Preliminary analysis of fall concern among family caregivers of older adults discharged from the hospital: a psychometric evaluation of the Carers' Fall Concern Instrument

Ang SGM, Saunders R, Siah CJR, Wee YHC, Etherton-Beer C, Foskett C, Gullick K, Haydon S, Wilson A. J. Gerontol. Nurs. 2024; 50(5): 14-18.

Abstract

PURPOSE: To provide a preliminary descriptive analysis of the change in fall concern among family caregiver-care recipient dyads during hospitalization and after discharge as part of a prospective study exploring the psychometric properties of the Carers' Fall Concern Instrument.

METHOD: Using a prospective cohort design, an interviewer-administered survey was completed by dyads at 48 hours before discharge and 1 week and 30 days after discharge.

RESULTS: Of family caregivers, 76.9% thought their care recipient was at risk of falling and 61.5% were afraid of them falling. However, only 34.6% of older adults thought that they were at risk of falling and only 42.3% were afraid of falling. Family caregivers reported significantly less concern about falls after their care recipients were discharged.

CONCLUSION: This study provided greater insight into caregiver-care recipient dyads' fall concern during their transition from hospital to home that may guide post-discharge fall prevention education on falls. [Journal of Gerontological Nursing, 50(5), 14-18.].

Safe fall recovery education for older adults

Abstract

High fall rates among older adults in combination with prolonged time on the floor after a fall have created an urgent need to preventatively address fall recovery strategies. The purpose of this study is to describe the outcomes of a novel safe fall recovery (SFR) educational module provided by physical therapists to older adults in their homes. A pre- and post-test descriptive study used a convenience sample to recruit 30 adults (≥65 years). A baseline assessment and SFR in-home education were provided. Pre- and post-education measures included the Steps for Safe Fall Recovery (Steps for SFR) tool, the Activity Specific Balance Confidence (ABC) scale, and a fall confidence survey. The Wilcoxon matched-pairs signed-rank test determined significance ($P < .05$). Participants were age 77.2 (6.8) years and 20 females. Eight reported a fall during the prior year. Statistically significant improvements were identified in the Steps to SFR tool ($P = .001$), the ABC scale ($P = .004$), and the fall recovery confidence survey ($P = .001$). Integration of an SFR educational intervention delivered to an older adult population in their home demonstrated improved safety and confidence to recover from a fall.

Erratum: exploring communication about fall risk and prevention between internal medicine residents and geriatric patients: a needs assessment

Abstract

[This corrects the article DOI: 10.14423/SMJ.0000000000001652.].

Effects of the delivery of physiotherapy on the treatment course of elderly fallers presenting to the emergency department: protocol for a randomized clinical trial

Abstract

The use of physiotherapy (PT) in the hospital emergency department (ED) has shown positive results including improvements in patient waiting time, treatment initiation, discharge type, patient outcomes, safety and acceptability of the intervention by medical staffs. These findings originate from studies that primarily focus on musculoskeletal and orthopaedic conditions. Despite a significant number of people visiting the ED, there is a shortage of literature evaluating PT in the ED for elderly populations. The objective of this study is the evaluate the effect of delivering PT in the ED (versus no delivery) in patients aged 75 and over with 'falls' complaints. The main objective is the evaluate the effect on the discharge disposition (discharge home, hospitalization). Secondarily, we will evaluate the effect delivering PT on patient-length of stay, the number of falls at 7 days after admission to the ED, changes between the initial and final medical decision regarding patient orientation, and medical staff satisfaction. This study will follow a prospective longitudinal design involving participants aged 75 years and over. We plan to recruit a total n = 336 patients admitted to the ED with a 'fall' chief complaint. After consent, participants will be randomized into either the 'PT-group' (receiving a prescription and execution of PT within the ED), or to the 'no-PT group' (no delivery of PT within the ED). The PT intervention will involve a standardized assessment of motor capacities using validated clinical examinations, and the delivery of rehabilitative exercises based on individual needs. Outcomes will be recorded from the patient's medical record, and a phone call at 7 days. A questionnaire will be sent to medical staff. The results of this study will help to determine whether PT might be beneficial for the management of this increasing proportion of individuals who come to the ED. Trial registration: (Trial registration number: ClinicalTrials.gov NCT05753319). https://classic.clinicaltrials.gov/ct2/show/NCT05753319.

Association between wrist-worn free-living accelerometry and hand grip strength in middle-aged and older adults

Abstract

INTRODUCTION: Wrist-worn activity monitors have seen widespread adoption in recent times, particularly in young and sport-oriented cohorts, while their usage among older adults has remained relatively low. The main limitations are in regards to the lack of medical insights that current mainstream activity trackers can provide to older subjects. One of the most important research areas under investigation currently is the possibility of extrapolating clinical information from these wearable devices.

