

Safety Literature 28th August 2022

Changes in the severity of frailty among older adults after 12 months of supervised home-based physical exercise: a randomized clinical trial

Suikkanen S, Soukkio P, Kautiainen H, Kääriä S, Hupli MT, Sipilä S, Pitkälä K, Aartolahti E, Kukkonen-Harjula K. J. Am. Med. Dir. Assoc. 2022; ePub(ePub): ePub.

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Abstract

OBJECTIVE: To investigate the effects of 12 months of physiotherapist-supervised, home-based physical exercise on the severity of frailty and on the prevalence of the 5 frailty phenotype criteria, using secondary analyses.

DESIGN: Randomized clinical trial, with 1:1 allocation into 12-month home-based physical exercise, or usual care. The multicomponent exercise sessions (60 minutes) were supervised by the physiotherapist and included strength, balance, functional, and flexibility exercises twice a week at participants' homes. **SETTING AND PARTICIPANTS:** Home-dwelling older adults aged ≥ 65 years who were frail (meeting 3-5 criteria) or prefrail (1-2 criteria) according to frailty phenotype criteria.

METHODS: The severity of frailty (nonfrail, prefrail, or frail) was assessed using frailty phenotype criteria, and the prevalence of each frailty criterion (weight loss, low physical activity, exhaustion, weakness, and slowness) were assessed at baseline and at 12 months.

RESULTS: Two hundred ninety-nine persons were included in the analyses, of whom 184 were prefrail and 115 were frail at baseline. Their mean age was 82.5 (SD 6.3) years, and 75% were women. There was a significant difference between the exercise and usual care groups' transitions to different frailty states from baseline to 12 months among those who at baseline were prefrail ($P = .032$) and frail ($P = .009$). At 12 months, the mean number of frailty criteria had decreased in the exercise group (-0.27, 95% CI -0.47, -0.08) and remained unchanged in the usual care group (0.01, 95% CI -0.16, 0.18; $P = .042$). The prevalence of the exhaustion ($P = .009$) and the low physical activity ($P < .001$) criteria were lower at 12 months in the exercise group than in the usual care group.

CONCLUSIONS AND IMPLICATIONS: The severity of frailty can be reduced through 12-month supervised home-based exercise training. Exercise should be included in the care of older adults with signs of frailty.

Language: en

Keywords

older adults; rehabilitation; Frailty; physical exercise

Communication about fall risk in community oncology practice: the role of geriatric assessment

Jensen-Battaglia M, Lei L, Xu H, Loh KP, Wells M, Tylock R, Ramsdale E, Kleckner AS, Mustian KM, Dunne RF, Kehoe L, Bearden J, Burnette BL, Whitehead M, Mohile SG, Wildes TM. *JCO Oncol. Pract.* 2022; ePub(ePub): ePub.

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Abstract

PURPOSE: Falls are a modifiable source of morbidity for older adults with cancer, yet are underassessed in oncology practice. In this secondary analysis of a nationwide cluster-randomized controlled trial, we examined characteristics associated with patient-oncologist conversations about falls, and whether oncologist knowledge of geriatric assessment (GA) resulted in more conversations.

METHODS: Eligible patients (ClinicalTrials.gov identifier: NCT02107443) were age ≥ 70 years, had stage III/IV solid tumor or lymphoma, were being treated with noncurative treatment intent, and ≥ 1 GA domain impairment. Patients in both arms underwent GA. At practices randomly assigned to the intervention arm, oncologists were provided a GA summary with management recommendations. In both arms, patients had one clinical encounter audio-recorded, transcribed, and coded to categorize whether a conversation about falls occurred. Generalized linear mixed models adjusted for arm, practice site, and other important covariates were used to generate proportions and odds ratios (ORs) from the full sample.

RESULTS: Of 541 patients (intervention N = 293 and usual care N = 248, mean age: 77 years, standard deviation: 5.3), 528 had evaluable audio recordings. More patients had conversations about falls in the intervention versus usual care arm (61.3% v 10.3%, $P < .001$). Controlling for the intervention and practice site, history of falls (OR, 2.1; 95% CI, 1.3 to 3.6; $P = .005$) and impaired physical performance (OR, 4.7; 95% CI, 1.7 to 12.8; $P = .002$) were significantly associated with patient-oncologist conversations about falls.

