Chapter 1

General introduction
About 80% of psychogeriatric patients who suffer from cognitive impairment or dementia have two or more psychiatric symptoms and about 70-80% of caregivers are moderately to severely burdened 1-5.

As a consequence of the increasing prevalence and incidence of cognitive impairment and dementia in all aging societies, these two problems will demand urgent attention of healthcare professionals, managers and policymakers. The more as multiple psychiatric symptoms (MPS) play an important role in psychogeriatrics. There is overwhelming scientific evidence that they have many related negative secondary effects. For the patients there are negative effects on cognitive functioning, quality of life, and they predict admission to a nursing home. Furthermore, MPS put a high burden on the caregiver. Moreover, psychiatric symptoms and burden of the caregiver are the two as most problematic experienced phenomena in dementia, by patients as well as by caregivers 6. All in all, MPS play a key role in psychogeriatrics 3-10.

In contrast, evidence based know-how concerning effective treatment and support is rather limited 11, 12. Even more, terminology, definitions and underlying concepts vary widely e.g. BPSD (behavioural and psychological symptoms in dementia), problem behaviour, neuropsychiatric symptoms, and psychiatric symptoms 2, 3, 13-15. The intriguing question is which factor(s) underlie(s) MPS of psychogeriatric patients who suffer from cognitive impairment or dementia e.g. neurological disease, general somatic disease, pain, and/or regular psychiatrics 2, 4, 15-18. In actuality, for treatment of MPS of psychogeriatric patients the use of psychotropic drugs is widespread in nursing home care in spite of limited effects and potentially harmful side effects e.g. (a)typical antipsychotica 19, 20. On the other hand, literature indicates that on individual psychiatric symptoms particularly depression and anxiety psychotherapeutic treatment may be effective, specifically if they are based on a problem-solving theoretical framework 11, 12, 21-23. However, psychotherapeutic interventions on MPS of psychogeriatric patients who suffer from cognitive impairment of dementia are complex due to their multiplicity in combination with cognitive disorders, somatic co-morbidity, and social problems 10, 24. Furthermore, a psychotherapeutic programme in a nursing home setting has never been tested in a large-scale comprehensive study 11, 25-27. For these reasons, we developed and tested an integrative psychotherapeutic nursing home programme called: integrative reactivation and rehabilitation (IRR). The psychotherapeutic interventions were based on a person-oriented and problem-solving theoretical framework 11, 28.

In this dissertation we describe the process of the development of IRR and the findings of the tests, consisting of observational studies as well as a randomized controlled trial (RCT).

As an introduction, in chapter two the performance of psychotherapeutic interventions in the multidisciplinary IRR programme is described. In this chapter the theoretical background of the IRR programme is elucidated. The principles of the Dynamic System Analysis- (DSA) method are introduced. The DSA method emphasizes the unique experience of the psychogeriatric patient who suffers
from cognitive impairment or dementia. In addition to biological factors the DSA method emphasizes the importance of the subjective experience of the patient as well as the caregiver, the psychological abilities, the functional-psychiatric pathology and of the social context. Specific attention is given to the psychodynamics combined with and adapted to the actual cognitive disorders. Four main dimensions are distinguished by the DSA method, i.e. Cognition, Psychological functions, Social context and Biology. In short, DSA is an integrative psychosocial, biological method. Furthermore, in this chapter the IRR programme itself is more extensively introduced and described. To illustrate the performance of the IRR programme a case study is presented. We published an update of the description of IRR in 2009. This publication in a peer-group reviewed Dutch journal with an English abstract is added to this dissertation as a supplement (1). In two consecutive observational studies we explored which psychogeriatric patients and caregivers had potential benefit from the IRR programme. In the two studies presented in respectively chapters three and four we examined which prognostic factors play an important role in patient’s discharge after participation in IRR as well as survival after discharge. We wanted to know which prognostic factors were crucial for the probability of discharge as well as survival, in order to optimize patient selection for the IRR programme. Furthermore, these descriptive studies were an explorative evaluation of the (relative) importance of the four main dimensions of the DSA method. The two studies were important preparatory steps in order to perform a randomized controlled trial to evaluate the (cost-)effectiveness of the IRR programme. In addition to that, it was relevant to estimate the prevalence of multiple psychiatric symptoms as well as their relation to other important aspects of psychogeriatric patients. Therefore, chapter five focusses on a study of the prevalence and co-occurrences of MPS in psychogeriatric patients and their relation to memory and self-care. Also, theoretical aspects of underlaying factors of MPS are addressed. The results give insight in the prevalence and clinical relevance of MPS and related burden of caregivers. Another intriguing question is which factors underlie MPS, as measured by the Neuro-psychiatric Inventory of Cummings (1994). From a neurological explanation one should expect to find powerful significant relations between NPI-score and cognitive tests like MMSE. From a more psychotherapeutic perspective, one should expect that the NPI-scores are a dimension on their own with just minor correlations with cognitive functions, i.e. memory and self-care. To be sure about the stability of the findings in this study we also performed a replication study in 2007 in a different target group, i.e. patients of a memory policlinic. This study is published in a peer-group reviewed Dutch journal with an English abstract and is added as a supplement (2) to this dissertation. The next logical step was to evaluate the effects of IRR compared to usual care. A RCT is the standard to meet. It is important to look at mean differences, effect modification as well as clinically relevant improvement and number needed to treat (NNT). Furthermore, prognostic modelling is important in combination with decision rules for optimizing clinical decision making in order to select the patients and caregivers who benefit most from IRR. In the chapters six to nine
we present the results of the randomized controlled trial, i.e. the mean effects of IRR compared to usual care, modifying effects, clinical relevant improvement and number needed to treat, and finally prognostic models for a favourable long term effect of IRR in combination with decision making rules. From an economical perspective the question is, what are acceptable costs for improvement (cost-effectiveness) and what is the cost-utility of IRR? So, in chapter ten an economic evaluation based on QALYs and ICERS is presented. Chapter eleven consists of the general discussion.

