Surviving the loss of a child, a spouse, or both

Implications on life satisfaction and mortality in older ages
SURVIVING THE LOSS OF A CHILD, 
A SPOUSE, OR BOTH 
Implications on life satisfaction and mortality 
in older ages

ANNA BRATT

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Surviving the loss of a child, a spouse, or both: implications on life satisfaction and mortality in older ages
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Abstract

Losing a loved one – a child or a spouse – is described as one of the most stressful or negative experience of a person’s life. Aging is associated with a higher risk of the death of close family members, yet few studies have investigated the impact of such losses on different health outcomes either by type of loss or by the combined loss of both a child and a spouse. This thesis is based on three studies examining the effect of bereavement on the health of older adults who have lost a child, spouse, or both and whether the different losses were associated with Life Satisfaction (LS) or mortality. The sample was collected from the Swedish National Study of Aging and Care (SNAC).

The results showed that the loss of a child, spouse or both was experienced as among the three most important negative life events in the bereaved groups. About 70% of those bereaved of a child or a spouse mentioned these losses as among their three most important negative life experiences. In the child-and-spouse-bereaved group, 48% mentioned both losses while 40% mentioned only the loss of a child or a spouse, but not both. However, only marginally effects on LS and mortality after child, spouse or child-spouse bereavement in older adults was found. Longer time since the loss was associated with higher LS and lower mortality risk, and type of loss did not seem to determine LS or mortality. Gender differences were found: child-, spouse and child-and-spouse-bereaved men had lower LS than the corresponding groups of bereaved women, and furthermore, child-bereaved men had an increased mortality risk compared to child-bereaved women. Finally, significantly more women in the child-and-spouse-bereaved group compared to the men in this group, mentioned the loss of their child but not the spouse, among the three most important negative life events.
Sammanfattning

Förlust av ett barn eller en make/maka beskrivs vara bland det mest negativa man kan drabbas av i livet. Trots att risken att förlora nära och kära ökar med stigande ålder, finns det i dagsläget få studier som undersökt hur sådana förluster påverkar hälsan hos äldre personer och om en sådan påverkan varierar beroende på om det är förlust av barn, make/maka eller barn och make/maka. Föreliggande avhandling undersöker det här ämnet i tre delstudier. Först studeras om deltagarna inom förlustgrupperna beskriver förlusten som en av de tre viktigaste negativa händelserna i deras liv. Därefter utforskas om förlusten inverkar på livstillförsel och dödlighetsrisk. Deltagarna kommer från en svensk nationell studie om äldrande och omsorg, nämligen the Swedish National Study on Aging and Care (SNAC).

Resultaten i den här avhandlingen visar att majoriteten av de deltagare som har förlorat ett barn, en make/maka eller både och, upplevde förlusten som en av de tre mest negativa händelserna i livet. Ungefär 70 % av de som hade förlorat en av förlusterna, närmare bestämmer någon av dessa förluster bland de tre viktigaste negativa händelserna. Av de som hade förlorat både ett barn och make/maka valde ca 48 % båda förlusterna, medan ca 40 % uppgav antingen förlusten av barnet eller make/maka. De olika förlusterna tycks endast ha en liten inverkan på deltagarnas livstillförsel och dödlighetsrisk. Det framkom att för varje år som hade förlorat sedan förlusten/förlusterna minskade risken att dö med ca 1 %. Resultaten tyder på att det inte går att dra slutsatsen att en typ av förlust skulle ha större inverkan jämfört med någon annan. Könsskillnader hittades: män hade dödligare levetid och lägre livstillförsel jämfört med kvinnorna i samma grupp, dessutom hade de en lägre inkomst i grupperna som förlorat ett barn en ökad risk att dö jämfört med kvinnorna.
### Abbreviations

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ANOVA</td>
<td>analysis of variance</td>
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<tr>
<td>CI</td>
<td>confidence interval</td>
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<tr>
<td>IADL</td>
<td>Instrumental Activity of Daily Living</td>
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<td>ELSI</td>
<td>Elders Life Stress Inventory</td>
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<td>GAS</td>
<td>Good Aging in Skåne</td>
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<tr>
<td>HR</td>
<td>hazard ratio</td>
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<tr>
<td>HPA</td>
<td>hypothalamic-pituitary-adrenocortical (axis)</td>
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<td>LS</td>
<td>life satisfaction</td>
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<td>LSI-A</td>
<td>Life Satisfaction Index A</td>
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<tr>
<td>N/n</td>
<td>number</td>
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<tr>
<td>NAS</td>
<td>Normative Aging Study</td>
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<td>NEO-FFI</td>
<td>NEO Five Factor Inventory</td>
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<tr>
<td>NS</td>
<td>not significant</td>
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<tr>
<td>M</td>
<td>mean</td>
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<tr>
<td>MANOVA</td>
<td>multivariate analysis of variance</td>
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<tr>
<td>MS</td>
<td>Multiple Sclerosis</td>
</tr>
<tr>
<td>SD</td>
<td>standard deviation</td>
</tr>
<tr>
<td>SNAC</td>
<td>Swedish National study on Aging and Care</td>
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<tr>
<td>SNAC-B</td>
<td>Swedish National study on Aging and Care-Blekinge</td>
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<tr>
<td>SNS</td>
<td>sympathetic nervous system</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>Tukey’s HSD test</td>
<td>Tukey’s honestly significant difference test</td>
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### Definitions

- **Bereavement**: the objective situation of having lost someone significant through death
- **Older adults**: individuals aged 60 years and older
- **Loved one**: a close relative regardless of the emotional relationship
LIST OF SCIENTIFIC PAPERS

This thesis is based on the following papers:

Paper I
Bratt, A.S., Stenström, U. & Rennemark, M. (2016) Exploring the Most Important Negative Life Events in Older Adults Bereaved of Child, Spouse or Both
In press, OMEGA, Journal of Death and Dying, 1-10
DOI: 10.1177/0030222816642453

Paper II
Bratt, A.S., Stenström, U. & Rennemark, M. (2016b) Effects on Life Satisfaction in Older Adults after Child and Spouse Bereavement
Aging & Mental Health, 1-7
Published online: DOI: 10.1080/13607863.2015.1135874

Paper III
Bratt, A.S., Stenström, U. & Rennemark, M. (2016a) The Role of Neuroticism and Conscientiousness on Mortality Risk in Older Adults After Child and Spouse Bereavement
Aging & Mental Health, 20(6), 559-566.
DOI: 10.1080/13607863.2015.1031638

These papers are included in the thesis with the kind permission of the publishing journals.
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INTRODUCTION

In older age, the risk of losing a loved one increases. The death of a spouse or a child is rated among the most stressful of negative life events (Holmes & Rahe, 1967; Miller & Rahe, 1997) and is associated with adverse health outcomes such as higher mortality, depression, and anxiety (Stroebe, Schut, & Stroebe, 2007). However, few studies have compared outcomes after different familial bereavements (Arbuckle & de Vries, 1995; Maccallum, Galatzer-Levy, & Bonanno, 2015; Perkins & Harris, 1990; Sanders, 1979-80). As far as we know the studies reported in this thesis are the first to compare the impact on life satisfaction (LS) and mortality by type of loss (child, spouse or both) in older adults.

Bereavement is “the term used to denote the objective situation of having lost someone significant through death” (Stroebe, Hansson, Schut, Stroebe, & Van den Blink, 2008, p. 4). In bereavement research the death of a significant other, is described as a normal, yet painful experience, that most people seem to adjust to over time, but also as a traumatic life event associated with “a high risk of detrimental effects on mental and physical health” (Stroebe, Stroebe, & Hansson, 1993, p. 3). In contrast to this description, although research often emphasizes the far-reaching detrimental implications of bereavement, later findings show that only a minority (10-20%) of the bereaved have an increased risk of long-term effects (Stroebe, Schut, & Stroebe, 2007). It is important to acknowledge adverse health effects after the loss of a loved one, but also to emphasize that the majority of bereaved individuals seem to recover (Bonanno, 2004; de Vries, Davis, Wortman, & Lehman, 1997; Kreicbergs, Lannen, Onelov, & Wolfe, 2007; Lund, Caserta, & Dimond, 1993). Indeed, emphasizing adverse consequences might have a negative impact on those affected. If people associate the loss of a loved one with danger and life-threatening effects, this might worsen the situation for those suffering a loss. The aim of this thesis is to explore whether people bereaved of a child, a spouse, or both perceive their loss(es) as among the three most negative events of their lives and to investigate the impact of bereavement on
their perceived life satisfaction (LS) and actual mortality after the different bereavements.
BACKGROUND

From a lifespan developmental perspective, health in older age is an ongoing process (Aldwin, Park, & Spiro, 2007). Lifetime resilience or risk factors are influenced by early experiences, personality traits, and environmental factors (Berg, Smith, Henry, & Pearce, 2007). The definition of health according to the World Health Organization (WHO) is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2006). Gerontology focuses on promoting optimal ageing, in part by trying to optimize or maintain emotional well-being. Selective Optimization with Compensation (SOC) theory describes a set of management processes for various kinds of age-related loss such as declines in physical and cognitive abilities as well as the loss of a loved ones (Baltes & Baltes, 1990). SOC is relevant to the study of bereavement in older age because the death of a child or a spouse may be very challenging for those affected. In the first process described by SOC theory, selection, specific goals important to the individual are prioritized and the most appropriate and feasible ways to reach those goals are identified. For an older bereaved person, it may be most important to focus on everyday life and put aside less urgent matters (Hansson & Stroebe, 2007). The second process, optimization, focuses on the internal and external resources the individual can use to reach the selected goals. This could include bereaved persons’ conscious efforts to maintain their own health after the loss and to minimize stress. The third and final process, compensation, focuses on managing any shortcomings related to declining resources and abilities, for example by enlisting the help of others, trying unused skills or acquiring new ones, such as resuming or learning how to cook (Freund & Baltes, 1998). Older adults in the 1998 Freund and Baltes study who reported SOC-related behaviours were found to be more satisfied with ageing and to have more positive emotions than older adults with low SOC-related behaviours.
Life Satisfaction

Different measures of subjective well-being (SWB) are often used in studies of older adults to quantify how well they have adapted to difficult life circumstances and to changes related to the ageing process (Aldwin, Yancura, & Boeninger, 2007). The concept of SWB is used to describe individuals’ subjective experiences including LS, happiness, and both positive and negative affects (Baird, Lucas, & Donnellan, 2010). LS refers to the individual evaluation of one’s life as a whole including past, present, and future events (Durayappah, 2011). Thoughts and perceptions about the present moment, recollections of the past, and anticipation or worry about the future influences levels of happiness and satisfaction with life. Research into whether LS remains stable or declines in older age has yielded mixed results. Some studies, supporting Carstensen’s socioemotional selectivity theory (1995), suggest that older people tend to be satisfied with their life situation, despite declining resources (Carstensen, 1995; Charles & Carstensen, 2010). This theory was developed from the SOC theory described above and Carstensen concluded that LS may be greater in older age because of improved abilities to regulate emotion and lower levels of negative affect in older individuals. Furthermore, as people get older, they seem to select those social contacts that are most important to them at the expense of larger social networks and Carstensen (2010) argue that LS is related to the quality of relationships rather than the frequency of the contact.

