

**The impact of falls on activities of daily living in older adults: a retrospective cohort analysis**

Adam CE, Fitzpatrick AL, Leary CS, Ilango SD, Phelan EA, Semmens EO. PLoS One 2024; 19(1): e0294017.

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**Abstract**

**BACKGROUND:** Falls contribute to impairments in activities of daily living (ADLs), resulting in significant declines in the quality of life, safety, and functioning of older adults. Understanding the magnitude and duration of the effect of falls on ADLs, as well as identifying the characteristics of older adults more likely to have post-fall ADL impairment is critical to inform fall prevention and post-fall intervention. The purpose of this study is to 1) Quantify the association between falls and post-fall ADL impairment and 2) Model trajectories of ADL impairment pre- and post-fall to estimate the long-term impact of falls and identify characteristics of older adults most likely to have impairment.

**METHOD:** Study participants were from the Ginkgo Evaluation of Memory Study, a randomized controlled trial in older adults (age 75+) in the United States. Self-reported incident falls and ADL scores were ascertained every 6 months over a 7-year study period. We used Cox proportional hazards analyses ( $n = 2091$ ) to quantify the association between falls and ADL impairment and latent class trajectory modeling ( $n = 748$ ) to visualize trajectories of ADL impairment pre-and post-fall.

**RESULTS:** Falls reported in the previous 6 months were associated with impairment in ADLs (HR: 1.42; 95% CI 1.32, 1.52) in fully adjusted models. Based on trajectory modeling ( $n = 748$ ), 19% ( $n = 139$ ) of participants had increased, persistent ADL impairment after falling. Participants who were female, lived in a neighborhood with higher deprivation, or experienced polypharmacy were more likely to have ADL impairment post-fall.

**CONCLUSIONS:** Falls are associated with increased ADL impairment, and this impairment can persist over time. It is crucial that all older adults, and particularly those at higher risk of post-fall ADL impairment have access to comprehensive fall risk assessment and evidence-based fall prevention interventions, to help mitigate the negative impacts on ADL function.

**Language:** en

**Keywords:** Aged; Humans; Female; Male; Cohort Studies; Retrospective Studies; \*Quality of Life; \*Activities of Daily Living

## **Vestibular syncope**

Choi JY, Lee ES, Kim JS. Curr. Opin. Neurol. 2024; 37(1): 66-73.

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**DOI:** 10.1097/WCO.0000000000001226

**PMID:** 38193502

### **Abstract**

**PURPOSE OF REVIEW:** This review considers recent observations on vestibular syncope in terms of clinical features, laboratory findings, and potential mechanisms.

**RECENT FINDINGS:** Vestibular syncope, potentially associated with severe fall-related injuries, may develop multiple times in about one-third of patients. Meniere's disease and benign paroxysmal positional vertigo are the most common causes of vestibular syncope, but the underlying disorders remain elusive in 62% of cases with vestibular syncope. The postictal orthostatic blood pressure test exhibits a lower diagnostic yield. Vestibular function tests, such as cervical vestibular-evoked myogenic potentials and video head impulse tests, can reveal one or more abnormal findings, suggesting compensated or ongoing minor vestibular dysfunctions. The pathomechanism of syncope is assumed to be the erroneous interaction between the vestibulo-sympathetic reflex and the baroreflex that have different operating mechanisms and action latencies. The central vestibular system, which estimates gravity orientation and inertia motion may also play an important role in abnormal vestibulo-sympathetic reflex.

**SUMMARY:** Vestibular disorders elicit erroneous cardiovascular responses by providing false vestibular information. The results include vertigo-induced hypertension or hypotension, which can ultimately lead to syncope in susceptible patients.

**Language:** en

**Keywords:** Humans; \*Hypertension; \*Vestibule, Labyrinth; Benign Paroxysmal Positional Vertigo; Syncope/diagnosis/etiology

# Long-term antipsychotic use, orthostatic hypotension and falls in older adults with Alzheimer's disease

Dyer AH, Murphy C, Dolphin H, Morrison L, Briggs R, Lawlor B, Kennelly SP. Eur. Geriatr. Med. 2024; ePub(ePub): ePub.

