

Chapter 7

Effectiveness of family meetings for family caregivers in delaying time to nursing home placement of dementia patients: a randomized trial

Karlijn J Joling
Harm WJ van Marwijk
Henriëtte E van der Horst
Philip Scheltens
Peter M van de Ven
Bregje A Appels
Hein PJ van Hout

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ABSTRACT

Background: Interventions relieving the burden of caregiving may postpone or prevent patient institutionalization. The aim of this study was to determine whether a family meetings intervention was superior to usual care in delaying time to nursing home placement of patients with dementia.

Methods: A randomized trial was conducted among 192 patients with a clinical diagnosis of dementia living at home at enrolment and their primary family caregiver. Recruitment took place in memory clinics, case management services, general practices, day care centers, and home care organizations across the Netherlands. Participants were randomized to the family meetings intervention (n=96) or usual care (n=96) condition. The intervention consisted of two individual sessions with the primary caregiver and four family counseling sessions that included family members and friends. The primary outcome measure was the time until institutionalization of the patient. Survival analyses were carried out to evaluate the effectiveness of the intervention.

Results: Over 18 months follow-up 23 of 96 relatives with dementia of caregivers in the intervention group and 18 of 96 relatives with dementia of caregivers in the usual care group were institutionalized. No significant difference between the intervention and the usual care group was found in time until institutionalization (adjusted hazard ratio 1.46, 95% confidence interval 0.75 to 2.84).

Conclusion: This family meetings intervention for primary caregivers of patients with dementia did not postpone patient institutionalization more than usual care.

Trial registration: Dutch Trial Registry ISRCTN90163486

INTRODUCTION

With the number of persons with dementia estimated to double every twenty years, the burden of dementia care will be difficult to bear for families and health care systems worldwide.^{1,2} Most patients with dementia still live at home and are cared for by a family member.^{3,4} Caring for these patients at home, however, is associated with a high burden and an increased risk of mental health problems. Approximately 20% of patients are institutionalized in the first year after dementia has been diagnosed. This rises to 50% after five years and approaches 90% after eight years.⁵

The mental health of the caregiver is one of the most important predictors for nursing home placement of demented persons.⁵⁻⁸ Since institutionalization of patients is a heavy cost driver, any intervention that can relieve the burden of caregiving and (thereby) delay nursing home placement is likely to be very cost-effective. Several caregiver interventions targeting psychosocial factors have proven to be effective in helping caregivers to postpone nursing home placement of patients with mild to moderately severe dementia when compared with usual care.^{9, 10} The essential components of effective interventions were individual targeting, psycho-education, counseling and support.¹¹⁻¹³ A systematic review reported a risk reduction of 0.33 after 6 or 12 months of intervention, which indicates 33% less institutionalization compared to the minimal support or usual care group.¹⁰

Furthermore, one RCT which tested the effectiveness of a counseling intervention including family meetings, found that in the first year after intake the intervention group had less than half as many nursing home placements as the control group.¹³ After a period of 11 years, the intervention led to a substantial median delay in nursing home placement of 557 days (or approximately 1.5 years) compared to the control group while maintaining a comparable quality of life for the caregivers.¹⁴ This intervention was developed to mobilize support of naturally existing family networks and consisted of individual counseling sessions, family meetings, support group participation and continuous availability of ad hoc telephone counseling. The effectiveness of using only the family counseling component of this intervention has not yet been tested.

We hypothesized that family counseling may maximize the positive contributions of each member to caregiving, relieve the primary caregiver from carrying the entire weight of the caregiving role, and thereby postpone placement of the patient in a long-term care facility. In the Netherlands, family meetings are rarely organized and never in a structured way or with follow-up sessions with the aim to increase family support and relieve the caregiver.

Therefore, we wanted to investigate the effectiveness of structured family meetings in comparison with usual care on postponing patient institutionalization and conducted a randomized trial among primary family caregivers of community dwelling demented patients.

