ORIGINAL ARTICLE

Supporting Families Living With Dementia in Rural Areas

A Randomized Controlled Trial of Quality of Life Improvement Using Qualified Volunteers

Thomas Brijoux, Cornelia Kricheldorff, Michael Hüll, Steffi Bonfico

SUMMARY

Background: Family members caring for persons with dementia are subject to multiple types of stress. Psychosocial help is recommended to lighten the emotional burden of care and can be of use in stabilizing the home-care situation. In this study conducted in rural areas in Germany, we tested whether volunteers with a special qualification for the assistance of families caring for dementia patients can support family members more effectively than conventional care companions.

Methods: In a randomized, controlled trial, 63 family members caring for persons with dementia were aided by specially qualified family companions (experimental intervention) or by conventional care companions (control intervention). The family members' quality of life was the primary endpoint and was evaluated at the end of the study in an intention-to-treat (ITT) analysis with t-tests. In an additional per-protocol (PP) analysis, differences that arose between groups at the outset of the study were accounted for. Secondary endpoints included reduced stress and better integration into the support system.

Results: The ITT analysis revealed no differences between groups in health-related quality of life on either the emotional or the somatic scale. The PP analysis, however, showed that the experimental intervention improved the emotional health-related quality of life of the patients' family members compared to the control group. The effect strength was intermediate ($d = 0.57$; $p = 0.047$).

Conclusion: The difference between the findings of the PP and ITT analyses may be explained in part by the different distribution of severity of dementia in the two groups (experimental and control).

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Providing care for a family member often burdens the caregiver and reduces his or her subjective well-being (1). This situation is aggravated when the care receiver is a person with dementia (PWD) (1, 2). In addition to the physical burden of care, which occurs especially during the later stages of disease, there is a specific psychological burden for family caregivers. This is characterized by a disease-related role reversal, loss of relationship, masked grief, and a lack of understanding the dementia-affected person and/or the dementia-related behavior (2–5). Psychosocial services, such as caregiver counseling and support, have therefore been deemed as necessary—by the S3 guideline on dementia of the German Association for Psychiatry, Psychotherapy, and Psychosomatics (*Deutsche Gesellschaft für Psychiatrie und Psychotherapie, Psychosomatik und Nervenheilkunde*, DGPPN) and the German Society of Neurology (*Deutsche Gesellschaft für Neurologie*, DGN), as well as in the guideline of the German College of General Practitioners and Family Physicians (*Deutsche Gesellschaft für Allgemeinmedizin und Familienmedizin*, DEGAM)—for providing relief to the caregivers (6, 7) and for assuring successful home care stays (2).

Approximately two-thirds of PWD receive long-term care at home during the course of the disease, and more than 40% die at home (2, 8). Informal family caregivers of PWD often feel isolated (3) and left on their own with the care of the PWD (4). Importantly however, home care can usually only be maintained if the primary caregiver receives professional as well as family support (5). The situation for family caregivers is exacerbated in rural areas, where they are even more isolated and have fewer possibilities to receive professional support, making support from their families even more important (9).

One example of a psychosocial support offer is the care companion, a support network of volunteers that was developed from 2003–2008 and implemented in 97 pilot locations in Germany (10, 11). In discussions with family caregivers, trained volunteer assistants can offer care-related counseling, strengthen the caregiver's emotional well-being, and support their use of additional existing care services. Qualification to become a care companion requires completion of a program of 68

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BOX

Content of the training program for family support

- Specific knowledge of dementia (24 training units)
- Systemic aspects and solution orientation (32 training units)
- Networking (four training units)
- Review (four training units)
- Organization (four training units)
- Self-reflection about role and attitude (throughout program, without limitation)

training units (10). However, the training program does not comprehensively address the specific issues experienced in caring for PWD or how these issues impact the family support system.

Care companions are often limited in their effectiveness by the combination of the aggravating factors of dementia and a rural setting. Accordingly, in this present trial, we have expanded the care support, which currently focuses on supporting the main caregiver, to now include supporting the entire caregiver family as well as training for dementia-specific issues.