In contrast to the view of the socioemotional selectivity theory, some studies have found LS to decline from people’s mid-60s (Mroczek & Spiro III, 2005) or 70s into their late 80s with about one third of a standard deviation (Baird, Lucas, & Donnellan, 2010). However, another report from six European countries (Fagerström, Borg, Balducci, et al., 2007) showed that most participants aged 60-89 were satisfied with their lives. Low LS was associated with a lack of social support, poor or fair finances, and health problems, and in some samples lower LS was explained by reduced ability to perform activities of daily living (ADL) or by being a woman. Gender differences in LS were also found in a longitudinal study by Chipperfield & Havens, (2001), that LS ratings remained stable over 7 years in non-bereaved older men, but declined in a corresponding group of women over the same period of time.

Mortality

Mortality, in addition to well-being and LS can also capture adaptation to difficult life circumstances. The most negative outcome of non-adaptive after loss of a loved one is mortality. From a lifespan developmental perspective, the risk of dying depends both on individual factors such as cognition and
personality traits and on environmental circumstances such as cultural expectations and social support. Personality traits can be beneficial or adverse in the process of adapting to age-related losses. Personality can be described as a set of cognitive-motivational and socioemotional traits and behaviours that forms in childhood, and that affects attitudes, emotions, body language and actions throughout life (Friedman & Martin, 2007; Rydén & Stenström, 2015). Most researchers treat personality as stable across the adult life-span, since personality traits is assumed to stem from biological causes (Costa & McCrae, 1992). In contrast, the contextualist perspective emphasizes the influence of the social environment on personality traits, which undergo complex and ongoing change (Srivastava, John, Gosling, & Potter, 2003).

One of the most frequently used models of personality is the “big-five” model that measures the personality traits of neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience (Costa & McCrae, 1989). Srivastava et al. (2003) found that the personality trait conscientiousness increased in early and middle adulthood and that neuroticism declined in middle adulthood among women, but not among men. Personality does seem to moderate the effect of negative life events, which in turn affects how satisfied individuals are with their life situation (Barberá, Leandro, Pérez, & Morán, 2013; Steel, Schmidt, & Shultz, 2008). Neuroticism is the only identified trait that is negatively, rather than positively, related to LS.

Studies exploring the link between personality and mortality have found the trait neuroticism, characterized by anxiety, hostility, self-consciousness and impulsiveness to be especially associated with an elevated mortality risk for both men and women (Mroczek, Spiro III, & Turiano, 2009; Ploubidis & Grundy, 2009). Some indications, however, show that high neuroticism also can be a protective mortality factor (Ploubidis & Grundy, 2009; Weiss & Costa, 2005). In contrast, the personality trait conscientiousness, including features such as organization, reliability, punctuality and self-discipline, seems to be protective against mortality (Martin, Friedman, & Schwartz, 2007; Terracciano, Löckenhoff, Zonderman, Ferrucci, & Costa, 2008; Weiss & Costa, 2005). There are several reasons why conscientious people may live longer than those who score low on this trait. For example, they seem to maintain a healthier lifestyle, and to be less likely to use negative coping strategies such as heavy drinking or other risk behaviours.

**Stress Theory**

The cognitive stress theory of Lazarus and Folkman (1984) is one of the most influential theories on the impact on people of different types of negative life events, such as the loss of a loved one. Bereavement does not affect everyone in the same way: the death of a spouse might be extremely stressful for one
person, but could be a relief for another who has seen the spouse suffer. Personality characteristics, intelligence, social skills, education, and social support may explain differences in reactions between individuals (Lazarus, 1999), but the main source of variation in stress is individual interpretation of both the situation (primary appraisal), and one’s ability to handle the situation (secondary appraisal). When people believe that they possess sufficient resources to handle a negative situation, they interpret it as a challenge. However, when the demands are seen to exceed resources, the situation is appraised as a threat (Jamieson, Nock, & Mendes, 2012).

Research on the relationship between age and stress has found two paradoxes: the first is that older adults report lower levels of stress than younger adults, despite such increased stressors as bereavement, chronic illness and reduced income (Aldwin & Yancura, 2010); the second is that stress can under certain circumstances have the positive effect of stress-related growth, including improved and new mastery of coping skills, more positive values, and closer relationships with loved ones. Whether older adults are more or less vulnerable to psychosocial stressors than younger adults is not yet fully known. Some researchers suggest that those who survive into late life are inherently more resilient and less vulnerable to stress than others, and the most vulnerable people do not reach older age (Aldwin, Park, & Spiro, 2007). However, older adults do seem to be more vulnerable to both physical and psychosocial stressors since their neuroendocrine and immune systems have slower rates of return to normal levels after activation (Aldwin & Yancura, 2010). Despite their greater vulnerability, older adults report less stress. Aldwin and Yancura (2010) suggest this might be because they consciously avoid becoming upset by problems and are therefore less likely to appraise situations as stressful.

**Bereavement - the Most Stressful Life Event**

In the 1960s, investigations into the effects of different life events on health outcomes increased rapidly, especially those focused on links between stress after difficult life experiences and the onset of illness (Holmes & Rahe, 1967). Research investigating which life events are rated most negative or stressful has described the loss of a loved one as very negative (Aldwin, 1990; Holmes & Rahe, 1967; Miller & Rahe, 1997; Sutin, Costa, Wethington, & Eaton, 2010). The ratings in some studies were based on participants’ opinions about the life events that would be most difficult to adjust to, not necessarily events they had experienced themselves (Holmes & Rahe, 1967; Miller & Rahe, 1997). The instruction in Holmes & Rahe (1967, p. 213) for rating the different life events was to: “…use all of your experience in arriving at your answer. This means personal experience where it applies as well as what you have learned to be the case for others”.

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Frequent research using the original Social Readjustment Rating Scale (Holmes & Rahe, 1967) including such events as job-related issues, marital and financial problems, the birth of a child, and other events occurring with higher frequency in younger adults, have found the death of spouse to be rated the most negative. When the loss of a child was included on the scale decades later, it was found to be the most negative event for women, followed by the death of spouse. The opposite pattern was seen among men (Miller & Rahe, 1997).

As life-event research developed, a measure more relevant to older adults, the Elders Life Stress Inventory (ELSI) was developed (Aldwin, 1990). In the ELSI, older adults reported events they had actually experienced and rated how stressful they were using a scale from 1 (not at all stressful) to 5 (extremely stressful). Two samples were investigated: the California sample including 308 men and women and the Normative Aging Study (NAS) in 1487 men. The loss of a child was found to be the most stressful in both samples, followed by the loss of a spouse, and no gender differences were reported. However, the death of a child was the least reported life event, mentioned only once in the first sample and 14 times in the latter.

Other studies have explored the impact of life events, and in one of them the death of a child was found to be the only predictor of negative affect for both older men and women, even though 19% had experienced the death of a spouse (Stallings, Dunham, Gatz, Baker, & Bengtson, 1997).

**Mind and Body in Relation to Bereavement**

Most people who lose a family member experience a wide variety of psychological symptoms such as sadness, anxiety, anger, and intrusive thoughts, but also physical pain reflected by phrases such as “a broken heart” or “pangs of grief”. Studies using functional magnetic resonance neuroimaging techniques have found that the earliest reaction in normal grief is separation anxiety (O’Connor, 2005). The loss of a loved one activates the same brain areas as the acute panic seen in young animals or in babies suffering separation distress when taken away from their mothers (Panksepp & Watt, 2011). The panic/grief system shares the same brain area as general pain mechanisms, which could explain the physical pain experienced by those who lose a loved one.

Because the loss of a loved one is associated with high levels of stress and the central organ of the stress response is the brain, the brain determines what is stressful and how we react to perceived stressors, and it controls both behavioural and physiological responses (McEwen, 2008). The predominant view regarding responses to stress is the so-called fight-or-flight response: an individual can fight by confronting the stressor or flee in an effort to escape
from the threat. This binary response includes increased cardiovascular and neuroendocrine activities regulated by two interacting stress systems: the hypothalamic-pituitary-adrenocortical axis and the sympathetic nervous system (Taylor, 2006). Imbalances in these systems heighten the risk of stress-related disorders such as cardiovascular diseases (Cooper, Katzel, & Waldstein, 2007). However, another important aspect of the human stress response is the tendency to seek support and protection when feeling threatened. The hormone oxytocin motivates individuals to connect with others, but it has also been found to dampen the fight-or-flight response, which could be one explanation of why social support is beneficial in the face of stress (Taylor, 2006).

