. The one-item fear of falling measure may work well because it accurately captures this generalized dimension of fear. The results of this analysis suggest that the specific activities included in a fear of falling instrument may be less important than the type of rating scale used to index the extent of fear. The new instrument is particularly useful for examining fear of falling in relation to activity restriction. The results show that those who have greater fear for a given activity are more likely to avoid the activity.

Fear of falling is a useful individual difference variable, reflecting differences in intensity of fear across persons. Those who have the greatest fear of falling in one situation tend to be the ones with the greatest fear in other situations. There are also some general collective patterns of elevated fear of falling

found in most individuals. Going out when it is slippery was associated with the greatest amount of fear of falling. Going up and down stairs, reaching for something overhead, and taking a tub bath also involved relatively high levels of fear of falling for the entire sample. The latter is interesting in light of the fact that all of the seniors in the sample lived in buildings that have installed grab bars in bath tubs.

In terms of predictive validity, the three measures of fear of falling yielded similar results. Greater fear of falling was associated with lower quality of life in terms of physical health, mental health, and social and leisure pursuits. This relationship held even when controlling for history of actual falls. Thus, fear of falling does appear to be an independent risk factor for poor quality of life. Given the cross-sectional nature of the data, however, it is not possible to determine whether fear of falling actually leads to poor quality of life or functional decline. It is also possible that those with a poor quality of life (i.e., those who have poor health, functional limitations, and limited social connectedness) develop greater fear of falling.

The new instrument provides information not contained in other scales, which may be useful in research and clinical settings. It enables an analysis of the extent to which fear has implications for activity restriction. Moreover, it provides a more multifaceted approach than existing instruments, in that it identifies whether activity restriction is tied to reasons other than or in addition to fear of falling. The SAFE instrument allows for making a distinction between those who restrict activities due to fear of falling and those who are afraid of falling but do not restrict activities.

In conclusion, the results using the new SAFE scale are consistent with earlier findings on the widespread existence of fear of falling and its important correlates. The SAFE instrument goes beyond previous fear of falling instruments in its ability to examine the link between fear of falling and activity restriction. The information obtained may be useful for both assessment and treatment of fear of falling. Multifaceted interventions that target the relations between beliefs, behaviors, and physical changes in aging could benefit from this approach (Lachman et al., 1997). Fear of falling when associated with activity restriction may require different types of interventions than when fear of falling is not tied to activity restric-

tion. Those who engage in activities despite their fear may also be an informative group to identify and study further. It is also important to acknowledge that although there are many sources of activity restriction other than fear of falling, there is evidence that fear of falling plays at least a partial role in a good deal of activity restriction. Moreover, the evidence is clear that fear of falling is associated with a lower quality of life. Future research is needed to identify strategies to foster a healthy degree of caution during activities rather than an unhealthy fear of falling that leads to restriction of activity.

#### ACKNOWLEDGMENTS

This research was supported with funds from National Institute on Aging AG11669 for a Roybal Center for Applied Research in Gerontology.

We thank Liane Adams, Kerry Broe, Jennifer Cote, and Lupe Salazar for their assistance with the interviews and Sarah Gyenes for help with data coding.

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Received November 26, 1996

Accepted May 23, 1997