Special training of caregiver and family companions thus fills a gap between training programs for caregivers (12–14) and professional caregivers (15) who have contact with PWD. In this trial, which was funded by the German Federal Ministry of Health, we exam-

ined whether PWD intervention is more effective if the companion qualification training is expanded to include specific seminars on dementia and how to support dementia-affected families.

Methods

The present randomized controlled trial (FABEL, *Familienbegleitung bei Demenz im ländlichen Raum*, family companions for dementia in rural areas) evaluated the effectiveness of family companions. The trial was planned as an „intention-to-treat“ analysis. Because the dropout rates were low, due to the age of the PWD and the length of the observation period, very heterogeneous data were available for the trial participants. Occasional serious illnesses of the PWD or of the caregiver also had to be taken into account. Accordingly, exclusive use of an ITT analysis appeared inadequate, so that it was supplemented with a “per protocol” (PP) analysis. Inclusion criteria were a primary diagnosis of dementia and a home care setting in a rural area. Social workers collected data in the home setting of the family members.

Intervention description and participant recruitment

To train companions for family support, the training approach used for caregiver support—of 68 units within a comprehensive qualification training for care companions—was intensified and expanded. To address the isolation felt by caregivers of PWD, the focus of support expanded from only the main caregivers to the entire family system. This was based on well-established methods for structured interviews with caregivers and family members (14, 16). In addition, family companions increased their knowledge about the characteristics of dementia, with the expectation that this knowledge would be transferred to family

TABLE 1

Overview of dropouts at trial beginning per intervention group

Variable	Characteristics	Family support		Caregiver support		Comparison
		Number	%	Number	%	
Gender	Male	3	50.00	0	0.00	$\chi^2 (1, n = 10) = 2.857; P = 0.200^{*1}$
	Female	3	50.00	4	100.00	
Global Deterioration Scale (Reisberg scale)	Stage 3	1	16.67	0	0.00	$\chi^2 (4, n = 10) = 4.069; P = 0.657^{*1}$
	Stage 4	0	0.00	2	50.00	
	Stage 5	2	33.33	1	25.00	
	Stage 6	2	33.33	1	25.00	
	Stage 7	1	16.67	0	0.00	
Age	Mean	65.5		68.75		$t(8) = -0.429; P = 0.679^{*2}$
	Standard deviation	12.73		9.88		
	Range	52–78		54–75		

*1 Fisher's exact test

*2 Student's t-test for independent samples

FIGURE 1

Recruitment and dropouts

members during discussions (Box). The curriculum was published by Kricheldorf *et al.* (17). A requirement for participation in the family support training was the prior completion of the caregiver support training program. Family companions were supervised on a monthly basis by a psychological psychotherapist and a gerontologist (17, 18). The control intervention of care-

giver support was carried out by volunteers who had not received additional qualifications for family support.

In both forms of intervention, volunteers interviewed the PWD family members about the care situation, discussing for instance the stress arising from the situation or the possibility to receive further supportive services.

TABLE 2

Sample description

Variable	Characteristics	Family support		Caregiver support		Comparison
		<i>n</i>	%	<i>n</i>	%	
Gender	Male	11	28.2	8	23.5	χ^2 (1, N = 73) = 0.206; <i>P</i> = 0.650 ^{*1}
	Female	28	71.8	26	76.5	
Relation to PWD	Spouse, life partner	21	53.8	22	64.7	χ^2 (3, N = 73) = 1.796; <i>P</i> = 0.767 ^{*2}
	Parent, parent-in-law	16	41.0	11	32.4	
	Brother, sister	1	2.6	1	2.9	
	Other	1	2.6	0	0.00	
Family situation	Married/life partner	34	87.2	31	91.2	χ^2 (2, N = 73) = 0.867; <i>P</i> = 0.854 ^{*2}
	Divorced	3	7.7	1	2.9	
	Single	2	5.1	2	5.9	
Global Deterioration Scale (Reisberg scale)	Stage 3	3	7.7	0	0.00	χ^2 (4, N = 73) = 8.477; <i>P</i> = 0.050 ^{*2}
	Stage 4	10	25.67	7	20.6	
	Stage 5	11	28.2	19	55.9	
	Stage 6	14	35.9	6	17.6	
	Stage 7	1	2.6	2	5.9	
Age	Mean	62.41		66.12		<i>t</i> (71) = -1.172; <i>P</i> = 0.245 ^{*3}
	Standard deviation	13.29		11.87		
	Range	33–86		40–89		
Graphic Balance Scale	Mean	5.95		5.53		<i>t</i> (71) = 1.53; <i>P</i> = 0.129 ^{*3}
	Standard deviation	1.03		1.31		

