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Feature Article

Fear of falling among community-dwelling older adults: A scoping review to identify effective evidence-based interventions

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ABSTRACT

Fear of falling presents a significant problem for many older adults by reducing physical function and increasing the risk of future falls. Several different types of interventions have improved fear of falling and a summary of efficacious interventions will help clinicians recommend treatment options. Using the Arksey and O'Malley Framework for scoping reviews, the purpose of this review was to identify efficacious interventions for treating fear of falling among community-dwelling older adults in order to provide a list of potential treatment options for care providers. A total of 45 publications were identified for inclusion in this review.

Introduction

Fear of falling, defined as a "persistent feeling related to the risk of falling during one or more activities of daily living",[1] is a significant problem among older adults. The prevalence of fear of falling is between 20 and 39% among community-dwelling older adults.[2–5] Although approximately one half of individuals who fall develop a fear of falling,[6] research suggests that fear of falling is also present in people who have not fallen and is an independent risk factor for disability.[7] Fear of falling has been associated with reductions in physical and social activity as well as reduced quality of life.[6] Additionally, high levels of fear of falling have been shown to increase an individual's risk of future falls, although low levels of fear of falling have been shown to have a protective effect against falls, regardless of the presence of balance impairments.[8] Given the prevalence of fear of falling among community-dwelling older adults and significant impact that fear of falling can have on physical function and risk of future falls, it is important for healthcare providers to assess fear of falling and consider implementing strategies to reduce fear of falling as part of a comprehensive care plan.

In the past two decades, a significant number of studies have examined the effectiveness of interventions to improve fear of falling. In 2007, Zijlstra and colleagues[9] published a systematic review of interventions to reduce fear of falling in which 19 articles were eligible for inclusion. Of the effective trials included in that review, fall-related multifactorial programs were most common, followed by tai chi and exercise interventions. Since 2007, numerous studies have examined the effectiveness of fear of falling interventions and an overview of the interventions is needed to provide clinicians with options for addressing fear of falling with their patients.

Purpose

Therefore, given the significant impact that fear of falling can have on mobility, independence, and quality of life and the lack of guidelines for management of fear of falling among older adults, we sought to conduct a scoping review to answer the following question: "What interventions investigated through the use of randomized controlled trials improve fear of falling among community-dwelling older adults?" Following the principles of the Arksey and O'Malley Framework for scoping reviews,[10] we summarize the existing evidence related to interventions for the management of fear of falling and provide recommendations for interventions clinicians could consider for their patients who experience fear of falling.

Abbreviations: ABC, Abilities-Specific Balance Confidence Scale; CBT, Cognitive Behavioral Therapy; FES, Falls Efficacy Scale; FES-I, Falls Efficacy Scale-International; FOF, Fear of Falling; GARS, Groningen Activity Restriction Scale; RCT, randomized controlled trial; SAFFE, Survey of Activities and Fear of Falling in the Elderly; VAS, Visual Analogue Scale.

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Method

Eligibility and search strategy

A librarian with systematic review expertise helped the investigators create a search strategy to find eligible articles. Four databases, Ovid MEDLINE, CINAHL, EMBASE, and PsychINFO were searched on May 3, 2017 using a complex combination of search terms (i.e., fear*, concern*, worry*, afraid, fall, balance confidence*). The search was limited to articles published in English between 2007 and the search date, as a rigorous systematic review on fear of falling interventions for community dwelling older adults was published that year.[9] To be included in the review publications had to focus on community-dwelling adults age 65 years and older, be a randomized controlled trial with a sample size of at least 60 participants, investigate an intervention lasting 6 weeks or longer, and include fear of falling as either a primary or secondary outcome. As the focus of this review is to provide evidence-based recommendations for the management of fear of falling among independently living older adults in the community, studies meeting any of the following criteria were excluded from this review: nursing home or assisted living population, mean age less than 65 years, disease specific population (e.g., Parkinson's disease, multiple sclerosis, acute stroke, osteoporosis) and focus on rehabilitation following acute health events (e.g., stroke, paraplegia).

