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A cross sectional study on assessment of falls in community dwelling elderly of Assam

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Abstract

CONTEXT: The five giants of geriatric that has been identified are immobility, instability (falls), incontinence, intellectual impairment and iatrogenic. Among these, falls are found to be a major problem in the elderly, causing injuries, dependence, psychological difficulties, and social isolation.

AIMS: The present study was done to assess the prevalence of falls in elderly and the factors associated with it.

SETTINGS AND DESIGN: This cross sectional study was done from August 2013 to December 2013 in Boko- Bongaon Block, Kamrup District, Assam.

METHODOLOGY: A total of 360 elderly meeting the inclusion criteria were included in the study. A total of 30 clusters were selected and 12 elderly were selected from each cluster.

STATISTICAL ANALYSIS: Data was analyzed using SPSS version 20.

RESULTS: Out of 360 elderly, 41.9% had at least 1 fall in the past one year. Among them 14.7% had more than 2 falls in the past one year. On analyzing the association of various factors with falls as dependent variable, older age group, unsatisfactory housing condition, dependent IADL, depression, presence of a co morbid condition and malnutrition were found to have significant association.

CONCLUSION: The present findings reveal that falls is not an uncommon problem in the elderly.

PDF Y Endnote Y

Age- and gender-specific associations between insomnia and falls in Boston Puerto Rican adults

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Qual. Life Res. 2016; ePub(ePub): ePub.

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Abstract

PURPOSE: This study evaluated the age- and gender-specific associations between insomnia and falls in community-dwelling Puerto Rican adults, independently of multiple covariates.

METHODS: Cross-sectional data were collected from 954 Puerto Ricans, aged 46-79 years, in Boston, Massachusetts. In-person interviews were conducted to collect information on sociodemographics and lifestyle, mental status, medication use, comorbidities, sleep duration, insomnia symptoms, and falls and fractures. Blood and urine samples, and bone density measures were collected to assess C-reactive protein, serum interleukin-6, urinary cortisol, and bone mineral density.

RESULTS: Multivariate robust Poisson regressions suggested that adults with insomnia had a 32 % increased likelihood of having falls (PR 1.32, $p < 0.05$), after adjustment for multiple covariates. Age and gender modified the effect of insomnia on risk of falls. Insomnia was significantly associated with higher risk of falls in adults of 60 years or older (PR 1.49, $p < 0.05$) and in women (PR 1.36, $p < 0.05$), but not in adults younger than 60 years or in men. Insomnia was not associated with

recurrent falls or fractures.

CONCLUSIONS: Age and gender need to be taken into account when considering treatment of insomnia in preventing geriatric falls. Well-designed evidence-based interventions to treat insomnia and improve sleep quality may reduce the risk of falls in this population.

PDF Y Endnote Y

Assessment of simple gait related dual and triple tests in predicting the risk of fall in adults above age of 50 years

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Cureus 2016; 8(6): e651.

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(Copyright © 2016, Curēus)

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Abstract

Timed UP and Go Test (TUG) is conventionally used as predictor of falls in adults. Routine daily activities include multiple tasks performed concurrently. When two or more tasks (Dual/Triple test) needed to be carried out concurrently, task performance declined at least in one of them. Our study aimed to find temporal and demographic variations in the performance after adding a cognitive, motor or both tasks, while performing TUG, compared to performance during conventional TUG. Sixty randomly selected healthy adults, with age ranging from 53 to 90 years, consented to participate in the study. Each participant underwent six tests (Conventional TUG, Motor TUG, Cognitive TUG, Motor and Cognitive TUG, Visuospatial TUG, Motor and Visuospatial TUG), with time measured in seconds. 6 (10%) had a previous history of fall. Triple test identified the highest number of participants at risk of fall (16.67%). One way ANOVA test showed significant temporal variation with the addition of task (p value < 0.0002). There was moderate positive correlation of age with the time taken to perform each test with addition of task. Conventional TUG in itself was found to be most sensitive and specific test to identify fallers. Though dual and triple task tests were also comparable, addition of task to TUG is not a sensitive indicator to identify fallers as compared to TUG.

PDF Y Endnote Y

Cognitive and physical function in relation to the risk of injurious falls in older adults: a population-based study

Welmer AK, Rizzuto D, Laukka EJ, Johnell K, Fratiglioni L.

J. Gerontol. A Biol. Sci. Med. Sci. 2016; ePub(ePub): ePub.

(Copyright © 2016, Gerontological Society of America)

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Abstract

BACKGROUND: We aimed to quantify the independent effect of cognitive and physical deficits on the risk of injurious falls, to verify whether this risk is modified by global cognitive impairment, and to explore whether risk varies by follow-up time.