Sample description for the informal caregivers and the PWD (PP population)

PWD, person with dementia; PP, per protocol

^{*1} Pearson χ^2 -test

^{*2} Fisher's exact test

^{*3} Student's *t*-test for independent samples

FIGURE 2

Mental health scale of the 12-Item Short Form

Error bars represent 95% confidence intervals of the means from the „per protocol“ (PP) population (pre- and post-data). Higher values reflect higher mental health-related quality-of-life.

FS, family support; CS, caregiver support; n, number.

Support for the caregivers and their family during the trial lasted 16 weeks. During this period, the support companion contacted the family members—in person, byphone, and by email—between five and twenty times.

The trial was carried out from November 2012 to December 2014 in the Breisgau-Hochschwarzwald district, together with the Caritas Association of Breisgau-Hochschwarzwald (CV) and the Center for Geriatrics and Gerontology at the University Hospital Freiburg (Zentrum für Geriatrie und Gerontologie Freiburg, ZGGF). In four continuing education programs, a total of 27 Caritas-associated care companions completed the training for family companion.

Caregiver family members were contacted via support groups, counseling services, care support centers, and local media. Other participants were acquired through the ZGGF Memory Clinic. Family members who met inclusion criteria were randomly assigned to one of the two intervention arms. Thereafter, according to the randomized intervention form, the first contact between the volunteers and the members was initiated through Caritas. Before and after counseling, informal caregivers were interviewed by social workers with standardized questionnaires about their living situation (*eBox 1*). Ethics approval was obtained from the Ethics Committee of the Albert-Ludwig University of Freiburg.

Outcomes

The primary outcome of the family counseling support was to improve the health-related quality-of-life (HRQOL) for informal dementia-family caregivers as compared to the standard intervention (19). Secondary outcomes were a reduction of burden for informal care-

givers (20) and a better networking to professional and semi-professional supportive systems (*eBox 1*).

Statistics

The effects of support were determined in the ITT population by t-tests using the post-data. For ITT analyses, dropouts were treated with “last observation carried forward” (*Table 1*). Since randomization led to significant differences between groups, post-hoc covariance analyses were calculated for the PP population. Due to differences observed at the start of the support counseling, the Global Deterioration Scale (Reisberg scale) was included as a covariate in the calculations. Other covariates were age and gender of the main informal caregivers, as well as the caregiver’s perception about the balance of relationship with the PWD, as given by the Graphic Balance Scale (21). Comparisons at the starting time were carried out using t-tests and χ^2 tests. IBM SPSS Statistics 22.0, G-Power 3.1, and Microsoft Excel 2013 software were used for statistical calculations. This investigation was registered prior to implementation in the German Clinical Trials Register (DRKS00004260). Further details for statistics are given in *eBox 2*.

Results

Of the 76 informal caregivers who met the inclusion criteria, 73 were assigned an companion (*Figure 1*). The three dropouts occurred in the control intervention arm. Dropout reasons were a withdrawal of willingness to participate, a change from a primary to a secondary diagnosis of dementia, and death of the PWD. During the support counseling, a further ten participants dropped out (with six from the family support group, and four from the caregiver support group). Dropouts in the family support group occurred for the following reasons:

- death of PWD
- death of informal caregiver
- transfer to an institutional care setting
- request of withdrawal from trial by family members
- in two cases, non-compliance with frequency of contact specified in the trial design

Reasons for dropout in the caregiver support population were death of PWD, relocation of family members, and non-compliance with frequency of contact.

Thus, pre-post data comprised 63 informal caregivers, of whom 33 belonged to the family support population, and 30 to the caregiver support population. The anticipated required sample size was therefore not reached.