(Copyright © 2024, Elsevier Publishing)

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PMID: 38168729

## Abstract

**PURPOSE:** Antipsychotic use in Alzheimer disease (AD) is associated with adverse events and mortality. Whilst postulated to cause/exacerbate orthostatic hypotension (OH), the exact relationship between antipsychotic use and OH has never been explored in AD-a group who are particularly vulnerable to neuro-cardiovascular instability and adverse effects of medication on orthostatic blood pressure (BP) behaviour.

**METHODS:** We analysed longitudinal data from an 18-month trial of Nilvadipine in mild-moderate AD. We assessed the effect of long-term antipsychotic use (for the entire 18-month study duration) on orthostatic BP phenotypes measured on eight occasions, in addition to the relationship between antipsychotic use, BP phenotypes and incident falls.

**RESULTS:** Of 509 older adults with AD (aged  $72.9 \pm 8.3$  years, 61.9% female), 10.6% ( $n = 54$ ) were prescribed a long-term antipsychotic. Over 18 months, long-term antipsychotic use was associated with a greater likelihood of experiencing sit-to-stand OH (ssOH) (OR: 1.21; 1.05-1.38,  $p = 0.009$ ) which persisted on covariate adjustment. Following adjustment for important clinical confounders, both antipsychotic use (IRR: 1.80, 1.11-2.92,  $p = 0.018$ ) and ssOH (IRR: 1.44, 1.00-2.06,  $p = 0.048$ ) were associated with a greater risk of falls/syncope over 18 months in older adults with mild-moderate AD.

**CONCLUSION:** Even in mild-to-moderate AD, long-term antipsychotic use was associated with ssOH. Both antipsychotic use and ssOH were associated with a greater risk of incident falls/syncope over 18 months. Further attention to optimal prescribing interventions in this cohort is warranted and may involve screening older adults with AD prescribed antipsychotics for both orthostatic symptoms and falls.

**Language:** en

**Keywords:** Falls; Polypharmacy; Alzheimer disease; Antipsychotic; Dementia; Orthostatic hypotension

# **Walking to prevent fear of falling among community-dwelling older adults: a scoping review**

Iriarte E, Araya AX. J. Gerontol. Nurs. 2024; 50(1): 15-21.

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**PMID:** 38170459

## **Abstract**

The current review sought to identify and synthesize the evidence on available interventions that include walking and their impact on fear of falling (FOF) among community-dwelling older adults without cognitive impairment. A 10-year search was conducted (January 2012 to January 2022) in two peer-reviewed databases. A total of 116 articles were identified, and 22 articles were reviewed. Most studies included multicomponent walking interventions, such as walking and another type of intervention or exercise. Among the different questionnaires to assess FOF, the Falls Efficacy Scale-International was the most used in 77.3% (n = 17) of studies. In addition to walking, interventions to reduce FOF mainly included balance training, lower extremity strengthening, cardio or aerobic exercises, or a combination of these exercises. Further research is needed to evaluate the impact of unidimensional walking interventions, as well as those that incorporate psychological and technological elements targeted to FOF prevention and management. [Journal of Gerontological Nursing, 50(1), 15-21.].

**Language:** en

**Keywords:** Aged; Humans; Exercise; Walking; \*Fear/psychology; \*Independent Living

# Fall risk prediction ability in rehabilitation professionals: structural equation modeling using time pressure test data for Kiken-Yochi Training

Kishita R, Mlyaguchi H, Ohura T, Arihisa K, Matsushita W, Ishizuki C. PeerJ 2024; 12: e16724.

(Copyright © 2024, PeerJ)

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## Abstract

**BACKGROUND:** Falls occur frequently during rehabilitation for people with disabilities. Fall risk prediction ability (FRPA) is necessary to prevent falls and provide safe, high-quality programs. In Japan, Kiken Yochi Training (KYT) has been introduced to provide training to improve this ability. Time Pressure-KYT (TP-KYT) is an FRPA measurement specific to fall risks faced by rehabilitation professionals. However, it is unclear which FRPA factors are measured by the TP-KYT; as this score reflects clinical experience, a model can be hypothesized where differences between rehabilitation professionals (licensed) and students (not licensed) can be measured by this tool. **AIMS:** To identify the FRPA factors included in the TP-KYT and verify the FRPA factor model based the participants' license status.

