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### Towards tailored elderly care

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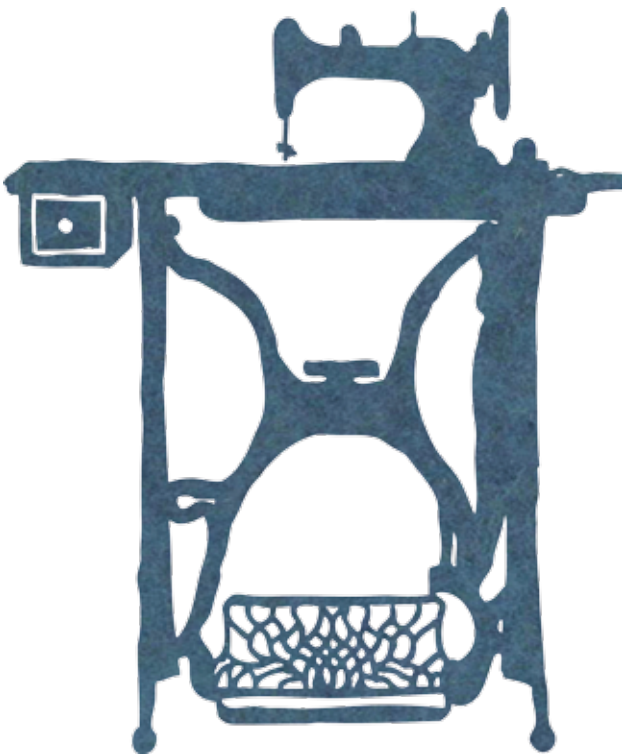
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## General introduction



## 1.1 AGEING POPULATIONS

While life expectancy is increasing worldwide, healthy life expectancy is not keeping pace, which contributes considerably to the burden of chronic diseases. The majority of elderly people will suffer from several chronic diseases: 40 percent of the Dutch elderly persons aged between 65-74 year are diagnosed with 2 or more chronic conditions, and almost 60 percent of the elderly persons aged 75 years and over are known to have multi-morbidity<sup>1,2</sup>. Furthermore, with specialization and further sub-specialization the provided care has become increasingly fragmented, leading to coordination and communication challenges for healthcare professionals as well as for elderly individuals<sup>3</sup>. In all, this has contributed to exponentially increasing healthcare demands and expenses<sup>4,5</sup>. Moreover, due to the increasing governmental pressures to control costs and to eliminate waste and inefficiency, healthcare professionals are trying to identify elderly persons at risk for poor outcomes to allocate geriatric care more efficiently<sup>3</sup>. The selection of high-risk older adults based on only chronological age disregards the fact that the speed of ageing shows considerable inter-individual variation<sup>6,7</sup>. Selection on morbidity is also not recommended as elderly persons differ in terms of severity of illness, functional status, prognosis and risk of adverse events even if they are diagnosed with the same disease or pattern of conditions<sup>8</sup>.

Therefore, other concepts like frailty and case complexity have been introduced in primary and geriatric care as indicators of risk of poor outcomes (e.g. mortality, institutionalization, hospitalization, and functional decline)<sup>9-12</sup>. Frail elderly people endure interacting losses in physical, cognitive, social, and psychological domains of functions, which leads to downward spiraling and declining reserve capacity for dealing with stressors<sup>7</sup>. Case complex elderly persons highlight the need to foster better coordinated and integrated healthcare<sup>13-15</sup>. To have clinical impact in daily practice, those concepts should be operationalized and assessed with measures with good psychometric properties since the corresponding scores may assist healthcare professionals in their clinical decision making. Based on the scores on the GFI and the IM-E-SA elderly persons can be selected for general care programs, or – in contrast – tailored elderly care, to prevent poor outcomes. Tailored care is expected to result in better health outcomes, lower costs, enhanced care experience and better quality of life<sup>3</sup>. Subsequently, care interventions should be provided to prevent, maintain or even decrease levels of frailty or case complexity. Preferably, those measures should be completed by the elderly themselves as this reflects their own perspective on needs, preferences and health goals. The outcomes of self-report measures provide input for tailored elderly care, expectantly associated with better health outcomes, lower costs, an enhanced care experience, and better quality of life<sup>3</sup>.

