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Anthropometric indicators as screening instrument for falls in the elderly

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(Copyright © 2016, Federal University of Santa Catarina)

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Abstract

Anthropometric indicators enable professionals for predicting risk of falls in the elderly; however, there is a gap in literature on reference values. This study analyzes anthropometric indicators such as screening tests for falls in the elderly. Cross-sectional population-based systematic sampling was conducted through a household survey and body composition assessment. Anthropometric measurements were performed using portable electronic scale and stadiometer. Bioimpedance device was used to measure body mass index, body fat and lean body mass. Falls were evaluated in the 12 months preceding the interview as a dependent variable. Discriminatory analysis was performed for falls through the ROC curve, sensitivity, specificity, positive and negative predictive values. Overall, 275 older adults participated in this study, whose prevalence of falls was 23.6%. The average body mass index was 27.8kg/cm² and 52.1% of individuals were overweight. Among older men, height (ROC=0.68; 95%CI 0.54-0.78) and lean body mass (ROC=0.63, 95%CI 0.58-0.76) were associated to the occurrence of falls. When considering cutoff of 52.2kg and 166cm, sensitivity was obtained in 75% and high negative predictive values (88.1% and 89.1% respectively). For women, lean body mass (ROC=0.61, 95%CI 0.30-0.49) and body mass (ROC=0.60, 95%CI 0.53-0.72) were relevant from the optimal cutoff point of 28.9% and 57.2kg/m². Lean body mass was more sensitive (63.2%) and body mass little more specific (64.3%), both with high negative predictive values (82.0% and 83.0%). The indicators used were able to discriminate older adults who have suffered from falls.

PDF Endnote Y

Characteristics and consequences of falls among older adult trauma patients: considerations for injury prevention programs

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Aust. Occup. Ther. J. 2017; ePub(ePub): ePub.

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Abstract

BACKGROUND/AIM: Health promotion and prevention is an important component of occupational therapy practice. Falls are one of the most common causes of ER visits among older adults and injurious falls requiring trauma care can have a significant impact on the health and quality of life of elders. The aim of this study was to compare characteristics and consequences of falls among older adult trauma patients across different age groups with an eye towards informing injury prevention programs.

METHODS: A retrospective study using the trauma database from a level one trauma centre in the U.S. (N = 711) was conducted. We compared patient and fall characteristics across age groups and then used logistic regression to estimate odds ratios for hospital length of stay >4 days, discharge disposition, and injury severity (ISS >15).

RESULTS: Associations between age group and fall height, location and alcohol use at the time of the fall were statistically significant ($P < 0.0001$). As compared to the reference group (85 and older), younger age groups had lower odds ratios for discharge to a facility for rehabilitation.

CONCLUSION: Results highlight differences among age groups of fallers admitted for trauma care and can help to inform injury prevention programs related to outdoor and indoor falls.

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PDF Y Endnote Y

Associations of environmental factors with quality of life in older adults

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Abstract

PURPOSE OF THE STUDY: Environmental factors play an important role in the quality of life of older people who often have difficulty maintaining physical, psychological, and social functioning. In this study, we aimed at (a) developing a measurement instrument assessing the factors of older adults' perceptions of their environment, (b) examining the associations of these environmental factors with quality of life domains physical health, psychological, social relations, and environmental, controlling for background characteristics.

DESIGN AND METHODS: Associations between environmental factors and quality of life domains were examined in a cross-sectional study using a sample of 1,031 Dutch people aged 65 years and older. Participants completed a Web-based questionnaire, the "Senioren Barometer." Forty-two questions on environmental factors were asked, and quality of life domains were assessed by the WHOQOL-BREF.

RESULTS: Seven scales (comprising 3-9 items) of environment were constructed-housing, facilities, nuisance, residents, neighborhood, stench/noise, and traffic. All quality of life domains (physical, psychological, social, environmental) were associated with at least one environmental scale.

Housing, residents, and nuisance were associated with 4, 3, and 2 domains, respectively. Facilities, neighborhood, stench/noise, and traffic were associated only with quality of life environmental.

IMPLICATIONS: This study showed that multiple environmental factors are associated with quality of life in older people. To support independent living in older people health and social care professionals and policymakers may need to carry out interventions, in particular focusing on housing, residents, and nuisance.

PDF Y Endnote Y

Comparison of the Simplified sWHI and the Standard CHS Frailty Phenotypes for prediction of mortality, incident falls, and hip fractures in older women

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J. Gerontol. A Biol. Sci. Med. Sci. 2017; ePub(ePub): ePub.