CONCLUSION: GA intervention increased conversations about falls. History of falls and impaired physical performance were associated with patient-oncologist conversations about falls in community oncology practice.

Language: en

Differences in balance confidence, fear of falling, and fall risk factors among White and Black community-dwelling older adults

Bay AA, Ramachandran S, Ni L, Prusin T, Hackney ME. *J. Geriatr. Phys. Ther.* 2022; ePub(ePub): ePub.

(Copyright © 2022, American Physical Therapy Association)

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Abstract

BACKGROUND AND PURPOSE: Falling among older adults is common and can cause chronic health complications. Fear of falling, a lasting concern about falling that can lead an individual to avoid activities he or she can perform, is strongly associated with falling and fall risk. Although White older adults fall more often, Black older adults have more fall risk factors. The purpose of this study was to investigate factors that explain fear of falling and differences between White and Black community-dwelling older adults in fear of falling, balance confidence, and fall risk factors.

METHODS: Using a cross-sectional, retrospective design, 84 community-dwelling older adults (mean age [SD] = 69.0 [5.2], range: 55-80; White, n = 37, 44%; Black, n = 47, 56%, M/F = 20/64) were assessed. Assessments were conducted in a laboratory for human studies. Fall history and risk factors, and subjective fear of falling, were collected. The Montreal Cognitive Assessment (MoCA), Activities-Specific Balance Confidence (ABC) score, preferred, backward, and fast Gait Speed, Short Form-12 Physical and Mental Component Scores, fear of falling rating scale, and demographics questionnaires were administered. Analyses included a proportional odds logistic regression model to examine which factors predicted ABC score and which factors were associated with subjective fear of falling, 1-way analysis of variance for continuous variables, the Fisher exact test for categorical variables, and the Mann-Whitney-Wilcoxon test for ordinal variables.

RESULTS: Black participants had significantly fewer years of education ($P = .007$), lower MoCA scores ($P = .002$), and slower fast gait speed ($P = .032$) than White participants. Black participants reported less subjective fear of falling ($P = .043$). In the final ABC model (Akaike information criterion 208.26), lower ABC scores were predicted by White race, slower preferred and fast gait speeds, and worse Short Form-12 Mental Composite Scores.

DISCUSSION: Despite Black participants demonstrating typical characteristics of higher fall risk including lower cognitive scores, slower gait speed, and lower ABC scores, Black participants reported fewer falls. Understanding racial differences is an important factor in fear of falling and balance confidence.

CONCLUSION: Reasons for racial differences should be examined further in fear of falling and balance confidence to facilitate the development of patient-centered falls prevention physical therapy programs.

Language: en

Enhancing referral processes within an integrated fall prevention pathway for older people: a mixed-methods study

Flannery C, Dennehy R, Riordan F, Cronin F, Moriarty E, Turvey S, O'Connor K, Barry P, Jonsson A, Duggan E, O'Sullivan L, O'Reilly, Sinnott SJ, McHugh S. *BMJ Open* 2022; 12(8): e056182.

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DOI 10.1136/bmjopen-2021-056182 **PMID** 35985777

Abstract

OBJECTIVES: Multifactorial interventions, which involve assessing an individual's risk of falling and providing treatment or onward referral, require coordination across settings. Using a mixed-methods design, we aimed to develop a process map to examine onward referral pathways following falls risk assessment in primary care. **SETTING:** Primary care fall risk assessment clinics in the South of Ireland. **PARTICIPANTS:** Focus groups using participatory mapping techniques with primary care staff (public health nurses (PHNs), physiotherapists (PT), and occupational therapists (OT)) were conducted to plot the processes and onward referral pathways at each clinic (n=5).

METHODS: Focus groups were analysed in NVivo V.12 using inductive thematic analysis. Routine administrative data from January to March 2018 included details of client referrals, assessments and demographics sourced from referral and assessment forms. Data were analysed in Stata V.12 to estimate the number, origin and focus of onward referrals and whether older adults received follow-up interventions. Quantitative and qualitative data were analysed separately and integrated to produce a map of the service.

