After the Burden is Lifted: Caregivers' Recovery of Life Satisfaction after The Death or Recovery of a Spouse

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Author Contributions

The statistical analysis was carried out by Dr. Laura Langner. The first draft was written by Dr. Laura Langner. Prof. Frank Furstenberg helped formulate the hypotheses and analytic plan and collaborated on the preparation of the manuscript.

Abstract

Objective

How do caregivers' life satisfaction shift upon the recovery of an ill spouse? Paradoxically, there is a greater increase in life satisfaction upon death than recovery of a spouse. Our analysis explores this paradox.

Method

We follow the two groups of exiting caregivers longitudinally for four years from when the partner is still in need of care until the death (N= 152) or recovery (N= 112) of a previously ill partner, comparing their trajectory of life satisfaction. We use the years 2001-2016 of the German-Socio-Economic Panel Study and a growth-curve analysis.

Results

Contrary to our expectations, bereaved caregivers experience a significantly stronger increase in life satisfaction than spouses whose partners recover from a serious illness, even when we stratify by age, gender and initial life satisfaction to account for significantly different subsample composition. Surprisingly, life satisfaction remains unchanged when the partner recovers. Only if a heavy burden in terms of unpaid care and housework hours or prior care need is lifted, do we observe an increase in life satisfaction among spouses with recovering partners, which is like the one experienced by bereaved caregivers.

Discussion

More support for caregivers with high caregiving burdens may alleviate some of the strain associated with spousal caregiving, as – even if the partner dies – a decrease in spousal caregiving hours results in an uplift in life satisfaction.

Keywords: spousal caregiving, longitudinal, recovery, life satisfaction, widowhood

Introduction

This paper examines changes in caregivers' life satisfaction following the death of a spouse compared to those whose spouses recover from a serious illness in a longitudinal sample of couples. We pose a series of questions about the recovery process: How do male and female caregivers' life satisfaction shift upon the recovery of their spouse? How do these life satisfaction shifts compare to those whose spouse eventually dies? How and why might satisfaction trajectories for both groups differ?

Across wealthy Western societies, health care costs are on the rise due to an aging population. The rising demand for elderly care may be hard to meet even with generous governmental support (Ranci & Pavolini, 2013: 307). Hence across different types of welfare state support, to date informal care is still provided by relatives (Carrera, Pavolini, Ranci, & Sabbatini, 2013, pp. 27, 32). Declining fertility and an ever more mobile society make children less likely to be the providers of such care. Instead, rising longevity and a closing of the gender gap in life expectancy makes spouses more likely to be the provider of care (Robinson, Bottorff, Pesut, Oliffe, & Tomlinson, 2014). In Germany, 34.9% of caregivers were spouses in 2004-2006, similar to the UK (34.1 %) and close to a 16-country OECD (Organisation for Economic Co-operation and Development) average (Colombo, Llena-Nozal, Mercier, & Tjadens, 2011, p. 90).

While abundant gerontological research exists on the emotional burden experienced by spouses entering their caregiver role and well-being effects of generally exiting the caregiving role, there is little evidence on how caregivers react to an ease of the caregiving burden when the ill spouse's health improves (Rafnsson, Shankar, & Steptoe, 2017). This is a curious omission as the need for care is not static: An analysis of the SOEP (Socio-Economic Panel) between 1991 and 2004 showed that 47 % of those receiving the lowest level of state support for care reverted to wellness or, at least, not needing care anymore. At a higher need

for care, 39 % experienced an improvement in their condition (31 % needing no care at all) (Weick, 2006). No study to date has compared the life satisfaction of recent caregivers whose spouse died in the study period with their counterparts whose spouses got well.

In a prior paper, we examined the provision of care, comparing men and women, whose spouses experienced a serious illness. Contrary to expectations, we discovered that men assumed a similar burden of care to women who had a sick spouse. Our analysis terminated with the illness event (Langner & Furstenberg 2018). In this paper, our focus shifts to an examination of the life satisfaction of the husbands or wives whose spouses *recovered from illness compared to those who died*. The initial section of this paper summarizes and describes the limitations of previous literature. We then introduce our data set and analytic strategy. The third section of the paper presents the results of our analysis. We conclude with a brief discussion of the results in the final part of the paper.

When the Burden Eases – Contrasting the Effects of Spousal Death and Spousal Recovery onto Caregivers' Well-Being

While some research exists on life satisfaction responses to widowhood, no study to date compares this with the counterfactual – spousal recovery. This paper combines theories on widowhood from palliative medicine and economic happiness studies with gerontological studies looking at spousal caregiver well-being responses to spousal recovery. Evidence on widowhood (without focusing on spousal caregivers in particular) suggests that spouses experience significant emotional recovery after the death of a spouse (Clark, Diener, Georgellis, & Lucas, 2008; Luhmann, Hofmann, Eid, & Lucas, 2012). While the bulk of studies focusing on bereaved caregivers in particular comes to inconclusive findings (possibly because they focus on particular types of disease and certain interventions) (Chi, Demiris, Lewis, Walker, & Langer, 2016; Haley et al., 2008; Romero, Ott, & Kelber, 2014;

Schulz et al., 2003; Thomas, Hudson, Trauer, Remedios, & Clarke, 2014), the few population-based studies on caregiver bereavement show – just like the more generic studies on widowhood – that an initial increase in depression/depressive symptoms is followed by a decline to pre-bereavement levels after 15 months or three years (Kaufman, Lee, Vaughon, Unuigbe, & Gallo, 2018; Seltzer & Li, 2000; Taylor Jr, Kuchibhatla, Østbye, Plassman, & Clipp, 2008).

We know even less about the well-being of spouses whose partner recovers from a serious illness. This issue has not been much examined in the gerontological literature. Few studies have paid attention to what happens after a spouse recovers from a serious illness in the later years of life. Instead, existing studies often mix reasons for exiting the caregiving role: death, moving to a nursing institution, or, in the case of our research, recovery from illness. Not surprisingly, then, the sparse number of longitudinal studies have yielded inconclusive results.

In several studies, the exit from caregiving was related to an increase in depression/distress indicators in the short-term (Hirst, 2005; Liu & Lou, 2017; Rafnsson et al., 2017). However, in a short-term US study exiting caregivers had similar levels of depression as non-caregivers and those continuing to provide care (Dunkle et al., 2014). Bouncing back in mental health was similarly found in a two-wave study (four years apart) for two thirds of former female nurse caregivers (Cannuscio et al., 2002). A three-wave US study (following 18 months post-loss) on bereaved spouses found that common grief (i.e. an initial increase in depression followed by a decline) and depressed-improved patterns were more likely among those with formerly sick spouses, while chronic grief was more likely among those whose partners had not been sick prior to death (Bonanno et al., 2002).

More observation points seem to support the finding that former caregivers return to previous levels of well-being: The initial increase in the likelihood of distress among female

caregivers was followed by a steady decline, which matched those of non-caregivers five years post-exit in the UK (Hirst, 2005). The studies focusing explicitly on caregiving exit via spousal recovery were only generalizable to particular diseases (Williams, Wang, & Kitchen, 2014), yet e.g. among stroke survivors caregivers' life satisfaction increased again (Ostwald, Godwin, & Cron, 2009).

We could not find studies that contrast caregiving exit through recovery from illness compared to bereavement, but we might hypothesize that

H1: The emotional recovery of the caregiving spouse whose partner recovers is greater than the spouse whose partner dies.

After all, these former caregivers do not have to deal with the permanent loss of their partner. However, it is also possible that life satisfaction does not bounce back at all, as the partner may dread a relapse. At least, death brings finality. Widowhood has been shown to decrease social participation, primarily due to poor health of the spouse but to increase post-widowhood (Utz, Carr, Nesse, & Wortman, 2002). It is possible that social support may be stronger for bereaved – as friends and family are more likely to socially support the bereaved than those lucky enough to have a recovered spouse. Then, too, there could be differences, that is, selection, between the two groups of former caregivers that could explain resulting differences in the emotional trajectory.

We might expect the two caregiver populations to be different even prior to exiting the caregiving role: A cross-sectional Canadian study found that end-of-life caregivers reduced social activities more, had greater financial costs, were more likely to reduce employment, and had lower health (Williams et al., 2014). Moreover, we expect that bereaved caregivers are older (as partners are more likely to die in old age) and more likely to be female (as their partners tend to be older).

We particularly expect a higher burden: a higher spousal care need level and more care provided. The burden levels may initially be higher among bereaved caregivers and decrease more. Care hours have been shown to negatively affect well-being (Chappell & Reid, 2002; Rafnsson et al., 2017). 20 or more care hours per week were associated with higher risk of distress occurrence upon exiting the caregiving role, while no significant relationship was found among caregivers with fewer hours (Hirst, 2005). Overload in turn was associated with higher depressive symptoms but also a stronger recovery post-widowhood among bereaved caregivers (Li, 2005). In contrast, a greater impact on the caregiver's schedule was associated with prolonged depression after bereavement (Thomas et al., 2014).

H2: Eventually bereaved caregivers will have higher caregiving burdens and will hence experience a stronger caregiving relief upon death of the spouse.

H3: Eventually bereaved caregivers will have cared for sicker spouses and will hence experience a stronger relief upon death of the spouse.