**METHODS:** A total of 402 participants, with 184 rehabilitation professionals (physical and occupational therapists) working in 12 medical facilities and three nursing homes, and 218 rehabilitation students (physical and occupational therapy students) from two schools participated in this study. Participant characteristics (age, gender, job role, and years of experience and education) and TP-KYT scores were collected. The 24 TP-KYT items were qualitatively analyzed using an inductive approach based on content, and FRPA factors were extracted. Next, the correction score (acquisition score/full score: 0-1) was calculated for each extracted factor, and an observation variable for the job role (rehabilitation professional = 1, rehabilitation student = 0) was set. To verify the FRPA factors associated with having or not having a rehabilitation professional license, FRPA as a latent variable and the correction score of factors as an observed variable were set, and structural equation modeling was performed by drawing a path from the job role to FRPA.

**RESULTS:** The results of the qualitative analysis aggregated patient ability (PA), physical environment (PE), and human environment (HE) as factors. The standardized coefficients of the model for participants with or without a rehabilitation professional license and FRPA were 0.85 ( $p < 0.001$ ) for FRPA from job role, 0.58 for PA, 0.64 for PE, and 0.46 for HE from FRPA to each factor ( $p < 0.001$ ). The model showed a good fit, with root mean square error of approximation  $< 0.001$ , goodness of fit index (GFI) = 0.998, and adjusted GFI = 0.990.

**CONCLUSION:** Of the three factors, PA and PE were common components of clinical practice guidelines for fall risk assessment, while HE was a distinctive component. The model's goodness of fit, which comprised three FRPA factors based on whether participants did or did not have rehabilitation professional licenses, was good. The system suggested that rehabilitation professionals had a higher FRPA than students, comprising three factors. To provide safe and high-quality rehabilitation for patients, professional

training to increase FRPA should incorporate the three factors into program content.

**Language:** en

**Keywords:** Humans; Students; \*Medicine; \*Time Pressure; Fall prevention; Falls risk prediction ability (FRPA); Latent Class Analysis; Nursing Homes; Rehabilitation professionals; Rehabilitation students

# **Association between baseline gait parameters and future fall risk in patients with de novo Parkinson's disease: forward versus backward gait**

Kwon KY, You J, Kim RO, Lee EJ, Lee J, Kim I, Kim J, Koh SB. J. Clin. Neurol. 2024; ePub(ePub): ePub.

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**PMID:** 38171499

## **Abstract**

**BACKGROUND AND PURPOSE:** Falls are not uncommon even in patients with early stages of Parkinson's disease (PD). The aims of this study were to determine the relationships between gait parameters and falls and identify crucial gait parameters for predicting future falls in patients with de novo PD.

**METHODS:** We prospectively recruited patients with de novo PD, and evaluated their baseline demographics, global cognitive function on the Montreal Cognitive Assessment test, and parkinsonian motor symptoms including their subtypes. Both forward gait (FG) and backward gait (BG) were measured using the GAITRite system. The history of falls in consecutive patients with de novo PD was examined along with 1 year of follow-up data.

**RESULTS:** Among the 76 patients with de novo PD finally included in the study, 16 (21.1%) were classified as fallers. Fallers had slower gait and shorter stride for FG and BG parameters than did non-fallers, while stride-time variability was greater in fallers but only for BG. Multivariable logistic regression analysis revealed that slow gait was an independent risk factor in BG.

**CONCLUSIONS:** Among the patients with de novo PD, gait speed and stride length were more impaired for both FG and BG in fallers than in non-fallers. It was particularly notable that slow BG was significantly associated with future fall risk, indicating that BG speed is a potential biomarker for predicting future falls in patients with early-stage PD.

**Language:** en

**Keywords:** falls; Parkinson's disease; backward gait; forward gait; gait parameters

# Population-based interventions for preventing falls and fall-related injuries in older people

Lewis SR, McGarrigle L, Pritchard MW, Bosco A, Yang Y, Gluchowski A, Sremanakova J, Boulton ER, Gittins M, Spinks A, Rapp K, MacIntyre DE, McClure RJ, Todd C. *Cochrane Database Syst. Rev.* 2024; 1: CD013789.

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**DOI:** 10.1002/14651858.CD013789.pub2 **PMID:** 38180112

## Abstract

**BACKGROUND:** Around one-third of older adults aged 65 years or older who live in the community fall each year. Interventions to prevent falls can be designed to target the whole community, rather than selected individuals. These population-level interventions may be facilitated by different healthcare, social care, and community-level agencies. They aim to tackle the determinants that lead to risk of falling in older people, and include components such as community-wide policies for vitamin D supplementation for older adults, reducing fall hazards in the community or people's homes, or providing public health information or implementation of public health programmes that reduce fall risk (e.g. low-cost or free gym membership for older adults to encourage increased physical activity).

