

### SafetyLit 30 July 2017

#### **A study of falls among elderly persons in a rural area of Haryana**

Sirohi A, Kaur R, Goswami AK, Mani K, Nongkynrih B, Gupta SK.

*Indian J. Public Health* 2017; 61(2): 99-104.

**Affiliation:** Professor, Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi, India.

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**DOI** 10.4103/ijph.IJPH\_102\_16 **PMID** 28721959

#### **Abstract**

**BACKGROUND:** Falls are a common, disabling, and frequently fatal health concern among elderly persons. Assessment of the prevalence of falls and associated factors can lead to the identification of corrective measures, which can help in preventing falls and their consequent effects on health and well-being of the elderly.

**OBJECTIVES:** The objective is to determine the prevalence of falls among elderly persons in a rural area and to study the association of falls with sociodemographic variables and selected health conditions.

**METHODS:** In a community-based, cross-sectional study conducted among 456 elderly persons in a rural area, information regarding sociodemographic details, selected health conditions, and history of falls in the past 12 months was recorded. Univariate analysis followed by stepwise multivariate logistic regression analysis was carried out. The effect of sociodemographic and various health conditions on falls was analyzed using logistic regression analysis.

**RESULTS:** Among the 456 study participants, the prevalence of falls in the past 12 months was 36.6% (95% confidence interval [CI] =32.1-40.0). The prevalence among women was 40.6% (95% CI = 34.5-46.7) and among men was 31.5% (95% CI = 25.0-37.9). Low socioeconomic status, urgency of micturition, knee pain, visual impairment, hearing impairment, functional disability, and depression were significantly associated with falls.

**CONCLUSIONS:** Falls are common among elderly persons. Health programs for the elderly must include prevention of falls and rehabilitation of fall-related injuries.

#### **PDF Endnote Y**

#### **Antidepressant use and risk of hip fractures among community-dwelling persons with and without Alzheimer's disease**

Torvinen-Kiiskinen S, Tolppanen AM, Koponen M, Tanskanen A, Tiihonen J, Hartikainen S, Taipale H.

*Int. J. Geriatr. Psychiatry* 2017; ePub(ePub): ePub.

(Copyright © 2017, John Wiley and Sons)

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#### **Abstract**

**OBJECTIVE:** To study whether antidepressant use is associated with an increased risk of hip fracture among community-dwelling persons with and without Alzheimer's disease (AD), and to compare the risk according to duration of use and between antidepressant groups.

**METHODS:** Retrospective cohort study, including 50,491 persons with AD (mean age 80) and 100,982 comparison persons without AD from Finnish register-based MEDALZ cohort. Antidepressant use was compared with nonuse with Cox proportional hazard models. Incident users were identified with a one year washout period from Prescription register data. Main outcome was hospitalization due to hip fracture.

**RESULTS:** During antidepressant use, the age-adjusted rate of hip fractures per 100 person-years was 3.01 (95% CI 2.75-3.34) among persons with and 2.28 (1.94-2.61) among persons without AD. Antidepressant use was associated with an increased risk of hip fracture among persons with and without AD (adjusted HR 1.61, 95% CI 1.45-1.80 and 2.71, 2.35-3.14, respectively) compared with nonuse. The risk was most prominent in the beginning of use and was elevated even up to 4 years. The risk was increased with all of the most frequently used antidepressants.

**CONCLUSION:** Antidepressant use is associated with an increased risk of hip fracture among older persons. Copyright © 2017 John Wiley & Sons, Ltd.

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### **Balance and falls in acute exacerbation of chronic obstructive pulmonary disease: a prospective study**

Oliveira CC, Lee AL, McGinley J, Anderson GP, Clark RA, Thompson M, Clarke S, Baker T, Irving LB, Denehy L.

*COPD* 2017; ePub(ePub): ePub.

**Affiliation:** Department of Physiotherapy , The University of Melbourne , Melbourne , Australia.  
(Copyright © 2017, Informa Healthcare)

**DOI** 10.1080/15412555.2017.1342232 **PMID** 28745525

#### **Abstract**

Individuals with chronic obstructive pulmonary disease (COPD) have demonstrated balance impairment and a higher fall incidence. However, these have not been investigated in acute exacerbations of the disease (ECOPD). This study evaluates balance in patients during an ECOPD compared to stable COPD and healthy controls, and examines the fall incidence rate after hospitalisation due to ECOPD compared to individuals with stable COPD. Balance performance of 26 hospitalised patients with ECOPD was compared to 26 community-dwelling participants with stable COPD and 25 matched healthy controls. Balance was evaluated using computerised posturography and the Berg Balance Scale (BBS). Prospective falls were monitored by monthly calendars for 12 months in both COPD groups. Compared to controls, greater balance impairment was observed during ECOPD for most posturography variables across standing conditions ( $p \leq 0.05$ ). Both COPD groups had worse BBS scores ( $p \leq 0.05$ ) compared to controls. Increased dyspnoea and reduced quadriceps' strength were associated with impaired balance performance. A higher fall incidence (1.76 falls/person/year) was observed following hospitalisation in patients with ECOPD compared to stable COPD (0.53 falls/person/year) at 12 months. Patients with ECOPD demonstrate balance impairments which are associated with increased dyspnoea and reduced muscle strength. Balance impairment during ECOPD may contribute to a high incidence of falls following hospitalisation.

**PDF Y Endnote Y**

### **Changing epidemiology of injury in the USA**

Brasel K.

*Curr. Trauma Rep.* 2017; 3(1): 1-7.

