



Original article

Disparity between perceived and physiological risks of falling among older patients in an acute care hospital



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ABSTRACT

Background: Falls are the most frequent adverse events among hospitalised older adults. Previous studies highlighted that older adults might not understand the risk factors associated with falls and may have an altered perception of their actual risk.

Aim: To describe differences between perceived and actual physiological risk of falling among older adults and to explore factors associated with the differences.

Methods: A prospective cohort study was done. Older adults (age 65 years and above) were interviewed one-to-one at bedside. Morse Fall Scale (MFS) and other risk factors for falls were used to identify the patients' physiological fall risks. Patients' perceived risk of falls were assessed using the Falls Efficacy Scale-International (FES-I).

Results: Three hundred patients were recruited. Patients' mean age was 75.3 (SD = ± 6.2). Majority were males (51.7%), lived with others (91.7%), and had received primary school education (35.3%). Based on the MFS, most patients had moderate fall risk (59.7%). Using the FES-I, more than half the patients (59%) interviewed had high concerns about falling. About one-third of the patients' (31.3%) perceived risk matched with their physiological fall risk (Risk-Aware). Half of the patients' perceived risks was higher than their physiological fall risk (50.7%) (Risk-Anxious), while the remaining patients' perceived risks was reported to be lower than their physiological fall risk (18%) (Risk-Taker).

Conclusion: Older patients are poor at recognizing their fall risks. Both patients' perceived and actual fall risks should be evaluated in the inpatient setting in order to inform individualized fall prevention education and strategies.

1. Introduction

Fall prevention is a major challenge for healthcare institutions worldwide. A fall is defined as “an event which results in a person coming to rest inadvertently on the ground or other lower level, excluding intentional change in position to rest in furniture, wall or other objects” (WHO, 2016). Falls among hospitalized adults were the most frequent adverse events reported (Quigley & White, 2013). Patients who sustained an inpatient fall were associated with having a lower quality of life, increased hospitalization stay, greater disability, and increased use of healthcare resources (Hill, Vu, & Walsh, 2007; Morello et al., 2015). Globally, the incidence of falls among hospitalized patients ranged from 3.1 to 6.12 falls per 1000 patient days (Hitcho et al., 2004; Fischer et al., 2005). In Singapore, the reported fall rates were

lower, ranging from 0.68 to 1.44 per 1000 patient days (Koh, Manias, Hutchinson, & Johnston, 2007).

Fear of falling (FOF) has been defined as having concerns of not being able to perform normal activities without falling, having a lack of confidence in balancing during activities, and being afraid of falling (Jung, 2008; Tinetti et al., 1994). FOF in the older adult population has been known as a psychological factor associated with falls and restriction of individual's activities of daily living (Verheyden et al., 2013). Previous studies have determined how FOF affects older adults and its association with falls. Twibell, Siela, Sprout, and Coers (2015) highlighted that patients who had low FOF were less willing to engage in fall prevention and had greater confidence in performing high-risk tasks independently. In another survey, 88% of the patients did not see themselves at risk of falling during hospitalization (Sonnad, Mascioli,

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Cunningham, & Goldsack, 2014). In other studies, hospitalized patients also underestimated or overestimated their fall risks as they might not have fully apprehended the risk factors associated with falls (Carroll, Dykes, & Hurley, 2010; Lim et al., 2018). Older adults who underestimated their risks tended not to comply with fall prevention strategies (Yardley et al., 2006). Conversely, older adults who overestimated their risk tend to restrict their activities due to excessive fear (Delbaere, Crombez, Vanderstraeten, Willems, & Cambier, 2004; Fucahori, Lopes, Correia, Silva, & Trelha, 2014). The issue with FOF being excessive or undermined has been greatly neglected (Delbaere, Close, Brodaty, Sachdev, & Lord, 2010; Delbaere, Close, Mikolaizak, et al., 2010). Therefore, understanding the perceived fall risks of older patients and their disparity from the physiological risks is necessary in order to carry out a more realistic assessment of those risks and improve fall prevention strategies in acute hospital settings.

In-depth research on risk factors that were associated with hospitalized patients has shown that patient falls are multi-factorial and were also associated with various co-morbidities and functional and cognitive factors (Tzeng, Hu, Yin, & Johnson, 2011). Common risk factors for falls among older adults include age, gender, history of falls, gait, muscle weakness, dizziness, vision impairment, psychotropic medications, diabetes medication, anti-epileptic medication, vitamin D deficiency, and postural hypotension (Ambrose, Paul, & Hausdorff, 2013; Rubenstein, 2006). However, an area that has been under-reported is the perceptions of hospitalized patients regarding their risks of fall and sustaining an injury (Kuhlenschmidt et al., 2016). The evaluation of patients' fall risk awareness is vital to preventing falls (Sadowski, Jones, Gordon, & Feeny, 2007). As the hospital is an unfamiliar environment and the patients undergo acute physiological changes during the initial phase of a hospital admission, it is imperative to assess the perceived fall risks among the older adults and explore the difference in their perceived fall risk with their physiological risk of falling.