Moreover, leisure has been demonstrated to positively affect old persons' life satisfaction (Ragheb & Griffith, 1982). A Canadian study comparing long-term caregivers to end-of-life caregivers showed that eventually bereaved caregivers have experienced a more negative impact on their social activities (Williams et al., 2014).

H4: Bereaved caregivers will experience a stronger increase in leisure. A higher amount of leisure upon caregiving exit is in turn associated with a higher level of life satisfaction.

Since these variables may in turn be related to trajectories of life satisfaction – irrespective of caregiving role – we stratify the sample by the variables which in the following turn out to be significantly different between the two groups.

Methodologically, our study overcomes past studies' limitations: Caregiving is not measured by interviewing the sick care recipient but on a household level (Kaufman et al., 2019; Taylor Jr et al., 2008). This ensures that the sample is not biased towards the sick person being healthy enough to respond (Langner & Furstenberg 2018). We can thereby understand whether the shifts in life satisfaction resulted from the fact that the partner's health improved. While other studies were unable to identify who provided the care (Hirst, 2005; Williams et al., 2014), in our study spousal caregivers can be directly linked to their sick spouses via a caregiver and sick person ID. It includes a **recent cohort of couples** (2001-2016) and follows men and women. Moreover, the probability sample findings are more generalizable than those of past studies focusing on certain conditions (e.g. dementia).

Looking at former caregiver's life satisfaction longitudinally from pre-exit and three years beyond because the response to life events produces changes in satisfaction; long-term studies suggest that this may be the case for caregiving exit (Diener, Inglehart, & Tay, 2013; Hirst, 2005). Moving beyond research cross-sectional designs or merely comparisons of two time points (Cannuscio et al., 2002; Dunkle et al., 2014; Liu & Lou, 2017; Rafnsson et al., 2017) allows us to first to study the initial effect of exiting the caregiving role (shift from prior into first year post caregiver exit) and second to understand the sustained effect on life satisfaction (shifts between the first and second and second- and third-year post caregiver-exit).

With the individual-level time use data, we can understand whether bereaved caregivers and those whose partner recovers experience a different reduction in care work or rise in leisure time ((Williams et al., 2014)).

We are also able to measure the level of care need on the household level via objective criteria –care levels, which are the result of medical examinations based on nationally defined criteria.

Methods

Data and Sample

The analysis uses the German Socio-Economic Panel Study (version 33) comprising 974,533 person-years. It is an annual household panel survey which has interviewed the same individuals since 1984 (Further subsamples, such as East Germans and booster samples were added later; see further details in supplementary section I). The data (10.5684/soep.v33) used in this publication were made available by the German Socio-Economic Panel Study (SOEP) at the German Institute for Economic Research (DIW), Berlin. We restricted the sample to the years with available household ID (972,154 person-years, 49,496 households). Restricting the sample to the years in which the main independent variable – need for care – was measured: 2001-2016 resulted in 647,894 person-years and 42,822 households. Moreover, we restricted the sample to households which ever formed a union. Furthermore, we kept only those whose partners exited the need for care by recovery or dying, those whose partners were always in need of care, and those whose partners were never in need of care. Anchoring our analysis around exiting the care need, we pooled the data so that the observation window began in the year prior to exiting the need for care (t0), while for the non-sick and always sick it started at the first observation year (since there was no change in disease to anchor the analysis around). This ensured that all individuals with an exit experienced it at the same time. We dropped those who got better second or third time. We only kept caretaker's life satisfaction (dropping non-spousal caretakers (unless the partners were never sick, in which case we kept both partners) and children from the analysis) (302,524 person-years, 26635 households). We deleted the very few non-consecutive observations (which was only the case for our references groups the non-sick and always sick, those exiting had consecutive observations). Overall, this resulted in **21,140** couples and **283,108** person-years. After confining the sample to all couples observed for at least four years **138,294** person-years and **17,493** couples were

kept. Focusing on the wave prior to caregiving exit and the three subsequent waves (or for the non-sick those observed during the first four years) the sample size reduced to **126,373 person-years** and **17,498 couples** or for each sub-group: **125,046 person-years** for never sick, **320 person-years** for always sick, **424 person-years** for those whose spouse recovered and **583 person-years** for those whose partner died. Across all groups the sample size is considerably larger, for each subgroup the sample size is comparable or even bigger than analyses in the field (e.g. Ranfsson had 148 spousal and child caregivers who exited the caregiving role): Of the **32,400 individuals** observed, we have 112 caregivers (aka individuals) whose partner recovers, 152 eventually bereaved caregivers, 81 continuing caregivers and 32060 non-caregivers.

Analysis

Our aim was to examine how the caregiver's life satisfaction evolved over time (level 1) and how the life satisfaction trajectories varied across individuals (level 2) (Singer & Willett, 2003: 48). Our multilevel model took account of the nested sample (time points within individuals). As for the fixed part, we followed Mitchell's suggestion of treating time as a categorical variable as for a small number of time points it facilitates the comparisons among different time points (2012, p. 437). As suggested by Mitchell, this categorical time variable was interacted with recovery type to allow a comparison of changes over time between the different caregiver types. We used a random slope for time and random intercept for the person were included (see supplementary material II).

Four longitudinal recovery type groups were created: (1) caregivers whose partner's health improved (i.e. moves from needing care to not needing care) (2) caregivers who exit their caring role via spousal death – and as an initial comparison: (3) caregivers whose partners never needed any care (4) caregivers whose spouses continuously needed care.

Dependent Variable

The paper's dependent variable was the spouse's response to "How satisfied are you currently with your life, all things considered?", which was measured annually. The answer was provided on a 0-10 scale, ranging from 0 "completely dissatisfied" to 10 "completely satisfied". It has been shown to have a .74 test-retest reliability (Lucas & Donnellan, 2012, p. 328).

Key Independent Variable

The main independent variable was the spousal's recovery type (exiting the need for care via recovery, exiting the need for care via death, always in need for care, never in need for care). The need for care was measured annually on the household level via the question "Does someone in your household need care or assistance on a constant basis due to age, sickness, or medical treatment?" and combined with the PID of the person in need of care and its main caretaker. A spouse was deemed to have recovered if the spouse was still living in the household but no longer in need of care – again measured on the household level. It was anchored around the timing of recovery – i.e. we pooled the data so that t0 represented the year in which spouses were still sick and t1 the year in which the sick partner had either recovered or died. The time variable / dummies were interacted with the type of spousal recovery type, to understand how much the caregiver's life satisfaction response differed across these four groups.

Controls

Besides spousal recovery type, control variables similar to another study on caregivers' life satisfaction were included (Rafnsson et al., 2017): Caregiver **age and age squared in t0** (year prior to exiting disease for those who exit and else first year of observation). After all, partners of eventually dying spouses may be older and age has been

shown to have a U-shaped relationship with satisfaction (Clark & Oswald, 2006). Older people experienced more of a drop in subjective well-being (Luhmann et al., 2012, p. 605).

As economic resources can alleviate some of the strain associated with caregiving, the analysis controlled for the household's **net income tercile in t0 (deflated to 2010 values)**. Low income groups have also been shown to have a high level of depression continuing into bereavement whilst for high income depression decreased (Li 2005). **Education in t0** (divided into incomplete to intermediate general, vocational qualification and tertiary education) was controlled for, since past studies pointed towards an association with post loss depressive symptoms and low education (Nielsen et al., 2017).

We captured labor market position via **employment status in t0** (full-time, part-time, irregular, non-employed) (Snijders & Bosker, 2012, p. 262). Self-rated health has been shown to negatively affect life satisfaction (Palmore & Luikart, 1972). Since health of the caregiver may be worse in some groups (e.g. end-of-life caregivers, see (Williams et al., 2014)) and may have deteriorated as a result of the caregiving role, which in turn may affect the caregiver's life satisfaction irrespective of spousal health, we controlled for caregivers' **self-rated health in t (time-varying) and initial health in t0 (time-constant)**.

We tested the hypotheses using a stratified analysis (separate models by grouping factors). First, gender may affect the level of life satisfaction. Past studies on entering spousal illness and spousal death point towards gendered (former) caregiver reactions (Braakmann, 2014; Nielsen et al., 2017). We are likely to observe significantly more women among bereaved caregivers as they are more likely to be younger than their partner.

Second, bereaved are more likely to be older and age in turn is associated with higher levels of life satisfaction. Third, severity of spousal symptoms has been found to affect caregivers' life satisfaction (Yorgason, Almeida, Neupert, Spiro III, & Hoffman, 2006). To understand the level of burden in t0, prior to recovers or death, the analysis further controlled

for sick person's **care need level (Pflegestufe in German) in t0** – distinguished as not officially in need of care (i.e. being identified as being in need of care but not officially eligible for care related payments) or the partner having been categorized into level 1-3**.** Pflegestufe is an official criterion of the German health care insurance law which distinguishes between severity of disease for care payments and is tested by doctors and nurses, 1 is the lowest severity and 3 the highest.