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(Copyright © 2017, Gerontological Society of America)

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Abstract

BACKGROUND: We compared the simplified Women's Health Initiative (sWHI) and the standard Cardiovascular Health Study (CHS) frailty phenotypes in predicting falls, hip fracture, and death in older women.

METHODS: Participants are from the WHI Clinical Trial. CHS frailty criteria included weight loss, exhaustion, weakness, slowness, and low physical activity. The sWHI frailty score used two items from the RAND-36 physical function and vitality subscales, one item from the WHI physical activity scale plus the CHS weight loss criteria. Specifically, level of physical function was the capacity to walk one block and scored as severe (2-points), moderate (1-point), or no limitation (0). Vitality was based on feeling tired most or all of the time (1-point) versus less often (0). Low physical activity was walking outside less than twice a week (1-point) versus more often (0). A total score of 3 resulted in a frailty classification, a score of 1 or 2 defined pre-frailty, and 0 indicated nonfrailty. Outcomes were modeled using Cox regression and Harrell C-statistics were used for comparisons.

RESULTS: Approximately 5% of the participants were frail based on the CHS or sWHI phenotype. The sWHI frailty phenotype was associated with higher rates of mortality (hazard ratio [HR] = 2.36, $p \leq .001$) and falls (HR = 1.45, $p = .005$). Comparable HRs in CHS-phenotype were 1.97 ($p < .001$) and 1.36 ($p = .03$), respectively. Neither phenotype predicted hip fracture. Harrell C-statistics revealed nonsignificant differences in HRs between the CHS and sWHI frailty phenotypes.

CONCLUSION: The sWHI phenotype, which is self-reported and brief, might be practical in settings with limited resources.

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Effects of home-based tele-exercise on sarcopenia among community-dwelling elderly adults: body composition and functional fitness

Hong J, Kim J, Kim SW, Kong HJ.

Exp. Gerontol. 2017; 87: 33-39.

(Copyright © 2017, Elsevier Publishing)

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Abstract

OBJECTIVES: This study aims to develop a form of tele-exercise that would enable real-time interactions between exercise instructors and community-dwelling elderly people and to investigate its effects on improvement of sarcopenia-related factors of body composition and functional fitness among the elderly.

DESIGN: Randomized, controlled trial, with a 12-week intervention period.

SETTING: Community-dwelling senior citizens in Gangseo-gu, Seoul, South Korea.

PARTICIPANTS: The participants were 23 elderly individuals (tele-exercise group: 11, control group: 12), aged 69 to 93years.

INTERVENTION: The tele-exercise program was developed utilizing a 15-in. all-in-one PC and video conferencing software (Skype™), with broadband Internet connectivity. The tele-exercise group performed supervised resistance exercise at home for 20-40min a day three times per week for 12weeks. The remote instructor provided one-on-one instruction to each participant during the intervention. The control group maintained their lifestyles without any special intervention.

MEASUREMENTS: The sarcopenia-related factors of body composition and functional fitness were examined prior to, as well as following, a 12-week intervention period. The data were analyzed with a two-way repeated measures ANOVA.

RESULTS: There were significant improvements in lower limb muscle mass ($p=0.017$), appendicular lean soft tissue ($p=0.032$), total muscle mass ($p=0.033$), and chair sit-and-reach length ($p=0.019$) for the tele-exercise group compared to the control group. No group \times time interaction effects were detected for the 2-min step, chair stand, and time effects ($p<0.05$).

CONCLUSION: Video conferencing-based supervised resistance exercise had positive effects on sarcopenia-related factors such as total-body skeletal muscle mass, appendicular lean soft tissue, lower limb muscle mass, and the chair sit-and-reach scores among community-dwelling elderly adults. These results imply that tele-exercise can be a new and effective intervention method for increasing skeletal muscle mass and the physical functioning of the lower limbs from the perspective of sarcopenia improvement among the elderly.

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Exercise interventions for the improvement of falls-related outcomes among older adults with diabetes mellitus: a systematic review and meta-analyses

Chapman A, Meyer C, Renehan E, Hill KD, Browning CJ.

J. Diabetes Complications 2017; 31(3): 631-645.

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Abstract

INTRODUCTION: Falls as a complication of diabetes mellitus (DM) can have a major impact on the health of older adults. Previous reviews have demonstrated that certain exercise interventions are effective at reducing falls in older people; however, no studies have quantified the effectiveness of exercise interventions on falls-related outcomes among older adults with DM.

METHODS: A systematic search for all years to September 2015 identified available literature.