METHODS: The research question of this study is understanding whether accelerometry data collected for 7-days in free-living environments using a consumer-based wristband device, in conjunction with data-driven machine learning algorithms, is able to predict hand grip strength and possible conditions categorized by hand grip strength in a general population consisting of middle-aged and older adults.

RESULTS: The results of the regression analysis reveal that the performance of the developed models is notably superior to a simple mean-predicting dummy regressor. While the improvement in absolute terms may appear modest, the mean absolute error (6.32 kg for males and 4.53 kg for females) falls within the range considered sufficiently accurate for grip strength estimation. The classification models, instead, excel in categorizing individuals as frail/pre-frail, or healthy, depending on the T-score levels applied for frailty/pre-frailty definition. While cut-off values for frailty vary, the results suggest that the models can moderately detect characteristics associated with frailty (AUC-ROC: 0.70 for males, and 0.76 for females) and viably detect characteristics associated with frailty/pre-frailty (AUC-ROC: 0.86 for males, and 0.87 for females).

CONCLUSIONS: The results of this study can enable the adoption of wearable devices as an efficient tool for clinical assessment in older adults with multimorbidities, improving and advancing integrated care, diagnosis and early screening of a number of widespread diseases.

Association between frailty and head impact location after ground-level fall in older adults

Dubucs X, Mercier, Boucher V, Lauzon S, Balen F, Charpentier S, Emond M. J. Emerg. Med. 2024; ePub(ePub): ePub.

Abstract

BACKGROUND: Mild traumatic brain injuries (TBIs) are highly prevalent in older adults, and ground-level falls are the most frequent mechanism of injury.

OBJECTIVE: This study aimed to assess whether frailty was associated with head impact location among older patients who sustained a ground-level fall-related, mild TBI. The secondary objective was to measure the association between frailty and intracranial hemorrhages.

METHODS: We conducted a planned sub-analysis of a prospective observational study in two urban university-affiliated emergency departments (EDs). Patients 65 years and older who sustained a ground-level fall-related, mild TBI were included if they consulted in the ED between January 2019 and June 2019. Frailty was assessed using the Clinical Frailty Scale (CFS). Patients were stratified into the following three groups: robust (CFS score 1-3), vulnerable-frail (CFS score 4-6), and severely frail (CFS score 7-9).

RESULTS: A total of 335 patients were included; mean ± SD age was 86.9 ± 8.1 years. In multivariable analysis, frontal impact was significantly increased in severely frail patients compared with robust patients (odds ratio [OR] 4.8 [95% CI 1.4-16.8]; p = 0.01). Intracranial hemorrhages were found in 6.2%, 7.5%, and 13.3% of robust, vulnerable-frail, and severely frail patients, respectively. The OR of intracranial hemorrhages was 1.24 (95% CI 0.44-3.45; p = 0.68) in vulnerable-frail patients and 2.34 (95% CI 0.41-13.6; p = 0.34) in those considered severely frail.

CONCLUSIONS: This study found an association between the level of frailty and the head impact location in older patients who sustained a ground-level fall. Our results suggest that head impact location after a fall can help physicians identify frail patients. Although not statistically significant, the prevalence of intracranial hemorrhage seems to increase with the level of frailty.

Effectiveness of a sensorimotor exercise program on proprioception, balance, muscle strength, functional mobility and risk of falls in older people

Abstract

INTRODUCTION: Sensory systems provide the necessary information for a motor response to be provided. In this sense, the objective of this study is to evaluate the effectiveness of a sensorimotor exercise program on proprioceptive acuity, balance, muscle strength, functional mobility and risk of falls in institutionalized elderly.

METHODOLOGY: 56 participants (84.6 ± 8.4 years) were randomly distributed between the control (CG, n = 28) and intervention groups (IG, n = 28). The CG performed a protocol based on warm-up, muscle strengthening and warm down and the IG performed the same intervention, with the addition of sensorimotor exercises. Joint Position Sensation (JPS) was evaluated in both limbs at angles of 20° and 45°, balance, functional mobility, fear of falling in the elderly and muscle strength of quadriceps, hamstrings, adductors and abductors in both limbs, before and after the 12 weeks of intervention.

RESULTS: Both groups showed gains in muscle strength. When analyzing functionality through Timed Up and Go (TUG), before and after for each group separately, both showed a significant difference (CG p = 0.002; IG p < 0.001). For the Short Physical Performance Battery (SPPB) variable, there were significant differences in IG in balance (p < 0.001), gait speed time (s) (p = 0.004) and sit-to-stand (p = 0.002). In JPS, significant differences were recorded for Absolute Error 45° Non-Dominant (p = 0.045) and Relative Error 45° Non-Dominant (p = 0.045) in the CG and Relative Error 45° Non-Dominant for IG (p = 0.018). In the Falls Efficacy Scale International (FES-I) variable there were significant improvements in the CG (p = 0.006) and in the GI (p = 0.002). However, only IG showed significant improvements (p = 0.013) for Activities-Specific Balance Confident (ABC) in a comparison between before and after the 12-week research period. When comparing the differences verified with the intervention between CG and IG, only balance SPPB (p < 0.001) and sit-to-stand SPPB (p = 0.022) showed significant values.