A total of 74% of the enrolled informal caregivers were women, and 26%, men. The average age of caregivers was 64.26 years, with an age range of 33–89 years. The vast majority (89%) of the caregivers lived in a committed relationship. More than half (58.8%) of the caregivers cared for their life partner/spouse, and 37.0%, for their parent/parent-in-law. In two cases, the caregivers cared for a sibling, and in one case, a grandparent. The majority of caregivers (84.9%) had no

TABLE 3

Health-related quality-of-life of family-member caregivers

SF-12		Pre-data		Post-data		Group differences	
		Descriptive statistics				t-test	ANCOVA
		M	SD	M	SD		
Mental health scale	FS (n = 39)	42.53	11.02	45.46	11.61	t(71) = 0.986; P = 0.327	F(1.53) = 4.15; P = 0.047
	CS (n = 34)	42.32	12.02	43.00	9.31		
Physical health scale	FS (n = 39)	47.03	10.36	46.78	10.53	t(71) = 1.333; P = 0.187	F(1.53) = 0.09; P = 0.511
	CS (n = 34)	41.52	13.64	43.21	12.37		

Descriptive data and t-tests of the post-data are given for the ITT population; ANCOVA results are given for the PP population. ANCOVA, covariance analysis; ITT, intention-to-treat; FS, family support; CS, caregiver support; M, mean; SD, standard deviation; SF-12, 12-Item Short Form

experience in the care of PWD. With respect to these criteria, randomization resulted in statistically comparable groups (Table 2). For the primary outcome, the results of the informal caregivers differed on the physical health scale ($t[71] = 1.958$; $P = 0.054$) but not the mental health scale ($t[71] = 0.076$; $P = 0.940$).

Severity of dementia was evaluated by the Global Deterioration Scale (Reisberg scale). Of the included PWD, three had mild cognitive decline (stage 3), 23.3% had moderate cognitive decline (stage 4), 41.1% had moderately severe cognitive decline (stage 5), 27.4% had severe cognitive decline (stage 6), and three had very severe cognitive decline (stage 7). Following randomization, there were significant group differences for this criterion ($\chi^2 [4, N = 63] = 8.477$, $P = 0.05$). As severity of dementia is a critical factor in determining the level of care burden, it was considered as a covariate for analysis.

12-Item Short Form survey (SF-12)

ITT analyses showed no significant differences in HRQOL between the two groups at the endpoint of support counseling for either the mental health scale ($t[71] = -0.989$; $P = 0.327$) or the physical health scale ($t[71] = -1.333$; $P = 0.187$).

In the PP population, the groups differed significantly on the mental health scale for caregiver HRQOL during the trial period ($F[1.53] = 4.151$; $P = 0.047$), with an effect size of $d = 0.57$ (Figure 2). Specifically, the mental HRQOL increased for the family support group from 42.9 (95% confidence interval [CI]: [40.9; 45.0]) to 47.3 [45.3; 49.3] but stayed approximately the same for the caregiver support group (pre-data: 41.2 [39.0; 43.4]; post-data: 42.0 [40.4; 43.6]) (Table 3). On the physical scale for HRQOL, no significant or clinically relevant differences were observed between the two forms of support ($F[1.53] = 0.094$; $P = 0.511$).

Berlin Inventory for caregivers' burden with dementia patients

The majority of the burden dimensions of the Berlin Inventory for caregivers' burden with dementia patients (*Berliner Inventar zur Angehörigenbelastung Demenz*,

BIZA-D) showed no significant differences between the counseling support forms (eTable). ITT analyses showed significant differences in the burden dimensions of basic care tasks ($t[71] = 2.05$; $P = 0.044$; $d = 0.481$) and extended care tasks ($t[71] = 3.094$; $P = 0.003$; $d = 0.73$). Caregivers who were supported by family companions had a significantly lower burden in these dimensions following the support intervention.

In the PP population, the only differences in the burden dimensions were observed for loss of relationship ($F[1.54] = 7.92$; $P = 0.007$), with the effect size $d = 0.77$ between groups favoring caregiver support. A clinically relevant improvement was achieved in the dimension of burden due to family role conflict ($d = 0.81$) (eTable). However, as only 24 informal caregivers provided information about the burden dimension, no conclusions about variance analysis could be made.