METHODS: Data on 2,495 participants (≥ 60 years) from the population-based Swedish National Study on Aging and Care in Kungsholmen (SNAC-K) study were analyzed using flexible parametric survival models. Two cognitive domains (processing speed and executive function) were assessed with standard tests. Physical function tests included balance (one-leg-stands), walking speed, chair

stands, and grip strength. Global cognition was assessed using the Mini-Mental State Examination. RESULTS: A total of 167 people experienced an injurious fall over 3 years of follow-up, 310 over 5 years, and 571 over 10 years. Each standard deviation worse balance, slower walking speed, and longer chair stand time increased the risk of injurious falls over 3 years by 43%, 38%, and 23%, respectively ($p < .05$). Each standard deviation worse processing speed and executive function was significantly associated with 10% increased risk of injurious falls over 10 years ($p < .05$). In stratified analyses, deficits in physical functioning were associated with injurious falls only in people with cognitive impairment, whereas deficits in processing speed and executive function were associated with injurious falls only in people without cognitive impairment.

CONCLUSIONS: Deficits in specific cognitive domains, such as processing speed and executive function, appear to predict injurious falls in the long term. Deficits in physical function predict falls in the short term, especially in people with global cognitive impairment.

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Construct validity and test-retest reliability of survey of activities and fear of falling in the elderly among Iranian patients with Parkinson disease

Zarei M, Lajevardi L, Alizadeh Zarei M, Azad A, Mollazadeh E.

Middle East J. Rehab. Health Stud. 2016; ePub(ePub): ePub.

(Copyright © 2016, Semnan University of Medical Sciences)

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Abstract

BACKGROUND: Fear of falling (FOF) is highly common in people with Parkinson disease (PD). Fear of frequent falling arises from risk factors in PD.

OBJECTIVES: One of the most common tools used to measure FOF in patients with PD is the survey of activities and fear of falling in the elderly (SAFFE), but no studies have been conducted on its reliability and validity in Iran. The current study attempted to examine the construct validity and test-retest reliability of SAFFE among Iranian patients with PD.

PATIENTS AND METHODS: The study included a total of 71 patients with PD, among whom 61 (55.4%) were male and 10 were female. The construct validity was evaluated through the Persian version of SAFFE self-report scale using activities-specific balance confidence (ABC) scale where the correlation between the two scales was assessed using the Pearson test. The test-retest reliability was evaluated through intra-class correlation (ICC), standard errors of measurement (SEM) and minimum detectable change (MDC).

RESULTS: The correlation between ABC scale and Persian version of SAFFE scale was desirable ($r = -0.87$ and $P < 0.0001$). According to the statistical results, it can be argued that the correlation between SAFFE scale test-retest scores with those of relative and absolute correlation coefficients were $ICC = 0.96$ and $SEM = 0.16$ respectively, which represent great reliability of the scale.

CONCLUSIONS: The Persian version of SAFFE has adequate construct validity and test-retest reliability and is an ideal tool to measure FOF in the patients.

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Declining incidence of fall-induced ankle fractures in elderly adults: Finnish statistics between 1970 and 2014

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Arch. Orthop. Trauma Surg. 2016; ePub(ePub): ePub.

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(Copyright © 2016, Springer Verlag)

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Abstract

BACKGROUND: Fall-induced fractures of older adults are a major public health concern. However, nationwide information on recent fracture trends is sparse.

METHODS: We determined the trend in the number and incidence (per 100,000 persons) of fall-induced ankle fractures among older adults in Finland by taking into account all persons 60 years of age or older who were admitted to Finnish hospitals for primary treatment of such fracture in 1970-2014.

RESULTS: The number of fall-induced ankle fractures among 60-year-old or older Finnish persons increased steadily and sharply between 1970 (369 fractures) and 1997 (1668 fractures), but since then, the increase has slowed down (1835 fractures in 2014). The raw incidence of ankle fracture, showing a clear rise from 57 fractures per 100,000 persons in 1970 to 169 fractures in 1997, declined steadily between 1997 and 2014 (to 126 fractures in 2014). Observations on the age-adjusted fracture incidence were similar. During 1970-1997, the age-adjusted incidence of fall-induced ankle fracture clearly rose in both women and men, but thereafter, the incidence declined; in women, from 199 in 1997 to 158 in 2014, and in men, from 123 in 1997 to 80 in 2014.

CONCLUSIONS: The sharp rise in the incidence of fall-induced ankle fracture in Finnish older adults from early 1970s until late 1990s has been followed by a declining fracture rate. Despite this welcome development, the rapid aging of our population is likely to increase the absolute number of these fractures in the near future, and therefore, large-scale fracture-preventing intervention studies are urgently needed.

PDF Y Endnote Y

Determinants of quality of life in ageing populations: results from a cross-sectional study in Finland, Poland and Spain

Raggi A, Corso B, Minicuci N, Quintas R, Sattin D, De Torres L, Chatterji S, Frisoni GB, Haro JM, Koskinen S, Martinuzzi A, Miret M, Tobiasz-Adamczyk B, Leonardi M.

PLoS One 2016; 11(7): e0159293.