Finally, we tested two time use hypotheses by stratifying the sample by total **care, errands, housework on a weekday in t0** as well as **shifts between t0 and t3** (as a categorical variable reduction, same increase) (Singer & Willett, 2003, p. 176). Leisure was measured on the individual-level at **t3**

Results

Descriptive Findings

Table 1. Descriptive Table of Analytical Sample Independent Variables

	Overall		Female Caregivers		Male Caregivers	
	Recovery Mean (sd)	Death Mean (sd)	Recovery Mean (sd)	Death Mean (sd)	Recovery Mean (sd)	Death Mean (sd)
Age pre-death/recovery (t=0)	64.22	70.66	63.31	69.92	65.31	72.39
	(14.98)	(9.42)	(16.02)	(9.33)	(13.70)	(9.49)
Weekday care, housework errand hours (t=0)	5.27	10.42	6.31	10.91	4.06	9.30
	(3.11)	(6.21)	(2.95)	(6.36)	(2.86)	(5.75)
Weekday care, housework errand hours (t=3)	3.62	3.55	4.29	3.84	2.81	2.86
	(2.05)	(1.60)	(1.99)	(1.61)	(1.82)	(1.36)
Caregiver's weekday leisure hours (t=3)	2.77	3.73	2.61	3.54	2.98	4.19
	(2.27)	(2.77)	(1.87)	(2.61)	(2.69)	(3.11)

Note. Data are from the German Socio-Economic Panel Study v. 33 years 2001-2016; Caregivers of recovering or dying spouses who responded for least three times.

Women were over-represented both among those whose partner recovered and among bereaved caregivers, in part because they tended to be younger than their partners. The

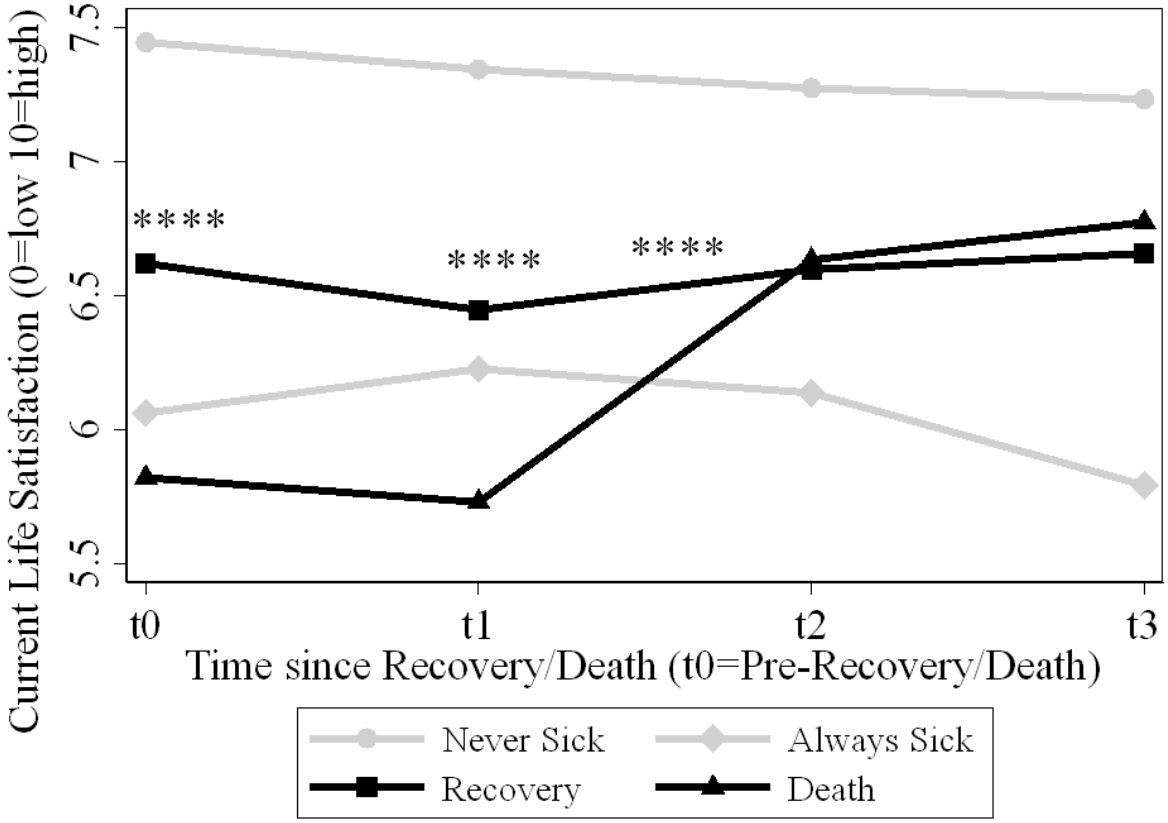
composition across key independent variables may differ significantly by gender. Hence the supplementary table A2 describes the overall and the gender-specific sample composition. Irrespective of whether we looked at the overall comparison of caregivers or if we split the sample by gender, the result was the same: The official care need level was significantly higher for eventually dying partners (at a .001-level), they were more likely to have reduced their weekday unpaid hours. Table 1 shows that bereaved caregivers were about 6 to 7 years older, have had a higher level in weekday unpaid hours (nearly double the amount of those whose partner eventually recovers) and higher leisure hours three years into bereavement.

Contrary to expectations, we found no significant differences in household income, barely significant differences (at a .10-level) in education, no significant differences in self-rated health in t3, barely significant differences in leisure shifts between t0 and t3 (at a .10-level). Unpaid weekday hours in the final period of observation diminished to similar levels across both groups. In the subsequent analysis that compared life satisfaction among the spouses whose partners recovered from illness to those who died, we had to adjust for the prior differences between the two samples in our attempt to understand what was driving the different trajectories in life satisfaction.

Spousal Death versus Spousal Recovery

The initial graph shows the various pathways spousal caregivers' life satisfaction took when including all controls (without the controls a similar pattern emerged).

Figure 1. Caregiver's Life Satisfaction Trajectories by Spousal Recovery Path – Contrasts of Predictive Margins



Source German Socio-Economic Panel v.33, years 2001-2016; Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², gender, household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Figure based on table 2. *p<.10; **p<.05; ***p<.01; ****p<.001. N=27,682 Individuals; 105,235 Person-Years.

The *significance levels* in the figure refer to the *comparison between* the shift in life satisfaction of caregivers whose spouse dies and the shift in life satisfaction of caregivers whose spouse recovers. Contrary to expectations, the bereaved caregivers experienced a significantly stronger upward shift in life satisfaction from one-year post-widowhood to two

years post-widowhood than spouses whose partner recovered. As a result, both widowers and caregivers whose partner recovered no longer have significantly different levels of life satisfaction. The grey lines show the always sick and those with never sick partners as a comparison group. In results not shown we tested whether those who never had a sick partner were, as expected, significantly more satisfied. This finding persisted across all time points; similarly, those who continued to have a sick partner over time were less satisfied than those whose partner recovered. Consequently, spousal recovery was at least associated with no worsening in life satisfaction which was observed for those whose partner did not recover.

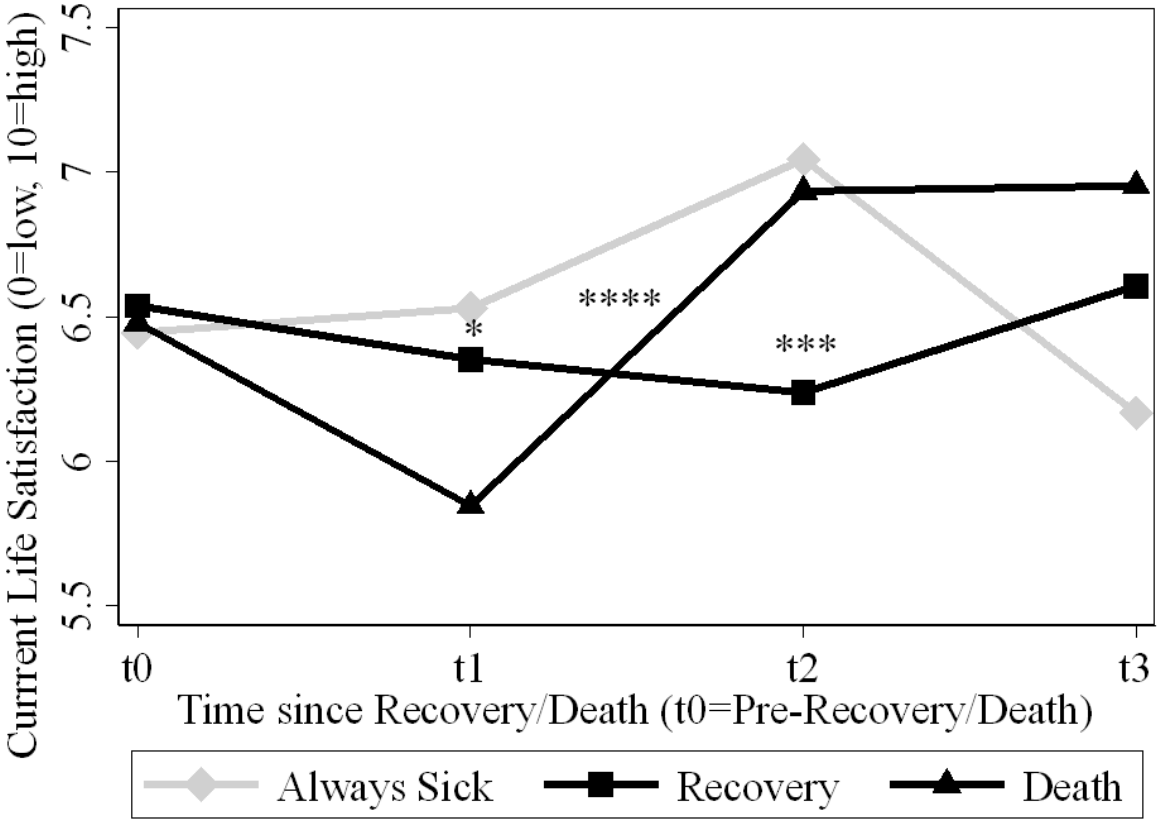
Table 2. *Growth-Curve Dependent Variable Current Life Satisfaction: Fixed Effects*