Eligibility criteria included: appropriate exercise intervention/s; assessed falls-related outcomes; older adults with DM. Effect sizes were pooled using a random effects model. Positive effect sizes favoured the intervention.

RESULTS: Ten RCTs were eligible for the meta-analyses. Exercise interventions were more effective than the control condition for static balance (0.53, 95% CI: 0.13 to 0.93), lower-limb strength (0.63, 95% CI: 0.09 to 1.18), and gait (0.59, 95% CI: 0.22 to 0.96). No RCTs assessed falls-risk; one RCT reported 12-month falls-rate, with no differential treatment effect observed.

CONCLUSION: Exercise interventions can improve certain falls-related outcomes among older adults with DM. Substantial heterogeneity and limited numbers of studies should be considered when interpreting results. Among older adults, where DM burden is increasing, exercise interventions may provide promising approaches to assist the improvement of falls-related outcomes.

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Falls in older adults

Kenny RA, Romero-Ortuno R, Kumar P.

Medicine (Abingdon) 2017; 45(1): 28-33.

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Abstract

Falls are very common in older people, and for some the consequences are devastating. The clinical assessment, management and investigation of patients who present with falls can be challenging for

non-specialists, and multiple guidelines and algorithms have been published to aid this. This article has been prepared as a concise reference that reviews the most recent evidence and covers the medical competencies on falls outlined in the Curriculum for General Internal Medicine (Acute) of the Federation of Royal Colleges of Physicians of the UK. As in the curriculum, the emphasis is on the acute setting. Important topics covered include the epidemiology of falls, definition and classification, causes and risk factors, cumulative effect of risk factors and concept of individual falling threshold, physical and psychosocial consequences of falling, medical falls assessment in acute settings, differentiation between falls and syncope, principles of multifactorial falls assessment and intervention, teamwork and communication skills, and evidence-based strategies for prevention, including the latest developments in falls prevention research.

PDF Y Endnote Y

Gait speed and confidence levels in persons using 1 and 2 canes while walking a 4-m course

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Top. Geriatr. Rehabil. 2017; 33(2): 133-139.

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(Copyright © 2017, Lippincott Williams and Wilkins)

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Abstract

This is the first article that the researcher is aware of that compares walking speed and confidence levels with 1 cane versus 2 canes. An observational study was conducted with 30 participants who had difficulty walking. Gait speed was assessed on a 4-m course with the participants using 1 cane, then 2 canes. Of 30 participants, 28 walked faster and demonstrated improved confidence with 2 canes. Use of 2 canes with gait might be a technique that people want to consider to improve confidence or to improve walking speed, or improve both.

PDF Endnote Y

High-risk medications in hospitalized elderly adults: are we making it easy to do the wrong thing?

Blachman NL, Leipzig RM, Mazumdar M, Poeran J.

J. Am. Geriatr. Soc. 2017; 65(3): 603-607.

(Copyright © 2017, John Wiley and Sons)

DOI 10.1111/jgs.14703 **PMID** unavailable

Abstract

OBJECTIVES: To examine dosages of high-risk medications administered to elderly adults who fall in the hospital and to determine whether electronic default doses are appropriate for elderly adults.

DESIGN: Retrospective.

SETTING: Large urban academic hospital.

PARTICIPANTS: Individuals aged 65 and older experiencing a fall.

MEASUREMENTS: Prescribed daily dosages and use of high-risk medications (opiates, benzodiazepines, benzodiazepine-receptor agonists (BRAs), sleep medications, muscle relaxants, antipsychotics) administered within 24 hours before a fall were ascertained and compared with published recommended dosages for older adults and the hospital's electronic medical record (EMR) default doses for these drugs.

RESULTS: Of 328 falls, 62% occurred in individuals administered at least one high-risk medication within the 24 hours before the fall, with 16% of the falls involving individuals receiving two, and

another 16% in individuals receiving three or more. High-risk medications were often administered at higher-than-recommended geriatric daily doses, in particular benzodiazepines and BRAs, for which the dose was higher than recommended in 29 of 51 cases (57%). Hospital EMR default doses were higher than recommended for 41% (12/29) of medications examined.

CONCLUSION: High-risk medications were administered to older fallers. Doses administered and EMR default doses were often higher than recommended. Decreasing EMR default doses for individuals aged 65 and older and warnings about the cumulative numbers of high-risk medications prescribed per person may be simple interventions that could decrease inpatient falls.