(Copyright © 2017, Springer Science+Business Media)

**DOI** 10.1007/s40719-017-0073-3 **PMID** unavailable

#### **Abstract**

**Purpose of Review:** The aging population of the injured has had a profound effect on injury epidemiology. Recent Findings A recent analysis demonstrates that outcomes in the geriatric

population are improved in centers that treat a higher number of elderly trauma patients. Summary To better prevent injuries and manage their population of patients, trauma care providers must concern themselves not only with understanding the overall rates of injury and admissions but also the likelihood that elderly patients will be admitted in greater numbers as well as make up a greater proportion of trauma admissions.

**PDF Endnote Y**

### **Concordance of motion sensor and clinician-rated fall risk scores in older adults**

Elledge J. *Comput. Inform. Nurs.* 2017; ePub(ePub): ePub.

**Affiliation:** Author Affiliation: Pacific Lutheran University School of Nursing, Tacoma, WA.

(Copyright © 2017, Lippincott Williams and Wilkins)

**DOI** 10.1097/CIN.0000000000000378 **PMID** 28723833

#### **Abstract**

As the older adult population in the United States continues to grow, developing reliable, valid, and practical methods for identifying fall risk is a high priority. Falls are prevalent in older adults and contribute significantly to morbidity and mortality rates and rising health costs. Identifying at-risk older adults and intervening in a timely manner can reduce falls. Conventional fall risk assessment tools require a health professional trained in the use of each tool for administration and interpretation. Motion sensor technology, which uses three-dimensional cameras to measure patient movements, is promising for assessing older adults' fall risk because it could eliminate or reduce the need for provider oversight. The purpose of this study was to assess the concordance of fall risk scores as measured by a motion sensor device, the OmniVR Virtual Rehabilitation System, with clinician-rated fall risk scores in older adult outpatients undergoing physical rehabilitation. Three standardized fall risk assessments were administered by the OmniVR and by a clinician. Validity of the OmniVR was assessed by measuring the concordance between the two assessment methods. Stability of the OmniVR fall risk ratings was assessed by measuring test-retest reliability. The OmniVR scores showed high concordance with the clinician-rated scores and high stability over time, demonstrating comparability with provider measurements.

**PDF Endnote Y**

### **Depressive symptoms, falls, and fear of falling in old Korean adults: the Korean Longitudinal Study on Health and Aging (KLoSHA)**

Park Y, Paik NJ, Kim KW, Jang HC, Lim JY.

*J. Frailty Aging* 2017; 6(3): 144-147.

**Affiliation:** Jae-Young Lim, MD, Department of Rehabilitation Medicine, Seoul National University College of Medicine, Seoul National University Bundang Hospital, 82, Gumi-ro 173 Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea, Telephone: +82 31 787 7732, Fax: +82 31 787 4056, E-mail: drlim1@snu.ac.kr.

(Copyright © 2017, Journal of frailty and aging)

**DOI** 10.14283/jfa.2017.21 **PMID** 28721431

#### **Abstract**

Fall is a common cause of disability and death in old adults, and much research has been focused on identifying risk factors and developing preventive measures. Yet the majority of preceding research has been focused on physical performance. This study aims to evaluate the association between fall and depressive symptoms in community-dwelling elderly. Cross-sectional data of 431 men and 546

women was collected from old Korean adults living in Seongnam, Korea. Geriatric fall assessment was conducted by self-report questionnaires. Depressive symptoms were assessed by the Center for Epidemiologic Studies Depression Scale.

RESULTS indicated that depressive symptoms were associated with both fall and fear of falling in old adults. A clear gender difference was newly discovered, as depression played a stronger role in women. These results imply that clinicians should consider the negative affect of geriatric patients when assessing fall risk. Also, measures against depression might be effective in reducing falls.

#### **PDF Endnote Y**

#### **Do functional mobility tests predict the risk of falls in community-dwelling elderly?**

Moreira ACS, Mazo GZ, Cardoso FL. Rev. Ter. Man. 2016; 14: e432.

(Copyright © 2016, Escola de Terapia Manual e Postural)

DOI 10.17784/mtprehabJournal.2016.14.432 PMID unavailable

#### **Abstract**

The falls are associated with morbidity and mortality in the elderly. Numerous of functional mobility clinical tests have been created to identify older adults with potential for risk of falls. The purpose of this systematic review was to determine the predictive validity of functional mobility tests to predict the risk of falls in community-dwelling elderly. Articles in English were searching in MEDLINE, SCOPUS and CINAHL. We found 18,520 documents and, after applying the inclusion and exclusion criteria, 11 articles were part of the final analysis. All articles analyzed included subjects over 60 years old. The results showed that the TUG Test has good discriminative validity for elderly non-institutionalized, but it does not provide an adequate predictive validity for falls. The TUG Test may not be enough as a unique basic screening tool to detect the risk of falling. It is suggested that the TUG Test should be used in combination with other predictors of falling risk tools or should it be reconfigured for the different levels of active elderly functionality.

#### **PDF Y Endnote Y**

#### **Epidemiological survey of the feasibility of broadband ultrasound attenuation measured using calcaneal quantitative ultrasound to predict the incidence of falls in the middle aged and elderly**

Ou LC, Chang YF, Chang CS, Chiu CJ, Chao TH, Sun ZJ, Lin RM, Wu CH. BMJ Open 2017; 7(1): e013420.

(Copyright © 2017, BMJ Publishing Group)

DOI 10.1136/bmjopen-2016-013420 PMID unavailable

#### **Abstract**

**OBJECTIVES** We investigated whether calcaneal quantitative ultrasound (QUS-C) is a feasible tool for predicting the incidence of falls.

**DESIGN:** Prospective epidemiological cohort study.

**SETTING:** Community-dwelling people sampled in central western Taiwan.

**PARTICIPANTS:** A cohort of community-dwelling people who were  $\geq 40$  years old (men: 524; women: 676) in 2009-2010. Follow-up questionnaires were completed by 186 men and 257 women in 2012.