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Abstract

PURPOSE: To comprehensively identify the determinants of quality of life (QoL) in a population study sample of persons aged 18-50 and 50+.

METHODS: In this observational, cross-sectional study, QoL was measured with the WHOQOL-AGE, a brief instrument designed to measure QoL in older adults. Eight hierarchical regression models were

performed to identify determinants of QoL. Variables were entered in the following order: Sociodemographic; Health Habits; Chronic Conditions; Health State description; Vision and Hearing; Social Networks; Built Environment. In the final model, significant variables were retained. The final model was re-run using data from the three countries separately.

RESULTS: Complete data were available for 5639 participants, mean age 46.3 (SD 18.4). The final model accounted for 45% of QoL variation and the most relevant contribution was given by sociodemographic data (particularly age, education level and living in Finland: 17.9% explained QoL variation), chronic conditions (particularly depression: 4.6%) and a wide and rich social network (4.6%). Other determinants were presence of disabling pain, learning difficulties and visual problems, and living in usable house that is perceived as non-risky. Some variables were specifically associated to QoL in single countries: age in Poland, alcohol consumption in Spain, angina in Finland, depression in Spain, and self-reported sadness both in Finland and Poland, but not in Spain. Other were commonly associated to QoL: smoking status, bodily aches, being emotionally affected by health problems, good social network and home characteristics.

CONCLUSIONS: Our results highlight the importance of modifiable determinants of QoL, and provide public health indications that could support concrete actions at country level. In particular, smoking cessation, increasing the level of physical activity, improving social network ties and applying universal design approach to houses and environmental infrastructures could potentially increase QoL of ageing population.

PDF Endnote

Dual task gait performance in frail individuals with and without mild cognitive impairment

Martínez-Ramírez A, Martinikorena I, Lecumberri P, Gómez M, Millor N, Casas-Herrero A, Zambom-Ferraresi F, Izquierdo M.

Dement. Geriatr. Cogn. Disord. 2016; 42(1-2): 7-16.

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(Copyright © 2016, Karger Publishers)

DOI 10.1159/000447451 **PMID** 27459101

Abstract

BACKGROUND: Several studies have stated that frailty is associated with cognitive impairment. Based on various studies, cognition impairment has been considered as a component of frailty. Other authors have shown that physical frailty is associated with low cognitive performance. Dual task gait tests are used as a strong predictor of falls in either dementia or frailty. Consequently, it is important to investigate dual task walking tests in elderly populations including control robust oldest old, frail oldest old with mild cognitive impairment (MCI) and frail oldest old without MCI.

METHODS: Dual task walking tests were carried out to examine the association between frailty and cognitive impairment in a population with advanced age. Forty-one elderly men and women participated in this study. The subjects from control, frail with MCI and frail without MCI groups, completed the 5-meter walk test at their own gait velocity. Arithmetic and verbal dual task walking performance was also assessed. Kinematic data were acquired from a unique tri-axial inertial sensor.

RESULTS: The spatiotemporal and frequency parameters related to gait disorders did not show any significant differences between frail with and without MCI groups.

CONCLUSIONS: The evaluation of these parameters extracted from the acceleration signals led us to conclude that these results expand the knowledge regarding the common conditions in frailty and

MCI and may highlight the idea that the impairment in walking performance does not depend of frailty and cognitive status.

PDF Y Endnote Y

Effectiveness of a flamenco and sevillanas program to enhance mobility, balance, physical activity, blood pressure, body mass, and quality of life in postmenopausal women living in the community in Spain: a randomized clinical trial

Serrano-Guzmán M, Aguilar-Ferrándiz ME, Valenza CM, Ocaña-Peinado FM, Valenza-Demet G, Villaverde-Gutiérrez C.

Menopause 2016; ePub(ePub): ePub.

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Abstract

OBJECTIVE: This study aimed to test the effectiveness of a dance therapy program in improving mobility, balance, physical activity, blood pressure (BP), body mass, and quality of life in postmenopausal women in Spain.

METHODS: Fifty-two sedentary postmenopausal women (mean age 69.27 ± 3.85 y) were randomly assigned to receive either dance therapy ($n = 27$) or self-care treatment advice ($n = 25$). The intervention group participated in 2 months of dance therapy, three sessions weekly, based on Spanish folk dance (flamenco and sevillanas). The control group was provided a booklet containing physical activity recommendations. Mobility, balance, physical activity, BP, body mass, and quality of life were assessed at baseline and posttreatment in both groups. Statistical analysis was performed using a 2×2 analysis of variance (ANOVA).

RESULTS: Women in the intervention group showed significant improvements in mobility and balance (timed up-and-go test [$P = 0.022$], cognitive timed up-and-go [$P = 0.029$], and one-leg stance test results [$P = 0.001$]), physical activity (total time index [$P = 0.045$], energy expenditure [$P = 0.007$], vigorous physical activity [$P = 0.001$], leisure activity [$P = 0.001$], moving [$P < 0.001$], and activity dimension summary [$P = 0.001$]), and fitness (overall fitness [$P = 0.039$], cardiorespiratory fitness [$P < 0.001$], speed-agility [$P = 0.001$], and flexibility [$P = 0.007$]) compared with those in the control group. No differences were observed in BP, body mass, or quality of life.