## 1.2 FRAILITY

Frailty reflects a state of vulnerability regarding the future occurrence of poor outcomes. This definition of frailty has been commonly accepted, though measures with different perspectives on the concept of frailty have been developed<sup>16,17</sup>. Due to this difference in perspective, a systematic review found that the prevalence of frailty ranged between 4-59% in community dwelling elderly populations<sup>17</sup>. Some researchers define frailty with only a physical domain, this deficit model consists of an accumulation of impairments and conditions to create a Frailty Index<sup>18,19</sup>. Another measure of frailty defined a phenotype which marked an underlying physiologic state of multisystem and energy dysregulation<sup>18,19</sup>. Still others advocate an integrative and comprehensive approach which would include biological, cognitive, psychological, and social domains, which interact across an individual's lifespan<sup>20</sup>.

The Groningen Frailty Indicator (GFI) is an instrument that measures frailty from a multidimensional perspective which is available as a professional version and a self-assessment version. Both versions are widely used in clinical practice (i.e. emergency departments, geriatric centers, nursing homes, pulmonology, rheumatology, and surgical medicine, traumatology), outpatient settings and in clinical studies<sup>6,7,21-24</sup>. The scoring method of the GFI may aid capturing the dynamic state of frailty when calculating its total score on multiple time points. Moreover, also a dichotomous score can be calculated to differentiate between non-frail and frail elderly persons, and provide different care pathways accordingly<sup>21</sup>. Frail elderly persons should be identified as early as possible since frailty is potentially reversible when care interventions are provided adequately<sup>25,26</sup>.

Some evidence on the internal consistency and construct validity of the self-assessment version has been reported<sup>7,21,24</sup>, yet this would need to be elaborated and expanded.

### 1.3 CASE COMPLEXITY

An alternative approach to identify elderly persons at risk for adverse health outcomes is to assess the level of case complexity with the INTERMED (IM). This is a semi structured interview performed by a healthcare professional to identify those patients with complex care needs, and select those who are in need for more intensive (tailored) interdisciplinary care<sup>13-15,27</sup>. Due to the presence of multi-morbidity, elderly persons are generally treated by several healthcare professionals. To prevent ad hoc allocation of care by those healthcare professionals, the IM method can be recommended as this method assesses healthcare needs in the following domains; biological, psychological, social and healthcare<sup>14,28</sup>. For the use in elderly populations the IM has been adjusted to the needs and situation of the elderly themselves; the IM for the Elderly [IM-E]<sup>29</sup>. Subsequently, a version to be completed by the elderly themselves (IM for the Elderly Self Assessment [IM-E-SA]) was developed. The latter version was developed to be more time-efficient for professionals and, moreover, to reflect the opinion of the elderly persons themselves about the care received. Both the IM and IM-E are reliable and valid measures for classifying individuals' care needs<sup>29-31</sup>. The IM-E-SA facilitates the development of future demand driven care, however, the psychometric properties of this measure have not been reported.

## 1.4 AIMS AND SCOPE

The self-assessment versions of the GFI and IM-E reflect the perspectives of elderly individuals. Due to the limited psychometric evaluations of those measures, a reasonable doubt exists about their feasibility, reliability, construct validity and predictive validity. The overall aim of this PhD-thesis is to evaluate those psychometric properties in several cross sectional and longitudinal studies in order to evaluate and establish the potential contribution of the GFI and IM-E-SA towards tailored elderly care.

Within the Dutch National Care for the Elderly Programme a cross sectional study was conducted to evaluate the feasibility, reliability and construct validity of the GFI (**Chapter 2a** and IM-E-SA (**Chapter 5**).

