

## EDITORIAL

# Falls prevention and frailty management in community-living older adults: Current challenges in community practices

TianMa Xu, PH.D.<sup>1\*</sup>

Health and Social Sciences Cluster, Singapore Institute of Technology

## ABSTRACT

This paper addresses the current challenges associated with implementing falls prevention and frailty management programs for older adults in the community setting. Falls and frailty are closely linked to various ageing-related health issues. While extensive research has been conducted on falls and frailty in older adults, these areas have often been studied in isolation from each other over the past few decades. Although evidence-based fall prevention and frailty management programs have been well-established in well-developed countries, barriers to implementing condition-specific interventions, such as manpower shortages, space constraints, and lack of public awareness and funding, still exist. Additionally, some evidence-based programs have shown limited clinical effectiveness when implemented in overseas contexts. Effective programs that target both fall prevention and frailty management remain limited. Currently, there's a growing trend of adopting a combined approach in designing and implementing programs that address both falls and frailty in the older adult population. Encouraging future research studies in this area is crucial to support the translation of evidence into practice for fall prevention and frailty management.

**Keywords:** Falls prevention, Frailty Management, Frailty

## 1. Introduction

Rapid demographic transition has a significant impact on health and community care systems. Many ageing-related health issues are highly associated

with falls and frailty<sup>[1-3]</sup>. Fall is defined as accidentally landing on the ground or any lower surface<sup>[4]</sup>. Frailty can be defined as a state characterized by diminished strength and physiological dysfunction, which raises the likelihood of increased dependency,

### \*CORRESPONDING AUTHOR:

Dr Tianma Xu, Assistant Professor, Health and Social Sciences Cluster, Singapore Institute of Technology, [Tim.xu@Singaporetech.edu.sg](mailto:Tim.xu@Singaporetech.edu.sg)

### ARTICLE INFO

Article Received: 10 April 2024 | Article Accepted: 3 May 2024 | Article Published: 10 May 2024

DOI: <https://doi.org/10.30564/jgm.v5i1.6339>

### CITATION

Xu,T.,2024. Falls prevention and frailty management in community-living older adults: Current challenges in community practices. Journal of Geriatric Medicine. 6(2): 1–5. DOI: <https://doi.org/10.30564/jgm.v5i1.6339>

### COPYRIGHT

Copyright © 2024 by the author(s). Published by Bilingual Publishing Group. This is an open access article under the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License (<https://creativecommons.org/licenses/by-nc/4.0/>).

vulnerability, or mortality for an individual<sup>[5]</sup>. Out of the older adult population worldwide, approximately 26.5% experienced falls<sup>[6]</sup> and approximately 5.8%-35% and 18.8%-50.9% had frailty and pre-frailty respectively<sup>[7]</sup>.

Older adults who are at risk of falling or experiencing frailty often encounter similar challenges, including limitations in their daily activities and restricted participation within their community, which can potentially result in frequent hospitalizations and disabilities<sup>[1, 7]</sup>. Older adults with frailty are highly associated with falls<sup>[3, 7]</sup>. The majority of older adult fallers develop a fear of falling, which can lead to further restrictions in daily activities and social isolation, ultimately increasing the risk of falling and reducing their overall quality of life<sup>[8]</sup>.

## 2. Current Challenges in Community Practices

Over the past two decades, there has been significant research conducted on falls and frailty in older adults, leading to the development of numerous evidence-based programs and clinical practice guidelines<sup>[2, 5, 9]</sup> tailored to falls and frailty. However, it is worth noting that these health conditions have traditionally been studied in isolation from each other. Community service providers encounter barriers in rolling out fall prevention and/or frailty management programs due to limited resources, including a common pool of client groups, manpower shortage, space constraints, and lack of funding<sup>[10-12]</sup>. The interventions may not effectively reach older adults who are socially isolated due to their fear of falling, which is a result of the spiral effects following a fall<sup>[8]</sup>. Moreover, there are issues regarding public awareness and gaps in evidence-based practices. These challenges are particularly pronounced in community care organizations with smaller teams. A frequently asked question from community service providers is “*Can we have a comprehensive program that effectively addresses both falls and frailty in the older adult population?*”