In overview, step by step, supported and guided by the results of the different consecutive studies the IRR programme – an integrative psychotherapeutic nursing home programme to reduce multiple psychiatric symptoms of psychogeriatric patients and caregiver burden – is developed and at last tested in a RCT. A strong point in this approach is that the findings are derived from related but not identical samples; so, the findings are (relatively) robust, especially in combination with a replication study, which confirmed the original findings. A disadvantage may be the gradual transitions in definitions and the differences in target group. The main findings of the thesis are summarized in chapter i (English version) and ii (Dutch version).

The content and main research question of the different chapters are as follows:

**Chapter two:** Description of the performance of the IRR programme; a case-study

**Chapter three:** Retrospective observational study to identify prognostic characteristics for the probability of discharge from IRR, in order to optimize patient selection for IRR

**Chapter four:** Prospective observational study to estimate life expectancy of psychogeriatric patients after following IRR. Furthermore, prognostic characteristics for survival were identified

**Chapter five:** Prospective observational study to estimate the prevalence and co-occurrences of multiple psychiatric symptoms (measured by NPI) in psychogeriatric patients at referral to clinical as well as non-clinical nursing home care - the relation to cognitive function disorders (measured by MMSE) as well as activities of daily living (measured by Barthel index).

**Chapter six:** RCT to test in terms of mean differences the effectiveness of an integrative psychotherapeutic nursing home programme (IRR) compared to usual multidisciplinary nursing home care especially to reduce multiple psychiatric symptoms of psychogeriatric patients and burden of caregivers

**Chapter seven:** Post-hoc analysis of the RCT data to estimate whether long term beneficial effects of IRR on severity of MPS of psychogeriatric patients and general burden of caregivers were modified by level of cognitive function disorders and/or type of dementia
Chapter eight: Re-analysis of the RCT data to evaluate long term benefit of IRR compared to usual care in terms of clinically relevant (> 30% improved compared to baseline value) improved psychogeriatric patients and caregivers and numbers needed to treat.

Chapter nine: Post-hoc analysis of the RCT data to identify prognostic factors for a favourable long term effect of IRR for psychogeriatric patients and caregivers on five selected, responsive outcome variables.

Chapter ten: Economic evaluation of the RCT with the objective to assess cost-utility as well as cost-effectiveness on six selected outcome variables of IRR compared to usual care. This evaluation creates the opportunity to mutual comparison of the effects of different healthcare programmes.

Chapter eleven: General discussion about the value of the findings of the RCT, methodological issues, and implications for professionals, managers and policymakers. This chapter ends with recommendations for implementation of IRR in usual psychogeriatric nursing home programmes and to offer professionals more access to education programmes of psychotherapeutic treatment skills. Furthermore, the possibilities to enhance the beneficial effects of IRR are discussed.

Chapter i and ii: Presentation of the main findings in a general summary in English as well as in Dutch.
**Literature**


