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Cross-cultural validation of the Falls Efficacy Scale International (FES-I) using self-report and interview-based questionnaires among Persian-speaking elderly adults

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ABSTRACT

FES-I has been designed to assess fear of falling (FoF). The purpose of this study was to establish the Persian-language version of the FES-I and to assess its psychometric properties under different modes of administration: self-report and interview-based. Participants included 191 elderly people aged over 60 who were mostly community dwelling. With an interval of 14 days, 97 volunteers completed the questionnaire in the retest session. To evaluate the construct validity, we assessed the ability of the FES-I to discriminate people based on gender, level of education, number of falls and FoF. The correlation with the Short Form of Health Survey (SF-36), Timed Up and Go (TUG) and Functional Reach Test (FRT) was also determined to test validity. Internal consistency was excellent in both self-report (0.93) and interview (0.92) versions. All intra-class correlations (ICCs) were above 0.70 with the highest reliability obtained for the condition where the interview based FES-I was used in both test and retest sessions. The strength of correlation between the FES-I and TUG varied based on mode of administration: moderate for interview and high for self-report mode. The FES-I had a higher correlation with the SF-36 subscales of physical health than subscales of mental health. The FES-I had the ability to discriminate the participants based on gender, educational level, and number of falls and FoF. In conclusion, both interview and self-report versions of the FES-I demonstrated acceptable measurement properties to assess FoF in Iranian elderly persons.

1. Introduction

Falling is the first cause of injury-related deaths and the third cause of poor health in people over 65 years (Evitt & Quigley, 2004). A strong association has been demonstrated between fall and its psychological aspects (i.e. FoF). FoF is more prevalent among fallers than non-fallers, among older than younger adults, and among women than men (Salkeld et al., 2000; Suzuki, Ohyama, Yamada, & Kanamori, 2002). Approximately one third of elderly people develop FoF after experiencing a fall (Boyd & Stevens, 2009; Vellas, Wayne, Romero, Baumgartner, & Garry, 1997) and this fear will persist for at least two years (Jang, Cho, Oh, Lee, & Baik, 2007). FoF has even been reported in elderly persons without a previous fall history (Lachman et al., 1998). The reported prevalence of FoF ranges from 21% to 85% (Scheffer, Schuurmans, van Dijk, van der Hooft, & de Rooij, 2008).

FoF can lead to a wide range of health problems in geriatric population (Li, Fisher, Harmer, McAuley, & Wilson, 2003). Evidence demonstrates that falls are more frequently reported among people with a high level of fall-related fear than those with a low level of fear. Therefore, falls are not only the cause but also the effect of FoF (Salkeld et al., 2000; Suzuki et al., 2002). FoF has also negative impacts on physical activity of the elderly persons (Badley, 2008; Bruce, Devine, & Prince, 2002). FoF is associated with lack of functional independence (Legters, 2002) and increased risk of admission in nursing homes (Cumming, Salkeld, Thomas, & Szonyi, 2000; Lord, 1994). Its adverse effects on social functioning (e.g. social isolation), psychological health (e.g. depression and anxiety) and quality of life have also been addressed in the literature (Li et al., 2003; van Haastregt, Zijlstra, van Rossum, van Eijk, & Kempen, 2008).

The necessity to include such a large number of factors involving physical, functional, psychological and social components makes the assessment of FoF complex (Legters, 2002).

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Different instruments have been devised to measure FoF in recent years. Single item questionnaires (In general, are you afraid of falling over?) with dichotomous responses (yes/no) which have been used in epidemiological studies are not sensitive enough to discriminate people with various levels of fear. Another limitation is that these types of scales do not measure concern about the possibility of falling in different activities. Furthermore, they are insensitive to track changes in FoF over time (Yardley et al., 2005). To resolve these problems, more specific instruments such as FES were developed to address the amount of confidence in performing 10 basic activities of daily living without falling. A wider range of response choices were provided for scoring. The FES was originally developed by Tinetti et al. for use among American-English speaking elderly persons (Tinetti, Richman, & Powell, 1990).

