Fear of falling in older patients
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GENERAL INTRODUCTION:
FEAR OF FALLING IN OLDER PATIENTS
CHAPTER 1

BACKGROUND

As a result of demographic changes, the population is ageing worldwide. The percentage of older people in the Netherlands and similar western countries is increasing. The Dutch society today consists of 16.7 million residents, of which 15.3% is older than 65 years. This percentage is expected to rise to 23.6% in 2050. Besides this, the life expectancy at birth increased from 70.3 to 77.6 years for men and from 72.6 to 81.7 years for women between 1950 and 2006. Effective health care and prevention strategies have contributed to an increase in healthy life years expectancy. However, increased (healthy) life expectancy does not necessarily imply better health in all periods of life. As a result of the ageing society and the prevalence of morbidity and co-morbidity among older persons, physical and mental diseases, as functional limitations are expected to increase as well. In the next decades our aging society will be faced by health concerns specifically prevalent in older populations.

Falls are a major health problem among older adults. Both the incidence of falls and the severity of fall-related complications rise steadily after the age of 60. About a third of community-dwelling people aged 65 years and older fall each year; the rates of falls rise with age. Although not all falls lead to injury, about 20% of the falling persons seek medical attention of a General Practitioner (GP) or at an Emergency Department (ED), 5% of falls result in a fracture, and other serious injuries such as severe head injuries, bruises, and contusions arise in 5-10% of falls. Fall-induced injuries are one of the most common causes of longstanding pain, functional impairment, disability, loss of independence, institutionalization and death in older populations. Consequences of fall-related injuries are the third leading cause of years lived with disability according to the WHO report ‘Global Burden of Disease’. Falls and fall injuries are among the most common causes of decline in the ability to care for oneself, to remain independent and to participate in social and physical activities. Falling is, with other conditions affecting older adults, such as delirium, syncope, functional impairment, frailty and urinary incontinence, classified as a geriatric syndrome. Features of geriatric syndromes include the involvement of multiple factors, as the interaction
between predisposing chronic diseases, impairments, and acute precipitating insults. In addition to physical injury, falls also induce psychological and social consequences, such as fear of falling, and social isolation as a result of fear associated restriction of activity. All these consequences underline the need to implement strategies to decrease the burden of falls in older people.

In the last decades, fear of falling has gained recognition as a health problem that may be as disabling as, and sometimes even more disabling than, the fall itself. Initially, fear of falling was believed to be a consequence of falling, a psychological trauma of the fall, resulting in reduced activity and consequent losses in physical abilities. However, since the early 1990s increased research attention has been dedicated to the phenomenon of fear of falling, as such, among older adults. This focus might be explained by the growing awareness that fear of falling is frequent in older populations and can lead to excessive activity restriction and in that way affect seniors’ health, well-being and quality of life. Fear of falling is reported by 20% to 85% of community-dwelling elderly, and this fear also showed to be prevalent in people who have not recently fallen. Fear of falling can potentially lead to a variety of behavioural changes that may adversely affect future health, mobility and activity, including changes in posture and gait, avoidance of feared activities and environments and self-maintenance. Prospective studies have shown that fear of falling and loss of confidence indeed predict deterioration in physical functioning, decreases in activity and even results in admission to institutional care.

DEFINITIONS

The variability in the prevalence of fear of falling is likely due to the various definitions and instruments used to measure the psychological effect of falling in older people. In the early 1980s fear of falling was identified as a post-fall syndrome or by the term ‘ptophobia’. Tinetti and Powell described fear of falling as an on-going concern about falling that ultimately limits the performance of daily activities. A review by Jorstad et al. on psychological outcomes of falling, described that in the last two decades constructs as loss of confidence in balance...
abilities, low fall-related efficacy (low confidence at avoiding falls), fear, concern about falling and worry about falling have been used to describe fear of falling. A method to measure fear of falling that had not been investigated yet, but was used in daily clinical practice by the fall prevention clinics in the Netherlands, is the Visual Analogue Scale of Fear of Falling. Self-reported fear of falling might be the best indicator of an individual’s subjective experience of this phenomenon. The Visual Analogue Scale for Fear of Falling applied as clinical measurement strategy provides older persons and caregivers with an easy to apply tool to assess fear of falling. In this thesis, fear of falling refers to the subjective experience of the older adult of this phenomenon. A fall is throughout this study defined as an event that results in a person coming to rest unintentionally on the ground or on a lower level. This thesis describes studies among community-dwelling older persons. Community-dwelling older people are defined as people 65 years and older, living (independently) in the community.