METHODS

Design and randomization procedures

We conducted a randomized multicenter trial. After informed consent and baseline measurements, dyads of patients and their primary family caregiver were randomized by an independent researcher, stratified by recruitment centre, in blocks of four to either usual care or the family meetings intervention. The interviewers who measured the outcomes were blinded to group allocation. The participants and the counselors conducting the family meetings were aware of the intervention assigned. The Medical Ethics Committee of the VU University Medical Centre approved the study protocol. The design of this study has been described in detail elsewhere.¹⁵

Participants

Patients and their primary caregivers were recruited through memory clinics, case management services, general practices, home care organizations and day care centers across the Netherlands. Caregivers were eligible if they were the primary family caregiver of a community dwelling relative with a clinical diagnosis of dementia and had at least one other family member or friend available to participate in the family meetings. If there was more than one family caregiver caring for the patient, the primary caregiver was identified as the person who coordinated the caring process, usually the person who spends the most hours on caregiving tasks. Caregivers were excluded when 1) they met criteria for a DSM-IV depressive or anxiety disorder as measured with the Mini International Neuropsychiatric Interview (MINI)¹⁶, 2) the patient was already scheduled to move to a nursing home in short notice, 3) they had severe somatic or psychiatric co-morbidity which would impair participation in the study, or 4) they had insufficient language proficiency in Dutch for adequate participation in the family meetings and interviews. Written informed consent was obtained from all participants. In case of mental incompetence of a patient the family caregiver signed the consent for the patient.

Intervention

Caregivers randomized to the intervention group were invited to participate in six in-person counseling sessions: one individual preparation session, followed by four structured meetings that included their relatives and/or friends, and one additional individual evaluation session. The family meetings were held once every 2 to 3 months in the year following enrollment in the program.

Preparation meeting

The first individual session was aimed to prepare the caregiver for the family meetings and to propose the idea of seeking help from family and friends. The topics that were addressed during this session included: explanation of the aims and possible benefits of the family meetings, definition and invitation of the caregiver's social network members, attendance of the patient, and the burden of care for the caregiver.

Family meetings

The aims of the family meetings were: 1) to educate families about the type of dementia, its expected course and consequences; 2) to give information about resources for care support; 3) to mobilize the existing family networks of the patient and primary caregiver in order to improve emotional and instrumental support; 4) to teach problem solving techniques for coping with troublesome patient behavior that can be used after family counseling ends. The content of the sessions was guided by the needs of the caregiver (for example learning techniques to manage troublesome behavior, promoting communication between family members). During the first family meeting the purpose of the meetings, the protocol, ground rules and the counselor's role were explained to the caregiver and the family. All persons were invited to give their view on the situation and relevant issues were identified (e.g. management of patient behavior problems, uncertainty about the course and the prognosis of dementia, finding appropriate and good-quality services, coping with feelings of guilt). The counselor motivated the family to form ideas to help the caregiver and to delegate tasks. The follow up meetings reviewed the previous session, previous commitments and the progress of tasks. During these sessions, it could appear that certain issues were resolved while others had become a priority. In addition, new issues, problems, and conflicts could have emerged. These issues were then discussed in the same way as the original issues in the first session. Ad hoc telephone counseling was available to caregivers and their families beyond the scheduled sessions.

Evaluation session

After the final family session, an individual session was held to evaluate the caregiver's satisfaction with the intervention program and to start additional support when requested.

The counselors who led the family meetings had an advanced degree in nursing, social work, psychology or an allied profession and were trained prior to the study by the researchers and a dementia nurse experienced in organizing family meetings. During this training, counselors were instructed to structure the sessions according to a manual based on a book chapter describing the family meetings as organized in the New York University (NYU) Caregiver Intervention¹⁷ and additional information from a discussion with three of the counselors of the NYU Caregiver Intervention.¹⁸ Furthermore, possible problems that could arise during family meetings were discussed and a videotape about a pilot family meeting that was organized in the VU University medical center was shown. One counselor was assigned to each caregiver to establish an ongoing relationship. The family meetings were audio taped for supervision. For every session the counselor filled in a standardized form to encourage and evaluate protocol adherence. After each family session, the counselor was contacted by the researcher (KJ) individually to monitor and discuss difficulties and audio tapes were listened randomly and on request to give feedback.