RESULTS: Nine staff participated in three focus groups and one interview (PHN n=2; OT n=4; PT n=3). 85 assessments were completed at five clinics (female n=69, 81.2%, average age 77). The average number of risk factors was 5.4 out of a maximum of 10. Following assessment, clients received an average of three onward referrals. Only one-third of referrals (n=135/201, 33%) had data available on intervention receipt. Primary care staff identified variations in how formally onward referrals were managed and barriers, including a lack of client information, inappropriate referral and a lack of data management support.

CONCLUSION: Challenges to onward referral manifest early in an integrated care pathway, such as clients with multiple risk factors sent for initial assessment and the lack of an integrated IT system to share information across settings.

Language: en

Keywords

PUBLIC HEALTH; PRIMARY CARE; QUALITATIVE RESEARCH; Quality in health care

Establishing a community pharmacy-based fall prevention service - an implementation study

Gemmeke M, Koster ES, van der Velde N, Taxis K, Bouvy ML. Res. Social Adm. Pharm. 2022; ePub(ePub): ePub.

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Abstract

BACKGROUND: Community pharmacists are in the position to contribute to fall prevention, but this is not yet common practice.

OBJECTIVE: The aim of this study was to evaluate the implementation of a community pharmacy-based fall prevention service.

METHODS: A fall prevention service, consisting of a fall risk screening and assessment including a medication review, was implemented in pharmacies during three months. A preparative online training was provided to the pharmacy team to enhance adoption of the service. Included patients were aged ≥ 70 years, using ≥ 5 drugs of which ≥ 1 fall risk-increasing drug. The implementation process was quantitatively assessed by registering medication adaptations, recommendations, and referrals. Changes in patient scores on the Short Fall Efficacy Scale-International (FES-I) and a fall prevention knowledge test were documented at one month follow-up. Implementation was qualitatively evaluated by conducting semi-structured interviews with pharmacists before and after the project, based on the consolidated framework of implementation research.

RESULTS: The service was implemented in nine pharmacies and 91 consultations were performed. Medication was adapted of 32 patients. Patients' short FES-I scores were significantly higher at follow-up ($p = 0.047$) and patients' knowledge test scores did not differ ($p = 0.86$). Pharmacists experienced the following barriers: lack of time, absence of staff, and limited multidisciplinary collaboration. Facilitators were training, motivated staff, patient engagement, and project scheduling.

CONCLUSION: The service resulted in a substantial number of medication adaptations and lifestyle recommendations, but many barriers were identified that hamper the sustained implementation of the service.

Language: en

Keywords

Implementation; Community pharmacy; Elderly; Fall prevention; Fall risk-increasing drugs

Establishing the minimal clinically important difference of the EQ-5D-3L in older adults with a history of falls

Jehu DA, Davis JC, Madden K, Parmar N, Liu-Ambrose T. Qual. Life Res. 2022; ePub(ePub): ePub.

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Abstract

PURPOSE: Establish the minimal clinically important difference (MCID) of a health-related quality of life (HRQoL) measure-the EuroQol EQ-5 Dimensions-3 Level (EQ-5D-3L)-in older adults with a history of falls.

METHODS: This study is a secondary analysis of 255 complete cases who were enrolled in a 12-month randomized controlled trial (NCT01029171; NCT00323596); participants were randomized to the Otago Exercise Program (OEP; n = 126/172; Age:81.2 ± 6.2 years; 60.3% Female) or control (CON; n = 129/172; Age:81.7 ± 5.7 years; 70.5% Female). Participants completed the EQ-5D-3L and Visual Analogue Scale (VAS) at baseline and 1-year. The VAS was associated with HRQoL and was the health status anchor (VAS minimal improvement = 7 to 17, maximal improvement ≥ 18, minimal decline = - 7 to - 17, maximal decline ≤ - 18 points). We used four distinct approaches to estimate MCID ranges: (1) anchor-based change differences of the EQ-5D-3L (1-year minus baseline); (2) anchor-based beta coefficients from ordinary least squares regressions (OLS); (3) anchor-based receiver operating characteristic (ROC), and 4) distribution-based standard deviation and standardized effect size of 0.5.

RESULTS: EQ-5D-3L MCID ranges for minimal improvements (OEP = 0.028 to 0.059; CON = 0.007 to 0.051), maximal improvements (OEP = 0.059 to 0.090; CON = 0.051 to 0.090), minimal declines (OEP = - 0.029 to - 0.105; CON = - 0.015 to - 0.051), and maximal declines (OEP = - 0.018 to - 0.072; CON = - 0.018 to - 0.082) were established using change difference, OLS, and distribution-based methods. The ROC area under the curve was poor, thus, it was not used to estimate the MCID.

