

## Do oral nutritional supplements effectively reduce malnutrition or its adverse outcomes in older people with frailty?



Although malnutrition and frailty are distinct conditions, they are related syndromes with notable overlap, each one aggravating the other with similar adverse functional and health outcomes. For example, unintended weight loss, a characteristic of malnutrition, is associated with the loss of skeletal muscle mass and function with age and is a key risk factor for developing frailty.<sup>1</sup> Estimates of malnutrition prevalence and malnutrition risk in older people with frailty varies widely. Among malnourished older adults, prevalence of frailty ranged between 27%<sup>2</sup> and 68%,<sup>3</sup> and for older people with frailty, prevalence of malnutrition ranged between 10%<sup>3</sup> and 16%, increasing to 66% if the risk of malnutrition was included.<sup>2</sup> The variation in prevalence is probably a result of the type of population studied and inconsistencies in measuring frailty, as it is difficult to quantify and diagnose. Although studies have been conducted mostly in community-dwelling older adults, there is a need to better understand the overlap between malnutrition and frailty in hospitalised older adults and those at high risk of long-term diseases.<sup>4</sup>

Malnutrition is a complex problem and a substantial threat to our health, especially as we age. Although much focus has been on illness and disease, growing numbers of older people are reporting food insecurities, thereby increasing malnutrition risk; these numbers have been exacerbated since the COVID-19 pandemic, as a result of the psychological consequences of social isolation, affecting appetite and interest in eating, thus reducing food intake.<sup>5</sup> As such, the impact of COVID-19, and now the cost of living crisis, is making the need more important than ever. It is not surprising that malnutrition comes at significant cost across both health and care systems. The cost of malnutrition in the UK exceeds GBP£23.5 million per year, and it costs three times more to treat someone who is malnourished than someone who is not malnourished (£7408 vs £2155).<sup>6</sup>

Current UK guidance focusses on treating malnutrition to provide oral or artificial nutrition support, where indicated, including dietary advice, food fortification or prescribed oral nutritional supplements (ONS).<sup>7</sup>

However, there is little evidence on whether ONS (with or without other nutritional support) are effective in reducing malnutrition specifically for older people with frailty.

Given this background context, the systematic review and meta-analysis of Katie Thomson and colleagues<sup>8</sup> in *The Lancet Health Longevity* is timely and important for our growing ageing population who are at high risk of adverse outcomes from both malnutrition and frailty. Their assessment of clinical effectiveness, cost-effectiveness, and acceptability or adherence of ONS in older adults ( $\geq 65$  years) with frailty who were either malnourished or at risk of malnutrition included 11 randomised controlled trials and 822 participants. Six of the selected studies were fully, or part-funded by industry. Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) assessments suggested that the evidence of very low-certainty. ONS showed a slightly positive effect on energy (kcal) intake (standardised mean difference 1.02 [95% CI 0.15 to 1.88];  $I^2=87\%$ ; four studies), protein intake (standardised mean difference 1.67 [-0.03 to 3.37;  $I^2=97\%$ ; four studies), and mobility (mean difference 0.03 [0.02 to 0.04];  $I^2=0\%$ ; four studies), compared with standard care, with no consensus of ONS on quality of life. Only one economic evaluation was included showing cost-effectiveness of ONS, which was conducted in care homes.

Although the findings of the study by Thomson and colleagues<sup>8</sup> are not able to firmly answer the question whether ONS effectively reduce malnutrition or its adverse outcomes in older people with frailty, their contribution is important because it raises the concern of both malnutrition and frailty in older people and gaps in the evidence base. The authors recognise the small evidence base, studies of small sample size, limited evidence on health-care resources, and interventions of short duration, thus stressing the need for high-quality, well designed, and appropriately powered, robust studies, independently funded across a range of settings. Additionally, Thomson and colleagues

Published Online  
September 15, 2022  
[https://doi.org/10.1016/S2666-7568\(22\)00193-3](https://doi.org/10.1016/S2666-7568(22)00193-3)  
See [Articles](#) page e654

highlight research comparing ONS with other dietary interventions, including food fortification and dietary advice. Attention is needed on studies that address the cost-effectiveness of ONS for frail older people and, given the paucity of qualitative studies, to understand acceptability of ONS in older people in hospitals and living in community settings.