Predicting Bereavement Outcome

Because there is great variability in bereavement outcomes, with some individuals showing increased risk of mental or physical health problems while others do not, it is important to investigate which factors influence these different reactions. One model, the Integrative Risk Factor Framework was developed to describe factors that influence bereavement outcome, (Figure 1; Stroebe, Folkman, Hansson, & Schut, 2006). This model is a further development of Lazarus and Folkman’s cognitive stress theory, combined with the Dual Process Model of Coping with Bereavement (DPM) Stroebe and Schut, (1999). The term “risk factor” is used in this model to describe personal or situational features associated with poor outcomes.

As shown in Figure 1, Category A includes two types of stressors: loss-oriented stressors, including different facets of the loss experience, and restoration-oriented stressors, which are secondary to the loss. The loss-oriented domain includes the type of loss (e.g., child or spouse), and other factors such as whether the death was traumatic and the quality of the bereaved’s relationship with the deceased. The secondary consequences associated with the loss include factors such as poverty or social isolation. A bereaved individual will alternate between coping with loss-oriented and restoration-oriented stressors, and this alternation is described as essential to adaptation (Stroebe, Folkman, Hansson, & Schut, 2006). Category B involves interpersonal resources or external factors in the surrounding society and environment (e.g., availability of social support and effect of cultural factors). Category C describes personal aspects of the bereaved individual (e.g., personality, sociodemographic factors, and gender). Category D illustrates the process of adjustment, including both cognitive and behavioural efforts to manage the situation, and emotion regulation abilities. Category E outlines possible or projected outcomes, including both short- and long-term consequences. Outcomes depend on all the different categories described in
the model and the relationships between the individual’s different demands and resources (Hansson & Stroebe, 2007).

Figure 1. The Integrative Risk Factor Framework for the prediction of bereavement outcome

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1 Reprinted from Social Science & Medicine, 63, Stroebe, Folkman, Hansson, & Schut. The prediction of bereavement outcome: Development of an integrative risk factor framework 2440-2451, Copyright (2006), with permission from Elsevier
Comparing Different Familial Bereavements

Most bereavement research concerns spousal bereavement (Stroebe, Schut, & Stroebe, 2007) and those studies including child-bereavement have mostly relied on small self-selected samples involving the loss of younger children (Dyregrov & Dyregrov, 1999; Dyregrov, Nordanger, & Dyregrov, 2003; Kreicbergs, Lannen, Onelov, & Wolfe, 2007; Kreicbergs, Valdimarsdottir, Onelov, Henter, & Steineck, 2004; Lannen, Wolfe, Prigerson, Onelov, & Kreicbergs, 2008). The review by Stroebe et al. (2007) consisted of longitudinal studies controlled for confounders, including comparison groups of bereaved versus non-bereaved, with sample sizes, response rates, and standardized measures that met quality criteria. However, these quality criteria are not met in most studies, which show several sampling and methodological problems. Samples are often drawn from special self-help bereavement groups or clinical populations and are therefore small and selected, and control or comparison groups are rare (see Table 1 for a review). Nevertheless, bereavement theorists consistently claim that, “the loss of a child is more devastating to survivors than the deaths in other kinship relationships—for example, the death of a parent, spouse, or sibling” (Murphy, 2008, p. 375).

However, to date, whether or not the outcome of bereavement differs by loss type, is still unclear. In a literature search, few investigations were found to have included different types of deaths, and only 10 articles (of which two were conducted by this author), compared outcomes in child- and spouse-bereavement. The wide range of outcome measures used in the studies showed mixed results, as illustrated in Table 1. Four of the 10 studies, showed that child-bereaved individuals had more intense grief reactions and higher depression scores than those bereaved of a spouse (Lundin, 1984; Maccallum, Galatzer-Levy, & Bonanno, 2015; Middleton, Raphael, Burnett, & Martinek, 1998; Sanders, 1979-80), and one study found no differences in grief and depression between child- and spouse-bereaved groups (Cleiren, Diekstra, Kerkhof, & van der Wal, 1994). Maccallum et al. (2015), found that the stronger association with chronic grief for the child-bereaved disappeared when controlled for covariates such as age of the participants, gender, education, and pre-loss financial assets. Only one study found that spousal bereavement was associated with a higher (suicidal) risk than child bereavement (Agerbo, 2005), while one of the studies included in this thesis (Bratt, Stenström, & Rennemark, 2016a) found no differences in overall mortality risk between groups. Nielsen, Bager, Simonsen et al., (2014) found no increased risk of Multiple Sclerosis (MS) following bereavement, and two studies investigating perceived LS in older adults found no (Arbuckle & de Vries, 1995) or only marginally differences between child- and spouse-bereaved participants (Bratt, Stenström, & Rennemark, 2016b).
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<th>Authors, date and country of study</th>
<th>Description of study</th>
<th>Method</th>
<th>Results</th>
<th>Conclusions</th>
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<tr>
<td>Agerbo, 2005 Denmark</td>
<td>The Danish Civil Registration System was used to identify 9011 people aged 25–60 years who had committed suicide during the period 1982-1997. These individuals were compared with 180 220 age- and gender-matched controls.</td>
<td>Logistic regression to assess risk of suicide.</td>
<td>The risk of suicide (risk ratio/95% CI) was increased if: - the subject’s spouse had been admitted to psychiatric hospital, particularly within less than 2 years (1.90–2.57), - the subject’s spouse had died, especially if the death was by suicide (13.43–41.45). If the spouse had died by another cause (6.44–13.30), - the subject’s child had died by suicide (2.63–7.45). If the child had died by another cause (1.85–2.73). If the parent had one or more children the risk decreased: One child (0.62–0.70), two children (0.46–0.51), or three or more children (0.44–0.51).</td>
<td>Spouse-bereavement, especially following spousal suicide, increases the risk of suicide in surviving spouses, and this risk is greater in men than in women. Child-bereavement increases the risk of parental suicide in both parents. Being/remaining a parent is protective against suicide in women.</td>
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Arbuckle & de Vries (1995) USA

Sample was collected from the national study Americans' Changing Lives, including 41 bereaved of an adult child, 143 bereaved of a spouse, and 407 non-bereaved of child or spouse, aged 55 years or older. Response rate not reported.

Long-term, 2–15 years post loss, personal adjustment to spouse- or child-bereavement in later life was investigated using multiple regression analysis.

No differences were found between child- and spouse-bereaved or between child- and non-bereaved. The spouse bereaved had lower LS than non-bereaved, however, the effect size was small.

“It was somewhat surprising to discover that the experience of later life parental bereavement did not differ from that of later life spousal bereavement, considering that the research has consistently shown persistent, negative consequences following the death of an adult child” (p.645). The number of bereaved parents was small, which could explain why no significant difference was found.

Bratt et al. (2016a) Sweden

Participants were selected from the Swedish National Study of Aging and Care-Blekinge (SNAC-B) including 59 child-bereaved, 292 spouse-bereaved, 69 child- and spouse bereaved, and 635 non-bereaved individuals who had not experienced either the loss of a child or the loss of a spouse. The sample was randomly selected, age 60–104 years. Response rate: 61%.

Cox proportional hazard regression analysis was used to investigate whether child-, spouse-, or child-and-spouse-, bereavement predicted mortality.

The results showed that having lost a child, spouse, or both over the course of a lifetime, had only small effects on mortality in older age, with a decreased risk of about 1% for each year since the loss. Gender differences were found in the child-bereaved group, with the men having a 95% higher mortality risk than the women, which should be compared with the overall higher mortality risk in men of

“In a sample of 976 older adults of which more than half of the group was bereaved, the results of the multivariate analysis indicated that having lost a child, spouse, or both child and spouse in a lifetime perspective, did not predict mortality in older age. This finding is important to acknowledge. The overall conclusion from the majority of earlier research is that losing a child or spouse is
81% compared with the women in the total sample. Associated with higher mortality risk. However, the majority of these studies do not include important covariates” (p. 564).

The sample was selected from the SNAC-B including 362 spouse-bereaved, 69 child-bereaved participants, 84 child-spouse-bereaved, and 635 non-bereaved. The sample was randomly selected. Ages 60–96 years. Response rate: 61%.

One-way between-group ANOVA with post-hoc comparisons using the Tukey HSD test to assess differences in LS between bereaved and non-bereaved groups by gender. Standard multiple regression analyses were conducted to explore whether the loss of a child, a spouse or both, could predict any of the variance in LS when adjusted for age, gender, functional ability, perceived health, social support, finances, education, and time since loss as well as to investigate any gender differences within the bereaved groups.

The findings revealed that those who had lost both a child and a spouse had the lowest level of LS. However, when controlled for confounding variables, the different bereavements contributed about the same to the total R Square of LS; spouse-bereavement explained the most variance, followed by child-bereavement and child-and-spouse bereavement. Gender differences were found in all three bereaved groups; bereaved men had lower LS than bereaved women.

Bereaved older adults have somewhat lower LS than non-bereaved and bereaved men seem more affected than bereaved women. Our findings suggest that more attention should be given to men’s experiences after the loss of a loved one.

Bratt et al. (2016b) Sweden
Cleiren et al. (1994) Netherlands

The participants contacted through the police or health services, were 73 spouse-bereaved, 68 child-bereaved, 86 bereaved of siblings, and 82 adults who lost a parent. The sample was not randomly selected. Mean age was 43.3 years. Response rate was 66% initially and 60% at follow-up. Baseline data were taken at 4 months after the loss and at follow-up 14 months after the death.

MANOVA analyses were used to explore differences in loss reactions such as depression and physical health complaints after death due to suicide, traffic fatality, or long-term illness.

Women had stronger loss-related reactions than men. The child-bereaved women had highest levels of depression: 40% were moderately depressed at 4 months and 38% at 14 months. Spouse- and child-bereaved people were more affected than sibling and parent-bereaved people. Widowers had stronger reactions than widows. A general improvement of health was found between interviews.

“First of all, we can conclude that on the basis of looking only at kinship relationship, sex, and early adaption, we are able to identify with a high degree of reliability those who are at risk for future problems with the loss.” “… When someone is crying his eyes out in your office a few months after the loss of a family member, there is a strong possibility that he will still be crying one year, or even many year later” (p. 34).

