Summary of preceding chapters

Introduction
The aim of the previous chapters was to answer five questions about bereavement interventions for widows and widowers in general, and the visiting service for older widowed individuals in particular:
1. Do widows and widowers need help (in order to cope with their grief)?
2. Which widows and widowers need help?
3. Is the visiting service for widowed individuals an effective intervention to help the widowed and for whom might it be effective?
4. Is the visiting service for older widowed individuals cost-effective?
5. For which widows and widowers is the visiting service for older widowed individuals particularly cost-effective?
Here, in the Summary we will return to these questions, and address each of them.

Do widows and widowers need help?
The association between widowhood and mental health problems, such as depressive symptomatology and anxiety, has been examined extensively. Few studies, however, have explored the prevalence and incidence of mood and anxiety disorders after the loss of the spouse. We conducted a systematic review, and searched major bibliographical databases for studies examining mood and anxiety disorders in widowhood.
We included all studies examining the prevalence or incidence of mood and anxiety disorders in the widowed, according to diagnostic criteria as assessed with a structured diagnostic interview. Eleven studies were identified, exploring the prevalence and incidence of mood and anxiety disorders in 3,481 widowed individuals and 4,685 non-widowed controls.
As expected, the prevalence of major depressive disorder (MDD) and several anxiety disorders were considerably elevated in widowed individuals, especially in the first year after the loss of a spouse. During the first year of bereavement, almost 22 percent of the widowed were diagnosed as having MDD; almost 12 percent met diagnostic criteria for Post Traumatic Stress Disorder (PTSD); and there were clear indications for elevated risks of Panic Disorder (PD) and Generalized Anxiety Disorder (GAD). This was further confirmed in several studies comparing the prevalence of mood and anxiety disorders in the widowed and non-widowed. Five out of six studies, showed significantly increased prevalence rates of MDD, PD and GAD. The relative risk of developing a mood or anxiety disorder ranged from 3.49 to 9.76 in the widowed, compared to control subjects.
Only a small number of studies reported on the incidence of mood and anxiety disorders and indications of incidence rates of the different studies varied; the incidence rate of MDD and several anxiety disorders ranged from 0.08 to 0.50. Therefore, the incidence and persistence of mood and anxiety disorders need to be studied more extensively.
Our review has made a first effort to clarify the association between widowhood and the prevalence of mood and anxiety disorders. However, further research is necessary in order to fully understand the risks and complications the widowed encounter. Although pain and grief seem natural in the aftermath of the loss, widowhood does not have to lead to long-term suffering and dysfunction. Based on the studies we included, we believe that the widowed deserve full attention. In that way, effective support can be developed and offered, to prevent or treat accompanying psychopathologies.
**Which widows and widowers need help?**

Although it is well-established that spousal bereavement can lead to severe stress and an elevated risk of developing mood and anxiety disorders, the impact of spousal bereavement diverges among the widowed. A substantial part of the widowed population experiences severe difficulties after the loss of their spouse, whereas others adjust relatively well. In order to assist the most fragile widows and widowers, we need to understand the risks and complications the widowed encounter.

In order to refine understanding of psychiatric complications in widowhood, we studied a comprehensive set predictors of bereavement outcome in a large sample of widowed individuals. Inclusion of putative predictors was based on the vulnerability-stress model (Brown & Harris, 1978) and relevant literature on risk indicators of poor bereavement outcome. We conducted a cross-sectional study on a sample of 216 widowed individuals. The influence of demographic and psychosocial predictors on four general (depression, anxiety, somatization, and health related quality of life) and one loss-related (complicated grief) outcome measures was studied by means of backward linear regression analysis. Further analyses were performed to explore the possibility of a buffer effect of mastery and perceived social support, which were both suggested as protective variables in the literature.

Depressive symptomatology was best predicted by: lower age, shorter duration of widowhood, perceived non-supportiveness, the presence of more physical disorders or disabilities, and a lower level of mastery. Together, these variables explained 41% of the variance in depressive symptomatology. Anxiety was best predicted by: female gender, lower age, low education, the presence of more physical disorders or disabilities, and a lower level of mastery. In total, 38% of the variance in anxiety was explained by these variables. Somatization was best predicted by: female gender, low education, the presence of more physical disorders or disabilities, and a lower level of mastery and 39% of the variance in somatization was explained by these variables. Complicated Grief was best predicted by lower age, perceived non-supportiveness, and a lower level of mastery. Together, these variables explained 30% of the variance in complicated grief. Health related quality of life (QALY) was best predicted by low education, the presence of more physical disorders or disabilities, and a lower level of mastery. In total, 40% of the variance in health related quality of life was explained by these variables.

