Due to population ageing, primary care systems throughout the world are encountering great challenges urging innovation in the organization of elderly care. As frail older people suffer from problems in the physical, psychological and social domain, primary care professionals struggle with this increasing complexity and perceive difficulties in providing high quality care. Currently, care for frail older people is often reactive, fragmented and lacks coordination and to overcome these barriers, integrated care is considered a promising solution. Professionals, policy makers and researchers have high expectations of integrated care and the wide range of aims it is claimed to achieve. To assess whether integrated care can meet these high and diverse expectations, this thesis aimed to explore the (cost-)effectiveness of preventive, integrated care for community-dwelling frail older people.

**Introduction**

The first part of this thesis focused on the effectiveness and cost-effectiveness of a specific preventive integrated care intervention, the Walcheren Integrated Care Model (WICM). The second part of this thesis critically reflected on the concepts and methodologies used to explore the (cost-)effectiveness of integrated care for frail older people. This second part included a systematic review and an exploration of the effectiveness of integrated care for six profiles of frail older people.

**Results and findings**

The results of the WICM were in line with the outcomes of other preventive, integrated care interventions included in the systematic review. The results revealed that the majority of the outcomes in the studies on preventive, integrated care showed no significant effects. The effects on health outcomes and functional abilities were limited, whilst well-being appeared to be positively affected. The WICM, for example, had a positive effect on the dimension of love and friendship and had a moderately positive effect on general quality of life. Care process outcomes were also promising since they improved for preventive, integrated...
care interventions. Overall, health care utilization showed mixed results and the evidence for cost-effectiveness was limited. The WICM was also not cost-effective due to the higher costs and the limited effects of the intervention in terms of health-related quality of life. Moreover, the systematic review showed that there is no clear relation between the elements and levels of integrated care and the outcomes of integrated care.

In the second part of this thesis, six frailty profiles were distinguished: relatively healthy, mild physically frail, psychologically frail, severe physically frail, medically frail and multi-frail. The results thus showed that the frail older person does not exist and that specific patterns underlie the problems in the different domains of functioning of frail older people. However, for none of these six profiles integrated care was effective on health outcomes. Yet, the results indicated that when the type and severity of the problems of frail older people, and thereby the complexity, increases, the effects of integrated care also vary increasingly.

**Implications for integrated care**

This thesis showed that the effects of integrated care for frail older people do not fully meet the high and diverse expectations. Based on our findings, integrated care interventions should be aligned more properly to the target population of frail older people. The heterogeneity of frail older people has increased since the conceptualization of frailty now also includes the psychological and social domain in addition to the physical domain. However, the underlying assumptions concerning effective integrated interventions have not adapted to this changed definition of frailty. Integrated care interventions in primary care settings remain characterized by medical dominance, whereas, research indicates that a more holistic and person-centered approach is required. Moreover, the thesis argues that prevention should be integrated more carefully within the integrated care interventions which could be achieved by a stronger focus on self-management and on the abilities to adapt or to cope with deterioration in health and well-being. Furthermore, the outcome measures used should be better aligned to frail older people and go beyond traditional health outcomes by including well-being and resilience.

Finally, the thesis argues that effective integrated care requires research that is integrated, continuous, and person-centred to cover the complexities of daily practice. Bridges should be built between research, practice and policy and researchers investigating integrated care should work together more closely. Continuity could be improved by exchanging knowledge and context-based evidence between practice and research more quickly in order to keep learning continuously. As this thesis showed that 'the frail older person' does not exist, our focus should be on person-centeredness within integrated care interventions and research.

The results presented in this review are based on the author’s thesis presented at Erasmus University Rotterdam on 14 December 2018.

**Funding Informations**

The research project was supported with two grants provided by the Netherlands Organisation for Health Research and Development (ZonMw, project numbers 313030201 and 633400014) as part of the National Care for the Elderly Programme.
Competing Interests
The author has no competing interests to declare.