CONCLUSION: He effectiveness of sensorimotor exercises provides balance gain in the elderly (p < 0.001) and positively impacts their confidence (p = 0.013) when performing their duties. It is concluded that the protocol presented in its different levels of difficulty is effective and important for the quality of life of the institutionalized sedentary elderly.

Role of virtual reality in examining the effect of fear of falling (FOF) on postural stability in individuals without and with Parkinson's disease in Egypt: a mixed-methods feasibility study protocol

Abstract

BACKGROUND: Falls are common in older people and individuals with neurological conditions. Parkinson's disease (PD) is known for postural instability causing mobility disabilities, falls and reduced quality of life. The fear of falling (FOF), a natural response to unstable balance, can worsen postural control problems. Evaluating FOF relies largely on affected persons' subjective accounts due to limited objective assessment methods available. The aim of this mixed-methods feasibility study is to develop an assessment method for FOF while in motion and walking within virtual environments. This study will assess a range of FOF-related responses, including cognitive factors, neuromuscular response and postural stability.

METHODS AND ANALYSIS: This feasibility study will consist of four phases: the first two phases will include people without PD, while the other two will include people diagnosed with PD. Participants will be assessed for direct and indirect responses to real life, as well as virtual environment walking scenarios that may induce FOF. Data from questionnaires, different neurophysiological assessments, movement and gait parameters, alongside evaluations of usability and acceptability, will be collected. Semistructured interviews involving both participants and research assistants shall take place to elicit their experiences throughout different phases of the assessments undertaken. Demographic data, the scores of assessment scales, as well as feasibility, usability and acceptability of the measurement methods, will be illustrated via descriptive statistics. Movement and gait outcomes, together with neurophysiological data, will be extracted and calculated. Exploring relationships between different factors in the study will be achieved using a regression model. Thematic analysis will be the approach used to manage qualitative data. ETHICS AND DISSEMINATION: This feasibility study was approved by the Ethics Committee of the Faculty of Physical Therapy, Kafr El Sheikh University, Egypt (number: P.T/NEUR/3/2023/46). The results of this study will be published in a peer-reviewed journal. TRIAL REGISTRATION NUMBER: ClinicalTrials.gov Registry (NCT05931692).

Effects of dalcroze eurhythmics exercise versus multicomponent exercise on physical and cognitive function, and falls in older adults: the EPHYCOS Randomized Controlled Trial

Hars M, Fernandez N, Herrmann F, Rizzoli R, Ferrari S, Graf C, Vuilleumier P, Trombetti A.

Abstract

Currently, robust evidence is lacking to support one exercise type over another in the prevention of physical and cognitive decline and falls among older adults, primarily because of the lack of comparative trials of proven interventions. Therefore, a 12-month randomized, single-blind, comparative effectiveness trial is conducted, in which 142 older adults at high risk for falls are randomized (1:1) to receive an evidence-based Dalcroze Eurhythmics (DE) exercise program (once weekly, group-based) or an evidence-based multicomponent (MULTI) exercise program incorporating balance, functional, and strength training activities (twice weekly, group- and home-based), for 12 months. The primary outcome is gait variability under dual-task at 12 months. At 12 months, the DE group has significant improvements compared with MULTI group on gait under both dual-task (adjusted β for stride variability: -2.3, 95%CI, -3.1 to -1.4; p < 0.001) and single-task, and on a variety of secondary physical and cognitive/executive function outcomes. The adjusted hazard ratio for falls is 0.58 (95%CI, 0.37 to 0.93) for the DE group compared with MULTI group. In conclusion, DE exercise is more effective than MULTI exercise in improving physical and cognitive function and reducing falls in older adults. The mechanisms underlying DE exercise-induced benefits remain to be fully elucidated.

Deprescribing in older adults with polypharmacy

Abstract

Polypharmacy is common in older adults and is associated with adverse drug events, cognitive and functional impairment, increased healthcare costs, and increased risk of frailty, falls, hospitalizations, and mortality. Many barriers exist to deprescribing, but increased efforts have been made to develop and implement deprescribing interventions that overcome them. This narrative review describes intervention components and summarizes findings from published randomized controlled trials that have tested deprescribing interventions in older adults with polypharmacy, as well as reports on ongoing trials, guidelines, and resources that can be used to facilitate deprescribing. Most interventions were medication reviews in primary care settings, and many contained components such as shared decision making and/or a focus on patient care priorities, training for healthcare professionals, patient facing education materials, and involvement of family members, representing great heterogeneity in interventions addressing polypharmacy in older adults. Just over half of study interventions were found to perform better than usual care in at least one of their primary outcomes, and most study interventions were assessed over 12 months or less.