**METHODS:** Structured questionnaires and broadband ultrasound attenuation (BUA) data were obtained in 2009-2010 using QUS-C, and follow-up surveys were done in a telephone interview in 2012. Using a binary logistic regression model, the risk factors associated with a new fall during follow-up were analysed with all significant variables from the bivariate comparisons and theoretically important variables.

**PRIMARY OUTCOME MEASURES:** The incidence of falls was determined when the first new fall occurred during the follow-up period. The mean follow-up time was 2.83 years.

**RESULTS:** The total incidence of falls was 28.0 per 1000 person-years for the  $\geq 40$  year old group (all participants), 23.3 per 1000 person-years for the 40-70 year old group, and 45.6 per 1000 person-years for the  $\geq 70$  year old group. Using multiple logistic regression models, the independent factors were current smoking, living alone, psychiatric drug usage and lower BUA (OR 0.93; 95% CI 0.88 to 0.99,  $p < 0.05$ ) in the  $\geq 70$  year old group.

**CONCLUSIONS:** The incidence of falls was highest in the  $\geq 70$  year old group. Using QUS-C-derived BUA is feasible for predicting the incidence of falls in community-dwelling elderly people aged  $\geq 70$  years.

#### PDF Y Endnote Y

##### **Falls prevention interventions for older adults with low vision: A scoping review.**

Blaylock SE, Vogtle LK.

*Can. J. Occup. Ther.* 2017; 84(3): 139-147.

(Copyright © 2017, Canadian Association of Occupational Therapists)

**DOI** 10.1177/0008417417711460 **PMID** 28730900

#### **Abstract**

**BACKGROUND:** Older adults with low vision are especially vulnerable to falls. There are no comprehensive reviews of fall prevention interventions for older adults with vision loss who live in the community.

**PURPOSE:** The aim of this study was to review the evidence regarding community-based falls prevention interventions that appear inclusive of and/or accessible to individuals with low vision.

**METHOD:** A scoping review was completed using the framework developed by Arksey and O'Malley, and the charted data were analyzed using sums and percentages and qualitative content analysis.

**FINDINGS:** Seventeen publications were selected for this review. The analysis allowed for a thorough description of the types of falls prevention interventions (multiple components, home safety/modification, tai chi, the Alexander Technique, improvement of vision through vision assessment and referral, vision/agility training, and yoga), how each intervention addresses vision impairment, and the relation of results to falls risk.

**IMPLICATIONS:** Falls prevention research targeting individuals with visual impairment is limited, and the intervention approaches available may not be effective for older adults with permanent vision loss.

#### PDF Y Endnote Y

##### **Falls, non-accidental falls and syncope in community-dwelling adults aged 50 years and older: implications for cardiovascular assessment**

Bhangu J, King-Kallimanis BL, Donoghue OA, Carroll L, Kenny RA.

*PLoS One* 2017; 12(7): e0180997.

The Irish Longitudinal Study on Ageing, Trinity College, Dublin, Ireland.

(Copyright © 2017, Public Library of Science)

**DOI** 10.1371/journal.pone.0180997 **PMID** 28732008

#### **Abstract**

**OBJECTIVES:** To calculate the prevalence of all falls, non-accidental falls and syncope in an older population and characterize cardiovascular risk profiles.

**DESIGN:** Prospective, longitudinal cohort study.

**SETTING:** The first two waves of data from the Irish Longitudinal Study on Ageing (TILDA).

**PARTICIPANTS:** 8172 community-dwelling adults aged 50 years and older resident in the Republic of Ireland.

**MEASUREMENTS:** Self-reported history of all falls, non-accidental falls and syncope in the year preceding the first two waves of data collection. Demographic factors and self-reported cardiovascular conditions were used to characterize cardiovascular risk profiles.

**RESULTS:** The prevalence of all falls in the past year was 19.2% or 192 per thousand persons and increased with age (50-64 years 17.5%; 65-74 years 19.4%; 75+ years 24.4%). Non-accidental falls had an estimated prevalence of 5.1% or 51 falls per thousand persons and accounted for 26.5% of all falls reported and also increased with age (50-64 years 4.0%; 65-74 years 5.5%; 75+ years 8.0%). The prevalence for syncope was estimated to be 4.4% or 44 per thousand persons but did not show a similar age gradient. Participants with at least 5 cardiovascular conditions were more likely to report all falls (OR = 2.07, 95% CI 1.18-3.64,  $p < 0.05$ ) and NAF (OR = 2.89, 95% CI 1.28-6.52,  $p < 0.05$ ).

**CONCLUSIONS:** The prevalence of all falls and non-accidental falls increases with age but the same pattern was not consistently observed for syncope. There is an increased odds of reporting all three outcomes with increasing number of self-reported cardiovascular conditions. Further work is needed to uncover the interplay between cardiovascular disease and subsequent falls.

#### **PDF Y Endnote y**

#### **Frailty and fear of falling: The FISTAC Study**

Esbrí-Víctor M, Huedo-Rodenas I, López-Utiel M, Navarro-López JL, Martínez-Reig M, Serra-Rexach JA, Romero-Rizos L, Abizanda P. J. *Frailty Aging* 2017; 6(3): 136-140.

**Affiliation:** Pedro Abizanda, MD, PhD. Geriatrics Department. Complejo Hospitalario Universitario de Albacete, 02006 Albacete, Spain. e-mail: pabizanda@sescam.jccm.es, Tfn: +34967597651; Fax : +34967597635.

(Copyright © 2017, Journal of frailty and aging)

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#### **Abstract**

**OBJECTIVE:** To analyze the association between frailty and Fear of Falling (FoF) in a cohort of older adults with previous falls.

**DESIGN:** Cross-sectional study (FISTAC).

**SETTING:** Falls Unit, Complejo Hospitalario Universitario of Albacete (Spain).

**PARTICIPANTS:** 183 adults older than 69 years, from the Falls Unit, with a history of a previous fall in the last year.