References

Published articles from this PhD thesis

1. Fabbricotti, IN, Janse, B, Looman, WM, de Kuyper, R, van Wijngaarden, JDH and Reiffers, A. Integrated care for frail elderly compared to usual care: a study protocol of a quasi-experiment on the effects on the frail elderly, their caregivers, health professionals and health care costs. *BMC Geriatrics*, 2013; 31(13): 1–12. DOI: https://doi.org/10.1186/1471-2318-31-31

2. Looman, WM, Fabbricotti, IN and Huijsman, R. The short-term effects of an integrated care model for the frail elderly on health, quality of life, health care use and satisfaction with care. *International Journal of Integrated Care*, 2014; 14(Oct–Dec): 1–11. DOI: https://doi.org/10.5334/ijic.1010

3. Looman, WM, Huijsman, R, Boumans, CAM, Stolk, EA and Fabbricotti, IN. Cost-effectiveness of the 'Walcheren Integrated Care Model' intervention for community-dwelling frail elderly. *Family Practice*, 2016; 33(2): 154–160. DOI: https://doi.org/10.1093/fampra/cmv106

4. Looman, WM, Fabbricotti, IN, de Kuyper, RDM and Huijsman, R. The effects of a pro-active integrated care intervention for frail community-dwelling older people: a quasi-experimental study with the GP-practice as single entry point. *BMC Geriatrics*, 2016; 16(43): 1–10. DOI: https://doi.org/10.1186/s12877-016-0214-5

5. Looman, WM, Huijsman, R and Fabbricotti, IN. The (cost-)effectiveness of preventive, integrated primary care for community-dwelling frail older people: A systematic review. *Health & Social Care in the Community*, 2018 April; 26(2): e280–e290. DOI: https://doi.org/10.1111/hsc.12517

6. Looman, WM, Fabbricotti IN, Blom, JW, Jansen, APD, Lutomski, JE, Metzelthin, SF, Huijsman, R and on behalf of the TOPICS-MDS research consortium. The frail older person does not exist: development of frailty profiles with latent class analysis. *BMC Geriatrics*, 2018; 18: 84. DOI: https://doi.org/10.1186/s12877-018-0776-5

7. Blom, JW, van den Hout, WB, den Elzen, WPJ, Drewes, YM, Bleijenberg, N, Fabbricotti, IN, Jansen, APD, Kempen, GJM, Koopmans, R, Looman, WM, Melis, RJF, Metzelthin, SF, Moll van Charante, EP, Muntinga, ME, Numans, ME, Ruikes, FGH, Spoorenb erg, SLW, Stijnen, T, Suijker, JJ, de Wit, NJ, Wynia, K, Wind, AW, Guss eklo o, J and TOPICS-MDS research consortium. Effectiveness and cost-effectiveness of proactive and multidisciplinary integrated care for older people with complex problems in general practice: an individual participant data meta-analysis. *Age & Ageing*, 2018; 47: 705–714. DOI: https://doi.org/10.1093/ageing/afy091

8. Smits, LC, Schuurmans, M, Blom, JW, Fabbricotti, IN, Jansen, A, Kempen, GJM, Koopmans, R, Looman, WM, Melis, R, Metzelthin, SF, Moll van Charante, E, Muntinga, M, Ruikes, F, Spoorenb erg, S, Suijker, JJ, Wynia, K, Guss eklo o, J, De Wit, NJ and Bleijenberg, N. Unravelling complex primary care programmes to maintain independent living in older people: a systematic overview. *Journal of Clinical Epidemiology*, 2018; 96: 110–119. DOI: https://doi.org/10.1016/j.jclinepi.2017.12.013

9. Janse, B, Huijsman, R, Looman, WM and Fabbricotti, IN. Formal and informal care for community-dwelling people over time: A comparison of integrated and usual care in the Netherlands. *Health & Social Care in the Community*, 2018 Mar; 26(2): e280–e290. DOI: https://doi.org/10.1111/hsc.12516

10. Makai, P, Looman, WM, Adang, EMM, Melis, RJF, Stolk, EA and Fabbricotti, IN. Cost-effectiveness of integrated care in frail elderly using the ICECAP-O and EQ-5D: does choice of instrument matter? *The European Journal of Health Economics*, 2015; 16(4): 437–450. DOI: https://doi.org/10.1007/s10198-014-0583-7

How to cite this article: Looman, WM. Facing Frailty: Exploring the Effectiveness of Integrated Care for Frail Older People. *International Journal of Integrated Care*, 2019; 19(3): 1, 3. DOI: https://doi.org/10.5334/ijic.4736

Submitted: 17 July 2019 Accepted: 17 July 2019 Published: 01 August 2019

Copyright: © 2019 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See http://creativecommons.org/licenses/by/4.0/.