Abstract and full text screening

All three investigators screened abstracts and full text documents for eligibility. Only one investigator reviewed each citation. When questions about eligibility arose, all three investigators reviewed the full text document and came to a consensus about eligibility. Excel spreadsheets were used to track decisions made during abstract and full text screening and the results were summarized in a flow diagram as recommended by PRISMA guidelines.[11]

Data collection from eligible articles

All three investigators collected data from the eligible articles, but data from each publication was only abstracted by one investigator. Data was abstracted into a standardized Excel spreadsheet that elicited information on sample size and characteristics; the intervention components, setting, interventionist, and duration; follow-up period; and fear of falling measures and outcomes. It was noted whether or not the study found a statistically significant improvement in fear of falling.

Data synthesis

As the heterogeneity between publications precluded meta-analysis and the review was designed to be scoping in nature, the tables of abstracted data were used to conduct a qualitative synthesis of findings.[12] Articles were described by population, intervention type, length of follow-up period, outcomes measured, and overall findings.

Quality assessment

The Cochrane Collaboration's tool for assessing risk of bias was used to appraise the quality of eligible publications.[13] Using this assessment tool, the reviewer rated the risk of bias in six domains (sequence generation; allocation concealment; blinding of participants, personnel, and outcome assessors; incomplete outcome data; selective outcome reporting; and other) as low, unclear, or high. Each publication was assessed by one investigator. When questions arose, all three investigators reviewed the full text document and came to a consensus on its status.

Results

The database searches identified 1295 citations. The reviewers screened 1093 non-duplicative abstracts and 90 full text documents for eligibility. Fig. 1 presents the number of documents identified at each stage of screening and reasons for ineligibility.

Forty-five publications, representing 44 unique studies, were identified for inclusion in the review.[14–58] Two manuscripts reported data from the same study, though reporting data from differing follow-up times.[23,24] The publications included in this review summarize a variety of interventions that were designed specifically to reduce fear of falling, or report the results of studies that have included fear of falling as a secondary outcome of interest (see Table 1). Fear of falling was the primary target of the intervention examined in nine of the studies,[14–22] all of which demonstrated efficacy in reducing fear of falling. Twenty-three studies were designed to primarily target fall prevention,[23–45] ten of these interventions were efficacious in reducing fear of falling.[23–32] Fear of falling was the secondary outcome for 13 studies,[46–58] seven of which demonstrated efficacy.[46–52]

Overall, 26 of the forty-five articles included in this review (58%) reported the results of efficacious fear of falling interventions.[14–32,46–52] Of these studies, a total of 8314 older adults were enrolled with sample sizes ranging from 60 to 1256.[23,24,28] Intervention periods of the efficacious studies ranged from 6 weeks to 2 years, with follow-up periods over six weeks to two years.[22,46] Fear of Falling was measured most frequently (n = 16) using the Falls Efficacy Scale or a modified FES. Other fear of falling measures utilized included the Geriatric Fear of Falling Measure,[14] Activities-specific Balance Scale,[18,21] and Survey of Activities and Fear of Falling in the Elderly (SAFFE).[28] A number of studies utilized the approach of asking one to two questions to evaluate fear of falling, with a simple yes/no response[50] or with options designed to evaluate severity of fear of falling.[9,18,19,25,29,46]

Efficacious interventions

Interventions were considered efficacious if they reported a statistically significant improvement in the fear of falling outcome at any point during their follow-up period; results did not have to be sustained to be considered efficacious. The efficacious studies included interventions that were single and multi-component (see Table 2).

Single-component studies most often tested a single form of exercise, compared exercise modalities, or compared exercise delivery mechanisms. The types of exercise that demonstrated efficacy in reducing fear of falling were those aimed at improving strength, balance, agility, and flexibility, either specifically or in combination. Studies that used specific types of exercise included tai chi,[14,26] walking,[21,50] and water-based training.[47] Non-exercise single component interventions that demonstrated efficacy included guided relaxation,[22] a virtual reality trainer,[28] and cognitive behavioral therapy (CBT).[17] Efficacious training delivery methods included Wii,[15] in-home training,[21,31] and group training.[48]

An intervention was considered multi-component when two or more differing methods of intervention were applied within one treatment arm. Defined this way, eleven studies utilized a multi-component intervention.[14,16,19,20,27,29,30,46,50–52] CBT was one of the most common components included in multi-component interventions; five studies evaluating multi-component interventions included CBT.[14,16,19,20,27] CBT was coupled with tai chi,[14] or included activity training as a component in their CBT protocol.[16,19,20,27] Other