CONCLUSIONS: Spanish dance therapy may be effective to improve mobility, balance, and levels of physical activity and fitness in sedentary postmenopausal women.

PDF Y Endnote Y

Falls in older adults with cancer: a systematic review of prevalence, injurious falls, and impact on cancer treatment

Sattar S, Alibhai SMH, Spoelstra SL, Fazelzad R, Puts MTE.

Support. Care Cancer 2016; ePub(ePub): ePub.

(Copyright © 2016, Springer International)

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Abstract

PURPOSE The purpose of this systematic review was to update and expand the existing systematic review with the aim to answer the following questions: (1) How often do older adults (OA)s with cancer fall? (2) What are the predictors of falls in OA with cancer? (3) What is the rate of injurious falls and predictors of injurious falls in OA with cancer? (4) What are the circumstances and outcomes of falls in this population? (5) How do falls in cancer patients affect subsequent cancer treatment? Methods Medline, Pubmed, Embase, and CINAHL were searched. Eligible studies included clinical trials, cross-sectional, cohort, case-control, and qualitative studies in which the entire sample or a sub-group of the sample were OA aged 60 and above, had cancer, in which falls were examined as a primary or secondary outcome and published in English.

RESULTS Twenty-seven studies met our inclusion criteria with most involving the outpatient setting. Fall rates and injurious fall rates varied widely. Consistent predictors of falls were prior falls among outpatients and cognitive impairment among inpatients. There were no data on impact of falls on cancer treatment. Data on circumstances of falls were limited.

CONCLUSION Falls and fall-related injuries are common in older cancer patients. However, little is known about circumstances of falls and impact of falls on cancer treatment. Many known fall predictors in community-dwelling OA have not been explored in oncology. More research is needed to address gaps in these areas.

PDF Y Endnote Y

Head injury in the elderly - what are the outcomes of neurosurgical care?

Whitehouse KJ, Jeyaretna DS, Enki DG, Whitfield PC.

World Neurosurg. 2016; ePub(ePub): ePub.

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DOI 10.1016/j.wneu.2016.07.057 **PMID** 27465419

Abstract

BACKGROUND: Epidemiological studies show that an increasing proportion of those presenting with head trauma are elderly. This study details the outcomes of elderly head trauma patients admitted to a regional UK neurosurgical unit.

METHODS: The notes and imaging were reviewed of all head injury patients aged ≥ 75 years, admitted from 01/01/2007 to 31/12/2010, including mortality data up to at least 2 years after discharge. Outcomes comprised death as an inpatient, by 30 days and 1 year post-discharge; Glasgow Outcome Score; discharge Glasgow Coma Score; recurrence; readmission; reoperation; and complication.

RESULTS: 263 patients were admitted: 26 with acute subdural haematoma (ASDH); 175 with chronic subdural haematoma (CSDH); and 46 with mixed subdural collections (ACSDH). Sixteen patients had other head injury diagnoses. ASDH cases had a significantly lower survival rate than those with CSDH or ACSDH: The odds of inpatient death for ASDH patients was 15.38 (vs CSDHs). For all SDHs, low ASA was an independent predictor of early death. Death at one year was predicted by head injury severity measured by admission GCS ($p=0.028$), long anaesthetic ($p=0.002$), and the presence of bilateral SDH ($p=0.002$). Unfavourable GOS (1-3) was predicted by age over 85y ($p=0.029$); larger depth of subdural ($p<0.001$); and presence of any complication ($p=0.003$). Those aged over 90 with presentation GCS under 10 all had poor outcomes.

CONCLUSIONS: Most elderly patients admitted under neurosurgery after head injury have SDHs. Our

results are better than many previously reported, however the rate of death for those with ASDH is still high.

PDF Y Endnote Y

Impact of falling on social participation and social support trajectories in a middle-aged and elderly European sample

Pin S, Spini D.

SSM Popul. Health 2016; 2: 382-389.

(Copyright © 2016, Elsevier Publishers)

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Abstract

Whereas falls are frequent and traumatic events for the elderly, their long-term consequences in terms of the social lives of older fallers are understudied. This study aimed to identify the impact of falling on the trajectories of social participation and social support of older people in Europe. Our sample consisted of 16,583 people aged 50-95 years from 10 European countries who responded to the waves 1, 2 and 4 of the Survey of Health Ageing and Retirement in Europe. The impact of falling on the trajectories of social participation and social support was examined using generalised estimating equation (GEE) models. The effect of the interactions between falling and frailty and between falling and social support on social participation was assessed. Falls were negatively associated with social participation (OR=0.73, $p<0.001$) and positively associated with social support (OR=2.20, $p<0.001$). For social participation, this effect was moderated by frailty; the interaction term between frailty and fall highlighted the finding that frailty better explained the global trajectory of social participation compared with falling. Social support did not buffer the negative impact of falling on social participation. Falls can be considered stressful events that have implications beyond the health context. Frail people who have fallen should be targeted in prevention and rehabilitation programmes; specific attention should also be paid to the relatives of fallers, who appeared to be more intensively solicited after a fall.