	b	*(SE)*
Spousal Trajectory (Ref.: Never Sick)		
Always Sick	-1.39****	(0.18)
Recovery	-0.83****	(0.15)
Death	-1.63****	(0.13)
Time since Recovery/Death (Ref.: t0)		
t1	-0.10****	(0.01)
t2	-0.17****	(0.01)
t3	-0.21****	(0.01)
Spousal Trajectory*Time since Recovery/Death		
*Always Sick*t1*	0.27	(0.18)
*Always Sick*t2*	0.25	(0.19)
*Always Sick*t3*	-0.06	(0.20)
*Recovery*t1*	-0.07	(0.15)
*Recovery *t2*	0.15	(0.16)
*Recovery *t3*	0.25	(0.18)
*Death*t1*	0.01	(0.13)
*Death *t2*	0.98****	(0.13)
*Death *t3*	1.17****	(0.15)
Caregiver's Age t0	-0.06****	(0.00)
Caregiver's Age² t0	0.00****	(0.00)
Female	0.09****	(0.02)
Household Income Tercile t0 (Ref.: Bottom Tercile)		
Mid Tercile	0.30****	(0.02)
Top Tercile	0.58****	(0.02)
Caregiver's Education t0 (Ref.: Incomplete to Intermediate General)		
Vocational Qualification	-0.02	(0.02)
Tertiary Education	0.07****	(0.02)
Caregiver's Employment Status t0 (Ref.: Full-Time)		
Part-Time	0.08***	(0.02)
Irregular	0.08**	(0.03)
Non-Employed	0.03	(0.02)
Caregiver's Self-Rated Health t0 (Ref.: Very good)		
Good	-0.32****	(0.02)
Satisfactory	-0.70****	(0.03)
Poor	-0.94****	(0.03)
Bad	-1.24****	(0.06)
Caregiver's Self-Rated Health t (Ref.: Very good)		
Good	-0.30****	(0.02)
Satisfactory	-0.68****	(0.02)
Poor	-1.18****	(0.02)
Bad	-1.97****	(0.04)
Constant	9.00****	(0.08)
Observations	105,235	
Caregivers	27,682	
df	33	

Note. Source German Socio-Economic Panel v.33, years 2001-2016; * p<0.10, ** p<0.05, *** p<0.01, **** p<0.001

We examined whether the strong upward shift observed in Table 2 is due a lower levels of life satisfaction at the outset, providing more room for improvement. Figure 2 shows the same analysis, but this time the sample was restricted to anyone whose life satisfaction ranged between 5.5- and 6.5-points pre-recovery/death (t=0).

Figure 2. Life Satisfaction by Spousal Recovery Trajectory for Medium Satisfied Caregivers in t0 (6-7)



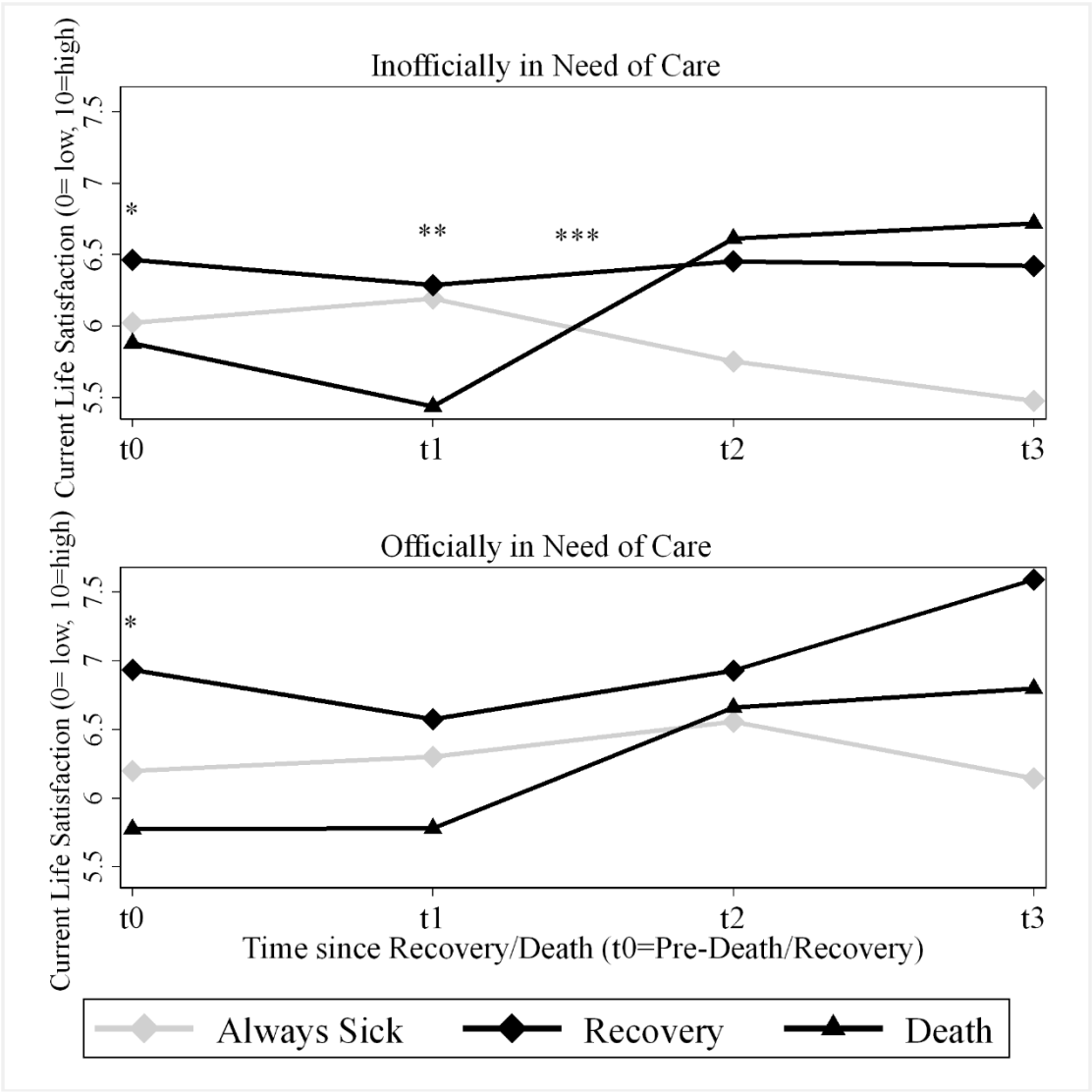
Source German Socio-Economic Panel v.33, years 2001-2016; Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², gender, household income tercile in t0, education

in t0, employment in t0, self-rated health in t0 and self-rated health in t. Figure based on table 2. *p<.10; **p<.05; ***p<.01; ****p<.001. N=101 Caregivers; 386 Person-Years.

Even within this subsample of equally satisfied caregivers we found a significantly steeper increase in life satisfaction among the bereaved between t1 and t2, which now even moved to levels significantly above those of caregivers whose partner recovered in t2.

We next examined some of the conditions that may have been driving these different trajectories in life satisfaction. A striking divergence between the two types of caregivers was apparent from the descriptive data on the severity of illness recorded in official evaluations by nurses and doctors made for reimbursement of care. Not surprisingly, widows and widowers had cared for partners with higher levels of illness, more often reporting that the patients were in bad to very bad health than the levels of illness experienced by those who recovered (Pflegestufe 1-3). Consequently, the bereaved caregivers had – on average – a larger burden to bear before their spouse died than those whose spouses recovered. In figure 3 we therefore restricted the sample to partners whose spouses recovered which had a similarly high care need as the bereaved (official level 1-3) in t0. Indeed, if a similarly strong burden was relieved, the shift in life satisfaction was similarly steep among the two groups and no longer significantly different. Only among those whose partner was in no care level (i.e. identified by someone in the household as in need of care but not categorized as being eligible for payments) in t0 did we observe a stronger increase in life satisfaction among bereaved caregivers. This may be because even among those not officially in need of care 53 percent of the eventually bereaved spouses provided 7 hours plus in t0 versus just 27 percent among those whose partners recovered.