Lundin (1984) Sweden

The sample was obtained from the death register at Uppsala Institute of Forensic Medicine. 54 spouse-bereaved and 46 child-bereaved participants, aged 40–50 years at the time of bereavement. Response rate: 60%.

Mean between groups differences in grief reactions using the Texas inventory of grief. Statistical methods not reported.

Higher degree of mourning and more pronounced grief reactions were found among the child-bereaved than the spouse-bereaved 8 years after bereavement.

About 65% had a good outcome in terms of low scores on negative grief reactions, for example “not accepting the loss”, and high scores on positive grief reactions such as “ability to talk about the lost person”. No differences were found between the child-bereaved or spouse-bereaved in terms of good outcome.
The sample was collected from the nationally representative longitudinal study Health and Retirement Study including 1995 spouse-bereaved and 513 child-bereaved. Ages 39–90. Response rate not reported.

Latent growth mixture modelling was used to identify trajectories of depression following spouse- or child-bereavement. The participants were assessed once before and three times after their loss.

Four discrete trajectories were identified: Resilience (little or no depression; 68.2%), Chronic Grief (an onset of depression following loss; 13.2%), Depressed-Improved (high pre-loss depression that decreased following loss; 11.2%), and Pre-existing Chronic Depression (high depression at all assessments, 7.4%). Chronic Grief was present in 14% of the child-bereaved group compared with 11.1% in the spouse-bereaved group. 64.3% of the child-bereaved were categorized as resilient compared with 70.6 in the spouse-bereaved group.

“The different trajectories were present for both child and spousal loss. There was some evidence that child loss in later life was associated more strongly with the Chronic Grief trajectory and less strongly with the Resilience trajectory. However, these differences disappeared when covariates were included in the model” (abstract p 72).
Information about the subjects who had lost a child or spouse was obtained from the Danish Civil Registration System. 34,711 spouse-bereaved and 28,682 child-bereaved were included. MS cases were identified in the Danish Multiple Sclerosis Registry. The child-bereaved group was compared with non-bereaved parents and the spouse-bereaved group with non-bereaved married adults.

Log-linear Poisson regression analysis was used to obtain rate ratios of MS according to major stressful events. Bereaved parents experienced no unusual risk of MS compared with non-bereaved parents nor did spouse-bereaved adults compared with their married counterparts. Little evidence was found for a causal association between loss of a child or spouse and subsequent risk of MS.

The participants were recruited through the daily obituary section of the newspaper: 53 spouse-bereaved, 14 child-bereaved, 35 adults who had lost a parent, and a non-bereaved group of 107 individuals. Age range 27–67, mean age 49.6. All participants in the child-bereaved group were under 60 years old. The sample was not randomly selected. Response rate 60% of women and 62% of men.

The Grief Experience Inventory (GEI), the Minnesota Multiphasic Personality Inventory, and a demographic questionnaire were used. Univariate ANOVA were conducted on the GEI using types of death as the independent variable. The participants were contacted 1–1.5 months after the death. The child-bereaved participants had more intense grief reactions and greater depression than did those bereaved of either a spouse or parent.

“In comparing the intensity of bereavement across types of bereavement suffered, the death of a child produced the highest intensities of bereavement as well as the widest range of reactions” (p. 315). “Most of the parents gave the appearance of individuals who had just suffered a physical blow and which left them with no strength or will to fight, hence totally vulnerable” (p. 317).
Bereavement and Life Satisfaction

Several important factors including the ability to regulate difficult emotions, individual personality traits, and appraisal of the loss as threat or a challenge, may influence recovery and the return of well-being after the loss of a loved one. Spouse-bereaved individuals generally have increased LS as time goes by (Lund, Caserta, & Dimond, 1993). However, compared with the non-bereaved, spouse-bereaved individuals have been found to have lower levels of LS, and this difference is more pronounced in men than in women (Berg, Hassing, McClearn, & Johansson, 2006; Berg, Hoffman, Hassing, McClearn, & Johansson, 2009; Chipperfield & Havens, 2001). Studies exploring how the loss of a child affects LS are scarce, but one study that showed no differences in levels of LS between spouse-bereaved and child-bereaved individuals, aged 55 years and older, – while both bereaved groups reported lower levels of LS than non-bereaved controls (Arbuckle & de Vries, 1995).

Bereavement and Mortality

Higher risk of mortality has been found after both child and spousal loss (Li, Precht, Mortensen, & Olsen, 2003; Stroebe, Schut, & Stroebe, 2007). The higher risk of mortality after bereavement is, according to Stroebe et al. (2007, p. 1962), “attributable in large part to a so-called broken heart (ie. psychological distress due to the loss, such as loneliness and secondary consequences of the loss, such as changes in social ties, living arrangements, eating habits and economic support)”. In contrast to these findings, another study found that spousal loss did not predict mortality (Taga, Friedman, & Martin, 2009). In that study, conscientiousness was found to be a protective survival factor. Neuroticism, however, was not associated with mortality risk except in widowed men, for whom it was found to be a protective factor.

The majority of studies have shown spouse-bereaved men to be at a higher mortality risk than spouse-bereaved women (Moon, Kondo, Glymour, & Subramanian, 2011), while child-bereaved women are at higher risk than child-bereaved men (Stroebe, Schut, & Stroebe, 2007). In the meta-analysis by Moon et al. (2011) comparing married same-sex counterparts; spouse-bereaved men had a 23% higher mortality risk but the spouse-bereaved women did not have a significantly higher mortality risk. Another review (Stroebe, Schut, & Stroebe, 2007) showed a 17% to 21% higher mortality risk in spouse-bereaved men, and a 6% to 17% higher mortality risk in women. Two studies, one in Sweden (Rostila, Saarela, & Kawachi, 2012), and the other in Denmark (Li, Precht, Mortensen, & Olsen, 2003), found that child-bereaved women had a higher risk of mortality from all causes than non-bereaved mothers (31% vs. 43%). In the Swedish study, the corresponding
mortality risk was 21% higher for child-bereaved men than for non-bereaved fathers. In the Danish sample, child-bereaved men were at a higher risk of mortality from unnatural causes only in the first 3 years of follow-up.

**Social Support in Relation to Bereavement**

The importance of social support is widely recognized in research: availability of such support is described as a buffer between negative life events and health outcomes such as mortality and depression (Uchino, 2009; Zimet, Dahlem, Zimet, & Farley, 1988). There are variety of ways to define social support such as perceived or actual help from community or social network (Zimet, Dahlem, Zimet, & Farley, 1988). Zimet et al. (1988), defined anticipated support as the belief that help or support will come from at least one other individual if the need should arise. From a lifespan developmental perspective, social support is influenced throughout life by different factors such as support or non-support in the early family environment. Such factors form the basis on which the individual develops patterns of seeking or avoiding help from others when facing life’s difficulties (Uchino, 2009). Support and help from others is important for bereaved individuals coping with the loss of a loved one (Boyraz, Horne, & Sayger, 2012). Especially in men, social support from a spouse dampens stress responses to psychosocial strain (Tost, Champagne, & Meyer-Lindenberg, 2015). In later life there may be less social support, and it can be more difficult to invest in new relationships (Van Humbeeck, Piers, Van Camp et al., 2013). When investigating the importance of social ties in non-conjugal bereavements (parents, siblings, children, grandchildren, nieces/nephews) in men and women aged 65 or older, bereaved men were found to have elevated depression but bereaved women were not (Siegel & Kuykendall, 1990). Bereaved men who did not have structured social support, for example from a church, were the most depressed. In contrast, however, a 48-month follow-up study showed that bereaved widowers with low levels of social support recovered, from depression symptoms at the same rate as those with high levels of social support (Stroebe, Zech, Stroebe, & Abakoumin, 2005).

**Bereavement and Functional Ability**

Besides the disruptive feelings associated with losing a child or spouse, bereavement also includes the loss of both the emotional and practical support previously given by the deceased (Lund, Caserta, & Dimond, 1993; Smith, Nunley, Kerr, & Galligan, 2011). The bereaved may therefore need to handle duties that their partner used to be responsible for, such as preparing food or managing the finances (Lund, Caserta, & Dimond, 1993). In a sample of
adults, aged 65 years or older, lacking several functional abilities was found to be associated with higher mortality risk (Fried, Kronmal, Newman et al., 1998). A decline in functional ability has also been seen among older adults who have lost a child or a spouse – an effect that decreased with time (d'Epinay, Cavalli, & Guillet, 2009).

**Time Since the Loss**

Numerous studies have shown that psychological symptoms and health problems are highest in the first year after the loss of a child or a spouse and they then subside (Kreicbergs, Valdimarsdottir, Onelov, Henter, & Steineck, 2004; Lund, Caserta, & Dimond, 1993; Stroebe, Schut, & Stroebe, 2007; Wijngaards-De Meij, Stroebe, Stroebe, Schut, Van den Bout, Van der Heijden, 2008). However, for some individuals the symptoms remain strong for decades (Harper, 2011; Li, Laursen, Precht, Olsen, & Mortensen, 2005; Li, Precht, Mortensen, & Olsen, 2003; Rogers, Floyd, Seltzer, Greenberg, & Hong, 2008; Song, Floyd, Seltzer, Greenberg, & Hong, 2010). Mortality risk has been found to be highest during the first 6 months (41% higher mortality risk) after spouse-bereavement, and to decrease to 14% after 6 months (Moon, Kondo, Glymour, & Subramanian, 2011). In child-bereaved adults the same pattern is found with higher mortality risk in the first year after the loss (Li, Precht, Mortensen, & Olsen, 2003). Gender differences have been found showing that spouse-bereaved men have increased mortality risk, especially during the first 24 months after the loss, but their risk remained higher for years, while in women, higher mortality risk was restricted to the first year after the loss (Stroebe, Schut, & Stroebe, 2007). Mortality risk is higher in child-bereaved women than in child-bereaved men and Li et al., (2003) showed they continue to have an increased risk for 1 to 3 years after the loss for the child-bereaved women, thereafter there was no higher mortality risk.

