Abstract

Frailty is a multi-dimensional syndrome commonly associated with older age and characterised by reduced physical, mental and social reserve. Prevalence rates for frailty in older adults continue to rise, putting individuals at increased risk of adverse events such as falls, disability and early death. Psychological health is also affected, and depression is more common in older adults with frailty. Treatment for this population is more likely to be pharmacological than psychological, meaning an increased risk for polypharmacy and side effects. A systematic review was undertaken by Tao et al. 2023 to explore non-pharmacological interventions for older adults with frailty on psychological outcomes. This commentary will critically appraise the review, consider the review's implications for community practice, and discuss requirements for further research.

Key Points

- Group-based physical exercises and complimentary or alternative therapies may help reduce depressive symptoms and increase general mental health in older people with frailty, although further rigorous research is required to be conclusive.

- Further systematic reviews have suggested that physical activity and alternative therapies such as Tai Chi indicate positive physical and psychological outcomes for older adults with frailty.

- A person-centred and joined-up approach to community care is required to successfully integrate a response to the physical and psychological needs of older adults.

- Further research should recognise the frailty levels of participants, the wider social determinants of frailty, and specific characteristics of psychological outcomes.

Introduction

Frailty is a multidimensional concept, characterised by advancing age, and diminished physiological reserve (Calciolari & Luini 2023). The most common symptoms of frailty are a deterioration of activities of daily living, mobility, nutritional status, cognition and endurance (Pel-Little et al. 2009). The global incidence of frailty in community dwelling adults over 60 is estimated at 13.6% (Ofari-Asenso 2019). In England, the estimated prevalence of frailty in adults over 50 is 8.1% (Sinclair et al. 2022) with the prevalence rate rising substantially over the last two decades (Walsh et al. 2023). In the UK, increasing frailty is associated with increased healthcare utilisation such as inpatient length of stay, and substantial additional costs to healthcare services (Han et al. 2019).

Frailty may represent the transition between healthy aging and disability and as such is a priority for public health (Cesari et al. 2016). Older adults who are frail may experience adverse health events such as falls and fractures, disability and an increased risk of premature death (Kojima et al. 2019). Older adults with frailty are also more likely to have depression (Soysal et al. 2017), with severity of physical frailty significantly associated with increased symptoms of poor mental health (Jiang et al. 2023). In the UK, it is suggested that limited consultation time in primary care and the complexity of needs in older adults with frailty means physical health is prioritised over mental health, with healthcare professionals reporting a lack of available and appropriate treatment (Frost et al. 2019). Older adults presenting with mental health problems are also more likely to be prescribed medication than psychological therapies (Age UK 2024). This is despite support for the efficacy of therapeutic interventions in older adults, and evidence that older adults prefer psychological therapies to pharmacological intervention (Bryant et al. 2017). Pharmacological treatment also increases the risk of polypharmacy, drug interactions and undesired side effects (Kratz and Diefenbacher 2019).

A systematic review by Tao et al. 2023 aimed to explore the evidence for the effectiveness of non-pharmacological interventions on psychological outcomes among older people with frailty. This

commentary aims to critically appraise the methods used within the review (Tao et al. 2023) and expand upon the findings in the context of community practice and future research.

Findings of the review by Tao et al. 2023

From a total of 4726 identified records, 116 articles were retrieved for full screening and 13 articles from 11 studies were included. Six studies were undertaken in Europe, two in Japan and one in Australia, China and Turkey respectively. There were 3219 participants in the review of which 69% were female and the mean age ranged from 76.3 to 85.5 years. Nine studies had a low risk of bias or some concerns and two studies had a high risk. Included studies were interventions of physical exercise, complementary or alternative medicine (acupressure and music therapy), case management and advanced care planning. Psychological outcomes reported in the review were summarised in terms of depressive symptoms, general mental health status and psychological distress.

Physical exercise interventions (n=3) consisted of balance, strengthening and stretching exercises, and were delivered in groups (face to face) by physiotherapists, nurses and physical exercise trainers. Interventions took place 2-5 times a week for a duration ranging from 8-24 weeks. Physical group exercise significantly reduced depressive symptoms immediately after the intervention compared to usual care, based on pooling of two studies with low-certainty evidence (SMD: -0.46, 95% CI: −0.81 to −0.10, p = .01). General mental health status was significantly improved in the intervention group of one study compared to usual care (narrative synthesis only, no statistics reported).

Complementary and alternative interventions included acupressure (n=1) and music therapy (n=1), provided by a registered practitioner/trained care giver and music therapist respectively, 1-4 times a week for 12 weeks. Narrative synthesis suggested a significantly greater improvement in depressive symptoms for these two study interventions compared to the control groups. General mental health status was significantly improved by acupressure and participants in the music therapy group reported a significantly lower level of psychological distress than the control group (no statistics reported).

