

Hip Fracture, Falls Fears and Self-Efficacy Observations 2022-2023

Ray Marks*

Department of Clinical Research and Education, Osteoarthritis Research Center, Ontario, Canada

*Corresponding Author: Ray Marks, OARC Clinical Research and Education Director, Ontario, Canada.

Received: November 12, 2023; Published: December 05, 2023

Abstract

Background: Hip fracture injuries, surgery, preventive and rehabilitation efforts over the years have not yielded commensurate returns despite their laudable goals and great need.

Aim: This mini review aimed to examine 2022-2023 data focusing on falls self-efficacy and fears.

Methods: All available English language related papers housed in key data bases were examined.

Results: Although highly diverse, cumulative findings appear to support a need for more careful routine evaluation of hip fracture attributes among the elderly, and efforts to foster confidence to overcome falls fears.

Conclusion: More carefully conceived preclinical as well as longitudinal studies of the possible negative influence of cognitions on hip fracture risk and recovery among larger more diverse samples of various age categories are strongly indicated.

Keywords: Aging; Falls; Fall Efficacy; Fear of Falling; Hip Fracture; Prevention; Self-efficacy; Rehabilitation; Surgery

Introduction

Hip fractures, which continue to have enormous societal impacts, remain devastating injuries among many older adults and are anticipated to increase numerically by 2050 as identified in a global analysis that terminated in 2018 [1]. However, the accuracy of these estimates, as well as whether they capture the true implications of hip fractures remains in question because registries housing data are not universal nor standardized. Pre collected data concerning hip fracture correlates are also not consistently tallied or measured as per an analysis of 20 representative samples [2]. Moreover, data examined from the 1990-2019 Global Burden of Disease data base that do support rising hip fracture trends in the older age groups in particular [3,4], show little abatement of disability despite years of preventive endeavors, and do not factor in COVID-19 associated social and possible hip fracture incidence implications as well as debility [3].

In addition, although Dong, *et al.* [3] report that falls are the strongest hip fracture predictor, and can significantly predict decreases in post operative survival rates [5], the specific reason for this is not well articulated, and does not explain how bone mineral density is a key predictor of mortality post hip fracture [6].

There is evidence that intrinsic factors, such as the influence of a sudden forceful or abnormally oriented contraction of the muscles surrounding the hip may be sufficient to produce a bone fracture, which is then followed rather than preceded by a fall, but this possible cause of some hip fractures cannot be discerned in the registries currently employed to any degree. In addition, frailty may predict a high hip fracture risk [7], but may not be assessed or treated accordingly. Data may stem as well from both a limited sector of one country using

surveys, and only selected evaluations over a limited time frame ending in 2016 [8] or a focus on second rather than primary hip fractures [9]. Thus, falls prevention efforts that are surely indicated to mitigate hip fracture rates and disability [10], may fail because they do not specifically target and impact the nature of the possible underlying hip fracture determinants in a concerted or targeted manner or take into account social and other delivery factors, including poor mobility [11]. Assessments in Central Europe [10] may also not represent those in other countries at all accurately.

As per what we do know, it appears older adults remain at high risk for incurring falls that lead to a hip fracture and that many will fall more than once or fracture the same or the opposite hip as time unfolds. Moreover, even though operative interventions used to treat hip fractures are reasonably successful, and multiple preventive efforts have been launched for years, many hip fracture survivors continue to incur declines in functional ability and independence, hip joint osteoarthritis on the injured side and/or second or third hip fractures, high financial and social costs [12] and mortality rates [13]. Implicated among the multiple age-associated factors that can lead to an injurious fall if not assessed and treated in a timely way and that may warrant more attention are a variety of cognitive factors, including anxiety, pervasive feelings of distress and negativity, a possible loss of general and behavior specific confidence due to social factors, and an immobilizing fear of falling that reduces functional and social participation.

This loss of confidence due to the fear of falling and/or any overwhelming perceptions of helplessness in face of their diminishing ability to cope amidst the threat of falling or its actual painful disabling traumatic injury, can conceivably have enormous health implications, including reductions in physical ability, life quality and independence, high stress levels, fatigue, and an excess need for narcotics and sleep medications. Conversely, from what we do know, it appears efforts to generate feelings of confidence that can counter negative self beliefs and fatalistic viewpoints if fostered may well help to minimize falls related fears, and actual fall frequency and severity, while enhancing the recovery potential of the older community dwelling hip fracture surgical patient, as well as their overall health status.