**Chapter 3** extensively assesses the construct validity of the GFI with data of almost 6,000 elderly persons participating in the LifeLines cohort study<sup>32</sup>. This chapter evaluates the ability of the GFI to differentiate between elderly subgroups based on demographic characteristics, morbidity, obesity and healthcare utilization. Additional aims were if non-frail and frail elderly persons differ on a battery of measures (e.g. psychosocial problems, quality of life, and wellbeing) and, to examine which individual characteristics were associated with frailty.

**Chapter 4** assesses the predictive validity of the GFI in an oldest old population participating in the Leiden 85+ study<sup>33</sup>. This chapter evaluates an innovative approach to model development and risk assessment using individual characteristics (i.e. gender and morbidity) and the Groningen Frailty Indicator on the prediction of mortality, hospitalization and functional decline.

**Chapter 6** evaluates the predictive validity of the GFI and IM-E-SA on total healthcare costs, costs for long-term care and curative care in the follow-up year.

**Chapter 7** discusses the main results and methodological considerations of the psychometric evaluations. Next, the implementations of the GFI and IM-E-SA in several screenings methods are discussed. The final paragraph presents some recommendations for future research and ends with a final remark.

**Chapter 8** provides a summary of this thesis in English and Dutch, respectively.

## 1.5 REFERENCES

1. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med.* 2006;3(11):e442.
2. van Oostrom SH, Picavet HS, van Gelder BM, et al. Multimorbidity and comorbidity in the dutch population--data from general practices. *Ned Tijdschr Geneesk.* 2011;155:A3193.
3. Committee on the Learning Health Care System in America, Institute of Medicine. 2013.
4. Bergman H, Ferrucci L, Guralnik J, et al. Frailty: An emerging research and clinical paradigm - issues and controversies. *Journals of Gerontology - Series A Biological Sciences and Medical Sciences.* 2007;62(7):731-737.
5. Denton FT, Spencer BG. Chronic health conditions: Changing prevalence in an aging population and some implications for the delivery of health care services. *Can J Aging.* 2010;29(1):11-21.
6. Slaets JP. Vulnerability in the elderly: Frailty. *Med Clin North Am.* 2006;90(4):593-601.
7. Schuurmans H, Steverink N, Lindenberg S, Frieswijk N, Slaets JP. Old or frail: What tells us more? *J Gerontol A Biol Sci Med Sci.* 2004;59(9):962-965.
8. Guiding principles for the care of older adults with multimorbidity: an approach for clinicians. Guiding principles for the care of older adults with multimorbidity: An approach for clinicians: American geriatrics society expert panel on the care of older adults with multimorbidity. *J Am Geriatr Soc.* 2012;60(10):E1-E25.
9. Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: Evidence for a phenotype. *J Gerontol A Biol Sci Med Sci.* 2001;56(3):146-156.
10. Rockwood K, Stadnyk K, MacKnight C, McDowell I, Hebert R, Hogan DB. A brief clinical instrument to classify frailty in elderly people. *Lancet.* 1999;353(9148):205-206.
11. Woods NF, LaCroix AZ, Gray SL, et al. Frailty: Emergence and consequences in women aged 65 and older in the women's health initiative observational study. *J Am Geriatr Soc.* 2005;53(8):1321-1330.
12. Mitnitski AB, Mogilner AJ, Rockwood K. Accumulation of deficits as a proxy measure of aging. *ScientificWorldJournal.* 2001;1:323-336.
13. Stiefel FC, Huyse FJ, Sollner W, et al. Operationalizing integrated care on a clinical level: The INTERMED project. *Med Clin North Am.* 2006;90(4):713-758.
14. de Jonge P, Huyse FJ, Slaets JP, Sollner W, Stiefel FC. Operationalization of biopsychosocial case complexity in general health care: The INTERMED project. *Aust N Z J Psychiatry.* 2005;39(9):795-799.
15. Huyse FJ, Lyons JS, Stiefel F, Slaets J, de Jonge P, Latour C. Operationalizing the biopsychosocial model: The intermed. *Psychosomatics.* 2001;42(1):5-13.
16. de Vries NM, Staal JB, van Ravensberg CD, Hobbelen JSM, Olde Rikkert MGM, Nijhuis-van der Sanden MWG. Outcome instruments to measure frailty: A systematic review. *Ageing Research Reviews.* 2011;10(1):104-114.
17. Collard RM, Boter H, Schoevers RA, Oude Voshaar RC. Prevalence of frailty in community-dwelling older persons: A systematic review. *J Am Geriatr Soc.* 2012;60(8):1487-1492.
18. Fried LP, Ferrucci L, Darer J, Williamson JD, Anderson G. Untangling the concepts of disability, frailty, and comorbidity: Implications for improved targeting and care. *J Gerontol A Biol Sci Med Sci.* 2004;59(3):255-263.
19. Morley JE, Vellas B, van Kan GA, et al. Frailty consensus: A call to action. *J Am Med Dir Assoc.* 2013;14(6):392-397.
20. Hogan DB, MacKnight C, Bergman H, Steering Committee, Canadian Initiative on Frailty and Aging. Models, definitions, and criteria of frailty. *Aging Clin Exp Res.* 2003;15(3 Suppl):1-29.
21. Steverink N, Slaets J, Schuurmans H, Van Lis M. Measuring frailty: Developing and testing the GFI ( groningen frailty indicator). *Gerontologist.* 2001;41(special issue I):236-237.

