Providing informal care to older people: a comparison of spouses, children and other type of relationships

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Abstract

Spouses and adult children are the most important caregivers to older adults, but the number of other kin and non-kin caregivers are increasing. The three types of caregivers (spouses, children and others) differ considerably in intensity of care provision, motivation, and context of caregiving, but less is known about their differences in caregiver appraisal, i.c. to what degree the caregiving is a positive or negative experience. Using data from a national sample of Dutch informal caregivers of 1,685 older persons, the study examined to what degree characteristics of the care context, care givers and care receivers are associated with positive and negative appraisal of caregiving. Spouses (N=206) report high positive appraisal and high burden, adult children (N = 1,093) report the lowest level of positive appraisal, and other types of caregivers (N=386) report high positive appraisal and the lowest level of burden. Care context, motives and the availability of help from other sources differed largely among the three types of caregivers. Multivariate linear regression analyses for each of the care relationship types showed that motivational factors and help from other sources were more important for positive appraisal, whereas care context and solistic coping were more associated with burden. Which type of motivation and which type of assistance impacts caregiver appraisal varied by type of care relationship. Only among 'other' caregiver relationships, positive appraisal was negatively associated with burden. These results confirm the dual nature of caregiving among spouses and children and the fact that caregiving is merely a positive experience for other types of caregivers. (word count: 255)

Introduction

Many scholars have studied the appraisal of informal caregiving to older persons. Most focused on negative appraisals, as stress and burden, but it is generally acknowledged that caregiving can also be a positive experience, as there are many 'subjectively perceived gains or positive affective returns from caregiving' (Lawton, Moss, Kleban, Glicksman & Rovine, 1991). It is also known that positive and negative appraisals of caregiving have different predictors as well as different outcomes, corroborating the dual nature of caregiver appraisal (Kramer, 1997a; Lawton et al., 1991; Pinquart & Sorenson, 2003). Where negative appraisal, as care burden, is more strongly associated to characteristics of the care context, such as the degree of impairment of the caregiver and the intensity of caregiving (e.g. Yates, Tennstedt & Chang, 1999), positive appraisals seem to be more strongly associated to the quality of the relationship between carer and care receiver (Kramer, 1993; Lopez, Lopez & Crespo, 2005) and attitudes towards caregiving (Kramer, 1997a). As such, positive and negative appraisals seem not merely two opposite sides of the same dimension, but reflect different pathways in the caregiver stress process (Lawton et al., 1991; Kramer, 1997b; Sanders 2005).

There is empirical evidence that caregiver appraisal differs between spousal, adult child and other types of caregivers. In general, spouses report more burden but also more positive aspects of caregiving than adult children providing care for older parents (Lawton et al. 1991; Rapp & Chao, 2000; Tarlow et al., 2004). Others showed that the transition into the caregiving role was a more positive experience for non-kin caregivers than for spouses and adult children (Cohen, Colantonio & Vernich, 2002; Marks et al., 2002). Some aspects of the care demands (i.c. behavioural problems of the care receiver) showed stronger associations with burden in spousal caregivers than in adult children (Pinquart & Sörensen, 2003). Regarding positive appraisal, Lawton et al. (1991) reported a significant association with the intensity of help among adult children but not among spouses. These differential effects may be ignored in the many studies using mixed samples of spouses and adult children and other types of caregivers (Balducci et al., 2008; Baronet, 2003; Cohen et al., 2002; Hilgeman et al., 2009; Rapp & Chao, 2000). This calls for differentiation among types of care relationships in order to increase our understanding of why caregivers vary in caregiver appraisal. The *aim* of our study is to examine to what degree the determinants of positive and negative caregiver appraisal differ by type of caregiver.