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Knowledge, behavioral practices, and experiences of outdoor fallers: implications for prevention programs

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Arch. Gerontol. Geriatr. 2017; 72: 19-24.

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DOI 10.1016/j.archger.2017.04.008 **PMID** 28505477

Abstract

OBJECTIVE: Although the epidemiology and prevention of falls has been well studied, the focus has been on indoor rather than outdoor falls. Older adults' knowledge of outdoor risk factors and their outdoor fall prevention practices have not been examined. To fill this gap, and to inform the development of a prevention program, we sought to explore the experiences and fall prevention knowledge and practices of older adults who had sustained an outdoor fall.

METHODS: A cross-sectional study using random digit telephone dialing was used to survey community dwelling seniors (N=120) across the five boroughs of New York City. We used the Outdoor Falls Questionnaire (OFQ), a valid and reliable tool as the survey instrument. Perceived outdoor fall risks, strategies used for prevention, and outdoor fall experiences were examined. SPSS version 21 was used for descriptive analysis of participant characteristics and to determine frequencies of perceived outdoor fall risks and strategies used for prevention. Phenomenological analysis was used with the qualitative data. Qualitative and quantitative data were analyzed separately and a mixed methods matrix was used to interpret and integrate the findings.

RESULTS: Analysis revealed diverse unmet education and training needs including the importance of using single vision glasses, understanding the fall risks associated with recreational areas and parking lots, safe outdoor walking strategies, safe carrying of items on level and uneven surfaces, as well as when walking up and down stairs, and safety in opening/closing doors.

CONCLUSIONS: Study findings are informative for outdoor fall prevention programs as well as practice.

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Matching pursuit-based compressive sensing in a wearable biomedical accelerometer fall diagnosis device

Gibson RM, Amira A, Ramzan N, Casaseca-de-la-Higuera P, Pervez Z.

Biomed. Signal Process. Control 2017; 33: 96-108.

(Copyright © 2017, Elsevier Publishing)

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Abstract

There is a significant high fall risk population, where individuals are susceptible to frequent falls and obtaining significant injury, where quick medical response and fall information are critical to providing efficient aid. This article presents an evaluation of compressive sensing techniques in an accelerometer-based intelligent fall detection system modelled on a wearable Shimmer biomedical embedded computing device with Matlab. The presented fall detection system utilises a database of fall and activities of daily living signals evaluated with discrete wavelet transforms and principal component analysis to obtain binary tree classifiers for fall evaluation. 14 test subjects undertook various fall and activities of daily living experiments with a Shimmer device to generate data for principal component analysis-based fall classifiers and evaluate the proposed fall analysis system. The presented system obtains highly accurate fall detection results, demonstrating significant advantages in comparison with the thresholding method presented. Additionally, the presented approach offers advantageous fall diagnostic information. Furthermore, transmitted data accounts for over 80% battery current usage of the Shimmer device, hence it is critical the acceleration data is reduced to increase transmission efficiency and in-turn improve battery usage performance. Various Matching pursuit-based compressive sensing techniques have been utilised to significantly reduce acceleration information required for transmission.

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Motor functioning differentially predicts mortality in men and women

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Arch. Gerontol. Geriatr. 2017; 72: 6-11.

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(Copyright © 2017, Elsevier Publishing)

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Abstract

INTRODUCTION: Research indicates gender differences in functional performance at advanced ages, but little is known about their impact on longevity for men and women.

OBJECTIVE: To derive a set of motor function factors from a battery of functional performance measures and examine their associations with mortality, incorporating possible gender interactions.

METHOD: Analyses were performed on the longitudinal Swedish Adoption/Twin Study of Aging (SATSA) including twenty-four assessments of motor function up to six times over a 19-year period. Three motor factors were derived from several factor analyses; fine motor, balance/upper strength, and flexibility. A latent growth curve model was used to capture longitudinal age changes in the motor factors and generated estimates of intercept at age 70 (I), rates of change before (S1) and after age 70 (S2) for each factor. Cox regression models were used to determine how gender in interaction with the motor factors was related to mortality.

RESULTS: Females demonstrated lower functional performance in all motor functions relative to

men. Cox regression survival analyses demonstrated that both balance/upper strength, and fine motor function were significantly related to mortality. Gender specific analyses revealed that this was true for women only. For men, none of the motor factors were related to mortality.

CONCLUSION: Women demonstrated more difficulties in all functioning facets, and only among women were motor functioning (balance/upper strength and fine motor function) associated with mortality. These results provide evidence for the importance of considering motor functioning, and foremost observed gender differences when planning for individualized treatment and rehabilitation.

