

Reply to the Letter to the Editor "Frailty Is a Risk Factor for Falls in the Older Adults: A Systematic Review and Meta-Analysis"

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Dear Editor,

In their Letter-to-the-Editor, Zhang et al. (1) raised concerns about our Systematic Review & Meta-Analysis on frailty and falls (2). We would like to clarify these concerns in the present response letter.

Regarding the Methodological Concern

We extracted data in the form of 2x2 contingency tables from all the articles for our analysis. Given that all the studies were cohort in design, we opted for the Relative Risk (RR) as the unified effect size. However, to ensure robustness and transparency in our approach, we also analyzed studies based on their reported effect sizes separately: For the 20 studies that reported Odds Ratios (OR), the pooled OR indicated that frail elderly individuals had a 1.89 times higher likelihood of falling compared to their non-frail counterparts (OR 1.89, 95% CI: 1.54-2.33, I² 87.8%). For the 7 studies that reported RRs, the combined RR was 1.68 (95% CI: 1.32-2.14, I² 98%). For the 2 studies that reported Hazard Ratios (HR), the pooled HR was 1.55 (95% CI: 1.52-1.58, I² 47.8%). Due to the multiplicity of effect sizes and to maintain clarity in our presentation, we showcased a unified effect size in our main results..

Regarding the Suggestion on Subgroup Analysis

We concur with Zhang et al.'s suggestion on the importance of conducting a subgroup analysis based on the setting (hospital vs community). This differentiation could indeed provide more nuanced insights into the risk factors and outcomes. We will consider this valuable recommendation in our future research endeavors..

On the Issue of Adjusted Variables

We acknowledge the importance of providing a comprehensive list of variables that were adjusted for in each original study. To address this, we have detailed the fully adjusted variables for each study, as shown in Table 1, which should provide clarity and aid in the interpretation of our findings.

Table 1. Variables Used for Adjustment in the Original Studies

Study	Adjustment variables
Fried-2001	Age, gender, indicator for minority cohort, income, smoking status, brachial and tibial blood pressure, fasting glucose, albumin, creatinine, carotid stenosis, history of CHF, cognitive function, major ECG
Woods-2005	Age, ethnicity, education, and income
Ensrud-2007	Age
Ensrud-2008	Age
Bilotta-2012	Age, gender, CIRS m score, dementia, depression, education, income, BADL disability
Forti-2012	NA
Samper-Ternent-2012	NA
Sheehan-2013	Age, gender, BMI, potential clinical and demographic confounders
Bennett-2014	Age, gender, living status, comorbidity, activities of daily living, and instrumental activities of daily living
Kojima-2015	Age, gender, and history of two falls in the past year
Papachristou-2017	Age
Fang-2022	BMI, gender, cognitive dysfunction and oral disease
Doi-2018	BMI, Geriatric Depression Score, Mini-Mental State Examination
Ma-2019	NA
Bartosch-2020	BMI, 25(OH)D, fractures, smoking
Cai-2020	Age, gender, education and marital status, smoking and drinking, health conditions
Leblanc-2020	NA
Pecheva-2020	NA
Abraham-2021	NA
Jarman-2021	NA
Li,J-2021	NA
Li,Y-2021	Age, gender, albumin, MNA-SF (mini-nutritional assessment short form) and URR (Urea reduction rate)
Athuraliya-2022	NA
Beauchet-2022	NA
Grosshauser-2022	Age, gender, and days in study
Jiao-2022	Age, BMI, surgery, and hospital ward cluster effect
Jung-2022	Age, gender
McEvoy-2022	Age, gender
Middleton-2022	NA

References

- Zhang X-M, Gao M, Hu S. Comment on "Frailty Is a Risk Factor for Falls in the Older Adults: A Systematic Review and Meta-Analysis". 2023; J Nutr Health Aging
- Yang ZC, Lin H, Jiang GH, Chu YH, Gao JH, Tong ZJ, Wang ZH. Frailty Is a Risk Factor for Falls in the Older Adults: A Systematic Review and Meta-Analysis. J Nutr Health Aging 2023;27(6):487-595. doi: 10.1007/s12603-023-1935-8

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