In the study by Lund et al. (1993), time since loss was one of the most influential factors explaining LS after spousal bereavement. In line with this, another study found time since loss among bereaved parents to be a stronger predictor of grief than factors such as type of death and relationship of bereaved and the deceased (Feigelman, Jordan, & Gorman, 2008). Both studies showed improvements over time, with an increase in LS in the first study and a decrease in depressive symptoms in the latter. However, in another study of child-bereaved individuals aged 23–77 years, time since loss did not contribute to explain grief (Keesee, Currier, & Neimeyer, 2008).
SUMMARY

The death of a child or spouse has been rated as the most stressful or negative experience in life. Bereavement literature often states that the death of a child is more detrimental than other familial bereavements. However, this statement seems not to be sufficiently substantiated, since few studies have compared the impact of different familial bereavements.

Spouse-bereaved individuals have been found to have lower levels of LS than non-bereaved, and this difference seems more pronounced in widowers than in widows. Studies exploring the effect of the loss of a child on LS are scarce, and no studies were found exploring the impact on LS of having lost both a child and a spouse.

Higher mortality risk has been found after loss of both child- and spouse loss, and widowers seem to be at a higher risk than widows. Child-bereaved adults appear to have the opposite pattern, with bereaved mothers at higher risk than fathers. Personality characteristics seem to influence mortality risk, and the traits of neuroticism and conscientiousness have been found to be especially influential.

Social support seems to be an important factor that may reduce the adverse impact of negative life events; however the results are inconclusive. Functional ability may be lowered after bereavement and, low functional ability seems to be associated with higher risk of mortality. The time course for recovery after the loss of both child and a spouse is unknown. Earlier findings for loss of either a child or a spouse indicate that risks of negative health outcomes such as mortality and depression are highest in the first year, but may persist for years.

In the light of this information, there is a need to further explore the impact of bereavement after the loss of a child, spouse, or both, on LS and mortality, and to investigate whether bereaved individuals rate their loss(es) as among their three most important negative lifetime events.
Aims

This thesis is aimed to investigate three main questions:
• What are reported as the three most important negative experiences in the lives of older adults bereaved of a child, a spouse, or both?
• Does the loss of a child, a spouse or both affect long-term LS and mortality in older ages, and are the effects different depending on the type of loss?
• Are there gender differences within the bereaved groups?
METHOD

Design

In Figure 2 the different variables in the studies are presented using parts of the Integrative Risk Factor Framework of Stroebe and Folkman (2006) described above in Figure 1. Category A includes the different bereavement groups and a non-bereaved group included for comparison. Category B shows two non-personal factors included in Paper II (social support and finances). Category C includes participant’s gender, functional ability, and education (Papers II and III), perceived health (Paper II), and the personality traits neuroticism and conscientiousness (Paper III). Time since loss was put in category D, because the variable may partly capture the coping process over time. The outcome measures LS (Paper II) and mortality (Paper III) are shown in Category E.

The thesis has both a cross-sectional design (Paper I and Paper II), and a design in which data were collected over time (Paper III in which dates of death were registered). A between-subjects design was used to compare differences in LS at baseline between the child-, spouse-, and child-and-spouse-bereaved as well as non-bereaved (Paper II). Finally, a correlational design was used to explore whether the death of a child, spouse, or both was associated with either LS (Paper II) or mortality (Paper III).
Subjects

The Swedish National Study of Aging and Care (SNAC) is conducted in four Swedish areas. The sample used in this thesis was from both the Blekinge (SNAC-B) and Skåne (Good Aging in Skåne, GAS) areas in the first study (Paper I) and from the SNAC-B sample only in the two later studies (Papers II and III). Six municipalities were included, one in SNAC-B (Karlskrona) and five in GAS (Malmö, Eslöv, Hässleholm, Osby, and Ystad). The Blekinge part consisted of 1402 randomly selected participants and the GAS sample had 2931. Survey data were collected in 2001/2003 from randomly selected members of 10 age cohorts (60, 66, 72, 78, 81, 84, 87, 90, 93 and 96 years).
Study I:
The response rate in the total 4333 individuals from SNAC-B and GAS was 60.5%, of which 2453 (56.6%) were women and 1880 (43.4%) were men. Of those who did not participate, 70% said they were not interested in taking part. Other reasons for non-participation were died before the study started (11%), declined due to poor health or low functional ability (10%), were not reached (4.6%), and other reasons such as having moved away from the area or lacking language skills and access to translation help (5%). A total of 1437 bereaved individuals participated (child-bereaved =227, spouse-bereaved =1023, and child-and-spouse-bereaved =187). In the child-bereaved group 168 participants were married, 15 were unmarried, and 34 were divorced. In the spouse-bereaved group 77 had remarried, 875 were unmarried, and 45 individuals had remarried and then divorced. In the child-and-spouse-bereaved group 162 were unmarried, 8 had remarried, and 8 had remarried and then divorced. There were missing values of 10 individuals in the child-bereaved group, 26 in the spouse-bereaved group, and 9 in the child-and-spouse-bereaved group. Mean (M) time since the loss for the child-bereaved group was 30 years, range 0–66 years. For the spouse Bereaved group M= 15 years, range 0–62, and for the child-spouse-bereaved participants M= 13 years, range 0–64.

Studies II and III:
In the SNAC-B part the response rate was 61%, 817 (58%) women and 585 (42%) men. Of those who declined to participate, the majority (83%) said they were not interested. Another 10% perceived their functional level as too low to join the study. The remaining (7%) respondents were not reached. There were 362 (25.8%) individuals who had lost their spouse, 69 (4.9%) who had lost a child and 84 (6.0%) who had lost both a spouse and a child. A total of 635 (45.3%) individuals had not experienced any of the specified losses. Missing data regarding loss of child or spouse, were registered from 252 individuals. The reasons for not answering the loss variables were in most cases not mentioned (n = 230), followed by health reasons (dementia, tiredness, n = 15). For a minority (n = 7), the reasons were that they did ‘not want to talk about negative events’ and did ‘not want to answer.’ There were 20 participants who had lost more than one child (14 women and 6 men). In these cases, as well as for the child-and-spouse-bereaved group, the latest loss was used for calculating time since loss. The sample was independent; that is, none of the participants had experienced the loss of the same child. Most participants in the total sample had completed elementary school (n = 780, 70.7%) while 323 (29.3%) individuals had not. There were no differences in education between the bereaved and non-bereaved. In the total sample, 299 individuals had more education than elementary school. The majority of the
participants where either married (n = 677, 48.3%) or widowed (n = 463, 33%). There were 89 (6.3%) individuals who had never married and 80 (5.7%) respondents who were divorced. The majority of the child-bereaved participants were married (61 out of 69). In the child-and-spouse-bereaved group, 2 individuals had remarried, and in the spouse-bereaved group 16 individuals had remarried and 9 participants had remarried and then divorced. As shown in Figure 3, the longest time since the loss was for the child-bereaved group. Mean (M) time since the loss for the child-bereaved group was 31 years (range 2–66 years). For the spouse bereaved group M= 15 years (range 0–62), and for the child-spouse-bereaved participants M= 13 years (range 0–64).

Figure 3. Time since the latest loss in years for the bereaved groups in the SNAC-B sample.
As shown in Figure 4, below, the higher the age, the greater the number of participants who have lost both child and spouse and the shorter the time since the latest loss.

Figure 4. Association between age of the participant and time since the latest loss in the bereaved groups in SNAC-B.

**Procedure**

The data collected included medical examinations, cognitive tests and survey questions. The examinations were conducted in two sessions of 3 hours each; during the first session the participants received the survey questions. The respondents answered the questions at home between sessions. The research staff made a home visit to those older adults who were unable to come to the research centre. In order to avoid missing data, the examining teams supported those participants who had difficulties filling out the survey.
Measures

Life event scale (included in all papers)
Information about the loss of a child or a spouse was collected from a modified version of the ELSI including 25 negative life events relevant to older adults, such as various losses (family members or friends), relational problems, and financial strain (Aldwin, 1990). In the SNAC version of ELSI, the participants were not asked to rate how stressful the experienced events had been and the different losses included best friend, mother, father, spouse, child, and grandchild. In the original ELSI version the same losses were included except instead of death of mother or father the term “death of other close family member” was used. The participants who indicated that they had experienced the death of a child, spouse, or both were coded in three different, mutually exclusive, bereavement groups: child-bereaved, spouse-bereaved, and child-and-spouse-bereaved.

The three most important negative life events (Paper I)
The three most important negative life events were collected by the research staff in a personal interview using the open-ended question: “What have been your three most important negative life experiences in life?” Thereafter, the research staff asked the participants what negative life events had occurred during life with the modified 25 ELSI questions. The age of the participant when the life event occurred was also collected.