Supportive services

As no relevant differences were apparent between the ITT and the PP populations, only the results from the ITT population are described below. In the family support group, the lack of awareness about supportive services was reduced, from 1.9 [1.3; 2.6] to 1.2 [0.7; 1.7], while the use of supportive services increased, from 2.3 [1.6; 3.0] to 2.8 [2.3; 3.4]. Likewise, in the caregiver support group, the lack of awareness about supportive services was reduced (pre-data, 1.9 [1.3; 2.5]; post-data, [0.5; 1.3]), and the use of supportive services increased (pre-data, 2.4 [1.7; 3.0]; post-data, 2.9 [2.3; 3.4]). The group differences were not significant (lack of awareness about services: $t[71] = 0.943$; $P = 0.349$; use of supportive services: $t[71] = -0.478$; $P = 0.634$).

Discussion

In the PP population, family support was shown to be an effective intervention for dementia-affected families, leading to an improved HRQOL for caregivers. The corresponding effect size ($d = 0.57$) with respect to the standard intervention of caregiver support is in the

central range according to Cohen (22). A meta-analysis of more than 30 controlled trials, in which interventions for informal caregivers of PWD were evaluated, found that the reduction of psychological stress by psychosocial interventions had a mean effect size of $d = 0.3$ (23). The results reported here for the family support counseling clearly surpassed this threshold. Results from the ITT population showed no significant differences between the control intervention group and the exploratory intervention group at the end of the projects. The differences between the ITT and PP analyses can be explained by two observations: first, the groups were not comparable due to significant differences in the dementia severity; and second, a PP process can be much more effective. This highlights the importance of supervision and professional mentoring of volunteers, both of which are integral to the PP process.

In the ITT population, the family intervention group showed significantly lower impacts in the dimensions of basic and extended care tasks. However, this can be mainly attributed to the significantly lower burden present at the start of the trial. Accordingly, no significant differences exist within the PP population in the specific subscales for global construct of burden between the family support and the caregiver support groups. In 18 of the 20 dimensions, no significant changes were observed as compared to the standard intervention. The exploratory intervention, however, showed significant changes in two subscales, those of loss of relationship and of family role conflicts. The increased burden of loss of relationship should not be understood as a paradoxical effect; rather, the fact that family support strongly deals with this aspect could bring forward awareness in the affected persons about an otherwise masked grief (4). Family counseling support reduced the burden of family role conflicts with a large effect size ($d = 0.81$). Thus, the approach of taking the entire family system into account results in specific effects.

In the ITT population, both types of support led to an increased use of supportive services and reduced the lack of awareness of such services. Informal caregivers cite a lack of awareness about the services available as a reason for not using them (24). Increased participation in supportive services even after the end of the project therefore seems plausible, but this could only be demonstrated through further follow-up investigations.

Primary care physicians play a special role in the care of PWD. They are aware of the comorbidities, characteristics, preferences, and needs of the patients, and, most importantly, they know the patient's family (6). According to the S3 guideline on dementia, the family members of a PWD are a particularly vulnerable group, and primary care physicians should take them into focus (6). Larger networks of primary care physician practices could thereby act as partners of caregiver and family companion initiatives.

Limitations of this study include the inability to use multivariate calculations, due to the small number of participants, and the resulting decrease in statistical power. Therefore, an inflation of α -error levels due to

KEY MESSAGES

- Easing the burden for family caregivers of persons with dementia is necessary to maintain home care.
- Family support is a dementia-specific additional qualification for voluntary care companions.
- Family support increases the health-related quality-of-life of informal caregivers.
- Caregivers with counselling support are more likely to use further supportive services.
- The home care arrangement is stabilized by family counseling support.

multiple, univariate calculations is possible, especially for the exploratory analysis of the caregiver burden. Nonetheless, the large effect size, and the fact that the specific effects were observed in areas that were the focus of the family companion training, both suggest that the results are valid. This is especially noteworthy considering that the control intervention with trained care companions already presents a well-structured support offer. Another limitation to this study is the incomplete blinding of the interventions. This reflects fundamental limitations of transferring clinical practices in interview-oriented interventions to a domestic setting.