Case management interventions (n=5) consisted of assessment, planning, implementation, monitoring and evaluation to meet individual health needs. Interventions were delivered individually and face to face by an interdisciplinary team for 12-24 months. The effect of case management on depressive symptoms was not different to usual care in the results of three pooled studies based on high certainty evidence (SMD: 0.02, 95% CI: −0.14 to 0.19, p = .79). General mental health status was not improved by case management intervention in two studies (statistics not reported). One study explored advanced care planning, involving the discussion of preferences for future health care needs (duration not reported). General mental health status was not improved by the intervention (no statistics reported).

Commentary

Critical Appraisal of Tao et al. 2023

Using the AMSTAR-2 critical appraisal tool for systematic reviews (Shea et al. 2017), a total of 12 criteria out of 16 were judged to be satisfactory (Table 1). The four unmet criteria and their potential limitations (Shea et al. 2017) related to: 1) explanation for the selection of study designs (Randomised Controlled Trials [RCTs] or clinically controlled trials), 2) providing a list of excluded studies, 3) reporting on sources of funding for included studies, 4) no investigation of publication bias. Addressing each of these in order, different study designs offer different strengths and weaknesses, and it is recommended that review authors consider whether restricting included studies in this way will give an incomplete summary of intervention effects. Providing a list of excluded studies, it is argued, should be fully visible to ensure the impact of their exclusion is considered. Consideration of funding sources for included studies increases transparency of industry funded studies and their findings, however the included studies identified in the review were non-pharmacological rather than industry related. Finally, a lack of publication bias is an important issue however the authors acknowledge that this was due to having less than the 10 included studies needed to show funnel plot

asymmetry. Overall, the quality of the systematic review by Tao et al. 2023 was deemed to be an accurate and comprehensive summary of the available results of that explore non-pharmacological interventions for older adults with frailty. However, some caution should be applied when interpreting the findings for practice due to the limitations identified in the AMSTAR-2 critical appraisal.

Table 1. Critical appraisal using the AMSTAR-2 tool for assessing systematic reviews

	AMSTAR-2 items	**Responses**
1.	Did the research questions and inclusion criteria for the review include the components of PICO?	Yes. Only randomised controlled and clinical controlled trials which included older adults (aged 65 and older) with frailty who received any non-pharmacological intervention compared to any type of comparator were included. Study outcomes were any psychological outcomes.
2.	Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?	Yes. The review was registered in the International Prospective Register of Systematic Reviews (PROSPERO).
3.	Did the review authors explain their selection of the study designs for inclusion in the review?	No. Included study designs were restricted to RCTs and controlled clinical trials with no rationale provided for excluding other study types.

4. Did the review authors use a comprehensive literature search strategy?	Partial yes. A multi-database search was undertaken from date of inception to November 2022. Additional hand searching and citation screening of all included studies was undertaken. Supplementary information was unavailable to check the full search strategy.
5. Did the review authors perform the study selection in duplicate?	Yes. Screening was carried out by two reviewers independently.
6. Did the review authors perform data extraction in duplicate?	Yes. Data extraction was carried out by two reviewers independently.
7. Did the review authors provide a list of excluded studies and justify the exclusions?	No. Reasons for exclusion were given but no list of excluded studies was provided.
8. Did the review authors describe the included studies in adequate details?	Yes. The results and the summary table of included studies described the included studies in adequate detail.
9. Did the review authors use a satisfactory technique for assessing the risk of bias in the individual studies that were included in the review?	Yes. Assessment of bias was undertaken using the revised Cochrane risk-of-bias tool for randomised trials (RoB 2). Certainty of the evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE).
10. Did the review authors report on the sources of funding for the studies included in the review?	No. Sources of funding were not reported.

11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?	Yes. Meta-analysis was performed and if the effects were unlikely to be identical, a random effects model was applied, otherwise a fixed effects model was used. Where meta-analysis was not possible due to insufficient data, a narrative synthesis was undertaken.
12. If meta-analysis was performed did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?	Yes. Certainty of the evidence and risk of bias was discussed in the interpretation of the meta-analysis.
13. Did the review authors account for RoB in individual studies when interpreting/discussing the results of the review?	Yes. The risk of bias of included studies was discussed in the results of the review.
14. Did the review authors provide a satisfactory explanation for and discussion of, any heterogeneity observed in the results of the review?	Yes. A take one away sensitivity analysis was undertaken to explore possible causes of heterogeneity. The impact of high heterogeneity was discussed as a limitation.
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias)	No. Publication bias was not assessed with the reason provided that less than ten studies were included in the meta-analysis.

and discuss its likely impact on the results of the review?	
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?	Yes. The authors reported there was no external funding for the systematic review.

Impact of non-pharmacological interventions on psychological outcomes for older people with frailty

Tao et al. 2023 identified that physical group exercise interventions for older adults with frailty are potentially linked to a reduction in depressive symptoms and an increase in general mental health. However, the evidence for physical group exercise was limited by the inclusion of only three RCTs with only two suitable for meta-analysis, and a low certainty of evidence. The acupressure and music interventions were also found to be associated with a decrease of depressive symptoms, improvement of general health status (acupressure) and psychological distress (music therapy), yet these outcomes were also limited to a single study of each intervention type.