## 3. Strategies and Interventions

According to the literature, falls are preventable as indicated by numerous evidence-based fall prevention programs, such as Stepping On program<sup>[13]</sup>, Otago Exercise Program<sup>[14]</sup>, and Tai Chi - moving for better balance<sup>[15]</sup>. Recent systematic reviews<sup>[16-18]</sup> concluded the effectiveness of exercise and physical activities in preventing falls in community-living older adults. Exercise interventions including balance exercises (e.g., tandem stand, single-leg stand), functional exercises (e.g., sit-to-stand transitions, heel-to-toe walking, heel raises) and resistance exercises (e.g., using resistance bands or ankle weights) can reduce fall rates by 23%<sup>[16]</sup>. In addition, the recent world guideline for fall prevention recommends providing multicomponent interventions to older adults who are at a high risk of falling<sup>[9]</sup>.

Similarly, frailty is potentially reversible especially among older adults with prefrailty and mild frailty<sup>[12, 19]</sup>. A systematic review concluded that the most effective interventions to reduce frailty were exercise and nutrition interventions<sup>[20]</sup>. In addition, the implementation of a combined multidisciplinary treatment demonstrated a notable and long-term (up to 12 months) beneficial effect on reducing the prevalence of frailty. More importantly, exercise-based frailty management programs were shown effective in fall reduction<sup>[20]</sup>.

While many evidence-based fall prevention programs were developed in Western countries (e.g. Australia, the USA and Canada), some of these programs didn't show positive fall reduction when they were tested in Asia. For instance, the Stepping On program is a multicomponent fall prevention program that has been proven effective in helping community-living older adults reduce falls by 31%<sup>[13]</sup> in Australia and the USA<sup>[21]</sup>. However, the recent Stepping On pilot<sup>[22]</sup> in Singapore didn't reach significant outcomes<sup>[23]</sup>. This result was in line with a systematic review finding, where multifactorial fall prevention interventions did not reach significance in reducing the number of fallers in Asia<sup>[18]</sup>.

While many scholars have been investigating the correlations between frailty and falls<sup>[3, 7]</sup>, effective

programs targeting both fall prevention and frailty management remain limited. In Singapore, a 12-week group-based multicomponent frailty management program “Say No to Frailty (SNTF)” led by a trained program facilitator has been proven feasible and showed positive health outcomes in helping community-living older adults with frailty and pre-frailty improve physical functions and fall-related self-efficacy, increase community participation, and reduce falls<sup>[10, 24]</sup>. The program uses adult learning principles<sup>[25]</sup> to allow individuals in small groups to learn the right exercises and strategies for managing different risk factors at their own pace and be responsible for their health. The clinical effectiveness of the SNTF program is yet to be confirmed since the cluster randomized clinical trial<sup>[26]</sup> is still ongoing.

#### 4. Recommendations and Future Directions

Firstly, we should adopt the multidisciplinary approach in both frailty management and fall prevention as suggested in various practice guidelines<sup>[2, 5, 9]</sup>. Although facilitating behavioural changes in older adults can be challenging, it is important to incorporate adult learning principles<sup>[25]</sup> within the program. This approach allows older adults to learn about managing various risk factors at their own pace and take responsibility for their health and safety, particularly in small group settings<sup>[10, 13, 27]</sup>.

Secondly, a multicomponent program including balance and strength exercises<sup>[28]</sup> targeting both fall prevention and frailty management should be considered to help older adults prevent falls and manage frailty with confidence. A total weekly dose of 3<sup>+</sup> hours of exercise interventions (including balance and functional exercises) is recommended to reduce the rate of falls<sup>[17]</sup>.

Thirdly, evidence suggests that nutrition interventions including both calcium and protein intake from natural food sources should be included as part of the multicomponent programs to prevent fractures post-fall and fight against frailty<sup>[9, 20]</sup>. Older adults should be encouraged to practice outdoor walking daily to receive Vitamin D from the natural sunlight<sup>[13]</sup>.