CONCLUSIONS: Our results will assist in the interpretation of changes in HRQoL, as measured by the EQ-5D-3L, in older adults with a history of falls.

Language: en

Keywords

*Accidental falls; *Minimal clinically important difference; *Older adults; *Psychometrics; *Quality of life

Improving care for older patients visiting emergency departments. Are they receiving falls prevention guideline care?

Williamson M, Barton A, Edwards D, Morrisby C, Jacques A, Harper KJ. *Australas. Emerg. Care* 2022; ePub(ePub): ePub.

(Copyright © 2022, College of Emergency Nursing Australasia, Publisher Elsevier Publishing)

DOI 10.1016/j.auec.2022.08.003 **PMID** 35995675

Abstract

BACKGROUND: The primary objective was to examine whether the Emergency Department (ED) treatment of older adults who fall in Australia is concordant with falls prevention and management clinical guideline care recommendations.

METHODS: A retrospective medical records audit was completed for patients 65years and older, who attended the ED with a fall and were discharged home. An audit tool was developed from local, national, and international falls clinical guidelines.

RESULTS: One thousand and twenty-seven patients presented following a fall throughout 2020. One hundred and seven patient medical records were audited. Assessment of cognition (94%), medication review (76%) and use of a falls risk screen (76%) were commonly completed. Under half of the patients had a documented gait evaluation (40%) and review of vision (18%). Concordance with guideline care was more likely for older patients ($p = 0.042$), with higher levels of comorbidity ($p = 0.013$), who required care assistance ($p = 0.008$) and received treatment from a multidisciplinary team ($p < 0.001$) in an observation ward ($p < 0.001$).

CONCLUSIONS: Older patients with increased comorbidities and higher care needs had more falls guideline care recommendations documented. This was likely to occur when patients were moved to the observation ward where more comprehensive care by a multidisciplinary team could occur.

Language: en

Keywords

Accidental falls; Accident and emergency department; Frail elderly; Guideline adherence; Patient care team

One-legged balance performance and fall risk in mid and later life: longitudinal evidence from a British birth cohort

Blodgett JM, Hardy R, Davis D, Peeters G, Kuh D, Cooper R. Am. J. Prev. Med. 2022; ePub(ePub): ePub.

(Copyright © 2022, Elsevier Publishing)

DOI 10.1016/j.amepre.2022.07.002 PMID 35995713

Abstract

INTRODUCTION: The one-legged balance test is widely used as a fall risk screening tool in both clinical and research settings. Despite rising fall prevalence in midlife, there is little evidence examining balance and fall risk in those aged <65 years. This study investigated the longitudinal associations between one-legged balance and the number of falls between ages 53 and 68 years.

METHODS: The study included 2,046 individuals from the Medical Research Council National Survey of Health & Development, a British birth cohort study. One-legged balance times (eyes open, maximum: 30 seconds) were assessed at ages 53 years (1999) and 60-64 years (2006-2010). Fall history within the last year (none, 1, ≥ 2) was self-reported at ages 60-64 years and 68 years (2014). Multinomial logistic regressions assessed the associations between balance and change in balance with subsequent falls. Models adjusted for anthropometric, socioeconomic, behavioral, health status, and cognitive indicators. Analysis occurred between 2019 and 2022.

RESULTS: Balance performance was not associated with single falls. Better balance performance at age 53 years was associated with decreased risk of recurrent falls at ages 60-64 years and 68 years, with similar associations between balance at age 60-64 years and recurrent falls at age 68 years. Those with consistently lower balance times (<15 seconds) were at greater risk (RRR=3.33, 95% CI=1.91, 5.80) of recurrent falls at age 68 years in adjusted models than those who could balance for 30 seconds at ages 53 years and 60-64 years.

CONCLUSIONS: Lower balance and consistently low or declining performance were associated with a greater subsequent risk of recurrent falls. Earlier identification and intervention of those with poor balance ability can help to minimize the risk of recurrent falls in aging adults.