Influence of medications on fall risk assessment in maintenance hemodialysis patients: a cross-sectional study

Abstract

BACKGROUND: Multiple factors influence the fall risk in end-stage kidney disease. This study aims to investigate how medication factors influence the interpretation of fall risk due to age, gender, and years of dialysis treatment among patients undergoing hemodialysis (HD).

METHODS: A cross-sectional study was carried out in 2023 using the Johns Hopkins Fall Risk Assessment tool. Participants were recruited from the HD unit at a tertiary care academic medical center in Ajman, UAE. Data were analyzed between different ages, genders, and years on HD categories with or without medication factors.

RESULTS: Data were collected and analyzed for 44 patients. The fall risk of the study population assessed with the Kruskal-Wallis test showed no difference between different age groups (P = 0.43) but did show a significant difference when the score of medication factor was removed from the fall risk estimation (P = 0.002). A pairwise analysis showed fall risk score of the age group 46-60 years was differing from the age cohort >60 (P < 0.001). A positive moderate correlation (Spearman's correlation coefficient 0.514 was found, with a P < 0.001) was seen with an increase in age and fall risk only when the medication factor was removed from the fall risk estimation.

RESULTS on gender or duration of dialysis were insignificant.

CONCLUSION: Medication factors being a significant contributor to fall risk among the study population was found to mask the fall risk difference between age groups 46-60 years and >60 years. Such influence was not found for gender or duration of dialysis.

Trends in incidence of hip fracture and hip replacement in Denmark, 1996 to 2018

Jensen TM, Pedersen JK, Waldorff FB, Søndergaard J, Overgaard S, Christensen K. JAMA Netw. Open 2024; 7(5): e249186.

Abstract

IMPORTANCE: The past several decades have witnessed substantial changes in treatments that are particularly relevant for older patients.

OBJECTIVES: To assess changes in national-level incidence rates of fracture- and musculoskeletal-related (ie, arthritis-related) hip replacement procedures for individuals aged 40 to 104 years over a 23-year period in Denmark. DESIGN, SETTING, AND PARTICIPANTS: This cohort study used national Danish health registers to include the Danish population aged 40 to 104 years from January 1, 1996, to December 31, 2018. Data were analyzed from May 31, 2022, to February 14, 2024.

MAIN OUTCOMES AND MEASURES: Age- and period-specific incidence rates of hip fracture and hip replacement stratified on fracture-related vs arthritis-related indication.

RESULTS: From 1996 to 2018, a total of 3 664 979 individuals were followed up for a mean (SD) of 14.6 (7.7) years, resulting in a follow-up time of 53 517 861 person-years and 158 982 (first) hip fractures, of which 42 825 involved fracture-related hip replacement procedures. A further 104 422 individuals underwent arthritis-related hip replacement. During the first 2 decades of the 21st century, hip fracture rates declined by 35% to 40% for individuals aged 70 to 104 years, and the proportion of the population undergoing fracture-related hip replacement increased by 50% to 70%, with modest variation across those aged 75 to 99 years. Rates of arthritis-related hip replacements peaked for individuals aged 75 to 79 years, but with the largest relative rate increase (75%-100%) occurring for those aged 80 to 94 years, primarily from 2001 to 2015, whereafter it remained nearly unchanged. The decline in rates of arthritis-related hip replacement after 75 to 79 years of age was gradual and did not suggest an upper age limit for access to arthritis-related hip replacement.

CONCLUSIONS AND RELEVANCE: The findings of this cohort study suggest that during the past several decades in Denmark, the incidence of hip fractures declined by 35% to 40% among patients aged 80 to 104 years, while the proportion receiving fracture-related hip replacement remained relatively constant after 75 years of age. During the first decades of the 21st century, arthritis-related hip replacement incidence increased by 50% to 100% among older patients and stabilized hereafter, with no apparent cutoff age for this type of procedure. These patterns indicate a positive overall trend with declining hip fracture incidence over the last decades in Denmark, and the observed hip replacement incidence suggests that age is currently not a major determining factor guiding this type of surgery.

Language: en

Perspectives and experiences of community-dwelling older adults who experience falling: a qualitative meta-synthesis

Abstract

OBJECTIVES: This study aimed to systematically review and synthesize the perspectives and experiences of community-dwelling older adults who experience falling, to inform the subsequent development of fall prevention and management interventions, and to provide recommendations for healthcare policy and practice.

METHODS: The review was a qualitative meta-aggregation study following the JBI qualitative systematic review methodology. Databases searched included Medline (through PubMed), CINAHL, PsycINFO, Embase, and the Web of Science. Peer-reviewed articles published in the English language from January 2010 to May 2023 were retrieved. The JBI Qualitative Assessment and Review Instrument (JBI-QARI) was used to assess the quality of the methodology. The ConQual ranking system was used to establish confidence in the synthesized findings. The protocol was registered with PROSPERO (CRD 42023421789).