Usual care

Caregivers randomized to the control condition received care as usual. Usual care in the Netherlands may consist of a range of health care and welfare services and can differ across participants. However, family meetings are rarely organized and never in a structured way or with follow-up sessions. They also tend to focus on providing clinical information and not on increasing family support and relieving the caregiver. Usual care participants were free to use all types of care, including community-based mental health services or support resources other than family meetings at any time throughout the 18 months follow-up, therefore reflecting standard care.

Measures

The primary outcome for this analysis was the time to nursing home placement of the patients in calendar days. We obtained information on institutionalization of the patient from the primary caregiver over 18 months of follow-up. Socio-demographics and clinical characteristics were collected for both patients and caregivers (Table 1). The participants' use of health care services and their participation in family meetings were recorded.

Power calculation

The difference in expected effect was based on previous research in which 11% of the patients in the intervention group were institutionalized compared to 23% of the patients in the control group after 12 months of follow-up.¹³ Assuming an exponential distribution for the time to institutionalization, we estimate the median time to institutionalization to be around 5.94 years in the intervention group and 2.65 years in the control group. A log rank for detecting a difference in time to institutionalization (two-sided testing at a significance level of 5%) with 70% power, equally sized groups and 18 months of follow-up time would require 84 patients per group. To correct for clustering 15% was added resulting in 97 patient-caregiver dyads per group.

Statistical analysis

We investigated baseline similarity in the demographic and clinical characteristics and compared the baseline characteristics of dropouts and those who completed the 18-month measurement by performing logistic regression analysis.

Survival analyses using the Kaplan-Meier method and Cox proportional hazard regression were carried out to evaluate the effectiveness of family meetings compared to usual care on the primary outcome measure. The unadjusted difference in time until institutionalization between both groups was tested with the log rank test. Adjusted differences were expressed as hazard ratios (HRs) and corresponding 95% confidence intervals (CI) for the intervention group, compared to the usual care group. Time to event was measured in days from date of the baseline assessment to the date of admission to a long-term care institution. For patients who died without prior institutionalization, date of death was used as a censoring event. Patients who were still living in the community at the end of the study period were censored at the date of the 18 months follow-up assessment. For patients who were lost to follow up, the date of the last contact was used as the censoring date. We conducted a sensitivity analysis to examine the effect of censoring patients who died without ever being placed.

All analyses were conducted according to the intention-to-treat principle and corrected for the hierarchical structure of data, with participants nested in recruitment sites. To adjust for selection-bias, the age of the patient was incorporated as covariate in the analysis, because this variable differed significantly between the intervention and usual care group at baseline and was also significantly associated with the primary outcome.

We also performed a per protocol analysis, comparing the outcomes of “adherers” to the intervention protocol (those who participated in at least three family meetings within 18 months) with the usual care group.

Finally, we conducted effect modification analyses to determine whether the intervention resulted in different effects for relevant subgroups of patient and their caregivers. We investigated the possible interaction effects of the intervention with the patient characteristics age, gender, level of cognitive function (assessed with the Mini Mental State Examination), type of dementia (Alzheimer's disease versus other types of dementia), with caregiver distress (assessed with the Neuropsychiatric Inventory Questionnaire distress score), and with recruitment from sites offering intensive support resources. Continuous variables were dichotomized at the median in these analyses. All analyses were performed with the SPSS (version 15.0) and STATA (version 11) statistical packages. Statistical significance was considered as two-tailed $p < 0.05$.

RESULTS

Study sample

Participants were recruited from November 2007 to November 2009. Of the 262 caregivers willing to participate, 192 met all inclusion criteria and gave informed consent. Participants were equally randomized to the intervention ($n=96$) or usual care group ($n=96$) (Figure 1). For the primary outcome –time until institutionalization– data on all of the patients were available.