Language: en

Physical activity as a risk or protective factor for falls and fall-related fractures in non-frail and frail older adults: a longitudinal study

van Gameren M, Hoogendijk EO, van Schoor NM, Bossen D, Visser B, Bosmans JE, Pijnappels M. *BMC Geriatr.* 2022; 22(1): e695.

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DOI 10.1186/s12877-022-03383-y PMID 35996101

Abstract

BACKGROUND: Physical activity may be both a risk and protective factor for falls and fall-related fractures. Despite its positive effects on muscle and bone health, physical activity also increases exposure to situations where falls and fractures occur. This paradox could possibly be explained by frailty status. Therefore, the aim of this study was to investigate the associations between physical activity and both falls and fractures, and to determine whether frailty modifies the association of physical activity with falls, and fractures.

METHODS: Data of 311 community-dwelling participants aged 75 years or older from the Longitudinal Aging Study Amsterdam, who participated in a three-year longitudinal study with five nine-monthly measurements between 2015/2016 and 2018/2019. Their mean age was 81.1 (SD 4.8) years and frailty was present in 30.9% of the participants. Physical activity in minutes per day was objectively assessed with an inertial sensor (Actigraph) for seven consecutive days. Falls and fractures were assessed every nine months using self-report during an interview over a follow-up period of three years. Frailty was determined at baseline using the frailty index. Associations were estimated using longitudinal logistic regression analyses based on generalized estimating equations.

RESULTS: No association between physical activity and falls was found (OR = 1.00, 95% CI: 0.99-1.00). Fall risk was higher in frail compared to non-frail adults (OR = 2.21, 95% CI: 1.33-3.68), but no effect modification was seen of frailty on the association between physical activity and falls. Also no relation between physical activity and fractures was found (OR = 1.00, 95% CI: 0.99-1.01). Fracture risk was higher in frail compared to non-frail adults (OR = 2.81, 95% CI: 1.02-7.75), but also no effect modification of frailty was present in the association between physical activity and fractures.

CONCLUSIONS: No association between physical activity and neither falls nor fractures was found, and frailty appeared not to be an effect modifier. However, frailty was a risk factor for falls and fractures in this population of older adults. Our findings suggest that physical activity can be safely recommended in non-frail and frail populations for general health benefits, without increasing the risk of falls.

Language: en

Keywords

Accidental falls; Accelerometry; Aging; Fall risk; Fall-related injuries; Frail older adults

Predictors of falls and hospital admissions in people with cognitive impairment in day-care: role of multimorbidity, polypharmacy, and potentially inappropriate medication

Scheel J, Luttenberger K, Graessel E, Kratzer A, Donath C. BMC Geriatr. 2022; 22(1): e682.

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DOI 10.1186/s12877-022-03346-3 PMID 35982409

Abstract

BACKGROUND: Multimorbidity, polypharmacy, and potentially inappropriate medication (PIM) pose challenges for the care of people with cognitive impairment. The aim of the present study is to explore whether multimorbidity, polypharmacy, and PIM predict falls and hospital admissions in a sample of people with cognitive impairment in day-care centers in Germany.

METHODS: We used data from the German day-care study (multicenter longitudinal study, $n = 433$). Multimorbidity was defined as ≥ 2 chronic diseases. Polypharmacy was defined as prescriptions to ≥ 5 drugs. Potentially inappropriate medication was defined as scoring on the PRISCUS list. Binary logistic regression analyses were computed to determine whether multimorbidity, polypharmacy, and potentially inappropriate medication at t_0 predicted falls and hospital admissions as outcomes at t_1 (six months later).

RESULTS: The rate of multimorbidity and polypharmacy was 87.8% and 60.3%, respectively. 15.9% of the people with cognitive impairment received PIM / PRISCUS-listed drugs, 43.6% ACB-listed drugs, and 52.7% CNS depressant drugs. Falls and hospital admissions during follow-up were prevalent in 19.4% and 24.7% of the people with cognitive impairment. Both were significantly predicted by the total number of drugs (falls: OR = 1.152, $p = 0.001$, overall model: $p < 0.001$; hospital admissions: OR = 1.103, $p = 0.020$, overall model: $p = 0.001$), even if regression analyses were controlled for the number of comorbidities.

