

Geriatric fear of falling measure: Development and psychometric testing

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Abstract

Development of the geriatric fear of falling measure (GFFM) was based on a previous qualitative study of Taiwanese community-dwelling elders. Relevant parameters or items for assessing subscales were identified and tested in a three-stage process: item development, content validity testing and reliability testing. The GFFM was tested on two groups of community-dwelling elders in Taiwan ($N = 100$ and 384) to examine validity and reliability. Good test–retest, internal consistency and inter-rater reliability were found. Confirmatory factor analysis and good overall model fits supported construct validity of the GFFM. Although these data are preliminary, the GFFM could be used as a quick screening instrument to evaluate fear of falling and an outcome indicator of nursing interventions.

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Keywords: Fear of falling; Taiwanese elders; Instrument development; Psychometric evaluation

What this paper adds to the literature

What is already known about this topic?

- Fear of falling amongst older people has been investigated using a variety of measurement scales.
- Most of these scales have focused primarily on activity of older people, and few are grounded in older people's experiences and perceptions.

What do we now know as a result of this study?

- The geriatric fear of falling measure (GFFM) is grounded in the perceptions of older people living in Taiwan.

- The scale goes beyond a focus on activity to include subscales on: psychosomatic symptoms (PS), adopting a risk prevention attitude, and modifying behavior.

1. Introduction

Fear of falling is a common experience among the elderly population. Previous studies have estimated that between 25% and 55% of community-dwelling elders are afraid of falling (Arfken et al., 1994; Howland et al., 1993, 1998; Suzuki et al., 2002; Tinetti et al., 1994). Fear of falling can lead to deconditioning, thereby increasing the risk for falling (Friedman et al., 2002), compromising social interaction, and increasing the risk of isolation (Clague et al., 2000), depression, anxiety, and also impacts on the quality of life (Suzuki et al., 2002) of elderly people.

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Several approaches have emerged for measuring self-reported fear of falling. The most common approach has been to ask subjects directly. The subjects' answers can be dichotomous (yes or no) or ranked by level ('very much', 'somewhat', and 'not at all') (Arfken et al., 1994; Franzoni et al., 1994; Maki, 1997; Lawrence et al., 1998). Although these methods yield are informative, they cannot detect possible variation in levels of fear of falling and responses associated with other fears.

Another approach to assess fear of falling utilizes a self-efficacy framework (Bandura, 1977). Tinetti et al. (1990) developed the falls efficacy scale (FES), based on the operational definition of this fear as 'low perceived self-efficacy at avoiding falls during essential, non-hazardous activities of daily living'. The FES, a 10-item scale on a 10-point scale, identifies how confident subjects feel about performing each activity of daily living without falling. Tennstedt et al. (1998) modified the FES by adding two items: carrying bundles from the store and exercising. They also changed the 10-point rating scale to a four-point scale (1 = not at all sure, 4 = very sure).

Powell and Myers (1995) developed the activities-specific balance confidence (ABC) Scale that included a wider continuum of activity difficulty and more detailed item descriptors. Lachman et al. (1998) developed a new instrument (the Survey of Activities and Fear of falling in the Elderly, SAFE) to assess the role of fear of falling in activity restriction. The SAFE 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.

Veloza and Peterson (2001) developed a fear of falling measures (FFM) for community-dwelling elderly and consists of 19 common activities that intend to indicate how worried they would be if they were to perform the activities. It is a four-point rating scale, from very worried (4) to not at all worried (1).

Although the above scales, FES, ABC, SAFE and FFM, demonstrated good reliability and validity and may allow for a more differentiated assessment than a direct one-item question about fear of falling, they have some shortcomings. First, problems arise with the FES when the subject does not engage in a given activity included in the scale (Lachman et al., 1998). Second, the response format can be too complex for some subjects. The FES (Tinetti et al., 1990) uses a 10-point rating scale from 0 (no confidence) to 10 (complete confidence). The ABC (Powell and Myers, 1995) uses a more precise assessment, with a scale from 0% (no confidence) to 100% (complete confidence). In our experience and that of Lachman et al. (1998), older adults, especially those with limited education, had difficulty responding to these complex ratings. The third problem is that the content of these four instruments is concerned only with

restriction of activity; fear of falling may involve other issues such as psychological or social concerns. Lastly, no measure of fear of falling has been developed from the perspective of elders. Such a scale would measure the true value of fear of falling.

Elderly people (65 years or older) are the fastest growing segment of the population in Taiwan. Because of changes in Taiwanese families leading to a decrease in adults co-residing with elderly parents and an increase in two-income families (Huang and Acton, 2004), elders are often left home alone. However, increased frailty related to aging raises the likelihood of accidents, including falls. Research has indicated that falls and fear of falling can be a major threat to independence for the elderly (Tinetti and Powell, 1993), impacting their quality of life. Finding ways to decrease the risk of falls would benefit elders. Screening for fear of falling is the first step to preventing falls among elders. Even though fear of falling is a significant health problem among the elderly, few research studies to date have investigated this issue in Taiwan. Therefore, it is important to develop a culturally relevant instrument for measuring fear of falling in Taiwan.

Since salient variables about fear of falling in Taiwanese elders have not been identified, the authors used grounded theory to gain a fresh perspective (Huang, 2005). This approach generated a pool of factors important to elders, which were then used to develop items for measuring fear of falling among community-dwelling elders.

2. Initial instrument development

2.1. Stage one

To develop the geriatric fear of falling measure (GFFM), relevant items for the assessment subscales were identified and tested in a three-stage process. The first stage, item development, established a pool of 46 items. This initial pool of items was drawn from items and descriptive examples in a previous qualitative study by the author (2005), which developed a model for understanding fear of falling from the perspective of Taiwanese elders. This model suggests that the strategy of managing fear of falling has four broad themes: psychosomatic symptoms (PS), adopting an attitude of risk prevention (RP), paying attention to environmental safety (ES), and modifying behavior (MB).

PS in elderly people are associated with physical symptoms and emotional reactions stimulated by their fears. Adopting an attitude of RP reflects elderly participants' thoughts or behaviors about preventing falls and includes the categories of increased vigilance and readiness for emergencies. Paying attention to ES includes both environmental modification and use of

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