In order to explore whether mastery or perceived social support could function as a buffer by decreasing the impact of the identified risk indicators, we examined their interaction. Perceived social support interacted with duration of widowhood on depressive symptomatology and with age on complicated grief. Mastery interacted with age and the number of physical disorders on anxiety and with the number of physical disorders on somatization and quality of life. Besides interacting with other predictor variables, mastery and perceived social support maintained a direct association with the outcome measures. These results indicate that enhancement of mastery and offering social support should probably be components of effective support for widowed individuals most vulnerable to psychiatric complications.

Despite several limitations of this study, its results contribute to the further understanding of all factors influencing bereavement outcome. Although we examined five different measures of psychological adjustment, the corresponding sets of predictors displayed strong resemblance. Furthermore, the predictor variables explained a substantial proportion of the variance in each outcome measure, both indicating that our results make a valuable contribution to the identification of the most vulnerable widows and widowers. Moreover, results are in line with findings from several other studies.
Is the visiting service for older widowed individuals an effective intervention to help the widowed and for whom might it be effective?

In the past decades, numerous bereavement interventions were developed in order to help the widowed cope with their grief. Some of these interventions did have a preventive effect and reduced psychological problems, while others did not seem to yield favorable results. In general, interventions directed towards widows and widowers with a high risk profile appear to be more beneficial than outreaching preventive interventions for all the widowed.

The visiting service for older widowed individuals is a promising intervention designed to support lonely widows and widowers. The visiting service project on which we reported in this thesis has been derived from the Widow-to-Widow program from the United States and is adapted to the Dutch situation. Evaluation of the original Widow-to-Widow program demonstrated positive results on the Goldberg General Health Questionnaire (GHQ), which was used as an indicator of overall disturbance. However, specific measures on depression, anxiety or complicated grief were not reported. In this study we examined the effects of the visiting service on depression, anxiety, somatization, complicated grief and quality of life in older widowed individuals with at least moderate feelings of loneliness in the Netherlands. We expected that the visiting service would be superior to a control condition in improving mental health and quality of life.

We conducted a pragmatic randomized trial with 216 widowed individuals who were randomly allocated to the visiting service (n= 110) or to care-as-usual augmented by a brochure with information on depressive symptoms and suggestions how to improve these symptoms (n = 106). The randomization was carried out centrally, using blocked randomization stratified for gender and region with the widowed individual as unit of randomization and with blocks of two widowed individuals. Data were collected at baseline, at 6 months and 12 months after baseline. All participants (older widowed individuals who lost their partner during the past 14 months) were interviewed by telephone and information was gathered on feelings of loneliness, depression, anxiety, complicated grief, health related quality of life and health care utilization. All analyses were conducted according to the intention-to-treat principle, therefore missing values were imputed by means of regression imputation.

Despite randomization, participants in the visiting service group reported more feelings of loneliness and a worse quality of life at baseline than participants in the control group. No significant differences were found on all other variables even not at p < 0.10. There was no significant difference in follow-up rates between the research conditions. Furthermore, completers did not differ from non-completers on any of the baseline variables, which indicated that loss to follow-up was completely at random. There were no significant differences between the groups at 6 months and at 12 months. Both the visiting service group and the control group demonstrated a small to medium sized improvement in depression, anxiety, somatization and complicated grief scores compared to baseline. Social lonely respondents, respondents with two or more physical illnesses or disabilities and respondents with low education (no education or primary school) in the visiting service group improved more than similar respondents in the control group. Social loneliness, education and the number of physical illnesses significantly interacted with the treatment dummy on depressive symptoms, anxiety and quality of life. Thus, the visiting service for older widowed individuals was not an effective intervention to help the widowed in the overall sample, but social lonely, physically ill or low educated participants did seem to benefit.
Is the visiting service for older widowed individuals cost-effective?

Despite a growing understanding of the effectiveness of bereavement interventions and the groups that benefit most from them, we know little about the cost-effectiveness of bereavement interventions.