Theoretical background

Most studies on caregiver appraisal are based on the general stress and coping paradigm developed by Lazarus and Folkman (1984) and applied to caregiving by Pearlin, Mullan, Semple and Skaff (1990), Lawton et al. (1991) and many others (e.g. Yates et al. 1999). The stress-coping paradigm states that if a specific event is classified as stressful, the individual will evaluate to what degree he or she is capable, given own capacities and potential help from others, to adequately deal with the ‘stressor’. The more an event is evaluated as challenging and controllable, and the more one perceives that one is able to control the stress level by specific coping responses, the more the event will be appraised as positive. Many studies on outcomes of informal caregiving base their conceptual framework on the stress process model by Pearlin et al. (1990) and associated caregiver appraisal with objective stressors, personal and social resources and caregiver wellbeing (cf. Blieszner & Roberto, 2009; Chapell et al. 2002; Hilgeman et al. 2009; Robertson et al., 2007; Yates et al. 1999). Caregiver appraisal is usually studied as a mediator between care demands and caregiver outcomes, and less often as an outcome per se. We will study positive and negative care appraisal as outcomes of a same set of predictors based on the stress process model. When positive appraisal is associated with different variables compared to negative appraisal, this will corroborate the dual nature of caregiving. The more positive and negative appraisal share the same set of predictors but with opposite effects (e.g. objective stressors increase burden and decrease positive appraisal), the more it is likely that they are opposite sides of the same dimension.

Compared to other studies, we include a relatively large number of determinants of care appraisal, as detailed information on characteristics of care receivers and caregivers is available in our national sample of Dutch informal caregivers. Our research model includes objective stressors (behavioural problems and physical impairment of the care recipient, hours and tasks of caregiving), caregiver characteristics (sex, age, education, religious involvement), motivational factors (types of motivation, care preferences), coping behaviour (seeking support from others), and other sources of support (the availability of other informal and formal caregivers, the use of informal caregiver support services). Dependent variables are positive and negative appraisal of caregiving. In addition, we include positive and negative appraisal in the research model as each other's determinant to explore the association between both appraisals. Some studies showed a positive association between both types of appraisal (Balducci et al. 2008), whereas others showed a negative one (Rapp & Chao 2005; Cohen et al. 2002), and the association may also vary by type of care relationship.

Types of care relationships

The type of relationship between the care receiver and care giver shapes the context of the care situation, the opportunities and commitment to provide care, and, consequently, the appraisal of caregiving. It is known that spouses, adult children and other types of caregivers differ in opportunities as well as in motivation to provide care, which are important predictors of caregiver appraisal. Empirical studies show that the differential effects mainly exist in the associations of positive appraisal and less in the associations of negative appraisal (Lawton et al. 1991; Marks et al. 2002; Raschick & Ingersoll-Dayton, 2004). Lawton et al. (1991) explains this as that spousal caregiving is characterized by a strong and full commitment resulting in positive appraisal regardless of the intensity of care provision. Adult children, in contrast, have more choice to decide whether or not to provide care. Yet, some of them may feel forced into caregiving, either normatively (filial obligation) or structurally (lack of alternative caregivers), resulting in a stronger association between caregiver motivation and care appraisal. Marks et al. (2002) also stressed that for non-kin caregivers the choice to provide care is less guided by normative obligations that mark spousal and parent-child relationships, and more based on consideration of perceived opportunities and costs (cf. Raschick & Ingersoll-Dayton, 2004). Shirai et al. (2009) add in this respect that social networks vary their assistance to caregivers depending on what they expect in terms of elder caregiving. As follows, spouses may receive less support from family and friends compared to adult children, because spouses are unquestionably involved in (intense) care provision to their impaired partner. In spite of making a priori hypotheses about differences between types of caregivers, we will explore the differences by examining the associations of caregivers appraisals in all three types of caregivers separately.

Method

Sample

Data were collected in the context of the study Informal care by Statistics Netherlands and The Netherlands Institute for Social Research in 2007 (blinded for review). The data collection was carried out in two steps. In the first step informal caregivers were identified with four screening questions included in the Labor Force Survey accomplished by Statistics Netherlands in 2007. A representative sample of Dutch adults aged 18 years old and over living in a household (N = 54,451) were asked whether they had provided care in the last twelve months for a family member who was severely ill or needed assistance, to someone longer than two weeks because of an illness, accident or hospital admission, to someone who was chronically ill or impaired and to someone because of other reasons. When either one or more of these four situations applied one was identified as an informal caregiver. Of the identified 4484 caregivers 2813 participated in the follow-up written questionnaire on informal caregiving. In order to adjust for selective non-response, the remaining sample was weighted for a number of characteristics (i.e., gender, age, marital status, region). Respondents provided the information on their own characteristics and the characteristics of their care recipients.