PDF Y Endnote Y

Neighbourhood social and built environment factors and falls in community-dwelling Canadian older adults: a validation study and exploration of structural confounding

Vafaei A, Pickett W, Zunzunegui MV, Alvarado BE.

SSM Popul. Health 2016; 2: 468-475.

(Copyright © 2016, Elsevier Publishers)

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Abstract

Older persons are vulnerable to the ill effects of their social and built environment due to age-related limitations in mobility and bio-psychological vulnerability. Falls are common in older adults and result from complex interactions between individual, social, and contextual determinants. We addressed two methodological issues of neighbourhood-health and social epidemiological studies in this analysis: (1) validity of measures of neighbourhood contexts, and (2) structural confounding resulting from social sorting mechanisms. Baseline data from International Mobility in Aging Study were used. Samples included community-dwelling Canadians older than 65 living in Kingston (Ontario) and St-Hyacinthe (Quebec). We performed factor analysis and econometric analysis to assess the validity of measures of neighbourhood social capital, socioeconomic status, and the built

environment and stratified tabular analyses to explore structural confounding. The scales all demonstrated good psychometric and ecometric properties. There was an evidence of the existence of structural confounding in this sample of Canadian older adults as some combinations of strata for the three neighbourhood measures had no population. This limits causal inference in studying relationships between neighbourhood factors and falls and should be taken into account in aetiological aging research.

PDF Y Endnote Y

Predicting falls and when to intervene in older people: a multilevel logistical regression model and cost analysis

Smith MI, de Lusignan S, Mullett D, Correa A, Tickner J, Jones S.

PLoS One 2016; 11(7): e0159365.

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(Copyright © 2016, Public Library of Science)

DOI 10.1371/journal.pone.0159365 **PMID** 27448280

Abstract

INTRODUCTION: Falls are the leading cause of injury in older people. Reducing falls could reduce financial pressures on health services. We carried out this research to develop a falls risk model, using routine primary care and hospital data to identify those at risk of falls, and apply a cost analysis to enable commissioners of health services to identify those in whom savings can be made through referral to a falls prevention service.

METHODS: Multilevel logistical regression was performed on routinely collected general practice and hospital data from 74751 over 65's, to produce a risk model for falls. Validation measures were carried out. A cost-analysis was performed to identify at which level of risk it would be cost-effective to refer patients to a falls prevention service. 95% confidence intervals were calculated using a Monte Carlo Model (MCM), allowing us to adjust for uncertainty in the estimates of these variables. **RESULTS:** A risk model for falls was produced with an area under the curve of the receiver operating characteristics curve of 0.87. The risk cut-off with the highest combination of sensitivity and specificity was at $p = 0.07$ (sensitivity of 81% and specificity of 78%). The risk cut-off at which savings outweigh costs was $p = 0.27$ and the risk cut-off with the maximum savings was $p = 0.53$, which would result in referral of 1.8% and 0.45% of the over 65's population respectively. Above a risk cut-off of $p = 0.27$, costs do not exceed savings.

CONCLUSIONS: This model is the best performing falls predictive tool developed to date; it has been developed on a large UK city population; can be readily run from routine data; and can be implemented in a way that optimises the use of health service resources. Commissioners of health services should use this model to flag and refer patients at risk to their falls service and save resources.

PDF Y Endnote Y

Prevention of cognitive and physical decline by enjoyable walking-habituation program based on brain-activating rehabilitation

Murai T, Yamaguchi T, Maki Y, Isahai M, Kaiho Sato A, Yamagami T, Ura C, Miyamae F, Takahashi R, Yamaguchi H.

Geriatr. Gerontol. Int. 2016; 16(6): 701-708.

(Copyright © 2016, Japan Geriatrics Society, Publisher John Wiley and Sons)

DOI 10.1111/ggi.12541 PMID unavailable

Abstract

AIM: Evaluating effects of an enjoyable walking-habituation program.

METHODS: We carried out a 12-week intervention, consisting of an enjoyable walking-habituation program based on five principles of brain-activating rehabilitation: pleasant atmosphere, interactive communication, social roles, praising each other and errorless support. The program, once a week for 90 min, was carried out in small groups. Participants were 71 community-dwelling people (72.2 ± 4.3) without dementia. Cognitive function was evaluated in five cognitive domains: memory, executive function, word fluency, visuospatial abilities and sustained attention. Additionally, quality of life, depressive state, functional capacity, range of activities, social network and subjective memory complaints were assessed using questionnaires. Motor function was also evaluated. Measurement was carried out before the observation period, after observation and after intervention.