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New horizons in design for autonomous ageing

Van Der Cammen M TJ, Albayrak A, Voûte E, Molenbroek JFM.

Age Ageing 2017; 46(1): 11-17.

(Copyright © 2017, Oxford University Press)

DOI 10.1093/ageing/afw181 **PMID** unavailable

Abstract

The world is ageing rapidly. Between 2000 and 2050, the number of people aged ≥ 65 will double as a proportion of the global population, from 7% to 16%, respectively. By 2050, for the first time in human history, there will be more older people than children (aged 0-14 years) in the population. More distinctive is the tremendous increase in the oldest old aged ≥ 85 . This challenges society to adapt, in order to maximise the health and functional capacity of older people as well as their social participation and security.

Ageing is a multidimensional process of change in the physical, mental and social domain, leading to functional decline.

Design thinking has embraced ageing as a topic where it can add to public health interventions. Applications of design and technology can contribute to 'autonomous ageing', for example, independent living and life style support, and can compensate for functional deficits associated with ageing. The focus is on supporting and reinforcing the reduced physical, mental, social and functional capacities of older people by applying groundbreaking, innovative design inclusive engineering methods, always starting with a human-centered integrated approach. Examples of design for geriatric giants include design for falls prevention, dementia care and integrated care.

The establishment of collaborative networks between clinicians and designers, academia and industry is required to advance design for autonomous ageing.

PDF Y Endnote Y

Predictors for depressive mood in geriatric patients after traumatic brain injury: a retrospective cross-sectional study

Kim JK, Kim NY, Kim YW.

Ann. Rehabil. Med. 2017; 41(2): 279-289.

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(Copyright © 2017, Korean Academy of Rehabilitation Medicine)

DOI 10.5535/arm.2017.41.2.279 **PMID** 28503462 **PMCID** PMC5426276

Abstract

OBJECTIVE: To identify predictors for depressive mood in geriatric patients after traumatic brain injury (TBI).

METHODS: A retrospective review of patients' medical charts was performed in TBI patients who were older than 60 years and referred to the Department of Rehabilitation Medicine at Severance Hospital in 2002-2016. The patients were classified into two groups based on the Geriatric Depression Scale (GDS): non-depressive group ($0 \leq \text{GDS} \leq 16$) and depressive group ($17 \leq \text{GDS} \leq 30$). Data was collected on demographic, socioeconomic, comorbidities, and trauma-related factors, as well as the pathophysiology of TBI, localization of lesion, post-traumatic complications, functional level, and cognitive and linguistic function. Significant variables from univariate analysis were analyzed using logistic regression.

RESULTS: Forty-two patients were included, of whom 64.3% displayed a depressive mood. Patients in the depressive group had higher comorbidity scores ($p=0.03$), lower Functional Independence Measure (FIM) totals ($p=0.03$) and FIM motor ($p=0.03$) scores, higher modified Rankin Scale scores ($p=0.04$), and frequently had a bilateral or left side brain lesion ($p=0.002$). Higher comorbidity scores (odds ratio [OR], 1.764; 95% confidence interval [CI], 1.047-2.971), bilateral lesions (OR, 13.078; 95% CI, 1.786-95.780), and left side lesions (OR, 46.074; 95% CI, 3.175-668.502) were independently associated with a depressive mood in the multiple logistic regression analysis.

CONCLUSION: The risk of depressive mood in geriatric patients after TBI is associated with comorbidity, functional limitation, and the horizontal distribution of brain lesions. The most significant determining factors were comorbidity and the horizontal distribution of brain lesions. Early detection of risk factors is important to prevent and manage depressive mood in geriatric patients after TBI.

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Prevalence and risk for fall among elderly in urban area of southern Karnataka

Venkatesha M, Latha K, Mokhasi VR, Muninarayana C, Ravishankar S, Lakshmi L.

Nat. J. Community Med. 2016; 7(9): 768-771.

(Copyright © 2016, India National Association of Community Medicine; Surat Municipal Institute of Medical Education & Research)

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Abstract

INTRODUCTION: Falls in older adults are a significant cause of morbidity and mortality. The cause is often multi-factorial, and may require a multi-disciplinary approach both to treat any injuries sustained and to prevent future falls.

OBJECTIVE was to estimate the prevalence of falls and risk factors for falls among elderly in an urban area.

METHODS: 90 elderly patients aged >60yrs were included randomly from urban area and data was collected using a pretested questionnaire. Physical examination and functional assessment was done.

