Safety Literature 14th April 2024

The effect of the stopping elderly accidents, deaths, and injuries program on falls prevention in neurosurgical patients

Alsaqer H, Rababah JA, Al-Hammouri MM, Barbarawi MM, Suliman M. J. Neurosci. Nurs. 2024; ePub(ePub): ePub.

DOI: 10.1097/JNN.0000000000000753 **PMID**: 38598842

Abstract

BACKGROUND: Despite the negative consequences of falls among neurosurgery patients in acute care settings, there is a lack of high-quality evidence for successful fall prevention programs. This study was conducted to evaluate the effectiveness of the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) program on falling prevention compared with routine falling protocol in neurosurgical patients in Jordan.

METHODS: A prospective quasi-experimental design was used in this study. The sample comprised 70 neurosurgical patients from a major university-affiliated hospital in Jordan. The study sample was assigned into a control group (35 patients) and an intervention group (35 patients). A demographics questionnaire, and different fall risk screening tools and tests were used in this study as recommended by the STEADI program.

RESULTS: Multivariate analysis of variance results showed a significant effect (P =.001) of the STEADI program on the linear combination of outcome measures. Independent samples t tests further confirmed the program's effectiveness, with statistically significant mean differences in most outcome measures between the intervention and control groups post intervention. After implementing the study intervention, participants in the intervention group had a statistically significant lower risk for falls.

CONCLUSION: The findings indicate potential effectiveness in improving neurosurgery patients' outcomes and reducing the risk of falls. Implementing the study recommendations can enhance patient safety and promote evidence-based fall prevention interventions in neurosurgery patients.

Language: en

Pain is underestimated in older adults with risk of falls

Atee M. Aging Med. (Milton) 2024; 7(1): 136-137.

DOI: 10.1002/agm2.12283 **PMID**: 38571674 **PMCID**: PMC10985766

Abstract

I have read with great interest the Xiao et al. study examining retrospectively the incidence of falls and related factors in outpatient and inpatient elderly sample (n = 451) aged 65 years and above.1 Key factors considered in the study were pain and other comorbidities, such as frailty and osteoarthritis.1 Although the findings have great merits and add to the body of literature, there are some limitations that should have been addressed or reported in the study.

Whereas Xiao et al. data indicate that the association between pain and fall is not statistically significant, this finding was not explicitly presented in the article. More importantly, it is astounding that the study found pain had no impact on the incidence of falls, despite the clear link between pain and falls in older adults in the literature. For example, a 2014 systematic review and meta-analysis by Stubbs et al.2 found that pain was associated with a higher risk of falls, where half (50.5%) of older adults with pain reported at least one fall over a 12-month period. A more recent systematic review found that multisite pain is associated with an increased risk of future falls risk in community-dwelling older people.3 Further, it is well recognized that chronic pain is highly prevalent and disabling in older adults with and without dementia, but it is often an underestimated clinical problem in this population.4 Given that the data in the Xiao et al. study did not involve the pathological state of "chronic pain," and the latter differs from the concept of pain within 4 weeks, the authors cannot be assertive in concluding that pain had no impact on the incidence of falls. Clearly, the status, duration, and type of pain (e.g., acute nociceptive pain vs. persistent pain) may have influenced these findings and, therefore, the definition of pain should have been further clarified or operationalized in the Xiao et al. study. Moreover, the limitations of the study should have been mentioned that the findings were only applicable to this operational definition of pain.

The sample in the Xiao et al. study included older adults with mild and moderate dementia, whose pain reporting in some may be unreliable or inadequate. Further, the Mini-Mental State Examination instrument was listed in the methodology, but cognition scores were not reported for the sample. Thus, how did the authors ascertain intact cognition and communication skills in the sample? That is, how was the self-reporting capacity of the sample confirmed? If not, why was this not reported in the limitations?

Given that no difference in pain was detected between the fall and nonfall groups by the digital pain drawings instrument and this instrument was not validated in people with dementia, these issues raise the question whether the instrument was sensitive enough to detect any differences in pain between the two groups. This finding is also counterintuitive...

Language: en

Fall risk factors among poly-medicated older Lebanese patients in primary care settings: a secondary cross-sectional analysis of the "MGPIDP-L project"

Khatib SE, Malham CB, Andrieu S, Strumia M, Cestac P, Salameh P. BMC Geriatr. 2024; 24(1): e327.

DOI: 10.1186/s12877-024-04951-0 **PMID**: 38600461

Abstract

BACKGROUND: Falling is a major concern for the health of older adults and significantly affects their quality of life. Identifying the various risk factors and the differences between older patients can be challenging. The objective of this study was to identify the risk factors for falls among polymedicated community-dwelling older Lebanese patients following a medication review.