Life satisfaction (Paper II)
A modified version of the Life Satisfaction Index (LSI-A; Neugarten, Havighurst, & Tobin, 1961), the 11-item Liang scale was used in Study II (Liang, 1984). The reason for choosing this modified measure was that the five-factor structure of the LSI-A scale has been found to have psychometric difficulties and the researchers recommend the use of a three-factor model instead (Fagerström, Lindwall, Berg, & Rennemark, 2012). In the present study Cronbach’s alpha for Liang was .72. The Liang scale consists of three components of LS: zest, congruence and mood tone. The zest factor (Z), consisting of four items, measures whether the participant takes pleasure from everyday activities. The four-item congruence factor (C) measures the degree of congruence between the desired and the achieved goals in life. The mood tone factor (M) consists of three items to test whether the respondent is happy and optimistic. Participants rated their level of agreement for each item: agree, disagree and don’t know. The answer “agree” gives one point and “disagree”
or “do not know” scores zero. Thus, the minimum score is 0, and maximum is 11, and higher scores indicate higher LS. The 11 questions included in the Liang measure are as follows:

1. I have had more breaks in life than most people I know. (C)
2. I am just as happy as when I was younger. (M)
3. My life could be happier than it is now. (M)
4. These are the best years of my life. (M)
5. Most of the things I do are boring or monotonous. (Z)
6. I expect some interesting and pleasant things to happen to me in the future. (Z)
7. The things I do are as interesting to me as they ever were. (Z)
8. I feel old and somewhat tired. (Z)
9. As I look back on my life, I am fairly well satisfied. (C)
10. I would not change my past life even if I could. (C)
11. I’ve gotten pretty much what I expected out of life. (C)

Instrumental Activities of Daily Living (Papers II and III)

Functional ability was measured on the Instrumental Activities of Daily Living (IADL) self-rating scale (Lawton & Brody, 1969), which has demonstrated good reliability with a reported alpha coefficient of .85 (Graf, 2008). Cronbach’s alpha for the present sample was .82. This instrument, designed to assess independent living skills, consists of eight domains of function such as food preparation, housekeeping and handling finances. Scores range from 0 (low function, dependent) to 8 (high function, independent). The healthy aged population usually score 6 and above (Graf, 2008).

Personality (Paper III)

A Swedish version of the 60-item NEO Five-Factor Inventory (NEO-FFI) (Costa & McCrae, 1989) was used to measure personality and has been further discussed in other studies of SNAC (Dahl, Allwood, Rennemark, & Hagberg, 2010). Each scale consists of 12 items ranked using a five-point Likert response format with alternatives from 1 (do not agree at all) to 5 (agree completely). The higher the total score (max 60) on a personality-factor the more the individual is characterized by that specific trait. In the present study the NEO-FFI traits of interest were neuroticism and conscientiousness. The reason for choosing these two traits was the research showing a link between neuroticism and higher risk of mortality and the protective effect of conscientiousness (Martin, Friedman, & Schwartz, 2007; Mroczek, Spiro III, & Turiano, 2009; Ploubidis & Grundy, 2009; Terracciano, Löckenhoff,
Zonderman, Ferrucci, & Costa, 2008; Weiss & Costa, 2005). The dimensions are emotional stability versus neuroticism and low will to achieve (careless and disorganized) versus conscientiousness. Individuals who score low on conscientiousness tend to have little need for achievement and often have difficulty in fulfilling their work obligations or meeting other commitments (Costa & McCrae, 1992). Using Cronbach’s coefficient alpha, the internal consistency in the present study was $\alpha=.81$ for neuroticism and $\alpha=.82$ for conscientiousness, which can be compared with $\alpha=.73$ for neuroticism and $\alpha=.73$ for conscientiousness, in the Changing Lives of Older Couples study (Pai & Carr, 2010).

**Background data**

Information about social support and finances was collected (Paper II) through the questions “Do you have someone who can give you personal support with your problems and stress?” and “Could you obtain 14 000 Swedish kronor to cover an unexpected expense within a week?” Both questions had dichotomous answers (yes= 1 or no= 0). The majority of participants answered that they had social support (n= 1171, 83.5%), about 91 (6.5%) individuals had no support and values were missing for 140 (10%). Most participants answered that they had a financial buffer (n = 1016, 72.5%), while 232 (16.5%) had none and values were missing for 154 (11%). Perceived health (Paper II) was measured with the question: “How do you regard your health compared to others?” Answer alternatives were 0 = not as good as others (n=70, 5.0%), 1 = as good as others (n=608, 43.4%), and 2 = better than others (n=559, 39.9%). Gender (all papers) was coded as 0= woman and 1= man. Education was coded according to whether or not participants had completed elementary school (no = 0, yes =1). More than half of the total sample had completed elementary school (n= 914, 65.2%), while 363 (25.9%) had not and values were missing for 125 (9%) cases.

**Plan of Analysis**

**Study I**

Participants were asked the open-ended question “What have been your three most important negative experiences in life?” They were then asked to identify which negative events on the life event scale had happened to them. Their age at the time of each identified life event was also collected. Chi-square tests were used to investigate gender differences within the bereaved groups.
Study II
The effects of having lost a child, spouse, or both on LS were explored as were gender differences, within the bereaved groups in the 1150 participants from the SNAC-B sample. Chi-square tests were used to investigate between group differences in perceived health, social support, finances, and education. One-way between-group ANOVA were conducted with post-hoc comparisons using the Tukey Honestly Significant Difference (HSD) test for LS, functional ability, and time since (latest) loss, to compare child-bereaved, spouse-bereaved, both child-and-spouse-bereaved, and non-bereaved groups. A standard multiple regression analysis was conducted to explore whether the loss of a child, a spouse, or both could predict any of the variance in LS when age, gender, functional ability, perceived health, social support, time since loss, and the demographic variables were adjusted for. Finally, a standard multiple regression analysis was performed to investigate any gender differences in LS within the bereaved groups.

Study III
The aim of this study was to investigate the relationship between different bereavements and mortality. Included were 1150 participants from SNAC-B. There were 362 spouse-bereaved, 69 child-bereaved, 84 child-and-spouse-bereaved, and 635 non-bereaved included in the analyses. The bereaved participants had experienced their loss before the baseline measure. No information was collected about possible loss of family members after the baseline measure. The impact and influence of gender, neuroticism and conscientiousness, functional ability, and time since the latest loss were all explored in relation to mortality. Nearly half the group (732, 52.2%) died during the period of investigation. Their age at death varied from 60 to 104 years. At the time of the latest follow-up (August, 2013), 670 (47.8%) individuals were still living, 401 (60 %) women and 269 (40 %) men. The living participants were from 70 to 103 years old. Chi-square tests were used to analyse the proportion of dead versus living individuals by gender as well as by bereavement status and type. Cox proportional hazards regression analyses were conducted to explore the risk of mortality in each group. In the first model, the impact of the different bereavement categories on mortality was investigated. The second model explored gender differences in the bereaved groups. In the last two models the association between gender, bereavement status, and personality at baseline were explored in relation to mortality.

Statistical analyses
Statistical analyses were calculated using SPSS version 22.
Ethical Considerations

SNAC-B and GAS received ethical permission from the Faculty of Medicine at Lund University (LU 605-00, LU 744-00). All subjects were informed of the purpose of the study and written informed consent was obtained. Respondants were also informed that participation was voluntary and that they could discontinue at any point. Although all information obtained during data collection was strictly confidential, the research team had to consider the ethical dilemmas concerning privacy and confidentiality when meeting in the respondent’s home. Confidentiality was assured by storing code lists and survey questions in different places available only to the research team. Answering questions about difficult life events, may raise disturbing emotions and memories in the participants, thus the research team was available for telephone support, if needed, during the week throughout the data collection period.
RESULTS OF THE STUDIES

The underlying assumption in the Integrative Risk Factor Framework is that losing a loved one is a negative life event that can cause stressful reactions, Category A in Figure 2. The first study aimed at exploring whether older adults bereaved of a child, a spouse, or both experience these losses as among the most important negative events in their lifetime. Different types of familial losses may influence outcome differently, and this was investigated in Papers II and III. The outcomes of interest were LS and mortality (Category E).

Most Important Negative Life Event

About 85% (n = 1218) of the child-, spouse-, and child-and-spouse-bereaved mentioned different bereavements (child, spouse, both child-and-spouse, parents, siblings, grandchildren, other relatives, or friends) among the three most important negative events in their lives. However, despite having lost a child, spouse, or both, about 15% did not mention these losses among their most important negative life events. Other difficult life experiences mentioned in this latter group were morbidity in self or loved ones (6%), relational problems (3%), abuse or sexual abuse (2%), alcohol or drug addiction in oneself or a family member (1%), and other negative events (1%). Difficult life experiences in the “other event” category included a variety of events such as memories of World War II, poverty or neglect in childhood, or traumatic life events such as accidentally killing a person in a traffic accident, or recent events such as moving from their house, or falling in the bathtub.

About 70% of those bereaved of a child or a spouse mentioned these losses as among their three most important negative life experiences. In the child-and-spouse-bereaved group, 48% mentioned both losses, while 40% mentioned only the loss of the child or the spouse, as one of the three most important negative life events.
Outcome: Life Satisfaction

There were some between-group differences in levels of LS. ANOVA analyses with post-hoc comparisons using the Tukey HSD test revealed that the child-and-spouse-bereaved group had the lowest LS (p< .001) while the non-bereaved group had higher LS than all the bereaved groups (p < .001).

As shown in Figure 5 Category A, having lost a child, spouse, or both explained about the same amount of variance in LS. Spouse-bereavement predicted somewhat more variance in LS than child or child-and-spouse bereavement. The relationship was negative; having experienced bereavement was associated with lower LS. Category B shows having social support was associated with higher LS and having no financial buffer was associated with lower LS. The factors in Category C show that LS decreased with age and increased with better perceived health and higher functional ability. Category D shows that LS increased with longer time since the (latest) loss.

Chi-square tests were used to investigate between-group differences in perceived health, social support, finances, and education. There were no between-group differences in perceived health, social support, or education, but spouse- and child-and-spouse-bereaved groups were more likely than child- and non-bereaved groups to lack a financial buffer (23% in the spouse-bereaved group and 26% in the child-spouse-bereaved group vs. about 15% in the child-bereaved and non-bereaved and groups).
Outcome: Mortality

Four different models were calculated using Cox regression analysis (Paper III) to investigate whether child, spouse, or child-and-spouse-bereavement was associated with mortality. Category A: no significant relationship between the different bereavements and mortality was found. Category C: Somewhat surprisingly the results showed that for each year increase in age, the mortality risk decreased by about 11.4%. There was also a gender effect showing that men had an 81% higher mortality risk than women. Furthermore, for each increase in score in functional ability, the mortality risk decreased by 13.2% and for each increase in the neuroticism score the mortality risk increased by 1.8%. Conscientiousness was not found to be a protective factor in relation to mortality. However, as shown in Category D, time since the
(latest) loss significantly contributed to explain mortality in models 2, 3, and 4, showing that for each year since the loss, mortality risk decreased by about 1%. In the first model, time since the (latest) loss did not contribute to explain mortality.