However, given the overlap in the prevalence of malnutrition and frailty, well designed complex interventions that combine ONS and physical activity also warrant investigation as a way forward for managing both conditions.<sup>1</sup> Better defined inclusion criteria for the severity of malnutrition and frailty are needed, using standard assessment tools validated for the relevant population and stage and treatment details of the condition, which should be clearly described in a range of health and care settings. A more consistent approach to define and describe the quality of different interventions with better reporting are needed, together with consideration of behaviour change strategies to target the intervention. Outcomes need to be measured using tools, validated for the relevant population and at consistent time points, and better reflect practice.<sup>9</sup>

Taken together with the findings of the study by Thomson and colleagues,<sup>8</sup> it is clear that future well conducted research is crucial to improve outcomes for growing diverse populations of older people with malnutrition and frailty, and to inform guidance for clinicians and practitioners who have a key role in

managing these conditions across health and social care settings.

I declare no competing interests.

Crown Copyright © 2022 Published by Elsevier Ltd. This is an Open Access article under the CC BY-NC-ND 4.0 license.

**Jane Murphy**

**[jmurphy@bournemouth.ac.uk](mailto:jmurphy@bournemouth.ac.uk)**

Faculty of Health and Social Sciences, Bournemouth University, Bournemouth BH8 8GP, UK

- 1 Fougère B, Morley JE. Editorial: weight loss is a major cause of frailty. *J Nutr Health Aging* 2017; **21**: 933–35.
- 2 Wei K, Nyunt MSZ, Gao Q, Wee SL, Ng TP. Frailty and malnutrition: related and distinct syndrome prevalence and association among community-dwelling older adults: Singapore longitudinal ageing studies. *J Am Med Dir Assoc* 2017; **18**: 1019–28.
- 3 Verlaan S, Ligthart-Melis GC, Wijers SLJ, Cederholm T, Maier AB, de van der Schueren MAE. High prevalence of physical frailty among community-dwelling malnourished older adults—a systematic review and meta-analysis. *J Am Med Dir Assoc* 2017; **18**: 374–82.
- 4 Laur CV, McNicholl T, Valaitis R, Keller HH. Malnutrition or frailty? Overlap and evidence gaps in the diagnosis and treatment of frailty and malnutrition. *Appl Physiol Nutr Metab* 2017; **42**: 449–58.
- 5 Murphy JL. Prevention, identification and management of malnutrition in older people in the community. *Nursing Standard* 2022; published online July 4. <https://doi.org/10.7748/ns.2022.e11891>.
- 6 Elia M. The cost of malnutrition in England and potential cost savings from nutritional interventions (short version). Southampton: Malnutrition Action Group of BAPEN and the National Institute for Health Research Southampton Biomedical Research Centre, 2015.
- 7 NICE. Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition. Clinical guideline number 32. London: National Institute for Health and Care Excellence, 2017.
- 8 Thomson KH, Rice S, Arisa O, et al. Clinical effectiveness and cost-effectiveness of oral nutritional supplements in frail older people who are malnourished or at risk for malnutrition: a systematic review and meta-analysis. *Lancet Health Longev* 2022; published online Sept 15. [https://doi.org/10.1016/S2666-7568\(22\)00171-4](https://doi.org/10.1016/S2666-7568(22)00171-4).
- 9 Baldwin C, de van der Schueren MA, Kruijenga HM, Weekes CE. Dietary advice with or without oral nutritional supplements for disease-related malnutrition in adults. *Cochrane Database Syst Rev* 2021; **12**: CD002008.