**OBJECTIVES:** To review and synthesise the current evidence on the effects of population-based interventions for preventing falls and fall-related injuries in older people. We defined population-based interventions as community-wide initiatives to change the underlying societal, cultural, or environmental conditions increasing the risk of falling. **SEARCH METHODS:** We searched CENTRAL, MEDLINE, Embase, three other databases, and two trials registers in December 2020, and conducted a top-up search of CENTRAL, MEDLINE, and Embase in January 2023. **SELECTION CRITERIA:** We included randomised controlled trials (RCTs), cluster RCTs, trials with stepped-wedge designs, and controlled non-randomised studies evaluating population-level interventions for preventing falls and fall-related injuries in adults  $\geq 60$  years of age. Population-based interventions target entire communities. We excluded studies only targeting people at high risk of falling or with specific comorbidities, or residents living in institutionalised settings. **DATA COLLECTION AND ANALYSIS:** We used standard methodological procedures expected by Cochrane, and used GRADE to assess the certainty of the evidence. We prioritised seven outcomes: rate of falls, number of fallers, number of people experiencing one or more fall-related injuries, number of people experiencing one or more fall-related fracture, number of people requiring hospital admission for one or more falls, adverse events, and economic analysis of interventions. Other outcomes of interest were: number of people experiencing one or more falls requiring medical attention, health-related quality of life, fall-related mortality, and concerns about falling. **MAIN RESULTS:** We included nine studies: two cluster RCTs and seven non-randomised trials (of which five were controlled before-and-after studies (CBAs), and two were controlled interrupted time series (CITS)). The numbers of older adults in intervention and control regions ranged from 1200 to 137,000 older residents in seven studies. The other two studies reported only total population size rather than numbers of older adults (67,300 and 172,500 residents).



Most studies used hospital record systems to collect outcome data, but three only used questionnaire data in a random sample of residents; one study used both methods of data collection. The studies lasted between 14 months and eight years. We used Prevention of Falls Network Europe (ProFaNE) taxonomy to classify the types of interventions. All studies evaluated multicomponent falls prevention interventions. One study (n = 4542) also included a medication and nutrition intervention. We did not pool data owing to lack of consistency in study designs. Medication or nutrition Older people in the intervention area were offered free-of-charge daily supplements of calcium carbonate and vitamin D(3). Although female residents exposed to this falls prevention programme had fewer fall-related hospital admissions (with no evidence of a difference for male residents) compared to a control area, we were unsure of this finding because the certainty of evidence was very low. This cluster RCT included high and unclear risks of bias in several domains, and we could not determine levels of imprecision in the effect estimate reported by study authors. Because this evidence is of very low certainty, we have not included quantitative results here. This study reported none of our other review outcomes. Multicomponent interventions Types of interventions included components of exercise, environment modification (home; community; public spaces), staff training, and knowledge and education. Studies included some or all of these components in their programme design. The effectiveness of multicomponent falls prevention interventions for all reported outcomes is uncertain. The two cluster RCTs included high or unclear risk of bias, and we had no reasons to upgrade the certainty of evidence from the non-randomised trial designs (which started as low-certainty evidence). We also noted possible imprecision in some effect estimates and inconsistent findings between studies. Given the very low-certainty evidence for all outcomes, we have not reported quantitative findings here. One cluster RCT reported lower rates of falls in the intervention area than the control area, with fewer people in the intervention area having one or more falls and fall-related injuries, but with little or no difference in the number of people having one or more fall-related fractures. In another cluster RCT (a multi-arm study), study authors reported no evidence of a difference in the number of female or male residents with falls leading to hospital admission after either a multicomponent intervention ("environmental and health programme") or a combination of this programme and the calcium and vitamin D(3) programme (above). One CBA reported no difference in rate of falls between intervention and control group areas, and another CBA reported no difference in rate of falls inside or outside the home. Two CBAs found no evidence of a difference in the number of fallers, and another CBA found no evidence of a difference in fall-related injuries. One CITS found no evidence of a difference in the number of people having one or more fall-related fractures. No studies reported adverse events. AUTHORS' CONCLUSIONS: Given the very low-certainty evidence, we are unsure whether population-based multicomponent or nutrition and medication interventions are effective at reducing falls and fall-related injuries in older adults.