Baseline characteristics

Table 1 presents the socio-demographic and clinical characteristics of the caregivers and patients at baseline. Imbalances were found between the intervention and usual care group on three of the baseline variables. Patients and caregivers in the intervention group were significantly younger (patient's age: $t= 3.07$, $df= 188.10$, 95% CI for difference in means: 1.37 to 6.33, and caregivers' age: $t= 2.27$, $df= 188.47$, 95% CI: 0.45 to 6.30) and caregivers had higher levels of anxious symptoms (HADS-A score) ($t= -2.51$, $df= 187$, 95% CI for difference in means: -2.22 to -0.27) at baseline than participants in the usual care group.

Figure 1: Flow diagram of the study sample. Information about the status of the patient (placed, deceased, still at home) and date of placement was known for all patients.

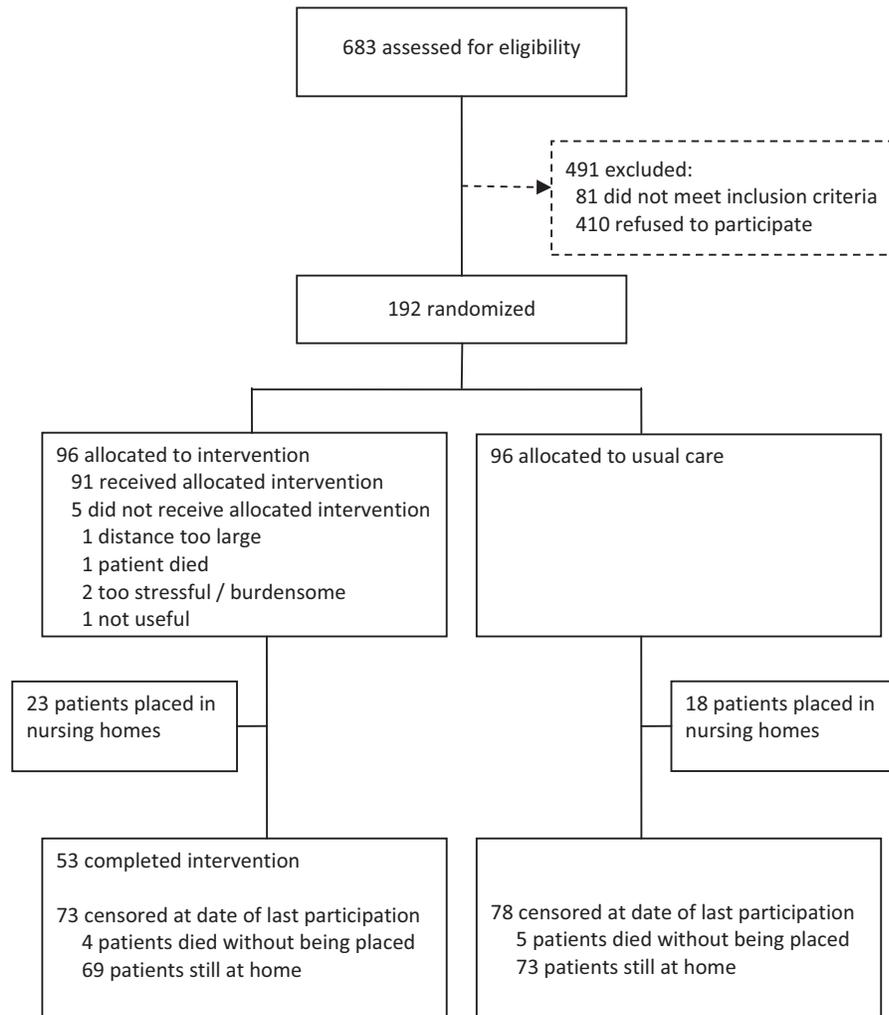


Table 1. Baseline demographic and clinical characteristics of the caregivers and the patients