RESULTS: A total of 63 participants were included in the analysis. Daily steps, executive function, subjective memory complaints, functional capacity and 5-m maximum walking time significantly improved during the intervention period (after observation to after intervention) compared with the observation period (before the observation period to after observation). No significant differences were seen in other evaluations. At 6 months after the intervention, 52 of 63 participants (82.5%) continued to walk once a week or more, and all of them were confident about continuing to walk in the future. Furthermore, all participants were satisfied with our walking-habituation program and all replied that they felt delighted.

CONCLUSION: The intervention program, based on the five principles of brain-activating rehabilitation, resulted in improvement of some cognitive and physical functions, as well as a high walking-habituation rate at 6 months' follow up.

PDF Y Endnote Y

The effect of folk recreation program in improving symptoms: a study of Chinese elder dementia patients

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Int. J. Geriatr. Psychiatry 2016; ePub(ePub): ePub.

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Abstract

OBJECTIVE: This study aimed to evaluate the effects of a folk recreation program on the symptoms of people with dementia. The program was tailored to the participants' interest and derived from their traditional culture background.

METHODS: A quasi-experimental study design was used. A total of 48 participants were assigned to an experimental or a control group. The experimental group received a 40 to 50-min folk recreation intervention, which is mainly about art, music and game, three times a week and for 16 weeks. The control group received routine care without special intervention. The Mini-mental State Examination (MMSE), Barthel Index (BI) and the Chinese version of the neuropsychiatric inventory (CNPI) were used to estimate the cognitive function, ability of daily living and behavioral and psychological

symptoms with dementia at baseline and week 16.

RESULTS: For the experimental group, the mean scores of MMSE and BI increased significantly from baseline to week 16 ($p < 0.01$) for cognitive function and activity of daily living, and the mean score of CNPI-symptom decreased significantly ($p < 0.01$) for behavioral and psychological symptoms.

While, for the control group, the mean score of MMSE decreased significantly ($p < 0.01$), and the mean scores of BI and CNPI-symptom changed non-significantly.

CONCLUSIONS: The folk recreation program has the potential to improve cognitive function, ability of daily living and behavioral and psychological symptoms of the elders with dementia. The folk leisure activities, which embed in the participants' cultural background, will motivate their positive feelings and memories, can delay the progression of disease and improve the symptoms. Copyright © 2016 John Wiley & Sons, Ltd.

PDF Y Endnote Y

The impact of dizziness on quality-of-life in the elderly

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Eur. Arch. Otorhinolaryngol. 2016; ePub(ePub): ePub.

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Abstract

Dizziness is a common medical condition that has been related to falls in the elderly, and it is, therefore, considered a severe social health problem. Particularly in the elderly, the impact of dizziness may be relevant, as it has been linked to several conditions, such as isolation, depression, reduced self autonomy, and self control. The social, functional, and psychological well-being of those affected can be hampered significantly, thus reducing the quality-of-life (QoL) perception. In addition, due to the aging of the population in the developed world, dizziness is becoming a growing public health problem; an optimal management of this condition includes, nowadays, the improvement of rehabilitative programs, as well as the evaluation of QoL status and its management. The aim of this paper is to evaluate the impact of dizziness on the QoL in the elderly, also analyzing the instruments available, nowadays, to evaluate QoL of dizzy patients.

PDF Y Endnote Y

Understanding the theoretical underpinning of the exercise component in a fall prevention programme for older adults with mild dementia: a realist review protocol

Booth V, Harwood R, Hood V, Masud T, Logan P.

Syst. Rev. 2016; 5(1): e119.

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DOI 10.1186/s13643-016-0212-x **PMID** 27435818

Abstract

BACKGROUND: Older adults with mild dementia are at an increased risk of falls. Preventing those at risk from falling requires complex interventions involving patient-tailored strength- and balance-challenging exercises, home hazard assessment, visual impairment correction, medical assessment and multifactorial combinations. Evidence for these interventions in older adults with mild cognitive

problems is sparse and not as conclusive as the evidence for the general community-dwelling older population. The objectives of this realist review are (i) to identify the underlying programme theory of strength and balance exercise interventions targeted at those individuals that have been identified as falling and who have a mild dementia and (ii) to explore how and why that intervention reduces falls in that population, particularly in the context of a community setting. This protocol will explain the rationale for using a realist review approach and outline the method.

METHODS: A realist review is a methodology that extends the scope of a traditional narrative or systematic evidence review. Increasingly used in the evaluation of complex interventions, a realist enquiry can look at the wider context of the intervention, seeking more to explain than judge if the intervention is effective by investigating why, what the underlying mechanism is and the necessary conditions for success. In this review, key rough programme theories were articulated and defined through discussion with a stakeholder group. The six rough programme theories outlined within this protocol will be tested against the literature found using the described comprehensive search strategy. The process of data extraction, appraisal and synthesis is outlined and will lead to the production of an explanatory programme theory.