In the present study data pertains to respondents who helped care receivers over the age of 64. The majority of the respondents provided care to their parent or parent-in-law (N = 1,093, 65%), and smaller numbers provided care to their spouse (N = 206, 12%) or to other relatives or non-kin, such as brother or sister, grandparent, other member of the family, friend, neighbor or another type of social relation (N = 386, 23%). Respondents who provide care to their children aged 65 and over (n=12) were excluded. The remaining sample of caregivers (n = 1,685) consisted of 1,045 women (62%) and 640 men, aged between 19 and 85.

Measurements

Objective stressors

Physical limitations of the care recipient were measured with 13 items related to the activities of daily life, such as being able to dress and bathe, use the restroom without assistance, walk up and down stairs, do household chores and shop for groceries (based on Katz et al., 1970). The answers were 1 = yes, without difficulty, 2 = yes, with difficulty, 3 = no, only with help. Mokken scale analysis was performed to test the homogeneity and reliability of the scale (H-value = 0.66, alpha = 0.93; Molenaar & Sytsma, 2000). The sum score ranged from 13 to 39.

Behavioural problems of the care recipient were measured by 5 items, e.g. 'Did the care receiver experience memory problems?', and 'Did the care receiver behaved aggressively towards you or others'. The respondent had to indicate to what degree the item was appropriate (0 = no, 1 = somewhat, 2 = yes). The mean is calculated, ranging from 0 to 2, and dichotomized into 0 = none or some behavioral problems and 1 = behavioral problems.

Hours of caregiving was reported as the average number of hours per week in the twelve months prior to the interview. More than 112 hours per week was coded as 112 hours per week, as it is the maximum possible number of hours per week excluding 8 hours of sleep per day.

Number of tasks Respondents indicated whether they gave care pertaining to six task types: household tasks, personal care, nursing care, emotional support, administrative help and helping with visits (no, yes). The sum score ranged from 1 to 6.

Caregiver characteristics

Included were the following characteristics: gender (men, women), age in years (19-85), educational level (1 = low, only primary education, 2 = median, secondary education, 3 = high, college or university degree), and religious involvement (dichotomized to 0 = attending church once a year or less or never, and 1 = attending church at least several times a year).

Motivational factors

Respondents indicated the applicability of eleven different *motivations for caregiving*. By means of a factor analysis the items were clustered in three types of motivation: i) the personal bond with the care receiver (4 items, e.g. 'I did it out of love and affection'), ii) the lack of alternative caregivers (3 items, e.g. There was nobody else available’), iii) to prevent residential care (3 items, e.g. ‘I did not want the care recipient to be admitted to residential care’). Answer categories varied from 1 = not applicable, 2 = somewhat applicable to 3 = strongly applicable. For each of the three types mean scores were calculated (range 1-3) and dichotomized into 0 = not or somewhat applicable to 1 = strongly applicable.

Three items indicate the *care preference* for informal or formal care, e.g. ‘Only after all other solutions have been tried, I would make use of a professional helper’. Answer categories (agree/not agree, not disagree, disagree) are dichotomized (0 = no preference for formal care, 1 = preference for informal care). The sum of the three items ranges from 0 to 3, a higher score indicating a higher preference for informal care.

Coping style

Seeking social support was measured by six items referring to asking help from others, e.g. ‘I do not dare to ask other relatives or friends to assist in the care provision to the care recipient’, and ‘People around me are too busy to assist in care provision to the care recipient’. The answer categories are dichotomized into 0 = disagree, 1 = agree or not agreed/not disagree. The sum score is calculated, ranging from 0 to 6. A higher score indicates that the respondent is not likely to seek support from others.

Other sources of support

Respondents reported on the *availability of other informal caregivers* giving help to a care recipient (0, 1). Other indicators of external support were the availability of *professional home care* to the care recipient (0,1), and the *use of at least one out of 12 caregiver support services* (0,1), varying from information services to respite care .

Care appraisals

Positive appraisal of caregiving was measured by eight items that were based on qualitative interviews with informal caregivers. Two items concerned intrapersonal evaluations (‘Looking after my care receiver gave me a good feeling’), two items concerned interpersonal evaluations (‘I became closer to my care recipient during the period that I was providing care’), two items concerned new experiences (‘Giving care meant I also learned new things myself’) and two items covered gains in the larger social network (‘Providing care brought me closer to my family and friends’). Answer categories are 0 = did not agree, 1 = (in part) agreed. The sum scale scores for 8 items were computed and varied from 0 (no positive appraisal) to 8 (very positive). The hierarchical order and scalability of the positive evaluation items was tested with the Mokken scale analysis (H-value = 0.38, alpha = 0.75).