	Intervention n=96	Usual Care n=96
Patient		
Age, mean (SD)	72.8 (9.1)	76.7 (8.3)
Female gender, n (%)	30 (31.3)	32 (33.3)
Educational level, n (%)		
Elementary/ Lower	42 (43.8)	44 (45.8)
Secondary/ Higher/ University	54 (56.3)	50 (52.1)
ADL independencies (out of 6), mean (SD)	5.1 (1.4)	5.3 (1.1)
IADL independencies (out of 7) , mean (SD)	2.7 (1.8)	2.6 (1.5)
MMSE (0-30), mean (SD)	21.4 (4.9)	21.7 (5.6)
Neuropsychiatric symptom severity (NPI-Q), mean (SD)	8.5 (5.4)	9.5 (6.3)
Years since clinical diagnosis, mean (SD)	1.25 (1.25)	1.02 (1.06)
Type of dementia		
Alzheimer disease	54 (56.3)	56 (58.3)
Vascular dementia/ Mixed	24 (25.0)	21 (21.9)
Frontotemporal dementia	5 (5.2)	6 (6.3)
Lewy body/ Parkinson dementia	9 (9.4)	8 (8.3)
Type not specified/ unknown	4 (4.2)	5 (5.2)
Caregiver		
Age, mean (SD)	67.8 (9.8)	71.2 (10.7)
Female gender, n (%)	67 (69.8)	68 (70.8)
Spouse of the patient, n (%)	92 (95.8)	89 (92.7)
Living with patient, n (%)	93 (96.9)	91 (94.8)
Educational level, n (%)		
Elementary/Lower	28 (29.2)	34 (35.4)
Secondary/ Higher/ University	66 (68.7)	62 (64.6)
Caregiver distress (NPI-Q distress score), mean (SD)	11.6 (8.1)	12.6 (9.1)
Depressive symptoms (CES-D score), mean (SD)	12.1 (7.9)	10.8 (7.1)
Anxious symptoms (HADS-A score), mean (SD)	6.1 (3.4)	4.8 (3.5)

Abbreviations: SD, Standard deviation; (I)ADL, (Instrumental) activities of daily living; MMSE, Mini Mental State Examination; NPI-Q, Neuropsychiatric Inventory- Questionnaire; CES-D, Centre for Epidemiologic Studies Depression Scale; HADS-A, Hospital Anxiety and Depression Scales

Intervention uptake

Of the caregivers randomized to the intervention group, 95% (91/96) participated in the preparation session, and 76% (73/96) attended the family meetings. The majority of the intervention program (i.e. preparation session plus at least 3 family meetings) was completed by 55% (53/96) of the caregivers. Reasons for non-adherence were: resistance of family members/family conflicts (n=11), too burdensome (n=9), no perceived need for (more) family meetings (n=8), placement in nursing home or death of the patient (n=7), practical considerations (n=5), other reasons (n=3). Caregivers of patients with better ADL performance adhered better to the intervention protocol (OR= 1.47, 95% CI: 1.047 to 2.072, Wald $\chi^2 = 4.95$, df=1, $p = 0.026$).

There were no significant differences on any of the other baseline characteristics between adherers and non-adherers.

Of the 73 caregivers who attended at least one family meeting, 64 completed an evaluation form after their last session. Satisfaction among the participating caregivers was high: 53 (83%) experienced the family meetings as useful, while 8 caregivers experienced no benefits (data on 3 persons were missing/inconclusive).

Use of health care and supportive services

For 92 of the 96 caregivers in the usual care group and 89 of the 96 intervention caregivers data on the health care use and supportive services were available. We found that 52 in the usual care group received additional counseling from a psychologist, casemanager or social worker and 51 caregivers in the intervention group received such counseling ($\chi^2 = 0.011$, $df = 1$, $p = 0.915$). Twenty caregivers in the usual care group reported participation in a support group versus 19 caregivers in the intervention group ($\chi^2 = 0.004$, $df = 1$, $p = 0.949$).