CONCLUSIONS: Polypharmacy and potentially inappropriate medication are highly prevalent in people with cognitive impairment in German day-care centers. The number of drugs and appropriateness of medication seem to be crucial for the risk of falls and hospital admissions. Polypharmacy and PIM should be critically reviewed by healthcare providers and avoided as much as and whenever possible. TRIAL REGISTRATION: ISRCTN16412551, 30 July 2014, registered partly retrospectively.

Language: en

Keywords

Hospitalization; Falls; Dementia; Polypharmacy; MCI; Multimorbidity; Potentially inappropriate medication; PRISCUS list

Primary care for people with Parkinson's disease in Brazil: a referral flowchart based on risk of falls

Myra RS, Koerich MHAL, Gregório EC, Swarowsky A. *Front. Public Health* 2022; 10: e836633.

(Copyright © 2022, Frontiers Editorial Office)

DOI 10.3389/fpubh.2022.836633 **PMID** 35991031

Abstract

BACKGROUND: People with Parkinson's disease (PD) need to exercise to have a better quality of life. The risk of falling needs to be considered when choosing and implementing exercise interventions. Flowcharts are used to facilitate referrals in Brazilian primary care network, but there is no specific one for PD.

AIM: To develop a referral flowchart for people with PD in Brazilian primary care based on the risk of falls and scientific evidence in the context of a multidisciplinary approach.

METHODS: The development of the referral flowchart was accomplished in three steps; (1) relevant literature was reviewed (2) semi-structured interviews (in focus groups) were conducted with primary health care professionals to investigate the current care for people with Parkinson's disease, and (3) the information obtained from the previous steps were analyzed to inform the development of the referral flowchart.

RESULTS: The fall risk-based flowchart uses the 3-step-fall-prediction tool. The primary health care professional should refer the person with a low risk of falls to activities with minimal supervision and those with a higher risk of falls to specialized neurology services. Neurology services are also the referral target for persons presenting significant mobility restrictions (i.e., restricted to a wheelchair or bed). The referral occurs according to what is available in Brazilian primary care.

CONCLUSION: This flowchart might be the first step to build a multidisciplinary approach for people with Parkinson's disease in Brazilian primary care. The next stage of this study is the validation and subsequent implementation of the flowchart through the primary care at Unified Health System in Brazil.

Language: en

Keywords

Brazil; community health planning; Parkinson's disease; primary health care; South America; workflow

The role of frailty in the association between depression and fall risk among older adults

Lohman MC, Mezuk B, Fairchild AJ, Resciniti NV, Merchant AT. *Aging Ment. Health* 2022; 26(9): 1805-1812.

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DOI 10.1080/13607863.2021.1950616 **PMID** 35993919

Abstract

OBJECTIVES: Although there is a recognized association between depression and greater fall risk among older adults, the mechanisms explaining this association are unclear. This study evaluated the role of frailty, a common geriatric syndrome, in determining greater risk of falls among older adults with depression.

METHOD: We used longitudinal data from three biennial waves of the Health and Retirement Study (HRS; 2010-2014). The sample included community-dwelling survey respondents age ≥ 65 who participated in objective physiological measures. Major Depression (MD) was measured using Composite International Diagnostic Interview for depression short form. Frailty was measured using criteria outlined in the frailty phenotype model. Causal mediation analysis was used to differentiate the direct effect of depression and indirect effect mediated by frailty on falls, fall injuries, and multiple falls.

RESULTS: Major depression was associated with significantly greater odds of experiencing a fall (OR: 1.91; 95% CI: 1.31, 2.77), fall injury (OR: 1.86; 95% CI: 1.17, 2.95), and multiple falls (OR: 2.26; 95% CI: 1.52, 3.37) over a two-year period. Frailty was a significant mediator of the effects of depression on falls and multiple falls, accounting for approximately 18.9% and 21.3% of the total effects, respectively. We found no evidence of depression-frailty interaction. Sensitivity analyses showed that results were robust to unmeasured confounding and alternative operationalizations of depression.

CONCLUSION: Frailty explains a significant proportion of increased likelihood of falls among older adults with depression. Treatment and management of frailty symptoms may be an important components of fall prevention among older adults with depression.

Language: en

Keywords

epidemiology; Causal mediation analysis; falls and mobility problems

The role of motivation factors in exergame interventions for fall prevention in older adults: a systematic review and meta-analysis

Buyle M, Jung Y, Pavlou M, Gonzalez SC, Bamiou DE. *Front. Neurol.* 2022; 13: e903673.