A number of criticisms have been raised concerning the use of the FES as a measure of FoF. These include the improper use of self-efficacy or confidence in performing activities of daily living without falling as an equivalent term for FoF (McKee et al., 2002), the lack of more demanding activities of daily living which are meaningful for more active older adults and failing to consider the social impacts of FoF (Hill, Schwarz, Kalogeropoulos, & Gibson, 1996). To resolve these methodological issues, the original version of FES was modified by the Prevention of Falls Network Europe (ProFaNE) group to develop the FES-International (FES-I) for use in a wider range of cultures (Yardley et al., 2005). Acceptable psychometric properties of the FES-I have been demonstrated across different languages and cultures. Results from the Germany (Kempen et al., 2007), Netherland (Kempen et al., 2007), United Kingdom (Kempen et al., 2007) Norway (Helbostad et al., 2010), Brazil (Camargos, Dias, Dias, & Freire, 2010), Italy (Ruggiero et al., 2009), Turkey (Ulus et al., 2012), China (Kwan, Tsang, Close, & Lord, 2013) and Spain (Lomas-Vega, Hita-Contreras, Mendoza, & Martinez-Amat, 2012) show that the FES-I is a reliable and valid questionnaire for assessing FoF in elderly populations.

Falls and their adverse psychological effects are major public health problems in Iran. Fall is the most common mechanism of trauma among Iranian elderly adults, with 70% of hospitalized trauma patients suffering from fall-related injuries (Ghodsi, Roudsari, Abdollahi, & Shadman, 2003). Hence, an urgent need is perceived to validate a standardized instrument which can provide an objective measure of FoF. The Swedish version which is a modified version of the original FES has been previously translated and culturally adapted into Persian to be used for elderly adults (Mosallanezhad et al., 2011). However, evidence is lacking regarding the Persian version of FES-I.

On the other hand, mode of administration can have serious effects on the results (Bowling, 2005). Hauer et al. (2010) studied the impact of mode of administration on FES-I scoring. They proposed that standardized interviews may lead to more valid data and higher response rate among older persons, especially those who are cognitively impaired. In support of their proposition, lower completion rates were reported for both cognitively intact and cognitively impaired participants while administering self-report questionnaire compared to interview mode of administration. The aim of this study was, therefore, to establish the validity and reliability of the Persian-language version of FES-I, and to compare the results of self-administered and interview-based questionnaires.

2. Materials and methods

2.1. Measures

2.1.1. FES-I

The FES-I measures the level of concern about falling during activities of daily living. It contains 16 items comprising 10 original items of the FES assessing basic activities and 6 new additional items assessing more demanding physical and social activities. Each item is scored on a four point Likert scale: 1 = not at all concerned, 2 = somewhat concerned, 3 = fairly concerned, and 4 = very concerned. Higher values indicate more concern about falling. The total score ranges from 16 to 64, with higher scores indicating more concern about falling (Yardley et al., 2005).

2.1.2. SF-36

The SF-36 is a self-administered measure which evaluates quality of life and public health. It consists of eight subscales including physical functioning, role limitations due to physical problems, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems and mental health (Montazeri, Goshtasebi, Vahdaninia, & Gandek, 2005). Subscales scores are created by transforming of raw scores to 0–100, with higher scores representing better health status. To reduce the number of statistical comparisons needed, eight subscales are summarized into two distinct higher order attributes: physical component summary (PCS) measure and mental component summary (MCS) measure. The Persian version of SF-36 has shown to be highly reliable and valid in Iranian general population (Montazeri et al., 2005).

2.1.3. TUG test

The participants are instructed to raise from an arm chair, stand, and walk 3 meters at his/her preferred speed, turn, walk back toward the chair, and sit down. The time (in seconds) to complete this sequential task was recorded using a stopwatch. Excellent inter-rater reliability (ICC = 0.98) (Shumway-Cook, Brauer, & Woollacott, 2000) has been obtained for the TUG. Furthermore, the TUG has the ability to identify elderly people who are prone to falling (Shumway-Cook et al., 2000).

2.1.4. FRT

The participants are required to stand next to the wall with their arms raised 90° and reach the outstretched hand as far forward as possible while maintaining a fixed base of support. A ruler is used to record the distance between arm's length and maximal forward reach. FRT has high inter-rater reliability (ICC = 0.98). It can predict future falls among elderly persons (Duncan, Weiner, Chandler, & Studenski, 1990).

2.2. Participants

Participants were elderly people aged over 60 invited from rehabilitation centers and nursing homes situated in Tehran. People were eligible for inclusion if they were able to speak Persian fluently and to walk independently with or without assistive devices. Individuals were excluded if they had neurological diseases, cognitive impairment and severe cardio-respiratory diseases. Information extracted from medical records was used to determine participants' eligibility criteria. In total 191 elderly participated in this project. All participants signed an informed consent form approved by the University of Social Welfare and Rehabilitation Sciences ethics committee.

2.3. Procedure

2.3.1. Phase 1: translation and adaptation

For translating the original version of FES-I to Persian, we followed the protocol recommended by ProFaNE group (www.profane.eu.org). The original English version was translated into Persian by two professional translators independently. The translators were native Persian speakers and due to previous experience of translating medical textbooks were aware of some