COMMFIT: A Community-Based Multifactorial Frailty Intervention Team Programme for Pre- to Moderately-Frail Residents in Singapore

Iris Li[1], Zhao Dan[1], Aik Phon Chew[1], Jeremiah Chng[1], Eric Ho[1], Chee Lien Poh[1], Dolly Cheng[2]

1. Woodlands Health Campus, Singapore, 2. Population Health Campus, Singapore

Woodlands Health
National Healthcare Group

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Background

Frailty is a significant concern for Singapore's aging population. This study evaluated COMMFIT, a 6-month programme featuring exercise, nutrition education, falls reduction and multidisciplinary team (MDT) meetings for seniors with a Clinical Frailty Scale (CFS) score of 4-6. The programme was led by the Community Health Team (CHT) comprising community nurses and health coaches, with the support from the Woodland Health (WH) geriatrician, physiotherapist (PT), occupational therapist (OT), dietician and pharmacist.

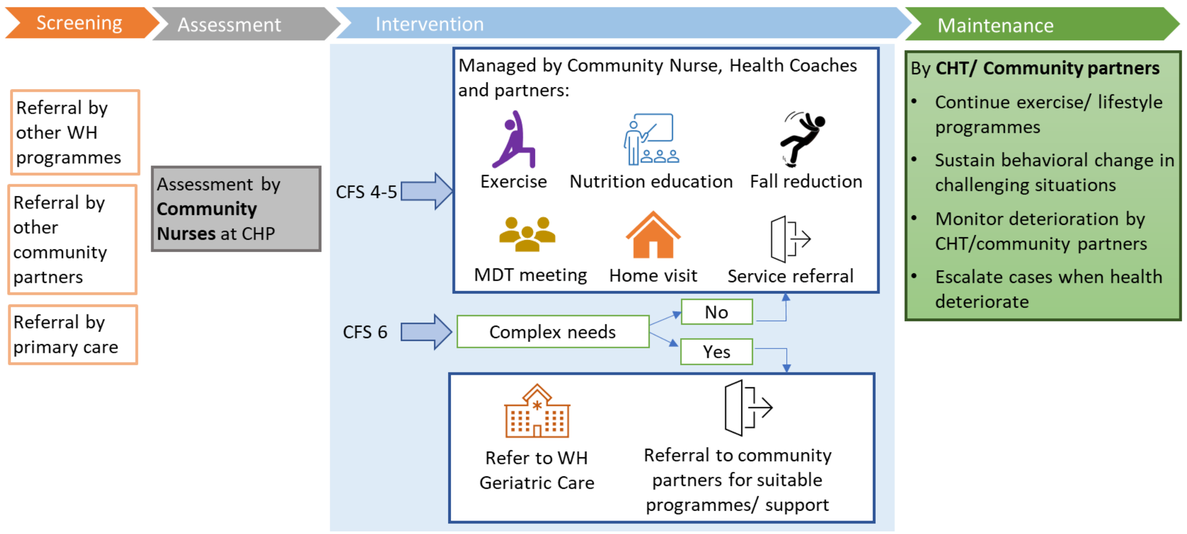

Figure 1. Overview of the care pathway in COMMFIT

Methodology

This evaluation adopted an implementation-effectiveness hybrid design to assess the clinical effectiveness and implementation of COMMFIT. The Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework[1,2] guided the evaluation design, data collection and analysis.

Reach: refers to the percentage and risk characteristics of persons who receive or are affected by a programme. In this study, it is defined as the proportion of individuals who were eligible for COMMFIT joined COMMFIT eventually.

Effectiveness: refers to the positive and negative outcomes of a programme. Key outcomes of COMMFIT include CFS, EQ-5D-5L, self-perceived benefits of joining COMMFIT and Client Satisfaction Score. Our main hypothesis is that COMMFIT enrolees would maintain or improve their CFS and EQ-5D-5L. A one-group pretest-postest design was used as the main aim was to test COMMFIT's feasibility in an operational setting and not to robustly ascertain the impact of the interventions.

