

Social adjustment to widowhood.

**Changes in personal relationships and loneliness
before and after partner loss**

M. Guiaux

VRIJE UNIVERSITEIT

Social adjustment to widowhood
Changes in personal relationships and loneliness
before and after partner loss

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof.dr. L.M. Bouter,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de faculteit der Sociale Wetenschappen
op vrijdag 5 februari 2010 om 10.45 uur
in de aula van de universiteit,
De Boelelaan 1105

door

Maurice Guiaux

geboren te 's-Gravenhage

promotor: prof.dr. T.G. van Tilburg
copromotor: dr. M.I. Broese van Groenou

Contents

1	Introduction	3
2	Changes in contact and support exchange in personal networks after widowhood	15
3	When does increased social support affect loneliness after partner loss?	37
4	Loneliness after partner loss: Joint dynamics of mastery and social support	51
5	Dynamics of social resources and mortality after partner loss	65
6	General conclusion	79
	References	96
	Summary in Dutch	104
	Acknowledgements	111
	Curriculum vitae	112

Chapter

1

Introduction

Introduction

The loss of their spouse may be one of the most disruptive life events married older adults experience. As married older couples age the risk that one of them will be left widowed increases. In the Netherlands, about three times more women than men over 65 are widowed, about 14% of men over 65 are widowers and about 44% of women over 65 are widows (Statistics Netherlands, 2009a). In 2007, the average age at which women were widowed was 71, and men were widowed at on average 72 years of age (Statistics Netherlands, 2009b). While adjusting to widowhood, bereaved older adults face more psychological and social changes than after any other life event (Hatch, 2000). Survivors may suffer financial strain due to loss of income and face the challenge of daily living on their own after having shared a life as a couple for many years (Umberson, Wortman, & Kessler, 1992). In addition, widowhood may have adverse consequences for the survivor's mental and physical health. Survivors may experience grief, anxiety or depression (Stroebe, Stroebe, & Hansson, 1993) as well as persistent feelings of *loneliness*, indicating a lack of a reliable attachment or sufficient social contact with others (Pinquart, 2003). In the first six months after partner loss, a surviving spouse may have an increased *mortality risk* (Martikainen & Valkonen, 1996). Recently, theoretical advances regarding the process of adjusting to widowhood in late life indicate that some changes, such as in *personal relationships*, not only occur after partner loss, but already take place before partner loss and that these changes in personal relationships may have various consequences during the *process of adjusting to widowhood* (e.g. Carr & Utz, 2002). In line with the idea of the adjustment process as a multifaceted transitional process (Carr & Utz, 2002), this study investigates how various changes in personal relationships before and after partner loss are related to loneliness and mortality after partner loss.

It is known that widows and widowers differ considerably in the ease with which they adjust to bereavement and rebuild their lives (Stroebe, Folkman, Hansson, & Schut, 2006). How they manage these adjustments and challenges depends on their preloss characteristics, such as their health, personality, and resources. Resources have been conceptualized as a comprehensive construct that covers those entities that are either valued in their own right, such as close attachments or self-esteem or act as a means to obtain valued goals, such as money and support (Hobfoll, 2002). Following this definition, networks of personal relationships serve as *social resources* because these personal relationships are valued in their own right and provide access to, among other things, support. These social resources consist of *structural elements*, such as the range of different relationship types (children, friends and neighbours) and the frequency of contact within these relationships. Social resources also contain *functional elements*, because personal relationships also function as a conduit for support. In other words older adults and members of their social networks provide and receive emotional and instrumental support to and from each other. High resource individuals generally rate

their life as positive and rewarding, experience a sense of embeddedness through their resources (Cohen & Wills, 1985), and rely on the prospect that their resources will be available should the need arise. Silverstein and Bengtson (1994) and Davey and Eggebeen (1998), for example, showed that widowed adults' wellbeing diminished less when social support was provided in response to widowhood. Therefore individuals with many social resources may adjust to widowhood more easily than individuals with fewer social resources. Whether widows and widowers receive support from others and how they deal with their support, also depends on their health and the extent to which they feel in control of their social resources. For example, although support provided in response to physical limitations may be well intended, excessive support may undermine older adults' confidence in their ability to remain independent (Seeman, Bruce, & McAvay, 1996). These studies show how widows and widowers' adjustment process to partner loss depends on the availability of their social resources and pre-loss characteristics. Resources change throughout life because circumstances and needs change during life (Antonucci, 2001; Hobfoll, 2009). Similarly, individuals experience changes in their resources during the transition into widowhood. Therefore, this study aims to gain more insight in widows and widowers' adjustment process by taking into account these changes in social resources among *married and widowed* older adults, *before and after* partner loss as well as how they are related with pre-loss characteristics.

Building on existing knowledge of adjustment to partner loss, this study examines how *structural* and *functional* aspects of *social resources* change over the course of ten years, which changes occur before and which after partner loss and how these changes are related to two possible consequences of partner loss, *loneliness* and *mortality*. While doing so, the current study adds focus on the dynamic aspects of the adjustment process to widowhood. The aim is to disentangle both theoretically and empirically the ways in which changes in social resources and changes in loneliness and mortality risk are related around the time married older adults lose their partner. In contrast to mainstream studies this study conceptualizes adaptation to widowhood as a process that finds its origin before the loss of the partner and continues after partner loss. Along these lines, this study expects to expand current understanding of how resources enhance older adults' flexibility to cope with risks they face after spousal loss. Therefore, this study examined the following four research questions:

- How do contact and support change before and after widowhood? How do changes in contact and support in several types of relationships among widowed differ from changes among married older adults?
- How are social resources related to loneliness among widowed older adults?
- How are personal and social resources related to loneliness among widowed and married older adults?

- How do changes in social resources affect older adults' mortality risk after partner loss?

Theoretical background

Before answering these questions empirically, I will provide some theoretical background on the multifaceted transitional process of adjusting to widowhood. After describing the adjustment process to partner loss as a multifaceted transitional process, I will explore the following two theoretical questions: why do resources change, and how are changes in resources related to the risk of loneliness and mortality. To answer these questions, I combined several theoretical approaches that focus on the dynamic aspects of resources and stress. On a general level, Lazarus and Folkman (1984) underline the dynamic aspects of the stress process in their stress-appraisal model. In the deficit model of partner loss, a widowhood specific application of the stress-appraisal model, Stroebe, Stroebe, Abakoumkin and Schut (1996) identify why deficits in personal relationships after widowhood lead to loneliness. Weiss (1975) distinguishes two types of loneliness, social and emotional, and specifies the deficits related with both types of loneliness. Emphasizing the dynamic nature of personal relationships, the convoy model of social support (Kahn & Antonucci, 1980) clarifies why personal relationships come and go. Hobfoll's conservation of resources theory (2002) connects the dynamic nature of resources with the stress process and explains at what moment changes in resources produce changes in stress or loneliness. I will discuss the general principles of these approaches and how they relate to widowhood below, but first I will elaborate on the adjustment process.

Multifaceted transitional process

Adjusting to widowhood is a transitional process from being married to being widowed. The process of becoming widowed may begin years prior to the actual death, starting with the onset of the spouse's terminal illness (Carr & Utz, 2002). Although most research until now usually studied changes that occur after widowhood, evidence is accumulating that resources often change before widowhood. Recently two studies showed that when poor spousal health forced wives to become a caregiver, their social involvement with others decreased (Seltzer & Li, 2000; Utz, Carr, Nesse, & Wortman, 2002). Seltzer and Li (2000) also showed that upon entry into the caregiving role wives experienced a decline in well being that accompanies the decrease in social involvement with others. After partner loss caregiving wives showed signs of psychological relief, but Seltzer and Li (2000) suggested that the short term relief might be replaced by longer term feelings of loneliness and loss. Although these studies did not examine the relationship between changes in social resources and wellbeing, these studies show that resources change before and after partner loss and in the same period wellbeing also changes. Similarly, during the

transitional period from being married to being widowed changes in social resources and changes in loneliness may also be related.

Adjustment to widowhood is multifaceted because widows and widowers may experience a range of personal consequences, and because these personal consequences are interrelated with changes in their resources. Loneliness, for example, is one of these personal consequences after partner loss and loneliness may also be related to changes in social resources. Spousal loss is a major risk factor for loneliness, because older spouses live intertwined lives, in which spouses depend on each other for their wellbeing and are a major source of love and companionship for each other (Nieboer, 1997). Widowed older adults are confronted not only with the loss of their spouse, but also with a new role as a widowed person, and must re-establish a way of socializing with their others that fits this new role. Surviving spouses may lose additional personal relationships while they adjust to their new role in widowhood, which may add to their feelings of loneliness. On the other hand, other personal relationships may be a resource of support when bereaved older adults adjust to widowhood and this may protect them from feeling lonely. Accordingly, bereaved older adults tend to have increased levels of support and social participation (Utz et al., 2002). Like this, not only partner loss, but also changes in social resources, such as losses in personal relationships, are related to widows and widowers' risk of loneliness.

Why personal relationships change: the convoy model

Kahn and Antonucci (1980; Antonucci, 2001) adopted a life course perspective in their convoy model of personal relationships to explain the dynamic nature of personal relationships. They conceptualized older adults' networks of personal relationships as convoys of social support. Throughout their lifetime individuals surround themselves with people who are close and important to them. In this way, individuals and their relationships shape each other's life and wellbeing. Over time, relationships evolve and mature based upon past interactions. In the current research, I focused on two basic premises of the convoy model. First, the convoy model assumes that in accordance with changing needs and changing roles personal relationships come and go, and the exchange of support increases and decreases. Personal relationships may have positive effects on health and wellbeing because contact and positive interactions with others make individuals feel better and because they strengthen individuals' perception that support is available should the need arise (Antonucci, 2001). Widowhood is one of the most significant changes in old age. As older adults become widowed they change from being part of a couple to being single. This change is accompanied by changing needs for contact and support. A married older adult that takes care of a terminally ill spouse may turn to his or her network members for support, with family members, particularly daughters, being the most likely additional caregivers (Blieszner, 2006). While married older adults were able to fall back on their spouse in the past, after widowhood they must rely on

others for companionship or support. Thus, network relationships change around the time they become widowed to the extent that older adults experience changing needs during that period.

Secondly, the convoy model distinguishes relationships according to their supportive function in the convoy. Close relationships fulfill attachment related needs, such as needs for love, comfort and companionship. Role relationships act upon role requirements. To be more specific, older adults may ask one of their neighbors to water their plants while they are away, but they probably turn to their close friends or family when they want to be comforted after the loss of a loved one. Seeman and Berkman (1988) showed that older adults rely on their children for instrumental and emotional support, on their close friends and relatives for contact and emotional support and on their neighbors, because of their geographic proximity, for instrumental support. Likewise, changes in contact and support and the kinds of support vary by relationship type, because different relationships fulfill different roles and needs. The general expectation of the convoy model is that with increasing age role loss ultimately leads to a decline in importance of role relationships and an increase in the importance of family relationships in the network (Antonucci, 2001). The transition into widowhood is not merely a role change, but also means the loss of an important attachment figure. Therefore, becoming widowed changes both older adults' role relationships and their close relationships.

Stress processes: appraisal and deficits

Because consequences of widowhood, like the risk of loneliness and mortality, may have their roots in the stress associated with adjusting to widowhood, I now turn to the stress-appraisal theory (Lazarus & Folkman, 1984). By focusing on the appraisal processes that lead to stress, Lazarus and Folkman (1984) highlighted the dynamic nature of the stress process. In their view, stress is the result of a continuous process of evaluations referred to as cognitive appraisal. This process begins when an individual evaluates a situation as personally meaningful. When a personally meaningful situation harms, threatens, or challenges an individual's valued goals and wellbeing, the individual may appraise this situation as stressful. Thus, becoming widowed may be appraised as stressful because older adults lose a personally meaningful relationship (Folkman, 2001). However, whether an individual actually appraises a situation as stressful depends on the demands of that situation. In a possibly stressful situation, such as becoming widowed, an individual assesses options for coping by evaluating the demands of the situation in relation to his or her resources. These demands include instrumental demands and demands caused by the need to regulate emotions. Stress only occurs if the demands of the situation tax or exceed the individual's resources for coping, and if the situation presents few viable options for coping. Being widowed remains stressful as long as the process of adaptation to widowhood taxes or exceeds the older adult's resources and alternative options for

coping are scarce (Folkman, 2001).

Why personal relationships are related to loneliness: deficits after partner loss

The stress-appraisal model clarifies why individuals experience stress, but it does not explain how loneliness develops after partner loss. The deficit model of partner loss (Stroebe et al., 1996) and the relational theory of loneliness (Weiss, 1975) shed light on the relationship between loneliness and personal relationships after partner loss. The deficit model of partner loss, which was designed as a widowhood specific application of the stress-appraisal model, proposes that the loss of a partner causes specific relationship deficits, such as a deficit in companionship and in instrumental and emotional support. The root of loneliness lies in these deficits. Weiss's relational theory of loneliness (1975) differentiates two forms of loneliness, both of which may develop after partner loss. Emotional loneliness is defined as a feeling of lacking a close, intimate attachment figure who provides a sense of security (Bowlby, 1969), in other words as an attachment deficit. Emotional loneliness develops because widows and widowers fail to derive the same sense of security from others as they previously derived from their partner. According to Weiss (1975), emotional loneliness, persists as long as widows and widowers fail to find a substitute for the partner as attachment figure. Likewise, social loneliness is defined as a feeling of lacking social contacts, in other words as a social integration deficit, and develops after partner loss when changes in contact and support with others causes a social integration deficit among widows and widowers.

Even though the stress model (Lazarus & Folkman, 1984) and the deficit model of partner loss (Stroebe et al., 1996) acknowledge that resources change during an adjustment process and that these changes may affect how people appraise their situation, the model does not explicitly factor in how and at what moment these changes in resources change the outcomes of appraisal processes. Therefore, appraisal theory does not unambiguously explain whether an increase in support is immediately consequential for widows and widowers' feelings of loneliness, or whether it takes some time after their support increased before they become less lonely. Similarly, the relational theory of loneliness (Weiss, 1975) does not describe *when* changes in resources are likely to substitute for deficits and thus change widows and widowers' loneliness.

Resource processes: conservation of resources

The conservation of resources theory's strong point is its focus on how sequences of resource changes cause stress and it is because of this focus that the theory provides an answer to *when* these changes affect one's wellbeing (Hobfoll, 2002). The central motivational construct in this theory is the acquisition and facilitation of resources. This means that individuals search for resources, and make every effort to keep and protect their resources. Individuals experience stress in two circumstances. First, stress occurs

when individuals are threatened with resource loss, or actually lose resources, *such as their partner*. The process of resource mobilization that follows such a loss is the second circumstance that may lead to stress. In that case, stress occurs when individuals fail to (re)gain resources after a substantive resource investment. Thus when individuals are threatened with resource loss, such as potential partner loss, or actually lose resources, they will attempt to mobilize their remaining resources to prevent the impending loss or to regain similar resources as were lost. This fits with Blieszner's (2006) observation that spousal caregivers turn to their network members for support, because spousal caregivers are threatened with resource loss because of the progressive illness of their spouse. Because network members generally respond in such situations, resources should increase. According to Hobfoll (2002) resources may increase if coping is successful, but there is always a risk that any resource invested in the coping process is lost. Thus, like other support and resource models (Li, 2005; Norris & Kaniasty, 1996), the conservation of resource theory acknowledges that using resources to meet life challenges may deplete existing resources. The theory further suggests that resources, such as contact and support, will continue to increase once the partner is actually lost. In this way the loss of a partner as a resource is the primary element and mobilizing contact and support from others as an attempt to prevent losing or to regain the resources lost with a partner is the secondary element in the *stress process of widowhood*. The conservation of resources theory proposes that the loss of a major resource, such as a partner, has an immediate stressful impact and this impact lasts longer than resource gain (Wells, Hobfoll, & Lavin, 1999). Therefore, the effects of resource gain, such as increased contact or support, on stress will not be visible until the impact of loss has abated. Thus, the conservation of resources theory proposes that loneliness increases immediately after older adults lose their partner as a resource. Whether increased resources effectively substitute for the resources lost with a partner will only be visible in the long run after the impact of partner loss has abated. In this way the conservation of resources theory explains when changes in resources may possibly produce changes in loneliness.

Remaining questions about adjusting to widowhood

In contrast with most empirical studies on widowhood that overlooked the dynamic aspects of the adjustment process to widowhood, this study explicitly focuses on these dynamics. With social and personal resources, loneliness and mortality as a selection of the many facets and consequences of the transition into widowhood, this study builds on insights from recent longitudinal research that examined changes in either resources or wellbeing after partner loss (Carr & Utz, 2002). Based on the convoy model (Antonucci, 2001), this study not only examines changes after partner loss, but also examines how resources already change before widowhood. Contributing to existing knowledge and combining insights from conservation of resources theory (Hobfoll, 2002), the deficit

model of partner loss (Stroebe et al., 1996) and Weiss's relational theory of loneliness (1975), this study will also examine how changes in social resources are related with changes in loneliness and mortality risk during the adjustment process. For older adults who are threatened with resource loss or actually lose a major resource possessing other resources and successfully mobilizing these resources become all the more critical (Hobfoll, Ennis & Kay, 2000). In addition to social resources, this study also examines the effects of mastery as a personal resource. When older adults mobilize their resources, their resources change. As resource change may affect older adults differently when they face the challenges of adjusting to partner loss than when they are not facing these challenges, this study will examine how resource change affects widows and widowers differently than married older adults.

Methodological background and empirical data

This study is based on empirical data from the Longitudinal Aging Study Amsterdam (LASA). The sample for this program originated from the "Living arrangements and social networks of older adults" program, which used a stratified random sample of men and women born between 1908 and 1937 (Knipscheer, De Jong Gierveld, Van Tilburg, & Dykstra, 1995). The oldest people, and especially the oldest men, were overrepresented in the sample. The sample was drawn from the population registers of eleven municipalities: the city of Amsterdam and two rural communities in the western region of the Netherlands, one city and two rural communities in the south, and one city and four rural communities in the east. These regions represented the differences in religion and urbanization in the Netherlands at the time (Van Tilburg & Broese van Groenou, 2002). Older adults in the west mostly have no religious denomination, in the south they are more often Roman Catholic, and the east they are more often Protestant. The west is more urbanized than the south and east of the Netherlands.

In 1992-1993 (T1), 3,107 participants were interviewed as part of the "Longitudinal Aging Study Amsterdam" (LASA; Deeg, Van Tilburg, Smit, & De Leeuw, 2002). In 1995-1996 (T2; N= 2,545), 1998-1999 (T3; N= 2,076) and 2001-2002 (T4; N= 1,691), LASA performed follow-ups. Between T1 and T4, 1,051 (34%) participants died, 222 (7%) participants refused cooperation and 143 (5%) participants were ineligible or not contacted. Of the 3,107 participants, 1,942 were married at T1 and 813 were widowed at T1, the remaining 352 participants were either never married or divorced. All studies in this thesis started with the selection of the 1,942 participants who were married at T1. The participants who remained married were compared with participants who became widowed after T1. Having a continuously married control group enables us to distinguish which effects were specifically due to widowhood.

Very specific data are required to empirically answer the research questions how older

Introduction

adults' social resources change before and after partner loss, how these changes in resources affect their loneliness and what the impact of partner loss is. Following Carr and Utz's (2002) guidelines, this study used prospective longitudinal data, contrasted the bereaved with a non-bereaved control group, and adjusted for preloss characteristics or resources, such as gender, education and network size that affect the risks of loneliness and mortality after partner loss. Moreover, I differentiated the different relationships in older adults' personal networks (close and extended kin, neighbors, close friends and acquaintances). Finally, I differentiated change in social resources (changes in contact and changes in emotional and instrumental support), and I differentiated consequences of widowhood (emotional and social loneliness and the risk of mortality). The data, on which this study is based, provides two major advantages over previous research.

An advantage of this study is that it is based on extensive and prospective longitudinal data. This means that I had for each older adult in our study sample observations before and after partner loss and that I had an extensive follow-up period on mortality of about fifteen years. Because our data are prospective, I can assess whether increasing support protects against increasing risks due to partner loss. Because our study encompasses more than two observations, I can describe at least two periods of change. Having two periods of change I could differentiate simultaneous and successive changes in support and loneliness. Due to these multiple observations this study can describe changes before as well as after partner loss, and how the different changes affected widows and widowers' loneliness and mortality risk.

A second advantage of this study is that the data used for this study contains extensive information about social resources. These data not only specify which relationships are part of older adults' personal networks, they also inform us about the amount of contact and support exchanged with each of the specific relationships. Because the personal networks of older adults were delineated with a domain specific approach using seven formal types of relationships (Van Tilburg, 1995), eight formal types of relationships were distinguished (children, children-in-law, siblings, siblings in law, other kin, friends, neighbors and other types of relationship). Furthermore, for each identified relationship, information was gathered on the network member's gender and contact frequency with the focal older adult, and for the nine most frequently contacted relationships information was available on the amount of support they exchanged with the focal older adult.

At least two different types of support are important for widowed older adults. First, emotional support, such as talking about personal feelings and comforting one another, may relieve the emotional distress caused by widowhood. Secondly, instrumental support, such as help with daily chores, housekeeping or cooking, may facilitate surviving spouses' adjustment to living on their own (Veiel, 1985). One question for each selected network member was asked about receiving instrumental support: "How often in the past year did

X help you with daily chores in and around the house, such as preparing meals, cleaning the house, transportation, minor repairs, filling out forms?" One question was asked about receiving emotional support: "How often in the past year did you talk to X about your personal experiences and feelings?" For support given, the questions were reversed. The answer categories were never, seldom, sometimes and often. Thus, at the dyad level participants reported on the contact frequency with each of their network members and on their support exchange with their most frequently contacted network members.

Another advantage of this study is that I could differentiate two types of loneliness, namely emotional and social loneliness (De Jong Gierveld & Kamphuis, 1985; Weiss, 1975). Emotional loneliness refers to the experience of missing a reliable emotional attachment to someone else, and social loneliness to the experience of lacking social contact with others. Loneliness was based on the Dutch loneliness scale of De Jong Gierveld and Kamphuis (1985). Two subscales were distinguished. The first subscale, emotional loneliness, consists of six negative items (e.g., 'I experience a general sense of emptiness'), and refers to a feeling of lacking reliable emotional attachments to others. The second subscale, social loneliness, includes five positive items (e.g., 'I can call on my friends whenever I need them'), and describes loneliness experienced due to lack of social integration. Response options were 1 'no', 2 'more or less', and 3 'yes'. Item scores were dichotomized and then summed to obtain scales where higher scores indicate stronger feelings of emotional or social loneliness. In this way, this study could distinguish which type of loneliness reacted stronger to widowhood, and whether these types reacted differently to changes in support.

Outline of the book

In chapter two I examine how personal relationships of older adults change over a period of ten years. With the convoy model as a theoretical guideline, this study describes changes in structural and functional aspects of social resources among 227 widowed and 408 married older adults. The study illustrates changes in contact frequency and the exchange of emotional and instrumental support over a period of ten years. The main question is how changes in personal relationships among older adults who become widowed differ from changes in personal relationships among older adults who remain married. Moreover, this study specifically shows how levels of contact and support change in several different types of relationships, and which types of relationships become the most supportive after partner loss.

Chapters three and four relate changes in resources with changes in loneliness after partner loss. Chapter three disentangles both theoretically and empirically the sequence of changes in support and loneliness. Predictions are derived from the conservation of resources theory (Hobfoll, 2002), the deficit model of partner loss (Stroebe et al., 1996),

Introduction

and Weiss's relational theory of loneliness (1975). The study associates changes in emotional support with emotional and social loneliness over a period of six years among 176 widowed older adults with one pre-loss and two post-loss assessments. This study differentiates the associations between support and loneliness that exist at the same time from those that follow each other. The main question is whether increased support immediately protects older adults from loneliness or whether the protective effect is delayed.

Chapter four focuses on the relationship between mastery, as a personal resource and social resources. Among 174 recently widowed older adults and 901 married older adults, this study examines the joint effects of mastery, as a personal resource, and support, as social resource on emotional loneliness. The main question is whether more mastery enables older adults to improve their social resources and thus whether they experience smaller increases in loneliness after partner loss. In addition, this study examines how changes in both mastery and social resources are related with loneliness after partner loss.

Finally, chapter five examines to what extent changes in social relationships that occur around partner loss affect subsequent mortality. More specifically, this study focuses on whether changes in contact frequency or in support are related with mortality, and in which types of relationships, children, kin or other, these changes matter most for mortality.

Chapter six summarizes the major results and provides an integrated answer to my research questions. While doing so, I will also discuss the theoretical and practical implications of this study.

Chapter

2

Changes in Contact and Support Exchange in Personal Networks after Widowhood

Abstract

The convoy model conceptualizes older adults' networks of personal relationships as convoys of social support. This prospective study examined how contact and support in several relationships changed due to widowhood. Using observations between 1992 and 2002 from the Longitudinal Aging Study Amsterdam, multilevel models describe change in contact and support of 227 widowed and 408 married older adults. Contact and support were low before widowhood, and increased in all relationships after widowhood, and more so in child and sibling relationships. Around 2.5 years after widowhood, contact and support started to decrease. Our findings increase our understanding of the heterogeneity of network changes in old age and of the instability of the network as a social convoy in late life.

Published as:

Guiaux, M., Van Tilburg, T., & Broese Van Groenou, M. B. (2007). Changes in contact and support exchange in personal networks after widowhood. *Personal Relationships*, 14, 3, 457- 473.

Widowhood, one of the most disruptive life events older adults may experience, requires more psychological and social adjustments than any other life event (Hatch, 2000). Before widowhood, older adults and their partners depend on each other for daily contact and support. After widowhood, the surviving spouse must not only deal with the emotional distress caused by partner loss, but also adapt to a new role as widowed person (Utz, Carr, Nesse, & Wortman, 2002). Widowhood is a multifaceted transition (Carr & Utz, 2002), and the surviving spouse may experience psychological, financial or social consequences, such as increased grief or depression (Stroebe, Stroebe, & Hansson, 1993), loss of income, or increased social participation (Utz et al., 2002). In addition, widowhood may have adverse consequences for the survivor's health and in the first six months a surviving spouse may be at greater risk of dying (Martikainen & Valkonen, 1996). These consequences depend on pre-loss characteristics and resources, may change over time and may be intertwined.

Individuals change over time and their transitions, such as widowhood, and trajectories affect and are linked with the lives of others in their personal network (Allen, Blieszner, & Roberto, 2000). In line with this life course perspective, Antonucci (2001) conceptualized older adults' networks of personal relationships as convoys of social support to emphasize the dynamic aspect of social interactions. The convoy model proposes that personal relationships may come and go, and the exchange of support increases and decreases in accordance with changing needs and changing roles. In addition the convoy model distinguishes relationships according to their supportive function in the convoy. Close relationships fulfill attachment related needs and role relationships act upon role requirements. The transition into widowhood is not merely a role change, but also means the loss of an important attachment figure. Therefore, becoming widowed changes both older adults' role relationships and their close relationships.

Social resources, which consist both of networks of personal relationships and the contact and support exchanged within them, serve key functions in the adaptation to widowhood in late life (Hobfoll, 2002). In general, personal relationships and social support affect health and well-being across many domains (Allen, Blieszner, & Roberto, 2000). Personal relationships may have positive effects on health and well-being because contact and positive interactions with others make individuals feel better and because it strengthens individuals' perception that support is available should the need arise (Antonucci, 2001). Social contact, whether it is face-to-face or by phone, regular mail, or email, may protect older adults from social isolation and loneliness (Pinquart, 2003). For bereaved older adults face-to-face contact with significant others may be especially important, because it facilitates the exchange of support and helps widowed older adults to adopt their new role (Wenger, 1990). In turn, social support may act as a buffer against the negative consequences of widowhood (Cohen & Wills, 1985).

Presently, much research defines social support as the exchange of various forms of informal assistance, such as information, practical aid, financial advice or emotional support (Allen, Blieszner, & Roberto, 2000). At least two different types of support are important for (the health and well being of) widowed older adults. First, emotional support, such as talking about personal feelings and comforting each other, may relieve the emotional distress caused by widowhood. Secondly, instrumental support, such as help with daily chores, housekeeping or cooking, may facilitate surviving spouses' adjustment to living on their own (Veiel, 1985).

Research in this field has not yet addressed changes in contact and support in personal networks over an extended period of time. Most research regarding personal networks after widowhood studied cross-sectional or retrospective data (e.g. Morgan, Carder, & Neal, 1997). In these cross-sectional comparisons, older adults widowed for more than four years reported less social contact with their family members and were less likely to report large friendship involvement than older adults widowed for a shorter period (Ferraro & Barresi, 1982; Morgan et al., 1997). Additionally, widowed older adults had more contact and exchanged more support with their personal network than married older adults. One of the few longitudinal studies with prospective data reported that social participation increased in the six-month period after widowhood (Utz et al., 2002). Whether increased social participation will remain high over a longer period of time or eventually return to lower levels is still unclear.

This study aimed to contribute to the notion of networks as convoys in later life. The general aim was to explain how contact and support levels changed over a period of ten years during which married older adults made the transition into widowhood. More specifically, this study described changes in contact and support older adults experienced in the different relationships of their personal networks, starting before they were widowed until some years after being widowed. Following Carr and Utz's (2002) guidelines, this study used prospective longitudinal data, contrasted the bereaved with a non-bereaved control group, and adjusted for pre-loss characteristics or resources, such as gender, education and network size that affect the risk of consequences of widowhood. Moreover, we differentiated the different relationships in older adults' personal networks, that is close and extended kin, neighbors, close friends and acquaintances.

Hypotheses

Based on the convoy model of Antonucci (2001, Kahn & Antonucci, 1980), changes in network relationships are the result of changes in roles. The general premise in this study is that widowhood, a change from being spouse to being single, is accompanied by a change in need for contact and support. The timing of the change in need is usually considered to occur after widowhood. Yet, there is some evidence that suggests that increased needs for help before widowhood are related with increased network support

(Bowling, Farquhar, & Grundy, 1995). If, for example, one of the spouses developed a serious illness before widowhood, this may have constrained the healthy spouse to maintain his or her personal network. Utz et al. (2002) found that social participation levels decrease before the death of a spouse, primarily because of poor spousal health. When poor spousal health forced wives to become a caregiver, their social involvement with others decreased (Seltzer & Li, 2000). On the other hand, if the illness progresses, a spousal caregiver may turn to his or her network members for support, with family members, particularly daughters, being the most likely additional caregivers (Blieszner, 2006). Furthermore, evidence from Seltzer and Li's (2000) study suggests that exiting the caregiver role through bereavement is associated with increased levels of social involvement. Therefore, we would expect that, starting from an initial low point, levels of contact and support rise shortly before widowhood (Hypothesis 1).

It is well known that shortly after widowhood, widowed older adults have a high need for contact and support. Over time the need for support and contact with others may diminish, if widowed older adults adjust to the loss of their partner. On the other hand, if widowhood becomes a chronic stressor (Bodnar & Kiecolt-Glaser, 1994), the need for support may remain high. Support and resource models suggest that if individuals draw on their support extensively over prolonged periods, they may find that their resources deplete and their support deteriorates (Li, 2005, Norris & Kaniasty, 1996). In any case, in time, network members' own everyday matters may crowd out attention for the widowed older adult. Although it is hard to give a clear set point for a normal grief period, the bereavement literature seems to agree that in general most widowed older adults adjust to their loss after about one to two years (Stroebe, Stroebe & Hansson, 1993). A recent study shows that in the first two years after partner loss widowed older adults experienced more stress than married older adults, but after two years they showed similar levels of stress as married older adults (Hagedoorn et al., 2006). Carnelley, Wortman and Kessler (1999) showed that the adverse effects of widowhood on depression are very substantial during the first two years and wear off in the third year after widowhood. If changes in contact and support mirror the changing needs associated with adaptation to widowhood, we would expect that contact and support rise for about two years and start to drop in the third year after widowhood (Hypothesis 2).