Yet, this idea, while increasingly applied successfully in multiple health fields, is not widely researched in the context of averting or intervening upon hip fracture recovery processes to any meaningful degree. This seems hard to understand, given that perceived self-confidence is a highly relevant behavioral determinant mediating or moderating an individual's willingness to carry out a specific behavior under differing conditions and to display commitment and high adherence levels to physical activity intervention recommendations and others.

Aims of the Study

This mini review examines if there is indeed more need to explore a role for self-efficacy and fears of falling in the context of hip fracture injuries due to falls among older age adults living in the community, a topic that has received less attention than that focused on bone and muscle health as well as nutrition, but where little objective progress has been made to date despite numerous public health efforts and others.

Rationale

Self-efficacy, a cognitive construct denoting one's perceptions about their performance ability, regardless of circumstances may have a strong bearing on the willingness of an older adult to participate in activities that would help avert falls and fractures such as exercise. In addition, efforts to boost self-efficacy among those who fear they will fall, those who have fallen, and those recovering from hip fractures may have far reaching beneficial outcomes. By contrast, a low degree of confidence in their ability to foster their own wellbeing and prevent falls may have significant negative impacts, for example post surgery [14]. The will to pursue or manage their condition, as well as undertake novel tasks that may be helpful may also be markedly affected by the prevailing degree of self-confidence using techniques that can be taught, or applied in the home to help shift cognitive appraisals from one of a threat of inaction to one of a challenge and motivating force to action.

Hypotheses

This review examines support for the idea of a possible favorable role for efforts to build self-efficacy and reduce falls fear among the older age adult population at risk for a hip fracture as well as those who have survived hip fracture surgery.

Significance

In view of the severe individual and economic consequences of hip fractures, and a lack of any tangible reductions in numbers of current and projected cases, and often an immense decline in function and day to day tasks ability post hip fracture surgery [14], the ability to restore function post-hip fracture and avert injurious falls may have considerable merit, especially if fears of falling can be minimized and falls confidence maximized [14].

Methods

Available data located in PUBMED, PubMed Central, and GOOGLE SCHOLAR were initially searched for 2023 Hip Fracture data. Other topics examined were related to hip fracture risk determinants as incurred by the older adult living in the community. Those that were specifically focused on self-efficacy for falls or falls fears were of specific interest. Associated articles, regardless of research design were deemed acceptable. No distinction was made between femoral neck or intertrochanteric fractures. In keeping with the exploratory nature of the paper, the review approach adopted was largely a narrative one focusing on cognitions rather than physical factors. Studies based on distinctive health conditions such as stroke, or arthritis, remote rehabilitation studies, studies concerning the use of mobile apps and hip protectors, plus surgical studies showing their role in some instances of poor outcomes, were not reviewed.

Results

As identified by a scan of the prevailing data base several articles in 2023, most commonly systematic reviews, rather than research reports allude to a possible relatively unexplored role for falls self-efficacy and reducing falls fears in averting excess hip fracture debility among older adults [14,15]. Tied to feelings of wellbeing and impacting overall health, some data prior to 2022 show efforts to boost self-efficacy for countering falls, plus those directed towards fostering balance confidence, and overcoming fears of falling [15] may yet hold promise for reducing the immense hip and falls associated fracture burden. This may be because fear of falling consistently predicts physical function limitations, including balance and walking speed [15] and possibly outcome expectations [16] and physical de-conditioning, falls, and social isolation [17], even though this idea did not appear to underpin the 22 multi component hip fracture studies systematically examined by Lee, *et al* [18].

Fear of falling after hip fracture injury and surgery may not diminish without a targeted effort however, and intervention is strongly advocated in this respect to avert excess functional and mobility declines [17,19,20], even if currently somewhat unproven [21]. In addition, a further small body of research specifically points to a role for persistently abnormal movement strategies that can greatly impair the attainment of the desired functional goals or markedly slow the functional recovery processes after hip fracture surgery [22]. Alternately, concerted insightful efforts to heighten patient self-efficacy beliefs specifically and in general, are likely to foster more advanced recovery options than standard care approaches [23]. Moreover, quality of life may improve even among cases who exhibit falls movement fears [24-26]. Other observed benefits in this regard include but are not limited to a heightened falls-self-efficacy, but to a perceived ability to manage falls, carry out physical tasks without falling, and a more optimal set of locomotor recovery indicators post hip fracture surgery [27].