(Copyright © 2022, Frontiers Research Foundation)

DOI 10.3389/fneur.2022.903673 **PMID** 35989930

Abstract

Balance disorders and falls are common in the elderly population. Regular balance exercises are an evidence-based physical intervention to prevent falls in older adults, while patient motivation and adherence are important factors for intervention outcome. Exergames are a relatively new, alternative intervention for physical rehabilitation as they improve balance and strength in older adults. The aims of this systematic review and meta-analysis were to assess the (1) effect of motivation factors as per the Capability, Opportunity and Motivation model of Behavior change (COM-B) on the effectiveness of exergame interventions in healthy older adults, (2) effectiveness of exergames to improve balance in older healthy adults and, (3) impact of exergames on cognitive outcomes.

RESULTS show that motivation and capability components influence the general outcome of the exergame training. Motivational factors should thus be considered when setting-up an exergame intervention. Furthermore, exergame intervention appears to be a promising training method in comparison to traditional exercise training. However, exergame training in itself might not be sufficient to improve fall risk and cognitive performance.

Language: en

Keywords

elderly; falls; cognition; exergames; meta-analysis; motivation

Transient versus stable nature of fear of falling over 24 months in community-older persons with falls- data of the EU SCOPE project on kidney function

Freiberger E, Fabbietti P, Corsonello A, Lattanzio F, Artzi-Medvedik R, Kob R, Melzer I, Britting S. *BMC Geriatr.* 2022; 22(1): e698.

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DOI 10.1186/s12877-022-03357-0 PMID 5999522

Abstract

BACKGROUND: Fear of falling (FoF) is an important risk factor for falls among older people. The objectives of our investigations were: a.) to present characteristics of older community-dwelling (CD) fallers with persistent or transient FoF (P-FoF or T-FoF) over 12 months, and b.) to investigate clinical predictors of P-FoF and T-FoF and c.) to explore differences between P-FoF and T-FoF.

METHODS: Our series consisted of 389 older people reporting a fall or injurious fall at baseline and during 24 months follow-up participating in a multicenter prospective study. T-FoF was defined as participants reported "not at all" at baseline and "somewhat/fairly/very concerned" at follow-up, or "not at all" at follow-up, and "somewhat/fairly/very concerned" at baseline, and P-FoF was defined as participants answered "somewhat/fairly/very concerned" in both assessments at baseline and at follow-up. The association between risk factors and T-FoF or P-FoF was investigated by logistic regression analysis.

RESULTS: The mean age of fallers in our sample was 79.0 years (SD 6.0), and 54.2% were females. Out of 389 older adults with a fall history at baseline, 83 participants (21.3%) did not report any FoF over time, P-FoF and T-FoF were observed in 42.7% and 35.9% of participants, respectively. After adjusting for potential confounders (e.g. age, gender), osteoporosis (OR = 2.04, 95%CI = 1.03-4.05) and impaired physical performance (OR = 2.38, 95%CI = 1.12-5.03) were significant predictors of T-FoF vs No-FoF. Osteoporosis (OR = 2.68, 95%CI = 1.31-5.48), depressive symptoms (OR = 3.54, 95%CI = 1.23-10.1) and living alone (OR = 2.44, 95%CI = 1.17-5.06) were significantly associated with P-FoF vs No-FoF. When comparing T-FoF and P-FoF, female gender (OR = 1.95, 95%CI = 1.16-3.27), BMI (OR = 1.08, 95%CI = 1.02-1.14), overall comorbidity (OR = 1.07, 95%CI = 1.02-1.13) and depression (OR = 2.55, 95%CI = 1.33-4.88) were significant predictors of P-FoF.

CONCLUSIONS: T-FoF and P-FoF may be predicted by different sets of risk factors among older fallers. Thus, fallers should be screened for FoF especially when carrying specific risk factors, including female gender, osteoporosis, depression, living alone, impaired physical performance, BMI, comorbidity. These findings may be helpful in designing tailored intervention to blunt the risks related to consequence of FoF among older people experiencing falls. **TRIAL REGISTRATION:** The SCOPE study was registered prospectively at clinicaltrials.gov (NCT02691546; 25/02/2016).