RESULTS: This review included ten qualitative studies with an overall quality score of 60%-90%. Data extracted from eligible studies resulted in 59 findings, which were then aggregated into seven categories based on the similarity in meaning. Three synthesized findings were generated and rated as moderate for synthesized finding 2 and low for synthesized finding 1 and 3 on the ConQual score. Synthesized finding 1: Older adults experience physical injuries and pain, restricted daily activities, and limitations in social activities, reduction or loss of in independence, and have feelings of fear and helplessness. Synthesized finding 2: After experiencing a fall, older adults reflect on the cause of the fall and recognize and interpret the risk factors. Synthesized finding 3: Older adults' reflections on the causes and impact of falls reveal both positive and negative reactions. They perceive a number of strategies for coping with falls and their consequences, such as using assistive devices, correcting risk factors, seeking medical help, and receiving ongoing physical and psychological attention.

CONCLUSIONS: Healthcare providers should pay attention to the feelings and experiences of older adults after falling, as well as their reflection on the causes and impacts of falling, and develop tailored plans for intervention. There is also a need for longitudinal studies to examine the longer-term impact of falls on older adults to provide insights into the stability and changes in their reflections, perceptions, attitudes, and preventive behaviors over time.

Knowledge, skills, and experience with technology in relation to nutritional intake and physical activity among older adults at risk of falls: semistructured interview study

Abstract

BACKGROUND: More than one-third of older adults (aged ≥65 y) experience falls every year. The prevalent modifiable risk factors for falling are malnutrition and physical inactivity, among others. The involvement of older adults in the prevention of falls can decrease injuries, hospitalizations, and dependency on health care professionals. In this regard, eHealth can support older adults' self-management through more physical activity and adequate food intake. eHealth must be tailored to older adults' needs and preferences so that they can reap its full benefits. Therefore, it is necessary to gain insight into the knowledge, skills, and mindset of older adults living at home who are at risk of falls regarding eHealth.

OBJECTIVE: This qualitative study aims to explore older adults' use of everyday digital services and technology and how they acquire knowledge about and manage their nutritional intake and physical activity in relation to their health.

METHODS: Semistructured interviews were conducted with 15 older adults (n=9, 60% women; n=6, 40% men; age range 71-87 y) who had all experienced falls or were at risk of falling. These individuals were recruited from a geriatric outpatient clinic. The interviews were analyzed using deductive content analysis based on a modification of the Readiness and Enablement Index for Health Technology framework.

RESULTS: The qualitative data showed that the informants' social networks had a positive impact on their self-management, use of technology, and mindset toward nutritional intake and physical activity. Although the informants generally lived active lives, they all lacked knowledge about how their food intake influenced their physical health, including their risk of falling. Another finding was the large diversity in the use of technology among the informants, which was related to their mindset toward technology.

CONCLUSIONS: Older adults can use technology for everyday purposes, but some need additional introduction and support to be able to use it for managing their health. They also need to learn about the importance of proper nutritional intake and physical activity in preventing falls. Older adults need a more personalized introduction to technology, nutrition, and physical activity in their contact with health professionals.

Pelvic joint stiffness and fear of falling in patients over 75 years of age: a prospective cohort study of 100 patients

Laizeau C, Jochmans S, Aufaure S. J. Osteopath. Med. 2024; ePub(ePub): ePub.

Abstract

CONTEXT: A third of the population aged 65 and over experiences a fall during a given year, often with severe traumatic consequences, dependence, and consequently, a decline in quality of life. The fear of falling itself leads to avoidance behavior from daily activities leading to a downward spiral of dependence, loss of confidence, and therefore an increased risk of falling. Joint stiffness is often observed during clinical examination of elderly people. However, the association between lumbopelvic stiffness and fear of falling has not been studied.

OBJECTIVES: Osteopathic manipulative treatment/medicine (OMT/OMM), targeted to improve the stiffness of the pelvic girdle, may improve the prognosis of patients afraid of falling and slow down their loss of autonomy.

METHODS: We performed a prospective cohort study enrolling hospitalized patients and nursing home residents over 75 years of age. Patients able to walk and without significant cognitive impairment completed the International Fall Efficacy Scale (FES-I) questionnaire to assess their intensity of fear of falling. The modified Schober test and hip goniometry (flexion and extension) were measured and compared to the FES-I score.

RESULTS: A total of 100 patients were included. A high fear of falling (FES-I≥28) was associated with female sex (31 [79.5 %] vs. 29 [47.5 %]; p=0.002) and with a reduction in the amplitudes tested by the Schober test (2 [1.5-3] vs. 3 [2-4]; p=0.002), the hip extension goniometry (7 [4-10] vs. 10 [7-15]; p<0.001) and the hip flexion goniometry (70 [60-77] vs. 82 [71-90]; p<0.001). The association between FES-I score and each anthropometric variable was strongly linear (p<0.001 for all), especially with hip flexion goniometry (R^2=30 %).