Because different relationships fulfill different roles and needs, changes in contact and support and the kinds of support vary by relationship type. Seeman and Berkman (1988) showed that older adults rely on their children for instrumental and emotional support; for contact and emotional support they rely on their close friends and relatives; and for instrumental support they rely on their neighbors, because they live nearby. The general expectation of the convoy model is that with increasing age, role loss ultimately leads to less weight of role relationships and a growing importance of family relationships in the

network (Antonucci, 2001). Conversely, in the process of adjusting to widowhood, increased needs may force older adults to expand their networks (Bowling, Farquhar, & Grundy, 1995). Ferraro and Barresi (1982) and Field and Minkler (1988) reported stability in kin relationships among widowed older adults and increased contact and support with neighbors and friends after widowhood. Widowed older adults not only rely heavily on their children, they also tighten relationships with siblings and extended kin (Anderson 1984). Thus, we would expect married older adults to increase contact and support in their close relationships over time (Hypothesis 3a). Because widowed older adults may have increased emotional and instrumental needs, levels of contact and support increase in a broad range of relationships. More specifically, we expect that after widowhood levels of emotional and instrumental support increase with children, levels of contact and emotional support increase with family and friends, and levels of instrumental support increase with neighbors (Hypothesis 3b).

In sum, we tested the following two sets of hypotheses, based on the above-mentioned findings. First, before widowhood contact with and support from members in the personal network start increasing from a low point (Hypothesis 1). This increase will continue shortly after widowhood until in the long run contact and support returns to lower levels (Hypothesis 2). Secondly, people whose marriages continue show a tendency towards close relationships with close kin and close friends (Hypothesis 3a) while widows and widowers increase their contact and supportive exchanges in a broader range of relationship types (Hypothesis 3b).

Methods

Participants

In 1992-1993 (T1), interviewers questioned 3,107 participants as part of the population-based Longitudinal Aging Study Amsterdam (LASA; Deeg, Van Tilburg, Smit, & De Leeuw, 2002). The sample for this program originated from the Living Arrangements and Social Networks of Older Adults program, which used a stratified random sample of men and women born between 1908 and 1937 (Knipscheer, De Jong Gierveld, Van Tilburg, & Dykstra, 1995). The oldest people, and the oldest men in particular, were overrepresented in the sample. We drew the sample from the population registers of eleven municipalities: the city of Amsterdam and two rural communities in the western region of the Netherlands, one city and two rural communities in the south, and one city and four rural communities in the east. These regions represented the differences in religion and urbanization in the Netherlands at the time (Van Tilburg & Broese van Groenou, 2002). Older adults in the west mostly have no religious denomination, in the south they are more often Roman Catholic, and the east they are more often Protestant. The west is more urbanized than the south and east of the Netherlands.

In 1995-1996 (T2; N= 2,545), 1998-1999 (T3; N= 2,076) and 2001-2002 (T4; N= 1,691), LASA performed follow-ups. After T1, 1,051 (34%) participants died, 222 (7%) participants refused cooperation and 143 (5%) participants were ineligible or not contacted. The LASA interview covered a wide range of topics related to physical and cognitive health, and social and psychological functioning. In each wave, the interviewers received four days of training and the LASA field work manager supervised them intensively. The interviewers tape-recorded their interviews to monitor and enhance the quality of the data obtained. The interviews took between one-and-a-half and two hours.

For our study we selected participants with at least one follow-up observation (N = 2,545) who were married at T1 (N = 1,633). A total of 357 (22%) of these participants were widowed at one of the follow-up observations (155 between T1 and T2; 113 between T2 and T3; and 89 between T3 and T4). We excluded participants when data regarding their personal network lacked. In all the observation cycles, there were various reasons not to delineate the networks for all the participants. Most frequently, participants were too physically or cognitively frail to be interviewed with the full questionnaire. Instead, interviewers conducted a brief interview by telephone with the participant (n = 105) or with a proxy for the participant (n = 57), or an abridged version of the face-to-face interview (n = 70). These short interviews did not include the network delineation. Furthermore, data on the personal network were not available for nine participants due to the premature termination of the interview or refusal for privacy reasons. Finally, we excluded participants who did not live together with their spouse (21) or were institutionalized (35), as well as eight widowers and widows who started a new partner relationship or remarried. Excluded participants were less healthy and older than included participants. In this way, data from 1100 (86%) still-married participants and 228 (64%) widows and widowers were available for our analyses.

In the Dutch population, widowed older adults constituted on average 24% of older adults over 55 who were married and community dwelling between 1995 and 2002 (Statistics Netherlands, 2005). As compared to the Dutch population, this sample contains a smaller percentage of widowed participants (17% of 1328). In contrast to the population numbers, which do not differentiate older adults who were already widowed and who became widowed during that period, this percentage solely exists of older adults who became widowed in the past 10 years.

As in most western countries, in the Netherlands, more women than men over 65 are widowed. About 80% of the older men live with a partner, and slightly less than half of the older women live with a partner (Netherlands Interdisciplinary Demographic Institute, 2003). After partner loss, older adults are unlikely to remarry due to their age (Fokkema, 2001). In line with what Dutch older adults prefer, Dutch policy stipulates that older adults remain community dwelling as long as possible. Mental health care settings offer

programs that stimulate peer contacts among widows and widowers as a way to prevent depression (Cuijpers, Bohlmeijer, Beekman, & Smit, 2003).

Widowed participants were less often male and older than participants whose marriage continued (29% vs. 63% male, $\chi^2_{(1)} = 90.5, p < 0.001$; M age = 70.0 vs. 66.2, $t_{(1326)} = 7.0, p < 0.001$). Matching each widowed participant with a maximum of two married participants enhanced comparability. The matched sample consisted of the 227 widowed participants and 408 married participants. We considered a match as successful only if a participant's observations were available at a minimum of two consecutive waves, if these observations took place at the same waves as the widowed participant's observations, if participants were married during all observations, if they had the same gender as the widowed participant and if their absolute age difference with the widowed participant was not more than five years. A first match was available for all widowed participants, a second match failed particularly among the oldest participants. There were no gender or age differences between the widowed participants and the selected 408 participants whose marriage continued (Table 1). On average, 3.6 observations, of which 1.9 after widowhood, were available for widowers and widows, and 3.4 observations for the married participants.

Measurements

To obtain adequate information on older adults' personal networks, we asked older adults to identify their relationships by name. To ensure that all types of relationships had the same chance to be recorded, we took care that participants identified their networks with a domain-specific approach (Van Tilburg, 1995), using seven formal types of relationships: household members (including the spouse), children (including stepchildren) and their partners, other relatives, neighbors, colleagues (including voluntary work or school), fellow members of organizations (e.g. athletic clubs, church, political parties), and others (e.g. friends and acquaintances). To ensure that participants identified socially active relationships, but not individuals whom they saw frequently without planning to do so (such as the members of a club), we added the importance of the relationship as a criterion. In each of the seven domains, the interviewers asked the participants to "name the people (e.g. in your neighborhood) you have frequent contact with and who are also important to you." The interview allowed participants to identify only persons above the age of 18 and to identify a maximum of 80 persons. No participant reached this limit. The design of the measurements for the four observations was the same, giving network members identified in a previous observation and others the same chance to be identified in later observations. We excluded the spouse for two reasons. First, the spouse is not a network member after widowhood. Secondly, there was very little variation in support across spousal relationships.

We distinguished eight categories of relationship type: children, children-in-law,

siblings, siblings-in-law, other kin, friends, neighbors and other types of relationship. For all identified relationships, the interview gathered information on the network member's gender and contact frequency with the participant. The contact frequency was asked with a single question, "How often are you in touch with X?"; with answer values that corresponded with the number of days a year: *never* (0), *once a year or less* (1), *a few times a year* (6), *monthly* (12), *every fortnight* (26), *weekly* (52), *a few times a week* (156), and *daily* (365). Additionally, participants reported on the support they exchanged with each of the nine network members with whom they had the highest contact frequency. If participants identified fewer than nine network members, they reported on the support of all their network members.

One question for each selected network member asked participants about receiving instrumental support: "How often in the past year did X help you with daily chores in and around the house, such as preparing meals, cleaning the house, transportation, minor repairs, filling out forms?" One question asked participants about receiving emotional support: "How often in the past year did you talk to X about your personal experiences and feelings?" For support given, reversed the questions. The answer categories were *never* (0), *seldom* (1), *sometimes* (2), and *often* (3). Thus, at the dyad level participants reported on the contact frequency with each of their network members and on their support exchange with their most frequently contacted network members.

Analysis Plan

These data can be viewed as hierarchical or multilevel data, because longitudinal observations or repeated measurements are nested within individuals (Hox, 2002). Moreover, because observations of dyads are clustered within a given longitudinal observation of a given participant, the data have a hierarchical structure consisting of three levels: participant, longitudinal observation, and dyadic observation. Hierarchical linear modeling or multilevel regression modeling, which is designed to deal with such dependency (Snijders & Bosker, 1999), uses a maximum likelihood procedure to estimate parameters that describe the longitudinal relationship between the five response variables contact frequency, emotional support received and given, and instrumental support received and given, and the explanatory variables. One important advantage of multilevel modeling is that it can handle unbalanced data structures, such as where some participants may have two, and others may have three or more observations.

We applied the forward modeling approach starting with an empty model (containing only a constant) and adding parameters (explanatory variables and interactions of variables) in subsequent steps. The $-2 \log$ likelihood (deviance, i.e. the lack of fit between the model and the data) characterizes each model. The difference between the deviances of the steps is χ^2 distributed with the number of added parameters as degrees of freedom. A significant χ^2 value indicates whether adding parameters improved fit between the

model and the data.

The first analysis used observations of widowed participants only and determined how the effect of widowhood changes over time. For this analysis 227 participants with valid observations were available. To show how before and after widowhood changes in contact and support differ, we defined widowhood as a breakpoint. Then, we computed a set of quadratic spline functions (Schumaker, 1981), which are functions that join smoothly at the breakpoint, widowhood. We modeled the following set of equations for all response variables, $f_1(t) = (t_x - t_w)$ for linear change, $f_2(t) = (t_x - t_w)^2$, if $t_x \leq t_w$ 0 otherwise for quadratic change before widowhood, and $f_3(t) = (t_x - t_w)^2$, if $t_x > t_w$ 0 otherwise for quadratic change after widowhood, where t_x is the moment of observation and t_w is the moment of widowhood. Thus, in addition to simple linear change around widowhood, we modeled the quadratic change before and after widowhood separately.

In contrast to the first analysis, the second analysis compared married observations of all participants with the first observation after widowhood of the widowed participants. In this way, the analysis differentiated linear changes among widowed participants from changes among married participants. To ensure that married participants would remain married at a follow-up observation, we removed every last observation of a married participant from this analysis. For this analysis 634 participants with valid observations were available. In Model 1 a dummy variable indicated whether a participant belonged to the married group or to the widowed group, another dummy variable indicated whether participant was married or widowed at the moment of observation, and the variable time indicated the years passed since T1. Extending Model 1, Model 2 determined how different types of relationships developed over time and after widowhood. Therefore, we first added to the model seven dummies for the type of relationship (with the category of "other relationships" as the category of reference). Model 2a determined specific relationship changes over time with interaction effects of the relationship type dummies and time; Model 2b determined specific relationship changes after widowhood with interactions of relationship type and widowhood. Finally, Model 3 adjusted for pre-loss characteristics, namely, the participant's age, gender and education, the network size and the network member's gender and contact frequency. In the support models we adjusted for the frequency of contact older adults had with their network members. Because the estimate was very small we multiplied the contact frequency by 100. Thus, the parameter estimate for the network member's contact frequency shows how much support levels change for every increase of 100 days in the contact between older adults and one of their network members. All models were fixed effect models.

Table 1. Means (and standard deviations) of key variables compared between Married and Widowed Older Adults at T1 and over Time

Variables	Baseline comparison				$F_{(1,634)}$
	Married ^a		Widowed ^b		
Emotional support					
Received	2.81	(0.71)	2.81	(0.68)	0.04
Given	2.66	(0.76)	2.67	(0.73)	0.13
Instrumental support					
Received	1.66	(0.68)	1.76	(0.67)	3.30
Given	1.77	(0.73)	1.58	(0.65)	6.35**
Contact frequency	83.35	(52.88)	90.52	(57.41)	3.24
Network size	14.49	(8.07)	13.98	(8.27)	0.38
Children	2.22	(1.34)	2.25	(1.47)	0.25
Children in law	1.26	(1.13)	1.25	(1.13)	0.05
Siblings	0.65	(0.95)	0.65	(0.81)	0.05
Siblings in law	0.54	(0.85)	0.54	(0.87)	0.02
Other kin	0.25	(0.60)	0.21	(0.65)	0.83
Friends	0.97	(1.36)	0.95	(1.44)	0.00
Neighbors	1.33	(1.55)	1.41	(1.63)	0.46
Other	0.93	(1.41)	0.81	(1.23)	0.65
Age ^c	68.85	(7.32)	69.96	(7.57)	
Education ^d	8.69	(2.94)	8.50	(3.15)	
Sex (% men) ^f	0.32	(0.47)	0.29	(0.45)	
Longitudinal comparison					
	Married		Widowed		$F_{(3, 1221)}$
	First	Final	Before	After	
Emotional support					
Received	2.81 (0.71)	2.71 (0.75)	2.72 (0.73)	2.93 (0.76)	5.50**
Given	2.66 (0.76)	2.78 (0.69)	2.72 (0.72)	2.81 (0.73)	3.19*
Instrumental support					
Received	1.66 (0.68)	1.80 (0.70)	1.84 (0.70)	2.07 (0.71)	17.18***
Given	1.77 (0.73)	1.62 (0.65)	1.56 (0.65)	1.47 (0.58)	8.70***
Contact frequency	83.35 (52.88)	76.03 (50.64)	85.61 (55.98)	93.60 (53.97)	5.77***
Network size	14.47 (8.06)	14.56 (7.94)	14.19 (8.80)	15.29 (8.85)	0.83

Notes. F-tests were adjusted for age, gender and education.^a n = 408. ^b n = 227. ^c $t_{(634)} = 1.82$.

^d $t_{(634)} = -0.76$. ^e $\chi^2_{(1)} = 0.7$, $p > 0.05$. * $p < 0.05$, ** $p < 0.01$ *** $p < 0.001$.

Results

Differences between Married and Widowed Participants

Table 1 shows that at T1 widowed and married participants were rather similar, which was to be expected since at T1 all participants were still married. At T1, the only statistically significant difference adjusted for age, gender and education: married participants gave an average network member more instrumental support than widowed participants did. Table 1 further shows what the networks of these older adults look like at T1. Among married and widowed older adults, children and children in law constitute the major part of their networks followed by neighbors and friends. Table 1 also shows that over time, differences developed between married and widowed participants. Although married and widowed participants had similar sized networks at each observation, within these networks they exchanged different amounts of support and contact. Widowed respondents received significantly more emotional support after they were widowed whereas married respondents' levels of emotional support did not change over time. A similar pattern of differences existed for the contact frequency. After widowhood, widowed participants gave a typical network member more emotional support than married participants did at their first observation. Thus during the stressful period after widowhood, widowed participants exchanged more emotional support with a typical network member than married participants did. Before widowhood, widowed participants received more instrumental support than married participants at their first observation. Widowed older adults already receiving more instrumental support from their network members could mean that they or their partner need support because of their caregiving or health respectively. While widowed participants received more instrumental support from a typical network member, they gave less after they were widowed than before they were widowed. Likewise, married older adults received more instrumental support, but gave less at their final observation than at their first observation. These instrumental support differences could be related to health differences.

Changes in Contact and Support before and after Widowhood

To test our first and second hypotheses that before widowhood contact and support start to increase from a low point, continuing shortly after widowhood, until in the long run contact and support return to lower levels, we used quadratic spline functions (Table 2). We fitted these models on the observations of widowed participants only. Emotional support, which older adults gave to their network members showed no significant effects over time. Quadratic splines were statistically significant for frequency of contact, emotional support received and instrumental support received and given. Observations ranged from as early as nine years before until nine years after widowhood and were normally distributed around widowhood ($M = 0.3$, $SD = 4.0$). The first observation after

widowhood varied from as early as 33 days to 3.5 years after the event ($M = 1.4$, $SD = 0.9$). Figures 1 and 2 show the estimated average change in contact and support from 4 years (- 1 SD) before widowhood until 4 years after widowhood (+ 1 SD). These average trajectories showed that 2.8 years before widowhood contact and 4 years before widowhood emotional support were at a low point. Around the time of widowhood, contact and support levels were increasing. Around 2.5 years after widowhood, contact and support reached their highest point, after which they started to decrease again. The instrumental support older adults received from their network members showed a similar pattern as emotional support received, and the instrumental support older adults gave to their network members showed an inverse pattern. Before widowhood, older adults decreased their instrumental support given to their network members. At 2.6 years after widowhood, this support reached the lowest point, after which it started to increase again. The lowest point for instrumental support received and the highest point for instrumental support given could not be ascertained as the quadratic development of instrumental support before widowhood was not significant (see parameter estimates for function f2 in Table 2). As expected, before widowhood older adults' contact and support were in a trough, while around the time of their widowhood contact and support from their network members increased. After about 2.5 years, contact and support levels started to decrease.

Changes in Contact and Support Related to Widowhood

Next, we analyzed three models that compared observations of all participants while they were married with the first observation after widowhood. In Model 1 we determined whether the short-term increase was specifically related to widowhood. Model 2 determined the amount of contact and support exchanged in specific types of relationships; and Model 3 controlled for the participant's gender, age, education, and network size and the network member's gender. Table 3 reports on the parameter estimates of Model 1 and Model 3, and Table 4 on the improvement in fit from the empty model to the final model.

As can be read from Table 4, adding two dummies for widowhood and one parameter for time significantly improved the empty model for all response variables. As the parameter estimates of Model 1 show, the widowed older adults as a group did not differ from married older adults, except for the instrumental support they exchanged with their network members. Furthermore, after widowhood older adults indeed experienced changes in contact and support exchange that married older adults did not (Table 3). After widowhood, widowed older adults had 12.6 days a year more contact with their personal network members than married older adults. As hypothesized, after widowhood, widowed older adults received more emotional support. As a group, widowed older adults received more instrumental support from their network members than married older

Table 2. Parameter Estimates of Change over Time in Contact and Support Exchange after Widowhood

Variables	Frequency of contact		Emotional support			
	<i>B</i>	<i>t</i>	Received		Given	
	<i>B</i>	<i>t</i>	<i>B</i>	<i>t</i>	<i>B</i>	<i>t</i>
Intercept	40.85	3.6 ***	0.72	3.9 ***	0.59	3.5 ***
Sex (female)	-5.05	-2.1 *	0.03	0.8	0.04	1.2
Age at T1	0.04	0.3	0.00	-1.6	0.00	-0.7
Education (years of)	-1.16	-3.7 ***	0.01	2.1 *	0.02	4.0 ***
Baseline contact	0.59	29.5 ***	0.81	28.2 ***	0.77	30.2 ***
<i>f</i> ^a	1.94	2.4 *	0.06	4.0 ***	0.02	1.9
<i>f</i> ^b	0.35	2.2 *	0.01	2.0 *	0.00	0.8
<i>f</i> ^c	-0.32	-2.2 *	-0.01	-3.6 ***	0.00	-1.1
<i>N</i> Observations	12290		6693		6693	

Variables	Instrumental support			
	Received		Given	
	<i>B</i>	<i>t</i>	<i>B</i>	<i>t</i>
Intercept	0.67	3.8 ***	0.76	4.6 ***
Sex (female)	-0.07	-1.9	-0.09	-2.9 **
Age at T1	0.00	-1.1	-0.01	-3.2 **
Education (years of)	0.00	0.9	0.01	1.7
Baseline support	0.81	27.5 ***	0.76	29.6 ***
<i>f</i> ^a	0.07	4.7 ***	-0.03	-2.3 *
<i>f</i> ^b	0.01	1.7	0.00	-0.5
<i>f</i> ^c	-0.01	-4.4 ***	0.00	2.0 *
<i>N</i> Observations	6693		6693	

Notes. *N* Participants = 227. ^a *f*₁ = moment of observation (*t*_x) - moment of widowhood (*t*_w).

^b *f*₂ = (*t*_x-*t*_w)² if *t*_x ≤ *t*_w. ^c *f*₃ = (*t*_x-*t*_w)² if *t*_x > *t*_w. * *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001.

Figure 1. Average change in frequency of contact with a given network member from four years before until four years after widowhood.

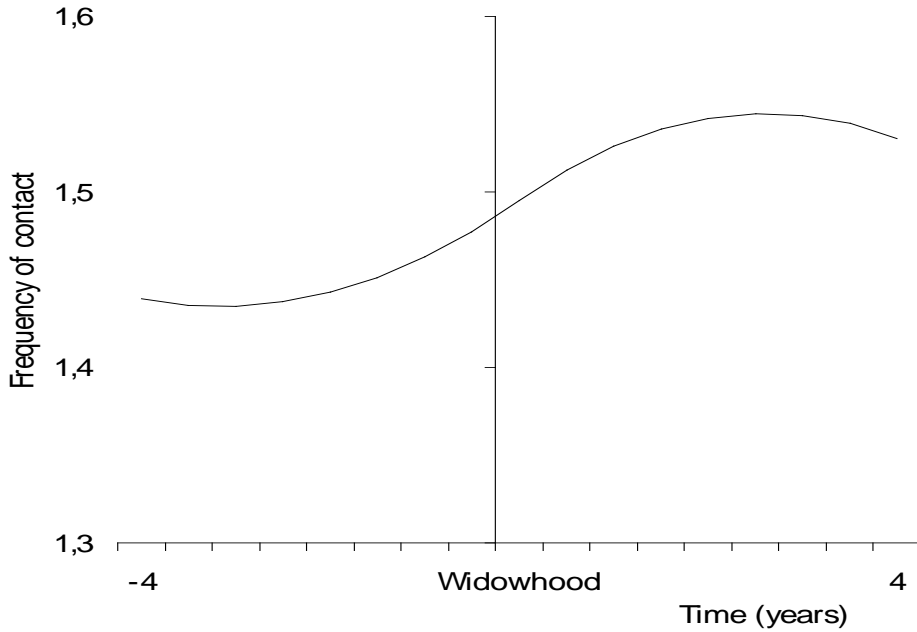
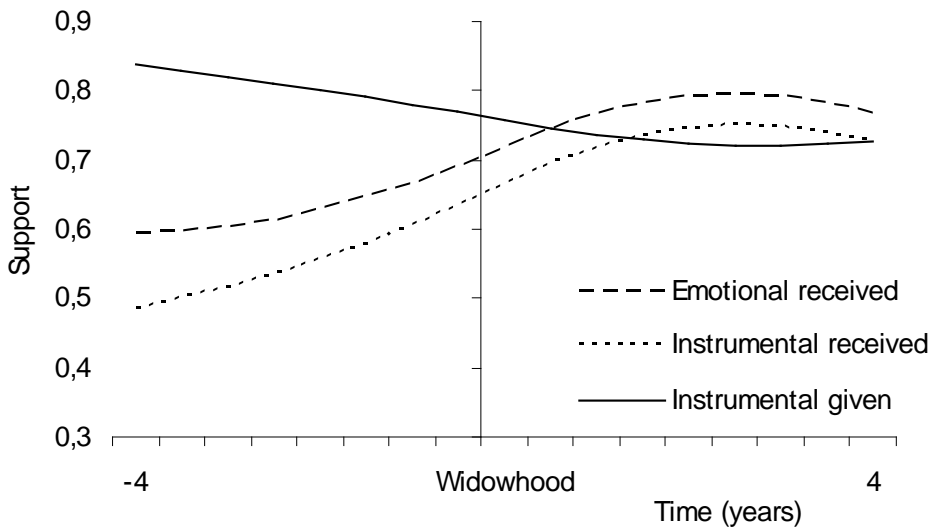


Figure 2. Average change in support exchange with a given network member from four years before until four years after widowhood.



adults and they received even more instrumental support after they were widowed. Additionally, widowed older adults gave less instrumental support to their network members than married older adults, but after widowhood they did not decrease their instrumental support significantly.

Relation Specific Changes in Contact and Support among Married Participants

To test the first part of our third hypothesis, that participants whose marriage continued would show a tendency towards close relationships, we added to the widowhood model (model 1) dummies for the type of relationship (model 2) and added interaction effects of time and dummies for type of relationship (model 2a). Adding parameters for type of relationship led to a significant model improvement for all response variables, adding interaction effects only for frequency of contact and for emotional and instrumental support given (Table 4). Dummies for type of relationship indicate the amount of contact and support exchanged in a certain type of relationship compared to the reference category of other relationships. In model 3 the parameter estimates for type of relationship show that older adults had the highest contact frequency with their friends and children, and they had the highest exchange of support with their children (Table 3). The interaction effects in model 2a indicate whether participants changed their contact and support exchange in a given type of relationship at a different rate than in other types of relationships, and demonstrate whether a tendency towards close relationships existed. The few, statistically significant interaction effects of type of relationship and time provide minor support for a tendency towards close relationships among married older adults (not shown). In a broad range of relationships the response variables changed similarly over time, nevertheless, over time married older adults moved away from some of the less close relationships and towards some of the close relationships. They received increasingly less emotional support from their siblings in law and neighbors ($B = -0.03, p < 0.05$; $B = -0.03, p < 0.05$) and provided their extended kin with increasingly less instrumental support ($B = -0.04, p < 0.01$). Moreover, married older adults moved towards close relationships that provided instrumental support. They received increasingly larger amounts of instrumental support from their children and children-in-law ($B = 0.05, p < 0.01$; $B = 0.03, p < 0.05$). Inconsistent with our expectations married older adults also received increasingly larger amounts of instrumental support from their neighbors ($B = 0.03, p < 0.05$).

Relation Specific Changes in Contact and Support among Widowed Participants

To test the second part of our third hypothesis that widows and widowers increase contact and supportive exchanges in a broad range of relationship types, we removed the interaction effects of time and type of relationship and fitted interaction effects of widowhood and dummies for the type of relationship (model 2b). Only a few interaction

Table 3. Parameter Estimates of Predictors of Contact and Support Exchange in Model 1 and Model 3

Variables	Frequency of contact		Emotional support				Instrumental support			
	B	t	Received		Given		Received		Given	
			B	t	B	t	B	t	B	t
Model 1:										
Constant	79.13	35.9***	2.77	86.8***	2.68	86.4***	1.68	55.7***	1.77	59.1***
Dummy 1 ^a	3.93	1.1	-0.02	-0.4	0.02	0.5	0.11	2.4*	-0.16	-3.2**
Dummy 2 ^b	12.63	4.3***	0.24	4.6***	0.03	0.7	0.21	4.4***	-0.06	-1.2
Time (years)	-0.99	-2.8**	-0.01	-2.2*	0.01	3.3***	0.01	3.2**	-0.02	-4.3***
Model 3:										
Constant	155.00	8.8***	2.38	9.1***	2.66	10.5***	0.88	3.6***	3.54	15.4***
Dummy 1 ^a	2.82	0.9	-0.03	-0.7	0.02	0.4	0.09	2.0*	-0.14	-3.1**
Dummy 2 ^b	11.52	4.3***	0.27	5.3***	0.07	1.4	0.25	5.1***	0.00	0.1
Time (years)	-1.04	-3.2**	-0.01	-2.2***	0.01	3.2**	0.02	3.7***	-0.02	-4.9***
<i>Relationship types^c</i>										
Child	81.17	43.1***	0.68	31.6***	0.66	29.1***	0.82	37.3***	0.74	33.8***
Child in law	37.33	18.2***	0.34	14.3***	0.28	11.1***	0.63	25.6***	0.54	22.1***
Sibling	-5.81	-2.7**	0.31	11.2***	0.35	12.2***	0.00	-0.1	0.16	5.7***
Sibling in law	-13.82	-6.7***	0.10	3.3**	0.15	5.0***	-0.07	-2.2*	0.09	3.1**
Other kin	-6.47	-2.9**	0.03	0.8	0.11	2.6**	0.10	2.6*	0.57	14.6***
Neighbor	-3.83	-1.8	0.36	13.8***	0.40	14.6***	0.10	3.7***	0.10	3.6***
Friend	92.32	45.2***	-0.18	-7.7***	-0.14	-5.6***	0.20	8.4***	0.17	7.2***
<i>Control variables</i>										
Sex ^d	-8.30	-2.3*	0.16	3.2**	0.09	1.9	-0.15	-3.2**	-0.29	-6.5***
Age at T1	-1.07	-4.8***	-0.01	-1.7	-0.01	-3.2**	0.01	1.8	-0.03	-12.3***
Education (years of)	-2.24	-4.4***	0.02	3.3**	0.02	3.5***	-0.01	-1.1	0.02	2.8**
Sex ^d network member	-8.86	-8.4***	0.28	23.4***	0.32	25.7***	-0.01	-0.8	0.06	5.1***
Network size	-0.70	-3.8***	0.01	4.5***	0.01	4.9***	0.01	3.3***	0.01	2.9**
Frequency of contact (100 days)			0.08	2.5*	0.05	1.8	0.11	3.5***	0.16	5.5***
N Obs.	24387		16468		16468		16468		16468	

Notes. N Participants = 634. ^a Dummy 1: 1 = widowed group, 0 = married group. ^b Dummy 2: 1 = widowed observation, 0 = married observation. ^c Other type of relationship is the category of reference. ^d 0 = male, 1 = female. * $p < 0.05$, ** $p < 0.01$ ***, $p < 0.001$.

effects were statistically significant. These led to a significantly improved model for all response variables except emotional support received (Table 4). In a broad range of relationships the reaction to widowhood was similar: contact frequency between widowed older adults and their network members increased and emotional support received from network members increased. Still, three types of relationship reacted differently to widowhood. As expected, after widowhood emotional and instrumental support parents received from their children increased more than from other relationships ($B = 0.03, p < 0.01$; $B = 0.05, p < 0.001$), while the instrumental support parents provided to their children decreased more than in other relationships ($B = -0.03, p < 0.01$). Participants also received increasingly larger amounts of instrumental support from their children-in-law ($B = 0.03, p < 0.01$). In addition, after widowhood contact frequency between older adults and their children increased ($B = 11.5, p < 0.05$).

Table 4. Model Improvement for Three Models on Contact and Support Exchange

Variable		Frequency of contact	
Model	Name	χ^2	df
1.	Widowhood and time	26.0	3 ***
2.	Relationship types	5286.0	8 ***
2a.	Interaction of relationship and time	11.0	9
2b.	Interaction of relationship and widowhood	28.0	9 ***
3.	Relationship types with control variables	126.0	6 ***

Variable		Emotional Support			
Model		Received		Given	
		χ^2	df	χ^2	df
1.		24.1	3 ***	15.5	3 **
2.		2127.4	8 ***	1688.9	8 ***
2a.		18.0	9	54.1	9 ***
2b.		13.1	9	26.6	9 **
3.		602.1	6 ***	719.6	6 ***

Variable		Instrumental Support			
Model		Received		Given	
		χ^2	df	χ^2	df
1.		61.3	3 ***	40.1	3 ***
2.		2777.1	8 ***	1873.3	8 ***
2a.		19.6	9 *	23.3	9 **
2b.		51.5	9 ***	22.2	9 **
3.		36.4	6 ***	212.8	6 ***

Notes. * $p < 0.05$, ** $p < 0.01$ ***, $p < 0.001$.

Furthermore, contact among widowed older adults and their friends increased more than in other types of relationships ($B = 14.5, p < 0.05$), confirming that widowed older adults turned to their friends and relatives for contact. The amount of emotional support participants provided to their siblings increased more than in other relationships ($B = 0.03, p < 0.01$).

