

SafetyLit January 20th, 2019**A retrospective analysis of prescription medications as it correlates to falls for older adults**

Lawson K, Vinluan CM, Oganessian A, Gonzalez EC, Loya A, Strate JJ.

Pharm. Pract. (Granada) 2018; 16(4): e1283.

Affiliation: University of Texas at El Paso. El Paso, TX (United States). justin.strate@gmail.com.

(Copyright © 2018, Centro de Investigaciones y Publicaciones Farmaceuticas)

DOI 10.18549/PharmPract.2018.04.1283 **PMID** 30637029 **PMCID** PMC6322985

Abstract

OBJECTIVES: To determine the correlation between falls and two medication factors: the class of medications and potentially inappropriate medications (PIMs) prescribed to community-dwelling older adults aged 55 and older.

METHODS: Retrospective, cross-sectional study. Home health patients residing in a Texas/Mexico border community and reporting at least one fall within the past month. Medication use, medication classification, and potentially inappropriate medications (PIM) recorded by level of falls; non-fallers and recurrent fallers.

RESULTS: Of 99 participants, 13.1% reported falling once and 86.9% reported two or more falls. Participant's average number of medications used was 10.51 (SD 5.75) with 93.9% having four or more prescribed medications. Average number of PIMs prescribed per participant was 1.42 (SD 1.51) with at least one PIM prescribed to 65.6% of participants. Twenty three out of 83 identified classes of prescribed medications met criteria for the study's analyses but resulted in no significant association to falls when comparing NF to RF. Agents acting on the renin-angiotensin system and lipid modifying agents were the most frequently prescribed medication classes (N=55, 55.6%). Ibuprofen was the PIM most frequently prescribed (n=13, 13.1%). The correlation between use of a prescribed PIM and number of falls was not statistically significant (p=0.128).

CONCLUSIONS: There was no correlation between classes of medication and level of falls. Recurrent fallers were more likely to have been prescribed a PIM than non-fallers (not significant). Although the analyses conducted for this study did not result in statistical significance, the high prevalence of polypharmacy and prescribed PIMs observed in these participants warrants a thorough review of medications to reduce fall risks among older adults.

PDF Y Endnote Y**Are geriatric patients who sustain high-energy traumatic injury likely to return to functional independence?**

Shah J, Titus AJ, O'Toole RV, Sciadini MF, Boulton C, Castillo R, Breazeale S, Schoonover C, Berger P, Gitajn IL.

J. Orthop. Trauma 2019; ePub(ePub): ePub.

Affiliation: Department of Orthopaedics, Dartmouth Hitchcock Medical Center, Lebanon, NH.

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DOI 10.1097/BOT.0000000000001436 **PMID** 30640296

Abstract

OBJECTIVES: To evaluate physical function and return to independence of geriatric trauma patients, to compare physical function outcomes of geriatric patients who sustained high-energy trauma with that of those who sustained low-energy trauma, and to identify predictors of physical function



outcomes.

DESIGN: Retrospective

SETTING: Urban Level I trauma center

PATIENTS: Study group of 216 patients with high-energy trauma and comparison group of 117 patients with low-energy trauma.

INTERVENTION: Injury mechanism (high- versus low-energy mechanism)

MAIN OUTCOME MEASUREMENT: Patient Reported Outcome Measurement Information System (PROMIS) Physical Function patient reported outcome measure, and change in living situation and mobility.

RESULTS: Physical function outcomes and return to independence differed between patients with high-energy and low-energy injuries. High-energy geriatric trauma patients had significantly higher PROMIS PF scores compared to low-energy geriatric trauma patients (PROMIS Physical Function score 42.2 ± 10.4 vs. 24.6 ± 10.4 , $p < 0.001$). High-energy geriatric trauma patients were able to ambulate outdoors without an assistive device in 67% of cases and were living independently 74% of the time in comparison to 28% and 45% of low-energy geriatric trauma patients respectively ($p < 0.001$, $p < 0.001$). Multivariate linear regression analysis demonstrated that low-energy mechanism injury was independently associated with a 13.2 point reduction in PROMIS Physical Function score ($p < 0.001$).

CONCLUSIONS: Geriatric patients greater than one year out from sustaining a high-energy traumatic injury appear to be functioning within the expected range for their age while low-energy trauma patients appear to be functioning substantially worse than both age-adjusted norms and their high-energy cohorts. LEVEL OF EVIDENCE: Prognostic Level III.

PDF Y Endnote Y

Associations between the use of specific psychotropic drugs and all-cause mortality among older adults in Germany: results of the mortality follow-up of the German National Health Interview and Examination Survey 1998

Du Y, Wolf IK, Busch MA, Knopf H.

PLoS One 2019; 14(1): e0210695.

Affiliation: Department of Epidemiology and Health Monitoring, Robert Koch Institute, Berlin, Germany.

(Copyright © 2019, Public Library of Science)

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Abstract

BACKGROUND: Use of psychotropic drugs is common among older adults. Population-based studies on the associations of psychotropic drug use with mortality are sparse.

