A Prediction Model of Fear of Falling in Older Adults Living in a Continuing-Care Retirement Community (CCRC) in United States

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Background: Falls are among the most common and serious health problems of older people. The psychological symptoms of falling have received relatively little attention compared to physical problems. Objective: The purpose of this study is to test a model to explain the factors that influence fear of falling among older adults living in a continuing care retirement community (CCRC) in Baltimore city, United States. Methods: A secondary analysis was conducted using data obtained from a Health Promotion Survey done on 149 older adults living in a CCRC. Data was originally obtained during face to face interviews with each participant. Descriptive statistics and bivariate correlations were used to describe the sample and evaluate simple correlations. A path analysis was done using the AMOS 4.0 statistical program. Results: Of the 49 hypothesized paths, 13 were statistically significant, and the model accounted for 22% of the variance in fear of falling among the elderly. There was support for the fit of the model to the data with a nonsignificant chi square at 0.478 (df=2, p=0.79), and the ratio of chi-square to degrees of freedom was 0.24, a CFI of 0.99 and RMSEA of 0.00. In particular, gender, a history of falling, and exercise were significant predictors of fear of falling. Conclusions/Implications: As anticipated, exercise is an important factor to prevent fear of falling. As a modifiable variable, self-efficacy and outcome expectation indirectly influence fear of falling through exercise.

Key words: Fear of falling, self-efficacy, exercise

I. Introduction

Falls are among the most important health problems of older people (American Geriatrics Society AGS, British Geriatrics Society, & American Academy of Orthopedic Surgeons, 2001; Li, Fisher, Harmer, McAuley, & Wilson, 2003). About one-third of community-dwelling old adults reported one or more falls each year (Friedman, Munoz, West, Rubin, & Fried, 2002; Means, Rodell, & O'Sullivan, 2005). From 1989 to 1999, the number of people age 65 and older...
in the United States increased 13 percent, from 30.7 million to 34.8 million (U.S. Census Bureau, 2001), while the number of fatal falls increased 57 percent, from 6,428 to 10,097 (CDC, 2002). In 2003, more than 1.8 million seniors age 65 and older were treated in emergency departments for fall-related injuries; more than 421,000 were hospitalized (CDC, 2005).

In addition, falls result in multiple consequences, both physical and psychosocial, that can potentially have a long-term impact on the older individual. Fall-induced injuries are the leading cause of death in older adults in United State (CDC, 2002). The physical consequences of falls are skin tears, abrasions, soft-tissue injuries, limb, hip and skull fractures, head injuries, and even death (Resnick & Junlapeeya, 2004). Falls also have a significant psychosocial impact on older adults, but the psychological symptoms of falling have received somewhat little attention compared to physical problems (Means, O’Sullivan, & Rodell, 2003).

Fear of falling is one of most common psychological symptoms for old adults (Evitt & Quigley, 2004; Murphy, Dubin, & Gill, 2003), and a higher prevalence of fear of falling has been reported in 42-73 % of those who have had fallen (Friedman et al., 2002; Lach, 2005). Moreover, fear of falling has been associated with negative consequences. For example, a fear of falling was associated with (1) reduced physical activities (Bruce, Devine, & Prince, 2002; Fletcher, & Hirdes, 2004), (2) poor life satisfaction (Li et al., 2003; Cumming, Salkeld, Thomas, & Szonyl, 2000), and (3) reduced activity of daily living (Cumming et al., 2000; Martin, Hart, Spector, Doyle, & Harari, 2005).

There are several factors that have been reported to influence fear of falling. Female were generally more likely to be fearful of falls than male (Fletcher & Hirdes, 2004; Friedman et al., 2002; Lach, 2005). Likewise, having a previous fall was constantly related with a fear of falling (Fletcher & Hirdes, 2004; Friedman et al., 2002; Lach, 2005). Moreover, multiple fallers are more likely to have a fear of falling than single fallers (Fletcher & Hirdes, 2004). However, older adults who have not fallen also report fear of falling (Friedman et al., 2002; Lach, 2005; Murphy et al., 2003). Health status has been a significant factor of a fear of falling as well (Friedman et al., 2002). In other words, older adults with lower perceived health status were more likely to have a fear of falling (Lach, 2005). For instance, people with neurological problems, cardiac disease, visual and cognitive impairments, and acute illness are apt to have a fear of falling (Fletcher & Hiredes, 2004; Resnick & Junlapeeya, 2004). In addition, depression and anxiety as a psychological factors were strongly related with fear of falling among older adults (Gagnon, Flint, Naglie, & Devines, 2005; Lach, 2005). It is likely that fear of falling can lead to activity restriction and it causes social isolation, which then results in depression in the elderly (Gagnon, Flint, Naglie, & Devines, 2005).

Older adults who engaged in exercise programs including strength, balance, stability, and endurance training, or Tai Chi exercises were less likely to have fear of falling (Brouwer, Walker, Rydahl, & Culham, 2003; Schoenfelder & Rubenstein, 2004). These exercises helped to reduce falls and then ultimately fear of falling. Based on prior epidemiological and descriptive research, many factors have been associated with fear of falling among older adults. Some of these factors are not modifiable, such as age, gender, physical health, mental health, a history