Pre-Loss and Network Member Characteristics

Finally, we adjusted for the following pre-loss characteristics, participants' gender, age, education, network size and network members' gender. This improved the model (Table 4), but did not alter the previous effects. These characteristics show that men had more contact and exchanged more instrumental support with their network members, while women exchanged more emotional support with their network members. Older adults had less contact but exchanged more emotional support with their female network members than with their male network members. Further, older adults with higher education engaged in less contact, but exchanged more support than lower educated older adults. Contact and support for network members decreased with increasing age. The larger the network the less contact participants had with individual network members and the more support they exchanged with their network members. The more frequent older adults and their network members contacted each other the more support they exchanged. Men and women may change their contact and support differently after widowhood; therefore we tested for interaction effects of gender and widowhood. We found none, thus men and women showed similar changes after widowhood in this sample.

Discussion

We studied the changes in frequency of contact as well as support that older adults experience in a broad range of personal relationships during the transition into widowhood. We tested four hypotheses and our results lead us to conclude the following. First, shortly before being widowed contact with and support from members in the personal network starts to increase, and this continues shortly after widowhood. Secondly, contact and support return to pre-loss levels in the long run. Thirdly, people whose marriages continue tend to focus on close relationships such as kin and close friends while, fourthly, widows and widowers continue their contact and supportive exchanges in a broader range of relationship types. We discuss these conclusions in the following paragraphs.

First, we examined widowhood related changes in personal networks over time. This study showed that, while contact and support were at a low point before widowhood, older adults already experienced increases in contact and emotional support received from their network members. These increases continued after widowhood. In the third

year after widowhood, these increases leveled off and started to decrease towards pre-loss levels. This confirms that changes in personal relationships are associated with changes in roles that supposedly lead to changes in needs for support. Despite the fact that needs are not measured directly in our study (nor in many other studies on personal relationships), changing needs seem to be the crucial underlying mechanism under changes in relationships. Widows and widowers turn to their network of personal relationships for emotional and instrumental support to cope with widowhood (Utz et al. 2002; Wenger, 1990). Our study adds that older adults already do this before they are widowed. In this way, older adults' personal networks function as a convoy of support (Antonucci, 2001). Before older adults lose their partner their support networks are attentive to their changing needs, and they continue doing so during the transition into widowhood.

Furthermore, these changes also show that older adults cannot rely on their personal relationships indefinitely, as in the third year after widowhood contact and support start to decrease, which could mean that older adults adapted to widowhood, or that network members returned to their own daily routines. Unfortunately, we cannot be certain whether older adults successfully adjusted to widowhood (reducing the need for support), or whether support deteriorated because network members withdrew their support for other reasons. Bonanno, Wortman and Nesse (2004) showed that widowed older adults follow different trajectories in their well-being. Mostly, widowed older adults either returned to previous levels of well-being or did not show change in their well-being over time. Other widowed older adults suffered lower levels of well-being over prolonged periods. Therefore, we suspect that many older adults adjusted successfully over time with the support from their network members. Nevertheless, some widowed older adults fail to adjust to widowhood; they may experience a depletion of their resources in the end. This would imply that after around three years older adults, who fail to adjust to widowhood, might benefit from interventions that reinforce their supportive networks (e.g. Stevens, Martina, & Westerhof, 2006).

Because older adults not only received more emotional support from their network members, but they also provided their network members with more emotional support, it seems that upon widowhood both the widowed older adults and their network members need emotional support from each other. Widowhood is not merely a loss for the spouse; network members have also lost someone (a parent, a friend, a neighbor). Still, changes in instrumental support show that widowed older adults are the focal person. While instrumental support widowed older adults received from their network members increased, instrumental support they provided to their network members dropped. Having to reorganize their household may hamper older adults to provide instrumental support to others. While support with practical matters from others may facilitate adjustment, as it

compensates for daily support from their spouse and it may ease the reorganization of the household.

Next, we showed that changes in contact and support were specifically related to widowhood. As a group, widowed older adults exchanged similar amounts of contact and support as married older adults. After widowhood, widowed older adults experienced changes in contact and support that married older adults did not. In late life, changes in contact and support with network members show considerable heterogeneity (Van Tilburg, 1998). Because the effect is only temporary, widowhood is an event that adds to this heterogeneity—widowed older adults increase contact and support with network members more than married older adults. Since increased contact and support seem to be aimed at helping widowed older adults adjust to their new situation, an interesting question would be whether these changes actually facilitate adjustment. Will older adults remain healthier, or feel better, if their support increases? Can these increases in support and contact protect older adults from the adverse consequences of widowhood?

Third, as expected, older adults who remained married changed their personal network in favor of close kin and close friends in the process of aging. At baseline, older adults exchange more contact and support with network members of the closer relationship types such as friends, children and children-in-law. Over time the relationships among older adults and their children seem to strengthen as they receive increasingly larger amounts of instrumental support from their children. Extended kin relationships and neighbors, not considered to be “close” relationships, decrease in contact frequency and support faster than other relationships. These findings hint at a tendency to focus on close relationships rather than a broader range of relationships (Carstensen, Isaacowitz, & Charles, 1999). On the other hand, our fourth hypothesis was that widowed adults would increase their contact and supportive exchanges over a broad range of relationships. As expected, after widowhood older adults increase their contact and support with all types of network members. These findings go a step further than the findings of Ferraro and Barresi (1982) and Field and Minkler (1988) by further differentiating the term “stability in kin relationships.” Not only do contact and support from children increase more than in other relationships, widowed parents also decrease instrumental support given to their children faster than to other network members. In addition after widowhood, older adults provide their siblings with more emotional support. Moreover, these findings show that although intergenerational and family ties are a major source of support, friends are a major source of contact. The fact that contact and the different types of support change differently in the various relationships of the network confirms that these relationships fulfill different roles (Antonucci, 2001). Since widowed older adults needs may change over time, assessing a widowed older adult’s needs may improve intervention by aiming them at the specific relationships that fulfill

these needs.

We should mention several limitations of the study. First, since this study is based on a Dutch survey, the results reported in this study may be limited to Dutch older adults and widowhood related changes in contact and support may be different outside the Netherlands. In their cross-sectional comparison of older adults' social networks in four nations, Antonucci et al. (2001) reported that illness and widowhood was a common experience for older adults in France, Germany, Japan and the United States, but that these experiences affected the networks of older adults in these nations differently. In the United States widowhood and illness had less impact on the social networks of older adults than in France, Germany or Japan. This suggests that role expectations of being widowed, such as what widowed older adults expect from their network members and how older adults respond to them, vary in different nations. To what extent the results reported here apply to older adults in other countries is a question for future research.

Secondly, the study may have overestimated support in certain types of relationships among older adults with large networks. Because we included only the nine network members, or fewer if participants identified fewer network members, with whom participants had the most contact, we may have missed support data about less supportive network members for participants with more than nine network members.

Secondly, due to the matching procedure, married and widowed respondents were similarly distributed across gender and five-year age span. This made respondents more readily comparable. Thus, the results optimally describe changes in networks of widowed older adults as compared with the married older adults. Unfortunately, we could not take into account effects of recently widowed older adults' increased mortality. The results may therefore be limited to widowed older adults who survived recent widowhood. In addition, respondents still could have been different in many unobserved ways, like on the characteristics of their spouses. It might be possible to explain more of the interindividual variability, if we could take these unobserved differences into account. One might expect, for example, that a survivor of a much loved spouse may experience a stronger increase in contact and support than a survivor of a less loved spouse. Both surviving individuals still experience a change in the same direction; for both contact and support increases. Therefore, we do not think this would have affected our conclusions.

Although widowhood is a drastic life event, it is not only a period of loss. Like the widowed older adults who adapt to their new role and seek compensation for lost partner contact and support, network members also respond to widowhood and some of them more than others. Levels of contact and support with network members may be low before widowhood; on average they start to increase before older adults lose their spouse. Moreover, these changes are independent of older adults' personal characteristics or resources. After widowhood, these rising levels of contact and support from network

Changes in networks after widowhood

members may make older adults' adjustment to widowhood easier. Still, contact and support do not increase indefinitely; for most older adults contact and support drop in the third year after widowhood. Further, even though older adults change their contact and support levels in favor of their close relationships, after widowhood they rely on a broader range of relationships. Even so, their children are their major source of support. In this way, widowhood is an event that adds to the heterogeneity of network changes in old age.

Chapter

3

When does increased Social Support affect Loneliness after Partner Loss?

Abstract

Losing a partner often increases survivors' loneliness. Increased social support from significant others may protect survivors against increased loneliness after partner loss. Differentiating simultaneous positive and sequential negative associations between support and loneliness, this study examines when increased support decreases loneliness. Using data from the Longitudinal Aging Study Amsterdam, this study associated 6-year changes in social support with emotional and social loneliness among 176 widowed older adults with one pre-loss and two post-loss assessments. As expected, support and emotional loneliness increased simultaneously shortly after partner loss. In the long run, increased support protects older widows and widowers from social loneliness, but not from emotional loneliness. Implications of these results are discussed.

The loss of a partner in late life is a painful experience and widows and widowers often experience a major increase in loneliness (Pinquart, 2003). Accustomed to life shared as a couple, widows and widowers have to manage their daily living on their own after the death of their partner. In addition, widows and widowers have to adjust to their new role as a widowed person and re-establish a way of contact and support exchange with their personal relationships that fits this new role. In addition, older adults may be faced with negative consequences of partner loss, such as household or financial strain (Umberson, Wortman, & Kessler, 1992), lowered health (Stroebe, Stroebe, & Abakoumkin, 1999), high rates of depression (Lee, DeMaris, Bavin, & Sullivan, 2001), and increased anxiety and high levels of psychological stress (Byrne & Raphael, 1997). Widows and widowers turn to their network of personal relationships for emotional and instrumental support to cope with partner loss (Utz, Carr, Nesse, & Wortman, 2002). Controlling for earlier levels of support, widowed older adults receive greater amounts of support from their children, friends and relatives than married older adults (Ha, 2008). If support provided by significant others meets the needs of the widowed older adult, it may solve practical problems and reduce stress associated with partner loss. In this way, support could absorb negative consequences of partner loss, such as loneliness. Focusing on when increased support brings about decreases in loneliness, this study examines how increasing support protects widows and widowers against loneliness after partner loss.

Weiss's relational theory of loneliness (1975), which is based on attachment theory (Bowlby, 1969), differentiates two forms of loneliness, and clarifies how loneliness may develop after partner loss. Emotional loneliness comes about when one perceives that attachment figures who provide a sense of security are lacking (Bowlby, 1969), in other words emotional loneliness is an attachment deficit. Emotional loneliness develops because widows and widowers fail to derive the same sense of security from others as they previously derived from their partner and persists as long as widows and widowers fail to find substitutes for the partner as attachment figure. While in adulthood, romantic partners or spouses often become attachment figures, other figures, including close friends or confidants, may also serve as attachment figures (Mikulincer & Shaver, 2009). The second type of loneliness, social loneliness, is defined as a perceived lack of social contacts, in other words as a social integration deficit. After partner loss social loneliness may develop if changes in contact and support with family relationships and other network members causes a social integration deficit among widows and widowers.

Contrasting attachment theory (Bowlby, 1969) and the deficit model of partner loss, the Stroebe, Stroebe, Abakoumkin and Schut's study (1996) sheds more light on the relationship between loneliness and personal relationships after partner loss. Designed as a partner loss specific application of the transactional stress model (Lazarus & Folkman, 1984), the deficit model proposes that the loss of a partner causes loneliness as a

consequence of specific relationship deficits, such as a deficit in companionship and in instrumental and emotional support and that specific forms of loneliness develop after partner loss. The model also proposes that support from significant others may decrease feelings of loneliness if support replaces the deficits created by partner loss. Their study shows that social support compensated for deficits in social integration, but did not compensate for deficits related with emotional loneliness in the first two years after partner loss. Thus, the relational theory as well as the deficit model agree that in theory loneliness could be alleviated if deficits are replaced, but neither model clarifies at what moment it is likely that widows and widowers have replaced these deficits.

Another possibility is that social support replaces but not yet compensates for emotional loneliness in the first two years after partner loss, because of the time sequence of how widowed older adults invest their social support to adjust to partner loss (Hobfoll, 2009, Rook 2009). Like the previous models, the conservation of resources theory (Hobfoll, Ennis, & Kay, 2000) claims that loneliness after partner loss stems from the loss of the partner as a significant resource for emotional attachment, contact and support and that loneliness is resolved when one is able to regain similar or substitute resources from other sources. Extending the previous models, the conservation of resources theory posits that effects of resource gain will become visible after the impact of loss has abated. Resource loss, such as partner loss, has more impact—its' impact is larger and lasts longer—than resource gain (Wells, Hobfoll, & Lavin, 1999). Therefore, resource gain, such as increasing support from others, barely affects widows and widowers' loneliness shortly after a partner loss. In the long run, effects of increased support may surface, because it offers widows and widowers emotional respite and increases their ability to sustain goal pursuit (Hobfoll, 2002). Billings, Folkman, Acree, and Moskowitz (2000) reported that the use of support after partner loss could increase adaptive outcomes in the long run. Holahan, Moos, Holahan, and Cronkite (1999) showed that over a 10-year period resource gain was significantly associated with a decrease in depressive symptoms. Based on the conservation of resources theory, we hypothesize first that due to partner loss, loneliness as well as support increase, and that these increases, because they occur simultaneously, are positively correlated. Secondly we hypothesize that increased support shortly after partner loss will decrease loneliness in the long run.

Our study meets two criteria required to answer our research questions. First, this study is based upon prospective, longitudinal data. We have an observation of each older adult before and after partner loss. Therefore we can assess whether increasing support protects against increasing loneliness. Earlier two wave longitudinal research provided evidence that after partner loss loneliness increased (Pinquart, 2003) and also that support increased (Utz et al., 2002). Moreover, using one observation before and one

observation after partner loss, both Silverstein and Bengtson (1994) and Davey and Eggebeen (1998) observed that widowed adults' wellbeing diminished less when social support was provided in response to partner loss.

Secondly, because our study encompasses three observations, we will describe two periods of change. We not only assess changes in loneliness and support from before until on average one and a half years after partner loss, but also track changes in loneliness and support from on average one and a half years until four and a half years after partner loss. Having two periods of change enables us to differentiate simultaneous and successive changes in support and loneliness. Prospective research with three or more observations has described changing levels of support or changing levels of wellbeing over an extended period of time after partner loss. However to our knowledge, changes in wellbeing, not to mention loneliness, have never been related to the sequence of changes in support after partner loss.

Another advantage of our study is that we could differentiate two types of loneliness, viz. emotional and social loneliness. Emotional loneliness refers to a feeling of lacking reliable emotional attachments to others, and social loneliness to a feeling of lacking social contact. This enabled us to distinguish which type of loneliness reacted stronger to partner loss, and whether these types reacted differently to changes in support.

Method

Participants

Widowed participants' data were obtained from the "Longitudinal Aging Study Amsterdam" (LASA; Deeg, Van Tilburg, Smit, & De Leeuw, 2002). The sample for this program was originally created for the "Living arrangements and social networks of older adults" program which used a stratified random sample of men and women born between 1908 and 1937 (Knipscheer, De Jong Gierveld, Van Tilburg, & Dykstra, 1995). The oldest people, and especially the oldest men, were overrepresented in the sample. Participants in this sample came from three different regions in the Netherlands, which represent differences in religion and urbanization. In 1992-1993 (T1), 3,107 participants were interviewed. In 1995-1996 (T2; N= 2,545), 1998-1999 (T3; N= 2,076) and 2001-2002 (T4; N= 1,691) LASA performed follow-ups. After T1, 1,051 (34% of 3,107) participants died, 222 (7%) participants refused cooperation and 143 participants were ineligible or not contacted (5%).

For this study, we selected participants who were married at T1 (N = 1942), and who were widowed at one of the follow-up observations (154 between T1 and T2; 113 between T2 and T3; and 89 between T3 and T4), and who had participated in at least two follow-up interviews after they were widowed (N = 267). Participants who were too physically or cognitively frail to complete the full questionnaire were excluded because of

missing data (N = 63). Furthermore, we excluded one participant who remarried, seven widowers and widows who started a new partner relationship, five institutionalized participants, and fifteen participants of whom the spouse was living outside the household. In this way 176 widows and widowers were available for our analyses. Excluded participants did not differ significantly from included participants regarding their gender and age (29% vs.34% male, $\chi^2_{(1)} = 1.2, p > 0.05$; M age = 71.7 vs. 70.6, $t_{(354)} = 1.4, p > 0.05$), nor did they differ regarding their emotional and social loneliness or support at T1, when these data were available ($t_{(225)} = -1.0, t_{(224)} = -1.0, \text{ and } t_{(354)} = -0.2$ respectively).

Of these 176 participants, 112 were widowed between T1 and T2 and 64 between T2 and T3. We used three consecutive observations in our analyses. These were the last observation before partner loss, which was on average 1.6 years (SD = 0.8) pre-partner loss, and the first and second observation after partner loss, which were on average 1.4 (SD = 0.8) and 4.4 years (SD = 0.9) post-partner loss. 71% of the participants were female; at the pre-partner loss observation, participants were on average 71.7 (SD = 7.8) years old and had followed on average 8.4 (SD = 3.2) years of education (Table 1).

Measurements

Loneliness was based on the Dutch loneliness scale of De Jong Gierveld and Kamphuis (1985). Two subscales were distinguished. The first subscale, emotional loneliness, consists of six negative items (e.g., 'I experience a general sense of emptiness'), and refers to a feeling of lacking reliable emotional attachments to others. The second subscale, social loneliness, includes five positive items (e.g., 'I can call on my friends whenever I need them'), and describes loneliness experienced due to lack of social integration. Response options were 1 'no', 2 'more or less', and 3 'yes'. To obtain the scales the item scores were dichotomized and then summed. Thus emotional loneliness ranged from 0 to 6 and social loneliness ranged from 0 to 5. To enhance comparability of the scales, both scales were converted to range from 0 to 10. Higher scores indicate stronger feelings of emotional or social loneliness. The correlation between the two subscales was 0.36 before partner loss. For emotional loneliness, Cronbach's $\alpha = 0.83, 0.78$ and 0.76 at the three observations and for social loneliness, Cronbach's $\alpha = 0.80, 0.74$ and 0.76 .

To obtain adequate information on older adults' personal networks, we ascertained detailed information on the older adults' relationships with network members identified by name (Starker, Morgan, & March, 1993). The identification method, which was derived from the method used in the study by Cochran, Larner, Riley, Gunnarson, and Henderson (1990), is described in detail elsewhere (Van Tilburg, 1998). In short, a domain-specific approach ensured that all types of relationships had the same chance to be recorded. The criterion of importance of the relationship ensured that the socially active relationships were identified, not individuals who were contacted frequently by definition. To identify network members the following question was asked: "Name the people (e.g. in your

neighborhood) you have frequent contact with and who are also important to you." Participants could only identify people older than 18 years and not more than 80 people. No participant reached this limit. The measurement design for all LASA observations was the same, giving network members identified in a previous observation and others the same chance to be identified in later observations. In this study, the spouse was not considered a network member.

Participants reported on their network of personal relationships, whether the network member was a child, family member, friend or other type of relationship, and on the support they exchanged with the nine network members with whom they had the highest contact frequency, and, only at the observations after partner loss, on whether they had a confidant. If fewer than nine network members were identified, they were all selected. The amount of emotional support participants received from each of these network members was assessed with the following question: "How often in the past year did you talk to X about your personal experiences and feelings?" The answer categories were never, seldom, sometimes and often, and were assigned values ranging from 0 to 3. We aggregated support at the relationship level to the network level. Thus, the mean level of emotional support shows the amount of emotional support an older adult received on average from one of their network members, ranging from 0 to 3. The mean level of emotional support in child, family, friend and other relationship types was computed at the first observation after partner loss.

Because loneliness scores and levels of contact and support exchange may vary with age, sex and education (Pinquart & Sörensen, 2001), analyses were controlled for age, sex and education. Education was measured by the number of years of education completed. Because the first observation after partner loss varied from as early as 34 days to 3.5 years after the event ($M = 1.4$, $SD = 0.9$), analyses were also controlled for the time since partner loss.

Procedure

We tested our hypotheses by investigating simultaneous and sequential associations between loneliness and support received. With Lisrel 8.7 for Windows we obtained maximum likelihood estimates for two structural relations models (Jöreskog & Sörbom, 2003). The fit of the models is evaluated by means of the standardized root mean square residual (sRMR) and the non-normed fit index (NNFI), which should be lower than .05 and higher than .95, respectively (Hu & Bentler, 1998).

Support data were missing for 41 participants at the third observation. Maximum likelihood procedures, like the expectation maximization (EM) method, to handle missing data provide better solutions than pairwise deletion (Enders, 2001). Since LISREL 8.7 does not provide these maximum likelihood procedures, we imputed support levels with the EM-algorithm in SPSS.

Table 1. Means and standard deviations of emotional and social loneliness and of received support

	Before		After (Mean = 1.4 years)		After (Mean = 4.4 years)	
	Mean	SD	Mean	SD	Mean	SD
Emotional loneliness	1.60	2.62	3.96	3.01	3.32	2.80
Social loneliness	1.74	2.75	2.02	2.88	2.02	2.55
Support	1.70	0.74	1.90	0.76	1.81	0.68
Background characteristics						
Sex (% female)	0.71					
Years of education	8.36	3.15				
Age at baseline	71.73	7.80				

Notes. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figures 1 and 2 show the full cross-lagged regression model over three observations for emotional and social loneliness respectively. Horizontal one-way arrows show that we estimated lagged effects for loneliness and support from the observation before partner loss on the observations after partner loss and from the first observation after partner loss on the second observation after partner loss (β_{31} , β_{42} , β_{51} , β_{53} , β_{62} , β_{64}). Straight, diagonal arrows in figure 1 further show cross-lagged effects between loneliness and support received (β_{41} , β_{61} , β_{63} , β_{32} , β_{52} , β_{54}). Finally, vertical two-way arrows show direct cross-sectional effects between loneliness and support, which were constrained to be equal at each observation ($\beta_{12} = \beta_{21}$, $\beta_{34} = \beta_{43}$, $\beta_{56} = \beta_{65}$). Apart from these effects, direct effects of the exogenous variables sex, age and education on the endogenous variables loneliness and support before partner loss and direct effects from time since partner loss on the endogenous variables loneliness and support at the first observation after partner loss were estimated as well as the correlations between the exogenous variables sex, age and education (arrows not shown in the figures). The significance of estimates was evaluated with the t -statistic.

Results

Table 1 reports older adults' loneliness and support at each observation. Before partner loss, older adults had low levels of loneliness, 1.60 and 1.74 out of a range of 0-10, and the support they received from a network member was on average 1.70 out of a range from 0-3. Emotional loneliness changed most notably, from 1.60 to 3.96 at the first observation after partner loss and 3.32 at the second observation after partner loss. Social loneliness was affected less by partner loss than emotional loneliness: it increased from 1.74 to 2.02 on both observations after partner loss. Support also increased, from 1.70 to 1.90 and 1.81 at the first and second observation after partner loss.

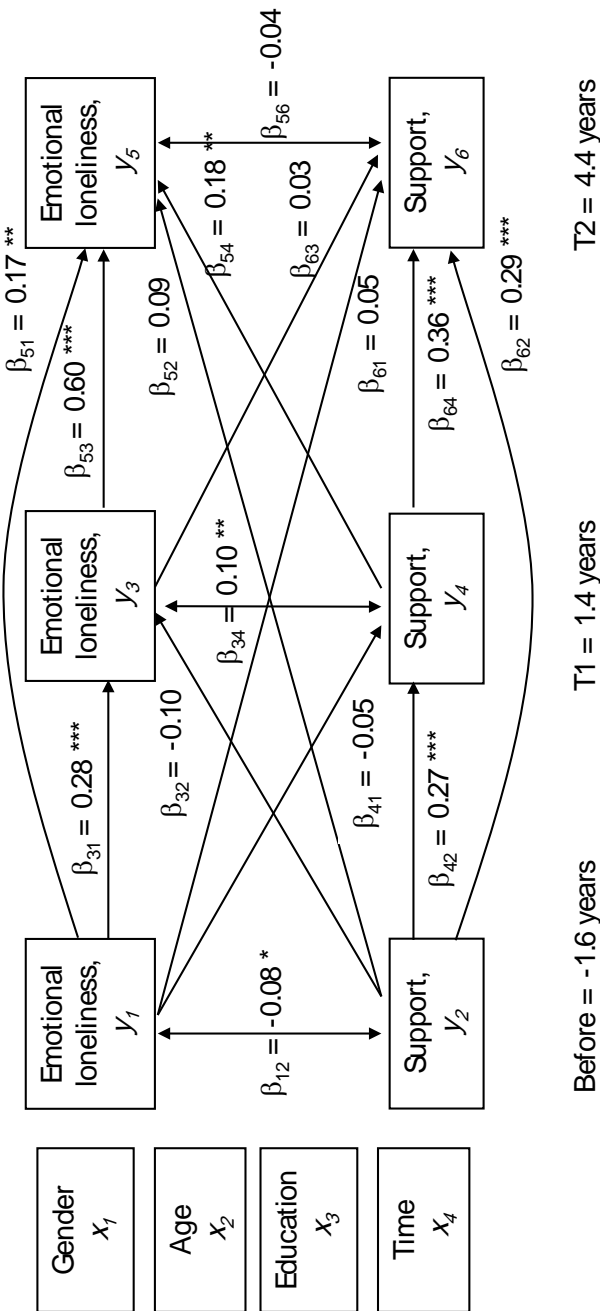
Before evaluating our hypotheses, we assessed the composition of the support network after partner loss, to determine the source of older adults' support. At the first observation after partner loss, older adults' personal networks ($M = 15.7$) consisted on average of 4.6 children, 5.2 family relationships, 1.2 friends and 4.8 other relationships. Older adults received on average most support from their children ($M = 1.9$). Older adults received least support from their friends, followed by other and family relationships ($M = 0.9, 1.2$ and 1.4 respectively). After partner loss older adults also reported on their confidant; 156 older adults had a confidant, of which 114 were children. Of the participants with network data at the second observation after partner loss ($N = 135$), 127 older adults identified a confidant, 86 of those were children. Clearly, children formed an important source of support in older adults' networks.

To evaluate our hypotheses that increases in support and loneliness would co-occur shortly after partner loss and that decreases in loneliness would follow after an earlier increase in support, we fitted two linear structural equation models with cross-lagged effects, one for emotional and one for social loneliness (Figures 1 and 2). The two models fitted well with the data: emotional loneliness, $\chi^2_{(19, N = 176)} = 20.3$, sRMR = 0.039, NNFI = 0.99, and social loneliness, $\chi^2_{(19, N = 176)} = 19.2$, sRMR = 0.043, NNFI = 1.00.

Although effects in both models were rather weak, three types of effects provide evidence for our hypotheses. First, lagged effects show how loneliness and support changed over time. Smaller estimates indicate more change. As can be seen in Figure 1, for emotional loneliness the effect of loneliness at the first observation after partner loss on the final observation was larger than the other two lagged effects ($\beta_{31} = 0.28$ and $\beta_{51} = 0.17$ vs. $\beta_{53} = 0.60$). This indicates that older adults experienced a larger increase in emotional loneliness around the time they became widowed, while after partner loss their level of emotional loneliness remained stable. For support the three lagged effects were about equally low, indicating much change over the entire period ($\beta_{42} = 0.27$, $\beta_{62} = 0.29$ and $\beta_{64} = 0.36$). Figure 2 shows similar results for the lagged effects of support as Figure 1. It also shows that social loneliness changed less than emotional loneliness or support ($\beta_{31} = 0.51$, $\beta_{51} = 0.28$ and $\beta_{53} = 0.45$). These lagged effects confirm our expectations that loneliness increases due to partner loss and that in response to partner loss support also increases. Social loneliness, however, is affected less by partner loss than emotional loneliness. Since levels of support changed more than emotional loneliness at the second interval, changes in support can account for only a small part of the change in emotional loneliness after partner loss.

The second type of effects, the constrained direct cross-sectional effects after partner loss, show whether and which changes in support and loneliness occurred simultaneously. The cross-sectional effects before partner loss show how initial levels of loneliness and

Figure 1. Cross-lagged regression model of emotional loneliness controlled for sex, age, education and time since partner loss (fitted model).



The 6 direct effects (gammas) of the exogenous variables gender, age and education on the endogenous variables emotional loneliness and support before partner loss and the 2 direct effects (gammas) of time on the endogenous variables emotional loneliness and support 1.4 years after partner loss are not shown in the figure. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

support were associated. Before partner loss, both emotional and social loneliness were negatively correlated with support ($\beta_{12} = -0.08$, Figure 1 and $\beta_{12} = -0.11$, Figure 2), which indicates that older adults with more support were less lonely before partner loss. Negative cross-sectional effects at the first observation after partner loss would have indicated that more support was associated with lower loneliness at the same time. Instead, the positive effect in figure 1 supported our first hypothesis that more support was associated with simultaneously higher levels of emotional loneliness. Thus, emotionally lonelier older adults also received more support shortly after partner loss ($\beta_{34} = 0.10$). Emotional loneliness and support were not associated at the second observation after partner loss. In contrast with our first hypothesis, social loneliness and support were not correlated at the first observation after partner loss. At the final observation they were negatively associated ($\beta_{56} = -0.14$), which may confirm our second hypothesis. Further support for our second hypothesis can be found in Table 1. Table 1 shows that social loneliness remained stable and support decreased after partner loss. In line with our second hypothesis, indirect effects of earlier support levels determined this association. Support before partner loss had an indirect effect of -0.09 on social loneliness at the final observation, and support shortly after partner loss had an indirect effect of -0.06 . Thus, older adults who received higher levels of support after partner loss were less socially lonely, but not less emotionally lonely.

Finally, cross-lagged effects show whether earlier changes in support or loneliness affect later levels of loneliness. Contrary to our expectations, these cross-lagged effects indicated that earlier levels of support were positively associated with emotional loneliness at the final observation ($\beta_{54} = 0.18$). An unexpected result was that higher levels of support before partner loss predicted higher levels of social loneliness at the second observation after partner loss ($\beta_{52} = 0.14$). In sum, increases in support appeared to be associated with rather than protect against increases in emotional loneliness after partner loss. During the first years of widowhood loss older adults received more support when they were emotionally lonelier. On the other hand, higher levels of support at the second observation after partner loss were associated with lower levels of social loneliness.

Higher levels of education predicted more support before partner loss ($\gamma = 0.14$; Table 2). Age and education had a significant direct effect on emotional loneliness before partner loss. Older and higher educated older adults were emotionally lonelier before partner loss ($\gamma = 0.15$ and $\gamma = 0.18$). None of the background characteristics had a direct effect on social loneliness before partner loss. Adjusting for time since partner loss was statistically significant for both emotional loneliness and support ($\gamma = -0.13$ and $\gamma = -0.15$), but not for social loneliness. The longer partner loss was in the past, the lower levels of emotional loneliness and support were, which may indicate that the impact of partner loss diminishes with time.