METHODologically robust cluster RCTs with sufficiently large communities and numbers of clusters are needed. Establishing a rate of sampling for population-based studies would help in determining the size of communities to include. Interventions should be described in detail to allow investigation of effectiveness of individual components of multicomponent interventions; using the ProFaNE taxonomy for this would improve consistency between studies.

**Language:** en

## **Clinical and socially significant consequences of falls in elderly and senile persons (analytical review)**

Maltsev SB, Medvedev DS, Polyakova VO, Shumko VV, Gorelova AA, Mushkin MA. Adv. Gerontol. (1997) 2023; 36(5): 689-697.

(Copyright © 2023, Gerontological Society of the Russian Academy of Sciences, Publisher Èskulap)

**DOI:** unavailable

**PMID:** 38180368

### **Abstract**

Falls refers to geriatric syndromes, which is accompanied by a significant number of adverse clinically and socially consequences. For the rational organization of medical, social, psychological and other types of assistance and rehabilitation measures, separate groups of consequences developing as a result of a fall are distinguished: physical, functional, psychological, social. Every year, every fourth elderly and older person faces a fall, while about half of the victims seek medical help. Among people of older age groups who have suffered a fall episode, 20-30% have complications in the form of injuries, which further increase the risk of premature death. With two or more falls per year, the risk of complications increases significantly. This requires a comprehensive assessment of risk factors in each individual case.

**Language:** ru

**Keywords:** elderly; fall syndrome; complications of fall syndrome

## **Prevention of falls syndrome (analitic review)**

Maltsev SB, Medvedev DS, Shumko VV, Gorelova AA, Mushkin MA, Polyakova VO. Adv. Gerontol. (1997) 2023; 36(5): 638-646.

(Copyright © 2023, Gerontological Society of the Russian Academy of Sciences, Publisher Èskulap)

**DOI:** unavailable

**PMID:** 38180362

### **Abstract**

Falls in people over 60 years of age is usually interpreted as geriatric syndrome, which is one of the leading problems in geriatrics due to complications. In recent years, the frequency of falls has increased., Every third person faces a fall in old age, and every second person falls in the age over 85 years. Only a multifactorial and personalized approach to each patient will be able to reduce the risk of falling due to the peculiarities of this category of patients and the multidirectional genesis of the fall syndrome. The decision on the choice of tactics should be made by a group of specialists, and the assessment of the effectiveness of the measures used should be carried out in dynamics with due adjustment if necessary.

**Language:** ru

**Keywords:** elderly; fall syndrome; precaution

# **Classification of community-dwelling older people based on their physical, mental, cognitive, and oral functions and comorbidities and its relationship with the fall history**

Misaki S, Murayama H, Sugiyama M, Inagaki H, Okamura T, Ura C, Miyamae F, Edahiro A, Motokawa K, Awata S. Nippon Ronen Igakkai Zasshi 2023; 60(4): 364-372.

(Copyright © 2023, Japan Geriatrics Society)

**DOI:** 10.3143/geriatrics.60.364

**PMID:** 38171753

## **Abstract**

**AIM:** To prevent falls among older adults, healthcare professionals need to assess these individuals from multiple perspectives. This study aimed to group community-dwelling older Japanese people based on their physical, mental, cognitive, and oral functions and comorbidities, and compare the history of falling in these groups.

**METHODS:** Data were obtained from a cross-sectional survey conducted in 2015 among older residents of a ward of Tokyo. For the survey, a questionnaire was distributed to all residents aged  $\geq 65$  years without a certificate of long-term care ( $n = 132,005$ ). Questions were posed concerning respondents' physical, mental, cognitive, and oral functions; comorbidities; and experience with falling in the past year. Cluster and logistic regression analyses were performed.

**RESULTS:** A total of 70,746 participants (53.4%) were included in the analysis. The mean age was 73.6 years old, and 44.9% were male. Four groups were identified in the cluster analysis: the "good general condition group" ( $n = 37,797$ , 52.4%), "poor mental function group" ( $n = 10,736$ , 14.7%), "moderate physical function group" ( $n = 13,461$ , 19.0%), and "poor general condition group" ( $n = 9,122$ , 12.9%). A logistic regression analysis with adjusting for socio-demographic characteristics, health behaviors, and fear of falling showed that the odds ratios for the experience of falling within the past year were 1.44 (95% confidence interval: 1.34-1.53), 1.54 (1.44-1.65), and 2.52 (2.34-2.71) in the poor mental function, moderate physical function, and poor general condition groups, respectively, with the good general condition group as the reference.