Figure 6. Mortality risk after child-, spouse-, or child-and-spouse-bereavement
Are the Effects Different Depending on Type of Loss?

Only marginal differences, if any, were found between groups depending on the type of bereavement. Although bivariate analyses revealed that spouse-bereaved and child-and-spouse-bereaved participants were overrepresented in the deceased group, these groups were no longer associated with higher mortality risk when controlled for age, gender, functional ability, neuroticism, conscientiousness, and time since loss at baseline, (Paper III). Likewise, those who had lost both a child and a spouse had the lowest mean level of LS of all groups. However, in the multivariate analyses, the different bereavements each contributed to about the same total R Square of LS, with spouse-bereavement explaining the most variance followed by child-bereavement and child-and-spouse bereavement (Paper II).

Gender Differences

Some differences between bereaved men and women were revealed in the studies. In the child-bereaved group, the men had a 94.8 % higher mortality risk than the women. Higher scores in both neuroticism and conscientiousness were more related to increased mortality risk in child-bereaved men than in the child-bereaved women, and fewer women in the child-bereaved group than expected had died at follow-up compared with both child-bereaved men and spouse-bereaved and child-and-spouse-bereaved women. Bereaved men in all groups had lower LS than bereaved women in those groups. When asked about their three most important negative life events as many men as women in the child-bereaved and spouse-bereaved groups chose the death of the child or spouse. In the child-and-spouse-bereaved group, significantly more women mentioned the loss of their child, but not of their spouse. The men, however, showed the opposite pattern.

Age of Participants and Functional Ability

The strongest correlation with LS was observed for the age of the participant, in that the higher the age, the lower the perceived LS. Somewhat surprisingly, however, for each year’s increase in age, mortality risk decreased by about 11.4 %. The child-and-spouse-bereaved group were the oldest and had the lowest functional ability of all groups.
GENERAL DISCUSSION

The Most Important Negative Life Event

When asked to report the three most important negative experiences in their lifetimes, the vast majority of all three bereaved groups mentioned the loss of a child, a spouse, or both, which confirmed earlier findings that the loss of a child or a spouse are highly stressful/negative events (Aldwin, 1990; Holmes & Rahe, 1967; Miller & Rahe, 1997). However, in the groups that had lost either a child or a spouse, a third of the participants did not mention the death at all. Instead, in some cases, losses of other family members or friends were perceived as most negative, while others did not mention any bereavement. Some participants in the latter group selected other traumas such as abuse, sexual abuse, and traumatic memories from war. It should be remembered that these alternatives were mentioned in response to an open question with no suggested answers. Life event scales do not include these other traumatic life events, and researchers who use such scales and conclude that the loss of a loved one is the most difficult life event do not compare that loss with other traumas that are not reported on the scale. Thus, the effects of these other traumatic events that are usually not controlled for in bereavement studies should be considered in future research.

Outcome: Mortality

Having lost a child, a spouse, or both had only a small effect on mortality in the older ages, with that higher risk decreasing by about 1% for each year since the loss. The different bereavements did not predict mortality, a result that contradicts earlier findings in bereavement research that showed an association between losing a child or spouse with a higher mortality risk (Agerbo, 2005; Li, Precht, Mortensen, & Olsen, 2003; Rostila, Saarela, &
Kawachi, 2012; Stroebe, M., Schut, & Stroebe, 2007). How is it then that the different bereavements were not associated with higher mortality risk in our survival analyses? One explanation could be that the numbers of bereaved individuals included in the child, spouse, and child-and-spouse groups were too small to reveal a significant association with mortality risk. Another reason could be that a number of important variables relevant to mortality, but not accessible in national registers, were included in the analyses of the present study. In large samples showing higher mortality in bereaved individuals (Espinosa & Evans, 2013; Harper, 2011; Li, Precht, Mortensen, & Olsen, 2003; Rostila, Saarela, & Kawachi, 2012) factors other than the loss of a loved one may have influenced the results. That the different bereavements did not predict mortality is somewhat in line with the findings from the meta-analysis of spousal bereavement by Moon et al. (2011) that controlled for more covariates than age and gender and showed no significant effect of spouse-bereavement on mortality for either women or men.

**Outcome: Life Satisfaction**

The different familial bereavements had marginal effects on LS. Having experienced the loss of both a child and a spouse did not add more variance than either child or spouse loss to LS. Among the different familial losses examined, the spouse-bereaved variable predicted somewhat more variance of LS – a result that contrasts with studies in which the loss of a child is described as having a much more severe impact on both psychological and physical symptoms than loss of a spouse (Cleiren, Diekstra, Kerkhof, & van der Wal, 1994; Hansson & Stroebe, 2007; Lundin, 1984; Miller & Rahe, 1997). However, the majority of these studies do not include important covariates. Even if the differences are small, though, the lower levels of LS in those who are bereaved should be taken seriously and need to be further investigated.

**Inter-/Non-Personal Risk Factors**

**Social support**

Social support, measured by the question of whether the participant could expect support from at least one person, was found to be the second largest predictor of LS. Most participants (about 84%) reported that they had social support. The buffering effect of social support might be one explanation for the small effect of the loss(es) on LS. Bereaved individuals with no social
support may be at risk of loneliness and isolation, and we need to further investigate the well-being of this group.

Intrapersonal Risk Factors

Gender differences

Although small in terms of absolute numbers, significantly more women than men in the child-and-spouse-bereaved group perceived the loss of a child as one of their three most important negative life experiences, while men were more likely to name the loss of their spouse. In the child-bereaved and spouse-bereaved groups there were no gender differences. The findings that the men in all bereaved groups had lower LS and in the child-bereaved group had higher mortality risk than the bereaved women, contradict previous research showing that women are more vulnerable after the loss of a child (Cleiren, Diekstra, Kerkhof, & van der Wal, 1994; Dyregrov, Nordanger, & Dyregrov, 2003; Kreicbergs, Valdimarsdottir, Onelov, Henter, & Steineck, 2004; Li, Laursen, Precht, Olsen, & Mortensen, 2005; Li, Precht, Mortensen, & Olsen, 2003; Wijngaards-de Meij, Stroebe, Schut, Stroebe, Van den Bout, & Van der Heijden, 2005; Murphy, Johnson, Chung, & Beaton, 2003; Wijngaards-de Meij, Stroebe, Stroebe, Schut, Van den Bout, Van der Heijden, & Dijkstra, 2008). In the majority of bereavement studies, child-bereaved men are underrepresented compared with child-bereaved women (Hansson & Stroebe, 2007; Van Humbeeck, Piers, Van Camp, Dillen, Verhaeghe, & van den Noortgate, 2013). Empirical research surrounding the claim that women are more at risk after child-bereavement may, therefore, be insufficiently substantiated and further studies are needed in this field. However, the findings of this thesis support earlier investigations showing men to be more affected than women by the loss of a spouse (Berg, Hoffman, Hassing, McClearn, & Johansson, 2009; Chipperfield & Havens, 2001; Cleiren, Diekstra, Kerkhof, & van der Wal, 1994; Hansson & Stroebe, 2007). Different explanations have been given for this result in the literature. In general, men receive more emotional support in a marriage than women do. With the loss of their spouse, men are more at risk of health problems due to nutritional insufficiency, drinking, and smoking. Another reason could be the relative lack of social support among widowers, compared with widows (Hansson & Stroebe, 2007).

Personality

The older adults included in this thesis had higher levels of neuroticism than the norms on the NEO Five-Factor Inventory, which includes individuals aged 19–93 (McCrae & Costa, 2004). Higher neuroticism scores are directly related
to more emotional instability and negative feelings, such as worry. The non-bereaved were found to have lower levels of neuroticism than the bereaved groups, with the spouse-bereaved participants having the highest ratings. Among the various familial bereavements, having lost a spouse explained most variance of LS, more than having lost a child or both a child and a spouse. The loss of a loved one may increase negative feelings and the sense of being unsafe, as reflected in the levels of neuroticism and LS in the bereaved participants. However, along with having high levels of neuroticism, the participants in this sample also had high levels of conscientiousness compared with the norm (McCrae & Costa, 2004). These high levels of conscientiousness might be one explanation for the longevity of this sample. The finding that conscientiousness was not found to be protective against mortality may be related to this sample’s already high levels of the trait. Perhaps if raised even further, being too conscientious is no longer protective? If this is the case, it needs further exploration.

**Functional ability**

The child-and-spouse-bereaved group had the lowest levels of functional ability; whether bereavement, per se, affected their ability to manage everyday tasks needs further exploration. According to earlier findings, losing a spouse or a child can be associated with a deterioration in functional ability (d’Epinay, Cavalli, & Guillet, 2009). A high functional ability has been found to be associated with better long-term bereavement outcome after spousal bereavement (Lund, Caserta, & Dimond, 1993). It will be important for future research to follow-up the underlying causes of the finding that those bereaved of both a child and a spouse had lower functional ability.

**Age of participant**

The finding that higher age was related to lower perceived LS is in line with research showing that LS declines by age (Baird, Lucas, & Donnellan, 2010). Somewhat surprisingly, the results showed that for each year’s increase in age, the mortality risk decreased by about 11.4%. This contradicts what we intuitively understand, that the higher the age, the higher risk of dying. Statistically, however, the phenomenon may be explained by the fact that more people die between 60 and 70 years of age, and those who live past 70 have a greater likelihood of living even longer.