Recent systematic reviews are supportive of non-pharmacological treatments for older people with frailty. Nurse-led frailty interventions within community settings including multi-components such as physical exercise and nutritional education were shown to improve the mental health, physical functioning, nutritional status and frailty progression of older adults (Kasa et al. 2023). Similarly, physical training in all settings was shown to have a significant effect in improving quality of life for older adults with frailty, and physical activity overall was the most effective non-pharmacological intervention for reducing frailty (Sun et al. 2023). Evidence so far therefore suggests that interventions incorporating physical activity may be advisable for this population. Reviews of complementary or alternative therapies have also identified positive outcomes for older adults with frailty, such as Tai

Chi which is reported to significantly improve depression, quality of life, physical performance, and falls when compared to non-exercise controls (Huang et al. 2022). Yoga may also improve frailty markers such as gait speed, lower extremity strength and endurance when compared to inactive controls (Loewenthal et al. 2023). In the UK, complementary therapies are increasingly adopting a significant role in supporting both physical and mental health, and the use of social prescribing to offer such therapies within the NHS is significant for helping people live better, longer and healthier (APPG 2023). Offering individuals in the community intervention options such as these may help to avoid potential side effects of medication and polypharmacy issues, increase personal preference and acceptability, whilst reducing costs. In other words, for ethical, practical, and economic reasons, future research ought to further explore alternative and complementary interventions for older adults with frailty and complex needs in the community (i.e. physiological, psychological, cognitive, and social).

Guidance for older adults with frailty

Current guidance for midlife approaches to delaying frailty suggest that population-level initiatives should be developed to reduce the risk of frailty, dementia and disability including being more physical active, adopting a healthy diet, reducing alcohol consumption and stopping smoking (NICE 2015). More recently, the British Geriatric Society's blueprint for preventing and managing frailty in older people encompasses physical, mental, emotional and spiritual health including regular exercise, good quality nutrition and social contact (BGS 2023). Furthermore, the NHS FRAIL strategy to deliver an improve acute frailty services across England, emphasises that '*frailty is everyone's business*', and older people should be supported to receive the right person-centred intervention across all services including ongoing support in the community (NHS England 2024).

Person-centred approach to care of older adults

The review by Tao et al. 2023 brings to the foreground the integral and interacting nature of physical activity and psychological wellbeing. Whilst this is not a new insight (Rodríguez-Fernández et al. 2017), the structure of the health and care system in the UK by design does not enable a responsive approach to the needs of the individual. The NHS is serving a population that is living longer with more complex health needs and yet has failed to meet this challenge, leading to missed opportunities for improving long-term health of patients due to a lack of joined up care between primary and community services (Mahase 2023). As such, advocating for a truly holistic approach to older adult care is one of the practice recommendations of the present commentary. Community nurses have a key role in ensuring older patients are holistically assessed, working in partnerships with patients to ensure shared decisions are made (Horner 2022). A person-centred, holistic approach ought to take into consideration all individual needs – physiological, psychological, cognitive, and social – whilst also considering the individual's daily life context.

Further research in older adults with frailty

In the first review of this nature, these results are promising, yet further research is required with greater methodological rigour, to confirm the effectiveness of such interventions. The review authors suggest closer attention be paid to deviations from interventions, missing outcomes and measurement of outcomes. Furthermore, older adults with frailty have typically been explored as a single population without consideration for differences in need and experiences between different clinical frailty categories. Further research that responds to individuals' needs such that takes into consideration frailty levels, other psychological outcomes, as well as the specific characteristics (e.g. clinical depression versus reactive depression) is required. Furthermore, transitions from fit to frailty are associated with older age, higher deprivation, female sex, Asian ethnicity and urban dwelling (Walsh et al. 23) and as such research studies should recognise the wider social determinants of frailty and health inequity. As older adults with frailty are always at risk of further decline of their physical,

and in turn their psychological health, psychological outcomes ought to be enriched with measurements that are indicative of quality of life (e.g. number of (avoided) hospitalisations) that may be affected by alternative interventions, and could arguably be more meaningful in real life scenarios.

Conclusion

Frailty continues to be a significant physical and mental health concern for an increasingly aging population. The systematic review by Tao et al. (2023) identified physical exercise in a group format, music therapy and acupuncture interventions may reduce depressive symptoms in older adults with frailty. The results however were limited by the evidence available; a small number of low certainty studies. Further methodologically robust research is therefore required to expand the evidence base with higher certainty evidence whilst taking into consideration frailty characteristics, relevance of psychological outcomes, and the wider social determinants of frailty. From a community nursing perspective, the review findings also highlight the relevance of person-centred and integrated care to address the intersection between physical and mental health in older adults.

Reflective questions

1. How are we assessing and reviewing the psychological health of people living with frailty in the community?
2. How do we engage older adults living with frailty in the community to access and utilise non-pharmacological interventions?
3. Can the role of social prescribers close the communication gap between primary care and community services?

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