**CONCLUSIONS:** We classified community-dwelling older adults into four groups based on multiple functions and found possible variations in the risk of falling by group. These findings suggest that such classification may be useful for the prevention of falls.

**Language:** ja

**Keywords:** Aged; Humans; Female; Male; Cross-Sectional Studies; Classification; Cognition; Cluster analysis; \*Independent Living; \*Accidental Falls; Community-dwelling older people; Experience of falling

# **Real-world evidence for risk factors of bruises and fractures from falls in patients with overactive bladder: a medical record analysis**

Miyajima S, Omaru T, Ishii T, Arima H, Shibata Y, Izaki T, Haga N. *Int. J. Clin. Pract.* 2023; 2023: e3701823.

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**PMCID:** PMC10765161

## **Abstract**

**AIM:** To identify the risk factors for bruises and fractures from falls in patients with overactive bladder (OAB).

**METHODS:** We evaluated 1136 patients with OAB and aged  $\geq 50$  years who visited our hospital. Age, sex, frequency of nocturnal urination, and urinary incontinence type were investigated in the 360 eligible patients. Patients were divided into three groups: those patients without falls (no-fall group), those with fall bruises (bruise group), and those with fall fractures (fracture group). The risk factors for bruises and fractures in patients with OAB were evaluated using the logistic regression analysis. In addition, association between the bruises or fractures from falls and the behavior around urination during the night was investigated.

**RESULTS:** The multivariate logistic regression analysis showed that female sex (odds ratio (OR) 2.888,  $p = 0.030$ ) and nocturnal urination frequency  $\geq 3$  times/night (OR vs.  $\leq 2$  times/night, 2.940;  $p = 0.040$ ) were significantly associated with bruises. Nocturnal urination frequency  $\geq 3$  times/night (OR vs.  $\leq 2$  times/night, 2.835;  $p = 0.026$ ) and urge incontinence (OR 3.415,  $p = 0.016$ ) were significantly associated with fractures. Behavior around urination during the night was significantly associated with fractures ( $p = 0.009$ ).

**CONCLUSION:** In the real-world clinical setting, increasing nocturnal urination frequency is a common risk factor for bruises and fractures. Also, female sex and urge incontinence were the risk factors for bruises and fractures, respectively. OAB patients with urge incontinence would especially require aggressive intervention to prevent fractures during night-time voiding.

**Language:** en

# Prevalence, incidence of and risk factors for vertebral fracture in the community: the Vietnam Osteoporosis Study

Nguyen HT, Nguyen BT, Thai THN, Tran AV, Nguyen TT, Vo T, Mai LD, Tran TS, Nguyen TV, Ho-Pham LT. Sci. Rep. 2024; 14(1): e32.

(Copyright © 2024, Nature Publishing Group)

DOI: 10.1038/s41598-023-50145-w

PMID: 38168502

PMCID: PMC10761939

## Abstract

The epidemiology of vertebral fractures (VF) in underrepresented populations is not well-documented. This cohort study was part of a longitudinal osteoporosis research project with the aim of determining the prevalence, incidence, and risk factors for VF. 401 individuals (155 men) aged 50 years and older without a clinical diagnosis of VF were took radiographs at baseline and 2 years later. VF were ascertained using the Genant's semi-quantitative method. Bone mineral density (BMD) of femoral neck and lumbar spine were measured by dual-energy X-ray absorptiometry (Hologic Inc). The association between VF and risk factors was analyzed by the multiple logistic regression. The 95% confidence interval for prevalence and incidence was estimated by exact Poisson test. At baseline, the prevalence of VF was 12.2% (n = 49, 95% CI 9.0-16.2%) and increased with advancing age with one-fifth of those aged 70 and older having a VF. During the follow-up period, we observed 6 new VF, making the incidence of 6.6/1000 person-years (n = 6, 95% CI 2.4-14.3). The risk of prevalent VF was associated with male gender (OR: 2.67; 95% CI 1.28-5.87) and T-score at the femoral neck (OR per one SD decrease: 1.1; 1.03-1.17). These data indicate that VF is common among adults, and that lower femoral neck BMD was a risk factor for VF.