Effectiveness of the intervention on time to nursing home placement

There were 41 (21.4%) nursing home placements of patients within 18 months of enrollment into the study: 23 in the intervention group and 18 in the usual care group ($\chi^2 = 0.78$, $1 df$, $p = 0.38$). Analysis showed no superior overall effect of the family meetings intervention on days until patient institutionalization (χ^2 log rank = 0.58, $1 df$, $p = 0.45$). Table 2 presents the outcomes of the adjusted model. The survival curves of the intervention and usual care group are displayed in Figure 2. The per protocol analysis compared the adherers ($n = 53$) with the usual care group ($n = 96$). Although the number of placements among the adherers was relatively low (9.4%), the analysis showed no significant difference compared with the usual care group either (Table 3).

Table 2. Effects of the family meetings intervention on patient institutionalization

	Placements n (%)	Risk difference (95% CI)*	Hazard Ratio (95% CI)*
Intervention (n=96)	23 (24.0)	0.08 (-0.02; 0.18)	1.46 (0.75; 2.84)
Usual Care (n=96)	18 (18.8)		

* Intervention versus usual care group, adjusted for age of the patient and nesting within recruitment sites

Table 3. Per protocol analysis: Effects of the family meetings intervention on patient institutionalization

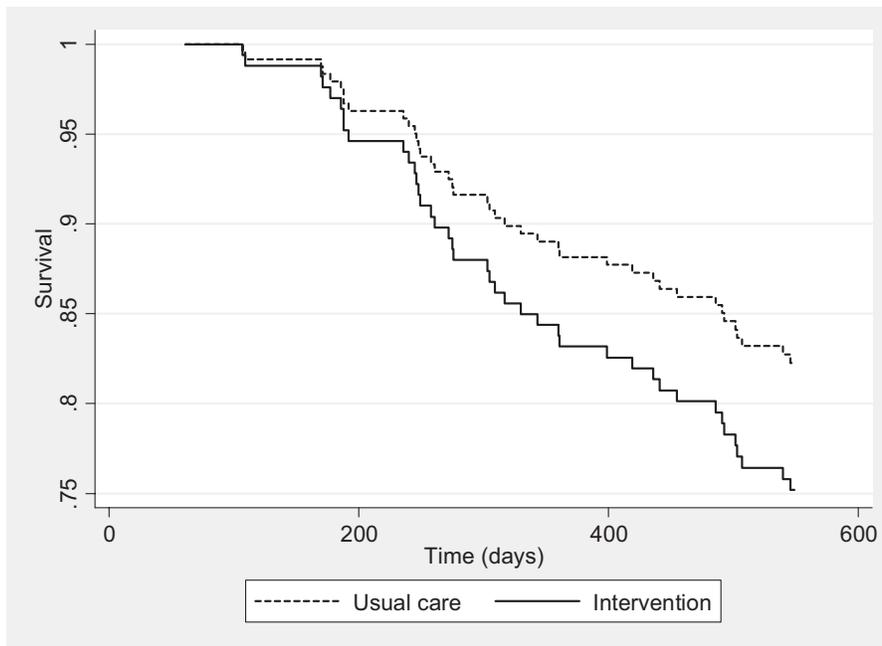
	Placements n (%)	Risk difference (95% CI)*	Hazard Ratio (95% CI)*
Intervention (n=53)	5 (9.4)	-0.06 (-0.20; 0.08)	0.57 (0.18; 1.84)
Usual Care (n=96)	18 (18.8)		

* Intervention versus usual care group, adjusted for age of the patient and nesting within recruitment sites

Sensitivity analysis

Four patients in the intervention group and five in the usual care group died without being placed and were censored at the day of death. We conducted two sensitivity analyses to examine the effect of censoring these patients. Both analyses showed no significant differences between the intervention and usual care group, so the conclusion drawn from the original analysis remains unchanged. In the first analysis, the nine patients were assumed to be institutionalized at the day of death (adjusted HR 1.34, $t=0.95$, $p=0.357$, 95% CI 0.690 to 2.615). A second sensitivity analysis was carried out in which the patients were assumed to live at home until the end of the study (adjusted HR=1.48, $t=1.28$, $p=0.223$, 95% CI 0.766 to 2.849).