**MEASUREMENTS:** FoF was assessed at baseline using the Falls Efficacy Scale International (FES-I) and three questions previously validated. Frailty was assessed with the frailty phenotype criteria. Age, gender, comorbidity, nutritional status, cognitive status and risk of depression were determined.

**RESULTS:** Mean age 78.4, 80.3% women. FoF was present in 140 (76.5%) participants with the three questions and 102 (55.7%) presented high concern of falling with the FES-I. 88.8% of frail older adults presented FoF compared to 62.4% of those who were not frail, and only 37.8% of non frail had a high concern of falling, compared to 77.2% of those who were frail measured with the FES-I. Frail participants had an adjusted risk of FoF that was 3.18 (95% CI 1.32 to 7.65) higher compared to those who were not frail assessed with the three questions and 3.93 (95% CI 1.85 to 8.36) higher



concern of falling when using the FES-I scale. Only female sex and depression risk were also associated to FoF in the final adjusted models.

**CONCLUSION:** Frailty is independently associated with the FoF syndrome in older faller subjects.

#### **PDF Endnote Y**

#### **Gait outcomes of older adults receiving subacute hospital rehabilitation following orthopaedic trauma: a longitudinal cohort study**

Mathew SA, Varghese P, Kuys SS, Heesch KC, McPhail SM. *BMJ Open* 2017; 7(7): e016628.

**Affiliation:** Centre for Functioning and Health Research, Metro South Health, Brisbane, Australia.

(Copyright © 2017, BMJ Publishing Group)

**DOI** 10.1136/bmjopen-2017-016628 **PMID** 28729323

#### **Abstract**

**OBJECTIVES:** This study aimed to describe gait speed at admission and discharge from inpatient hospital rehabilitation among older adults recovering from orthopaedic trauma and factors associated with gait speed performance and discharge destination.

**DESIGN:** A longitudinal cohort study was conducted.

**SETTING:** Australian tertiary hospital subacute rehabilitation wards.

**PARTICIPANTS:** Patients aged  $\geq 60$  years recovering from orthopaedic trauma ( $n=746$ , 71% female) were eligible for inclusion.

**INTERVENTIONS:** Usual care (multidisciplinary inpatient hospital rehabilitation).

**PRIMARY AND SECONDARY OUTCOME MEASURES:** Gait speed was assessed using the timed 10 m walk test. The proportion of patients exceeding a minimum gait speed threshold indicator (a priori 0.8 m/s) of community ambulation ability was calculated. Generalised linear models were used to examine associations between patient and clinical factors with gait speed performance and being discharged to a residential aged care facility.

**RESULTS:** At discharge, 18% of patients ( $n=135$ ) exceeded the 0.8 m/s threshold indicator for community ambulation ability. Faster gait speed at discharge was found to be associated with being male ( $B=0.43$ , 95% CI -0.01 to 0.87), admitted with pelvic ( $B=0.76$ , 95% CI 0.14 to 1.37) or multiple fractures ( $B=1.13$ , 95% CI 0.25 to 2.01) (vs hip fracture), using no mobility aids ( $B=-0.93$ , 95% CI -1.89 to 0.01) and walking at a faster gait speed at admission ( $B=5.77$ , 95% CI 5.03 to 6.50). Factors associated with being discharged to residential aged care included older age (OR 1.06, 95% CI 1.03 to 1.10), longer length of stay (OR 1.01, 95% CI 1.01 to 1.02), having an upper limb fracture (vs hip fracture) (OR 2.81, 95% CI 1.32 to 5.97) and lower Functional Independence Measure cognitive score (OR 0.89, 95% CI 0.86 to 0.92).

**CONCLUSIONS:** Patients with a range of injury types, not only those presenting to hospital with hip fractures, are being discharged with slow gait speeds that are indicative of limited functional mobility and a high risk of further adverse health events.

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#### **PDF Y Endnote Y**

#### **Influence of footwear on gait characteristics that are associated with increased fall risk in older persons**

Cammen VD, Jm T, Sterke CS, Halilovic A, Molenbroek J.

*Ergon. Open J.* 2016; 9(1): e3.

(Copyright © 2016, Bentham Science Publishers)

DOI unavailable PMID unavailable

### Abstract

**OBJECTIVE:** To investigate the influence of three different types of shoe models frequently worn at home, including an open heel shoe model, on gait parameters that are associated with fall risk in older persons.

**METHODS:** Twenty-five community-dwelling independent older persons were asked to walk on an electronic walkway system, the GAITRite® walkway, while wearing three different shoe models which are frequently worn at home. We measured spatial and temporal gait parameters.

**RESULTS:** Gait velocity and stride length were significantly reduced, and step time, stance, and double support time were significantly increased, when older persons wore an open heel shoe model compared to the high collar shoe models.

**CONCLUSION:** Wearing an open heel shoe model is associated with gait parameters that are associated with fall risk, compared with a high collar shoe model, in community-dwelling older persons. With regard to falls prevention, further attention for footwear in older persons seems warranted, especially for footwear worn in and around the home.

PDF Y Endnote Y

### Methodological issues in the observational studies conducted in older population: a narrative review

Poscia A, Collamati A, Milovanovic S, Vetrano DL, Liotta G, Petitti T, Pietro MLD, Magnavita N, Ricciardi W, Cherubini A, Onder G.

*Epidemiol. Biostat. Public Health* 2017; 14(2): e12627.