OBJECTIVES: To investigate the associations between the use of specific psychotropic drug groups (opioids, antipsychotics, antidepressants and benzodiazepines) and all-cause mortality among community-dwelling older adults in Germany.

METHODS: Participants of the German National Health Interview and Examination Survey 1998 were followed up for mortality from 1997 to 2011. Persons aged 60-79 years with complete data on psychotropic drug use at baseline and on mortality follow-up were considered as study population (N = 1,563). Associations between the use of opioids, antipsychotics, antidepressants and



benzodiazepines and all-cause mortality were examined by Cox proportional hazards models adjusted for sociodemographics (sex, age, community size, region, socioeconomic status), life style (smoking, sports, risky alcohol drinking) and health conditions (obesity, disability, history of cardiovascular diseases, diabetes, hyperlipidemia, hypertension, any cancers, any mental disorders) at baseline.

RESULTS: After a median follow-up of 11.4 years, 21, 18, 23 and 26 deaths were documented among those who used at baseline opioids (n = 39), antipsychotics (n = 30), antidepressants (n = 53) and benzodiazepines (n = 54) with an unadjusted mortality rate (MR) of 57.7, 59.1, 44.6 and 53.7 per 1000 person-years, respectively. Meanwhile, 400 deaths were documented among 1,406 nonusers of any of the above mentioned psychotropic drugs with a MR of 26.7 per 1000 person-years. The age and sex adjusted mortality rate ratios in comparison with nonusers were 2.20 (95% confidence intervals 1.42-3.41), 1.66(1.03-2.70), 1.56(1.06-2.28), and 1.57(1.07-2.31) for the use of opioids, antipsychotics, antidepressants and benzodiazepines, respectively. In the fully adjusted Cox models, use of opioids (hazardous ratio 2.04, 95% confidence intervals 1.07-3.89), antipsychotics (2.15, 1.11-4.15) and benzodiazepines (1.76, 1.09-2.82), but not antidepressants, were significantly associated with an increased risk of mortality.

CONCLUSIONS: Use of opioids, antipsychotics, benzodiazepines is significantly associated with an increased risk of all-cause mortality among community-dwelling older adults in Germany. Clinicians should be careful in prescribing these psychotropic drugs to older adults while patients already under psychotropic therapy should well balance the risks and benefits of drug use. Further studies with a larger sample size and information on specific indications for psychotropic drug use and mental comorbidities are required to confirm the findings of the present study.

PDF Y Endnote Y

Effectiveness of physical exercise in the treatment of depression in older adults as an alternative to antidepressant drugs in primary care

López-Torres Hidalgo J.

BMC Psychiatry 2019; 19(1): e21.

Affiliation: Albacete Zone VIII Health Centre and Faculty of Medicine, Madrid, Spain.

jesusl@sescam.org.

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DOI 10.1186/s12888-018-1982-6 **PMID** 30642326

Abstract

BACKGROUND: Although currently available evidence suggests that physical exercise can be beneficial for depressed patients and might be comparable to antidepressant treatment, the best way of implementing this recommendation in clinical practice is not known. This study therefore aims to ascertain the non-inferiority of supervised physical exercise to antidepressant drug treatment, in terms of reducing depressive symptoms among patients presenting with clinical criteria of a depressive episode (ICD-10), across a follow-up period of 6 months.

METHODS: It will take the form of a randomised clinical trial undertaken in a primary care setting, in which a total of 312 patients over the age of 65 years with clinically significant depression will be randomly assigned to supervised physical exercise programme, or will alternatively receive treatment with antidepressant drugs habitually used in clinical practice. Participants' physical



condition will be assessed at baseline, and again at 15 days and 1, 3 and 6 months. The supervised exercise programme will consist of 2 weekly sessions in groups of 10-12 patients across a period of 6 months, in which a sports instructor will train patients to do at least 30 min of regular activity at moderate intensity on an almost daily basis, including aerobic, muscle-strengthening, flexibility, and balance-strengthening exercises. The following will be assessed at regular intervals in both groups: status of depression symptoms; level of physical activity; self-perceived health status; appearance of adverse effects; and adherence to the physical exercise programme or antidepressant treatment. The principal outcome variable will be a reduction in pre-treatment depression-symptom scale scores (Montgomery-Asberg Depression Rating Scale and Geriatric Depression Scale).

DISCUSSION: In terms of the number of patients and duration of follow-up, this proposed clinical trial is a project which easily surpasses the few studies on this subject that have been previously conducted on the elderly. Its aim is to provide solid scientific evidence on a therapeutic resource - physical exercise- which has undeniable health benefits and can be applied to certain health problems, such as depressive disorders, which are of great magnitude and considerable socio-economic relevance, and have a significant impact on the quality of life of older adults. **TRIAL REGISTRATION:** ClinicalTrials.gov NCT03358433 (retrospectively registered on 11/25/2017).