Figure 2: Survival curve of time until nursing home placement of patients in the 18 months of follow-up in the usual care and intervention group as estimated from the adjusted Cox proportional hazard model



Effect modification analyses

With post-hoc analyses, we investigated whether subgroups with specific demographic (patients' age and gender) and clinical (severity and type of dementia and caregiver distress) characteristics would benefit (more) from family meetings and whether recruitment of patient-caregiver dyads via sites offering intensive support resources (casemanagement yes/no) modified the intervention effect. We looked for interaction effects in the Cox regression analysis. We only found a significant interaction with patients' age dichotomized at the median of 75.6 years (randomization*age interaction: adjusted HR= 0.15, $t=-2.75$, $df = 14$, 95% CI = 0.03 to 0.66, $p=0.016$). For 'younger' patients (age < 75.6 years) the risk of institutionalization was five times higher in the intervention group compared with the usual care group (adjusted HR=5.17, 95% CI 1.90 to 14.11). For older patients (age \geq 75.6 years) the intervention group had a slightly lower risk than the usual care group (adjusted HR=0.87, 95% CI 0.39 to 1.94).

DISCUSSION

This study indicates that this type of family meetings for caregivers of dementia patients do not delay patient institutionalization within 18 months follow up compared to usual care. Previously, a NYU caregiver intervention showed that a counseling program including family meetings was effective in preventing nursing home placement. Analyses of data collected over an 18-year period indicated a median delay in placement of 1.5 years.¹⁴ Our results are not in line with these positive findings. There may be several explanations for the lack of effects in our study.

Standard care in the Netherlands provided to caregivers and patients is already intensive. Most recruitment sites provided intensive routine care such as case management and support groups. Also other health care services were accessible for caregivers. An explanation might be that the family meetings in addition to the already intensive standard care do not result in significant benefits.

It might also be argued that the intervention lacked sufficient intensity to influence this outcome. Family meetings might be more beneficial if delivered more intensively over a shorter period of time or in combination with other intervention components. However, since there are already many supportive services available to caregivers in the Netherlands, the contrast with usual care would still be small.

It is also possible, that a longer follow-up period might have shown a significant effect. However, this is not very likely because the risk of placement in the intervention group was higher than in the usual care group.

The lack of effects in our study may also be due to the fact that the participants' adherence to the intervention was not optimal. We applied several strategies to maintain a high level of participation. The sessions were scheduled at the convenience of the family as much as possible and the counselors provided the family meetings in the caregivers' homes if they were unable to leave the patient. Nevertheless, about half of the intervention caregivers completed the majority of the sessions. This could also mean that this type of intervention is not what these caregivers think that they need.

According to the audiotapes that were listened, the standardized forms that were completed by the counselors after every session and the contact between the research team and counselors during the intervention period, the counselors mostly carried out the intervention as instructed. Furthermore, all counselors were uniformly trained, used a structured manual and may be assumed to be adequately qualified to lead the family meetings. Therefore, we might assume that the actual quality of the intervention was no reason for the lack of effects in our study.

The results of our trial make a valuable contribution to the existing literature. Our study is the first study to investigate the effectiveness of structured family meetings compared to usual care. Other strengths are the relatively large sample size and the lack of missing data on the primary outcome. For all patients, we were able to trace their status, also after caregivers stopped actively participating in the study. Considering the randomized design, the independent assessments, the concealed allocation and the adjustment for baseline differences associated with the outcome, it is unlikely that selection bias has influenced the results.

Our study also has some limitations. A considerable number of invited caregivers were unwilling to participate in the study. Also, the adherence to the intervention protocol was not optimal. These factors limit the feasibility of this intervention and generalizability of the results. On the other hand, the results reflect the effectiveness in usual routine care for caregivers who were interested in this intervention. In view of the generalizability, it is also important to note that the mean age of our sample was considerably low for a sample of patients with a diagnosis of dementia.