In the interim, while caution about over confidence is advised as older adults who were deemed overconfident before they fell or had high confidence about their physical performance ability were found at high risk for an injurious hip fracture [28], those with limited confidence for rehabilitation post hip fracture surgery may tend to experience negative emotions and a lower than desirable rate of intervention adherence [28]. This may require specific attention that is directed towards alleviating erroneous beliefs, as well as fears,

feelings of distress, hopelessness, futility, resignation, and frustration while building their coping self-efficacy and cognitions of their ability to pursue safe physical activities and attain a high rather than low life quality [23,28] regardless of hip fracture status [29,30] as well as pre fracture functional status [31-33]. Averting falls injuries and enhancing falls self-efficacy is of particular import in this regard post hip fracture [26].

Discussion

Hip fractures, which are commonly highly debilitating injuries affecting many older adults in all parts of the world, continue to perpetuate tremendously costly public health medical and social costs, despite years of study and efforts to avert this injury. Unlike many health conditions affecting older adults, and where treatment can help to restore well being, once a hip fracture has occurred multiple challenges remain, including premature death, as well as the risk of sustaining further hip fractures, either on the same side or the opposite side, and quite commonly hip osteoarthritis requiring surgery, several notable researchers have concluded that the injury demands more be done to prevent it, rather than focusing solely on intervening to optimize the post hip fracture injury state. In addition, as regards surgery, what is specifically indicated post operatively and over time such as cognitive rather than physical factors alone may explain poor hip fracture recovery trends [34]. However, to uncover the specific role of falls self-efficacy as opposed to fears of falling factors, a promising research topic, there are very few completed studies to date even though several citations discuss such protocols but these are not yet published [34,35].

Thus, what is needed specifically in 2023 in light of what we know in 2023 about possible hip fracture trends and the degree to which these remain important, along with what consistently predicts recovery [31] must remain in question. Based on some valid findings however, it appears reasonable to continue all possible efforts that may open the way to preventing all stages of this disabling and often mortal injury about which there is little argument regarding its immense societal burden. In particular, trends that do not readily take into account the fact that hip fractures can be impacted by modifiable cognitions such as the concepts of falls self efficacy and fears of falling will surely fail to intervene accordingly in this respect [36].

To this end, this present review, while possibly not encompassing all articles in the field, shows very few promising data sets as a whole. For example a number of 2023 articles reflect data that was collected before 2020 and most are based on previously collected data that may not reflect the situation on the ground in 2023. As well, only limited locations have access or capabilities of processing such data, the age cut off points are often arbitrary, and most reports display very diverse data synthesis approaches, variable measures, plus sampling strategies. And few examine the role of confidence in the rehabilitation process as a salient outcome variable [27] and one possibly needing extended care over a lengthy rehabilitation period [37] and planning a program that is supportive and personalized and that advances confidence to pursue functional activities [25,38,39] even among those who are frail, and are in the higher age ranges [40].

In any event, it appears that regardless of intervention approach efforts to raise confidence for the rehabilitation process post hip fracture surgery including provider confidence predict more favourable outcomes than not [25], including mortality rates [41,42]. Alternately, motivational interviewing practices involving the client may prove beneficial for improving self-efficacy as well as post hip fracture functional recovery where indicated [43]. In addition, efforts to reduce falls fears along with low self-confidence in combating falls as well as deficient balance confidence warrant screening and intervention in selected hip fracture surgery cases [30,44-47].

Fu., *et al.* [23] propose that the application of a rehabilitation program that reduces fears of falling is likely to prove efficacious, in particular. In addition, subjects who feel more confident after fracturing a hip, appear to have better and more adaptive outcomes [14] although this was not the finding of Kalem., *et al.* [48] in a prospective study. Nonetheless, if these injuries occur, and a nurse-based falls preventive approach is applied [49], this may allow for a more rapid recovery and set of desired outcomes than when not considered, as well as possible bone and muscle health improvements and possibly decreases in secondary falls and fracture risk. On the other hand

failing to account for and intervene upon the aforementioned cognitive hip fracture outcome determinants may also explain the lack of an overall adequate return to a high level of physical function in some home program efforts enacted after hip surgery [50].

In light of the overall rising incidence of hip fractures among the older population, and the oftentimes poor to devastating outcomes experienced by many hip fracture surgical cases [49,50], efforts to examine and address any remediable cognitive associated factors may prove beneficial over and above physically oriented interventions [51]. Alternately, factors such as fears of falling that are not recognized as such may not only decrease confidence to pursue functional recommendations but provoke rather than mitigate worse health and possible isolation that is an established hip fracture determinant. In this regard, and in view of the lack of true progress made in any realm of hip fracture prevention or intervention for many years innovative efforts to advance this line of inquiry may prove noteworthy. In particular the independent and intersecting role of: a) anxiety; b) fears of falling; c) deficient self-efficacy for coping; d) muscle strength; e) balance capacity; f) social support; g) pain; h) health status, and especially signs of declining health [52] and polypharmacology usage appear important to study [13,53]. Moreover, it appears the role of comorbidity, pre-existing functional impairments, and sedentary behaviors of many patients with hip fractures should be explored more thoroughly [54]. In addition, attention to environmental and contextual factors as well as disability and individual evaluations and monitoring are indicated following hip fracture surgery [55] along with a role for pre existing mobility challenges [56].