PDF Y Endnote Y

Effects of three home-based exercise programmes regarding falls, quality of life and exercise-adherence in older adults at risk of falling: protocol for a randomized controlled trial

Mittaz Hager AG, Mathieu N, Lenoble-Hoskovec C, Swanenburg J, de Bie R, Hilfiker R.

BMC Geriatr. 2019; 19(1): e13.

Affiliation: HES-SO Valais-Wallis, School of Health Sciences, Physiotherapy, Rathausstrasse 8, Leukerbad, VS, Switzerland.

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DOI 10.1186/s12877-018-1021-y **PMID** 30642252

Abstract

BACKGROUND: Fall prevention interventions with home-based exercise programmes are effective to reduce the number and the rate of falls, by reducing risk factors. They improve balance, strength, function, physical activity, but it is known that older adults' exercise adherence declines over time. However, it is unclear which delivery-modalities of the home-based exercise programmes show the best adherence and the largest effect. We created a new home-based exercise programme, the Test-and-Exercise (T&E) programme, based on the concepts of self-efficacy and empowerment. Patients learn to build their own exercise programme with a mobile application, a brochure and cards, as well as with eight coaching sessions by physiotherapists. The main objective of this study is to compare the T&E programme with the Otago Exercise Programme and the recommendation-booklet and exercise-cards of Helsana regarding incidence of falls. Other outcomes are severity of falls, functional capacities, quality of life and exercise-adherence.

METHODS: The design of this study is a Swiss multicentre assessor blind randomized controlled trial. A block-randomization, stratified in groups for age and risk of fall categories, will be used to allocate the participants to three groups. The targeted study sample consists of 405 older adults, ≥ 65 years of age, living in the community and evaluated as at "risk of falling". Experimental group will receive the T&E programme (N = 162). Second group will receive the Otago programme (N = 162) and the



third group will receive the Helsana programme (N = 81). All interventions last six months. Blinded assessors will assess participants three times: at baseline before the start of the intervention, after six months of intervention and a final assessment after twelve months (six months of follow up).

DISCUSSION: Although home-based exercises programmes show positive effects in fall prevention in elderly persons, existing programmes do often not include patients in the decision-making process about exercise selection. In our programme the physiotherapist and the older adult work together to select the exercises; this collaboration helps to increase health literacy, pleasure of exercising, and empowers patients to be more autonomy. **TRIAL REGISTRATION:** ClinicalTrials.gov: NCT02926105 , First Posted: October 6, 2016, Last Update: November 11, 2016: Enrolment of the first participant.

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Epidemiology of low-energy lower extremity fracture in Chinese populations aged 50 years and above

Zhu Y, Liu S, Chen W, Liu B, Zhang F, Lv H, Ji C, Zhang X, Zhang Y.

PLoS One 2019; 14(1): e0209203.

Affiliation: Chinese Academy of Engineering, Beijing, P.R. China.

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Abstract

This study aimed to investigate the epidemiology of low-energy lower-extremity fracture in Chinese men and women aged 50 years and above. This study was a part of Chinese National Fracture Survey (CNFS), which used the stratified multistage cluster random sampling method to recruit subjects between January and May 2015. A total of 512187 individuals participated in the CNFS and of them there were 154099 men and women aged 50 years and above included in this study for data analysis. Low-energy fracture was defined as a fracture caused by slip, trip or fall from standing height. Univariate analyses and gender-based multivariate logistic regression models were constructed to identify the independent risk factors. A total of 215 patients had sustained low-energy lower extremity fractures in 2014, indicating the overall incidence was 139.5 (120.9 to 158.2) per 100000 persons, with 127.8 (102.5 to 153.1) and 151.1 (123.8 to 178.5) per 100000 person-year in men and women. Over 80% of fractures occurred at home and on the common road. In men, alcohol consumption (OR, 2.00; 95%CI, 1.29 to 3.08), sleep duration <7h/d (OR, 2.60; 95%CI, 1.68 to 4.03) and history of past fracture (OR, 2.57; 95%CI, 1.33 to 4.95) were identified as significant risk factors associated with low-energy fractures. In women, advanced age (80+ years) (OR, 3.22; 95%CI, 1.80 to 5.75), alcohol consumption (OR, 1.72; 95%CI, 1.00 to 2.98), sleep duration <7h/d (OR, 2.11; 95%CI, 1.40 to 3.18), and history of past fracture (OR, 3.46; 95%CI, 1.97 to 6.09) were identified as significant risk factors and living in western region (OR, 0.60; 95%CI, 0.38 to 0.94) and current weight of 50 to 59.9 kg (OR, 0.17; 95%CI, 0.04 to 0.73) were identified as protective factors for fractures. Accordingly, awareness on the importance of sleep and alcohol consumption on fragility fracture should be improved, and health policies that focus on decreasing alcohol consumption and encouraging individuals to improve their sleep quality and duration should be considered.

Maintaining a healthy bodyweight for women should be specifically emphasized to prevent low-energy fractures.