Adoption: refers to proportion and representativeness of settings (e.g., worksites, communities) that adopt a given program. In this paper, it is defined as the percentage of Active Ageing Centres (AACs) that were engaged by WH and willing to co-implement COMMFIT.

Implementation: refers to the extent of the programme delivered as intended. Additionally, we would like to find out the implementation cost, barriers and facilitators to the implementation of COMMFIT.

Results

Adoption: One of the three community partners engaged by the team showed the most interest, leading to a pilot conducted at 2 sites from March to September 2023.

Reach: Twenty-one residents enrolled in COMMFIT (mean age: 73.3 years), predominantly female, Chinese/Malay, living in small HDB flats, lived either alone or with an elderly spouse, and unfamiliar with Zoom. At baseline, **90% were CFS 4-5**, **81% were overweight/obese**, and **33% had multiple morbidities**.

Effectiveness: Post-intervention, **28% improved their CFS**, **55% lost weight**, and **70% rated their health as improved**. Those with improvement were female with family support. No statistically significant association was found between exercise compliance, BMI improvement and CFS improvement.

Table 1: Overview of COMMFIT Results

	No Change	Improved
CFS (n = 13)	**8 had no change** • CFS 3: 1 • CFS 4: 5 • CFS 5: 2	**5 improved** • CFS 3 -> 2: 0 • CFS 4 -> 3: 3 • CFS 5 -> 4: 2
BMI (n = 11)	**5 had no change/ worsened** • Normal BMI: 3 • Obese: 2 • Overweight: 0	**6 had reduced BMI (mean weight loss of 1.1 kg)** • Normal BMI: 1 • Obese: 1 • Overweight: 4
EQ-5D-5L self-rated health scale (n = 10)	**3 had no change**	**7 improved in self-rated health**

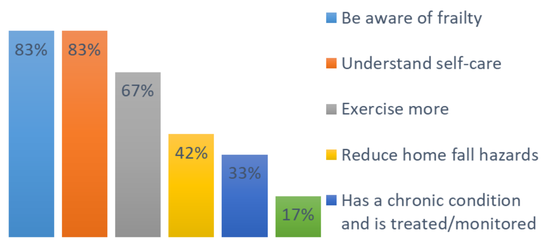

Figure 2. Clients self-perceived benefits of joining COMMFIT

Figure 3. Client Satisfaction Survey Results

Implementation: S$1,091/client (compared to S$469.3/client[3] and $1528.5/client[4] of frailty prevention interventions in literature). Challenges included **recruitment and retention difficulties**, **varied partner interest**, and **low compliance to exercise and education components** of the programme. However, **home visits** and **MDT management** received positive feedback.

Discussion

COMMFIT's success in improving enrolees' health outcomes demonstrates its potential in enhancing transitional care for frail populations. Home visits, MDT management and relationship building with care staff emerged as key effective components.

High take-up rate of home visits

- Key value of COMMFIT, as fall hazard identification and fall prevention needs onsite assessment and contextualization to the home environment

MDT discussion improved clinical care

- Improved the depth and personalisation of care;
- identified previously undiscovered care issues;
- served as a catalyst for programme enhancements

Recommendation 1: To recruit from outpatient clinics, Community Hospitals and Senior Care Centers as these settings serve frailer seniors than AACs.
Recommendation 2: To streamline COMMFIT and scale the effective components by leveraging the abundance of existing community-based exercise and diet programmes.

Limitations of this study include a small sample size, lack of a control group, and only 6 months of data, which restrict generalizability of the study findings.

References

[1] Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. American journal of public health, 89(9), 1322-1327.
[2] Maintenance: defined as the incidence of falls incurred by the COMMFIT enrollees within 6 months after discharge from the programme. As this evaluation study was conducted during September - November 2023, data on fall measures had not been collected and is therefore temporarily excluded from the reported results.
[3] Pereira, M. J., Chong, Lim, W. S et al (2023). Evaluating Quality-of-Life, Length of Stay and Cost-Effectiveness of a Front-Door Geriatrics Program: An Exploratory Proof-of-Concept Study. The Journal of Frailty & Aging, 12(3), 214-220.
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