**Language:** en

**Keywords:** Adult; Aged; Humans; Male; Middle Aged; Risk Factors; Incidence; Aged, 80 and over; Prevalence; Cohort Studies; Vietnam; \*Osteoporosis/diagnostic imaging/epidemiology/complications; \*Spinal Fractures/diagnostic imaging/epidemiology/etiology; Absorptiometry, Photon/methods; Bone Density; Lumbar Vertebrae/diagnostic imaging/injuries

# Effectiveness of nursing interventions in the prevention of falls in older adults in the community and in health care settings: a systematic review and meta-analysis of RCT

Orts-Cortés MI, Cabañero-Martínez MJ, Meseguer-Liza C, Arredondo-González CP, de la Cuesta-Benjumea C, Abad-Corpa E. *Enferm. Clin. (Engl. Ed.)* 2024; ePub(ePub): ePub.

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**DOI:** 10.1016/j.enfcle.2024.01.001

**PMID:** 38185371

## Abstract

**OBJECTIVE:** To estimate the effectiveness of fall prevention programs in people aged 65 years and older involving nursing professionals.

**METHODS:** We included available full-text randomized clinical trials on nurse-led prevention of falls in the community in people over 65 years of age and reporting the incidence of such falls. An extensive search was performed in 14 databases covering the period 2016 to 2018 for publications in English, French, Portuguese and Spanish. The quality of the papers was assessed independently and blindly by reviewers working in pairs using the risk of bias dominios of the Cochrane Collaboration. The hazard ratio was used as a measure of the effect size of the incidence of falls. A random-effects model was assumed for statistical analyses. The influence of moderator variables of the studies on the effect sizes was performed using ANOVAs and its 95% CI for each moderator category.

**RESULTS:** A total of 31 randomized clinical trials were selected with 25,551 participants. The most frequent type of intervention was education (57.1%), followed by multifactorial models (37.1%). The probability of falling was significantly reduced by 13% in the intervention groups compared to the control groups ( $RR = 0.87$ ). Multifactorial ( $RR = 0.89$ ) and education-based ( $RR = 0.84$ ) interventions significantly reduced the probability of falls by 11% and 16%, respectively.

**CONCLUSIONS:** Discarding publication bias prevention programs carried out by nurses produce a significant 10% reduction in falls. Education-based and multifactorial interventions are the most effective when conducted by nurses.

**Language:** en

**Keywords:** Accident prevention; Aged; Systematic review; Meta-analysis; Accidental fall; Accidentes por caídas; Enfermería; Metaanálisis; Nursing; Persona mayor; Prevención de accidentes; Revisión sistemática



## Scoping review of fall risk assessment tools for women who receive maternity care

Risso S, Soares T, Marques-Vieira C. J. Obstet. Gynecol. Neonatal Nurs. 2024; ePub(ePub): ePub.

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DOI: 10.1016/j.jogn.2023.11.012

PMID: 38176683

### Abstract

**OBJECTIVE:** To identify and describe fall risk assessment tools used for women who receive maternity care.

**DATA SOURCES:** PubMed, CINAHL Complete, MEDLINE Complete, Cochrane Library, Scopus, SciELO, and Repositórios Científicos de Acesso Aberto de Portugal (RCAAP).

**STUDY SELECTION:** We considered reports published until November 28, 2022, that included women during pregnancy, childbirth, or the postpartum period; involved the use of fall risk assessment tools, regardless of context; and were published in English, French, Portuguese, or Spanish.

**DATA EXTRACTION:** We extracted the following data from the included reports: author(s)/year/country, aim/sample, research design/type of report, tool (i.e., the fall risk assessment tool used), findings, reliability, and validity.

**DATA SYNTHESIS:** We found 13 reports in which the authors addressed nine fall risk assessment tools. Seven of these tools were applied during pregnancy (Kyle's tool, Pregnant Women Information Form and Assessment Scale for Risk of Falling in Pregnant Women, Obstetric Fall Risk Assessment System), labor (Obstetric Fall Risk Assessment System), the postpartum period (Cooksey-Post Obstetric Delivery Fall Risk Assessment, Kyle's tool, Risk of Falling in Post-partum Women (SLOPE), Obstetric Fall Risk Assessment System, Post-epidural Fall Risk Assessment Score, and Maternal Fall Risk Assessment Scale). The Dionne's Egress Test and the Motor Strength Scale do not address the characteristics of the women who receive maternity care. Psychometric characteristics were available for the Assessment Scale for Risk of Falling in Pregnant Women, Post-epidural Fall Risk Assessment Score, Maternal Fall Risk Assessment Scale, and Risk of Falling in Post-partum Women.