USE OF TECHNOLOGY

Studying correlates of fear of falling is an important research avenue as it can provide guidance for identifying older persons who are at risk for falls, loss of independence and quality of life and could benefit preventive interventions. In addressing health issues in the ageing population, preventing loss of functional abilities in order to maintain or improve quality of life and independent living form a major challenge, both for researchers and clinicians. A major goal for societies with an ageing population is to create conditions for older persons to stay healthy and to remain living at their homes as long as possible. An important factor for healthy ageing is the possibility to be active and mobile. To make this possible, various kinds of support are needed, especially when the ageing of society increases costs of healthcare and as less people choose for a job in healthcare. New information and communication technology (ICT) has been developed to reinforce older persons’ well-being and conditions. Current research focuses on the design and development of intelligent assistive technology as monitoring systems, such as response systems using image-based sensors and video cameras that detect falls at
The first project on mobile safety alarms was conducted during the mid-1990s. Safety alarms are used as a technology to make staying at home possible. However, these alarms are limited in terms of range and cannot be used outdoors. Replacing these fixed alarms by wearable alarms can enable older persons to maintain independent mobility and to increase their social participation. In this thesis we describe the evaluation of a new kind of mobile alarm.

**OBJECTIVES AND OUTLINE OF THIS THESIS**

The studies in this thesis were performed to explore several aspects of fear of falling in community-dwelling older persons. The four objectives of this thesis are:

1. to obtain insight into the international literature on measurement instruments, risk factors and consequences of fear of falling and new technology;
2. to validate an instrument for measuring fear of falling used in daily practice;
3. to study the prevalence and correlates of fear of falling in community-dwelling older adults in The Netherlands with and without a fall-history;
4. to evaluate the effect of a new form of assisted living technology, aimed at increasing social participation of older persons by increasing their mobility and reducing their feelings of unsafety and fear of falling.

The objectives of this thesis are addressed in eight chapters. Chapter 2 starts with the findings of a systematic review on measurements strategies, prevalence, risk factors and consequences of fear of falling in community-dwelling older people. Since there are many different instruments described to measure fear of falling, data on the methodological quality of the studies on measurement instruments for fear of falling are also presented. This illustrates the difficulty of assessing subjective symptoms in studies with patients, and especially in studies with elderly patients, regardless of whether symptoms are assessed by the elderly patients themselves or caregivers. We therefore aimed to validate easy applicable instruments to assess symptoms of fear of falling and of delirium in elderly falling subjects. Chapter 3 reports on the validation of the Visual Analogue Scale for Fear
of Falling, a clinical measurement instrument introduced in 2003 and in use by 25 fall prevention clinics in the Netherlands to measure fear of falling in older people who have already fallen. Older persons afraid of falling are at risk of falling (again). A severe complication of a fall is hip-fracture with post-operative delirium as a common consequence. Since delirium is associated with serious short- and long-term consequences, it is important to observe the severity of delirium. In Chapter 4 the validation of another nurse-led instrument, the Delirium Observation Screening Scale as a scale for monitoring severity of delirium is described. The question whether fear of falling is also present in community-dwelling older people without a fall-history is addressed in Chapter 5. Chapter 6 provides insight into the prevalence of modifiable risk factors for recurrent falling in older adults who do have a fall-history, but did not visit the Accident and Emergency Department after one or more falls. Chapter 7 reports on the effects of a mobile safety-alarm on going outside, feeling safe, fear of falling and quality of life. Intervention effects at one, two, four and six months after introduction of the intervention are presented. Finally, Chapter 8 presents a general discussion with respect to the main findings of the studies presented in this thesis. Implications for practice and future research are provided. Summaries in English and Dutch conclude this thesis.
CHAPTER 1

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