DISCUSSION: As far as the authors are aware, this is the first realist literature review within fall prevention research and adds to the growing use of this methodology within healthcare. This synthesis of evidence will provide a valuable addition to the evidence base surrounding the exercise component of a fall intervention programme for older adults with mild dementia and will ultimately provide clinically relevant recommendations for improving the care of people with dementia.

SYSTEMATIC REVIEW REGISTRATION: PROSPERO CRD42015030169.

PDF Y Endnote Y

What matters most for predicting survival? A multinational population-based cohort study

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Abstract

Despite myriad efforts among social scientists, epidemiologists, and clinicians to identify variables with strong linkages to mortality, few researchers have evaluated statistically the relative strength of a comprehensive set of predictors of survival. Here, we determine the strongest predictors of five-year mortality in four national, prospective studies of older adults. We analyze nationally representative surveys of older adults in four countries with similar levels of life expectancy: England (n = 6113, ages 52+), the US (n = 2023, ages 50+), Costa Rica (n = 2694, ages 60+), and Taiwan (n = 1032, ages 53+). Each survey includes a broad set of demographic, social, health, and biological variables that have been shown previously to predict mortality. We rank 57 predictors, 25 of which are available in all four countries, net of age and sex. We use the area under the receiver operating characteristic curve and assess robustness with additional discrimination measures. We demonstrate consistent findings across four countries with different cultural traditions, levels of economic development, and epidemiological transitions. Self-reported measures of instrumental activities of daily living limitations, mobility limitations, and overall self-assessed health are among the top predictors in all four samples. C-reactive protein, additional inflammatory markers, homocysteine,

serum albumin, three performance assessments (gait speed, grip strength, and chair stands), and exercise frequency also discriminate well between decedents and survivors when these measures are available. We identify several promising candidates that could improve mortality prediction for both population-based and clinical populations. Better prognostic tools are likely to provide researchers with new insights into the behavioral and biological pathways that underlie social stratification in health and may allow physicians to have more informed discussions with patients about end-of-life treatment and priorities.

PDF Y Endnote Y

An analysis on sensor locations of the human body for wearable fall detection devices: principles and practice

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Abstract

Wearable devices for fall detection have received attention in academia and industry, because falls are very dangerous, especially for elderly people, and if immediate aid is not provided, it may result in death. However, some predictive devices are not easily worn by elderly people. In this work, a huge dataset, including 2520 tests, is employed to determine the best sensor placement location on the body and to reduce the number of sensor nodes for device ergonomics. During the tests, the volunteer's movements are recorded with six groups of sensors each with a triaxial (accelerometer, gyroscope and magnetometer) sensor, which is placed tightly on different parts of the body with special straps: head, chest, waist, right-wrist, right-thigh and right-ankle. The accuracy of individual sensor groups with their location is investigated with six machine learning techniques, namely the k-nearest neighbor (k-NN) classifier, Bayesian decision making (BDM), support vector machines (SVM), least squares method (LSM), dynamic time warping (DTW) and artificial neural networks (ANNs). Each technique is applied to single, double, triple, quadruple, quintuple and sextuple sensor configurations. These configurations create 63 different combinations, and for six machine learning techniques, a total of $63 \times 6 = 378$ combinations is investigated. As a result, the waist region is found to be the most suitable location for sensor placement on the body with 99.96% fall detection sensitivity by using the k-NN classifier, whereas the best sensitivity achieved by the wrist sensor is 97.37%, despite this location being highly preferred for today's wearable applications.

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Characteristics of daily life gait in fall and non fall-prone stroke survivors and controls

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Abstract

BACKGROUND: Falls in stroke survivors can lead to serious injuries and medical costs. Fall risk in older adults can be predicted based on gait characteristics measured in daily life. Given the different gait patterns that stroke survivors exhibit it is unclear whether a similar fall-prediction model could be used in this group. Therefore the main purpose of this study was to examine whether fall-prediction models that have been used in older adults can also be used in a population of stroke survivors, or if modifications are needed, either in the cut-off values of such models, or in the gait characteristics of interest.

METHODS: This study investigated gait characteristics by assessing accelerations of the lower back measured during seven consecutive days in 31 non fall-prone stroke survivors, 25 fall-prone stroke survivors, 20 neurologically intact fall-prone older adults and 30 non fall-prone older adults. We created a binary logistic regression model to assess the ability of predicting falls for each gait characteristic. We included health status and the interaction between health status (stroke survivors versus older adults) and gait characteristic in the model.

RESULTS: We found four significant interactions between gait characteristics and health status. Furthermore we found another four gait characteristics that had similar predictive capacity in both stroke survivors and older adults.

CONCLUSION: The interactions between gait characteristics and health status indicate that gait characteristics are differently associated with fall history between stroke survivors and older adults. Thus specific models are needed to predict fall risk in stroke survivors.