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Conflict of interest statement

The authors declare that no conflict of interest exist.

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Supplementary material
For eReferences please refer to:
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Additional material for:

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eBOX 1

Questionnaires

● 12-Item Short Form survey

The 12-Item Short Form survey (SF-12) (18) is a comprehensive questionnaire to determine health-related quality-of-life (HRQOL). Different weightings of each question produce two t-scores (mean, M: 50; standard deviation, SD: 10): mental and physical HRQOL. High values thus correspond to a higher HRQOL.

● Berlin Inventory for caregivers' burden with dementia patients

The Berlin Inventory for caregivers' burden with dementia patients (BIZA-D) (19) uses 88 items and 20 subscales to describe the burden of informal caregivers of persons with dementia (PWD). The 20 dimensions allow a differentiated view of the multidimensional construct of "caregiver burden".

- In the present trial, an exploratory analysis evaluated the dimensions in which significant or clinically meaningful effects occurred. The scale range of the six subdimensions for "burden due to objective care tasks" is 0–16; the response scale range for all other dimensions is 0–4. Higher burdens are associated with higher scale values.

● Use of supportive services

The use of various supportive services was queried with a separate questionnaire before and after counseling support. For eleven different supportive services (such as self-help support groups for caregivers, home care services, and day care), family members responded as to whether they were aware of the service or had used it, and the total number of unknown or unused services was calculated.

eBOX 2

Statistics

Based on an α -error of 5% (two-sided), an expected effect size of $d = 0.5$ and a desired power of $1 - \beta = 0.8$, a required sample size of 128 people was calculated.

Randomization was performed by blocked randomization using a block length of 8; random numbers were based on the website www.random.org. After the first survey of family members, a person who had not previously been in contact with the family members performed the randomization. The initial family member survey was therefore blinded. Blinding was not possible for the interventions, as it was assumed that specific knowledge from the training would be transmitted from the trained volunteer companions to the family members during their conversations. However, the hypothesis that one of the two intervention arms could be more effective was not discussed with the participants. The social workers who were responsible for the surveys were also the contact person for the voluntary companions if they had any questions; thus, the second survey was not blinded.

eTABLE

Dimensions of the Berlin Inventory for caregivers' burden with dementia patients (BIZA-D)