CONCLUSIONS: Lumbopelvic stiffness, especially in hip flexion, is strongly associated with a high fear of falling in patients over 75 years of age. When combined with other movement-based therapies, OMM targeted to improve the stiffness of the pelvic girdle may improve the prognosis of patients afraid of falling and slow down their loss of autonomy.

The psychometric properties of the modified fear of falling avoidance behavior questionnaire in Parkinson's disease and older adults

Landers MR, Haller AM, Aldaco A, La B, Babarinde AA, Rider JV, Longhurst JK. Arch. Physiother. 2024; 14: 11-19.

Abstract

INTRODUCTION: The Fear of Falling Avoidance Behavior Questionnaire (FFABQ) has good psychometric properties. However, we have recently modified the FFABQ (mFFABQ) to improve the clarity of the questions and Likert responses. This study aimed to examine the reliability and validity of this modified version in older adults and people with Parkinson's disease (PD).

METHODS: A total of 88 participants, 39 with PD (age = 72.2 ± 9.5; 29 males, 10 females) and 49 older adults (age = 72.8 ± 5.0; 13 males, 36 females), answered the mFFABQ twice, separated by 1 week, for test-retest reliability. Construct validity was evaluated through correlational analyses with fall history, Activities-Specific Balance Confidence Scale (ABC), Berg Balance Scale (BBS), Timed Up and Go, 30-Second Sit to Stand, Sensory Organization Test, Zung Anxiety Scale, Beck Depression Inventory, Consequences of Falling Questionnaire (CoFQ), and average daily activity levels using an activity monitor.

RESULTS: The mFFABQ had good overall test-retest reliability (intraclass correlational coefficient [ICC] = 0.822; older adult ICC = 0.781, PD ICC = 0.806). The mFFABQ correlated with fall history (r = -0.430) and exhibited high correlation with the ABC (rho = -0.804) and moderate correlations with CoFQ (rho = 0.582) and BBS (rho = -0.595). The mFFABQ also correlated with time stepping (rho = -0.298) and number of steps (rho = -0.358).

CONCLUSION: These results provide supportive evidence for the reliability and validity of the mFFABQ in older adults and people with PD, which supports its suitability as a clinical and research tool for the assessment of fear of falling avoidance behavior.

Preventing falls in multiple sclerosis: a qualitative study on user requirements for a self-management programme

Meijer U, Flink M, Tuvemo Johnson S, Kierkegaard M, Gottberg K, Ytterberg C. Disabil. Rehabil. 2024; ePub(ePub): ePub.

Abstract

PURPOSE: To explore perspectives of ambulatory and non-ambulatory people with MS (PwMS) and health care professionals (HCPs) on falls and falls management to gain a deeper understanding of how a self-management programme can be designed to fit the needs of end users.

MATERIALS AND METHODS: Twelve PwMS and seven HCPs participated in three four-hour workshops based on Design Thinking. Collected data were field notes and digital post-it notes gathered at the workshops. Data were analyzed using qualitative content analysis with an inductive approach.

RESULTS: Two main categories, "Managing the complexity of fall-risk behaviour" and "Embracing diversity to establish group engagement", comprising a total of seven categories were constructed from the analysis. The first main category reflects the challenges PwMS face in managing fall risk in their daily lives, and the support needed to address these challenges. The second main category highlights how engaging in peer learning activities can fulfil individual needs and improve learning outcomes for PwMS.

CONCLUSION: A self-management fall prevention programme that is relevant to PwMS regardless of ambulation level should include the development of self-tailored behavioural strategies to prevent falls along with interactive learning activities with other PwMS.

Fear of falling, quality of life, and daily functional activity of elderly women with and without a history of falling: a cross-sectional study

Abstract

BACKGROUND: This study aimed to evaluate the fear of falling, quality of life, and daily functional activity of older women aged 60 years or older with or without a history of falling.

MATERIALS AND METHODS: Two hundred older adult women were recruited for the cross-sectional study in Iran. This cross-sectional study collected data from July to August 2023 through convenience sampling. The researchers collected data using a five-part questionnaire, that collected information that included demographic characteristics, the Fall Efficacy Scale in the Elderly-International Version (FES-I), 12-item Quality of Life assessment (SF-12), Instrumental Activities of Daily Living (IADL) and Activities of Daily Living (ADL).

RESULTS: FES-I score in older women with a history of falls was significantly higher than those without a history of falls [median: 38.0, interquartile range (IQR): 31.5-44.0 versus median: 22.0, IQR: 20.0-30.0; $P<0.001$]. The median quality-of-life score using the SF-12 was significantly lower in women with a history of falls than in those without a history of falls (median: 25.0, IQR: 21.0-30.0 versus median: 35.0, IQR: 31.0-39.0; $P<0.001$). The ADL scores were significantly lower among women with a history of falls than those without ($P<0.001$). A similar result was obtained for IADL scores ($P<0.001$).