Caregiver burden was measured with an extended version of the Self-Perceived Pressure from Informal Care Scale (Pot, van Dyck, & Deeg, 1995). Respondents were asked whether they agreed with 14 statements on perceived time and emotional pressure, such as: ‘Generally speaking I felt very pressured because of the situation of my care receiver’; and ‘I was too tired to do anything in my free time in the period that I was providing help’. The answers were coded 0 = did not agree, 1 = (in part) agreed. The sum scale scores for 14 items of caregiver burden were computed and varied from 0 (not burdened) to 14 (highly burdened). The hierarchical order of the burden items was tested with the Mokken scale analysis (H-value = 0.44, alpha = 0.87).

Procedure

Descriptive analyses were performed to examine differences in all dependent and independent variables between the three types of caregivers. To study the impact of the independent variables on caregiver appraisal, multivariate linear regression analyses were conducted separately for positive and negative caregiver appraisal and for each of the subsamples of spousal, child and other types of caregivers. To estimate the differences in the effects between pairs of caregivers types, we tested the equality of the unstandardized coefficients by calculating a z-statistic (Brame et al., 1998).

Results

Comparing the types of care relationships

Table 1 presents descriptive statistics for all variables under study by type of care relationship. Spouses report the highest burden and a higher level of positive appraisal compared to child caregivers. Children report relatively low levels of positive appraisal, and other caregivers report the lowest level of burden. The findings also show that the care context is rather comparable for the three types of caregivers in terms of care receiver physical disability and behavioural problems, but that spouses provide the most hours of care and the most care tasks. They are on average more often male, older and lower educated than the other types of caregivers. The large majority of the spouses (74%) provides care because of the strong personal bond and many of them strongly agree with the motivation to prevent residential care (38%). They are the least likely to ask for help, have a relatively high preference for informal care, and receive the least amount of help from other informal and professional caregivers.

Children provide less hours of help on average, and they are most likely to share the care activities with other informal and professional caregivers. The majority of the children (58%) strongly agrees to provide care out of the personal bond with the parent and 22% strongly agrees to prevent residential care. Child caregivers are the least likely to attend religious services, have the lowest preference for informal care, and are most likely to seek support from other helpers.

The other type of caregiver (indicated as ‘other caregivers’ for reasons of readability) provides the least hours of care and different tasks compared to the other two groups. They are somewhat older and most likely to attend religious services. They take a middle position with respect to seeking support from other helpers and in preference for informal care, but they seem motivated for the same reasons as children, and for many of them other sources of support are available.

Table 1 about here

Burden by type of care relationship

The estimates in the model in Table 2 show that for all types of caregivers, burden is strongly associated with a heavy care load and a solistic coping style: those who conduct many different care activities, who take care of someone with behavioural problems, and who does not seek help from others, experience a higher care burden. Longer hours of caregiving also add to burden in all groups, but the impact is the strongest among other caregivers. Among spouses, caring for someone with behavioural problems has the largest impact on burden, even significantly larger than in the other two types of relationships.

Being female adds to burden among spouses and children, and younger children experience more burden than older children. These effects are not significant among other caregivers. Level of education nor religious involvement are associated with burden for any type of caregiver.

The impact of motivations on burden differs among the three types of caregivers. For spouses none of the three motivations is associated to burden. For children only, a stronger motivation to keep the parent at home and the fact that there are no alternative caregivers are both positively associated with caregiver burden. In contrast, providing care because of the strong personal bond adds to burden only among other caregivers. The test of differences in the effects shows that in particular the latter effect differs significantly between the other caregivers on the one hand and the spouse and children on the other hand.

The association between availability of external help and burden varies by source of help and by type of care relationship. For spouses, none of the other sources of support affect burden. For children only, the use of community support services is associated with higher burden, but the impact is low and does not differ significantly from the other caregiver. For other caregivers only, the absence of other informal caregivers adds to burden in a larger degree than among the spouses and children.

Finally, a lower level of positive evaluations is associated with higher care burden, but only among other caregivers. This negative effect differs significantly from the non-significant effects among spouses and children.

It can be concluded that care demands (objective stressors) and a solistic coping style increases caregiver burden for all types of caregivers, but that the impact of motivations and external support on burden varies by type of relationship, and by type of motivation and type of external support. Positive evaluations are only negatively associated with burden among other caregivers.