METHODS: In this analytical cross-sectional study, we examined the risk factors for falls in 850 patients aged ≥ 65 years who were taking ≥ 5 medications daily. The study involved conducting a medication review over the course of a year in primary care settings and using multivariate logistic regression analysis to analyze the data.

RESULTS: Our results showed that 106 (19.5%) of the 850 included patients had fallen at least once in the three months prior to the medication review. Loss of appetite and functional dependence were identified as the most significant predictors of falls ORa = 3.020, CI [2.074-4.397] and ORa = 2.877, CI [1.787-4.632], respectively. Other risk factors for falls included drowsiness ORa = 2.172, CI [1.499-3.145], and the use of beta-blockers ORa = 1.943, CI [1.339-2.820].

CONCLUSION: Our study highlights the importance of addressing multiple risk factors for falls among Lebanese older adults and emphasizes the need for customized interventions and ongoing monitoring to prevent falls and improve health outcomes. This study sheds light on a critical issue in the Lebanese older population and provides valuable insight into the complex nature of falls among poly-medicated Lebanese community-dwelling older adults. TRIAL REGISTRATION: 2021REC-001- INSPECT -09-04.

Language: en

Keywords: Fall risk increasing drugs; Inappropriate drug use; Older adults; Primary care

Effects of immersive virtual reality training on balance, gait and mobility in older adults: a systematic review and meta-analysis

Lee J, Phu S, Lord SR, Okubo Y. Gait Posture 2024; 110: 129-137.

DOI: 10.1016/j.gaitpost.2024.03.009 **PMID**: 38581933

Abstract

OBJECTIVE: To examine whether immersive virtual reality (VR) can improve balance, gait, mobility and fear of falling in older people. DATA SOURCES: MEDLINE, EMBASE, CINAHL, PsycINFO, ProQuest Central (Engineering and Computer Science) and reference lists of included articles. STUDY SELECTION: Randomised controlled trials that administered immersive VR training and assessed balance, gait and mobility outcomes in older adults without neurological disorders (mean age ≥ 65). Primary outcomes were standing balance (e.g. postural sway), multi-item balance scales (e.g. Berg Balance Scale), gait (e.g. gait speed) and mobility (e.g. Timed Up and Go test). Secondary outcomes comprised measures of enjoyment, fear of falling, adherence (e.g. dropout rate), feasibility/usability and adverse effects (e.g. motion sickness).

RESULTS: Meta-analyses showed that immersive VR training significantly improved standing balance (SMD: 0.51, 95% CI:.15, 0.86, p = 0.005, I(2) = 28% - 3 studies, n = 79) and performance on the Berg Balance Scale (MD: 2.36, 95% CI: 1.17, 3.56, p=0.0001, I(2)=0% - 4 studies, n = 190). No significant improvement in gait, mobility or fear of falling was found. Subgroup analyses revealed higher training doses (≥4.5 total hours) and VR interventions using non-head mounted displays were more likely to improve standing balance. No meta-analyses were conducted for enjoyment, adherence, feasibility/usability and adverse events.

CONCLUSIONS: The findings indicate immersive VR has beneficial effects on balance, but not gait, mobility or fear of falling. Further research is required to examine these outcomes in trials that also include quantitative measurements of enjoyment, adherence, clinical feasibility, usability and adverse effects.

Language: en

Keywords: Accidental falls; Aged; Fall prevention; Gait; Immersive virtual reality; Meta-analysis; Mobility; Postural balance; Rehabilitation; Systematic review

The relationship of perceived discrimination in healthcare and future falls among community-dwelling older persons from an English longitudinal cohort

Sandoval Garrido FA, Bolt T, Taniguchi Y, Lloyd-Sherlock P. F1000Res. 2023; 12: e1134.

DOI: 10.12688/f1000research.140302.1 **PMID**: 38585229 **PMCID**: PMC10997987

Abstract

BACKGROUND: The objective of this study is to examine the relation between the perceived discrimination suffered by older adults aged 60 and over during a healthcare encounter and its effects on the likelihood of falling 4 and 8 years later.

METHODS: To identify discrimination, we used the English Longitudinal Study of Ageing (ELSA) data collected in 2010-2011 (wave 5) that asked respondents about feeling discriminated against by doctors or at hospitals in the past year. Falls were assessed by the question: "Have you fallen down in the last two years?" in subsequent waves. We performed longitudinal analyses using the 2014-2015 (wave 7) and 2018-2019 (wave 9) follow-ups. Multivariable logistic regression was used to estimate the odds ratios of falling.