PDF Y Endnote Y

Neural control of postural sway: relationship to strength measures in young and elderly adults

King GW, Abreu EL, Kelly PJ, Brotto M.

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Affiliation Bone-Muscle Collaborative Sciences, College of Nursing and Health Innovation, University of Texas, Arlington, TX, USA.

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PMID 30630036

Abstract Age-related changes in postural sway are well-established, and studied from a control perspective using an inverted pendulum model. The purpose of the present work was to expand previous research in this area by investigating relationships between sway-related control parameters and musculoskeletal measures of muscle function and health. Eleven female older adults and eight female young adults completed blood draw, grip, leg extension, and balance tests. Serum levels of skeletal muscle-specific troponin T (sTnT), a biomarker for muscle health, were obtained from blood samples. Maximal grip force and leg extension torque were obtained from dynamometer tests. Center of pressure parameters were derived from force platform records obtained during eyes open and eyes closed balance tests. Sway control parameters were derived from an inverted pendulum model with PID-feedback control. Regression analyses were used to quantify the relationship between model parameters and grip strength, leg strength, and sTnT. Model integral gain (K_i) was observed to significantly predict grip strength in the eyes open condition. In the eyes closed condition, model derivative gain (K_d) was observed to significantly predict sTnT, and both proportional (K_p) and noise (K_n) model gains were observed to significantly predict grip and leg strength measures. Collectively, the relationship between control (K_i , K_d , K_p) and musculoskeletal health (strength, sTnT) parameters suggests a compensation mechanism, which may have served to minimize effects of reduced muscle function on sway amplitude, overshoot, and accuracy. Most associations were observed during eyes closed conditions, suggesting that visual input plays a larger role in regulating balance than the proposed compensation mechanisms. This work highlights the potential use for both strength and sTnT tests as biomarkers for postural control and balance impairment in older adults.

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Patterns of risk behaviors in Brazilian older adults: a latent class analysis

de Mello GT, da Silva KS, da Costa BG, Borgatto AF.

Geriatr. Gerontol. Int. 2019; ePub(ePub): ePub.

Affiliation: Department of Informatics and Statistics, School of Technology, Federal University of Santa Catarina, Florianópolis, Brazil.

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Abstract

AIM: The aim of the present study was to describe the clustering of diet, physical activity, television viewing, and tobacco and alcohol use among Brazilian older adults (aged ≥ 60 years).

METHODS: We carried out a secondary analysis of the Brazilian National Health Survey of 2013.

Brazilian older adults ($n = 11\,177$) reported their consumption of fruit and vegetables, leisure physical activity, television viewing, tobacco smoking, and alcohol intake. Latent class analysis was used to identify behavior patterns.

RESULTS: Three classes of behaviors were identified. The "Healthy" class (34.8%) had the highest probability of meeting recommendations for physical activity, and fruit and vegetable consumption; the "Poor diet and PA" class (46.5%) presented low probabilities of meeting recommendations for physical activity and alcohol consumption; and the "Smoking and binge drinking" class (18.7%) had the highest probability of smoking and binge drinking.

CONCLUSIONS: Three behavioral patterns were identified in the Brazilian older population. Even in the "Healthy" class, less than half of the older adults were considered physically active, suggesting that there is no completely healthy profile. Nevertheless, physical activity and fruit and vegetable consumption behaviors clustered, as did smoking and binge drinking.

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Predictors of falls per step and falls per year at and away from home in glaucoma

Ramulu PY, Mihailovic A, West SK, Gitlin LN, Friedman DS.

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Affiliation: Dana Center for Preventive Ophthalmology, Wilmer Eye Institute, Johns Hopkins University, 600 North Wolf Street, Baltimore, MD 21287.

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Abstract

OBJECTIVE: To determine where glaucoma patients most often fall and how integrated visual field (IVF) damage affects falls rates per year (falls/year) and per step (falls/step) at and away from home.

DESIGN: Prospective, observational cohort study

METHODS: In 225 patients with glaucoma or suspected glaucoma, falls data were collected via calendars, fall location was classified through follow-up questionnaires, and steps taken at and away from home judged by integrating data from annual week-long accelerometer and GPS trials. Main outcome measures were the association of IVF sensitivity with fall rates per year or step, stratified by location.

RESULTS: Participants took more away steps than home steps (2,366 vs. 1,524, $p < 0.001$), and differences in away vs. home steps did not vary with IVF sensitivity ($p = 0.22$). 57% of falls occurred at home, with each home step twice as likely to result in a fall as compared to each away step ($RR = 2.02$, $p < 0.001$). Worse IVF sensitivity was not associated with a higher rate of home falls/year or away falls/year ($p > 0.1$ for both), but was associated with a higher rate of home falls/step ($RR = 1.34/5$ dB worse sensitivity, $p = 0.03$) and away falls/step ($RR = 1.47/5$ dB worse sensitivity, $p = 0.003$).