Figure 2. Cross-lagged regression model of social loneliness controlled for sex, age, education and time since partner loss (fitted model)

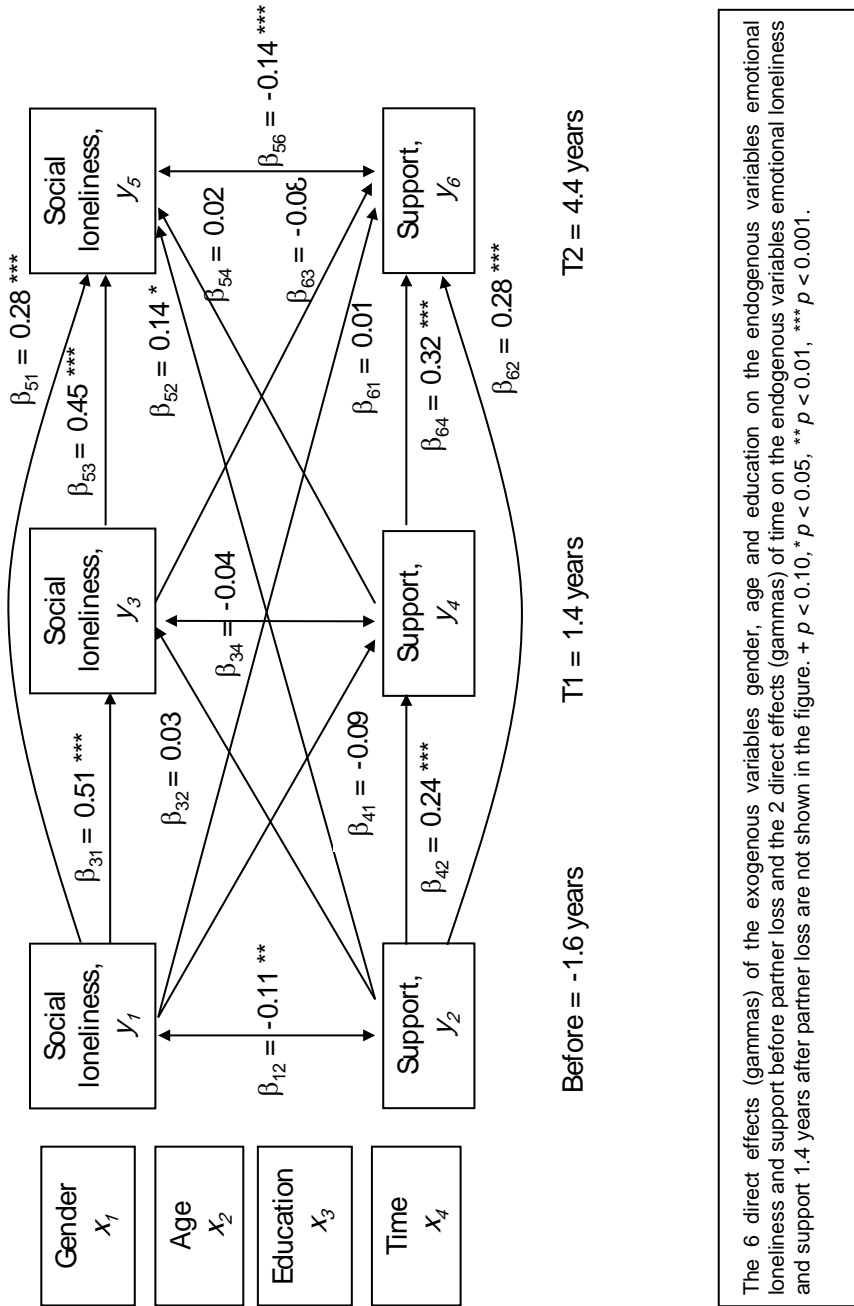


Table 2. Standardized parameter estimates of the exogenous effects in the fitted cross-lagged models of emotional and social loneliness.

Model variables	Exogenous variables						
	Gender	Age	Education	Time			
1: Emotional loneliness before	0.13	0.15	+	0.18	*	--	
1: Social loneliness before	-0.03	0.06		0.06		--	
2: Support before	0.00	-0.02		0.16	+	--	
3: Emotional loneliness t1	--	--		--		-0.14	+
3: Social loneliness t1	--	--		--		0.04	
4: Support t1	--	--		--		-0.12	*
5: Emotional loneliness t2	--	--		--		--	
5: Social loneliness t2	--	--		--		--	
6: Support t2	--	--		--		--	

Note: Time = time since partner loss. Fit statistics model emotional loneliness: $\chi^2_{(19, N = 176)} = 20.3$, sRMR = 0.039, NNFI = 0.99. Fit statistics model social loneliness: $\chi^2_{(19, N = 176)} = 19.2$, sRMR = 0.043, NNFI = 1.00. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$ ***, $p < 0.001$.

Discussion

The present longitudinal study sought to understand if and when increased support would protect against loneliness after partner loss. In line with the relational theory of loneliness (Weiss, 1975), we distinguished two types of loneliness, emotional and social loneliness. Results showed that older adults were affected much more by partner loss regarding their emotional loneliness than their social loneliness. Widows and widowers' emotional loneliness increased more than social loneliness after partner loss, and remained higher in the long run. The deficit model of partner loss and the conservation of resource model suggest that increases in support may protect older adults from increases in loneliness. Although support increased after partner loss, levels of support were not negatively related to emotional loneliness. At the final observation after partner loss, support was negatively associated with social loneliness. Thus increased support protected older adults from social, but not from emotional loneliness.

Like Van Baarsen, Smit, Snijders, and Knipscheer (1999), and in line with Weiss's theory (1975), we found that losing a partner affected emotional loneliness more than social loneliness. When older adults lose their partner, their emotional loneliness increases sharply; but their social loneliness increases only slightly. In the long run, emotional loneliness remains high. With their partner loss, older adults lose a major source of attachment security, but not necessarily social integration. In sum, the loss of the partner is associated more with emotional loneliness than with social loneliness.

Using the conservation of resource theory (Hobfoll, 2002), we focused on the timing of the effects of support. Based on this model, we expected that the benefits of support would only surface after the shock of partner loss subsided. In line with the conservation of resource theory, we did find that earlier increases in support were associated with lower social loneliness in the long run. Thus, support protects widowed older adults from social loneliness. Because support from others implies social contact and shows that others care about you, it protects widowed older adults from social loneliness. That we did not find similar results for emotional loneliness still fits the conservation of resource theory. As expected, after older adults became widowed both support and loneliness increased and were positively related. Furthermore, the results for emotional loneliness confirm that resource loss has more impact than resource gain: at the second observation after partner loss older adults were only slightly less emotionally lonely than shortly after partner loss even though support increased shortly after partner loss. Since it may be difficult to derive psychological benefits from substitute ties (Rook, 2009), it may take even longer before the effects of social support on emotional loneliness become visible.

There are at least two alternative possible explanations for why support did not affect emotional loneliness after partner loss like we expected. First, support from others may have both positive and negative effects (La Gaipa, 1990). Older adults' closest network members are not only the most likely to provide support, they are also the most likely to bring about negative effects (Antonucci, Akiyama, & Lansford, 1998). For example, high levels of support from children may diminish older adults' sense of independence (Lee, Netzer, & Coward, 1995); high levels of support may draw older adults' attention to their missing partner; and high levels of support may hold back older adults' attempts to come to terms with their loss on their own. Likewise, we found that the more support increased shortly after partner loss, the higher levels of emotional loneliness were after four and a half years. Thus, while significant others emotionally support widowed older adults, they may also frustrate widowed older adults when their support does not provide a sense of security, but stresses the loss or prevents older adults from being on their own.

Secondly, it could be that the emotional attachment to which emotional loneliness refers can be found in only one person: the partner. While Wenger and Jerome (1999) suggested that the most likely person to substitute the partner as an attachment figure is a confidant, our results suggest otherwise. Most of the widowed older adults in our study identified a confidant, generally one of their children, after partner loss. If a confidant indeed provides a sense of emotional attachment similar to what older adults were lacking, we should have found more positive results. On the other hand, Ha (2008) showed that although widowed older adults received greater amounts of support than married older adults, they were also less likely to have a confidant than married older adults. Even though support from others may come in place of partner support, deriving benefits from

substitute support is difficult (Rook, 2009; Zettel & Rook, 2004). This suggests that although children were identified as confidants, children who are confidants do not fulfill the same role as a partner confidant. Until older adults find someone else who compensates for their partner, they feel that a strong attachment figure is missing and remain emotionally lonely.

Thus network members do not diminish older adults' emotional loneliness after partner loss, no matter how much they support a widowed older adult. Contrary to the deficit and conservation models, we found no evidence that increased support could fill the void in emotional attachment after partner loss. Nor did we find that effects of increased support on emotional loneliness would surface, as the conservation of resource theory suggests. Apparently partner loss has such an impact on emotional loneliness that gaining support alone is not enough. These findings have practical implications. Whereas many interventions to relieve older adults' loneliness focus on improving social resources (Fokkema & Van Tilburg, 2006), our results suggest that the success of this approach is uncertain. After partner loss, improving older adults' social resources reduces their social loneliness, but does not reduce their emotional loneliness. Instead of focusing solely on support, the conservation of resource theory also incorporates a broad range of other resources that promote resiliency. Maybe in combination with resource gain in other areas, like increasing mastery, increased support may offset the effects of partner loss on emotional loneliness.

Two possible limitations of this study might be that we could not assess to what degree older adults themselves consciously sought support or were offered the support regardless of whether they asked for it and that we could not examine whether widows and widowers found a new partner or remarried. It might be possible that a new partner is someone who compensates for a lost partner. Zettel and Rook (2004) reminded us that conscious attempts to seek support might represent a form of active coping, which has been found to have more positive effects on psychological health than passive coping.

In conclusion partner loss is a multifaceted transition and may have diverse personal consequences (Carr & Utz, 2002), even in the domain of loneliness. The emotional part of loneliness that develops after the loss of a partner appears to be relatively stable and is not affected by increased support. The social aspect of loneliness, however, increases only slightly after partner loss. In time, support seems to protect older adults from social loneliness. Additionally, older adults who are emotionally lonelier when they are widowed receive more support. If support received during the transition into partner loss provided emotional respite, widowed older adults may find that in time even feelings of emotional loneliness subside.

Chapter

4

Loneliness after partner loss: Joint dynamics of mastery and social support

Abstract

Mastery and social support are important determinants of emotional loneliness in later life. The effects of mastery and support may be related. Furthermore, the effects after partner loss may differ from those during marriage. Among 1,075 married older adults, of whom 174 were widowed between two observations from the Longitudinal Aging Study Amsterdam, this study examined with multiple regression analyses how mastery and support affected emotional loneliness. Mastery and support assessed at baseline each predicted lower emotional loneliness, and a high sense of mastery compensated for a low level of support. These effects were similar after partner loss and during continued marriage. When mastery was increased older adults were less emotional lonely, and more so after partner loss. Practical interventions should promote skills that increase older adults sense of control, as mastery reduces loneliness more than support does, in particular after partner loss.

The loss of a spouse is a drastic event in late life. For surviving partners, it sets off a multitude of changes in their lives and has several consequences for their health and wellbeing (Carr & Utz, 2002). Among other consequences, widows and widowers often experience increased feelings of loneliness associated with the loss of their partner (Pinquart, 2003). In addition, widows and widowers have to adjust to their new role as widowed person, to daily living on their own after the death of their partner, and re-establish a way of contact and support exchange with their personal relationships that fits this new role. Social support increases as older adults turn to their networks for support to cope with widowhood (Utz, Carr, Nesse & Wortman, 2002), and network members respond by providing support (Dunkel-Schetter & Skokan, 1990). Because of the many changes, adjusting to the death of their partner may decrease older adults' sense of control, or mastery (Hay & Fingerman, 2005). Cohen-Mansfield and Parpura-Gill (2007) showed that among older adults sense of control in social situations is an important predictor of loneliness, and suggested that among older adults this sense of control is often lowered due to the loss of social roles. In theory, support as well as mastery may benefit adjustment to partner loss, as older adults with a higher sense of control are more active problem solvers and older adults with more support have more others to talk to and rely on (Schieman & Meersman, 2004). To our knowledge, no previous studies assessed simultaneous effects of social support and mastery on loneliness after partner loss.

The aim of this study is to examine in what way mastery and social support protect older adults from loneliness after partner loss and in continued marriage. Specifically we are interested in three questions. First, whether mastery modifies the effect of support on older adults' loneliness. Secondly, whether this differs in recent widowhood as compared to continued marriage. Thirdly, because levels of mastery and support may change while older adults adjust to the loss of their spouse, to what extent changes in levels of mastery and support add to the effect of previous resource levels.

Although theoretically support from others could protect widows and widowers from consequences such as increased loneliness after partner loss (e.g. Hobfoll, 2002), results regarding support are inconclusive. Two forms of loneliness result from perceived deficits in attachment security, support and social integration that may develop after partner loss. Emotional loneliness is defined as a perceived lack in attachment security (Weiss, 1975). Emotional loneliness develops when widows and widowers fail to derive the same sense of security from other attachment figures as they previously derived from their partner. Likewise, social loneliness is defined as a perceived lack of social contacts, and may develop after partner loss if changes in contact and support with others cause a perceived social integration deficit among widows and widowers. If support provided by significant others meets the needs of widows and widowers and substitutes the deficits in

attachment, support or social integration, it will protect widows and widowers from increased feelings of loneliness. Reviewing the role of support in bereavement, Stroebe, Zech, Stroebe and Abakoumkin (2005) reported that two out of five longitudinal studies showed that support buffered the impact of partner loss, and three did not. Several studies (e.g. Stroebe, Stroebe, Abakoumkin & Schut, 1996), including our own reported in the previous chapter, showed that support from family and friends protects older widows and widowers from social loneliness, but not from emotional loneliness. While the relationship between social support and social loneliness is clear, the question remains how resources can buffer the impact of spousal loss and protect older adults from increased emotional loneliness after partner loss.

One of the possible answers comes from research showing that feelings of being in control, or mastery, may change the extent to which widows and widowers benefit from their social support. Mastery, which is defined as a global sense of control over forces affecting individuals' lives (Pearlin, 1999), may modify the impact of social support in several ways. First, previous research shows that self-efficacy, a concept similar to mastery, partially mediates the effect of support on mental health among young adults (Bovier, Chamot, & Perneger, 2004), middle aged and older adults (Fiori, McIlvane, Brown, & Antonucci, 2006). Thus older adults experience some beneficial effects of social support, because social support strengthens feelings of mastery. Second, Uchino (2009) questions whether, instead of being a partial mediator in the support-health relationship, psychological factors, such as mastery may also be part of a positive profile, where mastery strengthens support and vice versa. Personal resources, such as mastery, enhance the likelihood of a well-functioning support system in place. Higher mastery adults may have a higher motivation to initiate social contact and behave more appropriately in social situations than lower mastery adults (Larose, Guay, & Bovin, 2002). Ross and Mirowsky (1989) showed in a cross-sectional study of a community sample of Illinois residents that support and mastery may be equivalent resources and may substitute for each other. Finally, mastery may moderate the impact of social support in stressful situations. Stetz, Stetz, and Bliese (2006) showed that social support had a stress buffering effect among high self efficacy individuals in a stressful job situation, while among low self efficacy individuals social support exacerbated stress. Thus, research suggests that social support and mastery may have joint beneficial effects on loneliness. Following this line of reasoning, we expect that mastery and social support have an interactive effect on emotional loneliness. This overall hypothesis will be elaborated below.

As the results described above show, research suggests that the joint effects of mastery and support may differ according to the circumstances people are in. Likewise, the joint effects of mastery and support may differ among married older adults whose daily lives do not change drastically, i.e. continue their marriage, and older adults who

experience the drastic change of becoming widowed. Community research generally finds interactive effects of mastery and support on mental health outcomes (e.g. Ross & Mirowsky, 1989; Schieman, 2001). These results suggest that mastery and support can substitute for one another: a high level of one reduces the need for the other, and a low level of one is remedied by a high level of the other. This may be so, because in daily life older adults who feel in control of their life may not need to rely on their supportive relationships with others. Similarly, older adults who have strong supportive relationships, may not need to feel in control as much as when they lack support. In daily life, having a high sense of mastery or a high level of support may be enough to protect older adults from emotional loneliness, and having high levels of both probably does not offer more protection. However, when older adults lack support as well as mastery, they may not feel embedded nor in control of their life. Therefore, we expect that older adults who fall short on their support and lack mastery will be most lonely; and that when older adults have either more mastery or more support to compensate for the shortage of the other they will be less lonely, and that older adults who have high levels of support and mastery will be about as lonely as older adults who have only have a high level of support or mastery (hypothesis 1).

In stressful situations, such as after partner loss, having adequate levels of mastery and support is critical, as individuals call upon their resources in stressful situations (Moos & Holahan, 2003). Research generally shows that mastery moderates the effect of social support on the impact of the stressful situation. Balaswamy and Richardson (2001) reported in their study of older widowers that both personal and social coping resources added positively to wellbeing. Widows and widowers with a high sense of mastery may not only feel in control over a situation, they may also be able to influence the amount and type of support they receive from others. In a stressful situation as caring for dementia patients, Atienza, Collins, and King (2001) showed that caregivers benefited more from available social support when they felt more in control. Likewise, Kim, Duberstein, Sörensen and Larson (2005) showed that when older adults cared for an ill spouse, they received more support when they had greater interpersonal self-efficacy; consequently they were less depressed. Therefore, we expect that after partner loss older adults will benefit more when feelings of mastery augment the beneficial effects of support. Again, we expect that older adults with low levels of support and mastery will be most lonely after partner loss. However after partner loss having either high levels of support or a high sense of mastery is not enough to protect older adults from loneliness, older adults will only be less lonely after partner loss, when they have a high level of support as well as a high sense of mastery (hypothesis 2).

In addition to the effect of previous levels of mastery and support, changes in mastery and changes in support may also affect loneliness, especially during recent widowhood.

Older adults experience change in support and supportive relationships all the time, as change in personal networks is a continuous process (Starker, Morgan, & March, 1993). Because people are active operators of their support system, they improve their actual support by initiating new relationships (Hobfoll, 2009). In addition, feelings of control may diminish as older adults age, and these changes are partly due to role losses such as retirement and widowhood (Schieman, 2001). Thus, changes in support and mastery in old age may reflect natural fluctuations. However, in times of stress resources such as mastery and support relate to wellbeing predominantly through active coping efforts (Moos & Holahan, 2003). Changes in mastery and support may reflect these active coping efforts. Increased support may result from of a search for support from significant others. Likewise increased control may reflect successful attempts to gain control during the adjustment process, and decreased control may reflect failed attempts. Therefore, we expect that changed resources affect loneliness over and above the effects of previous resources (hypothesis 3a) and that these effects are larger after partner loss than in continued marriage (hypothesis 3b).

Methods

Participants

In 1992-1993 (T1), 3,107 participants were interviewed as part of the "Longitudinal Aging Study Amsterdam" (LASA; Deeg, Van Tilburg, Smit, & De Leeuw, 2002). The sample for this program originated from the "Living arrangements and social networks of older adults" program, which used a stratified random sample of men and women born between 1908 and 1937 (Knipscheer, De Jong Gierveld, Van Tilburg, & Dykstra, 1995). The oldest people, and especially the oldest men, were overrepresented in the sample. In 1995-1996 (N= 2,545), 1998-1999 (N= 2,076) and 2001-2002 (N= 1,691), LASA performed follow-ups. Between 1993 and 2002, 1,051 (34%) participants died, 222 (7%) participants refused cooperation and 143 (5%) participants were ineligible or not contacted.

At least two follow-up observations were available for 1,871 participants, and 1,235 of them were married at baseline. During LASA a total of 205 (17%) of these participants were widowed and had two follow-up observations after widowhood (109 were widowed at T2, 96 at T3). We excluded participants who did not live together with their spouse (29) or were institutionalized (24), as well as 8 widowers and widows who started a new partner relationship or remarried. Finally, we excluded 3 married participants and 25 widowed participants who were too physically or cognitively frail to complete the full questionnaire at one or more of the follow-up observations and thus had missing data. In this way, data from 901 still-married participants and 174 widows and widowers were available for our analyses.

In this study we compared two observations of older adults who were continuously

married with two observations of older adults who became widowed. For the widowed participants we used the observation preceding their partner loss and the observation following partner loss. For the married participants we selected two comparable observations. However, because imminent widowhood may have foreboding effects or already be stressful, we needed to make sure that married respondents would not be widowed soon. Therefore, we used the second or third follow up observation to ascertain that after the two selected observations married respondents would remain married until the next follow up observation. Because 64% of the widowed participants lost their partner between 1992 and 1995 and 36% between 1995 and 1998, we randomly drew the 1995 and 1998 observations of 36% of the married participants; for the remaining 64% of the married participants, we selected the 1992 and 1995 observations. In this way married and widowed participants were observed during the same period.

Measurements

Emotional loneliness. We used the emotional loneliness subscale from the Dutch loneliness scale of De Jong Gierveld and Kamphuis (1985). The subscale consists of six negative items (e.g., 'I experience a general sense of emptiness'), and refers to the feeling of lacking a reliable attachment figure. Response options were 1 'no', 2 'more or less', and 3 'yes'. To obtain the scale the item scores were dichotomized and then summed. Thus emotional loneliness ranged from 0 to 6. Higher scores indicate stronger feelings of emotional loneliness. Cronbach's α was 0.78 or higher at the two observations.

Marital status. Our marital status variable indicated whether older adults were married at both observations (0) or whether older adults lost their spouse between the two observations (1). *Social support.* We asked older adults to identify their relationships by name to obtain adequate information on their personal networks (Starker, Morgan, & March, 1993). Participants' networks were identified with a domain-specific approach (Van Tilburg, 1998), which was the same at all observations. This guaranteed that all types of relationships had the same chance to be recorded, and that this chance was the same in later observations. In seven domains of relationship types: household members (including the spouse), children (including stepchildren) and their partners, other relatives, neighbors, colleagues (including voluntary work or school), fellow members of organizations (e.g. athletic clubs, church, political parties), and others (e.g. friends and acquaintances), the following question was asked: "Name the people (e.g. in your neighborhood) you have frequent contact with and who are also important to you." Adding the importance of the relationship ensure that socially active relationships were identified, and not individuals who were contacted frequently by definition (such as the members of a club). Participants were restricted to identify only persons above the age of 18 and were restricted to identify a maximum of 80 persons. No participant reached this limit. Because the spouse is not a network member after widowhood, the spouse was

excluded from the personal network.

Participants reported on the support they received from the nine network members with whom they had the highest contact frequency. If fewer than nine network members were identified, they were all selected. For each of the selected network members, one question was asked about receiving support: "How often in the past year did you talk to X about your personal experiences and feelings?" The answer categories were never (1), seldom (2), sometimes (3) and often (4). The sumscore of these nine or less items constitutes the support scale, which ranged from 0 to 36.

Mastery. A translated and abbreviated Dutch version of the Pearlin Mastery Scale (Pearlin & Schooler, 1978) measured sense of mastery, defined as the extent to which a person has the feeling of being in control of his or her own life. The questionnaire consists of five statements, e.g. "I can't seem to be able to solve some of my problems at all" with response categories ranging from 1 "total disagreement" to 5 "total agreement." The sum score of these items constitutes the scale with a range from 5 to 25, higher scores indicating a higher sense of mastery. At both observations, Cronbach's α was higher than 0.72.

Change in mastery and support. We measured change in social resources as the difference in support between t1 and t2, and change in mastery as the difference in mastery between t1 and t2.

Background characteristics. Because widowed and married older adults may differ on several background *characteristics*, all models were controlled for age, gender and the number of years of education completed. Because older adults with larger networks may score higher on this scale, we controlled for the network size in the analyses. Because unhealthier older adults may receive higher levels of support, we controlled for self-rated health and functional limitations in all analyses. Finally, we controlled all regression models for loneliness at t1, as lonelier older adults at t1 may also be lonelier at t2.

Procedure

As a first step in evaluating our hypotheses, we examined with a general linear model the differences between widowed and married older adults at both observations regarding their loneliness, support and mastery. In addition, we examined whether older adults' levels of loneliness, support or mastery had increased or decreased at the second observation and whether these changes differed for widowed and married older adults.

To evaluate our hypotheses, we fitted a series of linear regression models of emotional loneliness at t2. The first model with main effects of support and mastery at t1 and marital status at t2 established the unique effects of marital status, mastery and support. To test hypothesis 1, we added in the second model the interaction effect between mastery and support to establish the joint effect of mastery and support. To establish whether the effects of mastery and support at t1 differed among widowed and married older adults we

added two-way interactions between marital status and support and between marital status and mastery as well as a three-way interaction effect of support, mastery and marital status (hypothesis 2). In the fourth and fifth model, we added parameters for change in mastery and change in support as well as two-way interaction effects of marital status and change in mastery or change in support to evaluate hypothesis 3a and 3b.

To avoid problems with multicollinearity we made sure that the parameter estimates in the models were not correlated. For example, to ascertain that the parameter estimates of loneliness at t1 did not correlate with the parameter estimates of mastery and support, we used the residual scores loneliness at t1. We obtained these residual scores by regressing loneliness at t1 on mastery and support at t1. Similarly, we regressed the parameters of interaction effects on their separate parts to obtain uncorrelated interaction parameters; for example, the parameter for mastery*support was computed as the residual scores after regressing mastery*support on mastery and on support.

Results

Descriptives

Table 1 describes differences in emotional loneliness, mastery and received support among widowed and married older adults adjusted for differences in their age, level of education, network size and health. At t1, widowed older adults received similar amounts of support as married older adults and had lower levels of mastery. Widowed older adults were already lonelier than married older adults at t1. At t2, the difference in loneliness between married and widowed older adults had increased, as widowed older adults reported even higher levels of emotional loneliness after the loss of their partner. While widowed older adults received increased levels of support after partner loss, their level of mastery had not changed. Married older adults had similar levels of support and mastery at both observations. Although the average level of mastery did not change statistically significant for married or widowed older adults over the two observations, changes in mastery varied considerable among individuals. On a range from -10 to 15 the observed standard deviations were 3 or higher in both groups. Finally, table 1 shows that widowed older adults were about five years older, more often women, had followed fewer years of education, and reported less functional limitations than married older adults. That loneliness increased among widowed older adults while their level of mastery did not change, and that among married older adults both levels of mastery and emotional loneliness were stable, suggests that at least mastery and emotional loneliness are related differently in continued marriage and after partner loss.

Joint effects of mastery and support

First, we describe the unique effects of the resources mastery and support at t1 on

Table 1 Estimated means of loneliness, mastery and support among married and widowed older adults at both observations

	Married				Widowed			
	T1		T2		T1 ^a		T2 ^a	
	M	SE	M	SE	M	SE	M	SE
Emotional loneliness (0- 10) ^b	0.60 _a	0.04	0.66 _{ab}	0.04	0.84 _b	0.10	2.29 _c	0.10
Social support(0-36) ^b	22.07 _{ab}	0.24	21.52 _b	0.24	22.78 _a	0.56	24.37 _c	0.55
Mastery (5-25) ^b	17.93 _a	0.10	17.91 _a	0.10	17.21 _b	0.24	17.09 _b	0.23
<i>Background variables</i>								
Female	38%				71%			
Age at observation ^c	69.19	0.24			74.76	0.55		
Education (5-18 years) ^c	9.58	0.11			8.34	0.24		
Network size (0-73)	16.36	0.30			15.16	0.68		
Functional limitations (6-30) ^c	28.92	0.10			28.14	0.23		
Self-rated health (1-5)	2.25	0.03			2.35	0.06		

Notes. Means in three top rows with different subscripts differ significantly in Tukey's LSD, $p < .05$; ^a T1 precedes partner loss and T2 is after partner loss; ^b Means are estimated at average values of background variables: age (70), education (9.3), network size (16), functional limitations (28) and self-rated health (2.3); ^c Age, education and functional limitations differ significantly between married and widowed older adults, $p < .000$

emotional loneliness at t2 among all older adults (Model 1, Table 2). As the estimate of loneliness at t1 shows older adults who were lonelier at t1 were also lonelier at t2. In addition, the parameter estimate of marital status shows the impact of partner loss on loneliness; widowed older adults were lonelier at t2 than married older adults. The negative parameter estimates of mastery and support show that older adults with higher levels of mastery and higher levels of support at t1 were less lonely at t2. The difference in these estimates shows that mastery explains more of the variance in emotional loneliness than support. Our overall hypothesis was that mastery and support had a joint effect on loneliness. To establish such a joint effect, we added an interaction effect of mastery and support to Model 1. In line with our overall hypothesis, in Model 2 support*mastery had a significant effect and adding this parameter significantly improved the model ($\Delta R^2 = .004$, $p < .01$).

Continued marriage or recent widowhood

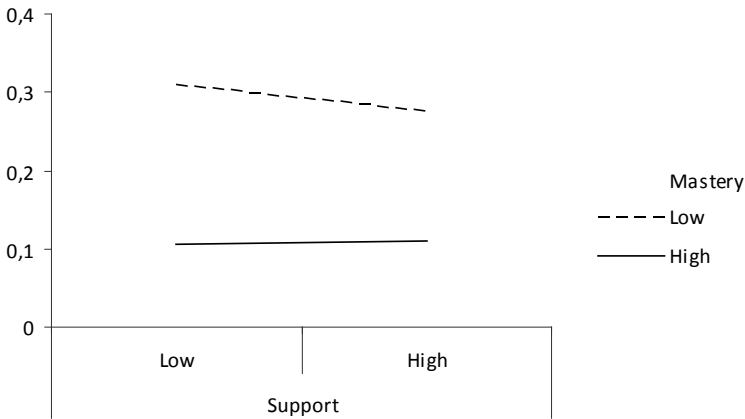
Figure 1 shows how the interaction effect of support*mastery affects older adults' emotional loneliness. In line with our first hypothesis, older adults with high levels of mastery were about equally lonely regardless of their level of support. Although low

Table 2. Parameter estimates of effects of marital status, mastery and support on emotional loneliness

	Model 1	Model 2	Model 4	Model 5
	β	β	β	β
<i>Main effects</i>				
Marital status ^a	0.34 ***	0.34 ***	0.33 ***	0.32 ***
Loneliness at t1	0.40 ***	0.40 ***	0.38 ***	0.39 ***
Support at t1	-0.05 *	-0.05	-0.05	-0.06 *
Mastery at t1	-0.26 ***	-0.26 ***	-0.36 ***	-0.37 ***
<i>Interactive effects</i>				
Mastery * support at t1		0.06 **	0.06 **	0.06 **
<i>Change effects</i>				
Change in support (-26,26)				
Change in support * marital status				
Change in mastery (-10 ,15)			-0.22 ***	-0.16 ***
Change in mastery * marital status				-0.14 ***
R ²	0.43	0.43	0.47	0.49
Adjusted R ²	0.42	0.43	0.47	0.48

Notes. Adjusted for age, network size, health and education (estimates not shown). Model 3 did not improve Model 2 and estimates are not shown.^a Marital status (0 = married, 1 = widowed). *** $p < .001$, ** $p < .01$, * $p < .05$.

mastery older adults with high levels of support were less lonely than low mastery older adults with low levels of support, they were still significantly lonelier than high mastery older adults. Thus, in line with our first hypothesis, older adults with low levels of mastery as well as support were the loneliest emotionally, and high mastery compensated for low levels of support. High levels of support, on the contrary, only partially compensated for low levels of mastery. Our second hypothesis regarded the different effects of mastery and support after partner loss as compared to continued marriage. To establish whether the effects of mastery and support differed among married and widowed older adults we added two-way interaction effects of marital status with support and with mastery and a three-way interaction effect of marital status, mastery and support to Model 2. Neither of these interaction effects were statistically significant or improved the model ($\Delta R^2 = .00$, $p > .05$). The results for Model 3 are not shown in Table 2 because they were not statistically significant. Thus, the main effects of mastery and support and the interaction effect between mastery and support in Model 2 are similar after partner loss as in continued marriage. Contrary to our second hypothesis, a higher level of both resources does not protect older adults from the impact of partner loss. Older adults were able to compensate for low levels of support with high levels of mastery and to some extent vice versa. A high sense of mastery did not augment the effect of support or vice versa after partner loss.