RESULTS: At baseline, 707 (15.1%) of all respondents experienced healthcare discrimination. Those suffering from discrimination in health care had 64% higher chances of falling 4 years later (odds ratio: 1.637, 95% confidence interval: 1.131-2.368) compared to those who did not, adjusting for age, sex, marital status, wealth, ethnicity, education levels, self-perceived health, depressive symptoms, and difficulties with basic and/or instrumental activities of daily living (ADL/IADL) and difficulties with walking. After 8 years, the effect was not statistically significant. Older age was the only significant detrimental factor at both 4 and 8 years.

CONCLUSIONS: Understanding discrimination in health care is important to enable safe and welcoming environments for the timely future use of services. These results remind us of the physical risk and the complex panorama of bio-psychosocial determinants involved in tackling discrimination over time.

Language: en

Keywords: *Activities of Daily Living/psychology; *Independent Living/psychology; Aged; Aged, 80 and over; Delivery of Health Care; England; falls; health services; Humans; Longitudinal Studies; Middle Aged; older persons; perceived discrimination; Perceived Discrimination

The impact of design factors on user behavior in a virtual hospital room to explore fall prevention strategies

Seddighi N, Chen YC, Merryweather AS, Foreman KB, Kuntz A, Battaglia E, Zhang H, Taylor E, Wong B, Fino PC. HERD 2024; ePub(ePub): ePub.

DOI: 10.1177/19375867241238434 **PMID**: 38591574

Abstract

OBJECTIVES: Falls in hospitals pose a significant safety risk, leading to injuries, prolonged hospitalization, and lasting complications. This study explores the potential of augmented reality (AR) technology in healthcare facility design to mitigate fall risk.

BACKGROUND: Few studies have investigated the impact of hospital room layouts on falls due to the high cost of building physical prototypes. This study introduces an innovative approach using AR technology to advance methods for healthcare facility design efficiently.

METHODS: Ten healthy participants enrolled in this study to examine different hospital room designs in AR. Factors of interest included room configuration, door type, exit side of the bed, toilet placement, and the presence of IV equipment. AR trackers captured trajectories of the body as participants navigated through these AR hospital layouts, providing insights into user behavior and preferences.

RESULTS: Door type influenced the degree of backward and sideways movement, with the presence of an IV pole intensifying the interaction between door and room type, leading to increased sideways and backward motion. Participants displayed varying patterns of backward and sideways travel depending on the specific room configurations they encountered.

CONCLUSIONS: AR can be an efficient and cost-effective method to modify room configurations to identify important design factors before conducting physical testing. The results of this study provide valuable insights into the effect of environmental factors on movement patterns in simulated hospital rooms. These results highlight the importance of considering environmental factors, such as the type of door and bathroom location, when designing healthcare facilities.

Language: en

Keywords: augmented reality; built environment; evidence-based design; fall prevention; patient room; risk

Impact of the COVID-19 pandemic on hospital episodes for falls and fractures associated with new-onset disability and frailty in England: a national cohort study

Thomas S, Littleboy K, Foubert J, Nafilyan V, Bannister N, Routen A, Morriss R, Khunti K, Armstrong N, Gray LJ, Gordon AL. Age Ageing 2024; 53(4): afae071.

DOI: 10.1093/ageing/afae071 **PMID**: 38582747

Abstract

BACKGROUND: Older people with frailty are at risk of harm from immobility or isolation, yet data about how COVID-19 lockdowns affected them are limited. Falls and fractures are easily measurable adverse outcomes correlated with frailty. We investigated whether English hospital admission rates for falls and fractures varied from the expected trajectory during the COVID-19 pandemic, and how these varied by frailty status.

METHODS: NHS England Hospital Episode Statistics Admitted Patient Care data were analysed for observed versus predicted outcome rates for 24 January 2020 to 31 December 2021. An auto-regressive integrated moving average time-series model was trained using falls and fracture incidence data from 2013 to 2018 and validated using data from 2019. Models included national and age-, sex- and region-stratified forecasts. Outcome measures were hospital admissions for falls, fractures, and falls and fractures combined. Frailty was defined using the Hospital Frailty Risk Score.

RESULTS: 144,148,915 pre-pandemic hospital admissions were compared with 42,267,318 admissions after pandemic onset. For the whole population, falls and fracture rates were below predicted for the first period of national lockdown, followed by a rapid return to rates close to predicted. Thereafter, rates followed expected trends. For people living with frailty, however, falls and fractures increased above expected rates during periods of national lockdown and remained elevated throughout the study period. Effects of frailty were independent of age.

CONCLUSIONS: People living with frailty experienced increased fall and fracture rates above expected during and following periods of national lockdown. These remained persistently elevated throughout the study period.

Language: en

Keywords: COVID-19; falls; fractures; frailty; older people

Emergency medical service attendances for adults with repeat falls in Western Australia: a state-wide retrospective cohort study

Watkins PM, Buzzacott P, Tohira H, Majewski D, Hill AM, Brink D, Brits R, Finn J. Prehosp. Emerg. Care 2024; ePub(ePub): ePub.