BIZA-D areas	BIZA-D dimensions		Pre-data			Post-data		
			Descriptive statistics					
			M	SD	95% CI	M	SD	95% CI
BIZA objective care tasks	Basic care tasks	FS (n = 39)	4.92	4.53	[4.7; 5.15]	4.92	4.53	[4.7; 5.15]
		CS (n = 34)	7.29	5.34	[6.99; 7.6]	7.29	5.34	[6.99; 7.6]
	Extended care tasks	FS (n = 39)	9.32	4.51	[9.1; 9.55]	9.32	4.51	[9.1; 9.55]
		CS (n = 34)	12.40	3.90	[12.18; 12.63]	12.40	3.90	[12.18; 12.63]
	Motivation and guidance	FS (n = 39)	6.30	5.58	[6.02; 6.58]	6.30	5.58	[6.02; 6.58]
		CS (n = 34)	7.96	6.09	[7.6; 8.31]	7.96	6.09	[7.6 ; 8.31]
	Supporting maintenance of social contacts	FS (n = 39)	9.84	6.02	[9.54; 10.14]	9.84	6.02	[9.54; 10.14]
		CS (n = 34)	11.89	5.43	[11.58; 12.21]	11.89	5.43	[11.58; 12.21]
	Emotional support	FS (n = 39)	7.17	3.79	[6.98; 7.36]	7.17	3.79	[6.98; 7.36]
		CS (n = 34)	7.28	3.41	[7.09; 7.48]	7.28	3.41	[7.09; 7.48]
	Supervision	FS (n = 39)	5.38	3.80	[5.19; 5.58]	5.38	3.80	[5.19; 5.58]
		CS (n = 34)	6.79	3.62	[6.58; 7]	6.79	3.62	[6.58; 7]
BIZA subjective burdens (due to behavioral changes)	Late symptoms	FS (n = 39)	0.99	1.06	[0.94; 1.04]	0.99	1.06	[0.94; 1.04]
		CS (n = 33)	0.60	0.75	[0.55; 0.64]	0.60	0.75	[0.55; 0.64]
	Cognitive losses	FS (n = 39)	2.07	1.05	[2.02; 2.12]	2.07	1.05	[2.02; 2.12]
		CS (n = 34)	2.09	1.02	[2.03; 2.15]	2.09	1.02	[2.03; 2.15]
	Disoriented behavior	FS (n = 39)	1.28	1.15	[1.22; 1.33]	1.28	1.15	[1.22; 1.33]
		CS (n = 34)	1.44	0.84	[1.39; 1.49]	1.44	0.84	[1.39; 1.49]
	Aggression and resistance	FS (n = 39)	1.12	1.11	[1.06; 1.17]	1.12	1.11	[1.06; 1.17]
		CS (n = 34)	1.30	1.17	[1.24; 1.37]	1.30	1.17	[1.24; 1.37]
	Depression	FS (n = 39)	1.81	1.17	[1.75; 1.87]	1.81	1.17	[1.75; 1.87]
		CS (n = 34)	1.46	1.06	[1.39; 1.52]	1.46	1.06	[1.39; 1.52]
Loss of relationship	FS (n = 39)	2.59	1.02	[2.54; 2.64]	2.59	1.02	[2.54; 2.64]	
	CS (n = 34)	2.27	1.12	[2.2; 2.33]	2.27	1.12	[2.2; 2.33]	
BIZA needs and role conflicts (part 1)	Personal constraints	FS (n = 39)	1.73	1.08	[1.67; 1.78]	1.73	1.08	[1.67; 1.78]
		CS (n = 34)	1.87	1.02	[1.81; 1.93]	1.87	1.02	[1.81; 1.93]
	Lack of institutional support	FS (n = 39)	0.94	0.88	[0.9; 0.98]	0.94	0.88	[0.9; 0.98]
		CS (n = 34)	0.73	0.75	[0.68; 0.77]	0.73	0.75	[0.68; 0.77]
	Lack of social appreciation	FS (n = 39)	1.31	0.98	[1.26; 1.36]	1.31	0.98	[1.26; 1.36]
		CS (n = 34)	1.39	0.98	[1.33; 1.45]	1.39	0.98	[1.33; 1.45]
	Negative evaluation of one's own care ability	FS (n = 39)	1.01	0.90	[0.96; 1.05]	1.01	0.90	[0.96; 1.05]
		CS (n = 34)	1.03	0.68	[0.99; 1.07]	1.03	0.68	[0.99; 1.07]
Personal development	FS (n = 39)	2.16	0.77	[2.12; 2.19]	2.16	0.77	[2.12; 2.19]	
	CS (n = 34)	2.12	0.76	[2.08; 2.16]	2.12	0.76	[2.08; 2.16]	
BIZA needs and role conflicts (part 2)	Financial losses	FS (n = 39)	1.01	0.89	[0.96; 1.05]	1.01	0.89	[0.96; 1.05]
		CS (n = 34)	0.92	1.10	[0.85; 0.98]	0.92	1.10	[0.85; 0.98]
	Employment-related role conflicts	FS (n = 19)	1.43	0.94	[1.34; 1.53]	1.43	0.94	[1.34; 1.53]
		CS (n = 11)	1.32	0.99	[−0.62; 3.25]	1.32	0.99	[−0.62; 3.25]
	Family role conflicts	FS (n = 17)	1.69	1.01	[1.57; 1.8]	1.69	1.01	[1.57; 1.8]
		CS (n = 13)	1.89	1.30	[1.7; 2.09]	1.89	1.30	[1.7; 2.09]

Significant differences between the two intervention arms are bolded. BIZA-D, Berlin Inventory for caregivers' burden with dementia patients; FS, family support; CI, confidence interval; CS, caregiver support; M, mean; n, number; SD, standard deviation