Table 2 about here

Positive evaluations by type of caregiver

Table 3 shows that objective stressors are not associated with positive appraisal among spouses and other caregivers. Among children, however, longer hours of care and no behavioural problems are associated with more positive appraisal, and these effects differ significantly with spouses and other caregivers respectively.

Being female adds to positive appraisal among children, but not among the other types of caregivers. A lower level of education adds to positive appraisal among spouses and children and religious involvement is associated with more positive appraisal among other caregivers. The effects of education and religious involvement differ significantly among the types of caregivers.

For all types of caregivers, motivational factors are strongly related to positive appraisal, yet the effects vary by type of motivation. Whereas being motivated by the strong personal bond with the care receiver contributes to positive appraisal among children and other caregivers, for spouses the prevention of residential care impacts positive appraisal. A general preference for informal care above professional care adds to positive appraisal among all types of caregivers. The effects of motivations differ significantly among types of caregivers.

The availability of help from other sources is associated with more positive appraisal among other caregivers, but it contributes to less positive appraisal among spouses, and appears not important among children. Other caregivers appraise care more positively when professional care is used. The use of community support services adds to positive appraisal among other caregivers, but to negative appraisal among spouses. For other caregivers only, a lower level of burden contributes to higher positive appraisal.

It can be concluded that motivations and preference for informal care add to positive appraisal for all types of caregivers. Variations among types of caregivers were found in the impact of objective stressors, the type of motivation and the type of external support used.

Table 3 about here

Discussion

The study explored the determinants of positive and negative appraisal in three types of care relationships and the findings call for three general conclusions. First, in line with other studies (Lawton et al. 1991, Kramer 1997a, Marks et al. 2002, Raschick & Ingersoll-Dayton, 2004), spouses report high levels of both positive and negative appraisal, followed by children who also appraise care both positively and negatively, while other caregivers report the highest positive and the lowest negative appraisal. Second, objective stressors and a solistic coping style were generally the most important determinants of negative appraisal, whereas background variables, motivational factors and use of external support contribute most to positive appraisal. The fact that positive and negative appraisal have different types of predictors corroborates the dual nature of caregiving, but this applies more to spousal caregivers and children than to other caregivers. Third, variations in positive and negative appraisal by type of caregiver are generally to be explained by variations in the determinants of appraisal. Fourth, positive and negative appraisal are not each others' counterparts among spouses and children, but they are negatively associated among other caregivers. The theoretical and practical implications of these conclusions will be discussed further below.

The descriptive analyses showed that the three types of caregivers differ largely regarding the four types of determinants of appraisal: objective stressors, motivational factors solistic coping and the presence of other sources of help. The distinction regarding the care needs of the recipient is rather small, as the level of physical impairment and behavioral problems are comparable among the types of caregivers, so it is merely the cognitive and behavioral response to these care needs and the availability of other helpers that vary among the types of caregivers. The findings picture the spouse as the sole caregiver, the sharing of the care among adult children, and suggest that other caregivers are generally secondary helpers.

According to the stress coping paradigm, the evaluation of the care demands and the perception of one's ability to control the stress level determine the appraisal of the care demands. The high burden among spouses is thus to be explained by a combination of intensive caregiving and a solistic coping style, suggesting that spouses evaluate their own capacities very highly in coping with the ‘stressor’. At the same time, spouses seem to evaluate the care needs as challenging as they are strongly committed to prevent the care receiver to be admitted to residential care and have a high preference for informal care in general. Both types of motivational factors contribute strongly to their high level of positive appraisal. These findings corroborate the dual nature of caregiving among spouses.

Objective stressors and motivational factors both impact positive and negative appraisal among children, but the impact varies by type of appraisal and by type of determinant. Motivational factors as prevention of residential care and being the sole caregiver, impact on burden among children, whereas a strong personal bond and a general preference for informal care increase positive appraisal. Likewise, the use of community support services increases burden, but the presence of other informal helpers increases positive appraisal. These differential effects suggest the dual nature of caregiving among children. But, the findings may in part also be due to the large variation in level of care intensity and motivational factors among children. As adult children are likely to share the care (69% of the adult children reported the presence of other informal caregivers), many of the children in the sample may actually be secondary helpers, for whom the caregiving is a different experience than for children who take the role of a primary caregiver. Where it may be a positive experience for some, it may be a negative experience for others, which nuances the idea of the dual nature of caregiving.