Patients' perceived risk of falling as part of the fall risk assessment is not a common practice in our local hospitals. Given Singapore's aging population, with 30% of hospitalized patients over 65 years old (MOH, 2017), it is of interest to explore perceived fall risks among older hospitalized adults and the possible disparity between their physiological risks. Results will help to tailor inpatient fall prevention strategies, taking into account not only patients' physiological conditions but also their anxieties and behaviors; findings from this study will also be a stepping stone to further research within the Asian community.

2. Aim

This study compared the perceived and physiological risks of falling among older adults and to explore the factors associated with the disparity in perceived and physiological risks of falling.

3. Methods

3.1. Study design

A prospective cohort study design was adopted using validated questionnaires. The study was conducted in an acute tertiary public hospital in Singapore. The hospital has a total of 1600 beds and the seven medical wards where the patients were recruited comprised of 500 beds in total.

3.2. Participants

Based on an estimated proportion that 52% of all patients will perceive themselves to be of a different risk profile compared to their actual physiological risk of falling (Twibell et al., 2015), a sample size of 281 participants was needed to achieve a 95% confidence interval estimate of the proportion (correlation coefficient of 0.5; width of interval of 0.1). Taking into account the potential dropouts, a total of 300

participants were recruited.

In our study, a total of 300 patients participated in this prospective cohort study. Patients were screened for eligibility and recruited by a research coordinator in the inpatient wards. Only patients who were aged 65 years and above, admitted to the inpatient wards, cognitively alert, and oriented to time, place, and person were recruited. Patients were excluded if they were critically ill, admitted for a psychiatric issue, and/or had an altered mental status.

3.3. Measures

3.3.1. Morse Fall Scale

The 6-item Morse Fall Scale (MFS) was used to assess each patient's physiological risk of falling (Morse, Morse, & Tylko, 1989). The MFS contained the following six items: history of falling, secondary diagnosis, ambulatory aids, intravenous/heparin locks, gait and mental status. A score was given based on the presence or absence of each item. The total possible score is 125. The patient's risk of falling was then categorized according to a 'low risk' score of < 25, a 'medium risk' score of between 25 and 50, or a 'high risk' score of 51 and above. The MFS has a reported sensitivity of 0.72 and specificity of 0.91 (Baek, Piao, Jin, & Lee, 2014). The MFS was completed by ward nurses within 24 h of each patient's admission to the hospital. Only the total MFS score was extracted for this study.

3.3.2. Perceived risk of falling

This global single-item was used to assess the FOF using a dichotomous 'yes' or 'no' answer to the question "Are you afraid of falling?" If the answer was 'yes', patients were asked to rate their fear according to the 11-numerical log of 0, no fear/concern, to 10, extreme fear/concern. Following Foran, McCarron, and McCallion (2013), the scores were categorized according to low fear/concern (1–3), moderate fear/concern (4–7), and high fear/concern (8–10). This item has a substantial test-retest reliability ($p = 0.66$) and acceptable criterion-related validity and predictive validity (Foran et al., 2013).

3.3.3. Fall Risk Efficacy Scale-International

The 16-item Fall Risk Efficacy Scale – International (FES-I) measures the level of concern about falling when performing social and physical activities inside and outside the home. The FES-I was a modification from the original FES and contained items that were purposefully included to be applicable across various cultural contexts (Yardley et al., 2005). Each item was scored on a Likert scale from 1, not at all concerned, to 4, very concerned. The scores were categorized into low concern (16–19 scores), moderate concern (20–17 scores), and high concern (28–64 scores) (Delbaere, Close, Brodaty, et al., 2010; Delbaere, Close, Mikolaizak, et al., 2010). The FES-I had high reported internal validity (Cronbach's alpha = 0.96) and test-retest reliability (ICC = 0.96) (Yardley et al., 2005). The FES-I Chinese version (FES-I (Ch)) was also used to recruit Chinese-speaking patients. It has a reported internal consistency of a Cronbach's alpha of 0.94, test-rest ICC = 0.89, and inter-rater reliability of $p = 0.95$ (Kwan, Tsang, Close, & Lord, 2013). The internal consistency reliability of the FES-I in our study was acceptable, with a Cronbach's alpha coefficient value of 0.96.

3.3.4. Demographic and clinical data

Demographic data, including age, gender, marital status, education, and living arrangements, and clinical data, including diagnosis, comorbidities, impaired muscle strength, impaired physical function, gait, visual impairments and current medications, were obtained during admission interviews and retrieved from participants' medical records.

3.4. Data collection

The study was approved by the Institutional Review Board (Ref No: 2016/2465). A waiver of consent was approved by the ethics committee

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