RESULTS: In the study out of 90 elders, 42.2% of them reported falls in the previous year, of them 60.5% had one episode of fall and 39.5% them had recurrent fall. Most common reason for fall home was had uneven surfaces (60.5%). Abnormal Romberg's test was significantly associated with falls ($p = 0.008$). Mean ADL score was 19.66 ± 2.43 in elderly who had falls and 20.08 ± 2.09 in elderly who had no falls.

CONCLUSIONS: Falls are very common among elderly and various risk factors present at house and with other comorbidities in the elderly it becomes important to prevent the falls by making necessary modifications.

PDF Y Endnote Y

Prevention of falls, malnutrition and pressure ulcers among older persons - nursing staff's experiences of a structured preventive care process

Lannering C, Ernsth Bravell M, Johansson L.

Health Soc. Care Community 2017; 25(3): 1011-1020.

(Copyright © 2017, John Wiley and Sons)

DOI 10.1111/hsc.12400 **PMID** unavailable

Abstract

A structured and systematic care process for preventive work, aimed to reduce falls, pressure ulcers and malnutrition among older people, has been developed in Sweden. The process involves risk assessment, team-based interventions and evaluation of results. Since development, this structured work process has become web-based and has been implemented in a national quality registry called 'Senior Alert' and used countrywide. The aim of this study was to describe nursing staff's experience of preventive work by using the structured preventive care process as outlined by Senior Alert. Eight focus group interviews were conducted during 2015 including staff from nursing homes and home-based nursing care in three municipalities. The interview material was subjected to qualitative content analysis. In this study, both positive and negative opinions were expressed about the process. The systematic and structured work flow seemed to only partly facilitate care providers to improve care quality by making better clinical assessments, performing team-based planned interventions and learning from results. Participants described lack of reliability in the assessments and varying opinions about the structure. Furthermore, organisational structures limited the preventive work.

PDF Y Endnote Y

Reducing falls in residents with dementia by reducing psychotropic medication use: does it work?

Cadwell S, Dearmon V, VandeWaa EA.

J. Nurse Pract. 2017; 13(4): e191-e194.

(Copyright © 2017, Elsevier Publishing)

DOI 10.1016/j.nurpra.2016.10.018 **PMID** unavailable

Abstract

Falls in elderly patients with dementia are common and a leading cause of morbidity and mortality. Psychotropic medications used to treat dementia are discouraged and may contribute to patient falls. Evidence-based clinical guidelines for appropriate antipsychotic use in this population exist. A nurse practitioner-led team used evidence-based tools to reduce psychotropic medication use in residents with dementia on a memory care unit and evaluated the effect on patient falls. Despite evidence linking falls to psychotropic medications, a reduction in resident falls was not found.

PDF Y Endnote Y

Research on the effectiveness of yoga on preventing fall for the elderly

Nguyen HM.

Int. J. Sci. Cult. Sport 2016; 4(19): 347-352.

(Copyright © 2016, International Science Culture and Sport Association)

DOI 10.14486/IntJSCS525 **PMID** unavailable

Abstract

This purpose of this study is to evaluate the effectiveness of Yoga on prevention of fall of the elderly, and was carried out with controlled trial. Fourty participants were recruited at age 60 to 70 (66.7 ± 4.3). Subjects were divided into two groups, Yoga and Control. Participants in Yoga groups (aged 66.6 ± 2.3) attended three sessions for practicing yoga (each session runs 60 minutes) in the mornings. Participants in Control group (aged 67.5 ± 2.7) maintain daily activities. The Falls Efficacy Scale (FEL) is primary outcome measure. After 12 weeks of Yoga practicing, the participants in Yoga group showed significantly better results in comparison with those of Control group in the FES with p value from .05 to .001.

PDF Y Endnote Y

Systematic review of the prevalence of medication errors resulting in hospitalization and death of nursing home residents

Ferrah N, Lovell JJ, Ibrahim JE.

J. Am. Geriatr. Soc. 2017; 65(2): 433-442.

(Copyright © 2017, John Wiley and Sons)

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Abstract

Medication errors (MEs) result in preventable harm to nursing home (NH) residents and pose a significant financial burden. Institutionalized older people are particularly vulnerable because of various organizational and individual factors. This systematic review reports the prevalence of MEs leading to hospitalization and death in NH residents and the factors associated with risk of death and hospitalization. A systematic search was conducted of the relevant peer-reviewed research published between January 1, 2000, and October 1, 2015, in English, French, German, or Spanish examining serious outcomes of MEs in NHs residents. Eleven studies met the inclusion criteria and examined three types of MEs: all MEs ($n = 5$), transfer-related MEs ($n = 5$), and potentially inappropriate medications (PIMs) ($n = 1$). MEs were common, involving 16-27% of residents in studies examining all types of MEs and 13-31% of residents in studies examining transfer-related MEs, and 75% of residents were prescribed at least one PIM. That said, serious effects of MEs were surprisingly low and were reported in only a small proportion of errors (0-1% of MEs), with death being rare. Whether MEs resulting in serious outcomes are truly infrequent, or are underreported because of the difficulty in ascertaining them, remains to be elucidated to assist in designing safer systems.