Figure 3. Life Satisfaction by Spousal Recovery Trajectory - Stratified by Initial Care Need Level (none versus some official *Pflegestufe*) (t0)



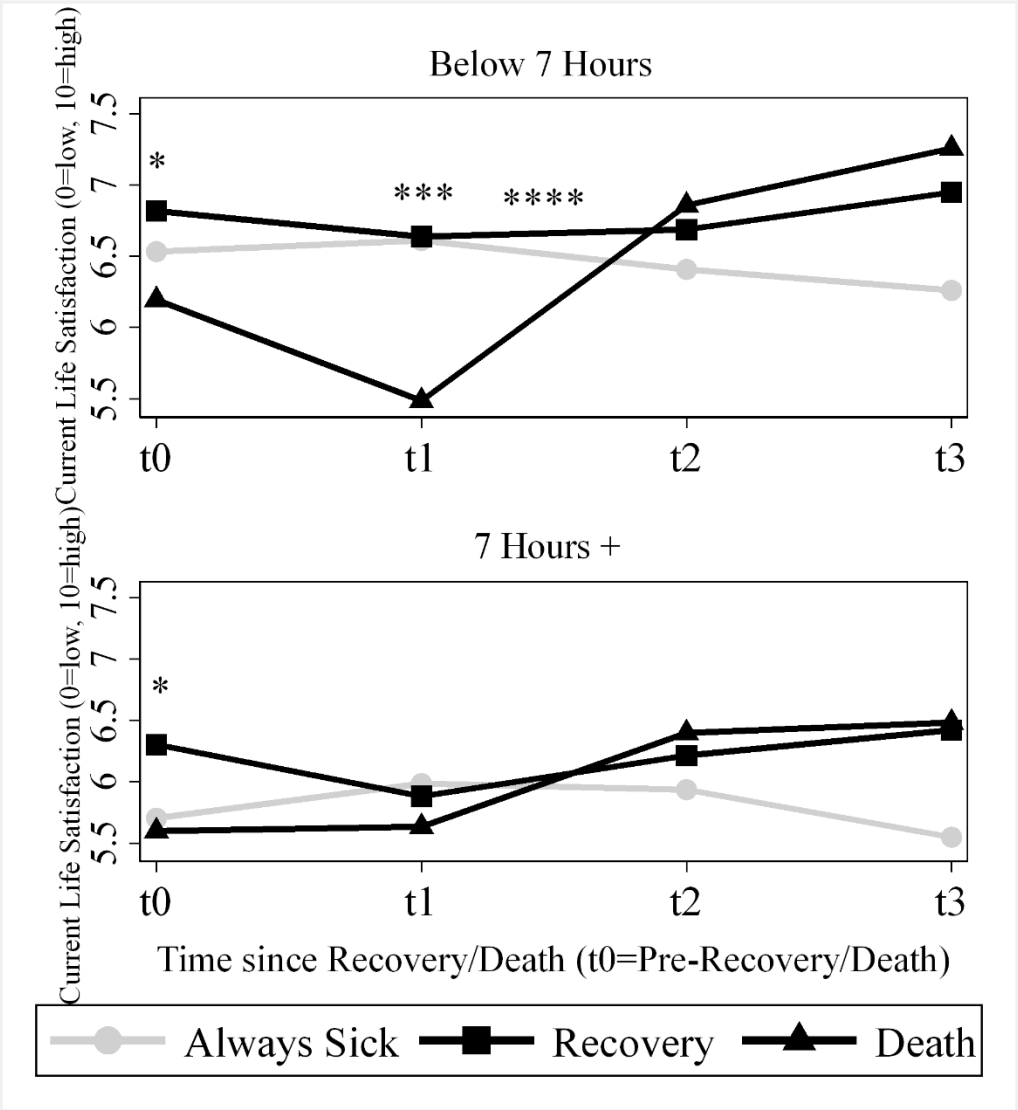
Source German Socio-Economic Panel v.33, years 2001-2016; Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², gender, household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Figure based on table 2. *p<.10; **p<.05; ***p<.01; ****p<.001. N=157/143 Caregivers; 599/551 Person-Years.

Similarly, our descriptive analysis (table 1) showed that the care hours were nearly double prior to their partner's death for bereaved caregivers compared to caregivers whose

partner recovered. Only 28.3 % of those whose partner recover but 71.3 % of those whose partner dies had 7+ hours of care, errands and housework to provide. Apparently, those whose spouses eventually died carried a heavier burden of care and accordingly may have experienced a greater sense of relief when their spouse died, when compared those whose spouse recovered, resulting in a stronger increase in life satisfaction.

Indeed, once we interacted with initial care burden, the differences both in levels of life satisfaction and in shifts over time turned non-significant for those who carried out a total of seven hours or more of care, errands and housework on a weekday. However, among those who had less than seven hours of care errands and housework, the difference in life satisfaction changes persist (the same was the case if we removed demographic controls). A possible explanation for the comparative indifference of those whose partners recover may be that, descriptively, even within the subsample of those providing up to seven hours of care, errand and housework on a weekday, the bereaved were more often on the upper scale of this 0-7 hours scale than those whose partners recovered.

Figure 4. Life Satisfaction by Spousal Recovery Type; Stratified by Initial Weekday Care, Errands and Housework Hours (t0)



Source German Socio-Economic Panel v.33, years 2001-2016; Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², gender, household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Figure based on table 2. *p<.10; **p<.05; ***p<.01; ****p<.001. N=132/173 Caregivers; 502/665 Person-Years.

Robustness Checks

Besides the main analyses above, we also ran a series of stratified analyses (see supplementary figures A1-A4) on the other significant variables from the descriptive table: When stratifying the analysis by age (below 70 and 70+), the bereaved still experienced a stronger increase in life satisfaction following widowhood. Irrespective of gender (supplementary figure A2), bereaved caregivers experienced a stronger increase in life satisfaction. Similarly, irrespective of t3 leisure levels (supplementary figure A3), bereaved caregivers had experienced a stronger increase in life satisfaction. As we found in the main analysis, only a high reduction in unpaid weekly hours, that is, caregiving responsibilities, was associated with an increase in life satisfaction similar for the eventually bereaved and caregivers of recovering spouses (supplementary figure A4).

To understand whether the sample which was only observed one year into spousal death/recovery, differed significantly from those who stayed on, we conducted a series of chi^2-tests / comparisons. The main analysis was based on a transition measure – moving into death and into recovery. As such t0 and t1 are always non-missing, because we need to observe a transition into recovery/death. For those who recovered (t0/t1 187 caregivers) we observed 112 in t2 and 88 in t3 (note though that we were only interested in recovering spouses and not those who subsequently became sick again, which we consequently dropped). Among those who died (179 caregivers in t0/t1) we observed 152 in t2 and 127 in t3. We first checked, whether the pattern of missing information was significantly related to the independent variables – for eventual bereaved caregivers and caregivers of recovering spouses separately (supplementary table A3). Self-rated health was slightly lower for those who remained in the analysis for a shorter period. However, this applied for both groups. The official care need was also higher for those who dropped out earlier. The stratified analysis on care need level hence gave us a good picture for what life satisfaction might have been like

after drop-out. Those who remained in the sample had slightly lower care hours across both groups. The stratified analysis took account of this difference. Subsequently, we re-ran the main analysis stratified by pattern of missing data to see if slopes between t1-t2 differed (supplementary figure A5). This was not the case.

Limitations

While we control for the most likely confounders and mainly contrast the shifts in life satisfaction rather than the levels, other unmeasured confounders may further have led to the observed between-group differences. Similarly, the subsample-analyses may select certain types of caregivers into the groups contrasted. The analysis which contrasts eventually bereaved caregivers who start off with similar levels of life satisfaction to those whose spouses got better, is supposed to take account of this fact. For the waves we used it was impossible to tell if a second person in need for care was in the household. We assumed that the person with the highest need for care was reported. The analysis is only generalizable to the first three years into caregiving exit. Institutional care was not captured because a seriously ill spouse is no longer in the household (Göbel, Krause, Pischner, Sieber, & Wagner, 2008). Men are less likely to move into institutional care because they have younger partners who are able to help maintain them in the home. The study is based on a single country, which is among the top third in GDP spending across the EU and unlike the US financially supports home caretakers. It may be that in contexts without this financial support, the caregiving burden is higher. Yet with a comparatively old population and few people of working age at the time of the study it can be seen as a forerunner in dealing with demographic pressures in old age. For the subsample analysis in figure 4 we were facing the problem that if we stratified by less than seven hours, the subsample sizes became too small for the eventually bereaved.

Discussion

Does caregivers' life satisfaction evolve differently for caregivers whose partner dies versus those whose partner recovers? How do these life satisfaction shifts compare to those whose spouse was never or always in need of care during the period of observation?

This paper overcomes many of the methodological limitations of past studies by using a nationally representative general-purpose sample, allowing us to compare bereaved caregivers to those whose partner recovered. Unlike other studies, we were able to identify whether the spouse recovered and focus on this subgroup, which may have very different effects on life satisfaction (rather than treating them in combination with other reasons for exit). We moved beyond cross-sectional and two-timepoint comparisons (e.g. Cannuscio et al., 2002; Dunkle et al., 2014). We were able to measure the life satisfaction prior to the spouses' recovery or death and compare life satisfaction trajectories of couples in which the partner was never or always in need for care. The data allowed us to identify spousal caregiving relationships and the changes therein on the household-level, thereby avoiding selection based upon the sick being healthy enough to respond (unlike e.g. Kaufman et al., 2019; Taylor Jr et al., 2008).