(Copyright © 2017, Società italiana di statistica medica ed epidemiologia clinica, Publisher PREX)

DOI 10.2427/12627 PMID unavailable

### Abstract

**INTRODUCTION:** Well-conducted observational studies may represent valuable tools for getting insight to disease etiology, detecting the effect of age-related changes, and providing an important perspective on health risk factors and disabilities in an aging population. Nevertheless, this kind of research poses several challenges for researchers. The main aim of this narrative review was to address the potential methodological issues in performing the observational studies in the elderly, the factors that influence their participation, and the possible solutions for overcoming the barriers to research in this population.

**METHODS:** Comprehensive search for the papers published in the period from January 1st 1980 until 31st July 2016 in English or Italian was conducted through MEDLINE, Scopus and Web of Science electronic databases. Findings from the included papers were finally summarized.

**RESULTS:** In cohort studies, the following barriers were addressed: sample size calculation, ascertainment of the target population, frequency of data collection, exposure determination, multifactorial loss to follow-up (drop-outs), cognitive impairment, definition of confounders, and ethical aspects. Case-control studies were reported to be prone to the issues like ascertainment of cases and controls, willingness to participate, data accuracy, recall bias, issues related to patients' multimorbidity, and cognitive impairment.

**CONCLUSIONS:** Important factors to consider in research in elderly people include: precise definition of the study population, well conducted recruitment process, engagement with family and home



care staff, cognitive impairment assessment and the consequent relevant ethical and legal issues, relief of participant burden in order to minimize withdrawal, and engagement with the media.

#### PDF Y Endnote Y

#### Patterns of alcohol consumption and risk of falls in older adults: a prospective cohort study

Ortolá R, García-Esquinas E, Galán I, Guallar-Castillón P, López-García E, Banegas JR, Rodríguez-Artalejo F.

*Osteoporos. Int.* 2017; ePub(ePub): ePub.

**Affiliation:** IMDEA Food Institute, CEI UAM+CSIC, Ctra. de Canto Blanco 8, 28049, Madrid, Spain. fernando.artalejo@uam.es.

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**DOI** 10.1007/s00198-017-4157-2 **PMID** 28725986

#### Abstract

Falls are a major health problem in older adults, but their relationship with alcohol consumption in this population remains unclear. In a cohort with 2170 older adults followed up for 3.3 years, both moderate drinking and the Mediterranean drinking pattern were associated with a lower risk of falls and injurious falls.

**INTRODUCTION:** This study aims to examine the association between certain patterns of alcohol consumption, including the Mediterranean drinking pattern (MDP), and the risk of falls in older adults.

**METHODS:** A prospective cohort with 2170 community-dwelling individuals aged  $\geq 60$  years was recruited in Spain in 2008-2010 and followed up through 2012. At baseline, participants reported alcohol consumption and, at the end of follow-up, their falls during the previous year. The MDP was defined as moderate alcohol consumption (threshold between moderate and heavy intake was 40 g/day for men and 24 g/day for women) with preference for wine and drinking only with meals. Analyses were conducted with negative binomial or logistic regression, as appropriate, and adjusted for the main confounders.

**RESULTS:** Compared with never drinkers, the number of falls was lower in moderate drinkers (incidence rate ratio (95% confidence interval), 0.79 (0.63-0.99)) and drinkers with MDP (0.73 (0.56-0.96)). Also, moderate drinkers and those with MDP showed a lower risk of  $\geq 2$  falls (odds ratio (95% confidence interval), 0.58 (0.38-0.88) and 0.56 (0.34-0.93), respectively) and of falls requiring medical care (0.67 (0.46-0.96) and 0.61 (0.39-0.96), respectively).

**CONCLUSION:** Both moderate drinking and the MDP were associated with a lower risk of falls and injurious falls in older adults. However, sound advice on alcohol consumption should balance risks and benefits.

#### PDF Endnote

#### Prevalence of falls and evaluation of mobility among institutionalized elderly persons

Ferreira LMBM, Jerez-Roig J, Andrade FLJP, Oliveira NPD, Araújo JRT, Lima KC, Ferreira LMBM, Jerez-Roig J, Andrade FLJP, Oliveira NPD, Araújo JRT, Lima KC.

*Rev. Bras. Geriatr. Gerontol.* 2016; 19(6): 995-1003.

(Copyright © 2016, Universidade do Estado do Rio Janeiro)

**DOI** 10.1590/1981-22562016019.160034 **PMID** unavailable

#### Abstract

**OBJECTIVE:** The present study aimed to estimate the prevalence of falls among institutionalized elderly persons and identify associated factors.

**METHOD:** A cross-sectional study of elderly residents of Care Facilities For the Elderly in Natal, Rio Grande do Norte, was carried out. The elderly persons could walk independently and did not have severe cognitive impairment. Data was obtained about the institution and socio-demographic and health information was collected. A physical examination was performed to evaluate frailty, mobility and balance (Timed up and go, Berg Balance Scale, Gait speed and Sitting-rising Test - SRT). Statistical analysis was performed using the Chi-squared Test for a 5% significance level.

**RESULTS:** Sixty-three elderly persons were within the search criteria. Of these 22.2% had fallen in the past year. Only the SRT was associated with these falls.

**CONCLUSION:** It was concluded that the studied population has a low prevalence of falls, and the ability to perform less than 5 repetitions in the SRT was associated with episodes of falling.

#### **PDFY Endnote Y**

#### **Sharing knowledge of falls prevention for people with dementia: insights for community care practice**

Meyer C, Hill S, Hill KD, Dow B.

*Aust. J. Prim. Health* 2017; ePub(ePub): ePub.