CONCLUSIONS: In this glaucoma population, most falls occurred at home, and the risk of any step resulting in a fall was higher at home. Those with greater VF damage were more likely to fall for each



step taken both at and away from home. Efforts such as home environmental modification should be considered in the visually impaired to prevent falls while maintaining physical activity.

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Quantifying the burden of pre-existing conditions in older trauma patients: a novel metric based on mortality risk

Calvo RY, Sise CB, Sise MJ, Bansal V.

Am. J. Emerg. Med. 2018; ePub(ePub): ePub.

Affiliation: Scripps Mercy Hospital, Trauma Services, 4077 Fifth Avenue, San Diego, CA 92103, USA.

Electronic address: bansal.vishal@scrippshealth.org.

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DOI 10.1016/j.ajem.2018.12.043 **PMID** 30638628

Abstract

INTRODUCTION: Pre-existing medical conditions (PEC) represent a unique domain of risk among older trauma patients. The study objective was to develop a metric to quantify PEC burden for trauma patients.

METHODS: A cohort of 4526 non-severe blunt-injured trauma patients aged 55 years and older admitted to a Level I trauma center between January 2006 and December 2012 were divided into development (80%) and test (20%) sets. Cox regression was used to develop the model based on in-hospital and 90-day mortality. Regression coefficients were converted into a point-based PEC Risk Score. Performance of the PEC Risk Score was compared in the test set with two other PEC-based metrics and three injury-based metrics. An external cohort of 2284 trauma patients admitted in 2013 was used to evaluate combined metric performance.

RESULTS: Total mortality was 9.4% and 9.1% in the development and test set, respectively. The final model included 12 PEC. In the test set, the PEC Risk Score (c-statistic: 79.7) was superior for predicting in-hospital and 90-day mortality compared with all other metrics. For in-hospital mortality alone, the PEC Risk Score similarly outperformed all other metrics. Combination of the PEC Risk Score and any injury-based metric significantly improved prediction compared with any injury-based metric alone.

CONCLUSION: Our 12-item PEC Risk Score performed well compared with other metrics, suggesting that the classification of trauma-related mortality risk may be improved through its use. Among non-severely injured older trauma patients, the utility of prognostic metrics may be enhanced through the incorporation of comorbidities.

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Reply to: The interplay between experiences of abuse, physical activity, and falls in older adults

Reyes-Ortiz CA, Ocampo-Chaparro JM, Campo-Arias A, Holmes H, Halphen J.

J. Am. Geriatr. Soc. 2019; ePub(ePub): ePub.

Affiliation: Department of Internal Medicine, Division of Geriatric and Palliative Medicine, University of Texas Health Science Center at Houston, Houston, Texas.

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Abstract [Abstract unavailable]

PDF Endnote Y

Spinal fractures incurred by a fall from standing height

Hall S, Myers MA, Sadek AR, Baxter M, Griffith C, Dare C, Shenouda E, Nader-Sepahi A.

Clin. Neurol. Neurosurg. 2019; 177: 106-113.

Affiliation: Department of Neurosurgery, Wessex Neurological Centre, University Hospital Southampton NHS Foundation Trust, Tremona Road, Southampton, SO16 6YD, United Kingdom; Division of Clinical Neurosciences, School of Medicine, University of Southampton, Tremona Road, Southampton, SO16 6YD, United Kingdom. Electronic address: Ali.Nader-Sepahi@uhs.nhs.uk. (Copyright © 2019, Elsevier Publishing)

DOI 10.1016/j.clineuro.2019.01.005 PMID 30640139

Abstract

OBJECTIVE: Falls from standing are common, particularly amongst the aging population, due to declining mobility, proprioception and vision. They are often complicated by fragility fractures, including vertebral fractures, that are associated with significant morbidity and may represent a pre-terminal condition with high one-year mortality rates.

PATIENTS AND METHODS: A retrospective review of the Trauma Audit and Research Network database for a major trauma centre was conducted for all patients admitted between January 2011 and December 2016. Patients with a spinal fracture and a confirmed fall from standing height were eligible for inclusion. Case notes were reviewed for demographics, Injury Severity Score, Charlson co-morbidity score, treatment, complications and outcomes.

RESULTS: Of 1408 patients with a spine fracture admitted during the study period, 229 (16.3%) were confirmed to be secondary to a fall from standing height. The average age of this cohort was 76.6 ± 14.5 years and 134 (58.5%) cases were female. The average ISS score was 9.7 ± 5.4 . The 229 patients sustained 283 fractures with a distribution of: cervical (n = 140), thoracic (n = 65) and lumbar (n = 78) spine. Fifty-six (24.5%) patients underwent surgical intervention. Forty-three patients (18.7%) died within 6 months of admission and all-cause mortality was significantly higher in patients with increasing age and Charlson co-morbidity score.

CONCLUSION: Spinal fractures due to a fall from standing height represent one sixth of the fracture workload of the emergency spinal service at a major trauma centre. Whilst the majority of patients can be managed conservatively there are still considerable implications for hospital bed usage and patient mortality.