**CONCLUSION:** Some fall risk assessment tools are used to assess women who receive maternity care without proper validation in this specific population. The use of fall risk assessment tools that are validated for women who receive maternity care may help nurses make clinical judgments when assessing fall risk and implement measures for fall prevention.

**Language:** en

**Keywords:** risk assessment; accidental falls; obstetric labor; postpartum period; pregnant women

## Assessment of lower limb muscle strength can predict fall risk in patients with chronic liver disease

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### Abstract

Falls are caused by a combination of factors, including loss of lower limb muscle strength (LMS), and associated with declined performance status (PS). Age-related sarcopenia is generally associated with decreased muscle mass and strength of lower limb muscle but without a noticeable loss of those of upper limb or trunk muscle. However, no reports have focused on falls or LMS in chronic liver disease (CLD) patients. This study is the first to analyze the risk factors for falls in patients with CLD, focusing on LMS measurement using the Locomoscan. This study enrolled 315 CLD patients whose LMS was measured. The patients who experienced falls more than 1 year ago or during the observation period were classified as those who experienced falls. We found that risk factors for falls were PS1/2 and decreased LMS ( $< 0.32$  N/kg). The group with sarcopenia had a higher frequency of decreased LMS (54 vs. 26%,  $p = 0.001$ ) and falls (24 vs. 4.4%,  $p < 0.001$ ) compared to the non-sarcopenia group. This study found that decreased LMS was an independent risk factor for falls. Assessment of LMS may be used as a better marker associated with the risk of falls in patients with CLD.

**Language:** en

**Keywords:** Humans; Accidental Falls; \*Liver Diseases/complications; \*Sarcopenia/diagnosis; Hand Strength/physiology; Lower Extremity/physiology; Muscle Strength/physiology; Muscle, Skeletal

# Effect of number of medications on the risk of falls among community-dwelling older adults: a 3-year follow-up of the SONIC study

Yoshida Y, Ishizaki T, Masui Y, Hori N, Inagaki H, Ito K, Ogawa M, Yasumoto S, Arai Y, Kamide K, Ikebe K, Gondo Y. *Geriatr. Gerontol. Int.* 2024; ePub(ePub): ePub.

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## Abstract

**AIM:** This study examined the association between the number of prescribed medications and falls among community-dwelling older adults.

**METHODS:** We conducted a geriatric comprehensive health-checkup on community-dwelling adults aged 69-91 years who participated in the Septuagenarians, Octogenarians, and Nonagenarians Investigation with Centenarians study. The final analysis of this study included 1,076 participants with complete data. The participants were divided into four groups based on the number of medications at baseline: 0, 1, 2-4, and  $\geq 5$ . At the 3-year follow-up, the participants were asked whether they had fallen in the past year. Multivariable logistic regression analysis was performed to assess the relationship between the number of medications taken and falls after adjusting for confounding factors.

**RESULTS:** The prevalence rates of falls were 10.5%, 18.2%, 18.3%, and 19.8% in the no-medication, one-medication, comedication, and polypharmacy groups, respectively. In the one-medication prescription group, 59% of prescriptions were for fall-risk-increasing drugs (FRID). Multivariable analysis showed a significantly higher incidence of falls in the one-medication group (adjusted odds ratio [OR], 1.91; 95% confidence interval [CI], 1.04-3.54), co-medication (OR, 1.89; 95% CI, 1.09-3.29), and polypharmacy groups (OR, 1.94; 95% CI, 1.09-3.45) than in the no-medication group.

**CONCLUSIONS:** The study showed that polypharmacy, as well as just taking one medication, can affect the occurrence of falls. This suggests that in addition to the number of medications and polypharmacy, the type of medication, such as FRID, affects the risk of falls. Therefore, pharmacotherapy should consider the risk of falls in older adults when prescribing medications. *Geriatr Gerontol Int* 2024; ••: ••-••.

**Language:** en

**Keywords:** geriatrics; risk factors; accidental falls; drug therapy; polypharmacy