Figure 1. Joint effect of mastery and support on emotional loneliness

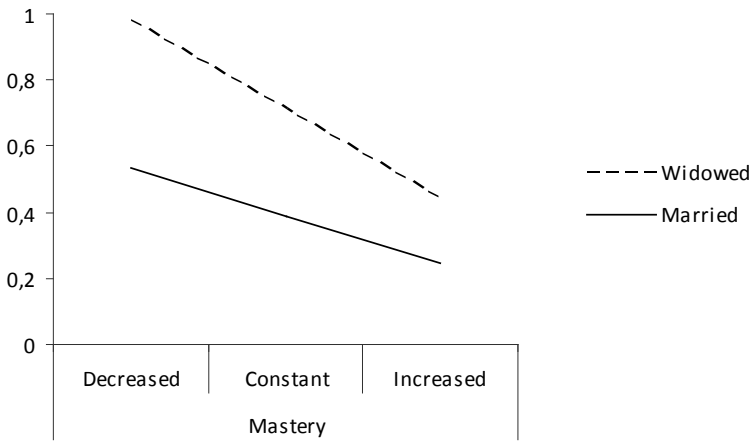
Changed resources

Our final research question was whether changed resources added to the effects of earlier resource levels. Since Model 3 did not significantly improve Model 2, we added parameters for change to the more parsimonious Model 2. Similar to our earlier procedure, we first added main effects of changed mastery and changed support (hypothesis 3a). Then we added two-way interaction effects of changed mastery and support with marital status to establish whether changes in mastery or support were differently related with emotional loneliness after partner loss than in continued marriage (hypothesis 3b). Adding a parameter for changed support did not improve the model ($\Delta R^2 = .00, p > .05$), and this parameter was removed from the final model. Adding a parameter for changed mastery significantly improved the model for widowed ($\Delta R^2 = .04, p < .001$), and adding a parameter for changed mastery*marital status further improved the model ($\Delta R^2 = .02, p < .001$). In line with our hypothesis 3a, changes in mastery did add explanatory power to our model. Older adults whose mastery had increased had become less lonely, while older adults whose mastery had decreased had become even lonelier. As can be seen in Figure 2 the decrease in emotional loneliness among widowed older adults whose mastery had increased is higher than among married older adults whose mastery increased. Thus, as expected in hypothesis 3b, changes in mastery appeared to matter more for emotional loneliness after partner loss than in continued marriage.

Discussion

In this study we sought to understand whether mastery could enhance the effect of support on older adults' loneliness. As expected, mastery and support each were important resources. In general, older adults were less emotionally lonely when their

Figure 2. Effects of changed mastery by marital status on emotional loneliness



previous sense of mastery or level of support was higher. Older adults were less lonely when they had a higher sense of mastery to compensate for a lack of support. Older adults with a low sense of mastery benefitted from high levels of support. However, a high level of support did not fully compensate for a low sense of mastery: older adults with a high support level were still significantly lonelier than high mastery older adults. Unexpectedly, having a high sense of mastery as well as a high level of support did not protect older adults against the impact of partner loss on emotional loneliness. Changes in mastery affected emotional loneliness over and above the effects of previous levels of mastery. Moreover, as expected, these changes in mastery appeared to matter most after partner loss. Widowed older adults experienced larger decreases in emotional loneliness when their mastery increased than married older adults did when their mastery increased. Changes in support did not affect emotional loneliness. Taken together, these results show that for older adults their sense of mastery may even be more important to handle their emotional loneliness than the support they received from personal network members. We will discuss the implications of these results below.

Our results highlighted results of previous research (Cohen-Mansfield & Parpura-Gill, 2007) that mastery was a better predictor for emotional loneliness than social support. Our results confirmed that a high previous sense of mastery was related with lower loneliness, while high previous levels of support were related with lower loneliness to a lesser extent. In addition, our results extended previous research on the importance of mastery by showing that increases in mastery predicted even lower loneliness, while increases in support were not related with loneliness.

In line with previous research (Cohen-Mansfield & Parpura-Gill, 2007; Fiori et al., 2006), our results suggest that loneliness interventions should focus on mastery, but these

interventions should not neglect social resources. Our results show that social support may partially compensate for a low sense of mastery and other studies suggest that adequate social resources may increase older adults' sense of mastery (Fiori et al., 2006). Thus, like these previous studies, we suggest that social skills training can enhance older adults' sense of mastery and thereby reduce loneliness. Indeed, interventions that focused on a combination of mastery, social skills and social resources have been found to reduce loneliness among older women within one year after the intervention (Stevens, Martina, & Westerhof, 2006).

As expected older adults not only benefitted from their previous sense of mastery, when older adults were able to increase their sense of mastery they became even less lonely. Moreover, increasing mastery mattered more among widowed older adults than among married older adults. In our study the widowed older adults had a lower sense of mastery than the married older adults. Other studies show a negative relationship between sense of control and age which may be related with poor health, low educational level or role loss (Mirowsky, 1997). Since our results were adjusted for age, gender, education, network size and health, the lower mastery among widowed older adults may have been related with the impending role loss. For example, older adults may have been caring for their ill spouse before partner loss and this may have attenuated their sense of mastery (Atienza et al., 2001). Maintaining or improving their sense of mastery is thus also relevant for older adults who are caregivers for a sick spouse. If, for example, caregivers have a low sense of mastery because they are overloaded by the task of caring for their spouse, the death of their spouse may release caregivers from this overload (Li, 2005) and this may restore their sense of mastery. On the other hand if older adults experience a diminishing sense of mastery in addition to partner loss, this decrease in mastery may exacerbate the impact of partner loss. These findings underscore how important it is for older adults to maintain or improve their sense of mastery in the face of stressful situations.

Contrary to our second hypothesis, our results did not show that having a high sense of mastery and a high level of support protected older adults anymore from the impact of partner loss on emotional loneliness, than a high sense of mastery or a high level of support. Part of the explanation for this deviating result is that social support does not compensate older adults for the lack of their former spouse and attachment figure and thus does not decrease emotional loneliness after partner loss (Stroebe et al., 2005). Not only support did not buffer the impact of partner loss, a high sense of mastery also did not protect older adults from increased emotional loneliness after partner loss. However, increases in mastery were related with lower emotional loneliness after partner loss, indicating that mastery buffers the impact of partner loss through coping efforts. The question remains how widowed older adults increase their mastery. Future research could

examine in what way successful coping increases older adults' mastery.

Our study has a few limitations. First, there was little variance in emotional loneliness among married older adults, and this may have caused the lack of results for our support parameters. Low variance in emotional loneliness among married older adults may be realistic, as loneliness probably only increases when drastic changes occur, such as becoming a caregiver for a sick spouse or losing a spouse. Secondly, we used mastery which is a global measure of control (Pearlin, 1999), whereas among older adults domain-specific measures of control may be better predict outcomes (Fiori et al., 2006). Nevertheless, our study did show significant associations between mastery and emotional loneliness. Thirdly, we assumed that changes in mastery and support would reflect coping, but we did not assess actual coping behavior. Self-efficacy or mastery does not increase by chance, but improves when an individual successfully deals with and thus overcomes specific problems (Blazer, 2002). Following this line of reasoning, we believe that change in mastery reflects coping at least in part, since increases in mastery decreased emotional loneliness of widowed older adults more than of married older adults.

Our study fits in a line of research that shows that the value of social and personal resources depends on their interaction, and is also determined by the requirements of a specific situation (Holahan & Moos, 2003). Previous studies show that social support protects older adults from social loneliness after partner loss, but not from emotional loneliness (Stroebe et al., 2005; previous chapter). This induced us to examine how resources can buffer the impact of spousal loss and protect older adults from increased emotional loneliness after partner loss. Our study extends previous ones by showing that mastery does not enhance the buffer effects of social support to protect older adults from emotional loneliness, but increases in mastery do protect older adults from emotional loneliness after partner loss. After spousal loss, social support does not protect older adults from emotional loneliness, as emotional loneliness requires different resources. For widowed older adults the sense of control over forces affecting their lives (Pearlin, 1999) may be one of those resources. Mastery, and in particular increases in mastery predicted lower emotional loneliness after partner loss. Whereas many interventions on loneliness typically focus on improving social resources, and thus reduce social loneliness, our results suggest that these interventions may be improved to also reduce emotional loneliness if they offer older adults the skills to maintain or increase their sense of mastery, especially under stressful conditions.

Chapter

5

Dynamics of social resources and mortality after partner loss

Abstract

This study examined how the loss of a partner and accompanying changes in social resources affect older adults' mortality risk. The aim was to describe the effects on widows and widowers' mortality risk of how many others they turn to, whether they receive emotional or instrumental support from these others and who these others are, children, other kin, friends or other relationships. We estimated parameters for change in social resources with extensive, longitudinal data on social resources. We obtained estimates for widows and widowers' mortality hazard with separate cox regression analyses for men and women on prospective survival data over 15 years (1992 to 2007). Results show that men had a temporary increased mortality risk after partner loss, which was aggravated if contact with children and family networks decreased as well. Widows did not have a temporary increased mortality risk and their mortality risk decreased when their level of instrumental support increased after partner loss. This study shows how important changes in the social resources of older adults can be for their health. Men and women derive benefits from their social resources in their own particular way.

Research has documented that the loss of a spouse through death is a risk factor for increased mortality among older adults (e.g. Martikainen & Valkonen, 1996), especially in the first year after partner loss (Elwert & Christakis, 2006). Part of this bereavement effect is caused by selection (Lillard & Waite, 1995). That is, bereaved older adults have an increased mortality risk after their loss, because they already belonged to groups more at risk in society before their loss, e.g. due to low income or being unhealthy. Healthier persons are more likely to remain married and live in better health conditions (Murphy et al. 1997). In addition to selection, research also suggests that bereaved older adults may have a higher mortality risk than married older adults because they lack social resources, such as a marriage partner, or have fewer social resources, such as other social relations and social support (Martikainen & Valkonen, 1996). Strong social relationships reduce mortality (Lund, Modvig, Due, & Holstein, 2000) and are negatively related to disease and mortality (e.g. House, Landis & Umberson, 1988). Lower levels of social resources are related to lower levels of health and higher levels of mortality (e.g. Avlund, Damsgaard & Holstein, 1998). Differences in social resources may thus explain different mortality rates of married and widowed older adults, but detailed studies of the relationship between social resources and mortality after partner loss are rare.

The present study extends empirical evidence of the relation between social resources and mortality after partner loss in three ways. First, in contrast with most studies of mortality after partner loss, the present study has extensive data on social resources and shows how different aspects of social resources are related to mortality. Survey studies or census-based studies of mortality predominantly use structural measures for social resources, such as network size (e.g. Lund et al., 2000) or proxy measures, such as household size (e.g. Manor & Eisenbach, 2003). Social resources, however, have a structural and a functional aspect. The network of personal relationships, or the ties with significant others, form the structure of social resources. The social support exchanged within this network shapes the functional aspect. None of the studies above measured whether older adults actually received support from their significant others. Receiving support predicted lower mortality among married older adults who depended on the support (Brown, Nesse, Vinokur & Smith, 2003). Presently, research defines social support as the exchange of various forms of informal assistance, e.g. information, practical aid, financial advice or emotional support (Allen, Blieszner & Roberto, 2000). At least two different types of support are important for the health of widowed older adults. First, emotional support, e.g. talking about personal feelings and comforting each other, may relieve the emotional distress caused by widowhood. Secondly, instrumental support, such as help with daily chores, housekeeping or cooking, may facilitate surviving spouses' adjustment to living alone. In the context of mortality, it is vital that older adults receive support from their social relations for small or larger tasks (Avlund et al., 1998). The

current study not only considers how many others widows and widowers can turn to, but also whether they actually receive support.

Secondly, this study considers the dynamic nature of social resources, as, in contrast with other mortality studies, longitudinal measures of social resources are available. Social resources change over time, personal relationships come and go, and the exchange of support increases and decreases with changing needs and changing roles (Antonucci, 2001). Seltzer and Li (2000), for example, showed that when poor spousal health forced wives to become a caregiver, their social involvement with others decreased. On the other hand, if the illness progresses, a spousal caregiver may turn to his or her network members for support and particularly daughters are the most likely caregivers in such a situation (Blieszner, 2006). Three studies provide mixed evidence of how changes in social relationships may be related to mortality among older adults. Cerhan and Wallace (1997) showed that a decrease in social ties was associated with increased mortality among rural elders in the following eight years, but adjusting for age, education and health eliminated this relationship. In contrast, Eng, Rimm, Fitzmaurice and Kawachi (2002) found that, adjusted for age, education and health, an increasing number of close friends was associated with decreased mortality among men in the following two years. Lund et al. (2000) showed that men whose contact frequency increased or whose network of social ties became more diverse had a significantly increased mortality risk in the following four years. In contrast to these studies, our study separates general changes from specific changes in social resources that occur after partner loss. After partner loss widows and widowers receive more support from their children, friends and significant others (Utz, Carr, Nesse & Wortman, 2002). The current study examines if and to what extent general changes and changes following partner loss in social resources affect widows and widowers' mortality risk.

Thirdly, the present study is the first to consider how different types of relationships affect widows and widowers' mortality risk. Different relationships fulfill different roles and needs, and changes in support and the kinds of support vary by relationship type. A marriage partner is a major resource, as he or she is readily available for support, and extends one's social resources with access to his or her social resources (Lillard & Waite, 1995). In addition, having a marriage partner may promote proactive health beliefs, healthy behavior and discourage risky or unhealthy behaviors (Markey, Markey, Schneider & Brownlee, 2005). However next to their marriage partner, many older adults also rely on their children for instrumental and emotional support, on their close friends and relatives for contact and emotional support and on their neighbors, because of their geographic proximity, for instrumental support (Seeman & Berkman, 1988). The current study explores which types of relationships affect older adults' mortality risk, and how they do so.

Research shows that men and women's social resources differ and that support and social relations affect men and women's mortality differently (Avlund et al., 1998; Lund et al., 2000). Men experience protective effects regarding their mortality risk from smaller networks compared to women (Shye, Mullooly, Freeborn & Pope, 1995). Moreover, women seem to benefit more from receiving support, while men benefit from providing support (Avlund et al., 1998). Previous research also suggests that the marriage relationship provides more instrumental benefits for men, while women are more emotionally invested in marriage (Gove, Hughes and Styles, 1983). Married Dutch men and women exchange similar amounts of emotional and instrumental support with each other, but married Dutch women exchange more emotional support within other relationships than within their partner relationship (Stevens & Westerhof, 2006). Therefore, we examine the relation between social resources and mortality after bereavement for men and women separately.

In sum, this study examines how the loss of a partner and accompanying changes in social resources affect older adults' mortality risk. Using extensive, longitudinal data on social resources, we describe how many others older adults turn to, whether they receive emotional or instrumental support from these others and who these others are, i.e. distinguishes between children, other kin, friends and other relationships. We examine these questions with prospective survival data over 15 years (1992 to 2007).

Methods

Sample

In 1992-1993 (T1), 3,107 participants were interviewed as part of the "Longitudinal Aging Study Amsterdam" (LASA; Deeg, Van Tilburg, Smit & De Leeuw, 2002). The program used a stratified random sample of men and women born between 1908 and 1937, which originated from the "Living arrangements and social networks of older adults" program (Knipscheer, De Jong Gierveld, Van Tilburg & Dykstra, 1995). The oldest people, and especially the oldest men, were overrepresented in the sample. In 1995-1996 (T2; N = 2,545), 1998-1999 (T3; N = 2,076), 2001-2002 (T4; N = 1,691), and 2005-2006 (T5; N = 1,257) follow-ups were performed.

For this study we selected 1,571 married and widowed participants, with at least two observations in LASA, and of whom data were available on all relevant variables. We did not select 735 participants who were observed only once; 455 participants who never married, were divorced or remarried; 303 participants residing in Amsterdam at the time of their death or the census date (June 1, 2007) whose partners' mortality date lacked; and 43 participants with missing health data. Of the remaining 1,571 participants, 987 participants were alive at June 1, 2007 and 584 had died.

Measurements

Participant mortality. Each participant's mortality status was available through registers of the municipalities where participants resided. All deaths occurring before June 1, 2007 were recorded.

Survival time. Computed as years participants lived since their last observation in LASA until their death or until June 1, 2007, survival time ranged from 0.01 to 11.7 years and was on average 2.3 years.

Marital status. We updated participant's marital status at each follow-up using municipal registry data. All partner deaths that occurred before the final observation in LASA were recorded. Since the mortality risk after partner loss is particularly high after recent loss (Elwert & Christakis, 2006), we divided the sample into participants who remained married until their last observation (N = 548 men and 337 women), those who became widowed in the year before their last observation (N = 18 men and 21 women) and those who were widowed longer than one year before their last observation (N = 173 men and 476 women, average duration of widowhood = 13.1 years).

Resources. Data on network size and support were obtained through an extensive network identification procedure, which Van Tilburg (1998) described in detail. In short, we asked older adults to identify their relationships by name, we distinguished seven domains of relationships: household members, children and their partners, other relatives, neighbors, colleagues, fellow members of organizations, and others. In each of the domains, the following question was asked: "Name the people (e.g. in your neighborhood) you have frequent contact with and who are also important to you." The same design of measurements at each observation gave network members identified in a previous observation and others the same chance to be identified in later observations. Next, we distinguished four categories of relationships: children (including children-in-law and stepchildren), kin (siblings, siblings-in-law and other kin), friends and other relationships (e.g. neighbors and acquaintances). At each observation, the total network size was computed as the total number of all identified relationships; the size of the child network as the number of children and children-in-law; the size of the kin network as the number of siblings(-in-law) and other kin; the size of the friend network as the number of friends; and the size of the remaining network as the number of other network members identified.

Participants reported on support they received from each of the nine most frequently contacted network members. If fewer than nine network members were identified, all were selected. The question "How often in the past year did you talk to X about your personal experiences and feelings?" uncovered emotional support and the question "How often in the past year did X help you with daily chores in and around the house, such as preparing meals, cleaning the house, transportation, minor repairs, filling out forms?"

uncovered instrumental support. Answer categories were never (0), seldom, sometimes and often (3). We constructed the following eight support scales by aggregating support scores over the total number of relationships and over the separate numbers of children, kin, friends and other network members: emotional support received from children (1), other kin (2), and friends (3) and other network members (4), and instrumental support received from children (5), other kin (6), friends (7) and other network members (6). Support scales ranged from 0 to 36.

To obtain measures for how social resources changed, we estimated for each participant with a separate regression equation the baseline of social resources (a), the general, or yearly, change in social resources (b) and the specific change after partner loss (c). For each participant, we saved the unstandardized parameters of the regression. The intercept of each regression equation shows the baseline value of social resources (a), a parameter for time shows the average yearly change in social resources over all available observations (b), a parameter for partner loss indicates change in social resources specifically associated with partner loss (c). We estimated regression equations for each type of social resource, network size, emotional and instrumental support, and for each category of relationships, children, other kin, friends and other relationships.

Control variables. Because health and sociodemographic differences are also related with mortality (Bowling, 1987; Lillard & Waite, 1995), age and educational status were included in our analyses as confounding variables. We further adjusted analyses for health with the following five indicators. At their last observation, participants were categorized according to whether they were current smokers (1) or not (0); whether they were no to moderate (0) or heavier alcohol drinkers (1); whether they had two or more chronic diseases; whether they experienced difficulties with one or none versus two or more of the following activities of daily living, climbing stairs, cutting toenails or using transportation; and whether they assessed their own health as poor, sometimes good or bad, or fair (1) versus good or excellent (0). The measure for drinking behaviour was based on a standardized measure of alcohol consumption corrected for sex.

Analysis plan

We conducted separate analyses for men and women. First we determined in multivariate analyses whether older adults' social resources and changes thereof differed by their marital status at the last observation adjusted for their age and education. Next we examined the difference in mortality rates between married and widowed participants. We estimated Cox proportional hazards regression models in SPSS. After adjusting for age, education and health, we estimated the effect of partner loss with the parameter for marital status (model 0). Next, we assessed whether overall social resources and changes in social resources affected older adults' mortality risk by adding the (nine) parameters for total network size, total instrumental and emotional support using the conditional

Table 1. Mens' average dynamics of social resources by marital status

Variables	Married		Widowed		
	Intercept	Yearly change	Intercept	Yearly change	Change after partner loss
Number of ties					
Children	4.68	-0.01	5.17	0.02	-0.54
Other kin	4.55	0.04	4.16	0.07	-0.44
Friends	1.51	-0.06	1.10 *	-0.03	0.09
Other	4.26	0.02	4.18	-0.07	0.44
Total	15.01	-0.01	14.61	-0.01	-0.46
Emotional support					
Children	10.05	-0.11	10.91	0.00	-0.36
Other kin	3.99	-0.01	3.57	0.00	0.47
Friends	1.72	-0.09	1.43	-0.01	0.17
Other	5.75	-0.02	5.89	-0.09	0.51
Total	21.32	-0.23	21.60	-0.08	0.78
Instrumental support					
Children	7.67	0.05	8.66	0.11	0.17
Other kin	2.19	0.08	2.43	-0.03 *	0.37
Friends	0.96	-0.04	0.82	0.03	0.06
Other	4.05	0.04	4.73	-0.09	0.44
Total	14.85	0.12	16.55 **	0.03	1.04

Notes. Means are adjusted for age and education. * $p < .05$, ** $p < .01$, *** $p < .001$.

backward selection procedure (model 1). If a particular resource parameter had a significant effect on mortality, we assessed with an interaction effect whether the effect differed by marital status. In model 2 we assessed which specific relationships types were responsible for the social resource effects. Therefore, we replaced the significant overall resource parameters with the corresponding social resource parameters for each relationship category and determined with the same backward procedure which relationship types were significantly related with mortality and significantly improved the model.

Results

Men

The intercept columns in Table 1 indicate that married men and widowed men had on average similar baseline levels of social resources. For example, at baseline married men had on average 4.68 children in their network and widowed men had 5.17 children. Whether men were married or widowed, on average they reported similar sized networks of social ties, similar levels of instrumental and emotional support at baseline. There were a few exceptions though: widowed men reported having less friends than married men

and receiving more instrumental support.

Married and widowed men mostly experienced similar yearly changes in their social resources (Table 1). Married men, however, had a yearly increase of 0.08 in instrumental support from other kin ties, while widowed men's support decreased. After partner loss most social resources changed significantly. For example, the last value on the first row of -0.54 shows that widowers identified on average 0.54 less children in their network as important and frequent contacts. Widowers' networks became smaller after partner loss, particularly the children and the other kin networks decreased in size, but other networks increased. These losses in network size contrast with gains in emotional and instrumental support, particularly from other family and non kin ties.

Next, we estimated the effects of partner loss on older men's mortality hazard (Table 2). Model 0 shows that men who were less than one year widower at their final observation had a 2.1 higher mortality hazard than men who remained married throughout the course of this study. Prolonged widowers did not have a significantly different mortality hazard than men who remained married. Thus, recent widowers had a higher mortality risk than married men and prolonged widowers.

The next model, Model 1, shows that next to marital status, mortality among men was associated with the overall yearly change and the specific change after partner loss in the total network size. Model 1 containing a parameter for the overall yearly change in the number of ties and one for the specific change in ties after partner loss has a significantly improved model fit over model 0 ($\chi^2_{(2)} = 6.00, p < .05$). Since yearly change in network ties did not have a statistically significant interaction effect with marital status, we concluded that the overall effects of social resources did not differ by marital status. Thus, the two parameters show that when older men's networks increase, their mortality hazard is lower. This is the case, when their networks increase in general as well as when their networks increase specifically after partner loss.

Finally, we explored which types of ties affected older men's mortality hazard. After replacing the parameters for change in network size with parameters for change in specific relationship networks, recent widowers higher mortality increased to 2.4 that of married older men (Model 2). Adding these parameters fitted the data significantly better than the previous models (Model 0 versus model 2: $\chi^2_{(3)} = 14.08, p < .01$). Model 2 revealed that yearly increasing numbers of children decreased older men's mortality hazard. The parameter for the yearly changing number of children did not have a statistically significant interaction effect with marital status, indicating that yearly changes in the number of children affected the mortality hazard of married older men and widowers alike. Moreover widowers whose number of children and other family ties in their network increased after partner loss, had a lower mortality hazard (HR increase children = 0.90; HR increase other kin = 0.94). Thus general changes in child networks

Table 2. Hazard ratios of death associated with dynamics in social resources, including marital status, for men

Variables	Model 0		Model 1 ^c		Model 2 ^c	
	HR ^a	95 % CI ^b	HR ^a	95 % CI ^b	HR ^a	95 % CI ^b
<i>Marital status</i>						
Married						
Widowed (< 1 yr)	2.11	1.39 – 3.20	2.26	1.49 – 3.45	2.37	1.55 – 3.60
Widowed (> 1 yr)	1.07	0.85 – 1.33	1.06	0.84 – 1.32	0.99	0.79 – 1.25
<i>Overall yearly change</i>						
Number of ties			0.92	0.86 – 0.98		
<i>Overall change after partner loss</i>						
Number of ties			0.97	0.95 – 1.00		
<i>Specific yearly changes</i>						
Number of children					0.72	0.60 – 0.87
<i>Specific changes after partner loss</i>						
Number of children					0.90	0.84 – 0.97
Number of other kin ties					0.94	0.90 – 0.99

Notes.^a Hazard ratios were adjusted for age, education and health; ^b CI = Confidence Interval; ^c Model 1 and 2 were based on a backward procedure. Model 1 excludes the baseline number of ties, the baseline level of emotional and instrumental support and the yearly changes and changes after partner loss in support. Model 2 excludes the yearly changes in the number of other kin, friends and other ties and the changes after partner loss in the number of friends and other ties; -2 Log-likelihood Model 0 = 3486.07, Model 1 = 3480.06, Model 2 = 3471.99.

affect widowers and married men's mortality hazard similarly, and widowers have protective effects of their social resources when the size of their children and family networks increase after partner loss.

Women

Like men, married and widowed women also appeared to have similar baseline levels of and general dynamics in their social resources (Table 3). There were other and a few more exceptions though. Widows reported receiving more instrumental support, not only from their children, but also from other kin ties and from other non family ties. Moreover, in contrast to men, women experienced different changes in their social resources. Widows reported a small yearly decrease in the overall amount of instrumental support they received and a decreasing number of other family ties while married women reported increases here. Among widowed women, almost all social resources increased after partner loss. Only the number of children in the network did not increase after partner loss.

Table 3. Women's average dynamics of social resources by marital status

Variables	Married		Widowed		
	Intercept	Yearly change	Intercept	Yearly change	Change after partner loss
Number of ties					
Children	4.60	0.00	4.79	-0.03	-0.04
Other kin	4.44	0.06	4.56	-0.06 *	0.56
Friends	1.88	-0.07	1.59	-0.08	0.21
Other	3.63	0.02	3.79	0.01	0.37
Total	14.55	0.02	14.72	-0.15	1.11
Emotional support					
Children	10.95	0.01	10.77	-0.10	0.42
Other kin	4.90	0.03	5.23	-0.09	0.76
Friends	2.34	-0.10	2.25	-0.08	0.51
Other	5.55	-0.03	6.08	0.00	0.30
Total	23.56	-0.08	24.14	-0.27	1.99
Instrumental support					
Children	7.21	0.09	8.43 **	-0.06	0.67
Other kin	2.19	0.09	2.76 **	0.00	0.45
Friends	1.04	-0.04	1.20	-0.05	0.39
Other	3.05	0.05	3.66 *	0.03	0.28
Total	13.47	0.19	16.04 ***	-0.07 *	1.81

Notes. Means are adjusted for age and education. * $p < .05$, ** $p < .01$, *** $p < .001$.

Our next analyses revealed that widows did not have higher mortality hazard than married women and that women benefit from the baseline level of emotional support and increases in instrumental support from their entire network (Table 4). The absence of a statistically significant effect for marital status in model 0 indicated that, unlike men, widowed women, whether they were recently or long term widowed, had a similar mortality hazard as married women adjusted for their age, education and health. In model 1 three of the nine added parameters were statistically significant and these three parameters significantly improved the model fit with the data ($\chi^2_{(3)} = 15.80$, $p < .001$). Model 1 shows that married and widowed women have a lower mortality hazard when they received higher levels of emotional support at baseline, but their mortality hazard was higher when they identified more ties at baseline. In addition, the mortality hazard of widows was lower if their instrumental support increased after widowhood. We also explored whether specific relationship types were associated with the overall effects of social resources on women's mortality hazard, but none of the parameters for specific

Table 4. Hazard ratios of death associated with dynamics in social resources, including marital status, for women

Variables	Model 0		Model 1 ^c	
	HR ^a	95 % CI ^b	HR ^a	95 % CI ^b
<i>Marital status</i>				
Married (reference category)				
Widowed (< 1 yr)	1.23	0.65 – 2.30	1.31	0.74 – 2.32
Widowed (> 1 yr)	1.40	1.00 – 1.98	1.53	1.08 – 2.16
<i>Baseline level of social resources</i>				
Number of ties			1.03	1.01 – 1.04
Emotional support			0.97	0.95 – 0.99
<i>Overall changes after partner loss</i>				
Instrumental support			0.97	0.94 – 0.99

Notes. ^a Hazard ratios were adjusted for age, education and health; ^b CI = Confidence Interval. ^c Model 1 is based on a backward procedure. Model 1 excludes the baseline level of instrumental support, the yearly changes in number of ties and in emotional and instrumental support and the change after partner loss in the number of ties and in emotional support: -2 Log-likelihood Model 0 = 2803.56, Model 1 = 2787.75.

relationship were statistically significant and replacing the parameters for overall social resources with relation-specific resources did not significantly improve the model. Thus, while a higher baseline number of ties and lower baseline level of emotional support were associated with a higher mortality hazard among older women, our analyses revealed no specific relationships that were associated with these effects. Nor did our analyses reveal any specific relationship types that were associated with the protective effect of increasing instrumental support after partner loss on widows' mortality.

Discussion

This study examined how general changes and changes after partner loss in the social resources of married and widowed older men and women were related to their mortality risk. Like in most other research (e.g. Martikainen & Valtonen, 1996), partner loss increased widowers', not widows', mortality risk, and only the first year after widowhood. Thus this study replicates and confirms that there exists a short-lived bereavement effect after partner loss, but only for men. More importantly, among widowers increasing numbers of ties in their networks, especially ties with children and ties with other family after partner loss protected against mortality. Women's mortality risk was higher when they identified more ties at baseline, but their mortality risk was not associated with an increasing number of ties or with the size of specific relationship networks. In addition, women had a lower mortality hazard when they received higher levels of emotional support, and widows had a lower mortality hazard when their instrumental support increased after partner loss. Women may experience these beneficial effects from all types of relationship. We discuss these conclusions in more detail below.

This study focused on three issues regarding social resources' association with the mortality of married and widowed men and women. First, this study illustrated with rich social resource data how different aspects of social resources were related with mortality in old age, and how these different aspects of social resources affect men and women differently. In line with Cerhan and Wallace (1997) and Eng et al. (2002), our results revealed that men's mortality decreased when the size of their networks increased. Our study adds that the functional supportive aspects of men's social resources, their emotional or instrumental support, did not affect their mortality. In contrast with men, women experienced protective effects from the functional aspect of their social resources. That is, women's mortality risk was lower when they received a high level of emotional support or when their instrumental support increased. Women had a higher mortality risk when they had a higher number of ties. Assuming that support indicates the quality of ties, these results appear to be in line with Gove et al.'s suggestion (1983) that for women the quality of ties is more important than the number of ties. Gove et al. (1983) also suggested that for men the existence of ties is more important, our results add to this that changes in the number of these ties are also important for men.

Secondly our focus on changes in social resources sheds new light on the mechanisms through which social resources may affect mortality. It is not only important to study the existence of social resources, but also whether and at what moment these social resources change. Women experienced beneficial health effects from the overall level of emotional support they received, and they also experienced protective effects when their instrumental support increased after partner loss. Even though women on average experienced increasing levels of social resources after partner loss, it is important to sustain their ability to draw instrumental support from any of their social relationships, while keeping up the overall level of emotional support from their social relationships. For men changes in the number of ties, in general as well specifically after partner loss, appeared to be more important than the average level of ties they had. Unfortunately on average widowers experienced a decreasing number of ties after partner loss. These results imply that it is important to make sure that, instead of losing contacts, widowers are able to gain important and frequent contacts, especially with their children and other family, because these are the specific ties they benefit from.