CONCLUSION: Overall, this study's findings highlight the adverse impact of a history of falls on three key factors: fear of falling, quality of life, and daily functional activity (including both basic and instrumental activities). The findings delineate that, ultimately, the history of falls can serve as a valuable indicator for better understanding trends in elderly care and addressing the associated challenges.

Falls from beds among elderly outpatients: injuries and outcomes

Abstract

Introduction Falls from beds (FFBs) among outpatient elderly individuals are a prevalent issue, particularly for those aged 65 and above. This presents a notable health challenge with consequences that extend beyond personal well-being, placing a considerable strain on healthcare systems. Fall-related injuries often result in reduced independence, increased morbidity, and, in severe instances, fatalities. It is crucial to address these outpatient falls to safeguard the health and independence of the elderly population.

METHODS This review presents data sourced from a trauma registry covering admissions from March 31, 2016, to December 27, 2021, at Desert Regional Medical Center, a Level 1 Trauma Center in Palm Springs, USA. Over this period, 3,148 patients sought emergency care following falls. The study specifically investigates cases following FFBs, revealing 164 admissions out of the total. Furthermore, it contrasts patient demographics, injury types, and outcomes with existing literature.

RESULTS This retrospective analysis found that, among the 164 patients admitted to the emergency department over a five-year and eight-month period due to FFBs, 143 were classified as elderly, aged 65 and above. The mean age of those admitted was 76, whereas those not admitted had a mean age of 71. A significant majority, 87%, were hospitalized; within this group, 16% required intensive care. Surgical intervention was necessary for 27 individuals, and there were three fatalities. Soft tissue hematomas were the most common injuries, representing 24% of injuries at admission, closely followed by upper extremity fractures at 21%. Over half of these patients could not return home post-hospitalization, with 41% being transferred to skilled nursing facilities (SNF).

CONCLUSIONS As the aging population in the United States continues to grow, the incidence of falls is on the rise, resulting in injuries like fractures and head trauma. The objectives of this review are to provide an overview of the current literature on FFBs, as well as to emphasize the significant impact of such injuries on the elderly population. Additionally, it includes an analysis of a dataset detailing injuries resulting from bed-related falls, offering a comparison to existing research.

Combining principal component analysis and logistic regression for multifactorial fall risk prediction among community-dwelling older adults

Abstract

Falls require comprehensive assessment in older adults due to their diverse risk factors. This study aimed to develop an effective fall risk prediction model for community-dwelling older adults by integrating principal component analysis (PCA) with machine learning. Data were collected for 45 fall-related variables from 1630 older adults in Taiwan, and models were developed using PCA and logistic regression. The optimal model, PCA with stepwise logistic regression, had an area under the receiver operating characteristic curve of 0.78, sensitivity of 74 %, specificity of 70 %, and accuracy of 71 %. While dimensionality reduction via PCA is not essential, it aids practicality. Our framework combines PCA and logistic regression, providing a reliable method for fall risk prediction to support consistent screening and targeted health promotion. The key innovation is using PCA prior to logistic regression, overcoming conventional limitations. This offers an effective community-based fall screening tool for older adults.

The risk of falls in older people prescribed antihypertensives … and other research

Abstract

Falls are common and dangerous for older and more vulnerable people. The main modifiable risk factor for falls is prescription drugs, and the most commonly prescribed drugs in older people are antihypertensives. The problem is that they can make people fall over when they stand up as orthostatic hypotension kicks in, especially in the immediate period after treatment is started.

This cohort study of nearly 30 000 nursing home residents, 97% of whom were men with a mean age of 78 years, found that, compared with a matched control group, initiation of antihypertensives was associated with an increased risk of fractures (5.4 v 2.2 per 100 person-years) and falls, especially among residents with dementia, high baseline blood pressures, and no recent antihypertensive treatment. The key question for clinicians is whether the expected cardiovascular benefits of treating hypertension are likely to outweigh the clear hazards of starting treatment.

Relationship among falls, fear of falling, and physical activity level in patients on hemodialysis

Shirai N, Usui N, Abe Y, Tamiya H, Amari T, Kojima S, Mikami K, Nagashima M, Shinozaki N, Shimano Y, Saitoh M. Phys. Ther. 2024; ePub(ePub): ePub.

Abstract

OBJECTIVE: Patients on hemodialysis are highly susceptible to falls and fractures. Amplified apprehension regarding the fear of falling (FOF) constitutes a risk factor that restricts physical activity and escalates the probability of falls among the elderly population. This study aimed to elucidate the association between falls and FOF and physical activity in patients on hemodialysis.