As expected from past studies on bereavement (Kaufman et al., 2019; Seltzer & Li, 2000; Taylor Jr et al., 2008) after an initial decline, the bereaved experienced a significant increase in life satisfaction. Contrasting caregiving exit via recovery and caregiving exit via bereavement, we expected an even stronger increase in life satisfaction among caregivers of recovering spouses as they do not have to deal with grief. However, contrary to our expectations based on spouses of stroke survivors (Ostwald et al., 2009), spouses whose partner recovered did not improve their life satisfaction. Instead, their life satisfaction remained unchanged and hence the bereaved caregivers experienced a stronger uplift in life satisfaction in comparison.

This paradoxical result represents an intriguing puzzle that we were able to address due to the richness of the data set. It allowed us to test whether this counterintuitive finding may be down to a differential sample composition among caregivers whose partner recovered and those whose partner died. The official care need level was significantly higher for eventually dying partners (at a .001-level), bereaved caregivers were about 6 to 7 years older, they were more likely to have reduced their weekday unpaid hours, have had a higher level in weekday unpaid hours (nearly double the amount of those whose partner eventually recovers) and higher leisure hours three years into bereavement.

We found that the bereaved were indeed more likely to be female, older and had higher leisure hours three years into bereavement. However, none of these differences could explain away the significantly stronger increase in life satisfaction among bereaved caregivers. Even with similar initial levels of life satisfaction (to account for regression to the mean of the bereaved caregivers), were the bereaved the only ones to benefit from the eased burden expressed by increased life satisfaction. Only if we made the sample similar on initial care level and initial hours of unpaid weekly work (which were also significantly higher among the bereaved), did those with high initial burdens follow a similar (aka not significantly different) upward trend in life satisfaction upon their partners recovery/death. This suggests that life satisfaction responses only rise *if* a heavy burden is, in fact, truly lifted. This finding is also underscored by the fact that if we made the sample similar on reduction in unpaid hours (where care has been given), both groups experienced similar increases in life satisfaction.

Germany is among the top third in GDP spending across the European union and supports home caregivers financially (unlike the US) (Langner & Furstenberg 2018). From the results we see that among those whose partner recovered only a high initial level and a strong reduction in long hours of care, errands and housework provided at home led to an

increase in life satisfaction like caregivers whose partner died – else partners appeared to be indifferent to the recovery. Even among the subsample of fewer hours reduced and provided, the eventually bereaved carried out more hours on average, which might explain why they also experience an uplift in life satisfaction. It further suggests that care hours provided at home were the main stressor (despite being financially compensated for). After all, spousal death (finality) cannot explain the similar spike in life satisfaction for those whose partner recovers with high hours and a strong reduction in hours. Neither did low hours and a low reduction in hours increase the life satisfaction of caregivers of recovering spouses. Future research should investigate how the relationship between spousal recovery and death plays out in other contexts with more financial support for institutionalized care to inform how such policy differences may shape the relationship between spousal life satisfaction and caregiving exit via recovery and death. Moreover, one could try and understand in how far a lack in financial compensation for both institutionalized and home care may further affect life satisfaction among caregivers who exit their caregiving role.

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Appendix

I German Socio-Economic Panel (GSOEP)

For the GSOEP, every household member aged 16 and above is being interviewed face-to-face (Haisken-DeNew & Frick, 2005, p. 21). The panel stability (i.e. number of participating households divided by previous wave's net sample) was 93.8% in 2015 (Gerstorf & Schupp, 2016). The response rate for previous wave respondents was 92.8%, the response rate for new households was 54.5% (Gerstorf & Schupp, 2016, p. 35)

Sample

Table A1. Sample Selection and Remaining Couples and Observation-Years

	Person-Years	Households
Initial Sample ppfad	974,533	
Household ID available	972,154	49,496
Need for Care Measured (2001-2016)	647,894	42,822
Ever partnered individuals	375,345	29,689
Partner sick not oneself	365,096	29,689
Drop those who get better second or third time	364,787	29,689
Keeping sick people who get better, die, are always sick or never sick	358,766	29,165
Heads and spouses only	303,133	26,728
Only spousal caregivers	302,524	26,635

Only year prior to transition kept	300,279	26,633
Drop non-consecutive observations (not attrition)	283,108	21,140
Observed four times	139,807	20,724
Observed during first four years and at least three times in this window	126,354	17,493 (or 32,400 individuals)

Table A2. Descriptive Table of Analytical Sample Independent Variables

	Overall			Chi²	Female Caregivers			Chi²	Male Caregivers			Chi²
	Recovery	Death	Total		Recovery	Death	Total		Recovery	Death	Total	
Gender				**								
Male	45.54	30.26	36.74									
Female	54.46	69.74	63.26									
N	112	152	264									
Initial net household income tercile (t0)				-				-				-
Bottom Tercile	46.73	49.28	48.16		45.00	52.58	49.68		48.94	41.46	45.45	
Mid Tercile	28.04	32.61	30.61		35.00	31.96	33.12		19.15	34.15	26.14	
Top Tercile	25.23	18.12	21.22		20.00	15.46	17.20		31.91	24.39	28.41	
N	107	138	245		60	97	157		47	41	88	
Caregiver's initial education (t0)				*				-				-
-incomplete to intermediate general	53.70	66.89	61.39		60.34	70.75	67.07		46.00	57.78	51.58	
vocational qualification	25.00	17.88	20.85		29.31	17.92	21.95		20.00	17.78	18.95	
tertiary education	21.30	15.23	17.76		10.34	11.32	10.98		34.00	24.44	29.47	
N	108	151	259		58	106	164		50	45	95	
Caregiver's employment status in t0				***				-				**
Full-Time	20.18	5.92	11.88		11.86	5.66	7.88		30.00	6.52	18.75	
Part-time	5.50	5.92	5.75		8.47	8.49	8.48		2.00	0.00	1.04	

Irregular	1.83	0.66	1.15		1.69	0.94	1.21		2.00	0.00	1.04	
Non-Employed	72.48	87.50	81.23		77.97	84.91	82.42		66.00	93.48	79.17	
N	109	152	261		59	106	165		50	46	96	
Official care level (t0)				****				****				****
None	84.76	30.87	53.15		85.96	30.77	50.31		83.33	31.11	58.06	
Lowest care need	10.48	29.53	21.65		10.53	28.85	22.36		10.42	31.11	20.43	
Medium care need	3.81	24.83	16.14		3.51	23.08	16.15		4.17	28.89	16.13	
High care need	0.95	14.77	9.06		3.51	23.08	16.15		2.08	8.89	5.38	
N	105	149	254		57	104	161		48	45	93	
Caregiver's final self-rated health (t3)				-				-				-
Very good	3.16	0.79	1.80		0.00	1.11	0.71		6.82	0.00	3.70	
Good	30.53	22.05	25.68		29.41	16.67	21.28		31.82	35.14	33.33	
Satisfactory	37.89	45.67	42.34		39.22	48.89	45.39		36.36	37.84	37.04	
Poor	21.05	27.56	24.77		23.53	30.00	27.66		18.18	21.62	19.75	
Bad	7.37	3.94	5.41		7.84	3.33	4.96		6.82	5.41	6.17	
N	95	127	222		51	90	141		44	37	81	
Change in caregiver's leisure (t3-t0)				*				-				*
Reduction	24.44	16.00	19.53		28.00	18.18	21.74		20.00	10.81	15.58	
Same	24.44	16.80	20.00		20.00	18.18	18.84		30.00	13.51	22.08	
Increase	51.11	67.20	60.47		52.00	63.64	59.42		50.00	75.68	62.34	
N	90	125	215		50	88	138		40	37	77	

Change in caregiver's unpaid hours (t3-t0)				****			****			***
Reduction	67.78	95.00	83.33	73.47	96.43	87.97	60.98	91.67	75.32	
Same	13.33	1.67	6.67	10.20	1.19	4.51	17.07	2.78	10.39	
Increase	18.89	3.33	10.00	16.33	2.38	7.52	21.95	5.56	14.29	
N	90	120	210	49	84	133	41	36	77	

Note. Data are from the German Socio-Economic Panel Study v. 33 years 2001-2016; Caregivers of recovering or dying spouses who responded for least three times. *p<.10; **p<.05; ***p<.01; ****p<.001.

II Analysis

For the model, we tested several different residual covariance structures, as suggested in chapter 7 Singer and Willett: standard error covariance structure, unstructured, exchangeable, autoregressive and Toeplitz on the basic model and compared the Goodness-of-Fit Statistics (BIC and AIC). Restricted Maximum Likelihood estimation was used as we were working with smaller samples. The standard error covariance structure had the best Bayesian Information Criterion and was hence chosen. Both a random intercept (since we assume and can see in the raw data that caregivers started off at different levels of life satisfaction) and a random slope (assuming and observing in the raw data that the response in partners' life satisfaction (random time-by-individual interaction) varied across caregivers) were included. A log likelihood test on the basic model, confirmed that the inclusion improved the fit of the model.