Thirdly, this study extends existing knowledge by identifying that widowers profit from gains in their children and family ties after partner loss, while widows profit from gains in their instrumental support after partner loss from any of their relationships. Previous research showed that in the Netherlands married men and women reported similar sized and composed core networks existing of predominantly children and family ties, but men reported less involvement with others outside their marriage than women (Stevens & Westerhof, 2006). Lund et al. (2000) showed that men whose network of social ties

became more diverse had a significantly increased mortality risk in the following four years. Since during marriage men were less involved in other relationships, turning to a variety of other relationships after partner loss may be too demanding for men to derive beneficial health effects. These results again seem to indicate that men may derive the most beneficial health effects from their social resources if they can turn to their core networks, especially their children and family ties.

Taken together these results seem to indicate that it is not support, but something else in their social resources, and in particular their children and family ties, from which men experience health effects. One mechanism could be that children and family ties substitute for the routine tasks of spousal health support and supervision after partner loss (Elwert & Christakis, 2006). Another mechanism could be that men feel a sense of responsibility for their children and family ties that may promote their healthy behavior. Markey et al. (2005) speculated that married men's proactive health beliefs originated from an increased sense of responsibility and need to care for themselves in order to provide for their partner and children. In a similar vein, Avlund et al. (1998) showed that men benefited more healthwise from providing support than from receiving support. Our results indicate that decreasing numbers of children and family ties in widowers' networks after partner loss would increase their mortality risk. Could this be because widowers' need to promote their own health diminishes after partner loss and decreases even further when they identify fewer children and family ties as important?

The setup of this study with multiple observations and extensive data on social resources enabled us to differentiate the effects of general changes from changes after partner loss and identify which types of relationships are important to keep widowers and widows mortality risk at a minimum. Still, our study also has some limitations. Our results are not directly generalizable to the entire Dutch population, because of the absence of Amsterdam-based respondents. Moreover since the data refer to Dutch older adults, the question remains as to whether social resources would show similar changes and effects on mortality outside the Netherlands.

Research on social resources and widowhood suggests that during the transition into widowhood older adults experience rapid and extensive changes in their social resources (e.g. Utz et al., 2002). Meinow, Kareholt, Parker and Thorslund (2004) found that especially those variables that changed rapidly had very short-term predictive power in mortality research. Unfortunately, due to missing data in the observations shortly after bereavement, information on social resources close to the date of bereavement was not available. To obtain such data, future research should focus on obtaining as many observations as possible as close as possible to the date of partner loss. We would advocate a set up similar to the CLOC study (Carr, Nesse, & Wortman, 2005), that observed widows and widowers before and at six, twelve and forty-eight months after

partner loss, preferably with observations even sooner after partner loss.

Finally, the likelihood of our study finding large effects of bereavement may have been limited, because we studied the effect of bereavement in old age. This is so, because as a population ages, the surviving population increasingly consists of a selective group of persons with lower age-specific mortality (Crimmins, 2001). These older adults may have survived to this age because they were exposed less frequently or have been less vulnerable to environmental risk factors than the older adults who did not survive to this age. Although the effects are small in absolute numbers, bereaved older men have a higher mortality risk than non-bereaved men of equivalent age. That we still found increased mortality among on average 80-year-old men not only signifies the stressful impact of bereavement for older men but also indicates that with the loss of their partner these men have lost a significant protective factor against mortality.

In conclusion, this study shows how important changes in the social resources of older adults can be for their health. Losing a partner temporarily increases older men's mortality risk, which is aggravated if their children and family networks decrease as well. Regarding their mortality, married women and widows benefit from the broad range of social resources available in their networks of personal relationships. Moreover, widows experience additional benefits from their social resources when their instrumental support increases after partner loss. More generally, our work suggests that both men and women derive benefits from their social resources, for example when they can rely on these resources after partner loss, and men and women obtain these benefits in their own particular way.

Chapter

6

General Conclusion

Conclusion

The present study examined the interplay of changes in social and personal resources and consequences of these changes for loneliness and mortality among widowed and married older adults in the Netherlands over a period of fifteen years around the end of the twentieth century. In line with recent theoretical insights regarding widowhood in late life (Carr & Utz, 2002), this study highlights that in the process of adjusting to widowhood resources, such as support, change after, as well as before, partner loss and that these changes have various consequences during widowhood. In contrast with previous research that has often neglected the dynamic and multifaceted aspects of the adaptation process to late life widowhood, this study contributes to understanding the adjustment process by explicitly focusing on various changes in personal and social resources and various consequences of widowhood over a period of ten years. In this way, this study incorporates the dynamic and multifaceted aspects of adjustment to widowhood. Specifically, this study focused on changes in two aspects of social resources:

- Structural aspects of social resources: a broad range of relationship types and contact frequency
- Functional aspects of social resources: provision and receipt of emotional and instrumental support

In addition this study examined two possible consequences of widowhood.

- Emotional and social loneliness
- Mortality

Furthermore this study took into account the influence of different elements of personal resources:

- Mastery and health.

These five elements in the adaptation process of widowhood have been translated into four research questions that guided our analyses in the previous chapters. This chapter concludes our study with a summary of the answers to the research questions, followed by a discussion of the resulting theoretical and practical implications, methodological implications, promising directions for future research, and overall conclusions.

Changes in social resources

Question 1: How do contact and support change before and after widowhood? How do changes in contact and support in several types of relationships among widowed differ from changes among married older adults?

In the second chapter in this book I investigated this first question. The convoy model of personal relationships proposes that as needs and circumstances change, personal relationships come and go and levels of contact and support rise and fall (Antonucci & Akiyama, 1984). With the convoy model as a guideline I examined how *levels of contact*

and support changed among 227 older adults who became widowed and 408 older adults who remained married during a period of ten years. Between 1992 and 2002 these older adults were interviewed several times, at least two times and at most four times, in the context of the Longitudinal Aging Study Amsterdam (LASA). Trained interviewers visited the participants and questioned them about, among other things, their networks of personal relationships. During the interview, older adults identified their relationships with various individuals of 18 years and older by name. Following a domain-specific approach (Van Tilburg, 1995), older adults identified, in this order, household members (including the spouse), children (including stepchildren) and their partners, other relatives, neighbors, colleagues (including voluntary work or school), fellow members of organizations (e.g. athletic clubs, church, political parties), and others (e.g. friends and acquaintances). To ascertain that older adults had the same chance of identifying all of their network members, regardless of whether they had identified them in a previous observation, this procedure was the same in all of the four observations. Interviewers asked how often older adults were in touch with each of their personal relationships, with answer categories ranging from never to daily. Furthermore, older adults reported on the support they exchanged with at most nine of their network members with whom they had the highest contact frequency. The answer to the question “How often in the past year did X help you with daily chores in and around the house, such as preparing meals, cleaning the house, transportation, minor repairs, filling out forms?” indicated the amount of *instrumental support* a participant received from that particular network member; and “How often in the past year did you talk to X about your personal experiences and feelings?” indicated the amount of *emotional support* received. For support given, the questions were reversed. The answer categories were never (0), seldom, sometimes, and often (3). Thus, at the dyad level participants reported on the contact frequency with each of their network members and on their support exchange with their most frequently contacted network members.

To answer the first part of my question, I examined how contact and support with their network members changed among older adults who lost their partner with longitudinal analyses. As was suggested in the convoy model, widows and widowers experienced a wave-like fluctuation in their contact and support levels. On average 3 years before married older adults lost their partner, the frequency of contact with the members of their personal relationship networks was at a low level. While older adults had low levels of contact with their network members and received low levels of emotional and instrumental support at that time, from then on older adults and their network members increased the frequency of contact and the amount of support they exchanged with one another. Thus before widowhood, older adults already had experienced increases in their social resources. These increases continued until on average 2.5 years after widowhood,

Conclusion

after which contact and support between older adults and their network members started to decrease again. Widows and widowers not only turned to their network of personal relationships for support after partner loss (Utz et al. 2002, Wenger, 1990), our study points out that they already did this before they lost their partner. In this way changes in personal relationships appear to be associated with changes in roles and ensuing changes in needs for support. These changes substantiate how older adults' personal networks function as a convoy of support (Antonucci, 2001).

Next, I showed that changes in contact and support were specifically related to widowhood by comparing older adults who lost their partner with older adults who remained married throughout the study. As a group, widowed older adults exchanged similar amounts of contact and support as continuously married older adults. After widowhood, however, widowed older adults experienced changes in contact and support that married older adults did not. Among widowed older adults the emotional support they received from and provided to their network members increased. They also received more instrumental support from their network members, but they provided their network members with less instrumental support. Thus, these changes in contact and support appear to be focused on the widowed older adults and network members in the support networks of older adults are attentive to changing needs of widows and widowers.

Contact and support do not change in the same way in all relationships in the networks of older adults. The convoy model expects that as older adults age, they will attach a growing significance to their family relationships and set less store by their other role-based relationships because of role loss (Antonucci, 2001). In a similar fashion, Carstensen, Isaacowitz and Charles (1999) suggested that close relationships become more important when individuals sense that their future has become limited as the end of their own life draws nearer. Conversely, in the process of adjusting to widowhood, increased needs may force older adults to expand their networks (Bowling, Farquhar, & Grundy, 1995). In this study I distinguished several types of relationship. Children, children in law, siblings, and friends were deemed close relationships, while extended kin, neighbors and other acquaintances were not considered to be close. Results suggested that older adults indeed tend to focus on close relationships in the process of aging. Older adults who remained married changed their personal network in favor of close kin and close friends. Moreover over time the relationships among older adults and their children seemed to strengthen as they received increasingly larger amounts of instrumental support from their children. In contrast with "close" relationships, aging older adults appear to move away from the broader range of their relationships, because they decreased contact and support with extended kin and neighbors faster than with other relationships. On the other hand, when older adults became widowed, they increased their contact and supportive exchanges over a broader range of relationships. Larger

increases in contact and support in the children and sibling relationships of widowed older adults than in other relationships showed that children and siblings responded more strongly to widowed older adults' needs than other types of relationship. This does not mean that other types of relationships did not respond to a widowed older adult's situation. After partner loss older adults increased their contact and support with all types of network members, and friends turned out to be a major source of contact. The fact that contact and the different types of support change differently in the various relationships of the network confirms that these relationships fulfill different roles and needs (Antonucci, 2001). Although different types of relationships provide older adults with different amounts of contact and support, all types of network members respond by increasing their support after partner loss.

Consequences of widowhood and changes in social resources

Question 2: How are changes in social resources related to changes in loneliness among widowed older adults?

In the third chapter of this book I described how the relational theory of loneliness (Weiss, 1975) and the deficit model of partner loss specify deficits after spousal loss that form the root of specific types of loneliness and which type of support other network members can provide that may resolve widows and widowers' loneliness (Stroebe, Stroebe, Abakoumkin, & Schut, 1996). After married older adults lose their partner, they may feel that they lack the security of a reliable close and intimate attachment bond that they used to have with their partner. The type of loneliness resulting from this deficit is referred to as emotional loneliness (Weiss, 1975). Widows and widowers may also feel that some relationships in their network turn out to be inadequate or unresponsive. Social loneliness develops, when this experience gives rise to a perceived lack of social integration or embeddedness in a social network. Loneliness should be resolved in the extent to which other network members are able to make up for these deficits. According to the conservation of resources theory, the loss of a spouse has an immediate and long-lasting impact on stress levels of widowers and widows (Hobfoll, Ennis, & Kay, 2000; Wells, Hobfoll, & Lavin, 1999). Even though widows and widowers immediately invest their other resources to regain what was lost with their partner, the effect of such investments only surface after the stressful impact of partner loss has faded. This led us to expect that after spousal loss older adults experience simultaneously occurring increases in their social resources and loneliness, and that the increase in social resources has a delayed effect, in other words that some time after social resources have increased a decrease in loneliness will follow.

To distinguish these simultaneously occurring changes from sequential changes in

Conclusion

support and loneliness, I compared widowed older adults' mean levels of emotional support received from their network and their self-reported loneliness at three points in time. From LASA, I selected for all widowed respondents the last observation before they lost their partner and the first two observations after they had lost their partner. This enabled us to differentiate the changes that occurred in the interval between the last observation before and the first observation after older adults lost their partner from those that took place between the first and the second observation after partner loss.

As expected, losing a partner had a serious impact on older adults' loneliness. Widows and widowers reported increased levels of emotional and social loneliness. The results also indicated that they were affected much more on the emotional level than on the social level. Widows and widowers reported a greater increase in emotional loneliness than in social loneliness after they lost their partner. Corroborating that the impact of resource loss lasts long, after four and a half years widowed older adults reported that their loneliness remained higher than it was before they lost their partner. Thus the loss of the partner is associated with loneliness, and more with the emotional than with the social side of loneliness.

Confirming that the impact of resource loss lasts longer than of resource gain (Wells, Hobfoll, & Lavin, 1999), widows and widowers still reported increased emotional loneliness at the second observation after partner loss, even though they received increased amounts of emotional support after partner loss. As expected, in the first period during which older adults lost their partner, increases in loneliness and increases in support were positively correlated. Increased support did not, however, have the expected delayed effect on emotional loneliness, as widows and widowers who had the highest emotional loneliness at the second observation during widowhood also reported higher mean levels of emotional support. On the other hand, there were signs that the expected delayed effect did occur for social loneliness. Widows and widowers who received more emotional support at the second observation during widowhood also reported lower levels of social loneliness. Thus increases in emotional support do not appear to protect widowed older adults from increases in emotional loneliness after their partner loss, but do protect older adults from increases in social loneliness during widowhood.

I found neither evidence for the suggestion that increased support could substitute for the deficit in emotional attachment left by partner loss immediately, nor that effects of increased support on emotional loneliness would surface in the long run, as was suggested by the conservation of resource theory. In chapter three, I suggested that there may be two explanations for this finding. First, support from others may also have negative effects (La Gaipa, 1990) and older adults' closest network members are the most likely to bring about negative effects with their support (Antonucci, Akiyama, & Lansford, 1998). For

example, high levels of support from children may diminish older adults' sense of independence (Lee, Netzer, & Coward, 1995), and frustrate older adults' attempts to come to terms with their loss on their own. Secondly, older adults may lose with their partner such an important intimate attachment figure that gaining support alone is not enough to resolve emotional loneliness. Even though support from others may come in place of partner support, it does not compensate for emotional loneliness associated with partner loss (Zettel & Rook, 2004).

Differentiating social loneliness and emotional loneliness is meaningful theoretically and practically. The conservation of resource theory incorporates a broad range of other resources that promote resiliency (Hobfoll, 2002). Our results suggest instead of social resources other resources should be examined as protective factors for emotional loneliness. For practice, our results highlight that improving social resources may alleviate social loneliness after partner loss, but is unlikely to alleviate emotional loneliness after partner loss.

Question 3: How are personal and social resources related to loneliness among widowed and married older adults?

In the fourth chapter I elaborated on the result that partner loss has such an impact on emotional loneliness that gaining support alone is not enough to reduce this type of loneliness. In line with the conservation of resource theory (Hobfoll, 2002), which incorporates a broad range of resources other than support, I investigated whether resource gain in other areas, namely mastery, in addition to support altered the effects of widowhood on emotional loneliness. I expected that after partner loss older adults with high levels of mastery, which is defined as a global sense of control over forces affecting individuals' lives (Pearlin, 1999), and high levels of support would derive more benefits from their support than older adults without either a high sense of mastery or a high level of support. While this would matter especially in response to partner loss, I expected that among older adults who remained married either a high sense of mastery or a high level of support would be enough. Therefore, I examined how social and emotional loneliness were related to mastery and support among widowed and married older adults. I selected from LASA widowed older adults with a pre and post-loss observation, and matched them with married older adults with two comparable observations. With these observations I established for each older adult the baseline level of mastery and the total baseline amount of emotional support they received from their network. Furthermore, I established to what extent older adults had increased levels of mastery and support at their second observation, which was the observation after partner loss for widows and widowers. In this way, I examined to what extent changed resources affect loneliness over and above the effects of previous levels of resources and whether the effects of these

Conclusion

changes differed when marriage continued or not.

As expected, mastery and support each were important resources. Older adults were less emotionally lonely when their previous sense of mastery or level of support was higher. Older adults were less lonely when they had a higher sense of mastery to compensate for a lack of support, but high levels of support only partly compensated for a low sense of mastery. Unexpectedly, having a high sense of mastery as well as a high level of support did not protect older adults against the impact of partner loss on emotional loneliness. Changes in mastery affected emotional loneliness over and above the effects of previous levels of mastery. Moreover, as expected, these changes in mastery appeared to matter most after partner loss. Widowed older adults experienced larger decreases in emotional loneliness when their mastery increased than married older adults did when their mastery increased. Changes in support did not affect emotional loneliness. Taken together, older adults' sense of mastery appears a better protective resource for emotional loneliness than the support they receive from personal network members.

Consequences of widowhood on mortality

Question 4: How do changes in social resources affect older adults' mortality risk after partner loss?

In the fifth chapter of this book I examined to what extent married and widowed older adults' mortality risk was affected by changes in their social resources and whether it mattered if these changes were related to partner loss or not. For all participants in LASA who had at least two observations I estimated with separate regression estimations how social resources changed. In this way, I obtained for each participant measures indicating his or her baseline level of resources, the average yearly change in resources and the specific change in resources after partner loss. Regression equations were estimated for each type of social resource, network size, emotional and instrumental support, and for each category of relationships, children, other kin, friends and other. With Cox proportional hazard regression models I estimated the difference in mortality rates over 15 years between married and widowed older adults, adjusted for age, education and health, for men and women separately. Next, I assessed with an elaborate procedure to what extent overall social resources and changes in social resources affected older adults' mortality risk.

Like other research (e.g. Martikainen & Valtonen, 1996), this study showed that partner loss increased widowers' mortality risk, but only in the first year after partner loss. Following the loss of their partner, increasing numbers of ties in the personal networks of widowers, especially with children and of other family members were protective against mortality after partner loss. Increasing numbers of children in their networks were

associated with lower male mortality among married men and widowers. In contrast to widowers, widows did not have a higher mortality risk after the loss of their partner than married women. Furthermore, results indicated that women's mortality hazard was higher when they identified more ties, but their mortality hazard was not associated with changes in their number of ties or with the size of specific relationship networks. In addition, women had a lower mortality hazard when they received higher levels of emotional support, and widows had a lower mortality hazard when their instrumental support increased after partner loss. Since no specific relationship types were associated with these effects, this indicates that women may experience beneficial effects from all types of relationship.

Theoretical implications

Before turning to specific practical implications of this research, I would like to discuss some more general theoretical issues. This thesis was built on the notion that widowhood is a multifaceted transitional process (Carr & Utz, 2002). Thus this study included multiple antecedents and consequences of widowhood and it focused on the dynamics of changes during the adjustment process. To theoretically understand these changes this study used several theoretical perspectives that were partly overlapping and partly complementary. The conservation of resource theory (Hobfoll, 2002) elaborates on a general level on resource dynamics. This theory focuses on the sequence of resource loss and gain and the timing of effects of these changes. The convoy model (Kahn & Antonucci, 1980) helps to understand specific dynamics in personal networks of older adults, but is not very clear about how these changes affect older adults' loneliness. The relational theory of loneliness (Weiss, 1975) specifies two forms of loneliness and the deficit model of partner loss suggests which resource deficits develop after spousal loss and to what extent alternative resources fill these deficits (Stroebe et al., 1996). The deficit model, however, passes on the dynamic nature of resources. Using these different theoretical viewpoints this study was able to clarify some of the dynamics in the adjustment process to widowhood.

By focusing on the dynamic aspects of the widowhood adjustment process, this study showed that some changes, such as increased emotional loneliness, persist over longer periods. Other changes, such as in social resources, are only temporary. This is consistent with the convoy nature of supportive networks, as support increases and decreases in accordance with changing needs and roles (Antonucci, 2001). In line with the conservation of resource theory (Hobfoll, 2002), a major resource loss, such as spousal loss, has an immediate impact, but effects of resource gain, such as increased support following partner loss, surface after the initial impact of resources loss has abated. After widowhood, surviving older adults report a relatively small and temporary increase in

Conclusion

social loneliness and higher levels of emotional loneliness that persist over a longer period of time. Changes in support protect widowed older adults from increases in social loneliness after widowhood. In contrast with expectations derived from the deficit model and the COR model changes in support do not protect widowed older adults from emotional loneliness after widowhood. Increased mastery did protect older adults the impact of partner loss on emotional loneliness, but decreased mastery exacerbated the impact of partner loss. Having focused on multiple facets in the adjustment process, this study shows that the difference in emotional and social loneliness after partner loss is theoretically meaningful, as emotional and social loneliness develop according to different mechanisms.

Just as each of the three used theories added to our understanding of the widowhood adjustment process, other theoretical perspectives may fill the gaps in understanding that this thesis could not explain. For example, in line with the convoy model this study showed that levels of support drop after three years, but did not clarify whose needs or circumstances changed. Either network support may have helped widowed older adults to adjust to their loss or network members just returned to their day-to-day activities and network support did not help. If I could clarify why network members provide support, this might improve our understanding of how support works during the adjustment process to widowhood. The theoretical perspectives in this study focus on the widowed older adults, but do not pay attention to why their significant others provide support. Still, this study's results suggest that older adults and their networks care for each other and that widowhood also means the loss of a significant other for many network members. Thus, it may be that, like widowed older adults turn to their network members, network members also turn to the widowed older adults to find emotional support. A dyadic theoretical perspective may provide answers to such questions.

Another example, this study could not clarify why older adults report high levels of emotional loneliness long after widowhood. The significant relationship between mastery and emotional loneliness in this study suggests that emotional loneliness is more a psychological deficit than a social deficit. A recent study showed that some grief reactions, such as anniversary reactions, occur as long as twenty years after spousal loss, but that this is not necessarily a bad thing (Carnelley, Wortman, Bolger, & Burke, 2006). These reactions may serve as an opportunity to relive memories about the lost spouse and express a continuing involvement with a lost spouse. Similarly, increased emotional loneliness might also be an expression of this continuing involvement. Recent developments in attachment theory that focus on whether older adults derive a sense of security from their marriage partner may explain how widowed older adults may cope with emotional loneliness. Fraley and Bonanno (2004) suggest that secure people may draw on positive memories or experiences with their partner in a way that brings them

solace and comfort. This might explain how widowed older adults are able to cope with the experience of emotional loneliness.

This study showed that using different theories has particular advantages, but also has some limitations. Because each theory approaches spousal loss from a different angle, each theory contributed distinctive aspects to our understanding of this complex transition (Van Baarsen et al., 2001). The three theoretical perspectives contributed to our general understanding of how dynamics in this transitional process are related. Main concepts, such as resources, were broadly defined. The conservation of resources theory, for example, defines resources as comprehensive construct that covers those entities that are either valued in their own right, such as close attachments or self-esteem or act as a means to obtain valued goals, such as money and support (Hobfoll, 2002). To understand changes in social resources more specifically, this study shifted from a broad definition of resources to the narrower theoretical perspective of the convoy model. In this way this study highlights the convoy function of a supportive network. To gain understanding of even more specific mechanisms, such as why emotional loneliness persists, future research might focus on even more specific theoretical perspectives.

Methodological implications

This study is based upon data of the Longitudinal Aging Study Amsterdam. Using this rich dataset allowed this study to use prospective longitudinal data, contrast the bereaved with a non-bereaved control group, and adjust for pre-loss characteristics or resources, such as gender, education and network size that may affect consequences of widowhood. Furthermore, this dataset provided extensive measures of older adults' social resources and several consequences of widowhood. Data about changes in contact and changes in emotional and instrumental support, as well as data about emotional and social loneliness and the risk of mortality were available. Moreover, this study was able to differentiate the different relationships in older adults' personal networks, close and extended kin, neighbors, close friends and acquaintances. Nevertheless, results of this study may still be limited in some ways. In each of the chapters, these limitations have been described in detail. Here I will discuss a few, more general, limitations of this research and their methodological implications.

First, because this study is based on a Dutch survey, the results reported in this study may be limited to Dutch older adults. How older adults adjust to widowhood and how changes in contact and support are related to consequences of partner loss may differ outside the Netherlands. In their cross-sectional comparison of older adults' social networks in four nations, Antonucci et al. (2001) reported that illness and widowhood was a common experience for older adults in France, Germany, Japan and the United States, but that these experiences affected the networks of older adults in these nations

Conclusion

differently. In the United States widowhood and illness had less impact on the social networks of older adults than in France, Germany or Japan. This suggests that role expectations of being widowed, such as what widowed older adults expect from their network members and how older adults respond to them, vary in different nations. Similarly, how older adults experience loneliness may differ in different nations (Van Tilburg, Havens, De Jong-Gierveld, 2004). To what extent the results reported here apply to older adults in other countries is a question for future research.

Based on LASA, one of the strengths of this study was that I could control the research design so that I could optimally answer the specific research questions in each of the chapters. In chapter 2, for example, I used a matched control group design in our first chapter. In chapter 3 I used a longitudinal design of widowed older adults only. In chapter 4 I compared widowed and married older adults but used only two observations. In chapter 5 I used all available observations of older adults who were married at T1. These choices may have also limited certain aspects of our results. Here I will discuss matching as an example. Due to the matching procedure, married and widowed respondents were similarly distributed across gender and five-year age span. This made respondents more readily comparable. Thus, the results optimally describe changes in networks of widowed older adults as compared with the married older adults. Respondents still could have been different in many unobserved ways, like on the characteristics of their spouses. It might be possible to explain more of the interindividual variability, if I could take these unobserved differences into account. One might expect, for example, that a survivor of a much loved spouse may experience a stronger increase in contact and support than a survivor of a less loved spouse. Even though such choices may limit certain aspects of this study, taken together these choices have enabled us to more fully understand the interrelationships of the different dynamics in the widowhood process. Thus one should bear in mind that choosing an optimal research design for a specific research question may have limiting consequences on other aspects of a study.

One advantage of this study was that multiple measures for social resources and several measures of possible consequences of widowhood were available. Still, some measures were lacking in this study. Therefore, even though this study gained understanding of the widowhood process, some specific theoretical mechanisms were not fully investigated. I have three examples where this was the case: information on needs, coping and attachment was not available. First, I assumed that changing needs are the crucial underlying mechanism under changes in personal relationships. Unfortunately, due to the absence of a good measure for needs I cannot be certain whether older adults successfully adjusted to widowhood (reducing the need for support), or whether support deteriorated because network members withdrew their support for other reasons. Secondly, without coping measures this study could not assess to what degree older

adults themselves consciously sought support or were offered the support regardless of whether they asked for it. Therefore, there is still a slight possibility that more positive effects of support on emotional loneliness failed to appear because widowed older adults did not actively seek support (Zettel & Rook, 2000). Thirdly, alternative explanations for emotional loneliness may be found in attachment theory, such measures however were not available. The results that emotional loneliness persists over time and is related to (changes in) mastery, but not to changes in social resources led to the conclusion that emotional loneliness is due to attachment deficits rather than social deficits. Incorporating attachment related measures, such as avoidance and anxiety (cf. Fraley & Bonnano, 2004) could further our comprehension of how emotional loneliness develops and in what way support may help older adults cope with emotional loneliness. Taken together, these examples show that to further understanding of the widowhood adaptation process future research would be gained if more specific measures that represent specific theoretical constructs were included.

Practical implications

Previous research established that widows and widowers turn to their network of personal relationships for emotional and instrumental support to cope with widowhood (Utz et al. 2002; Wenger, 1990), thus older adults' personal networks function as a convoy of support (Antonucci, 2001). Our results strengthen the notion of personal networks as supportive convoys in several ways. First, our results add that older adults turn to their network members for support before they lose their partner. The fact that contact and support increase before partner loss confirms that older adults' support networks are attentive to their changing needs, and they continue doing so during the transition into widowhood. Secondly, changes in emotional support show that widowed older adults also care for their network members. Widowhood is not merely a loss for the spouse; network members have also lost someone significant (a parent, a friend, a neighbor). Thus, upon widowhood both the widowed older adults and their network members may need the other's emotional support. Still, changes in instrumental support show that widowed older adults are the focal person. While adjusting to widowhood, older adults can generally rely on the availability of their social resources.

Having established that increases in social resources are only temporary, while emotional loneliness persists over time, suggests that emotional loneliness requires further attention. Since emotional loneliness is a long lasting consequence after partner loss, widows and widowers might benefit from interventions that help them deal with emotional loneliness. This study showed that increases in social support do not appear to relieve older adults' increased emotional loneliness in the first four years after widowhood. However, the fact that increased mastery reduced emotional loneliness

Conclusion

suggests that interventions would be more effective in reducing emotional loneliness when they focus on enhancing mastery, e.g. by social skills training, instead of on improving social resources. Indeed, interventions that focused on a combination of mastery, social skills and social resources have been found to reduce loneliness among older women within one year after the intervention (Stevens, Martina, & Westerhof, 2006). Besides, widowed older adults cannot rely on their personal relationships indefinitely, since it appears that in the third year after widowhood contact and support start to decrease. Thus, after three years widows and widowers might benefit if they have the social skills to maintain their supportive networks. Thus, interventions could be designed to increase mastery in a way that helps older adults manage their personal relationships.

Additionally, this study showed that contact and the different types of support (provision) change differently in the various relationships of the network. While close kin relationships appear to be mainly responsible for increases in emotional support after widowhood, close friends emerge as major providers of contact and neighborhood relationships stand by with their instrumental support. These results confirm that different types of relationships fulfill different roles and needs in the convoy (Antonucci, 2001). Stevens (1995) demonstrated how to assess relational needs. Since widowed older adults' needs may change over time, assessing widows and widowers' needs may improve interventions by aiming them at the specific relationships that fulfill these needs.

Promising directions for future research

Here I would like to discuss two promising directions for future research that may extend the current knowledge about the dynamics in the adjustment process to widowhood. One direction focuses on the different individual pathways widows and widowers may follow while adjusting to widowhood (Bonanno, Wortman et al., 2002; Bonanno, 2005). The other avenue emphasizes how individuals balance positive and negative experiences while adjusting to widowhood, a process known as oscillation in bereavement literature (e.g. Stroebe et al., 1996).

First, a growing body of research shows that individuals follow different trajectories in their grief and wellbeing while adjusting to bereavement (Bonanno et al., 2002). These studies consistently show that while some individuals may show a classic grief pattern following their loss, where widows and widowers experience a temporary decrease in their wellbeing immediately after partner loss, but in time their wellbeing returns to pre-loss levels. The most common response to potential trauma, such as partner loss, is a pathway of rather stable levels of wellbeing, called resilience, rather than a decrease in wellbeing followed by recovery (Bonanno, 2005). Still others either show chronic grief reactions or delayed grief reactions. Chronically grieving individuals have decreased levels

of wellbeing long after they lost their partner, while delayed grievers initially showed no signs of decreased wellbeing, but in time their wellbeing decreases. It would be interesting to examine whether similar trajectories exist for the different types of loneliness studied here. The three theories I used in this study all more or less assume that following partner loss wellbeing decreases and loneliness increases, however the absent and delayed trajectories do not show decreased wellbeing immediately after partner loss. Bereavement research would benefit when future theoretical developments explain why some individuals show no signs of decreased wellbeing or increased loneliness after partner loss.