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Static and dynamic balance disorders in patients with rheumatoid arthritis and relationships with lower extremity function and deformities: a prospective controlled study

Toprak CŞ, Duruöz MT, Gündüz OH.

Arch. Rheumatol. 2018; 33(3): 328-334.

Affiliation: Department of Physical Medicine and Rehabilitation, Division of Algology, Marmara University School of Medicine, İstanbul, Turkey.



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DOI 10.5606/ArchRheumatol.2018.6720 **PMID** 30632523 **PMCID** PMC6328213

Abstract

OBJECTIVES: This study aims to evaluate the static and dynamic balance disorders of patients with rheumatoid arthritis (RA) and to disclose the relationships with clinical, functional, and radiological findings of lower extremities.

PATIENTS AND METHODS: A total of 81 patients with RA (15 males, 66 females; mean age 48.9 ± 10.4 years; range 22 to 67 years) were compared with 84 age and sex-matched healthy controls (14 males, 70 females; mean age 45.9 ± 12.1 years; range 24 to 70 years). Radiographic assessments of feet were performed to evaluate the presence of pes planus, hallux valgus, metatarsus primus varus, and splaying foot deformities. Foot functions of patients were determined with Foot and Ankle Outcome Score. The balance disorders of the subjects were evaluated with three static (modified clinical test of sensory interaction and balance, unilateral stance, weight bearing squat) and three dynamic (step-up-and-over, sit-to-stand, tandem walk) balance tests via the 'Neurocom Balance Master' device.

RESULTS: Rheumatoid arthritis patients had significantly higher sway velocity in unilateral stance and modified clinical test of sensory interaction and balance tests, higher step width and lower speed when walking on a line, lower rising index and higher movement time in step-up-and-over test compared to healthy controls ($p < 0.05$). Performances on the sit-to-stand and weight bearing squat tests were comparable between both groups. Of the patients, although 61% had hallux valgus, 52% had metatarsus primus varus, 33% had pes planus, and 26% had splaying foot, these deformities were not correlated with Foot and Ankle Outcome Score or balance disorders. Presence of swollen joint was determined as the most relevant factor for balance disorders of RA patients.

CONCLUSION: Patients with RA may have increased risk for balance disorders due to cumulative effect of the lower extremity impairments seen in the course of disease.

PDF Y Endnote Y

The interplay between experiences of abuse, physical activity, and falls in older adults

Subedi P.

J. Am. Geriatr. Soc. 2019; ePub(ePub): ePub.

Affiliation: Department of Epidemiology, College of Public Health and Health Professions, College of Medicine, University of Florida, Gainesville, FL.

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Abstract [Abstract unavailable]

PDF Y Endnote Y

Worldwide prevalence of falls in older adults with psychiatric disorders: a meta-analysis of observational studies

Rao WW, Zeng LN, Zhang JW, Zong QQ, An FR, Ng CH, Ungvari GS, Yang FY, Zhang J, Peng KZ, Xiang YT.

Psychiatry Res. 2018; 273: 114-120.



Affiliation: Faculty of Health Sciences, Unit of Psychiatry, Institute of Translational Medicine, University of Macau, 3/F, Building E12, Macao SAR, China. Electronic address: ytxiang@umac.mo. (Copyright © 2018, Elsevier Publishing)

DOI 10.1016/j.psychres.2018.12.165 **PMID** 30641340

Abstract

Falls are common in older adults with psychiatric disorders, but the epidemiological findings have been inconsistent. This meta-analysis examined the prevalence of falls in older psychiatric patients and its moderating factors. PubMed, EMBASE, Web of Science and PsycINFO databases were independently searched by three investigators from their inception date to Nov 31, 2017. The random effects meta-analysis was used to synthesize the prevalence of falls, while meta-regression and subgroup analyses were conducted to explore the moderating factors. Sixteen of the 2061 potentially relevant papers met the entry criteria for the meta-analysis. The pooled lifetime prevalence of falls was 17.25% (95% confidence interval: 13.14%-21.35%). Neither univariate and nor multivariate meta-regression analyses revealed any moderating effects of the study region, duration, sample size, and quality on the prevalence of falls (P values > 0.05). Falls in older adults with psychiatric disorders are common.

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Benzodiazepine use risk: understanding patient specific risk perceptions and medication beliefs

Sake FT, Wong K, Bartlett DJ, Saini B.

Res. Social Adm. Pharm. 2018; ePub(ePub): ePub.

Affiliation: Faculty of Medicine and Health, The University of Sydney, NSW, Australia; Woolcock Institute of Medical Research, The University of Sydney, NSW, Australia.

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Abstract

BACKGROUND: Benzodiazepines are widely prescribed psychotropic medications. These medications have the potential to cause alertness impairing effects and their prolonged use is associated with serious adverse effects. Despite the listed adverse health outcomes and provision of warnings, many benzodiazepine users tend to ignore the safety information and use them inappropriately.