PDF Y Endnote Y

The "Aachen fall prevention app" - a smartphone application app for the self-assessment of elderly patients at risk for ground level falls

Rasche P, Mertens A, Bröhl C, Theis S, Seinsch T, Wille M, Pape HC, Knobe M.

Patient Saf. Surg. 2017; 11: e14.

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(Copyright © 2017, BioMed Central)

DOI 10.1186/s13037-017-0130-4 **PMID** 28503199 **PMCID** PMC5422970

Abstract

BACKGROUND: Fall incidents are a major problem for patients and healthcare. The "Aachen Fall Prevention App" (AFPA) represents the first mobile Health (mHealth) application (app) empowering older patients (persons 50+ years) to self-assess and monitor their individual fall risk. Self-assessment is based on the "Aachen Fall Prevention Scale," which consists of three steps. First, patients answer ten standardized yes-no questions (positive criterion ≥ 5 "Yes" responses). Second, a ten-second test of free standing without compensatory movement is performed (positive criterion: compensatory movement). Finally, during the third step, patients rate their subjective fall risk on a 10-point Likert scale, based on the results of steps one and two. The purpose of this app is (1) to offer a low-threshold service through which individuals can independently monitor their individual fall risk and (2) to collect data about how a patient-centered mHealth app for fall risk assessment is used in the field.

RESULTS: The results represent the first year of an ongoing field study. From December 2015 to December 2016, 197 persons downloaded the AFPA (iOS™ and Android™); free of charge). N = 111 of these persons voluntarily shared their data and thereby participated in the field study. Data from a final number of n = 79 persons were analyzed due to exclusion criteria (age, missing objective fall risk, missing self-assessment). The objective fall risk and the self-assessed subjective risk measured by the AFPA showed a significant positive relationship.

CONCLUSIONS: The "Aachen Fall Prevention App" (AFPA) is an mHealth app released for iOS and Android. This field study revealed the AFPA as a promising tool to raise older adults' awareness of their individual fall risk by means of a low-threshold patient-driven fall risk assessment tool.

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The association between fall history and physical performance tests in the community-dwelling elderly: a cross-sectional analysis

Kim JC, Chon J, Kim HS, Lee JH, Yoo SD, Kim DH, Lee SA, Han YJ, Lee HS, Lee BY, Soh YS, Won CW. *Ann. Rehabil. Med.* 2017; 41(2): 239-247.

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Abstract

OBJECTIVE: To evaluate the association between baseline characteristics, three physical performance tests and fall history in a sample of the elderly from Korean population.

METHODS: A total of 307 participants (mean age, 76.70 \pm 4.85 years) were categorized into one of two groups, i.e., fallers and non-fallers. Fifty-two participants who had reported falling unexpectedly at least once in the previous 12 months were assigned to the fallers group. Physical performance tests included Short Physical Performance Battery (SPPB), Berg Balance Scale (BBS), Timed Up and Go test. The differences between the two study groups were compared and we analyzed the correlations between fall histories and physical performance tests.

RESULTS: SPPB demonstrated a significant association with fall history. Although the BBS total scores did not show statistical significance, two dynamic balance test items of BBS (B12 and B13) showed a

significant association among fallers.

CONCLUSION: This study suggests that SPPB and two dynamic balance test items of the BBS can be used in screening for risk of falls in an ambulatory elderly population.

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The association between fear of falling and quality of life for balance impairments based on hip and ankle strategies in the drug On- and Off-phase of patients with idiopathic Parkinson' disease

Mehdizadeh M, Lajevardi L, Habibi SAH, ArabBaniasad M, Baghoori D, Daneshjoo F, Taghizadeh G. *Med. J. Islam. Repub. Iran* 2016; 30: 453.

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Abstract

BACKGROUND: Despite the negative effect of fear of falling during functioning and social participation of patients with Parkinson' disease, so far, only few studies have investigated its effect on the quality of life in these patients. We aimed to investigate the association between fear of falling and quality of life controlling for balance impairments based on hip and ankle strategy in drug On- and Off-phase of patients with idiopathic Parkinson' disease.

