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Factors influencing fall fear in orthopedic patients: a systematic review and meta-analysis

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Li, SH; Cui, JY; Wu, LJ.

Corresponding author:
shuhan Li

810561799@qq.com

Author Affiliation:
Inner Mongolia Medical University Affiliated Hospital.

ADMINISTRATIVE INFORMATION

Support - None specified.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 March 2025 and was last updated on 21 March 2025.

INTRODUCTION

Review question / Objective The aim of this study is to elucidate the influencing factors of fall fear in orthopedic patients. The construction of evidence-based questions adopts the PEO model. Population refers to adult orthopedic patients. Exposures are influencing factors that are subject to evaluation.Outcome is the fear of falling.

Condition being studied Orthopedic diseases (such as fractures, osteoarthritis, joint replacement surgery, etc.) often lead to decreased mobility and impaired balance function in patients, significantly increasing the risk of falls. According to statistics from the World Health Organization (WHO), there are approximately 373000 fall related deaths worldwide each year, with the elderly and orthopedic postoperative patients being high-risk groups. Falling not only may cause secondary injuries (such as hip fractures, traumatic brain injury), but also prolong hospitalization time, increase medical burden, and even lead to patients losing their ability to live independently. Fear of Falling (FOF) refers to the psychological state in which individuals actively limit their daily activities due to excessive fear of falling, and its incidence is as high as 40% -70% in orthopedic patients. Research has shown that FOF is closely related to decreased physical function, delayed rehabilitation, and reduced quality of life. Even if there is no actual fall, FOF may exacerbate muscle atrophy and joint stiffness through a "fear avoidance" behavior cycle, forming a vicious cycle. At present, the influencing factors of FOF in orthopedic patients may involve multiple and wide-ranging factors, but there are inconsistencies in existing research conclusions and a lack of systematic integration. Although some systematic reviews have explored risk factors for falls, there is still a lack of comprehensive analysis specifically targeting FOF in adult orthopedic patients. This study will clarify the influencing factors of fall fear in adult orthopedic patients through systematic evaluation, in order to provide evidence-based support for clinical practice.

METHODS

Participant or population The research subjects are orthopedic patients aged ≥ 60 years old. The following conditions should be met: 1. Adults aged ≥ 18 years old. 2. Hospitalization treatment in orthopedics, specific diagnosis of orthopedic diseases is not limited.

Intervention Cross sectional study, pathological control study, cohort study.

Comparator Not related to this content.

Study designs to be included Not related to this content.

Eligibility criteria Inclusion criteria: 1. Multiple regression analysis was used in the study, and the research results provided or could be converted into OR values and 95% CI for risk factors of concurrent diseases. 2. The research content involves the incidence and influencing factors of fall fear.
Exclusion criteria: 1. Non Chinese or English literature. 2. Literature that cannot obtain the full text, incomplete data, inability to convert data, or calculation errors. 3. Only include the literature with the most comprehensive information for repeated publications. 4.Low quality literature.

Information sources Search 8 databases in total, such PubMed , Embase , Cochrane Library , Web of Science ,CNKI , wangfang data , CBM and VIP.
The time is from database construction to March 1 in 2025.

Main outcome(s) The outcome measures are the prevalence of fall fear and related factors.

Quality assessment / Risk of bias analysis The included cohort studies or case-control studies were evaluated for quality using the Newcastle Ottawa Scale (NOS), while cross-sectional studies were evaluated using the evaluation criteria recommended by the Agency for Healthcare Research and Quality (AHRQ) in the United States! 42 will conduct quality evaluation, which will be conducted by two researchers respectively. The NOS scale is mainly evaluated from three aspects: population selection, intra group comparability, and measurement of outcome/exposure factors. The total score is 9 points, with 7-9 points indicating high quality, 4-6 points indicating moderate quality, and less than 4 points indicating low quality. The AHRQ standard includes 11 items, with scores of 0-3 indicating low quality, 4-7 indicating medium quality, and 8-11 indicating high quality.

Strategy of data synthesis A meta-analysis was performed using R Studio.The effect values are expressed as odds ratio (OR) and 95% confidence interval (CI), with I and P values used to describe heterogeneity. If $P>0.1$, $I\leq 50\%$, Indicating no significant heterogeneity between studies, a fixed effects model was chosen; On the contrary, choose the random effects model for analysis. Compare the consistency of the cross merging results of two effect models to analyze sensitivity. Egger's test was used to evaluate potential publication bias for factors influencing the inclusion of ≥ 10 studies, with $P<0.05$ indicating statistical significance.

Subgroup analysis 1. According to the diagnosis of orthopedic diseases. 2. Geographic regions (high-income countries and low - to middle-income countries). 3. Exclude studies with small sample sizes. 4. Divided by age.

Sensitivity analysis 1. Compare the changes in I2 and the combined effect size after excluding literature. 2. Observe the difference in data between the fixed effects model and the random effects model.

Country(ies) involved China.

Keywords Orthopedics; Patients; Fear of falling; Odds Ratio; Risk Factors.

Contributions of each author
Author 1 - shuhan Li - The first author conceived and designed this study, conducted literature search, evaluated literature quality, extracted data, and conducted analysis.
Email: 810561799@qq.com
Author 2 - jinyan cui - The second author conducted literature search, evaluated literature quality, extracted data, and made critical revisions to important knowledge content.
Email: jdcjy520@163.com
Author 3 - lijuan wu - The author conducted data extraction and explained the results, making critical revisions to important knowledge content.