The additional finding that fears of falling is not a uniform concept may also speak to more collaborative efforts across the globe to discuss and employ more standard methods of assessing these hip fracture correlates and others [57]. The touted role of televised rehabilitation may also require study to assure it is useful for reducing fears of falls safely and effectively [58]. In addition, more inclusive well designed long term trials of efficacy are needed to strengthen the validity of the findings in future comprehensive reviews [56,59]. Those older adults exhibiting a fear of falling or a falls history [15,60,61] even if disputed [67] should be carefully studied in the interim. In addition, older adults with strength and balance deficits who appear increasingly vulnerable to hip fractures, falls fears, low confidence in their rehabilitation process, and slower than desired post hip fracture recovery rates and extent may need to be examined as far as exhibiting any observable set of falls fears and/or lack of falls self confidence that can foster falls injuries and recurrent falls [62] and suboptimal hip fracture recovery trends [63,64]. There may be additional signs of declines in daily activities plus more dependence on assistive devices if an individual is fearful of falling, [15,65] as well as signs of dependency [66], excess medication usage and dizziness, plus bouts of depression and a heightened degree of prevailing cognitive impairments [67,68,70] that should not be overlooked.

Limitations to the blanket adoption of any generic or remediating approach relative to one or more of these aforementioned ideas clearly include but are not limited to low overall study numbers, underpowered studies, their variable study themes, samples and durations, and outcomes assessed. The quality of the most predominant studies is especially hard to establish in all cases. Thus, where conducted their syntheses and their conclusions can thus be challenged [68,69]. In particular, a widespread omission of any specific role for cognitive or emergent mental health challenges in the recovery process of hip fracture surgery and assurance instruments are sensitive to change as well as reliable in prospective studies is clearly an additional concern. Studies that were not conducted beyond 2020 [68,69] and that may not embody important information from unfunded organizations, data where disease terms used do not comport with adopted PRISM recommendations, along with varied exclusion criteria are additional possible flaws to progress in this realm. Finally, publications discussing various protocols for future study, but no actual data, along with completed studies that did not consider falls fears or falls self-efficacy, but focused solely on other variables of physical or emotional dysfunction [15,59,68] may have overlooked important hip fracture risk attributes of immense potential relevance clinically.

Nonetheless, as hypothesized earlier, even if not mentioned [18,71], the current findings that have been published do not refute a very key role for cognitions such as anxiety, perceived or actual falls fears, perceived or actual confidence to benefit from rehabilitation as possible remediable determinants of hip fracture injuries and their outcomes and immense costs and should be examined further. In addition, how a failure to assure home based rehabilitation accords with any prior in-patient efforts and goals, stress, pain, social

circumstances, living conditions, medications, food security and chronic health conditions such as sarcopenia (age associated muscle and bone mass losses) [72] interact or intersect to produce or perpetuate potentially harmful fears of falling and limited confidence to pursue exercise post hip fracture surgery warrants attention. In particular, both the attributes of physical as well as cognitive health should be carefully examined for their association with self-care goals and abilities among the healthy elderly as well as fallers and hip fracture cases with and without sarcopenia-an established falls and fracture determinant [15,72]. It also appears that data collected since the COVID-19 pandemic should be specifically sought and studied to both validate salient pre pandemic observations and especially to validate the items embedded in current falls self efficacy instruments so as to ensure their utility in the future given the widespread introduction of improved hip surgical practices, more reliance on post operative patient self-care approaches, and remote rehabilitation options as well as scholarly and clinical agreements on a standardized mode of administration.