The other type of caregiver includes a large range of relatives, neighbors, friends, and acquaintances. Clearly, this type of caregiver is generally not the sole caregiver, as 52% reports other informal helpers and 42% report professional caregivers. Notable is that the assistance of help increases positive evaluations and the lack of help increases burden, which is not the case among spouses or children. In addition, a higher level of burden decreases the level of positive appraisal. Care appraisal depends more strongly on other sources of help among these other caregivers. Positive and negative appraisal share more determinants (motivations and help) and are also intertwined, showing that caregiving is less likely to have a dual nature for this type of caregiver.

The lack of association between positive and negative care appraisal among spouses and children implies that interventions to reduce burden need to be different from interventions to increase positive evaluations. As positive appraisal is merely associated with motivational factors, intervention strategies are limited. It is not easy to increase commitment to the caregiver role as these feelings are based on personal, social and cultural experiences (Goodman et al. 1997). Expressing appreciation for the caregiver role by the care receiver, the social network and professional helpers will help to increase the positive appraisal of caregiving. Decreasing the care load is the most important way to reduce care burden. Using respite care from community services or sharing the care with others is the most obvious way to reduce the number of hours of care. However, for spouses and children help from other sources does not decrease care burden; in fact, the use of support services is associated with higher burden among children and lower positive appraisal among spouses. In part, this may be due to the fact that help from others sometimes create conflicts about care activities that may even increase the level of burden instead of lowering it (Scharlach, Li & Dalvi, 2006). Reducing the care load by reducing the level of behavioural problems of the care recipients seems another venue to reduce care burden. Adequate assistance for the patient, as medication, home domotica, and day care programs for care giver and care receiver may reduce the behavioural problems and the care burden for the caregiver.

Two limitations of the study need to be mentioned. The first concerns the fact that the data do not allow a distinction between parents and parents-in-law among the care receivers, which might have increased the variation in care contexts and motivational factors among child caregivers. Providing care to a parent-in-law is generally a less intensive task than providing care to a parent, and there may also be different levels of commitment. Still, daughters are often caregivers to parents-in-law, in particular to the mother-in-law, providing more hours of care than their husbands (Szinovacz & Davey 2008). Our large number of female child caregivers may nuances supposed differences between children and children-in-law. Second, the findings from this cross-sectional study reflect a snap-shot of the care experiences of spouses, children and other caregivers which does not allow studying how cognitive and behavioural responses in caregiving interact over time. Appraisal, coping and reappraisal fluctuate over time (Bacon et al. 2008). In long trajectories of caregiving, it may be that positive appraisal is high at first, then decreases while burden increases, and in the long run increases again due to the fact that providing care for a loved one as long as it takes contributes to satisfaction, fulfilment and feelings of appreciation. Longitudinal studies on care appraisal are needed in which all elements of the care appraisal process are included. This may provide more insight into the conditions under which negative and positive appraisal may be intertwined, in particular among spouses and children.

In conclusion, our study has shed more light on the distinct pathways of positive and negative appraisal of caregiving in three types of care relationships. Using a large, national representative sample of informal caregivers, it was shown why caregiving is a mixed experience, in particular for spouses and children. Motivational factors are important predictors of positive and negative appraisal but they are more difficult to intervene on compared to the provision of care. Lowering the provision of care by building care networks around older people who need long term and complex care is a more promising venue for intervention. Sharing responsibilities in the care network will reduce the task load and increase motivation to provide long term care, resulting in lower negative and higher positive appraisal of caregiving.

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Table 1. Descriptive statistics for all variables by type of care relationship

	spousal CG N = 206	child CG N = 1,093	other type of CG N = 386	P
Appraisals				
Positive appraisal (0-8)	4.6	3.9	4.7	**
Burden (0-9)	4.9	4.4	2.1	**
Objective stressors				
Hours of care per week (1-112)	51.7	16.7	10.1	**
Number of care tasks (1-6)	4.2	3.9	2.8	**
CR behavioral problems (% yes)	30	39	32	**
CR physical disability (13-39)	30.3	31.0	29.9	**
CG characteristics				
% Female	41	66	66	**
Age in years (19-85)	66.5	49.0	54.9	**
Education: % high	19	31	33	**
Religious involvement (% yes)	42	36	49	**
Motives & coping				
Motive: Personal bond (% s.a.)	74	58	53	**
Motive: Prevent residential care (% s.a.)	38	22	17	**
Motive: no alternative CG (% s.a.)	5	5	5	n.s.
Preference for informal care (0-3)	1.2	0.7	0.8	**
Seeking support (0 = often, 6 = never)	2.0	1.0	1.2	**
Other sources of support				
Other informal caregiver (% yes)	20	69	52	**