(Copyright © 2017, Australian Institute for Primary Care and School of Public Health, La Trobe University, Publisher CSIRO Publishing)

**DOI** 10.1071/PY16142

**PMID** 28728627

#### **Abstract**

People living with dementia (PLWD) fall more frequently, with more adverse consequences, than general community-dwelling older people; however, falls prevention evidence for PLWD is limited. Increased success of falls prevention strategies for PLWD may rely on tailored interventions to address dementia-specific risk factors. The Australian person-centred care environment highlights the need to better understand sharing of falls prevention knowledge between clients, carers and health professionals. This study aims to examine knowledge of falls prevention for PLWD among community care health professionals (CCHPs) and explore effectiveness of an action-research approach to enhance falls prevention practice. Consecutive action-research sessions were conducted with four groups of Australian multidisciplinary CCHPs (n=18), including a knowledge survey of CCHPs, followed by implementation of action plans. Thematic analysis of the transcribed discussion was undertaken.

**RESULTS** showed limited knowledge and understanding of evidence-based falls prevention strategies, but small incremental changes made by CCHPs through action research offered insights into enhancing knowledge and awareness. Appropriate professional development for community care health professionals is needed to support falls prevention for PLWD, along with associated organisational changes, to ensure knowledge is adequate.

#### **PDF Y Endnote Y**

#### **Sideways fall-induced impact force and its effect on hip fracture risk: a review**

Nasiri Sarvi M, Luo Y.

*Osteoporos. Int.* 2017; ePub(ePub): ePub.

**Affiliation:** Department of Biomedical Engineering, Faculty of Engineering, University of Manitoba, Winnipeg, Canada.

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**DOI** 10.1007/s00198-017-4138-5 **PMID** 28730547

### **Abstract**

Osteoporotic hip fracture, mostly induced in falls among the elderly, is a major health burden over the world. The impact force applied to the hip is an important factor in determining the risk of hip fracture. However, biomechanical researches have yielded conflicting conclusions about whether the fall-induced impact force can be accurately predicted by the available models. It also has been debated whether or not the effect of impact force has been considered appropriately in hip fracture risk assessment tools. This study aimed to provide a state-of-the-art review of the available methods for predicting the impact force, investigate their strengths/limitations, and suggest further improvements in modeling of human body falling.

**METHODS:** We divided the effective parameters on impact force to two categories: (1) the parameters that can be determined subject-specifically and (2) the parameters that may significantly vary from fall to fall for an individual and cannot be considered subject-specifically.

**RESULTS:** The parameters in the first category can be investigated in human body fall experiments. Video capture of real-life falls was reported as a valuable method to investigate the parameters in the second category that significantly affect the impact force and cannot be determined in human body fall experiments.

**CONCLUSIONS:** The analysis of the gathered data revealed that there is a need to develop modified biomechanical models for more accurate prediction of the impact force and appropriately adopt them in hip fracture risk assessment tools in order to achieve a better precision in identifying high-risk patients. Graphical abstract Impact force to the hip induced in sideways falls is affected by many parameters and may remarkably vary from subject to subject.

### **PDF Y Endnote Y**

#### **Sleep disturbances and risk of falls in an old Chinese population-Rugao Longevity and Ageing Study**

Ma T, Shi G, Zhu Y, Wang Y, Chu X, Jiang X, Liu Z, Cai J, Wang H, Jin L, Wang Z, Wang X.

*Arch. Gerontol. Geriatr.* 2017; 73: 8-14.

**Affiliation:** Unit of Epidemiology, MOE Key Laboratory of Contemporary Anthropology and State Key Laboratory of Genetic Engineering, School of Life Sciences and Institutes of Biomedical Sciences, Fudan University, Shanghai 200433, China. Electronic address: xiaofengwang71@163.com.

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### **Abstract**

**BACKGROUND:** To explore the relationship between sleep disturbances and falls in an elderly Chinese population.

**METHODS:** Data from 1726 individuals aged 70-87 years from the Rugao Longevity and Ageing Study were used. The Pittsburgh Sleep Quality Index (PSQI) was used to assess sleep variables. Outcomes were falls  $\geq 1$  time per year and falls  $\geq 2$  times per year.

**RESULTS:** A total of 22.7% of the participants experienced  $\geq 1$  fall, and 9.8% experienced  $\geq 2$  falls per year. Poor sleep quality was associated with  $\geq 1$  fall (OR 1.08, 95% CI 1.05-1.12; OR 1.27, 95% CI 1.14-1.41) and  $\geq 2$  falls (OR 1.08, 95% CI 1.03-1.14; OR 1.28, 95% CI 1.10-1.48), with an increase per PSQI score and SD PSQI score, respectively. In addition, sleep quality, sleep latency, sleep efficiency, and

sleep disturbance subcomponents were associated with an increased risk of  $\geq 1$  fall with ORs of 1.44 (95% CI, 1.21-1.72), 1.23 (95%CI,1.09-1.40), 1.12 (95%CI, 1.01-1.23) and 1.70 (95% CI,1.35-2.14), respectively, and were associated with an increased risk of  $\geq 2$  falls with ORs 1.54 (95%CI, 1.22-1.96), 1.21(95%CI, 1.02-1.44), 1.17 (95% CI 1.02-1.33), and 1.78 (95%CI, 1.31-2.44), respectively. Further, participants slept  $\leq 5$ h per night had an increased risk of  $\geq 1$  fall (OR 2.34; 95%CI, 1.59-3.46) and  $\geq 2$  falls (OR 2.19; 95%CI, 1.30-3.69).

**CONCLUSIONS:** Poor sleep quality and several subcomponent sleep symptoms were consistently associated with increased risk of falls  $\geq 1$  time and  $\geq 2$  times in Chinese elderly. The identification of sleep disturbances may help identify high-risk Chinese elders who may benefit from fall prevention education.

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**PDF Y Endnote Y**

### **Statin and risk of falls in the elderly: a sytematic review of the literature**

Venegas Sanabria LC, Barbosa Balaquera S, Suarez Acosta AM, García Peña ÁA, Cano Gutiérrez CA. *Rev. Esp. Geriatr. Gerontol.* 2017; ePub(ePub): ePub.