Lastly, cultural adaptation is required when adapting any evidence-based interventions from overseas contexts<sup>[18]</sup>. The language used, accessibility, caregiver support, community environment and government funding should be considered when planning and conducting a multicomponent intervention for fall prevention and frailty management in older adults.

#### Conclusion

Fall prevention and frailty management in older adults share similar approaches as indicated by various evidence-based programs and practice guidelines. To minimize confusion among different stakeholders (e.g., service users and providers) and to centralize community resources, it is highly recommended to adopt a combination approach with cultural adaptations in program design and implementation. More studies, especially in Asia, a continent with the fastest-growing older adult population, are needed to examine the clinical effectiveness of multicomponent interventions in addressing both falls and frailty in the older adult population.

#### Conflict of Interest

The author declares no conflict of interest.

#### References

- [1] Fried, L.P., et al., *Frailty in older adults: evidence for a phenotype*. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 2001. **56**(3): p. M146-M157. <https://doi.org/10.1093/gerona/56.3.M146>
- [2] Dent, E., et al., *Physical frailty: ICFSR international clinical practice guidelines for identification and management*. The Journal of Nutrition, Health & Aging, 2019. **23**: p. 771-787. <https://doi.org/10.1007/s12603-019-1273-z>
- [3] Kojima, G., *Frailty as a predictor of future falls among community-dwelling older people: a systematic review and meta-analysis*. Journal of the American Medical Directors Association

- tion, 2015. **16**(12): p. 1027-1033. <https://doi.org/10.1016/j.jamda.2015.06.018>
- [4] World Health Organization, *WHO global report on falls prevention in older age*. 2008, World Health Organization: Geneva, Switzerland.
- [5] Dent, E., et al., *The Asia-Pacific clinical practice guidelines for the management of frailty*. Journal of the American Medical Directors Association, 2017. **18**(7): p. 564-575. <https://doi.org/10.1016/j.jamda.2017.04.018>
- [6] Salari, N., et al., *Global prevalence of falls in the older adults: a comprehensive systematic review and meta-analysis*. Journal of Orthopaedic Surgery and Research, 2022. **17**(1): p. 334. <https://doi.org/10.1186/s13018-022-03222-1>
- [7] Cheng, M.H. and S.F. Chang, *Frailty as a risk factor for falls among community dwelling people: Evidence from a meta-analysis*. Journal of Nursing Scholarship, 2017. **49**(5): p. 529-536. <https://doi.org/10.1111/jnu.12322>
- [8] Friedman, S.M., et al., *Falls and fear of falling: which comes first? A longitudinal prediction model suggests strategies for primary and secondary prevention*. Journal of the American Geriatrics Society, 2002. **50**(8): p. 1329-1335. <https://doi.org/10.1046/j.1532-5415.2002.50352.x>
- [9] Montero-Odasso, M., et al., *World guidelines for falls prevention and management for older adults: a global initiative*. Age and Ageing, 2022. **51**(9): p. afac205. <https://doi.org/10.1093/ageing/afac205>
- [10] Xu, T., et al., *Testing the Effects of a Multicomponent Frailty Management Program for Community-Dwelling Older Adults in Singapore: A Feasibility Study*. Journal of Aging and Physical Activity, 2023. **1**(aop): p. 1-11. <https://doi.org/10.1123/japa.2022-0084>
- [11] Felix, H.C., et al., *Barriers and facilitators to senior centers participating in translational research*. Research on Aging, 2014. **36**(1): p. 22-39. <https://doi.org/10.1177/0164027512466874>
- [12] Lim, W.S., et al., *Translating the science of frailty in Singapore: results from the national frailty consensus discussion*. Ann Acad Med Singap, 2019. **48**(1): p. 25-31.
- [13] Clemson, L., et al., *The Effectiveness of a Community-Based Program for Reducing the Incidence of Falls in the Elderly: A Randomized Trial*. Journal of the American Geriatrics Society, 2004. **52**(9): p. 1487-1494. <https://doi.org/10.1111/j.1532-5415.2004.52411.x>
- [14] Campbell, A. and M. Robertson, *Otago Exercise Programme to prevent falls in older people: a home-based, individually tailored strength and balance retraining program*. Otago, NZ: Accident Compensation Corporation, 2003.
- [15] Li, F., et al., *Tai Chi and fall reductions in older adults: a randomized controlled trial*. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 2005. **60**(2): p. 187-194. <https://doi.org/10.1093/gerona/60.2.187>
- [16] Sherrington, C., et al., *Exercise for preventing falls in older people living in the community: an abridged Cochrane systematic review*. British Journal of Sports Medicine, 2020. **54**(15): p. 885-891. <https://doi.org/10.1136/bjsports-2019-101512>
- [17] Sherrington, C., et al., *Evidence on physical activity and falls prevention for people aged 65+ years: systematic review to inform the WHO guidelines on physical activity and sedentary behaviour*. International Journal of Behavioral Nutrition and Physical Activity, 2020. **17**: p. 1-9. <https://doi.org/10.1186/s12966-020-01041-3>
- [18] Hill, K.D., et al., *What works in falls prevention in Asia: a systematic review and meta-analysis of randomized controlled trials*. BMC Geriatrics, 2018. **18**: p. 1-21. <https://doi.org/10.1186/s12877-017-0683-1>
- [19] Chen, C.Y., P. Gan, and C.H. How, *Approach to frailty in the elderly in primary care and the community*. Singapore Medical Journal, 2018. **59**(5): p. 240. <https://doi.org/10.11622%2Fsmelj.2018052>