OBJECTIVE: To elicit the risk perceptions of benzodiazepine users and explore the association of risk perceptions with their socio-demographic factors or medication use profiles (e.g. past withdrawal attempt, length of use and future willingness to try behavioural alternatives).

METHODS: Point of purchase surveys were conducted with patients who were supplied benzodiazepines from selected pharmacies across New South Wales (NSW), Australia. Survey items included questions about patient's demographic characteristics, their past attempt for withdrawing benzodiazepines and their future intention to consider alternative behavioural therapies. The validated Beliefs about Medications Questionnaire (BMQ-specific) and a customised scale assessing risk perception were included in the survey. Data obtained from the surveys were entered into the IBM SPSS package (Version 22.0) and subjected to descriptive, correlational and regression analyses.

RESULTS: Seventy-five patients (67% female, a mean age of 54.3) obtaining benzodiazepines from



12 pharmacies were recruited for the survey. Participant's beliefs regarding potential side effects of benzodiazepines and their level of education were significantly associated with their risk perception scores. While the overall risk perception scores did not influence patient's previous attempts to withdraw benzodiazepines, the risk perception score about immediate effects of benzodiazepines (within 3-4 h of consumption) was a predictor of preference for behavioural therapies. Eighty-three percent (n = 62) of the participants believed that pharmacists can play a key role in improving risk perceptions of consumers around benzodiazepine use.

CONCLUSIONS: Individual patient characteristics and their beliefs about medications significantly influence their perception of risk about benzodiazepine use. The findings of this study suggest that pharmacist support can be utilized in effective risk communication, promoting the safe use of benzodiazepines and in facilitating the uptake of relevant behavioural interventions as alternatives to benzodiazepines.

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Evidence on fall and injurious fall prevention interventions in acute care hospitals

Zhao YL, Bott M, He J, Kim H, Park SH, Dunton N.

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Affiliation: Author Affiliations: Assistant Professor (Dr Zhao), School of Nursing, Boise State University, Idaho; Associate Dean, and Research and Associate Professor (Dr Bott), School of Nursing; and Associate Professor (Dr He), Department of Biostatistics, University of Kansas, Kansas City; Assistant Professor (Dr Kim), College of Nursing, Yonsei University, Seoul, South Korea; and Assistant Professor (Dr Park) and Research Professor (Dr Dunton), School of Nursing, University of Kansas, Kansas City.

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Abstract

Falls and injurious falls are a major safety concern for patient care in acute care hospitals. Inpatient falls and injurious falls can cause extra financial burden to patients, families, and healthcare facilities. This article provides clinical implications and recommendations for adult inpatient fall and injurious fall prevention through a brief review of factors associated with falls and injurious falls and current fall prevention practices in acute care hospitals.

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sMining fall-related information in clinical notes: comparison of rule-based and novel word embedding-based machine learning approaches

Topaz M, Murga L, Gaddis KM, McDonald MV, Bar-Bachar O, Goldberg Y, Bowles K.

J. Biomed. Inform. 2019; ePub(ePub): ePub.

Affiliation: The Visiting Nurse Service of New York, New York, NY, USA; School of Nursing, University of Pennsylvania, Philadelphia, PA, USA.

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Abstract



BACKGROUND: Natural language processing (NLP) of health-related data is still an expertise demanding, and resource expensive process. We created a novel, open source rapid clinical text mining system called NimbleMiner. NimbleMiner combines several machine learning techniques (word embedding models and positive only labels learning) to facilitate the process in which a human rapidly performs text mining of clinical narratives, while being aided by the machine learning components.

OBJECTIVE: This manuscript describes the general system architecture and user Interface and presents results of a case study aimed at classifying fall-related information (including fall history, fall prevention interventions, and fall risk) in homecare visit notes.

METHODS: We extracted a corpus of homecare visit notes (n= 1,149,586) for 89,459 patients from a large US-based homecare agency. We used a gold standard testing dataset of 750 notes annotated by two human reviewers to compare the NimbleMiner's ability to classify documents regarding whether they contain fall-related information with a previously developed rule-based NLP system.

RESULTS: NimbleMiner outperformed the rule-based system in almost all domains. The overall F-score was 85.8% compared to 81% by the rule based-system with the best performance for identifying general fall history (F= 89% vs. F= 85.1% rule-based), followed by fall risk (F= 87% vs. F=78.7% rule-based), fall prevention interventions (F= 88.1% vs. F=78.2% rule-based) and fall within 2 days of the note date (F=83.1 % vs. F=80.6% rule-based). The rule-based system achieved slightly better performance for fall within 2 weeks of the note date (F= 81.9% vs. F=84% rule-based).

DISCUSSION & CONCLUSIONS: NimbleMiner outperformed other systems aimed at fall information classification, including our previously developed rule-based approach. These promising results indicate that clinical text mining can be implemented without the need for large labeled datasets necessary for other types of machine learning. This is critical for domains with little NLP developments, like nursing or allied health professions.

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The epidemiology of wrist and hand injury in two hospitals in Jerusalem: substantial differences between population subgroups

Luria S, Talmud D, Volk I, Liebergall M, Calderon-Margalit R.