If such individual trajectories of loneliness exist, it would be even more interesting to differentiate these trajectories and study how they are related to changes in social resources. While this study begun to explore this issue (Chapter 3), I did not examine whether widows and widowers experienced separate trajectories of loneliness. This study suggests that changes in social resources mirror changes in loneliness to some extent, because widows and widowers who report higher levels of loneliness long after partner loss also have higher levels of support than those who are less lonely. Furthermore, several resource theories (Norris & Kaniasty, 1996), including the conservation of resource theory (Hobfoll, 2002), suggest that when individuals fail to regain sufficient resources after a major loss, loss cycles may develop. My results showed that widows and widowers could not rely indefinitely on the support of others. This could mean that in time individuals with chronically high levels of loneliness may suffer the loss of additional social resources, because the temporary increase in their support and contact levels did not help them regain a similar resource as the one that was lost with their partner. By explicitly relating possibly different trajectories in loneliness to developments in social resources, future research may provide answers to these questions.

While the above mentioned studies have shown different trajectories following loss, they have not yet considered the possibility that changes in wellbeing may have already occurred before partner loss. Our study and a number of caregiving studies (e.g. Li, 2005) showed that changes in social resources already occur before partner loss; social resources generally showing a dip before partner loss (Chapter 2). Similarly, caregiving research (Li, 2005) suggests that levels of wellbeing may also change before widowhood due to the stress of caregiving. Future research could extend our understanding of how such trajectories develop if it incorporated multiple observations before partner loss.

The second promising direction for future research focuses on intraindividual changes during the adjustment process, where negative experiences are balanced with more positive experiences. While previous research suggested that adjustment to bereavement was represented by different phases, this more recent research suggests that adjustment to bereavement is represented by shifting between loss and restoration oriented activities

Conclusion

(Stroebe et al., 2006). Theoretically this shifting process is clarified in the dual process model of bereavement (Stroebe & Schut, 1999). According to this model widows and widowers' shifting between loss and restoration oriented activities is necessary because it is not possible to attend to both dimensions at the same time. This oscillating process occurs in the short time, daily even, as a shift from loss to restoration oriented activities may occur when the loss activities become to overwhelming. Oscillation is also a long term process, because adaptation is a matter of slowly and painfully exploring and discovering what has been lost and what remains. Following partner loss, widows and widowers usually emphasize the loss oriented activities, while they adjust to their loss they usually shift their attention more and more on restoration oriented activities.

This oscillating process has been shown with daily diary studies. These studies show initially vehement shifts between loss and restoration, these shifts gradually become less pronounced and more focused on restoration than on loss (e.g. Bisconti, Bergeman, & Boker, 2004; 2006). Because respondents have to check their diaries daily these studies focus on only a few measures, as reporting on more measures daily would strain the respondents to much. To my knowledge, no studies have yet focused on daily changes in contact or support. It would be interesting to find out to what extent shifts from loss to restoration oriented activities are triggered by daily changes in support. In addition, due to their expensive set up diary studies focus on short periods, therefore only short term changes and consequences are shown. However the dual process model also suggests that oscillation is also a long term process. There were too few observations in our study to show long term oscillation. However it should be possible to show long term oscillation with several weekly or monthly observations around for example four years after partner loss. It would be interesting to find out to what extent oscillation is a long term process. Is short term variability a good predictor for long term adjustment to widowhood? For how long after their partner loss do widows and widowers oscillate between loss- and restoration oriented activities?

Overall conclusions

Although widowhood is a dramatic life event, it is not only a period of loss. Social resources increase, because network members respond to widowed older adults who adapt to their new role and seek compensation for lost partner contact and support. Levels of contact and support with network members may be low before widowhood; on average they start to increase before older adults lose their spouse. Moreover, these changes are independent of older adults' personal characteristics or resources. After widowhood, these rising levels of contact and support from network members may make older adults' adjustment to widowhood easier. Still, contact and support do not increase indefinitely; for most older adults contact and support drop in the third year after

widowhood. Furthermore, even though older adults change their contact and support levels in favor of their close relationships, after widowhood they rely on a broader range of relationships. Even so, their children are their major source of support. Consequences of widowhood also show that widowhood not only is a period of loss. Even though, emotional loneliness increases and persists for longer period, social loneliness barely increases and remains relatively stable after widowhood. Furthermore, this study showed that the loss of a partner at old age does not change the mortality of older women, but is a potential risk factor for the mortality of older men. Thus, widowhood is multifaceted transition, some of the changes in the process reflect loss-related facets, other changes show that older adults also experience restoration.

Both mastery and support appear to be important resources for older adults, whether older adults are widowed or not. Feelings of control enhance older adults' trust that they can overcome adverse situations. Supportive relationships provide widowed older adults with a sense of social belonging, thereby protecting them from social loneliness. In addition, emotionally lonelier older adults receive more support when they are widowed. If support received during the transition into widowhood provides emotional respite, widowed older adults may find that in time even feelings of emotional loneliness subside. Feeling in control may help older adults to better manage their supportive relationships. If older adults are better able to manage their support, they may benefit more from their support. This may be of particular interest while older adults adjust to widowhood, since older adults not only seek support themselves, but their significant others often offer support of their own accord.

In conclusion, spousal loss sets off a multitude of changes in the lives of older adults, some positive, some negative. In this way, the multifaceted adjustment process to widowhood is a process that adds to the heterogeneity of changes in late life. This thesis furthered understanding of how some of the dynamics in this adjustment process are related. Older adults' personal networks function as convoys of social resources. The dynamic nature of social and personal resources adds to older adults' resiliency during the adaptation process of widowhood. Changes in social and personal resources enable older adults to come to grips with some of the consequences of widowhood. Still, in spite of widowed older adults' resources, some consequences of spousal loss, such as emotional loneliness, persist for a long time. Other research suggests that widows and widowers may need more than 10 years, before their wellbeing is at a similar level as before partner loss (Carnelley et al., 2006). Widowed older adults have anniversary grief reactions long after they lost their partner. These anniversary grief reactions may serve as a time-limited opportunity to relive memories about the lost spouse and express a continuing involvement with a lost spouse. Likewise, older adults' increased emotional loneliness may be a more repeated reflection of their continuing bond with a lost partner.

References

- Allen, K. R., Blieszner, R., & Roberto, K. A. (2000). Families in the middle and later years: A review and critique of research in the 1990s. *Journal of Marriage and Family, 62*, 911-926.
- Anderson, T. B. (1984). Widowhood as a life transition: Its impact on kinship ties. *Journal of Marriage and Family, 46*, 105-114.
- Antonucci, T. C. (2001). Social relations: An examination of social networks, social support, and sense of control. In R. Binstock & E. Shanas (Eds.), *Handbook of the psychology of aging, 5th ed.* (pp. 247 – 453). New York: Academic.
- Antonucci, T. C., & Akiyama, H. (1987). Social networks in adult life and a preliminary examination of the convoy model. *Journal of Gerontology, 42*, 519-527.
- Antonucci, T. C., Akiyama, H., & Lansford, J. E. (1998). The negative effects of close social relations among older adults. *Family Relations, 47*, 379-384.
- Antonucci, T. C., Lansford, J. E., Schaberg, L., Smith, J., Baltes, M. M., Akiyama, H. et al. (2001). Widowhood and illness: A comparison of social network characteristics in France, Germany, Japan, and the United States. *Psychology and Aging, 16*, 655-665.
- Atienza, A. A., Collins, R., & King, A. C. (2001). The mediating effects of situational control on social support and mood following a stressor: A prospective study of dementia caregivers in their natural environments. *Journal of Gerontology, 56B*, S129-S139.
- Avlund, K., Damsgaard, M. T., & Holstein, B. E. (1998). Social relations and mortality. An eleven year follow-up study of 70-year-old men and women in Denmark. *Social Science and Medicine, 47*, 635-643.
- Balaswamy, S., & Richardson, V. E. (2001). The cumulative effects of life event, personal and social resources on subjective well-being of elderly widowers. *International Journal of Aging and Human Development, 53*, 311-327.
- Billings, D. W., Folkman, S., Acree, M., & Moskowitz, J. T. (2000). Coping and physical health during caregiving: The roles of positive and negative affect. *Journal of Personality and Social Psychology, 79*, 131-142.
- Bisconti, T. L., Bergeman, C. S., & Boker, S. M. (2004). Emotional well-being in recently bereaved widows: A dynamical systems approach. *Journal of Gerontology, 59B*, 158-167.
- Bisconti, T. L., Bergeman, C. S., & Boker, S. M. (2006). Social support as a predictor of variability: An examination of the adjustment trajectories of recent widows. *Psychology and Aging, 21*, 590-599.
- Blazer, D. G. (2002). Self-efficacy and depression in late life: A primary prevention proposal. *Aging and Mental Health, 6*, 315–324.
- Blieszner, R. (2006). A lifetime of caring: Dimensions and dynamics of late-life close relationships. *Personal Relationships, 13*, 1-18.
- Bodnar, J. C., & Kiecolt-Glaser, J. K. (1994). Caregiver depression after bereavement: Chronic stress isn't over when it's over. *Psychology and Aging, 9*, 372-380.
- Bonanno, G. A. (2005). Resilience in the Face of Potential Trauma. *Current Directions in Psychological Science, 14*, 135-138.
- Bonanno, G. A., Wortman, C. B., Lehman, D. R., Tweed, R. G., Haring, M., Sonnega, J. et al.

- (2002). Resilience to loss and chronic grief: A prospective study from preloss to 18-months postloss. *Journal of Personality and Social Psychology*, *83*, 1150-1164.
- Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. *Psychology and Aging*, *19*, 260-271.
- Bovier, P. A., Chamot, E., & Perneger, T. V. (2004). Perceived stress, internal resources, and social support as determinants of mental health among young adults. *Quality of Life Research*, *13*, 161-170.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowling, A. (1987). Mortality after bereavement: A review of the literature on survival periods and factors affecting survival. *Social Science and Medicine*, *24*, 117-124
- Bowling, A., Farquhar, M., & Grundy, E. (1995). Changes in network composition among older people living in inner London and Essex. *Health and Place*, *1*, 149-166.
- Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science*, *14*, 320-327.
- Byrne, G. J. A., & Raphael, B. (1997). The psychological symptoms of conjugal bereavement in elderly men over the first 13 months. *International Journal of Geriatric Psychiatry*, *2*, 241-251.
- Carnelley, K. B., Wortman, C. B., Bolger, N., & Burke, C. T. (2006). The time course of grief reactions to spousal loss: Evidence from a national probability sample. *Journal of Personality and Social Psychology*, *91*, 476-492.
- Carnelley, K. B., Wortman, C. B., & Kessler, R. C. (1999). The impact of widowhood on depression: Findings from a prospective survey. *Psychological Medicine*, *29*, 1111-1123.
- Carr, D., & Utz, R. (2002). Late-life widowhood in the United States: New directions in research and theory. *Ageing International*, *27*, 65-88.
- Carr, D., Nesse, R., & Wortman, C. B. (Eds.) 2005. *Spousal Bereavement in Late Life*. New York: Springer.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, *54*, 165-181.
- Cerhan, J. R., & Wallace, R. B. (1997). Change in social ties and subsequent mortality in rural elders. *Epidemiology*, *8*, 475-481.
- Cochran, M., Lerner, M., Riley, D., Gunnarson, L., & Henderson, C. R. (1990). *Extending families: The social networks of parents and their children*. Cambridge: Cambridge University Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*, 310-357.
- Cohen-Mansfield, J., & Parpura-Gill, A. (2007). Loneliness in older persons: A theoretical model and empirical findings. *International Psychogeriatrics*, *19*, 279 -294.
- Crimmins, E. M. (2001). Mortality and health in human life spans. *Experimental Gerontology*, *36*, 885-897.
- Cuijpers, P., Bohlmeijer, E., Beekman, A., Smit, F. (2003). GGZ-preventie: Nu en in de toekomst. [Mental health care-prevention: Now and in the future.] *Maandblad Geestelijke*

References

- Volksgezondheid*, 58, 1036-1048.
- Davey, A., & Eggebeen, D. J. (1998). Patterns of intergenerational exchange and mental health. *Journal of Gerontology*, 53B, P86-P95.
- Deeg, D.J.H., Knipscheer, C.P.M., & van Tilburg, W. (Eds.) (1993). *Autonomy and well-being in the aging population: Concepts and design of the Longitudinal Aging Study Amsterdam*. Bunnik, The Netherlands: Netherlands Institute of Gerontology.
- Deeg, D. J. H., Van Tilburg, T., Smit, J. H., & De Leeuw, E. D. (2002). Attrition in the Longitudinal Aging Study Amsterdam: The effect of differential inclusion in side studies. *Journal of Clinical Epidemiology*, 55, 319-328.
- De Jong Gierveld, J., & Kamphuis, F. H. (1985). The development of a Rasch-type loneliness-scale. *Applied Psychological Measurement*, 9, 289-299.
- Dunkel-Schetter, C., & Skokan, L.A. (1990). Determinants of social support provision in personal relationships. *Journal of Social and Personal Relationships*, 7, 437-450.
- Elwert, F., & Christakis, N. A. (2006). Widowhood and race. *American Sociological Review*, 71, 16-41.
- Enders, C. K. (2001). A primer on maximum likelihood algorithms available for use with missing data. *Structural Equation Modeling*, 8, 128-141.
- Eng, P. M., Rimm, E. B., Fitzmaurice, G., & Kawachi, I. (2002). Social ties and change in social ties in relation to subsequent total and cause-specific mortality and coronary heart disease incidence in men. *American Journal of Epidemiology*, 155, 700-709.
- Ferraro, K. F., & Barresi, C. M. (1982). The impact of widowhood on the social relations of older persons. *Research on Aging*, 4, 227-247.
- Field, D., & Minkler, M. (1988). Continuity and change in social support between young-old and old-old or very-old age. *Journal of Gerontology*, 43B, P100-P106.
- Fiori, K. L., McIlvane, J. M., Brown, E. E., & Antonucci, T. C. (2006). Social relations and depressive symptomatology: Self-efficacy as a mediator. *Aging and Mental Health*, 10, 227-239.
- Fokkema, T. (2001). Sterke inkomensdaling voor vrouwen na echtscheiding en vroege verweduwing: Bieden hertrouw en werk uitkomst? [Strong income decline for women after divorce and early widowhood: Do remarriage and labor force participation offer the solution?] *Bevolking en Gezin*, 30, 5-29.
- Folkman, S. (2001). Revised coping theory and the process of bereavement. In M. Stroebe, W. Stroebe, R. O. Hansson, & H. Schut (Eds.), *Handbook of bereavement research: Consequences, coping and care* (pp. 563-584). Washington: APA.
- Fraley, R. C., & Bonanno, G. A. (2004). Attachment and loss: A test of three competing models on the association between attachment-related avoidance and adaptation to bereavement. *Personality and Social Psychology Bulletin*, 30, 878-890.
- Gove, W. R., Hughes, M., & Style, C. B. (1983). Does marriage have positive effects on the psychological well-being of the individual? *Journal of Health and Social Behavior*, 24, 122-131.
- Ha, J. (2008). Changes in support from confidants, children, and friends following widowhood. *Journal of Marriage and Family*, 70, 306-318.

- Hagedoorn, M., Van Yperen, N. W., Coyne, J. C., van Jaarsveld, C. H. M., Ranchor, A. V., van Sonderen, E. et al. (2006). Does marriage protect older people from distress? The role of equity and recency of bereavement. *Psychology and Aging, 21*, 611-620.
- Hatch, L. R. (2000). Beyond gender differences: Adaptations to aging in life course perspective. Amityville, NY: Baywood.
- Hay, E. L., & Fingerman, K. L. (2005). Age differences in perceptions of control in social relationships. *International Journal of Aging and Human Development, 60*, 53-75.
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*, 307-324.
- Hobfoll, S. E. (2009). Social support: The movie. *Journal of Social and Personal Relationships, 26*, 93-102.
- Hobfoll, S. E., Ennis, N., & Kay, J. (2000). Loss, resources, and resiliency in close interpersonal relationships. In J. H. Harvey & E. D. Miller (Eds.), *Loss and trauma. General and close relationship perspectives* (pp. 267-285). Philadelphia: Brunner-routledge.
- Holahan, C. J., Moos, R. H., Holahan, C. K., & Cronkite, R. C. (1999). Resource loss, resource gain, and depressive symptoms: A 10-year model. *Journal of Personality and Social Psychology, 77*, 620-629.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science, 241*, 540-545.
- Hox, J. (2002). *Multilevel analysis: Techniques and applications*. London: Lawrence Erlbaum Associates.
- Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424-453.
- Jöreskog, K. G., & Sörbom, D. (2003). *LISREL 8.72 for Windows [Computer Software]*. Lincolnwood, IL: Scientific Software International.
- Kahn, R. L., & Antonucci, T. A. (1980). Convoys over the life course: Attachment, roles and social support. *Life Span Development, 3*, 235-286.
- Kim, Y., Duberstein, P. R., Sorensen, S., & Larson, M. R. (2005). Levels of depressive symptoms in spouses of people with lung cancer: Effects of personality, social support, and caregiving burden. *Psychosomatics, 46*, 123-130.
- Knipscheer, C. P. M., De Jong Gierveld, J., Van Tilburg, T., & Dykstra, P. (1995). *Living arrangements and social networks of older adults*. Amsterdam: VU University Press.
- La Gaipa, J. J. (1990). The negative effects of informal support systems. In S.W. Duck (Ed.), *Personal relationships and social support* (pp. 122-139). New York: Sage.
- Larose, S., Guay, F., & Bovin, M. (2002). Attachment, social support, and loneliness in young adulthood: A test of two models. *Personality and Social Psychology Bulletin, 28*, 684-693.
- Lazarus, R. S., & Folkman, S. N. (1984). *Stress, appraisal and the coping process*. New York: Springer.
- Lee, G. R., DeMaris, A., Bavin, S., & Sullivan, R. (2001). Gender differences in the depressive effect of partner loss in later life. *Journal of Gerontology, 56B*, S56-S61.
- Lee, G. R., Netzer, J. K., & Coward, R. T. (1995). Depression among older parents: The role of intergenerational exchange. *Journal of Marriage and Family, 57*, 823-833.

References

- Li, L. W. (2005). From caregiving to bereavement: Trajectories of depressive symptoms among wife and daughter caregivers. *Journal of Gerontology, 60B*, P190-P198.
- Lillard, L. A., & Waite, L. J. (1995). 'Til death do us part: Marital disruption and mortality. *American Journal of Sociology, 100*, 1131-1156
- Lund, R., Modvig, J., Due, P., & Holstein, B. E. (2000). Stability and change in structural social relations as predictor of mortality among elderly women and men. *European Journal of Epidemiology, 16*, 1087-1097.
- Manor, O., & Eisenbach, Z. (2003). Mortality after spousal loss: Are there socio-demographic differences? *Social Science and Medicine, 56*, 405-413.
- Markey, C. N., Markey, P. M., Schneider, C., & Brownlee, S. (2005). Marital status and health beliefs: Different relations for men and women. *Sex Roles, 53*, 443- 451.
- Martikainen, P., & Valkonen, T. (1996). Mortality after death of spouse in relation to duration of bereavement in Finland. *Journal of Epidemiology and Community Health, 50*, 264-268.
- Meinow, B., Kareholt, I., Parker, M. G., & Thorslund, M. (2004). The effect of the duration of follow-up in mortality analysis: The temporal pattern of different predictors. *Journal of Gerontology, 59B*, S181-S189.
- Mikulincer, M., & Shaver, P. R. (2009). An attachment and behavioral systems perspective on social support. *Journal of Social and Personal Relationships, 26*, 7-19.
- Mirowsky, J. (1997). Age, subjective life expectancy, and the sense of control. The horizon hypothesis. *Journal of Gerontology, 52B*, S125-S134.
- Moos, R. H., & Holahan, C. J. (2003). Dispositional and contextual perspectives on coping: Toward an integrative framework. *Journal of Clinical Psychology, 59*, 12, 1387-1403.
- Morgan, D. L., Carder, P., & Neal, M. B. (1997). Are some relationships more useful than others? The value of similar others in the networks of recent widows. *Journal of Social and Personal Relationships, 14*, 745-759.
- Murphy, M., Glaser, K., & Grundy, E. (1997). Marital status and long-term illness in Great Britain. *Journal of Marriage and Family, 59*, 156-164.
- Netherlands Interdisciplinary Demographic Institute (2003). De bevolkingsontwikkeling in een notendop. [The population development in a nutshell] *Demos, 19*, Retrieved November 14, 2006 from <http://www.nidi.knaw.nl/web/html/public/demos/dm03086.html>
- Nieboer, A. P. (1997) Life-events and well-being: A prospective study on changes in well-being of elderly people due to a serious illness event or death of the spouse. Thesis Publishers, Amsterdam.
- Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deterrence model. *Journal of Personality and Social Psychology, 71*, 498-511.
- Pearlin, L. I. (1999). The stress process revisited: Reflections on concepts and their interrelationships. In C. S. Aneshensel & J. C. Phelan (Eds.), *Handbook of the sociology of mental health* (pp. 105-123). New York: Kluwer.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.
- Pinquart, M. (2003). Loneliness in married, widowed, divorced, and never-married older

- adults. *Journal of Social and Personal Relationships*, *20*, 31-53.
- Pinquart, M., & Sörensen, S. (2001). Influences on loneliness in older adults: A meta-analysis. *Basic and Applied Social Psychology*, *23*, 245-266.
- Rook, K. S. (2009). Gaps in social resources in later life: An adaptational challenge in need of further research. *Journal of Social and Personal Relationships*, *26*, 103-112.
- Ross, C. E., & Mirowsky, J. (1989). Explaining the social patterns of depression: Control and problem solving or support and talking? *Journal of Health and Social Behavior*, *30*, 206-219.
- Schieman, S. (2001). Age, education and the sense of control: A test of the cumulative advantage hypothesis. *Research on Aging*, *23*, 153-180.
- Schieman, S., & Meersman, S. C. (2004). Neighborhood problems and health among older adults. Received and donated social support and the sense of mastery as effect modifiers. *Journal of Gerontology*, *59B*, S89-S97.
- Schumaker, L. (1981). *Spline functions: Basic theory*. New York: Wiley.
- Seeman, T. E., & Berkman, L. F. (1988). Structural characteristics of social networks and their relationship with social support in the elderly: Who provides support. *Social Science and Medicine*, *26*, 737-749.
- Seeman, T., Bruce, M., & McAvay, G. (1996). Social network characteristics and onset of ADL disability: MacArthur studies of successful aging. *Journal of Gerontology*, *51B*, S191-S200.
- Seltzer, M. M., & Li, L. W. (2000). The dynamics of caregiving: Transitions during a three-year prospective study. *Gerontologist*, *40*, 165-178.
- Shye, D., Mullooly, J. P., Freeborn, D. K., & Pope, C. R. (1995). Gender differences in the relationship between social network support and mortality: A longitudinal study of an elderly cohort. *Social Science and Medicine*, *41*, 935-947.
- Silverstein, M., & Bengtson, V. L. (1994). Does intergenerational social support influence the psychological well-being of older parents? The contingencies of declining health and widowhood. *Social Science and Medicine*, *38*, 943-957.
- Snijders, T. A. B., & Bosker, R. J. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modeling*. London: Sage.
- Statistics Netherlands. (2005). *Population, age, sex, marital status on January 1, 1994 – 2002*. [Data file] Retrieved September 14, 2005 from <http://statline.cbs.nl/StatWeb/>.
- Statistics Netherlands. (2009). *Population, age, sex, marital status on January 1, 2000 – 2008*. [Data file] Retrieved July 1, 2009 from <http://statline.cbs.nl/StatWeb/>.
- Statistics Netherlands. (2009). *Marital disruption, by divorce and by death, 2007*. [Data file] Retrieved July 1, 2009 from <http://statline.cbs.nl/StatWeb/>.
- Starker, J. E., Morgan, D. L., & March, S. (1993). Analyzing change in networks of personal relationships. In W. H. Jones & D. Perlman (Eds.), *Advances in personal relationships* (4 ed., pp. 229-260).
- Stetz, T. A., Stetz, M. C., & Bliese, P. D. (2006). The importance of self-efficacy in the moderating effects of social support on stressor-strain relationships. *Work and Stress*, *20*, 49-59.
- Stevens, N. (1995). Gender and adaptation to widowhood in later life. *Ageing and Society*, *15*, 37-58.

References

- Stevens, N. L., Martina, C. M. S., & Westerhof, G. J. (2006). Meeting the need to belong: Predicting effects of a friendship enrichment program for older women. *Gerontologist, 46*, 495-502.
- Stevens, N., & Westerhof, G. J. (2006). Partners and others: Social provisions and loneliness among married Dutch men and women in the second half of life. *Journal of Social and Personal Relationships, 23*, 921-941.
- Stroebe, M., & Schut, H. (1999). The dual process model of coping with bereavement: Rationale and description. *Death Studies, 23*, 197-224.
- Stroebe, M., Stroebe, W., Abakoumkin, G., & Schut, H. (1996). The role of loneliness and social support in adjustment to loss: A test of attachment versus stress theory. *Journal of Personality and Social Psychology, 70*, 1241-1249.
- Stroebe, W., Stroebe, M., & Abakoumkin, G. (1999). Does differential social support cause sex differences in bereavement outcome? *Journal of Community and Applied Social Psychology, 9*, 1-12.
- Stroebe, M. S., Stroebe, W., & Hansson, R. O. (1993). *Handbook of bereavement: Theory, research and intervention*. Cambridge: Cambridge University Press.
- Stroebe, M. S., Folkman, S., Hansson, R. O., & Schut, H. (2006). The prediction of bereavement outcome: Development of an integrative risk factor framework. *Social Science and Medicine, 63*(9), 2440-2451.
- Stroebe, W., Zech, E., Stroebe, M., & Abakoumkin, G. (2005). Does social support help in bereavement? *Journal of Social and Clinical Psychology, 24*, 1030-1050.
- Uchino, B. N. (2009). What a lifespan approach might tell us about why distinct measures of social support have differential links to physical health. *Journal of Social and Personal Relationships, 26*, 53-63.
- Umberson, D., Wortman, C. B., & Kessler, R. C. (1992). Partner loss and depression: Explaining long-term gender differences in vulnerability. *Journal of Health and Social Behavior, 33*, 10-24.
- Utz, B. L., Carr, D., Nesse, R. M., & Wortman, C. (2002). The effect of widowhood on older adults' social participation: An evaluation of activity, disengagement, and continuity theories. *Gerontologist, 42*, 522-533.
- Van Baarsen, B., Smit, J. H., Snijders, T. A. B., & Knipscheer, C. P. M. (1999). Do personal conditions and circumstances surrounding partner loss explain loneliness in newly bereaved older adults? *Ageing and Society, 19*, 441-469.
- Van Baarsen, B., Snijders, T. A. B., Smit, J. H., & Van Duijn, M. A. J. (2001). Lonely but not alone: Emotional Isolation and social isolation as two distinct dimensions of loneliness in older people. *Educational and Psychological Measurement, 61*, 119-135.
- Van Tilburg, T. (1995). Delineation of the social network and differences in network size. In C. P. M. Knipscheer, J. de Jong Gierveld, T. van Tilburg, & P. A. Dykstra (Eds.), *Living arrangements and social networks of older adults* (pp. 83-96). Amsterdam: VU University Press.
- Van Tilburg, T. (1998). Losing and gaining in old age: Changes in personal network size and social support in a four-year longitudinal study. *Journal of Gerontology, 53B*, S313-S323.

- Van Tilburg, T., & Broese van Groenou, M. (2002). Network and health changes among older Dutch adults. *Journal of Social Issues, 58*, 697-713.
- Van Tilburg, T., Havens, B., & Gierveld, J. (2004). Loneliness among older adults in the Netherlands, Italy, and Canada: a multifaceted comparison. *Canadian Journal on Aging, 23*, 169-180.
- Veiel, H. O. F. (1985). Dimensions of social support: A conceptual framework for research. *Social Psychiatry and Psychiatric Epidemiology, 20*, 156-162.
- Weiss, R. S. (1975). Loneliness: The experience of social and emotional isolation. Cambridge, MA, USA: MIT press.
- Wells, J. D., Hobfoll, S. E., & Lavin, J. (1999). When it rains, it pours: The greater impact of resource loss compared to gain on psychological distress. *Personality and Social Psychology Bulletin, 25*, 1172-1182.
- Wenger, C. G. (1990). Change and adaptation in informal support networks of elderly people in Wales 1979-1987. *Journal of Aging Studies, 4*, 375-389.
- Wenger, G. C. & Jerrome, D. (1999). Change and stability in confidant relationships: Findings from the Bangor Longitudinal Study of Ageing. *Journal of Aging Studies, 13*, 269-294.
- Zettel, L. A., & Rook, K. S. (2004). Substitution and compensation in the social networks of older widowed women. *Psychology and Aging, 19*, 433-443.

Nederlandse Samenvatting (Summary in Dutch)

Het overlijden van de partner wordt wel gezien als één van de meest ontwrichtende gebeurtenissen in het leven van ouderen. In Nederland zijn er ongeveer drie keer meer weduwen dan weduwnaren van 65 jaar en ouder. Door het verlies van de partner verandert niet alleen het dagelijkse leven van weduw(nar)en, maar bijvoorbeeld ook hun financiële situatie of hun gezondheid kan veranderen. Daarnaast treden veranderingen op in hun netwerk van persoonlijke relaties (onder andere kinderen, familie, vrienden en burens) en ervaren ze een toegenomen gevoel van eenzaamheid. Uit eerder onderzoek is bekend dat de manier waarop weduwen en weduwnaren omgaan met het verlies van hun voormalige partner, afhangt van hun beschikbare bronnen (*resources*), hun gezondheid en hun persoonlijkheid. Onder het brede begrip van bronnen vallen dingen die men op zichzelf waardeert, zoals zelfvertrouwen en het contact met anderen, of middelen die hieraan kunnen bijdragen, zoals geld of steun van anderen.

Veranderingen in eenzaamheid en in het persoonlijke relatienetwerk van ouderen, één van de sociale bronnen, zijn het onderwerp van dit proefschrift. Naast de structurele elementen van het netwerk (de grootte en de verschillende soorten relaties in het netwerk) worden ook de *functionele elementen* ervan (het contact met anderen en de steun gegeven aan en ontvangen van anderen) onderscheiden. Anders dan eerder onderzoek, concentreert dit proefschrift op de dynamiek in relatienetwerken die optreden bij partnerverlies. Veranderingen die optreden *voor* en *na* het overlijden van de partner, en ook verschillen in veranderingen tussen *getrouwde* en *verweduwde* ouderen worden onderzocht. Gedurende een periode van ruim tien jaar is gekeken welke veranderingen optreden in het aantal relaties van getrouwde en verweduwde ouderen, en in de steun en het contact uitgewisseld in die relaties. Verder is onderzocht wat deze veranderingen betekenen voor ontwikkelingen in eenzaamheid onder de weduw(nar)en en voor hun kans op sterfte. Concreet beantwoordt dit onderzoek de volgende vragen:

- Hoe veranderen het contact en de steun tussen de overlevende oudere en diens persoonlijke relaties voor en na het verlies van de partner? Zijn de veranderingen anders dan bij getrouwde ouderen? Verschillen de veranderingen naar soort relatie?
- Hoe hangen sociale bronnen (persoonlijke relaties, contact en steun) samen met eenzaamheid bij weduw(nar)en?
- Hangen persoonlijke (*mastery*) en sociale bronnen anders samen met eenzaamheid bij weduw(nar)en dan bij getrouwde ouderen?
- Wat is het effect van veranderingen in sociale bronnen op het sterfterisico van weduwen en weduwnaren?

Voordat ik inga op de antwoorden op de afzonderlijke vragen en de bijbehorende studies, zal ik eerst de theoretische invalshoeken toelichten die de basis vormen van dit proefschrift.