**Time since loss**

The time since the latest loss varied from 0 to 66 years for the bereaved groups. Our findings that mortality risk and influence on LS decrease with
time may be related to earlier research showing that with time seem to come adjustment and the ability to cope with to loss of a loved one (Lund, Caserta, & Dimond, 1993; Murphy, Johnson, Wu, Fan, & Lohan, 2003; Stroebe, Schut, & Stroebe, 2007). Those who experienced the loss of a loved one more recently, in older age, have to cope with special challenges in their daily lives that can have a negative impact on their health and LS. When a person is older, it can be harder to recover and to find meaning in life and hope for the future (Sanders, 1993); in later life there may also be fewer distractions and more time to think about the deceased (Rubin, 1990). Furthermore, in later life, there may be less social support, and investing in new relationships may be more difficult (Van Humbeeck, Piers, Van Camp, Dillen, Verhaeghe, & Van Den Noortgate, 2013). It is not known how many of the bereaved participants recovered their previous levels of well-being. Further studies are needed to investigate the proportion of those who continue to have long-lasting negative effects after the loss of a loved one.

**Strengths and Limitations**

The samples in these studies were randomly selected and included a reasonably even gender distribution. We assume there was no selection bias since having lost a child or a spouse was not the explicit reason for participation. These methodological criteria are often not met in studies comparing different bereaved groups (de Vries, Davis, Wortman, & Lehman, 1997; Middleton, Raphael, Burnett, & Martinek, 1998; Sanders, 1979-80). Another strength of the thesis was the inclusion of both qualitative and quantitative data. The qualitative approach, using the open-ended question when collecting the three most important negative life experiences, allowed the respondents to use their own words and thoughts. This might provide a more accurate assessment than the traditional life-event scales. On the other hand, the format of an open-ended question might also be a limitation, since the variety of answers can be difficult to summarize accurately. The responses were taken at face value and we do not know the participants’ reasons for choosing the life events they did. A desire to avoid talking about difficult life events might have influenced the answers. In fact, some of the individuals who did not answer the bereavement questions were explicit about that desire. However, the majority who declined to answer gave no explanation.

One of the major concerns in population-based studies such as the present investigation is that the results are based on the surviving group. The small effect size found may be influenced by survival effects, since the most vulnerable of the bereaved sample might not reach older age (Aldwin, Yancura, & Boeninger, 2007). Furthermore, the results are based on those who experienced their loss before baseline. In the deceased group, some
participants most likely experienced more losses before they died. There is also a lack of information about the proportion of bereaved and non-bereaved in the missing group.

Another problem of investigating the impact of bereavement and comparing different groups is that it is not possible to conclude whether the differences are due to the loss of a specific loved one or not. The negative correlation found between the loss of a child, a spouse, or both and LS indicates the degree of relationship between the two variables, and how strong this relationship is. However, it is important to acknowledge that this does not mean that bereavement causes lower LS.

Moreover, the reasons for the deaths were not reported. There are different challenges to cope with depending on whether the death was sudden and unexpected or anticipated. Violent deaths, such as suicide, homicide or accidents have been described as taking longer to come to terms with compared with non-violent deaths caused by illness (Murphy, Johnson, Wu, Fan, & Lohan, 2003). These aspects were not controlled for in these studies. Finally, it should be taken into account that the results of the included studies may not be completely generalizable to populations in other countries. Older adults in Sweden have better income security, health status, capability and enabling environment than people in many other countries around the world (Scobie, 2015). The loss of a child in older age may also include losing the emotional and practical support often given by adult children (Smith, Nunley, Kerr, & Galligan, 2011), and this effect may be greater if you are economically dependent on your family members.

Clinical Implications

Given the results of the present study, concrete practical recommendations for professionals who work with older adults should be given with care. The vast majority of the bereaved participants experienced the loss of their loved one as one of the most important negative event, of their life. Facing the painful emotions associated with the loss of a loved can feel unbearable. Although the human body has the ability to manage difficult feelings, if how we think about bereavement impacts its outcome, one of the main interventions for bereaved individuals ought to be information about physical reactions and emotions, and how to handle these. Separation anxiety signals danger, but the feeling itself is not dangerous. Teaching bereaved individuals this distinction might reduce the risk of a threat response and ultimately prevent future negative health outcomes.

One way of regulating separation-anxiety and grief is through the love and care of others. Caring for others, or even for oneself, increases levels of the hormone oxytocin, which promotes empathy, connection and trust (Taylor,
2006). Special techniques can be used to strengthen people’s ability to take care of themselves and others such as Compassionate Mind Training (CMT; Gilbert, 2010). The key in CMT is learning how to endure difficult feelings, understand the nature of emotions, and strengthen the ability to comfort and take care of oneself in difficult moments. This method could be very useful in helping bereaved individuals to cope with the loss of a loved one, but as far as we know, no studies to date have used CMT techniques in older bereaved adults.

Conclusions and Future Research

The results of this thesis show only small effects after the loss of child, a spouse or both on mortality and LS in older age. To date, too few studies comparing various familial bereavements have been conducted to be able to generalize these results. However, no studies found in the literature search for this thesis have shown major effects after the loss of a child or a spouse, and the two studies we conducted in the SNAC population found only marginal differences between bereaved groups (Bratt, Stenström, & Rennemark, 2016a; Bratt, Stenström, & Rennemark, 2016b). If anything, based on existing knowledge, the best conclusion can only be that there is not enough evidence to claim that one type of loss has more detrimental effects than another.

Although only modest effects were found in the three bereavement groups this does not reflect the severity of the pain felt by the bereaved individuals. The loss of a loved one is terribly painful and the majority of participants in all bereavement groups mentioned these losses as among their three most important negative life events. However, of those mentioning negative life events other than the death of a child or spouse, some described traumas other than the loss of a loved one, and some did not mention the loss of a loved one at all. Other traumatic events and their effects are usually not controlled for in bereavement studies, but they should be considered in future studies.

In the present sample, LS decline with age, a result in line with another Swedish investigation exploring LS in the oldest old (Berg, A. I., Hoffman, Hassing, McClearn, & Johansson, 2009). Interventions that improve well-being and a positive view of ageing are important. Research has found that older adults who have a positive view of ageing live 7.5 years longer than those with less positive view when controlled for age, gender, socioeconomic status, loneliness, and functional health (Levy, Slade, Kunkel, & Kasl, 2002). One intervention program with a focus on improving quality of life and LS in older adults in general is training in positive psychology (Ramírez, Ortega, Chamorro, & Colmenero, 2014). The program focuses on the positive effects of forgiveness, gratitude, and positive life review, in which participants are encouraged to recall specific episodes or objects reminding them of happy
times. The results of the first study of this method showed a significant increase in LS and subjective happiness, but more interventional studies are needed to find ways to support older adults’ well-being.

The weak link between mortality risk and loss of a child, a spouse, or both is important to acknowledge. The concept of “dying from a broken heart” (the idea that the loss of a loved one increases a person’s risk of dying) is recognized among people in general as well as in research (Li, Precht, Mortensen, & Olsen, 2003; Moon, Kondo, Glymour, & Subramanian, 2011; Rostila, Saarela, & Kawachi, 2012; Stroebe, M., Schut, & Stroebe, 2007). Studies have shown that thoughts about a phenomenon can affect a person’s mortality (Keller, Litzelman, Wisk et al., 2012). This effect, referred to as the “mindset effect”, describes the extent to which beliefs and expectations about a phenomenon are associated with specific consequences (Crum, Salovey, & Achor, 2013). As far as we know, whether or not people’s mindsets influence the outcome of their bereavement has not been studied, and this question should be addressed in future research.

The findings that child-bereaved men had a higher mortality risk than child-bereaved women, and that child-, spouse-, and child-and-spouse-bereaved men had lower LS than corresponding groups of bereaved women needs further exploration. The reasons for these results are not known. One possible explanation, given in another study that showed older women to be more resilient than older men in the face of difficult life events, was that women were found to be more compassionate than the men (Moore, Kaup, Thompson et al., 2015), and that their compassion extended to themselves. Compassion for oneself, “self-compassion”, can be described as the ability to take care of oneself in difficult life circumstances, to endure painful feelings, and to feel connected with others in moments of suffering (Neff, 2003). There is growing evidence that compassionate individuals are more satisfied with life (Wei, Liao, Ku, & Shaffer, 2011) and that self-compassion is negatively associated with negative affect, neuroticism and mood disturbance (Neff, Rude, & Kirkpatrick, 2007). In older adults, self-compassion is associated with higher levels of wisdom, integration and acceptance of one’s past life experiences (Phillips & Ferguson, 2013). High levels of self-compassion were also associated with higher levels of meaning in life in older adults. Although none of the studies found in the literature search explored whether CMT techniques could enhance compassion and well-being in older adults, there is some preliminary data from a group of patients with major, long-term and complex difficulties (Gilbert & Procter, 2006), schizophrenia (Mayhew & Gilbert, 2008), and post-traumatic stress (Beaumont, Galpin, & Jenkins, 2012), supporting the effectiveness of the method reducing depression, anxiety, and self-criticism, as well as increasing participant’s abilities to self-sooth and treat themselves more kindly. The link between compassion and bereavement has not, as far as we know, been investigated. More research is
needed in the effectiveness of CMT in populations of older adults, especially bereaved older adults.

There are different types of social support. In this thesis anticipated support was measured and was found to be an important factor explaining LS. Traditionally, research about the effects of social support has investigated the effects of receiving support, not the effects of helping others. Studies have found that helping others may be a better predictor of health and well-being than receiving social support. For example, one study found that spouse-bereaved participants with high levels of grief who helped others improved faster after their loss than those who did not support others (Brown, Brown, House, & Smith, 2008). Another study found individuals who had experienced stressful events, and had provided help to others, had no increased mortality risk, while those who had not provided help to others had a 30% higher risk of mortality when other important factors were controlled for (Poulin, Brown, Dillard, & Smith, 2013). Giving to others seems to be a buffer against stress and mortality. Future research should address the positive effects on older adults of giving support to others and mechanisms that explain this phenomenon.

Time since the loss had a significant effect, showing that mortality risk decreased and LS improved by time. If replicated, the findings of the studies included in this thesis can give hope to bereaved individuals: although extremely painful, the experience of losing a loved one is survivable, at least as it seems, for the majority of bereaved individuals.
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