METHODS: A prospective cohort study was conducted across 9 centers. FOF was assessed using the Falls Efficacy Scale-International (FES-I). Physical activity was assessed using the Japanese version of the International Physical Activity Questionnaire short form. Subsequently, falls were monitored over a duration of 1 year. Logistic regression analysis was performed to evaluate the relationship between falls and FOF and physical activity. In addition, in the receiver operating characteristic analysis, the cutoff value of FES-I that predicts falls was determined using the Youden Index. A restricted cubic spline curve was utilized to analyze the nonlinear association between falls and the FES-I.

RESULTS: A total of 253 patients on hemodialysis (70.0 [59.0-77.0] years old; 105 female [41.5%]) were included in the analysis. During the 1-year observation period, 90 (35.6%) patients experienced accidental falls. The median FES-I score was 36.0 (24.0-47.0) points, and patients with higher FES-I scores had more falls. Following adjusted logistic regression analysis, FES-I exhibited an independent association with falls (OR = 1.04; 95% CI = 1.01-1.06), but physical activity was not. The area under the receiver operating characteristic curve was 0.70 (95% CI = 0.64-0.77), and the FES-I threshold value for distinguishing fallers from non-fallers was determined as 37.5 points (sensitivity 65.6%, specificity 35.0%). A nonlinear relationship between falls and FES-I was observed.

CONCLUSION: FOF was associated with the incidence of falls in patients on hemodialysis. IMPACT: The evaluation and implementation of interventions targeting the FOF may mitigate the risk of falls.

Development of a motion-based video game for postural training: a feasibility study on older adults with adult degenerative scoliosis

Wan FKW, Mak ATH, Chung CWY, Yip JYW. IEEE Trans. Neural Syst. Rehabil. Eng. 2024; ePub(ePub): ePub.

Abstract

Forward sagittal alignment affects physical performance, is associated with pain and impacts the health-related quality of life of the elderly. Interventions that help seniors to improve sagittal balance are needed to inhibit the progression of pain and disability. A motion-sensing video game (active game) is developed in this study to monitor sitting and standing postures in real-time and facilitate the postural learning process by using optical sensors to measure body movement and a video game to provide visual feedback. Ten female subjects (mean age: 60.0 ± 5.2 years old; mean BMI: 21.4 ± 1.9) with adult degenerative scoliosis (mean major Cobb's angle: $38.1° \pm 22.7°$) participate in a 6-week postural training programme with three one-hour postural training sessions a week. Eleven body alignment measurements of their perceived "ideal" sitting and standing postures are obtained before and after each training session to evaluate the effectiveness of postural learning with the game. The participants learn to sit and stand with increased sagittal alignment with a raised chest and more retracted head position. The forward shift of their head and upper body is significantly reduced after each training session. Although this immediate effect only partially sustained after the 6-week program, the participants learned to adjust their shoulder and pelvis level for a better lateral alignment in standing. The proposed postural training system, which is presented as a gameplay with real-time visual feedback, can effectively help players to improve their postures. This pilot feasibility study explores the development and initial assessment of a motion-based video game designed for postural training in older adults with adult degenerative scoliosis, and demonstrates the usability and benefits of active gameplay in motor training.

Language: en

Foot problems in older adults presenting to a falls and balance clinic

White J, Maier AB, Iacobaccio L, Iseli R. Gerontology 2024; ePub(ePub): ePub.

Abstract

INTRODUCTION: Foot problems, including musculoskeletal problems, peripheral neuropathy, peripheral arterial disease and dermatologic pathology are common in older adults and are associated with increased risk of falling. Multicomponent podiatry interventions have been shown to reduce the incidence of falls. This paper aims to identify older adults requiring podiatry input in a Falls and Balance clinic; to describe the model of foot health care they receive; to explore cross-sectional associations between foot problems and function and ultimately demonstrate the role of podiatry input in the multidisciplinary management of falls risk.

METHODS: Cohort study of patients attending a Falls and Balance Clinic for Comprehensive Geriatric Assessment. Demographic information was collected and functional independence, mobility, foot problems and footwear were assessed in clinic.

RESULTS: One-hundred and two patients were included; median age 79.3 [73-84.3] years, 68.6% female, 93.1% residing independently, 62.7% used a gait aid. Podiatry referrals were made in 80.4% of cases, with muscle weakness being the most common problem identified (90.2%); 74.8% were found to be wearing inappropriate footwear. Most patients received footwear education and half were prescribed foot and ankle strengthening exercises. Hallux and lesser toe weakness were associated with lower Short Physical Performance Battery scores (p<0.001).

CONCLUSION: The majority of older adults in the Falls and Balance Clinic required podiatry input, with foot weakness and inappropriate footwear being common reasons for referral. Those with weakness of the hallux and lesser toes had poorer balance and mobility, which is known to be associated with greater falls risk. This highlights the need for podiatry assessment and interventions as part of the multidisciplinary approach to the management of falls risk in older adults.

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