Waarom relatienetwerken veranderen: het konvoimodel

Het konvoimodel (*convoy model*) beschrijft hoe persoonlijke relatienetwerken veranderen naar gelang de levensomstandigheden en de behoeften van de individuen in dat netwerk veranderen. Gedurende de levensloop komen er relaties bij in het netwerk en gaan er relaties af, en ook het contact met en de steun van verschillende relaties fluctueert. Volgens het model hechten mensen, naarmate ze ouder worden, steeds meer belang aan intieme (familie)relaties en neemt het belang van rolrelaties, zoals met collega's, af. Na pensionering, bijvoorbeeld, verwateren vaak de contacten met voormalige collega's, maar relaties met (gepensioneerde) vrienden kunnen dan weer aantrekken. Wanneer iemand voor zijn of haar ernstig zieke partner zorgt, kan er om die reden minder tijd zijn voor contact met vrienden en meer contact met kinderen die bij de verzorging van de zieke betrokken zijn. Het idee dat close relaties belangrijker worden naarmate het levenseinde nadert noemen onderzoekers ook wel socio-emotionele selectiviteit. Daartegenover staat het idee dat weduw(nar)en zich op alle relaties in hun netwerk richten, omdat niet alleen familie en goede vrienden, maar ook anderen, steun kunnen bieden. Om die reden zal bij weduw(nar)en het contact en de steun ontvangen van alle leden uit hun persoonlijke relatienetwerk toenemen.

Waarom relaties samenhangen met eenzaamheid: tekorten na partnerverlies

Na het overlijden van de partner kan de achtergebleven oudere tekorten ervaren, bijvoorbeeld aan gezelschap, aan instrumentele of aan emotionele steun. De oorzaak van eenzaamheid ligt bij deze tekorten. Iemand is emotioneel eenzaam wanneer hij of zij een persoon mist waarmee hij of zij zich verbonden voelt en die zorgt voor een gevoel van veiligheid en geborgenheid. Voor de meeste weduw(nar)en zal de voormalige partner de persoon geweest zijn die deze functie vervulde. Sociale eenzaamheid ontstaat door een ervaren tekort aan sociale contacten en sociale verbondenheid. Dit kan bijvoorbeeld gebeuren wanneer anderen niet, op de verkeerde manier of op het verkeerde moment reageren. Toenames in contact en steun uitgewisseld met leden van hun persoonlijke relatienetwerken kan bij weduw(nar)en een toename in eenzaamheid voorkomen of eenzaamheid verminderen voorzover deze toename de ervaren tekorten na het verlies van de partner opvult.

De impact van veranderingen: behoud van bronnen

De vraag is nu: op welk moment zal toegenomen steun en contact de gevoelens van eenzaamheid onder weduw(nar)en verminderen? De *conservation of resources* theorie geeft hier een antwoord op. Een fundamenteel motief in het leven van mensen is, volgens deze theorie, het streven naar behoud van bronnen. Mensen zullen er alles aan doen om hun bronnen, zoals hun netwerk van persoonlijke relaties, te vergroten, te behouden en veilig te stellen. Dit streven kan op twee manieren onder druk komen te staan. Ten eerste,

wanneer er verlies van bronnen dreigt. Ten tweede staat dit streven onder druk, wanneer, bij (dreigend) verlies, mensen alles op alles zetten om het verlies te voorkomen of te verminderen. Wanneer er daadwerkelijk bronnen verloren zijn, zoals een echtgenoot, dan heeft dit een directe en langdurige impact heeft op het stress niveau. Toenames in steun en contact met andere relaties daarna zullen een minder grote impact hebben dan het verlies. Om die reden zullen de effecten van toegenomen steun en contact van anderen pas zichtbaar worden, wanneer de impact van het verlies verminderd is. Pas dan zouden toenames in steun en contact ook de gevoelens van eenzaamheid bij weduw(nar)en verminderen.

Hoe veranderen het contact en de steun tussen de overlevende oudere en diens persoonlijke relaties voor en na het verlies van de partner? Zijn de veranderingen anders dan bij getrouwde ouderen? Verschillen de veranderingen naar soort relatie?

Voor dit onderzoek is gebruik gemaakt van gegevens van de in 1992 begonnen *Longitudinal Aging Study Amsterdam* (LASA). Voor deze studie is een steekproef getrokken onder mensen van 55 jaar en ouder. In 1992, 1995, 1998 en 2001 zijn ruim duizend deelnemers aan dit onderzoek geïnterviewd over onder andere hun relatienetwerk en hun fysieke en geestelijke gezondheid. In 1992 waren 1.942 van de deelnemers getrouwd. Tijdens de lange onderzoeksperiode is een deel van de getrouwde ouderen door het overlijden van de partner weduwe of weduwnaar geworden.

Met behulp van longitudinale analyses heb ik aangetoond dat bij weduw(nar)en het contact en de steun in hun netwerk een golfbeweging volgde. In lijn met de verwachtingen uit het konvooi model, was drie jaar na het overlijden van de partner de steun en het contact met netwerk leden gemiddeld op het laagste punt. Naarmate het moment van overlijden dichterbij kwam, nam de steun en het contact toe. Deze toename zette door tot circa 2,5 jaar na het overlijden van de partner. Daarna boog de toenemende trend weer af. Daarnaast zijn de veranderingen bij weduw(nar)en vergeleken met veranderingen in contact en steun bij getrouwde respondenten. Hieruit blijkt dat de beschreven veranderingen specifiek samenhangen met het verlies van de partner en dat netwerk leden reageren op de veranderende behoeftes en rollen van anderen. Het feit dat al voor partnerverlies contact en steun toeneemt, bevestigt de rol van persoonlijke relatienetwerken als een konvooi van steun.

De volgende vraag was of er soorten relaties in het netwerk van weduw(nar)en zijn die sterker of minder sterk reageren op het verlies. De verwachting was dat onder getrouwde ouderen het contact en de steun in de intieme relaties, vrienden en familie, in de loop der tijd zou toenemen en het contact met andere netwerkleden zou afnemen. Bij weduw(nar)en zou het contact en de steun met alle netwerk leden toenemen. De resultaten bevestigen dit deels. Zo nam de instrumentele steun die getrouwde ouderen

van hun kinderen ontvingen sterker toe dan van andere netwerkleden, en het contact met hun verdere familie en hun burens nam sterker af dan met andere netwerkleden. Bij weduw(nar)en nam het contact en de steun in alle soorten relaties toe. Echter ook bij hen zijn er verschillen. Zo nam de emotionele steun die weduw(nar)en ontvangen van hun kinderen, hun broers en hun zussen sterker toe dan van andere netwerkleden, en met hun vrienden nam het contact sterker toe. Dit bevestigt dat relaties verschillende rollen en behoeften vervullen, en laat tegelijkertijd zien dat na partnerverlies alle soorten relaties reageren.

Hoe hangen sociale bronnen (persoonlijke relaties, contact en steun) samen met eenzaamheid bij weduw(nar)en?

Op basis van de theorie, was mijn verwachting dat direct na partnerverlies zowel sociale en emotionele eenzaamheid zouden toenemen, als ook het contact en de steun ontvangen van netwerkleden. Pas later, wanneer de impact van het verlies is weggeëb, zou de toegenomen steun gevoelens van eenzaamheid onder weduw(nar)en verminderen. Met behulp van structurele vergelijkings modellen zijn gelijktijdige en opeenvolgende veranderingen in eenzaamheid en in steun onderzocht bij weduw(nar)en die op drie momenten zijn geïnterviewd. Er werd gekeken naar de veranderingen die optraden tussen de laatste observatie voor partnerverlies en de eerste observatie erna, en naar de veranderingen die optraden tot de daaropvolgende observatie. Zoals verwacht, nam emotionele eenzaamheid sterk toe na partnerverlies. Ook rapporteerden de weduw(nar)en een toename in sociale eenzaamheid, maar deze was minder sterk. In de eerste periode, waarin het overlijden van de partner plaats vond, waren zoals verwacht toenames in eenzaamheid en in steun positief gecorreleerd. Dus zowel steun als eenzaamheid namen toe. De verwachting dat toegenomen steun pas later eenzaamheid zou verminderen kwam niet uit voor emotionele eenzaamheid en wel voor sociale eenzaamheid. Weduw(nar)en die meer steun ontvingen anderhalf jaar na partnerverlies waren drie jaar later ook meer emotioneel eenzaam. Weduw(nar)en die op viereneenhalf jaar na partnerverlies meer steun ontvingen rapporteerden op dat moment ook minder sociale eenzaamheid. Het feit dat gemiddeld viereneenhalf jaar na het verlies van de partner emotionele eenzaamheid nog steeds hoger was dan daarvoor toont de grote en langdurige impact van het verlies aan. Het verlies van de partner blijkt dus vooral gevoelens van emotionele eenzaamheid onder ouderen te vergroten en minder invloed te hebben op hun sociale eenzaamheid. Resultaten bevestigen ook dat de impact van verlies groter is dan die van winst; toenames in steun bleken emotionele eenzaamheid niet te verminderen. De conclusie is dan ook dat toegenomen steun van netwerkleden niet compenseert voor het verlies van de partner.

Hangen persoonlijke (mastery) en sociale bronnen anders samen met eenzaamheid bij weduw(nar)en dan bij getrouwde ouderen?

Eén van de verklaringen voor het feit dat toenames in steun de gevoelens van emotionele eenzaamheid bij weduw(nar)en niet verminderd was dat toegenomen steun alleen niet voldoende is. Voortbouwend op dit idee, behandelt het vierde hoofdstuk de vraag of weduw(nar)en meer baat hebben van steun wanneer zij het gevoel hebben dat zij controle over de steun hebben. De verwachting was dat ouderen met hoge *mastery*, een algemeen gevoel van controle over invloeden op het leven, en hoge steun meer goeds uit hun netwerk zouden weten te halen dan ouderen bij wie geen of slechts één van deze bronnen in hoge mate aanwezig was. Dit verschil zou met name van belang zijn voor weduw(nar)en, omdat een toename in steun na partnerverlies voor weduw(nar)en met een laag gevoel van controle overweldigend zou kunnen zijn, terwijl weduw(nar)en met een hoog gevoel van controle toenames in steun beter kunnen sturen. De resultaten laten zien dat zowel steun als een gevoel van controle een gunstige invloed kunnen hebben op gevoelens van emotionele eenzaamheid. Getrouwde en verweduwde ouderen waren minder emotioneel eenzaam wanneer zij meer steun of een groter gevoel van controle rapporteerden. Ouderen die een hoog gevoel van controle hadden waren minder eenzaam ongeacht de hoeveelheid steun die zij ontvingen. Wanneer ouderen een laag gevoel van controle hadden, waren zij meer eenzaam. Meer steun kon hier slechts ten dele voor compenseren. Tegen onze verwachting in, bood een hoog niveau van zowel steun als *mastery* geen bescherming tegen de gevolgen van partnerverlies op emotionele eenzaamheid. Er is niet alleen naar het niveau van steun en controle gekeken, maar ook naar de veranderingen daarin. Weduw(nar)en meldden een grotere afname in emotionele eenzaamheid wanneer hun *mastery* toenam dan getrouwde ouderen wiens *mastery* toenam. Alles bij elkaar genomen lijkt het erop dat *mastery* betere bescherming biedt tegen emotionele eenzaamheid dan de steun die ouderen ontvangen van hun netwerkleden.

Wat is het effect van veranderingen in sociale bronnen op het sterfterisico van weduwen en weduwnaren?

In het vijfde hoofdstuk van dit proefschrift heb ik onderzocht in hoeverre veranderingen in sociale bronnen van invloed zijn op het overlijdensrisico van ouderen. Een belangrijke vraag hierbij was in hoeverre veranderingen in sociale bronnen het effect van het verlies van de partner versterken of verzwakken. Aansluitend op eerder onderzoek, was in deze studie te zien dat het verlies van een partner het overlijdensrisico van weduwnaren verhoogt, echter alleen in het eerste jaar na het verlies. Daarnaast bleek een toename in het aantal kinderen en familie banden te beschermen tegen een toename van het overlijdensrisico. Anders dan bij weduwnaren, werd er bij weduwen geen hoger

risico gevonden als gevolg van partnerverlies. Het overlijdensrisico van vrouwen was lager wanneer zij meer leden in hun netwerk identificeerden, maar veranderingen in het aantal netwerkleden of in specifieke soorten relaties waren niet van invloed op het overlijdensrisico. Daarnaast hadden vrouwen die meer emotionele steun ontvingen een lager overlijdensrisico, ook weduwen wiens instrumentele steun toenam na partnerverlies hadden een lager risico. Het feit dat geen van de specifieke soorten relaties samenhangen met het overlijdensrisico duidt er op dat vrouwen baat vinden bij alle soorten relaties.

Implicaties

Het aanpassingsproces aan het weduwschap is vanuit verschillende theoretische invalshoeken belicht. Dankzij de aandacht voor de dynamiek van dit proces en voor de verschillende facetten in dit proces is aangetoond dat sommige veranderingen langdurig zijn en andere veranderingen slechts van tijdelijke aard. Dit sluit aan op twee van de theoretische invalshoeken, het konvooi model dat stelt dat veranderingen in behoeften en omstandigheden gepaard gaan met veranderingen in steun en de *conservation of resources* theorie die stelt dat verlies van een partner een langdurige impact heeft. Na het overlijden van de partner, is er tijdelijk sprake van toegenomen gevoelens van sociale eenzaamheid en langdurig sprake van toegenomen emotionele eenzaamheid. Veranderingen in steun beschermen weduw(nar)en tegen toegenomen sociale eenzaamheid, maar niet tegen emotionele eenzaamheid als gevolg van partnerverlies. Een toegenomen gevoel van controle beschermde wel tegen emotionele eenzaamheid, maar een afgenomen gevoel van controle versterkte het effect van partnerverlies op emotionele eenzaamheid. Het feit dat emotionele en sociale eenzaamheid anders ontwikkelen na partnerverlies en het feit dat ook ontwikkelingen in verschillende soorten relaties anders zijn, toont aan dat het theoretisch en praktisch zinvol is om verschillende elementen in het proces te onderscheiden.

Dit onderzoek laat het belang zien van het persoonlijke relatienetwerk als “konvooi van steun” (*supportive convoy*). Al voor het verlies van de partner betrekken ouderen steun uit hun netwerk, dat is te zien aan de stijgende trend die inzet voor het overlijden. Ook daarna is er behoefte aan steun, maar niet alleen bij de weduw(nar)en, ook bij familie en vrienden. Zij zijn immers ook een dierbare verloren. Steun is dus een wederkering proces. De piek in steun is echter slechts tijdelijk, terwijl weduw(nar)en langer met gevoelens van emotionele eenzaamheid blijven zitten. Dit toont aan dat er meer aandacht besteed moet worden aan de eenzaamheid op langere termijn, bijvoorbeeld in de vorm van interventies. Resultaten van dit onderzoek sluiten aan bij interventieonderzoek dat laat zien dat interventies die gericht zijn op een combinatie van het verbeteren van mastery en sociale vaardigheden en van sociale relaties het meest effectief lijken. De interventies zouden dan ook zodanig ontworpen moeten zijn dat ze ouderen helpen hun

relaties te onderhouden en managen.

Zoals elk onderzoek, zijn er bij dit onderzoek ook beperkingen. Eén van die beperkingen is dat de resultaten van deze studie zijn gebaseerd op een Nederlandse steekproef. Om die reden zouden de beschreven resultaten alleen voor Nederlandse weduw(nar)en kunnen gelden. Uit landenvergelijkend onderzoek blijkt dat, hoewel partnerverlies een gebruikelijke gebeurtenis is, verschilt de ervaring van deze gebeurtenis in verschillende landen (Frankrijk, VS, Duitsland en Japan). In de VS, bijvoorbeeld, was de impact van het overlijden van de partner op het sociale netwerk minder groot dan in Frankrijk, Duitsland of Japan. Mogelijk omdat weduw(nar)en in verschillende landen andere verwachtingen hebben ten aanzien van de relaties in hun netwerk. Ander onderzoek laat zien dat ook de ervaring van eenzaamheid kan verschillen per land. Toekomstig onderzoek zou kunnen aantonen in hoeverre de mechanismen beschreven in dit proefschrift ook in andere landen opgaan.

Hoewel er dankzij dit onderzoek meer inzicht is in de dynamiek van netwerken en eenzaamheid rond partnerverlies, zijn er ook nog vragen die niet beantwoord zijn. Bijvoorbeeld, waarom het contact en de steun van netwerk leden na verloop van tijd weer afnemen? Is dit omdat de weduw(nar)en minder behoefte hebben aan steun of omdat netwerk leden weer meer aandacht hebben voor hun eigen dagelijkse beslommingen? Dit heeft deels te maken met het ontbreken van gegevens over bijvoorbeeld de behoeften van weduw(nar)en en deels met de gekozen theoretische invalshoek.

Concluderend

Hoewel het overlijden van de partner een dramatische levensgebeurtenis is, is het weduwschap geen periode van alleen maar verlies. Aangezien persoonlijke relaties steun bieden, is er sprake van groei in sociale bronnen. Sociale eenzaamheid neemt slechts tijdelijk toe en is relatief stabiel gedurende de gehele periode en emotionele eenzaamheid neemt langdurig toe. Het overlijden van de partner verhoogt niet het overlijdensrisico van weduwen en slechts tijdelijk dat van weduwnaren. Het overlijden van de partner veroorzaakt een transitie proces met vele facetten. Sommige veranderingen weerspiegelen het verlies, andere veranderingen tonen herstel aan. Toenames in steun en contact met netwerkleden geven weduwnaren het gevoel dat ze erbij horen. Dit vermindert sociale eenzaamheid. Extra emotionele steun zou emotionele lucht kunnen bieden en zo bij kunnen dragen aan de geleidelijke vermindering van emotionele eenzaamheid. Een gevoel van controle is voor weduw(nar)en nuttig om hun persoonlijke relaties te managen. Dit is zeker van belang ten tijde van partnerverlies, wanneer ouderen niet alleen zelf op zoek gaan naar steun, maar het ook actief aangeboden krijgen van familie, vrienden, burens en andere netwerkleden.

Dankwoord

Iemand die wil promoveren, kan, net als weduwes en weduwnaren bij hun aanpassing aan het weduwschap, alle hulp daarbij goed gebruiken. Ook ik wist mij ondersteund door een konvooi van relaties. Zoals dat gaat in een konvooi van relaties, waren er in mijn konvooi ook schommelingen. Tijdens mijn tijd op de VU was het contact met Theo en Marjolein, mijn promotor en copromotor, bijvoorbeeld intensiever dan daarna. Ik wil hen bedanken voor hun beschikbaarheid, hun kritische blik en hun commentaar. Daarnaast wil ik graag Marga en Brigitte bedanken voor de vele, gezellige lunches en lunchrondjes, de gesprekken over van alles en nog wat en hun opbouwende feedback op mijn artikelen. Dank ook aan andere oud-collega's van de afdeling Sociologie en van LASA, die op enig moment mijn artikelen van commentaar hebben voorzien. Hierdoor kon ik de artikelen toch weer een beetje beter opschrijven. Mijn collega's van het WODC wil ik bedanken voor de terugkerende vraag: 'En, is je proefschrift al af?'. Mede dankzij die herhaling, is het antwoord ditmaal ja. Natuurlijk wil ik ook Nico, Roel, José, Dimitri, Marc en Pier bedanken. Het aantal avondjes in de kroeg is dan wel afgenomen, met een biertje in de kroeg was (en is) er altijd de mogelijkheid om een boom op te zetten over de leuke en minder leuke kanten van promoveren of over andere dingen. Jullie hebben mij er op de juiste momenten aan herinnerd dat het tijd is voor een promotiefeestje. Nu is het dan zover, mannen, het komt eraan. Verder wil ik ook mijn familie nog noemen. Voor hun interesse in mijn proefschrift en alle overige ondersteuning. Tenslotte is er nog de belangrijkste persoon in mijn konvooi. Tanja, zonder jou had ik dit proefschrift niet afgemaakt. Samen hebben wij gezorgd voor de grootste verandering in ons konvooi, onze drie kinderen: Koen, Joram en Karlijn. Ik reken op jullie steun in de toekomst.

Curriculum Vitae

Maurice Guiaux werd geboren op 4 augustus 1975 in Den Haag. In 1993 ontving hij een gymnasium diploma van de regionale scholengemeenschap Oud-Beijerland. Daarna ging hij Psychologie studeren in Leiden. Op 31 mei 2001 ontving hij zijn doctoraal bul in Methoden en Technieken van Psychologie. Van 2002 tot 2006 was hij werkzaam als AIO bij de faculteit Sociale Wetenschappen van de Vrije Universiteit Amsterdam. Daarna heeft hij korte tijd gewerkt als onderzoeker bij de GGZ Buitenamstel. In 2007 begon hij als onderzoeker bij het Wetenschappelijk Onderzoek en Documentatie Centrum van het ministerie van Justitie.

Faculty of Social Sciences, VU University Amsterdam

DISSERTATION SERIES

- M.M. Meijer, (2004). *Does Success Breed Success? Effects of News and Advertising on Corporate Reputation*. Aksant Academic Publishers: Amsterdam, isbn 90 5260 145 3.
- J.J. Woldendorp, (2005). *The Polder Model: From Disease to Miracle? Dutch Neo-corporatism 1965-2000*. Amsterdam, isbn 90 77472 05 3.
- Y.P. Ongena, (2005). *Interviewer and Respondent. Interaction in Survey Interviews*, Yfke Ongena, Amsterdam, isbn 90 9020070 3.
- M.E.D. Lamboo, (2005). *Integriteitsbeleid van de Nederlandse Politie*. Eburon: Delft, isbn 90 5972 088 L.
- T.E. Aalberts, (2006). *Politics of Sovereignty*. Vrije Universiteit Amsterdam, isbn 10: 90 9020656 6 / isbn 13: 978 90 9020656 1.
- E. Zwart, (2006). *In Pursuit of Comfort. The Transnationalisation Process of Malaysian Chinese Small and Medium Enterprises*. Vrije Universiteit Amsterdam, isbn 90 8659 024 1.
- H.Haenen, (2006). *Afrikaans Denken. Ontmoeting, Dialoog en Fricitie. Een Filosofisch Onderzoek*. Buijten en Schipperheijn Motief, Amsterdam.
- A. Claver, (2006). *Commerce and Capital in Colonial Java. Trade Finance and Commercial Relations between Europeans and Chinese, 1820s-1942*. Vrije Universiteit Amsterdam.
- S. van der Pas, (2006). *Intergenerational Relationships of Older Adults. Family Structure, Contact and Norms*. Vrije Universiteit Amsterdam, isbn 10: 90 9022075 X / isbn13: 978 90 9021075 9.
- P. Mika, (2007). *Social Networks and the Semantic Web*. SIKS dissertation series No. 2007-03.
- K.E. Knibbe, (2007). *Faith in the Familiar. Continuity and Change in Religious Practices and Moral Orientations of the South of Limburg, The Netherlands*. Vrije Universiteit Amsterdam.
- C.L. Carabain, (2007). *Taking Too Much for Granted? A Study on the Measure of Social Attitudes*. Gildeprint Drukkerijen B.V., Enschede, isbn 978 90 8659 075 9.
- L.M. Cruz, (2007). *Repression and Rebellions in Southern Mexico. The Search for a Political Economy of Dignity*. Dutch University Press, Amsterdam, isbn 978 90 361 0050 2.
- C.E. de Vries, (2007). *European Integration and National Elections. The Impact of EU Issue Voting on National Electoral Politics*. Vrije Universiteit Amsterdam, isbn 13: 978 90 9022112 0.
- E. Kolthoff, (2007). *Ethics and New Public Management. Empirical Research into Effects of Businesslike Government on Ethics and Integrity*. Boom Juridische Uitgevers, isbn 978 90 5454 905 5.
- R. Vliegthart, (2007). *Framing Immigration and Integration. Facts, Parliament, Media and Anti-Immigrant Party Support in the Netherlands*. Vrije Universiteit Amsterdam, isbn 978 90 9022279 0.
- L.L.J. van Noijs, (2007). *The Democratic Deficit Closer to Home. Agenda Building Relations between Parliament and the Press, and the Impact of European Integration, in the United Kingdom, the Netherlands and France*. Vrije Universiteit Amsterdam, isbn 978-90-8659-161-9.
- R. de Man, (2007). *Where to Draw the Line? Antecedents and Consequences of the Integration of Work in Home Life*. Vrije Universiteit Amsterdam.

- F. Krijtenburg, (2007). *Cultural Ideologies of Peace and Conflict: a Socio-Cognitive Analysis of Giriya Discourse (Kenya)*. Vrije Universiteit, isbn 978 90 8659 167 1.
- R. van Steden, (2007). *Privatizing Policing. Describing and Explaining the Growth of Private Security*. BJU Legal Publishers, isbn 978 90 5454 953 6.
- L. Reijn, (2008). *Identity at Work. Control and Commitment in Post Bureaucratic Organisations*. Vrije Universiteit Amsterdam, isbn 978 90 8659 180 0.
- B. Vis, (2008). *Biting the Bullet or Steering Clear? Politics of (Not-) Unpopular Welfare State Reform in Advanced Capitalist Democracies*. Vrije Universiteit Amsterdam, isbn 978 90 9022715 3.
- M.J.M. de Koning (2008). *Zoeken naar een 'Zuivere' Islam. Geloofsbeleving en Identiteitsvorming van Jonge Marokkaans-Nederlandse Moslims*. Bert Bakker.
- P. Wiepking (2008). *For the Love of Mankind. A Sociological Study on Charitable Giving*. Labor Grafimedia, isbn 978 90 77383 07 0.
- A. Supriyono (2008). *Buruh Pelabuhan Semarang. Pemogokan-Pemogokan Pada Zaman Colonial Belanda Revolusi dan Depublic 1900-1965*. Vrije Universiteit Amsterdam.
- G. van Noort (2008). *Bricks versus Clicks. A Self-Regulation Perspective on Consumer Responses in Online and Conventional Shopping Environments*. Vrije Universiteit Amsterdam, isbn 978 90 9022845 7.
- W. Stam (2008). *Does Networking Work? A Study of Social Capital and Performance among New Ventures in the Dutch Open Source Software Industry*. Vrije Universiteit Amsterdam, isbn 978 90 9023014 6.
- A. Wigger (2008). *Competition for Competitiveness: The Politics of the Transformation of the EU Competition Regime*. Rozenberg Publishers, isbn 978 90 9023150 1.
- Z. van der Wal (2008). *Value Solidity. Differences, Similarities and Conflicts between the Organizational Values of Government and Business*. Vrije Universiteit Amsterdam, isbn 978 90 9022991 1.
- H.C. van Vugt (2008). *Embodied Agents from a User's Perspective*. Vrije Universiteit Amsterdam, isbn 978 90 9023086 3.
- J. ter Horst (2008). *Weaving into Cambodia. Trade and Identity Politics in the (post)-Colonial Cambodian Silk Weaving Industry*. Vrije Universiteit Amsterdam, isbn 978 90 9023232 4.
- A. Berhe (2008). *A Political History of the Tigray People's Liberation Front (1975-1991): Revolt, Ideology and Mobilisation in Ethiopia*. Vrije Universiteit Amsterdam.
- H. van den Heuvel (2008). *Between Optimism and Opportunism. Deconstructing 'African Management' Discourse in South Africa*. Vrije Universiteit Amsterdam, isbn 978 90 9023118 1.
- K. Lasthuizen (2008). *Leading to Integrity. Empirical Research into the Effects of Leadership on Ethics and Integrity*. Vrije Universiteit Amsterdam, isbn 978 90 813277 1 8.
- I. Reci (2008). *Unemployed and Scarred for Life. Longitudinal Analyses of How Unemployment and Policy Changes Affect Re-employment Careers and Wages in the Netherlands, 1980-2000*. Vrije Universiteit Amsterdam, isbn 978 90 9023654 4.
- L.C. Horn (2009). *The Transformation of Corporate Governance Regulation in the European Union*. Vrije Universiteit Amsterdam, isbn 978 90 9023813 5
- B.E. Büscher (2009). *Struggles over Consensus, Anti-Politics and Marketing*. Vrije Universiteit Amsterdam, isbn
- H.M. Koolma (2009). *Verhalen en Prestaties, een Onderzoek naar het Gedrag van Woningcorporaties*. Vrije Universiteit Amsterdam, isbn 978 90 8659 273 9
- L. Horn (2009). *The Transformation of Corporate Governance Regulation in the European Union: Towards a Marketisation of Corporate Control*. Vrije Universiteit Amsterdam
- J.J. van Wijk (2009). *Moving beyond Heroes and Winners*. Vrije Universiteit Amsterdam, isbn 978 90 8659 285 2

- H.A. Binnema (2009). *How Parties Change. EU Integration and the Flexible Response of Political Parties*. Vrije Universiteit Amsterdam, isbn 978 90 8659 309 5
- E. Grassiani (2009). *Morality and Normalcy in Asymmetrical Conflict: Distancing, Denial and Moral Numbing among Israeli Conscripts in Everyday Practices of Occupation*. Vrije Universiteit Amsterdam
- G. van Koningsbruggen (2009). *Processing and Acceptance of Threatening Health Information: the Effects of Self-Affirmation*. Vrije Universiteit Amsterdam
- D. van Bergen (2009). *Suicidal Behaviour of Migrant Women in the Netherlands*. Vrije Universiteit Amsterdam
- J. Perry (2009). *Goodwill Hunting: Accounting and the Global Regulation of Economic Ideas*. Vrije Universiteit Amsterdam
- A. Linden (2009). *Besmet. Levenslopen en Motieven van Extreem-Rechtse Activisten in Nederland*. Vrije Universiteit Amsterdam
- A. Schakel (2009). *A Postfunctionalist Theory of Regional Government. An Inquiry into Regional Authority and Regional Policy Provision*. Vrije Universiteit Amsterdam
- I. Plaisier (2009). *Work and Mental Health: Studies on the Impact Characteristics, Social Roles and Gender*. Vrije Universiteit Amsterdam
- J. Roeland (2009). *Selfation: Dutch Evangelical Youth between Subjectivization and Subjection*. Vrije Universiteit Amsterdam
- A. Vliegthart (2009). *Transnational Actors and Corporate Governance Regulation in Postsocialist Europe*. Vrije Universiteit Amsterdam
- S. Bhagavatula (2009). *Weaving Social Networks. Performance of Small Rural Firms in India as an Outcome of Entrepreneurs' Social and Human Capital*. Vrije Universiteit Amsterdam
- A. van Essen (2009). *Seeking a Balance: The Emergence of New Public Management in Health Care Regulation*. Vrije Universiteit Amsterdam
- J. Soons (2009). *Love Life and Happiness: A Study of Partner Relationships and Well-being in your Adulthood*. Vrije Universiteit Amsterdam

EXPECTED

- J. de Raadt (2009). *Contestable Constitutions: the Politics of Institutional Conflict in Post-Communist East Central Europe*. Vrije Universiteit Amsterdam
- B. Tasew (2009). *Methaphors of Peace and Violence in the Folklore Discourses of South Western Ethiopia: A Comparative Study*. Vrije Universiteit Amsterdam
- M. Guiaux (2010). *Social adjustment to widowhood: Changes in personal relationships and loneliness before and after partner loss*. Vrije Universiteit Amsterdam
- W. Reedijk (2010). *Effecten van religieuze dialogen tussen Joden, Christenen en Moslims op eigen identiteit*. Vrije Universiteit van Amsterdam.
- M. Hellendoorn (2010). *Opkomst en Neergang van het Kostwinnaarschapsysteem*. Vrije Universiteit Amsterdam
- D. Gberie (2010). *From Chains to Neckties: Liberated Africans and the Making of Modern Sierra Leone*. Vrije Universiteit Amsterdam
- E. Ersanelli (2010). *Sociaal-culturele integratie van Turkse migranten en hun nakomelingen in Nederland, Frankrijk en Duitsland*. Vrije Universiteit van Amsterdam.
- T.S. Dalverda (2010). *Franco-Mauritius, the maintenance of an elite position*. Vrije Universiteit van Amsterdam.
- G.A. Moerman (2010). *Effecten van doorvraagtactieken in interviews met open vragen*. Vrije Universiteit van Amsterdam.