Concluding Remarks

Within the constraints of this limited review, plus the many gaps in efforts to examine falls prevention and hip fracture recovery mediators and moderators, plus uncertain or questionable findings, and propositions that have not been followed up and reported on as of November 2023, it appears reasonable in our view to conclude:

- Hip fractures remain persistent devastating injuries common among older populations and are possibly rising in prevalence, and even severity.
- Fearful as well as low confidence associated cognitions are important, albeit often neglected, falls injury and hip fracture determinants.
- Even if surgery to repair a hip fracture is successful, a fair number of this group of older adults may experience rapid and marked physical and mental functioning declines, as well as severe impacts on their mental health status and life quality perceptions.
- Even if they were previously healthy and functional, there may be reductions in general confidence, high levels of distress and fears of falling, plus the risk of incurring a possible a fracture of the same hip or the contra lateral hip joint, plus the onset of hip osteoarthritis, and/or a strong need for narcotics to quell pain.
- To counter the risk of falling and excess health and ability declines post hip fracture surgery, as well as institutionalization, expert hands on guidance, and personalized directives that restore and build confidence incrementally, where indicated, rather than intermittent, non personalized, remote intervention offerings developed by scholarly bodies alone appears warranted in a high percentage of the older frail older adult who wish to continue to reside in the community.
- In absence of recognition, older adults may well be quite immobilized psychologically through fear, anxiety, and lack of confidence in their abilities to function optimally post hip fracture even if they have not fallen. However, those who are overconfident may fail to protect themselves from injurious falls.

Steps to advancing a personalized preventive action plan to avert excess disability and dependence are multiple and the clinician may benefit from including:

1. Routine evaluations of any fears and/or perceived control deficiencies using validated instruments and fostering an optimistic and encouraging motivational stance.
2. Careful interpretation of the subject's fears and beliefs plus efforts to address erroneous beliefs and over confidence perceptions.
3. Efforts to involve the vulnerable adult and/or their caregivers in formulating an acceptable manageable practical intervention plan.
4. A tailored step by step incremental intervention approach, and efforts to mobilize social support and combat social isolation.

5. A periodic follow up of the most vulnerable older adults.
6. Salient parallel evaluations and treatment to address any observed:
 - Anxiety and depression
 - Balance deficits
 - Bone mass losses
 - Comorbid health conditions
 - Muscle weakness
 - Nutrition needs
 - Pain
 - Sensory disturbances
 - Sleep disturbances
 - Walking problems.

To achieve some degree of success, those adults in the higher age ranges, those with a falls history, those living alone, and those who are frail or appear excessively anxious during recovery from hip fracture surgery might be preferentially targeted.

Anticipated benefits are:

- Decreases in hip fracture morbidity, sedentary practices, and pain.
- Improvements in functional independence and life quality.
- Lower falls and recurrent fracture rates.
- Lower social and fiscal costs.
- Fewer hospital readmissions.
- Multiple social, emotional, and psychological rewards.

Bibliography

1. Sing Chor-Wing, *et al.* "Global epidemiology of hip fractures: secular trends in incidence rate, post-fracture treatment, and all-cause mortality". *Journal of Bone and Mineral Research* 38.8 (2023): 1064-1075.
2. Johansen Antony, *et al.* "Standardization of global hip fracture audit could facilitate learning, improve quality, and guide evidence-based practice: an international study of hip fracture registries in 20 countries using the Fragility Fracture Network 2022 Minimum Common Dataset". *The Bone and Joint Journal* 105.9 (2023): 1013-1019.
3. Dong Yimin, *et al.* "What was the epidemiology and global burden of disease of hip fractures from 1990 to 2019? Results from and additional analysis of the Global Burden of Disease Study 2019". *Clinical Orthopaedics and Related Research* 481.6 (2023): 1209-1220.
4. Viganò Marco, *et al.* "Proximal hip fractures in 71,920 elderly patients: incidence, epidemiology, mortality and costs from a retrospective observational study". *BMC Public Health* 23.1 (2023): 1963.
5. Holvik Kristin, *et al.* "Cause-specific excess mortality after hip fracture: the Norwegian Epidemiologic Osteoporosis Studies (NOREPOS)". *BMC Geriatrics* 23.1 (2023): 201.

