SUMMARY

In ageing societies, the care for the growing number of frail older people is a major challenge for healthcare systems. Frailty is defined as a geriatric syndrome associated with an increased risk of adverse health outcomes, resulting from the loss of resources or physical reserve capacity. In order to be able to respond to the care needs of frail older people, the Dutch Ministry of Health, Welfare and Sport initiated the National Care for the Elderly Program. The program promoted research on frailty and interventions for frail older adults across different health-care settings. This thesis is written as part of a research project within the framework of the National Care for the Elderly Program. It contains studies relevant for public health and clinical practice, and contributes to three main research areas in the field of frailty: risk factors, assessment instruments and comprehensive community care. The studies were performed using data from different populations, including samples from primary care, from a hospital, and a population based sample.

Risk factors

In Chapter 2, using data from the Longitudinal Aging Study Amsterdam (LASA), we examined the longitudinal association between educational level and frailty in older adults, and we investigated to what extent this association was explained by material, biomedical, behavioural, social and mental factors. We found that older adults (≥ 65 years) with a low educational level were more often frail compared to those with a high educational level, and that these differences remained during 13 years of follow-up. By using a broad range of (time-varying) explanatory factors we were able to explain 76% of the longitudinal association between educational level and frailty. Our results showed that all factors, except social factors, contributed to the explanation. Individual factors that contributed most to the explanation were income, self-efficacy, cognitive functioning, obesity and chronic diseases.

In Chapters 3 and 4, we focus on an important group of factors that may modify the pathways from frailty to adverse outcomes: the psychosocial resources of an individual. In Chapter 3, we investigated whether psychosocial resources modify the effects of frailty on functional decline and mortality. For that purpose, we used data of older adults aged 58 and above from LASA over a period of three years. Psychosocial resources in this study included sense of mastery, self-efficacy, instrumental support and emotional support. We did not find evidence for the modifying role of psychosocial resources on frailty outcomes, because there were no statistical significant interaction effects between psychosocial resources and frailty on functional decline and mortality. In Chapter 4, we performed a similar study in a sample of hospital patients in sub-acute care. We investigated the association...
between psychosocial resources and frailty, and to what extent psychosocial factors modify the association between frailty and adverse outcomes. The adverse outcomes in this study were 12-month mortality, long length of hospital stay, 1-month emergency rehospitalisation and discharge to a higher level of care. Data were used from patients aged 70 and over admitted to a Geriatric Evaluation and Management Unit (GEMU) in Australia. Psychosocial factors included wellbeing, sense of mastery, social activities, neighbourhood satisfaction, social relationships, anxiety and depression. We found that poor wellbeing, anxiety, depression and low sense of mastery were associated with frailty, and that psychosocial resources impact on the association between frailty and adverse outcomes. We found an interaction effect between frailty and sense of mastery for all adverse outcomes. In addition, interaction effects between frailty and respectively anxiety, wellbeing, social activities and neighbourhood satisfaction were observed for one or more of the adverse outcomes. Our results suggest that although in a population based sample psychosocial resources do not seem to buffer against adverse health outcomes in frail older adults, they may be effective in buffering against adverse outcomes in frail older adults in the hospital setting.

Assessment instruments
In Chapter 5, we tested the accuracy of five simple instruments to identify frail older adults in primary care. Data were used from the Identification of Frail Elderly Study (IKO), a cross-sectional pilot study among 102 patients aged 65 and over from a primary care practice in the Netherlands. Five simple instruments (clinical judgement of the GP, polypharmacy, the Groningen Frailty Indicator, the PRISMA-7 questionnaire and self-rated health) were compared with two reference standards: frailty according to Fried’s frailty criteria and on the basis of clinical judgement by a multidisciplinary expert panel. From the five simple instruments included in this study, the PRISMA-7 questionnaire had the best accuracy.

Comprehensive community care
In Chapter 6, we describe the design of the Frail older Adults: Care in Transition study (ACT). This is a 24-month stepped wedge randomised controlled trial, in which we implemented a comprehensive care program, the Geriatric Care Model, for frail older adults aged 65 and over in 35 primary care practices in two regions in the Netherlands (Amsterdam and West-Friesland). The Geriatric Care Model is based on the Chronic Care Model, and aims to optimise quality and efficiency of care for frail older adults, and subsequently improve patient outcomes. The Geriatric Care Model is designed to target health risks at a timely stage, to stimulate active involvement of patients in the care process, and to improve the
coordination between healthcare professionals. It combines person centered care based on geriatric assessments with management by geriatric expert teams.

In Chapter 7, we used baseline data of the ACT study to describe met and unmet care needs as perceived by frail older adults in primary care, and to explore the associations of care needs with socio-demographic and health-related characteristics. We assessed self-perceived care needs with the Camberwell Assessment of Need for the Elderly (CANE), a multi-dimensional needs assessment. The results showed that frail older adults report high number of needs in the environmental and physical domain, such as needs with regard to food preparation, running the household, treatment for physical illnesses, and mobility restrictions. However, most frail older adults reported to receive sufficient help for these needs. The highest proportion of unmet needs was found in the psychosocial domain, such as needs regarding loneliness, social isolation, appropriate day activities and receiving information on diseases, medication or treatment. ADL limitations and degree of frailty were the most important determinants of care needs, because frail older adults with more ADL limitations and a higher frailty score were more likely to report both met and unmet care needs across all domains.

In Chapter 8, using data of the ACT study, we investigated the effects of the Geriatric Care Model on quality of life of 1147 frail older adults in primary care in a 24-month stepped wedge cluster randomised controlled trial. Primary care practices were randomised to one four allocation groups, which started the intervention at six month intervals (0, 6, 12 or 18 months after baseline). Until the start of the intervention the practices provided usual care. In the intervention group, every six months patients received a geriatric in-home assessment (interRAI CHA) by a practice nurse, followed by a tailored care plan. Practice nurses worked together with GPs, and were supervised and trained by geriatric expert teams. If necessary, these geriatric expert teams organized multidisciplinary consultations for patients with complex care needs. We did not find any effect of the Geriatric Care Model on the primary outcome, i.e. quality of life measured by SF-12. In addition, no intervention effects were found for most secondary outcomes: health-related quality of life, ADL limitations, psychological wellbeing, self-rated health, social functioning and hospital admissions. However, we found a significant, but small effect on IADL limitations at 18 months after the start of the intervention. IADL limitations increased over time, but this increase was slower in the intervention group compared to the control group. These effects were stronger in three subgroups, where intervention effects were already present at 12 months after the start of the intervention: patients already receiving homecare at baseline, patients without partner and patients 80 years and over.
Finally, Chapter 9 provides an overview of the main findings of this thesis in the context of current research, followed by a discussion of some conceptual and methodological issues, implications for clinical practice and directions for future research. We conclude that this thesis contributed to three important domains in frailty research, but that ongoing attention for frailty is needed in clinical practice and in future research.