22. Andela RM, Dijkstra A, Slaets JPJ, Sanderman R. Prevalence of frailty on clinical wards: Description and implications. *Int J Nurs Pract*. 2010;16(1):14-19.
23. Frieswijk N, Buunk BP, Steverink N, Slaets JP. The interpretation of social comparison and its relation to life satisfaction among elderly people: Does frailty make a difference? *J Gerontol B Psychol Sci Soc Sci*. 2004;59(5):250-257.
24. Metzeltin SF, Daniels R, van Rossum E, de Witte L, van den Heuvel WJ, Kempen GI. The psychometric properties of three self-report screening instruments for identifying frail older people in the community. *BMC Public Health*. 2010;10:176-184.
25. De Lepeleire J, Iliffe S, Mann E, Degryse JM. Frailty: An emerging concept for general practice. *British Journal of General Practice*. 2009;59(562):364-369.
26. Lacas A, Rockwood K. Frailty in primary care: A review of its conceptualization and implications for practice. *BMC Med*. 2012;10:4-7015-10-4.
27. de Jonge P, Huyse FJ, Stiefel FC, Slaets JP, Gans RO. INTERMED--a clinical instrument for biopsychosocial assessment. *Psychosomatics*. 2001;42(2):106-109.
28. Stiefel FC, de Jonge P, Huyse FJ, et al. INTERMED--an assessment and classification system for case complexity. results in patients with low back pain. *Spine (Phila Pa 1976)*. 1999;24(4):378-384.
29. Wild B, Lechner S, Herzog W, et al. Reliable integrative assessment of health care needs in elderly persons: The INTERMED for the elderly (IM-E). *J Psychosom Res*. 2011;70(2):169-178.
30. Huyse FJ, Lyons JS, Stiefel FC, et al. "INTERMED": A method to assess health service needs. I. development and reliability. *Gen Hosp Psychiatry*. 1999;21(1):39-48.
31. Stiefel FC, de Jonge P, Huyse FJ, et al. "INTERMED": A method to assess health service needs. II. results on its validity and clinical use. *Gen Hosp Psychiatry*. 1999;21(1):49-56.
32. Stolk RP, Rosmalen JG, Postma DS, et al. Universal risk factors for multifactorial diseases: LifeLines: A three-generation population-based study. *Eur J Epidemiol*. 2008;23(1):67-74.
33. der Wiel AB, van Exel E, de Craen AJ, et al. A high response is not essential to prevent selection bias: Results from the leiden 85-plus study. *J Clin Epidemiol*. 2002;55(11):1119-1125.