In conclusion, although most caregivers participating in the family meetings intervention felt supported, the intervention was not more effective than usual care in delaying time until institutionalization of patients.

REFERENCES

- 1 Ferri CP, Prince M, Brayne C et al. Global prevalence of dementia: a Delphi consensus study. *Lancet* 2005 December 17;366(9503):2112-7.
- 2 Wimo A, Winblad B, Jonsson L. The worldwide societal costs of dementia: Estimates for 2009. *Alzheimers Dement* 2010 March;6(2):98-103.
- 3 AARP, National Alliance for Caregiving. *Family Caregiving in the US: Findings from a national survey*. Bethesda, MD: AARP and National Alliance for Caregiving; 1997.
- 4 Dutch Institute for Healthcare Improvement. *Guideline diagnostics and medicinal treatment of dementia*. Utrecht: CBO/MWR; 2005.
- 5 Lippa M, Luck T, Brahler E, König HH, Riedel-Heller SG. Prediction of institutionalisation in dementia. A systematic review. *Dement Geriatr Cogn Disord* 2008;26(1):65-78.
- 6 Gallagher D, Ni MA, Crosby L et al. Determinants of the desire to institutionalize in Alzheimer's caregivers. *Am J Alzheimers Dis Other Demen* 2011 May;26(3):205-11.
- 7 Hebert R, Dubois MF, Wolfson C, Chambers L, Cohen C. Factors associated with long-term institutionalization of older people with dementia: data from the Canadian Study of Health and Aging. *J Gerontol A Biol Sci Med Sci* 2001 November;56(11):M693-M699.
- 8 Spitznagel MB, Tremont G, Davis JD, Foster SM. Psychosocial predictors of dementia caregiver desire to institutionalize: caregiver, care recipient, and family relationship factors. *J Geriatr Psychiatry Neurol* 2006 March;19(1):16-20.
- 9 Brodaty H, Green A, Koschera A. Meta-analysis of psychosocial interventions for caregivers of people with dementia. *J Am Geriatr Soc* 2003 May;51(5):657-64.
- 10 Olazarán J, Reisberg B, Clare L et al. Nonpharmacological therapies in Alzheimer's disease: a systematic review of efficacy. *Dement Geriatr Cogn Disord* 2010;30(2):161-78.
- 11 Belle SH, Burgio L, Burns R et al. Enhancing the quality of life of dementia caregivers from different ethnic or racial groups: a randomized, controlled trial. *Ann Intern Med* 2006 November 21;145(10):727-38.
- 12 Lawton MP, Brody EM, Saperstein AR. A controlled study of respite service for caregivers of Alzheimer's patients. *Gerontologist* 1989 February;29(1):8-16.
- 13 Mittelman MS, Ferris SH, Steinberg G et al. An intervention that delays institutionalization of Alzheimer's disease patients: treatment of spouse-caregivers. *Gerontologist* 1993 December;33(6):730-40.
- 14 Mittelman MS, Haley WE, Clay OJ, Roth DL. Improving caregiver well-being delays nursing home placement of patients with Alzheimer disease. *Neurology* 2006 November 14;67(9):1592-9.
- 15 Joling KJ, Van Hout HP, Scheltens P et al. (Cost)-effectiveness of family meetings on indicated prevention of anxiety and depressive symptoms and disorders of primary family caregivers of patients with dementia: design of a randomized controlled trial. *BMC Geriatr* 2008;8:2.
- 16 Sheehan DV, Lecrubier Y, Sheehan KH et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry* 1998;59 Suppl 20:22-33.
- 17 Mittelman MS, Epstein C, Pierzchala A. *Counseling the Alzheimer's caregiver: A resource for health care professionals*. Chicago: AMA Press; 2003.
- 18 Vernooij-Dassen M, Joling K, Van Hout HP, Mittelman MS. The process of family-centered counseling for caregivers of persons with dementia: barriers, facilitators and benefits. *Int Psychogeriatr* 2010 March 15;1-9.