6. Ge Yufeng, *et al.* "Association between hip bone mineral density and mortality risk after hip fracture: a prospective cohort study". *Calcified Tissue International* 113.3 (2023): 295-303.
7. Leung Miriam TY, *et al.* "Hip fracture incidence and post-fracture mortality in Victoria, Australia: a state-wide cohort study". *Archives of Osteoporosis* 18.1 (2023): 56.
8. Kawaji Hiroyuki, *et al.* "Decennial trends in hip fractures over 20 years in Yamagata Prefecture, Japan". *Journal of Orthopaedic Science* 28.3 (2023): 621-626.
9. Mohsin Zaineb, *et al.* "Current approaches to secondary prevention after hip fracture in England and Wales—an analysis of trends between 2016 and 2020 using the National Hip Fracture Database (NHFD)". *Archives of Osteoporosis* 18.1 (2023): 93.
10. Ilic Irena, *et al.* "Epidemiology of hip fractures due to falls". *Medicina* 59.9 (2023): 1528.
11. Dimet-Wiley Andrea, *et al.* "One-year postfracture mortality rate in older adults with hip fractures relative to other lower extremity fractures: retrospective cohort study". *JMIR Aging* 5.1 (2022): e32683.
12. Jang Suk-Yong, *et al.* "Comparative interrupted time series analysis of long-term direct medical costs in patients with hip fractures and a matched cohort: a large-database study". *Clinical Orthopaedics and Related Research* 480.5 (2022): 891-902.
13. Meyer Anna C, *et al.* "The impact of hip fracture on geriatric care and mortality among older Swedes: mapping care trajectories and their determinants". *American Journal of Epidemiology* 192.1 (2023): 41-50.
14. Rasmussen Birgit and Lisbeth Uhrenfeldt. "Lived experiences of self-efficacy and wellbeing in the first year after hip fracture: a systematic review protocol of qualitative evidence". *JBI Evidence Synthesis* 12.10 (2014): 73-84.
15. Gadhvi Chandini, *et al.* "A systematic review of fear of falling and related constructs after hip fracture: prevalence, measurement, associations with physical function, and interventions". *BMC Geriatrics* 23.1 (2023): 385.
16. Chu Su-Feng and Hsiu-Hung Wang. "Outcome expectations and older adults with knee osteoarthritis: their exercise outcome expectations in relation to perceived health, self-efficacy, and fear of falling". *Healthcare* 11.1 (2022): 57.
17. Ellmers Toby J, *et al.* "Frailty, falls and poor functional mobility predict new onset of activity restriction due to concerns about falling in older adults: a prospective 12-month cohort study". *European Geriatric Medicine* 14.2 (2023): 345-351.
18. Lee Haneul and Seon-Heui Lee. "Effectiveness of multicomponent home-based rehabilitation in older patients after hip fracture surgery: a systematic review and meta-analysis". *Journal of Clinical Nursing* 32.1-2 (2023): 31-48.
19. Scheffers-Barnhoorn Maaïke N, *et al.* "Course of fear of falling after hip fracture: findings from a 12-month inception cohort". *BMJ Open* 13.3 (2023): e068625.
20. Voshaar RC, *et al.* "Fear of falling more important than pain and depression for functional recovery after surgery for hip fracture in older people". *Psychological Medicine* 36.11 (2006): 1635-1645.
21. Sheehan Katie J, *et al.* "Effectiveness of community-based rehabilitation interventions incorporating outdoor mobility on ambulatory ability and falls-related self-efficacy after hip fracture: a systematic review and meta-analysis". *Archives of Osteoporosis* 16.1 (2021): 199.
22. Briggs R. "Enhanced rehabilitation targeting strength and movement pattern symmetry following hip fracture". The University of Utah (2015).