Language: en

Keywords

Falls; Fallers; Fear of falling; Injurious falls; Older people; Osteoporosis; Physical function

Fall impacts from standing show equivalence between experts in stage combat landing strategy and naïve participants after training

Lee Y, Srinivasan D, Rawlings C, Madigan ML. Work 2022; ePub(ePub): ePub.

(Copyright © 2022, IOS Press)

DOI 10.3233/WOR-205236 **PMID** 35988234

Abstract

BACKGROUND: Slips, trips, and falls are the second leading cause of non-fatal injuries in workplace in the United States. A stage combat landing strategy is used in the theatre arts to reduce the risk of fall-induced injury, and may be a viable approach among some working populations.

OBJECTIVE: The goal of this study was to compare fall impact characteristics between experts in stage combat landing strategy and naïve participants after four training sessions of stage combat landing strategy training.

METHODS: Forward and backward falls from standing were induced by releasing participants from static leans. Participants fell onto a foam mat, and impact force was measured using force platforms under the mat. A statistical equivalence test was used to determine if impact characteristics between groups were similar.

RESULTS: Results indicated equivalence between groups in peak impact force during backward but not forward falls. Equivalence between groups in impact time suggested a mechanism by which equivalence in peak impact force as achieve.

CONCLUSIONS: Four training sessions was sufficient for naïve participants to exhibit fall impact characteristics similar to experts in an anecdotally-effective landing strategy, and support further study. To our knowledge, this was the first study to investigate training for a landing strategy involving stepping after losses of balance from standing.

Language: en

Keywords

injury; training; Accidental falls; impact force; landing strategy

Fall prevention with the smart socks system reduces hospital fall rates

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Abstract

BACKGROUND: Falls of inpatients are common in hospitals. Existing fall prevention measures do not work consistently.

PURPOSE: To determine whether Smart Socks reduce fall rates in fall risk patients at a major academic health center's neurological and neurosurgical based units.

METHODS: A prospective study was conducted that provided fall risk patients with Smart Socks and no other fall prevention system. Data collected included duration of Smart Socks wearing, number of alarms, response times, and patient-days.

RESULTS: A total of 569 fall risk patients were included for 2211.6 patient-days. There were 4999 Smart Socks alarms, but none of the patients fell. We observed a lower fall rate, of 0 per 1000 patient-days, for patients wearing Smart Socks than the historical fall rate of 4 per 1000 patient-days. The median nurse response time was 24 seconds.

CONCLUSIONS: The Smart Socks reduced fall rates of fall risk patients included in the study.

Language: en

Knowledge translation theories in fall prevention and balance control: a scoping review

Aloraini SM, Alothaim NK, Alsalamah NM, Aldaihan MM. PM R 2022; ePub(ePub): ePub.

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Abstract

Falls are a major problem all over the world. Falls may result in bone fractures, fear of falling and reduced participation in activities of daily living and in social activities. Thus, an increased cost of healthcare to the individual and the society. Falls occur as a result of compounding factors that combine and overwhelm an individual's ability to maintain or regain his or her balance. However, fall rates are often reported as high, suggesting the presence of a gap between clinical practices related to fall prevention and the knowledge of the best available evidence related to fall prevention. The science of knowledge translation (KT) offers a variety of theories that can facilitate the implementation of up-to-date knowledge among clinicians. Therefore, the aim of this study was to identify and review the use of knowledge translation theories, namely the Knowledge to Action Framework (KTA), Promoting Action on Research Implementation in Health Services framework (PARIHS), Consolidated Framework for Implementation Research (CFIR) and the Theoretical Domains Framework (TDF), in studies related to fall prevention and balance control. A scoping review was conducted to identify studies related to fall prevention and balance control that utilized one of these four KT theories. An extensive literature search was performed up to January 2021. Two independent reviewers conducted a study selection process followed by data extraction of the search results.

RESULTS of the review identified 16 studies that were related to the scope of our review, with three studies utilizing KTA, two studies utilizing PARIHS, four studies utilizing CFIR and seven studies utilized the TDF. Overall, it appears that the use of KT theories is helpful to guide interventions for fall prevention and improve balance control. Future efforts are needed to facilitate the use of KT theories for guiding clinical practices related to fall prevention and balance control. This article is protected by copyright. All rights reserved.

Language: en