- [20] Apóstolo, J., et al., *Effectiveness of interventions to prevent pre-frailty and frailty progression in older adults: a systematic review*. JBI Database of Systematic Reviews and Implementation Reports, 2018. **16**(1): p. 140. <https://doi.org/10.11124/JBISRIR-2017-003382>
- [21] Mahoney, J.E., et al., *Improving fidelity of translation of the stepping on falls prevention program through root cause analysis*. Frontiers in Public Health, 2016. **4**: p. 217435. <https://doi.org/10.3389/fpubh.2016.00251>
- [22] Tan, P.J., et al., *Pragmatic multicentre stepped-wedge cluster randomised trial to investigate the effectiveness of community-based falls prevention programme for older adults with falls risk in Singapore: a protocol paper*. BMJ Open, 2023. **13**(6): p. e072029. <https://doi.org/10.1136/bmjopen-2023-072029>
- [23] Xu, T., *Implementing the Stepping On program in Singapore: An experience sharing*, in *2023 Joint Conference of the Australia and New Zealand Falls Prevention Society & World Falls Congress*. 2023, November 27-28: Perth, Australia.
- [24] Xu, T., *Can a multicomponent frailty management program reduce falls in community-living older adults?*, in *2023 Joint Conference of the Australia and New Zealand Falls Prevention Society & World Falls Congress*. 2023, November 27-28: Perth, Australia.
- [25] Bryan, R.L., M.W. Kreuter, and R.C. Brownson, *Integrating adult learning principles into training for public health practice*. Health Promotion Practice, 2009. **10**(4): p. 557-563. <https://doi.org/10.1177/1524839907308117>
- [26] Xu, T., et al., *Clinical effectiveness and cost-effectiveness of a multicomponent frailty management program "Say No To Frailty" in Singapore: A cluster-randomized controlled trial protocol*. (Manuscript submitted for publication).
- [27] Xu, T., et al., *Stepping On after Stroke falls-prevention programme for community stroke survivors in Singapore: A feasibility study*. British Journal of Occupational Therapy, 2020. **84**(6): p. 366-375. <https://doi.org/10.1177/0308022620946640>
- [28] Izquierdo, M., et al., *International exercise recommendations in older adults (ICFSR): expert consensus guidelines*. The Journal of Nutrition, Health & Aging, 2021. **25**(7): p. 824-853. <https://doi.org/10.1007/s12603-021-1665-8>