METHODS: In this non-experimental cross-sectional study, 139 patients with idiopathic Parkinson' disease (100 male, 39 female) by mean± SD age of 60.2±12.27 years, mean±SD time since diagnosis of 6.7±5.53 years and mean±SD Hoehn and Yahr stage of 2.8±1.49 were selected by a simple non-probability method. Balance function was measured by a functional reach test with hip and ankle strategy. The Persian version of the self-completed Fall Efficacy Scale-International and Parkinson's disease quality of life questionnaire was used to evaluate fear of falling and quality of life, respectively.

RESULTS: The results showed that the score of all dimensions of quality of life (i.e., mobility, activities of daily living, emotional wellbeing, stigma, social support, cognition, communication and bodily discomfort) were significantly affected by the intensity of fear of falling. Multiple regression analysis indicated a significant association between fear of falling and quality of life in a way that fear of falling explained 11% to 47% and 12% to 43% of variance in drug On-phase, as well as 8% to 45% and 9% to 48% of variance in the drug Off-phase in dimensions of quality of life after controlling for balance function based on hip and ankle strategy, respectively. In the drug On-phase, the strongest association ($R=0.85$, $p<0.001$) was found between fear of falling and mobility dimension of quality of life. In the drug Off-phase, the strongest relation was observed between fear of falling and mobility ($R=0.82$, $p<0.001$) as well as activities of daily living ($R=0.78-0.79$, $p<0.001$) dimensions.

CONCLUSION: This study found that fear of falling affects the quality of life of patients with Parkinson' disease beyond its relationship with balance impairments based on the hip and ankle strategy in both drug On- and Off-phase.

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The effects of physical training without equipment on pain perception and balance in the elderly: a randomized controlled trial

Patti A, Bianco A, Karsten B, Alessandra Montalto M, Battaglia G, Bellafigliore M, Cassata D, Scoppa F, Paoli A, Iovane A, Messina G, Palma A.

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Abstract

BACKGROUND: Research supports a link between exercise and falls prevention in the older population.

OBJECTIVES: Our aims were to evaluate pain perception and balance skills in a group of elderly subjects and to examine the consequences of a standardized equipment-free exercise program intervention on these variables. The study utilized a randomized controlled trial method.

METHODS: 92 subjects were recruited from a rural Sicilian village (Resuttano, Sicily, Italy). Subjects were randomly split into two groups, an experimental group (EG; n=49) and a control group (CG; n=43). Qualified fitness instructors delivered the standardized physical exercise program for the EG whilst the CG did not receive this exercise intervention. The Berg Balance Scale and the Oswestry Disability Index were administered in both groups before (T0) and after the intervention (T1).

RESULTS: At T1, the EG group significantly improved in balance ($p < 0.0001$) and pain perception ($p < 0.0001$). No significant differences were found within the CG both in BBS and ODI, respectively.

CONCLUSIONS: Our findings suggest that a 13-weeks standardized exercise equipment-free program is effective in improving balance and perception of pain in the elderly. This type of intervention can consequently provide a low cost strategy to counteract the rate of disability in elderly.

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Falls from ladders in Australia: comparing occupational and non-occupational injuries across age groups

Vallmuur K, Eley R, Watson A.

Aust. N. Zeal. J. Public Health 2016; 40(6): 559-563.

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Abstract

OBJECTIVE: To examine national ladder-related fall injury patterns and trends, and compare the changes over time in occupational and non-occupational falls across age groups.

METHODS: Analysis of national hospital morbidity data to examine trends over time and differences between groups.

RESULTS: There were 41,092 hospitalised falls from ladders in Australia over the ten year period from July 2002 to June 2012, rising from 3,374 hospitalisations in 2002/03 to 4,945 hospitalisations in 2011/12. The age standardised rate of ladder-related fall hospitalisations rose significantly for males, and a higher increase was evident in people aged over 60 years. Occupational falls accounted for 20% of hospitalisations, and the hospitalisation rate for both occupational and non-occupational falls increased significantly over the ten year period.

CONCLUSIONS: With almost 5,000 hospital admissions per year in recent years and a significant rise in the rate of hospitalisations over the past decade, this paper highlights the importance of focusing



injury prevention efforts to reduce the growing number of ladder-related falls. Implications: This study demonstrates the significant burden that ladder-related falls are continuing to have on the community, both in the occupational and domestic setting.

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