We conducted a cost-utility analysis alongside a randomized clinical trial on a visiting service for older widowed individuals (n=110) versus care as usual (n=106). The clinical end term was quality adjusted life years (QALYs) gained. Costs were calculated from a societal perspective excluding costs arising from productivity losses, although these costs were included in a sensitivity analysis. Using the bootstrap method, we obtained the incremental cost utility ratio (ICUR), projected the ICUR on a cost-utility plane and presented an acceptability curve.

Overall, the experimental group demonstrated slightly better results against slightly higher costs. Participants in the visiting service group demonstrated a significant improvement in health-related quality of life. Participants in the control group did not. However, the visiting service group did not significantly differ from the control group in their changes in health-related quality of life over time when we adjusted for both confounding variables. In both groups costs increased over time, however these changes in costs were not statistically significant. In the visiting service group, the increased costs included the costs of the intervention (€ 553), but these additional costs were partly compensated for by savings elsewhere in the healthcare and welfare sector. The mean difference of the additional costs was € 210 in favor of the control group, but this difference was not statistically significant. The incremental cost utility ratio (ICUR) was € 6,827. This means that for each QALY gained by offering the visiting service, the additional costs amount to € 6,827. Bootstrapping of the data of the individual respondents yielded a median ICUR of € 4,123. Whether the visiting service is acceptable depends on the willingness to pay: at a willingness to pay equal to zero per QALY gained, the visiting service has a probability of 31 % of being acceptable; beyond €20,000, the visiting service has a probability of 70% of being more acceptable than CAU.

Bereavement interventions like the visiting service will not produce large benefits from the health economic point of view, when targeted towards the entire population of all widowed individuals. We recommended that in depth analyses are conducted to identify who benefits most from this kind of interventions, and in what subgroups the incremental cost-utility is best. In the future bereavement interventions are then best directed to these groups.

For which widows and widowers is the visiting service for older widowed individuals cost-effective?

Bereavement interventions thus do not produce large benefits in terms of public mental health when targeted towards the entire population of widowed individuals. However, several bereavement interventions appear effective when the intervention is directed towards widows and widowers with a high risk profile, such as high distress, symptoms of complicated grief, low education, poor physical health and lack of social support. Results of a population-based cohort study on cost-effective prevention of late-life depression suggest that effective interventions for comparable high-risk groups are likely to be cost-effective as well. In order to test this hypothesis, we conducted incremental net-benefit analyses on data of a randomized clinical trial on the visiting service for older widowed individuals.

In our analyses we considered two clinical end terms: health related quality of life and a medium to large decrease in depressive symptoms. Furthermore, we included the following risk indicators: female gender, aged 65 and older, low level of education (no education or primary school), social loneliness, low mastery, poor physical health,
possible case of clinical depression at baseline and possible case of complicated grief at baseline. We adopted a societal perspective, including the costs of all types of health care services (direct medical costs), patients’ out-of-pocket costs such as costs for traveling and parking (direct non-medical costs) and costs deriving from not being able to perform domestic tasks. The cost-effectiveness of the visiting service for several high risk groups was analyzed with incremental net-benefit regression analysis. Because the willingness to pay is an unknown parameter, we performed several net benefit regressions with different values for willingness to pay (ranging from 20,000 – 50,000 euro per QALY gained in the analyses concerning health related quality of life and ranging from 10,000 – 30,000 euro per medium to large improvement in depression).

When health related quality of life was the clinical end term, the visiting service was cost-effective for low educated widows and widowers at a willingness to pay of €25,000 euro per QALY gained. The cost-effectiveness of the visiting service was also marginally statistically significant when the willingness to pay was lowered to €20,000 euro per QALY gained and remained statistically significant when the willingness to pay was raised to €50,000 euro per QALY gained. In addition, the visiting service was cost-effective for widows and widowers with complicated grief at baseline at all tested values for willingness to pay. The visiting service was not cost-effective for all other tested subgroups with health related quality of life as clinical end term.

When moderate to large improvements in depression were the clinical end term, the visiting service was cost-effective for low educated widows and widowers and for widows and widowers with social support deficits at all tested values of willingness to pay ranging from €10,000 to €30,000. The visiting service was not cost-effective for all other tested subgroups with moderate to large improvements in depression as clinical end term.