Professional home care (% yes)	22	54	42	**
Mean community support services (0-12)	0.3	0.4	0.2	**

* p < 0.05; ** p < 0,01; n.s. p> 0.05; CG = Caregiver; CR = Care receiver, s.a. = strongly agree

Table 2. Multivariate regression analysis on burden by type of Caregiver

	Spouse		Child		Other		difference in coefficients[a]		
	Beta	p	beta	P	beta	p	S vs C	S vs O	C vs O
Objective stressors									
Hours of care per week (1-112)	0,22		0,08	**	0,34	**		**	**
number of tasks (1-6)	0,12	**	0,20	**	0,20	**			
CG functional limitations (0-13)	0,05		0,05		0,05				
CG behavioral problems (1-3)	0,39	**	0,24	**	0,18	**	**	**	**
CG characteristics									
Sex CG (m, f)	0,18	*	0,11	**	0,05				
Age CG (19-85)	-0,04		-0,09	**	-0,04				*
Education (low-med-high)	0,08		0,04		0,04				
Religious involvement (0,1)	-0,02		-0,03		0,07				**
CG motivational factors and coping									
Motive: personal bond (0,1)	-0,07		-0,02		0,10	*		*	*
Motive: stay at home (0,1)	0,05		0,07	**	-0,02				

Motive: no alternative (0,1)	0,00		0,09	**	-0,03				**
Prefer informal care (0-3)	-0,03		-0,02		-0,03				
Not seeking support (1-9)	0,26	**	0,29	**	0,22	**	**		**
External support									
Other informal caregivers (0,1)	0,04		0,05		-0,12	**			**
Use of CG support services (0,1)	-0,03		0,05	*	0,02				
Professional help present (0,1)	0,07		0,02		0,04				
Care appraisal									
Positive evaluations (0,8)	0,08		0,03		-0,11	*		**	**
R2	0,42		0,33		0,41				
N	206		1093		386				

[a] difference in unstandardized coefficients calculated as z-statistic; * p(z) <0,05; ** p(z) <0,01

S = Spouse, C = Child, O = Other; CR = Care receiver, CG = Caregiver

Table 3 Multivariate regression analysis on positive appraisal by type of CG

	Spouses		Child		Other		difference in coefficients[a]		
	beta		Beta		beta		S vs C	S vs O	C vs O
Objective stressors									
Hours of care per week (1-112)	-0,09		0,11	**	0,05		**		
Number of tasks (1-6)	0,00		0,00		0,01				
CG functional limitations (0-13)	-0,01		0,06	*	0,07				
CG behavioral problems (% yes)	-0,13		-0,19	**	-0,04				**
CG characteristics									
Sex (m, f)	-0,02		0,06	*	0,01				
Age in years (19-85)	-0,01		0,02		-0,08				
Education (low-med-high)	-0,24	**	-0,13	**	-0,05			**	
Religious involvement (0,1)	0,13		0,05		0,17	**			*
CG motivational factors and coping									
Motive: personal bond (0,1)	0,10		0,31	**	0,27	**	**		
Motive: stay at home (0,1)	0,20	**	0,01		0,00		**	*	
Motive: no alternative (0,1)	0,02		-0,03		-0,04				

Prefer informal care (0-3)	0,17	**	0,10	**	0,14	**			
Not asking for help (1-9)	-0,07		-0,04		0,00				
Other sources of support									
Other informal caregivers (0,1)	0,06		0,03		-0,03				
Use of CG support services (0,1)	-0,16	*	0,04		0,10	*	**	**	
Professional help present (0,1)	0,12		0,00		0,11	*			*
Care appraisal									
Burden (0,9)	0,11		0,03		-0,15	*		**	**
R2	0,24		0,24		0,18				
N	206		1093		386				

[a] difference in unstandardized coefficients calculated as z-statistic; * p(z) <0,05; ** p(z) <0,01

S = Spouse, C = Child, O = Other; CR = Care receiver, CG = Caregiver