23. Fu Ying., *et al.* "Evidence-based intervention on postoperative fear, compliance, and self-efficacy in elderly patients with hip fracture". *World Journal of Clinical Cases* 10.10 (2022): 3069-3077.
24. Kampe Karin., *et al.* "Hip and pelvic fracture patients with fear of falling: development and description of the "Step by Step" treatment protocol". *Clinical Rehabilitation* 31.5 (2017): 571-581.
25. Su Shu-Fen., *et al.* "Self-efficacy care program for older adults receiving hip-fracture surgery". *Clinical Nursing Research* 30.6 (2021): 911-920.
26. Pfeiffer Klaus., *et al.* "Effects of an intervention to reduce fear of falling and increase physical activity during hip and pelvic fracture rehabilitation". *Age and Ageing* 49.5 (2020): 771-778.
27. Fortinsky Richard H., *et al.* "Rehabilitation therapy self-efficacy and functional recovery after hip fracture". *International Journal of Rehabilitation Research* 25.3 (2002): 241-246.
28. Hayashi Shintaro., *et al.* "Cross-sectional analysis of fall-related factors with a focus on fall prevention self-efficacy and self-cognition of physical performance among community-dwelling older adults". *Geriatrics* 8.1 (2023): 13.
29. Pengchai Tatiya and Surasak Thiabrithi. "Effect of The Self-Efficacy Enhancement Program on Fall Prevention among the elderly in Sisaket Municipality, Sisaket Province". Diss. Mahasarakham University (2023).
30. Cheng Haiying., *et al.* "Construction of fall prevention exercise training scheme for elderly discharged patients using self-efficacy theory framework". *Alternative Therapies in Health and Medicine* (2023): AT9319-AT9319.
31. Dakhil Shams., *et al.* "Longitudinal trajectories of functional recovery after hip fracture". *PLoS One* 18.3 (2023): e0283551.
32. Deutschbein Johannes., *et al.* "Health-related quality of life and associated factors after hip fracture. Results from a six-month prospective cohort study". *Peer Journal* 11 (2023): e14671.
33. Huang Yi-Wen., *et al.* "Social participation, positive affect, and negative affect in postoperative patients with hip fractures: a cross-sectional study". *Journal of Health Psychology* (2023): 13591053231200318.
34. Dautel Anja., *et al.* "Multifactorial intervention for hip and pelvic fracture patients with mild to moderate cognitive impairment: study protocol of a dual-centre randomised controlled trial (OF-CARE)". *BMC Geriatrics* 19.1 (2019): 125.
35. Gianoudis Jenny., *et al.* "Osteo-cise: strong bones for life: protocol for a community-based randomised controlled trial of a multi-modal exercise and osteoporosis education program for older adults at risk of falls and fractures". *BMC Musculoskeletal Disorders* 13 (2012): 78.
36. Eckert Tobias., *et al.* "Correlates of fear of falling and falls efficacy in geriatric patients recovering from hip/pelvic fracture". *Clinical Rehabilitation* 34.3 (2020): 416-425.
37. Asplin Gillian., *et al.* "Early coordinated rehabilitation in acute phase after hip fracture - a model for increased patient participation". *BMC Geriatrics* 17.1 (2017): 240.
38. Langford Dolores., *et al.* "Life Goes On". Everyday tasks, coping self-efficacy, and independence: exploring older adults' recovery from hip fracture". *Qualitative Health Research* 28.8 (2018):1255-1266.
39. Cameron ID., *et al.* "Hip protectors improve falls self-efficacy". *Age and Ageing* 29.1 (2000): 57-62.
40. Nozaki Asami., *et al.* "Increased incidence among the very elderly in the 2020 Niigata Prefecture Osteoporotic Hip Fracture Study". *Journal of Bone and Mineral Metabolism* 41.4 (2023): 533-541.

41. Nordström Peter, *et al.* "Trends in hip fracture incidence, length of hospital stay, and 30-day mortality in Sweden from 1998-2017: a Nationwide Cohort Study". *Calcified Tissue International* 111.1 (2022): 21-28.
42. Tseng Ming-Yueh, *et al.* "A family care model for older persons with hip-fracture and cognitive impairment: a randomized controlled trial". *International Journal of Nursing Studies* 120 (2021): 103995.
43. O'Halloran Paul D., *et al.* "Motivational interviewing increases physical activity and self-efficacy in people living in the community after hip fracture: a randomized controlled trial". *Clinical Rehabilitation* 30.11 (2016): 1108-1119.
44. Visschedijk Jan, *et al.* "Fear of falling in patients with hip fractures: prevalence and related psychological factors". *Journal of the American Medical Directors Association* 14.3 (2013): 218-220.
45. Whitehead Craig, *et al.* "Falls in community-dwelling older persons following hip fracture: impact on self-efficacy, balance and handicap". *Clinical Rehabilitation* 17.8 (2003): 899-906.
46. Sihvonen Sanna, *et al.* "Postural balance and self-reported balance confidence in older adults with a hip fracture history". *Gerontology* 55.6 (2009): 630-636.
47. Ingemarsson AH, *et al.* "Balance function and fall-related efficacy in patients with newly operated hip fracture". *Clinical Rehabilitation* 14.5 (2000): 497-505.
48. Kalem Mahmut, *et al.* "Prospective associations between fear of falling, anxiety, depression, and pain and functional outcomes following surgery for intertrochanteric hip fracture". *Geriatric Orthopaedic Surgery and Rehabilitation* 14 (2023): 21514593231193234.
49. Elley C Raina, *et al.* "Effectiveness of a falls-and-fracture nurse coordinator to reduce falls: a randomized, controlled trial of at-risk older adults". *Journal of the American Geriatrics Society* 56.8 (2008): 1383-1389.
50. Chen Bo, *et al.* "Efficacy of home-based exercise programme on physical function after hip fracture: a systematic review and meta-analysis of randomised controlled trials". *International Wound Journal* 17.1 (2020): 45-54.
51. Crotty Maria, *et al.* "Rehabilitation interventions for improving physical and psychosocial functioning after hip fracture in older people". *The Cochrane Database of Systematic Reviews* 1 (2010): CD007624.
52. Ravensbergen Willeke M, *et al.* "Declining daily functioning as a prelude to a hip fracture in older persons-an individual patient data meta-analysis". *Age and Ageing* 51.1 (2022): afab253.
53. Sjøgaard Anne Johanne, *et al.* "Characteristics of fallers who later sustain a hip fracture: a NOREPOS study". *Osteoporosis International* 33.11 (2022): 2315-2326.
54. Fiatarone Singh Maria A, *et al.* "Methodology and baseline characteristics for the Sarcopenia and Hip Fracture study: a 5-year prospective study". *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences* 64.5 (2009): 568-574.
55. Koudouna Smaragda, *et al.* "Rehabilitation prognostic factors following hip fractures associated with patient's pre-fracture mobility and functional ability: a prospective observation study". *Life (Basel, Switzerland)* 13.8 (2023): 1748.
56. Bower Emily S, *et al.* "Fear of falling after hip fracture: prevalence, course, and relationship with one-year functional recovery". *The American Journal of Geriatric Psychiatry* 24.12 (2016): 1228-1236.
57. Lee Dayeon and Sunghee H Tak. "A concept analysis of fear of falling in older adults: insights from qualitative research studies". *BMC Geriatrics* 23.1 (2023): 651.
58. Zhang Yuan-Yuan, *et al.* "Effect of home-based telerehabilitation on the postoperative rehabilitation outcome of hip fracture in the aging population". *Orthopaedic Surgery* 14.8 (2022): 1768-1777.