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Affiliation: Braun School of Public Health and Community Medicine, Hebrew University, Jerusalem, Israel.

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Abstract

BACKGROUND: Wrist and hand injuries are common and constitute a major economic burden. General injury prevention programs have failed to demonstrate a decrease in injury rates. We hypothesized that there are differences in injury patterns in culturally diverse subpopulations of a metropolitan area treated within the same medical system, which may partly explain the difficulties associated with injury prevention.

METHODS: We conducted a survey of patients admitted to emergency departments of two hospitals in Jerusalem for wrist and hand injuries during a 3 month period. Patients were asked to complete a



questionnaire regarding demographic data, injury type and mechanism. Injury type and mechanism were then compared for age, gender, level of education and degree of religiosity.

RESULTS: The questionnaire was completed by 799 patients (response rate 62%; 75% male; average age 27). Thirty-one percent reported they were injured at work, 33% at home and 36% during leisure activities. Data analysis showed that several subpopulations were found to be at risk as compared to their corresponding groups and relative proportion in the overall population of the city. These included contusions after falls in non-ultra-Orthodox Jewish women aged 65 years and over, crush injuries in ultra-Orthodox Jews under the age of 10 (53% vs. 14% for non ultra-Orthodox Jews, respectively) and Muslim teens. Muslims were injured more, especially at work, in comparison to their relative proportion in the population as a whole.

CONCLUSION: Different subpopulations at risk and different injury patterns of wrist and hand injuries were found in this culturally heterogeneous population. Awareness of these differences may be the first step when designing specific injury prevention programs in a culturally diverse population. A combined effort of community leaders and government agencies is needed to deal with the specific populations at risk, although legislation may be needed to limit some of the risks such as teens and specific work related hazards and exposures.

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A Novel Exercise Intervention and Functional Status in Very Elderly Patients During Acute Hospitalization

William J. Hall,

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Abstract unavailable, Commentary on Martinez-Velilla et al *JAMA Internal Medicine* 2019; 179 (1) 28-36

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Effect of Exercise Intervention on Functional Decline in Very Elderly Patients During Acute Hospitalization: A Randomized Clinical Trial

Nicolás Martínez-Velilla, Alvaro Casas-Herrero, Fabricio Zambom-Ferraresi, et al

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Importance Functional decline is prevalent among acutely hospitalized older patients. Exercise and early rehabilitation protocols applied during acute hospitalization can prevent functional and cognitive decline in older patients.

Objective: To assess the effects of an innovative multicomponent exercise intervention on the functional status of this patient population.

Design, Setting, and Participants: A single-center, single-blind randomized clinical trial was conducted from February 1, 2015, to August 30, 2017, in an acute care unit in a tertiary public hospital in Navarra, Spain. A total of 370 very elderly patients undergoing acute-care hospitalization were randomly assigned to an exercise or control (usual-care) intervention. Intention-to-treat analysis was conducted.

Interventions: The control group received usual-care hospital care, which included physical rehabilitation when needed. The in-hospital intervention included individualized moderate-intensity resistance, balance, and walking exercises (2 daily sessions).



Main Outcomes and Measures: The primary end point was change in functional capacity from baseline to hospital discharge, assessed with the Barthel Index of independence and the Short Physical Performance Battery (SPPB). Secondary end points were changes in cognitive and mood status, quality of life, handgrip strength, incident delirium, length of stay, falls, transfer after discharge, and readmission rate and mortality at 3 months after discharge.

Results: Of the 370 patients included in the analyses, 209 were women (56.5%); mean (SD) age was 87.3 (4.9) years. The median length of hospital stay was 8 days in both groups (interquartile range, 4 and 4 days, respectively). Median duration of the intervention was 5 days (interquartile range, 0); there was a mean (SD) of 5 (1) morning and 4 (1) evening sessions per patient. No adverse effects were observed with the intervention. The exercise intervention program provided significant benefits over usual care. At discharge, the exercise group showed a mean increase of 2.2 points (95% CI, 1.7-2.6 points) on the SPPB scale and 6.9 points (95% CI, 4.4-9.5 points) on the Barthel Index over the usual-care group. Hospitalization led to an impairment in functional capacity (mean change from baseline to discharge in the Barthel Index of -5.0 points (95% CI, -6.8 to -3.2 points) in the usual-care group, whereas the exercise intervention reversed this trend (1.9 points; 95% CI, 0.2-3.7 points). The intervention also improved the SPPB score (2.4 points; 95% CI, 2.1-2.7 points) vs 0.2 points; 95% CI, -0.1 to 0.5 points in controls). Significant intervention benefits were also found at the cognitive level of 1.8 points (95% CI, 1.3-2.3 points) over the usual-care group.

Conclusions and Relevance: The exercise intervention proved to be safe and effective to reverse the functional decline associated with acute hospitalization in very elderly patients.

Trial Registration ClinicalTrials.gov identifier: NCT02300896

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