Life Satisfaction by Spousal Recovery/Death Trajectory – Stratified by Age

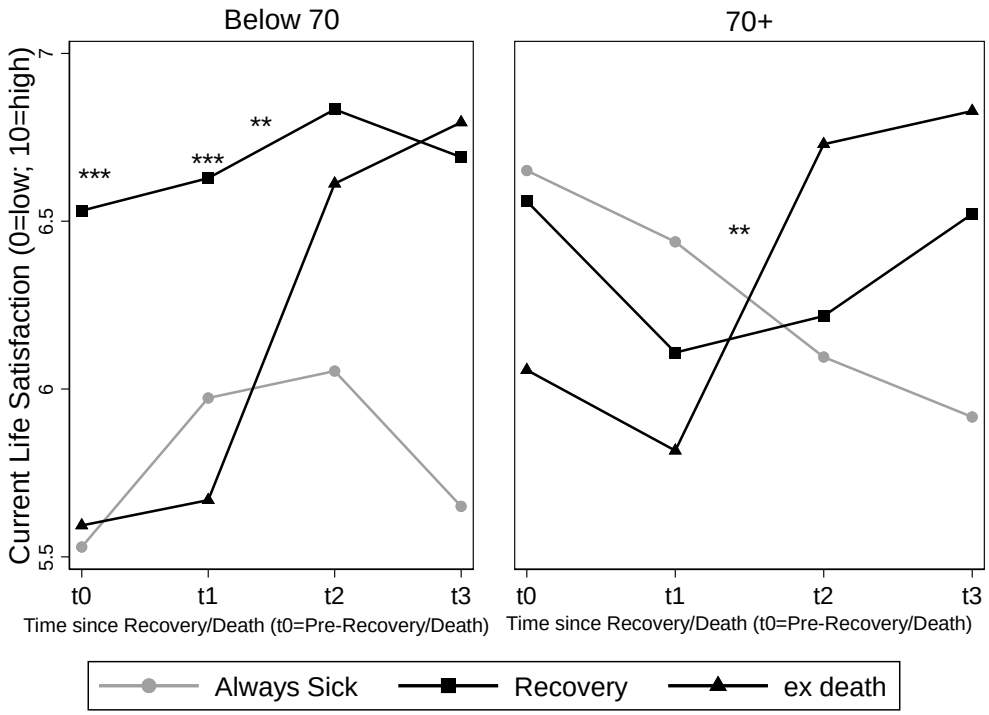

Figure A1. Source German Socio-Economic Panel v.33, years 2001-2016; Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' gender, household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). *p<.10; **p<.05; ***p<.01; ****p<.001. N=149/161 Individuals; 579/608 Person-Years.

Life Satisfaction by Spousal Recovery/Death Trajectory – Stratified by Gender

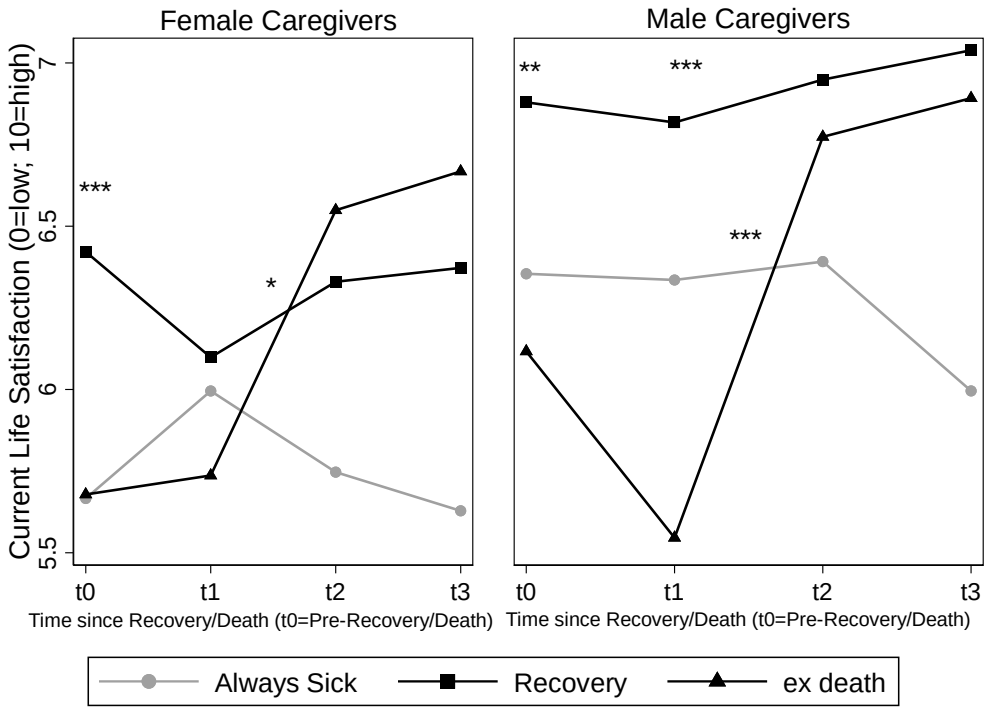

Figure A2. Source German Socio-Economic Panel v.33, years 2001-2016; Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). *p<.10; **p<.05; ***p<.01; ****p<.001. N=187/123 Individuals; 711/476 Person-Years.

Life Satisfaction by Spousal Recovery/Death Trajectory – Stratified by Final Observation (t=3) Leisure Hours

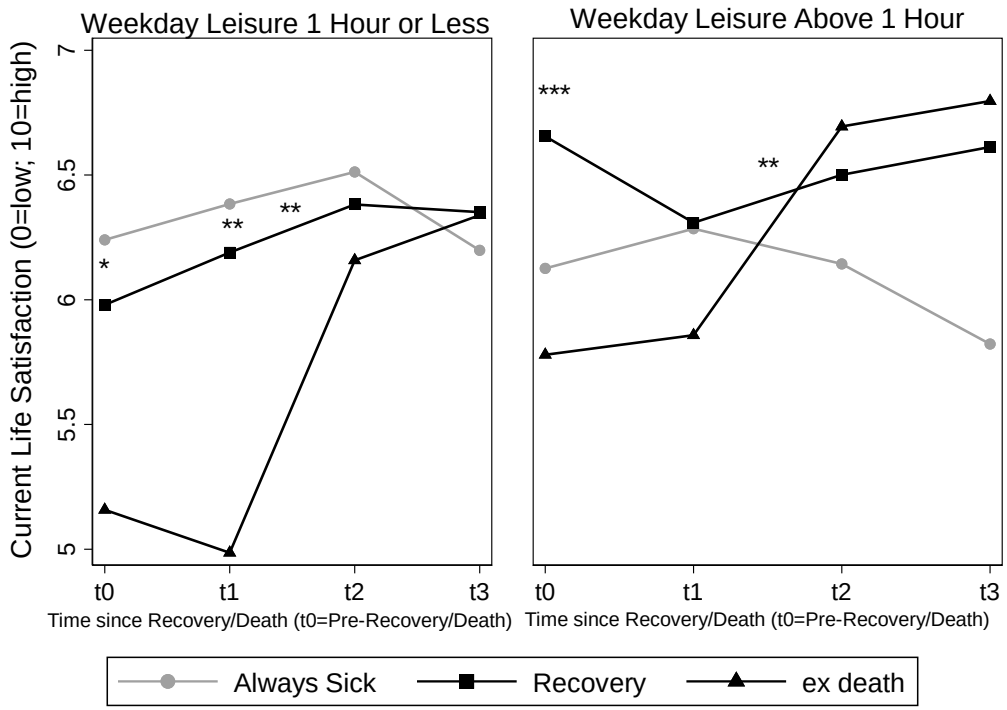

Figure A3. Source German Socio-Economic Panel v.33, years 2001-2016; Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², gender, household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). *p<.10; **p<.05; ***p<.01; ****p<.001. N=78/188 Individuals; 310/743 Person-Years.

Life Satisfaction by Spousal Recovery/Death Trajectory – Stratified by t0 to t3 Weekly Unpaid Work Hour Reduction

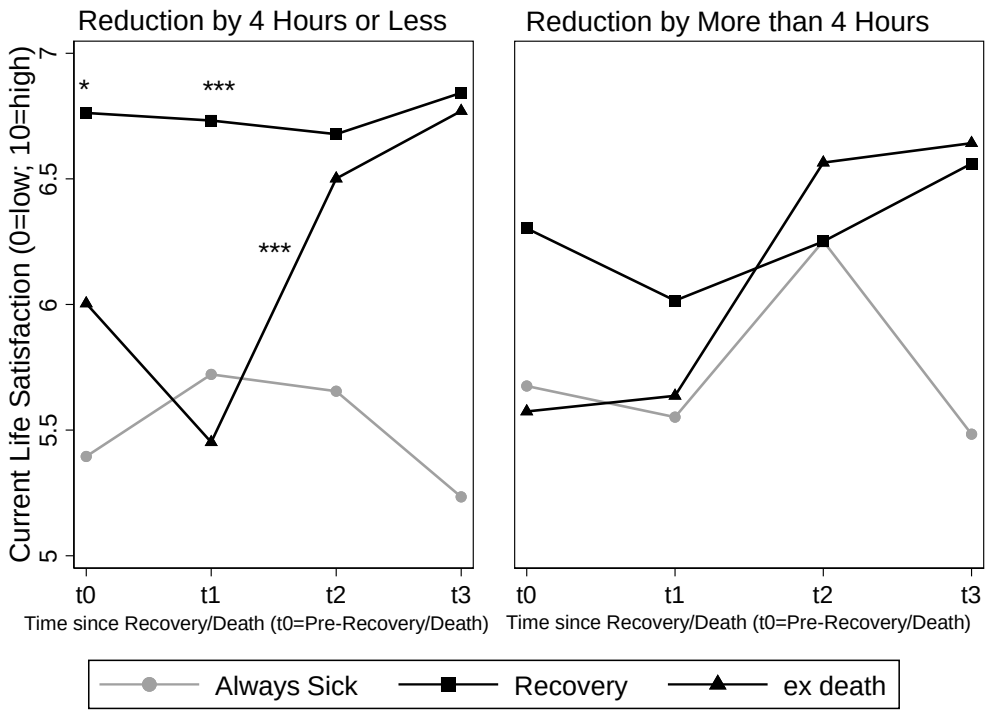

Figure A4. Source German Socio-Economic Panel v.33, years 2001-2016; Caregivers of recovering or dying spouses observed for at least 3 times; controlling for caregivers' age age², gender, household income tercile in t0, education in t0, employment in t0, self-rated health in t0 and self-rated health in t. Significance levels refer to comparison of intercepts and slopes of caregivers with recovering and dying spouses (black lines compared). *p<.10; **p<.05; ***p<.01; ****p<.001. N=102/101 Individuals; 404/400 Person-Years.

