

Letter to the Editor on “Association between nutritional indices and mortality after hip fracture: a systematic review and meta-analysis”

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Dear Editor,

We have recently read with interest the article published in the European Review for Medical and Pharmacological Sciences by Liu et al¹ (2023).

The authors would like to bring to your attention some points:

1. The paper was published in 2023, and the authors have included articles until the 25th of September 2022²⁻¹⁴. Three articles published before that time were not included, and no explanation was provided. The articles that Liu et al¹ did not include in their study are shown in Table I.
2. Moreover, Liu et al¹ included articles that did not follow their inclusion and exclusion criteria. The inclusion and exclusion criteria are as follows “All studies carried out on hip fracture patients were eligible. For inclusion, the study had to report the association between PNI, CONUT, GNRI, or MNA-SF and mortality after hip fracture. Outcomes were to be reported as odds ratios (OR), risk ratios (RR), or hazard ratios (HR) with 95% confidence intervals (CI). Exclusion criteria were: Studies on femoral shaft fractures or not reporting separate data for hip fractures. Studies using other versions of MNA and not MNA-SF; studies with a repetitive or overlapping sample”¹. However, Liu et al¹'s meta-analysis included the articles by Koren-Hakim et al², Miu and Lam³, Kotera⁷ and Yokoyama et al¹¹ that did not describe mortality outcome as OR, RR, or HR with 95% CIs. Therefore, Liu et al¹ might explain in the Methods section of the manuscript any further source of information used in the analysis (i.e., specific inquiries made to the authors for unpublished material, etc.).
3. In addition, we noticed inconsistencies regarding the inclusion of risk data.

In Figure 2 of Liu et al¹'s paper, the OR of 1.47 (95% CI: 0.44-4.91) abstracted from Hao et al⁸ does not correspond to the one reported in the original article, which is 0.68 (95% CI: 0.21-2.25) and the OR of 1.25 (95% CI: 1.08-1.45) abstracted from Fujimoto et al¹² does not correspond to the one reported in the article which is 0.80 (95% CI: 0.68-0.93).

In Figure 3¹, the value extracted from Ren et al⁵, OR of 5.00 (95% CI: 1.54-16.23), does not correspond to the value reported in the original article which is HR of 0.20 (95% CI: 0.028-0.650), and the value extracted from Feng et al¹⁰, OR of 1.09 (95% CI: 1.00-1.18), does not correspond to the value reported in the article which is HR of 0.917 (95% CI: 0.845-0.996).

In Figure 4¹, the value extracted from Helminen et al⁶, OR of 11.16 (95% CI: 3.78-32.91), does not correspond to the value reported in the original article, which is HR of 4.37 (95% CI: 1.77-10.80) and the value from Thörning et al⁹, OR of 1.47 (95% CI: 1.20-1.80), does not correspond to the value reported in the article which is OR of 0.68 (95% CI: 0.56-0.83).

The values' differences between Liu et al¹'s meta-analysis and the original papers mentioned above should be explained by the authors with additional details in the Methods section.

In conclusion, Liu et al's approach to article screening and selection lacked a systematic framework, and their meta-analysis was conducted using a methodology that may lead to a possible variation in the results reported in the meta-analysis.

Table I. Articles¹⁵⁻¹⁷ not included by Liu et al¹.

Author Year Country	Population Sample size Period Age (y) Sex (M%)	Other information	Nutritional assessment	Fracture Management of fracture	OUTCOME (Follow up)	OR/RR/HR	Matched or adjusted variables	NOS
Nuotio et al ¹⁵ 2015 Finland	472 patients Period: Jan 2010-Dec 2012 Age: 65+ M: 24.8%	Patients unable to move 2.3%; Living in an institution 14%	MNA-SF 12-14: normal 8-11: at risk 0-7: malnourished	Hip fracture Surgery	Mortality (4 months)	HR -At risk of malnutrition -Malnourished	Age, sex, ASA grade, pre-fracture memory disorder, Pre-fracture living arrangements	8
Su et al ¹⁶ 2020 Taiwan	678 patients Period: Jan 2009-Dec 2019 Age range: 69-89 M: 34.2%	Hypertension 66.1%; Diabetes Mellitus 34.5%; Coronary artery disease 13.4%; Congestive heart failure 4%; Cerebral vascular accident 13%; End-stage renal disease 5.3%	GNRI <82: severe risk 82-91: moderate risk 92-98: low risk >98: normal	Femoral fracture Any treatment	Mortality (in-hospital)	OR -Severe risk of malnutrition -Moderate risk of malnutrition -Low risk of malnutrition	Age, sex, preexisting comorbidities, injury severity	9
Feng et al ¹⁷ 2022 China	195 patients Period: Jan 2012-Dec 2018 Median age: 78 M: 26.2%	Hypertension 49.2%; Diabetes mellitus 25.1%; Coronary artery disease 18.5%; Arrhythmia 21.0%; Cerebral infarction 19.0%; Deep vein thrombosis 6.7%; Pulmonary disease 11.3%; Operation history 7.7%	PNI ≤38: malnourished >38: normal	Hip fracture Surgery	Mortality (Long-term post- operative: mean follow up 1,339±610 days)	HR -Malnourished	-	7

MNA-SF: Mini Nutritional Assessment Short-Form; GNRI: Geriatric Nutritional Risk Index; PNI: Prognostic Nutritional Index.

Conflict of Interest

The authors declare no conflict of interest.

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