**Affiliation:** Pontificia Universidad Javeriana. Hospital Universitario San Ignacio, Unidad de Geriátría, Instituto de Envejecimiento. Semillero de investigación de Neurociencias y Envejecimiento, Bogotá, Colombia.

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#### **Abstract**

**BACKGROUND:** With the high incidence of cardiovascular events in the elderly population the effectiveness of statins in reducing mortality from coronary events has been demonstrated. However, there have been adverse effects, such as myalgia, myopathy, myonecrosis, not to mention the falls as a result of muscle damage with statin use.

**OBJECTIVE:** The purpose of this study is to conduct a systematic review to assess the literature on the association between statin use and the risk of falls.

**METHODS:** The databases that were included PUBMED AND SCOPUS, with articles published from January 2000 to May 2016. The MESH terms used for the search were "FALLS" AND "STATIN". Selected studies included cohort populations from the community (>50 years old), and analysed using the Scottish Intercollegiate (SIGN) methodology guidelines, as no randomised controlled study was found.

**RESULTS:** In the study by Ham et al., statin use was shown to be a protective factor for presence of falls. In the second study by Scott et al., there was an increased risk of falls ( $P=.029$ ) and an impairment in muscle strength and quality muscle ( $P=.033$  and  $P=.046$ , respectively). In the third study Haerer et al., found an increased risk of falls ( $P=.63$ ).

**CONCLUSIONS:** The association between use of statins and risk of falls could not be determined with the available evidence, although an association with the involvement of some determinants of muscular function was found.

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**PDF Endnote Y**

### **Subjective cognitive decline and fall risk in community-dwelling older adults with or without objective cognitive decline**

Shirooka H, Nishiguchi S, Fukutani N, Tashiro Y, Nozaki Y, Aoyama T. *Aging Clin. Exp. Res.* 2017; ePub(ePub): ePub.

**Affiliation:** Department of Physical Therapy, Human Health Sciences, Graduate School of Medicine, Kyoto University, 53 Kawahara-cho, Shogoin, Sakyo-ku, Kyoto, 606-8507, Japan.

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#### **Abstract**

**BACKGROUND:** The association between subjective cognitive decline and falls has not been clearly determined. **AIMS:** Our aim was to explore the effect of subjective cognitive decline on falls in community-dwelling older adults with or without objective cognitive decline.

**METHODS:** We included 470 older adults (mean age  $73.6 \pm 5.2$ ; 329 women) living in the community and obtained data on fall history directly from the participants. Subjective cognitive decline was assessed using a self-administered question.

**OBJECTIVE:** cognitive function was measured using the Mini-Mental State Examination. Statistical analyses were carried out separately for participants with objective cognitive decline and those without.

**RESULTS:** A multiple logistic regression analysis showed that, among participants without objective cognitive decline, subjective cognitive decline was positively associated with falls [OR 1.91; 95% confidence interval (CI) 1.17-3.12;  $p = 0.01$ ]. Conversely, among participants with objective cognitive decline, subjective cognitive decline was negatively associated with falls (OR 0.07; 95% CI 0.01-0.85,  $p = 0.04$ ).

**DISCUSSION:** The result suggests that the objective-subjective disparity may affect falls in community-dwelling older adults.

**CONCLUSIONS:** The presence of subjective cognitive decline was significantly positively associated with falls among cognitively intact older adults. However, among their cognitively impaired peers, the absence of subjective cognitive decline was positively associated with falls.

#### **PDF Y Endnote Y**

### **A randomized, double-blind, placebo-controlled crossover study of the effects of levetiracetam on cognition, mood, and balance in healthy older adults**

Schoenberg MR, Rum RS, Osborn KE, Werz MA.

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**Affiliation:** Department of Neurology, University of Iowa Carver College of Medicine, Iowa City, Iowa, U.S.A.

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#### **Abstract**

**OBJECTIVE:** The cognitive and mood effects of levetiracetam (LEV) in older adults are not known. This study compared the cognitive and mood effects of LEV to placebo in healthy older adults.

**METHODS:** Cognitive, mood, and balance variables were compared between LEV and placebo using a randomized, double-blind, placebo-controlled crossover study with two 5-week treatment periods. Healthy volunteers ( $n = 20$ ) aged 65-80 (mean age 72.4) received either LEV or placebo in which the LEV target dose was 1,000 mg/day. Volunteers, aged 65-80, were without epilepsy to limit

potentially confounding the impact of seizures and/or underlying neuropathology on outcomes. LEV was initiated at 250 mg twice a day for 2 weeks, then increased to 500 mg twice a day for 2 weeks, and then tapered to 250 mg twice a day for 1 week. This was randomized with placebo for the two treatment arms. Measures included standardized neuropsychological, mood, and balance tests yielding 32 variables. Balance was assessed using subjective report (e.g., A-B neurotoxicity scale) and objective data (e.g., Berg Balance Scale).

**RESULTS:** Average LEV serum concentration was 16.9 (standard deviation [SD] 7.7). Repeated-measures analysis of variance (ANOVA) found no differences between LEV and placebo phases for 29 (90.6%) of 32 variables including no change in balance. Performance on LEV was better than placebo on a visual memory (MCG Complex Figure Recall;  $p = 0.007$ ) and two attention tests (Trail Making Test, Part A,  $p = 0.009$ ; Stroop Interference,  $p = 0.004$ ). There was a trend for greater irritability and fatigue (POMS Anger and Fatigue) during the LEV phase ( $p = 0.029$ ,  $p = 0.035$ ). Effect-size changes were generally small (Cohen  $d < 0.5$ ). **SIGNIFICANCE:** LEV was well tolerated in this elderly population in terms of cognition, mood, and balance. When anticonvulsant medication is indicated for older adults, LEV has pharmacokinetic advantages, and these data indicate no adverse impact on cognition or balance.