59. Yu Yaohui., *et al.* "Recent advances in the identification of related factors and preventive strategies of hip fracture". *Frontiers in Public Health* 11 (2023): 1006527.
60. Tu Chang-Yin., *et al.* "Longitudinal changes in physical activity levels and fear of falling after hip fracture". *Physiotherapy Research International* 26.1 (2021): e1884.
61. Park Catherine., *et al.* "Association between fall history and gait, balance, physical activity, depression, fear of falling, and motor capacity: a 6-month follow-up study". *International Journal of Environmental Research and Public Health* 19.17 (2022): 10785.
62. Lloyd Bradley D., *et al.* "Recurrent and injurious falls in the year following hip fracture: a prospective study of incidence and risk factors from the Sarcopenia and Hip Fracture study". *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences* 64.5 (2009): 599-609.
63. Petrella RJ., *et al.* "Physical function and fear of falling after hip fracture rehabilitation in the elderly". *American Journal of Physical Medicine and Rehabilitation* 79.2 (2000): 154-160.
64. Şahin İsmail Gökhan., *et al.* "An evaluation of the fear of falling, balance levels, and prognostic blood parameters among the geriatric population with hip fractures". *Cureus* 14.1 (2022): e21704.
65. Singh Nalin A., *et al.* "Effects of high-intensity progressive resistance training and targeted multidisciplinary treatment of frailty on mortality and nursing home admissions after hip fracture: a randomized controlled trial". *Journal of the American Medical Directors Association* 13.1 (2012): 24-30.
66. Gesar Berit., *et al.* "Hip fracture; an interruption that has consequences four months later. A qualitative study". *International Journal of Orthopaedic and Trauma Nursing* 26 (2017): 43-48.
67. Jaatinen Roope., *et al.* "Factors associated with and 1-year outcomes of fear of falling in a geriatric post-hip fracture assessment". *Aging Clinical and Experimental Research* 34.9 (2022): 2107-2116.
68. Phang Jie Kie., *et al.* "Post-surgery interventions for hip fracture: a systematic review of randomized controlled trials". *BMC Musculoskeletal Disorders* 24.1 (2023): 417.
69. Handoll Helen Hg., *et al.* "Multidisciplinary rehabilitation for older people with hip fractures". *The Cochrane Database of Systematic Reviews* 4 (2021): CD007125.
70. Li Lily., *et al.* "Hip fractures". *British Journal of Hospital Medicine* 81.8 (2020): 1-10.
71. Santacaterina Fabio., *et al.* "Rehabilitation after hip fracture surgery: a survey on Italian physiotherapists' knowledge and adherence to evidence-based practice". *Healthcare* 11.6 (2023): 799.
72. Kanaya Yuji., *et al.* "Rehabilitation after hip fracture surgery improves physical and cognitive function in patients with or without sarcopenia". *Geriatric Orthopaedic Surgery and Rehabilitation* 14 (2023): 21514593231181988.

Volume 14 Issue 10 December 2023

©All rights reserved by Ray Marks.