DOI: 10.1080/10903127.2024.2338915 **PMID**: 38588441

Abstract

OBJECTIVES: The risk of falls increases with age and often requires an emergency medical service (EMS) response. We compared the characteristics of patients attended by EMS in response to repeat falls within 30 days and 12 months of their first EMS-attended fall; and explored the number of days between the index fall and the subsequent fall(s).

METHODS: This retrospective cohort study included all adults (> =18 years of age) who experienced their first EMS-attended fall between 1(st) January 2016 and 31(st) December 2020, followed up until 31 December 2021. Patients who experienced > =1 subsequent fall, following their first recorded fall, were defined as experiencing repeat falls. Multivariable logistic regression was used to identify the factors associated with repeat falls; and Kaplan-Meier analysis was used to estimate the time (in days) between consecutive EMS-attended falls.

RESULTS: A total of 128,588 EMS-attended fall-related incidents occurred involving 77,087 individual patients. Most patients, 54,554 (71%) were attended only once for a fall-related incident (30,280 females; median age 73 years, inter-quartile range (IQR): 55-84). A total of 22,533 (29%) patients experienced repeat EMS-attended falls (13,248 females; median age 83 years, IQR: 74-89, at first call). These 22,533 patients accounted for 58% (74,034 attendances) of all EMS-attendances to fall-related incidents. Time between EMS-attended falls decreased significantly the more falls a patient sustained. Among the 22,533 patients who experienced repeat falls, 13,363 (59%) of repeat falls occurred within 12 months: 3,103 (14%) of patients sustained their second fall within 30 days of their index fall, and 10,260 (46%) between 31 days to 12 months. Patients who were transported to the hospital, via any urgency, at their first EMS-attended fall, had a reduced odds of sustaining a second EMS-attended fall within both 30 days and 31 days to 12 months, compared to non-transported patients.

CONCLUSION: Nearly 30% of all patients attended by EMS for a fall, sustained repeat falls, which collectively accounted for nearly 60% of all EMS-attendances to fall-related incidents. Further exploration of the role EMS clinicians play in identifying and referring patients who sustain repeat falls into alternative pathways is needed.

Language: en

Keywords: Accidental Falls; Aged; Emergency Medical Services; frequent falls; Older Adults; Recurrent falls

NSW Fall Prevention & Healthy Ageing Network

The global prevalence of and risk factors for fear of falling among older adults: a systematic review and meta-analysis

Xiong W, Wang D, Ren W, Liu X, Wen R, Luo Y. BMC Geriatr. 2024; 24(1): e321.

DOI: 10.1186/s12877-024-04882-w **PMID**: 38580924

Abstract

BACKGROUND: As a common psychological problem among older adults, fear of falling was found to have a wide range prevalence in different studies. However, the global prevalence of it was unknown and a lack of the large sample confirmed its risk factors.

OBJECTIVES: To report the global prevalence of fear of falling and to explore its risk factors among older adults for further developing precise interventions to systematically manage FOF.

DESIGN: A systematic review and meta-analysis was conducted by PRISMA guidelines.

METHODS: Searches were conducted in PubMed, Web of Science, EMBASE, the Cochrane Library and the manual search in August 20, 2022, updated to September 2, 2023. Observational studies published in English were included and two researchers independently screened and extracted the data. Fixed or random effects mode was used to estimate the pooled prevalence of and risk factors for fear of falling. Heterogeneity resources were analyzed by subgroup and sensitivity analysis. Publication bias was assessed through funnel plots, Egger's test and Begg's test.

RESULTS: A total of the 153 studies with 200,033 participants from 38 countries worldwide were identified. The global prevalence of fear of falling was 49.60%, ranging from 6.96-90.34%. Subgroup analysis found the estimates pooled prevalence of it was higher in developing countries (53.40%) than in developed countries (46.7%), and higher in patients (52.20%) than in community residents (48.40%). In addition, twenty-eight risk factors were found a significant associations with fear of falling, mainly including demographic characteristics, physical function, chronic diseases and mental problems.

CONCLUSION: The global prevalence of FOF was high, especially in developing countries and in patients. Demographic characteristics, Physical function, chronic diseases and mental problems were a significant association with FOF. Policy-makers, health care providers and government officials should comprehensively evaluate these risk factors and formulate precise intervention measures to reduce FOF. TRIAL REGISTRATION: The study was registered in the International Database of Prospectively Registered Systematic Reviews (PROSPERO): CRD42022358031.

Language: en

Keywords: Accidental Falls; Fear of falling; Geriatric nursing; Older adults; Psychological nursing