Table A3. Missing Data Descriptive Chi²-Tests

	Death					Recovery				
	0,1,..	0,1,2,.	0,1,2,3	Total	Chi²	0,1,..	0,1,2,.	0,1,2,3	Total	Chi²
Gender					-					-
Male	22.22	36.00	29.13	29.05		44.00	33.33	48.86	44.92	
Female	77.78	64.00	70.87	70.95		56.00	66.67	51.14	55.08	
N	(27)	(25)	(127)	(179)		(75)	(24)	(88)	(187)	
Initial net household income tercile (t0)					-					-
Bottom Tercile	60.87	54.17	48.25	50.93		50.00	60.87	42.86	47.98	
Mid Tercile	17.39	29.17	33.33	30.43		28.79	13.04	32.14	28.32	
Top Tercile	21.74	16.67	18.42	18.63		21.21	26.09	25.00	23.70	
N	(23)	(24)	(114)	(161)		(66)	(23)	(84)	(173)	
Caregiver's initial education					-					-
incomplete to intermediate general	66.67	72.00	65.87	66.85		61.11	54.17	53.57	56.67	
vocational qualification	22.22	16.00	18.25	18.54		23.61	29.17	23.81	24.44	
tertiary education	11.11	12.00	15.87	14.61		15.28	16.67	22.62	18.89	
N	(27)	(25)	(126)	(178)		(72)	(24)	(84)	(180)	
Caregiver's employment					*					-

status in t0									
Full-Time	3.70	4.00	6.30	5.59		12.33	12.50	22.35	17.03	
Part-time	3.70	12.00	4.72	5.59		2.74	8.33	4.71	4.40	
Irregular	7.41	4.00	0.00	1.68		0.00	4.17	1.18	1.10	
Non-Employed	85.19	80.00	88.98	87.15		84.93	75.00	71.76	77.47	
N	(27)	(25)	(127)	(179)						
Official care level (t0)					*					*
None	15.38	21.74	32.54	28.57		63.89	86.96	84.15	76.27	
Lowest care need	50.00	47.83	26.19	32.57		25.00	13.04	9.76	16.38	
Medium care need	26.92	26.09	24.60	25.14		9.72	0.00	4.88	6.21	
High care need	7.69	4.35	16.67	13.71		1.39	0.00	1.22	1.13	
N	(26)	(23)	(126)	(175)		(72)	(23)	(82)	(177)	
Self-rated Health (t1)					**					-
Very Good	0.00	0.00	4.72	3.35		2.70	0.00	4.71	3.28	
Good	7.41	24.00	18.11	17.32		14.86	16.67	30.59	22.40	
Satisfactory	48.15	44.00	49.61	48.60		48.65	54.17	38.82	44.81	
Poor	25.93	28.00	25.98	26.26		27.03	16.67	22.35	23.50	
Bad	18.52	4.00	1.57	4.47		6.76	12.50	3.53	6.01	
N	(27)	(25)	(127)	(179)		(74)	(24)	(85)	(183)	

Note. Data are from the German Socio-Economic Panel Study v. 33 years 2001-2016; Caregivers of recovering or dying spouses who responded for least two times. * p<0.10; **p<0.05; ***p<0.01; ****p<0.001

Table A4. Missing Data Descriptive Comparison

	Spousal Death, 01..	Spousal Death, 012.	Spousal Death, 0123	Spousal Recovery, 01..	Spousal Recovery, 012.	Spousal Recovery, 0123
	Mean	Mean	Mean	Mean	Mean	Mean
	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)
Age prior to disease exit (t0)	71.70	75.36	69.74	66.87	65.08	64.74
	(11.00)	(9.49)	(9.16)	(13.00)	(16.90)	(12.77)
Caregiver's weekday unpaid work hours (t0)	9.48	9.24	10.66	6.96	4.79	5.41
	(3.24)	(5.04)	(6.41)	(5.11)	(2.30)	(3.31)
Caregiver's weekday unpaid work hours (t1)	4.31	3.46	3.84	4.47	4.27	3.66
	(3.60)	(1.61)	(1.62)	(3.01)	(2.10)	(2.19)
Caregiver's weekday unpaid work hours (t2)	.	3.70	3.62	.	3.96	3.65
	(.)	(1.40)	(1.70)	(.)	(2.93)	(2.01)
Observations	27	25	127	75	24	87

Note. Data are from the German Socio-Economic Panel Study v. 33 years 2001-2016; Caregivers of recovering or dying spouses who responded for least two times.

Life Satisfaction by Spousal Recovery/Death Trajectory - Stratified by Missing Data Pattern,

Comparison of t1-t2 Slopes

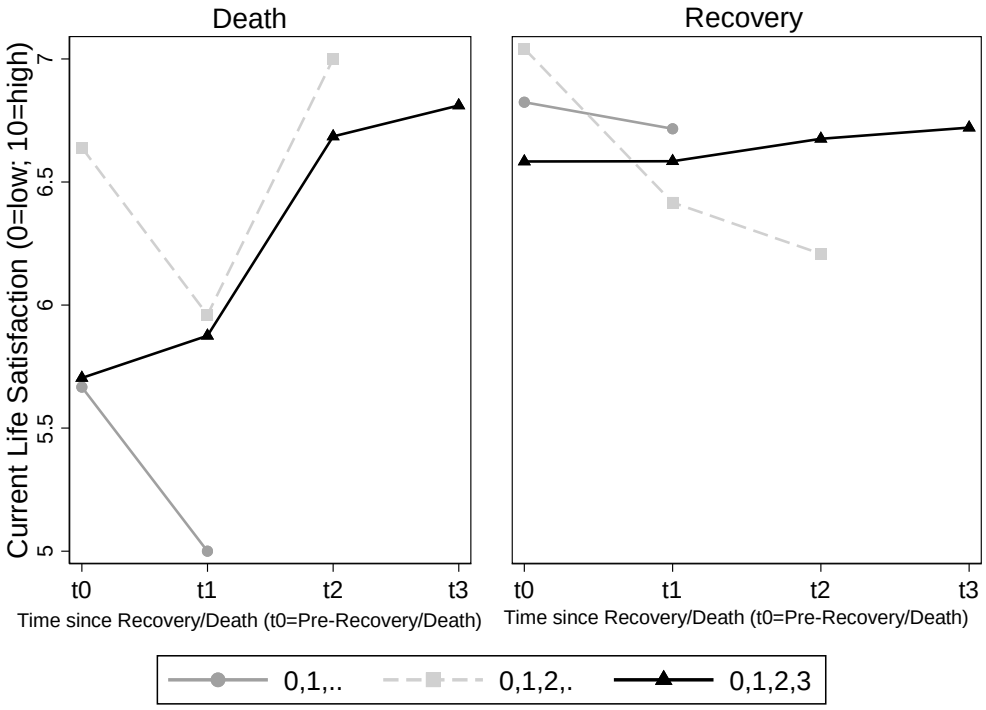

Figure A5. Source German Socio-Economic Panel v.33, years 2001-2016; Caregivers of recovering or dying spouses observed for at least 2 times; No controls. Significance levels refer to comparison t1-t2 slopes of caregivers with the varying types of missingness (black lines compared). *p<.10; **p<.05; ***p<.01; ****p<.001. N=179/184 Individuals; 634/560 Person-Years.

Table A5. Caregiving Burden and its Reduction by Recovery and Death

	Recovery	Death	Total	Chi²
t0 errands, housework, care				****
< 7 hours	**71.70**	24.67	44.14	
7+ hours	28.30	**75.33**	55.86	
N	106	150	256	
t3-t0 change errands, housework, care				****
< 4 hours reduction	**75.34**	24.14	43.92	
4+ hours reduction	24.66	**75.86**	56.08	
N	73	116	189	

Note. Data are from the German Socio-Economic Panel Study v. 33 years 2001-2016; Caregivers of recovering or dying spouses who responded for least two times. * p<0.10; **p<0.05; ***p<0.01; ****p<0.001