#### **PDF Y Endnote Y**

#### **Falls, non-accidental falls and syncope in community-dwelling adults aged 50 years and older: implications for cardiovascular assessment**

Bhangu J, King-Kallimanis BL, Donoghue OA, Carroll L, Kenny RA.

*PLoS One* 2017; 12(7): e0180997.

**Affiliation:** The Irish Longitudinal Study on Ageing, Trinity College, Dublin, Ireland.

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#### **Abstract**

**OBJECTIVES:** To calculate the prevalence of all falls, non-accidental falls and syncope in an older population and characterize cardiovascular risk profiles.

**DESIGN:** Prospective, longitudinal cohort study.

**SETTING:** The first two waves of data from the Irish Longitudinal Study on Ageing (TILDA).

**PARTICIPANTS:** 8172 community-dwelling adults aged 50 years and older resident in the Republic of Ireland.

**MEASUREMENTS:** Self-reported history of all falls, non-accidental falls and syncope in the year preceding the first two waves of data collection. Demographic factors and self-reported cardiovascular conditions were used to characterize cardiovascular risk profiles.

**RESULTS:** The prevalence of all falls in the past year was 19.2% or 192 per thousand persons and increased with age (50-64 years 17.5%; 65-74 years 19.4%; 75+ years 24.4%). Non-accidental falls had an estimated prevalence of 5.1% or 51 falls per thousand persons and accounted for 26.5% of all falls reported and also increased with age (50-64 years 4.0%; 65-74 years 5.5%; 75+ years 8.0%). The prevalence for syncope was estimated to be 4.4% or 44 per thousand persons but did not show a similar age gradient. Participants with at least 5 cardiovascular conditions were more likely to report all falls (OR = 2.07, 95% CI 1.18-3.64,  $p < 0.05$ ) and NAF (OR = 2.89, 95% CI 1.28-6.52,  $p < 0.05$ ).

**CONCLUSIONS:** The prevalence of all falls and non-accidental falls increases with age but the same pattern was not consistently observed for syncope. There is an increased odds of reporting all three



outcomes with increasing number of self-reported cardiovascular conditions. Further work is needed to uncover the interplay between cardiovascular disease and subsequent falls.

**PDF Y Endnote Y**

### **Gait and cognitive impairments in multiple sclerosis: the specific contribution of falls and fear of falling**

Kalron A, Allali G.

*J. Neural. Transm.* 2017; ePub(ePub): ePub.

**Affiliation:** Faculty of Medicine, University of Geneva, Geneva, Switzerland.

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#### **Abstract**

Our goal was to identify the specific contribution of fear of falling (FoF) and falls with quantitative gait impairments and cognition capabilities in multiple sclerosis (MS) patients. Patients were separated into four individual subgroups as to the presence of FoF and falls (i.e., fearless/non-fallers, fearless/fallers, FoF/non-fallers and FoF/fallers). The Falls Efficacy Scale International questionnaire was used to assess the level of concern of falling. Participants were defined as "fallers" and "non-fallers" based on their fall history. Spatio-temporal parameters of gait were analyzed using an electronic mat. Cognitive performance was assessed by a computerized cognitive battery of tests. The study included 540 MS patients, 47% were defined as fallers and 61.9% reported a FoF. Non-significant differences were found between the fearless/non-fallers and fearless/fallers in all clinical, gait and cognitive scores. FoF/non-fallers walked significantly slower compared to fearless MS individuals who had previously fallen. Furthermore, the same patient group exhibited a poorer performance in the motor skills cognitive subdomain. A significant reverse relationship was found between FoF and cognitive motor skills in the fallers and non-fallers groups. FoF characterizes a more disabling symptom than falling in the MS population.

**PDF Y Endnote Y**

### **The Community Balance and Mobility Scale: a valid assessment tool of balance in cardiac rehabilitation patients**

Martelli L, Saraswat D, Dechman G, Giacomantonio NB, Grandy SA.

*J. Cardiopulm. Rehabil. Prev.* 2017; ePub(ePub): ePub.

**Affiliation:** School of Health & Human Performance (Messrs Martelli and Saraswat and Dr Grandy), School of Physiotherapy (Dr Dechman), and Department of Pharmacology (Dr Grandy), Dalhousie University, Halifax, Nova Scotia, Canada; and Department of Medicine (Cardiology), Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia, Canada (Drs Giacomantonio and Grandy).

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#### **Abstract**

**PURPOSE:** Many patients participating in cardiac rehabilitation (CR) programs have decreased balance. This is a concern, as it may affect their ability to optimally perform physical exercise in CR and thus decrease CR efficacy. Despite this concern, balance is typically not assessed as part of CR intake. This may be attributable to the fact that a suitable balance assessment tool has not been identified for higher-functioning CR patients. A potential solution to this issue is using the Community Balance and Mobility Scale (CBMS), which has been used to assess balance in higher-

functioning clinical populations; however, its use in a CR population has never been investigated. Therefore, the purpose of this study was to determine the reliability and validity of the CBMS for assessing balance in CR patients.

**METHODS:** Fifty-three participants were recruited from local CR programs to perform the CBMS. Dynamic posturography was also measured in a subset of participants ( $n = 31$ ) using the Limits of Stability (LOS) test.

**RESULTS:** Analysis of CBMS scores revealed that the mean CBMS score was  $61.9 \pm 16.2$  (out of 96) and that no floor or ceiling effects were observed for any participants. CBMS scores were significantly correlated with the LOS results (0.41-0.53). Interrater reliability between novice and expert testers was strong ( $r = 0.95$ ), with all differences falling within the 95% limits of agreement.

**CONCLUSION:** Overall, these results suggest that the CBMS is a valid tool to measure balance in CR patients and can be reliably administered by health care professionals with minimal training.

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