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Fall-related deterioration of subjective symptoms in patients with cervical myelopathy

Kimura A, Seichi A, Takeshita K, Inoue H, Kato T, Yoshii T, Furuya T, Koda M, Takeuchi K, Matsunaga S, Seki S, Ishikawa Y, Imagama S, Yamazaki M, Mori K, Kawasaki Y, Fujita K, Endo K, Sato K, Okawa A. *Spine* 2016; ePub(ePub): ePub.

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Abstract

STUDY DESIGN: Retrospective multi-center study.

OBJECTIVE: This study was conducted in order to clarify the incidence and neurological outcomes of fall-related deterioration of subjective symptoms in patients undergoing surgical treatment.

SUMMARY OF BACKGROUND DATA: The evidence that minor trauma, including falls, increases the risk of worsening cervical myelopathy is insufficient.

METHODS: A retrospective analysis of patients who had undergone surgery for cervical myelopathy at 12 participating institutes was conducted. Patients who had undergone surgery for symptomatic cervical myelopathy from January 2012 to December 2013 and completed at least 1-year follow-up were included in this study. Data were collected by chart review and a questionnaire that included numbers of recalled falls during the last preoperative year and first postoperative year, circumstances of falls, and whether the patient had experienced fall-related deterioration of subjective symptoms.

RESULTS: A total of 360 eligible patients were recruited into the study. Of these, 177 (49%) reported at least one fall during the last preoperative year, and 105 (29%) experienced fall-related deterioration of subjective symptoms. Forty (11%) reported deterioration of numbness in the arms or legs, and 65 (18%) reported deterioration of motor deficits. Incidences of falls and fall-related

deterioration of symptoms decreased significantly after surgery. Patients who experienced fall-related deterioration of motor deficits showed significantly worse surgical outcomes as assessed by Japanese Orthopaedic Association (JOA) score compared with those who did not experience deterioration. The optimal cut-off for preoperative JOA score in predicting an increased risk of fall-related deterioration in motor deficits was 8.

CONCLUSION: Patients with cervical myelopathy commonly experienced preoperative fall-related deterioration of subjective symptoms, associated with significantly worse neurological outcomes. Surgical treatment significantly reduced the incidence of both falls and fall-related deterioration of subjective symptoms. **LEVEL OF EVIDENCE:** 4.

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The effect of vibrotactile biofeedback of trunk sway on balance control in multiple sclerosis

van der Logt RP, Findling O, Rust H, Yaldizli O, Allum JH.

Mult. Scler. Relat. Disord. 2016; 8: 58-63.

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Abstract

BACKGROUND: Patients with multiple sclerosis (MS) suffer from diminished balance control due to slowed sensory conduction and possibly delayed central processing. Vibrotactile biofeedback of trunk sway has been shown to improve balance control in patients with peripheral and central vestibular disorders. Here, the effects of vibrotactile feedback training on trunk sway and a possible carry-over effect was measured in MS patients during stance and gait.

METHODS: Ten MS patients (mean age 46.8 ± 7.7 years, 40% male) participated in a crossover study in which 7 different stance and gait tasks were trained with and without angle feedback for stance and angular velocity feedback for gait. An assessment sequence of 12 tasks was performed once before and twice after the training sequence. Trunk sway was measured with body-worn gyroscopes. Head mounted vibrotactile biofeedback of trunk sway was provided during one crossover training arm and the following second assessment sequence.

RESULTS: Biofeedback generally leads to a decrease in sway but an increase in sway angular velocities during some stance tasks compared to training without biofeedback. Biofeedback while walking eyes open resulted in a decreased sway angular velocity. The greatest changes were found in the pitch direction of trunk sway. Effects diminished after biofeedback was removed.

CONCLUSIONS: This study showed that vibrotactile biofeedback of trunk sway beneficially effects stance and provides significant improvement in gait compared to training without biofeedback in MS patients.

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Vestibular ablation and a semicircular canal prosthesis affect postural stability during head turns

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Abstract

In our study, we examined postural stability during head turns for two rhesus monkeys: one animal study contrasted normal and mild bilateral vestibular ablation and a second animal study contrasted severe bilateral vestibular ablation with and without prosthetic stimulation. The monkeys freely stood, unrestrained on a balance platform and made voluntary head turns between visual targets. To quantify each animals' posture, motions of the head and trunk, as well as torque about the body's center of mass, were measured. In the mildly ablated animal, we observed less foretrunk sway in comparison with the normal state. When the canal prosthesis provided electric stimulation to the severely ablated animal, it showed a decrease in trunk sway during head turns. Because the rhesus monkey with severe bilateral vestibular loss exhibited a decrease in trunk sway when receiving vestibular prosthetic stimulation, we propose that the prosthetic electrical stimulation partially restored head velocity information. Our results provide an indication that a semicircular canal prosthesis may be an effective way to improve postural stability in patients with severe peripheral vestibular dysfunction.

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