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Telephone-Delivered Psychosocial Intervention Reduces Burden in Dementia Caregivers

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Abstract

Objectives—To examine the preliminary efficacy of Family Intervention: Telephone Tracking-Dementia (FITT-D), a multi-component intervention that is delivered in 23 telephone contacts over 12 months.

Method—Thirty-three dementia caregivers were randomly assigned to receive either FITT-D (n =16) or standard care (n =17) using urn randomization to balance the groups on dementia severity, caregiver gender, and relationship type (spouse versus other). Inclusion criteria included formal dementia diagnosis, caregiving for at least 6 months, residing with the care recipient, and providing at least 4 hours of direct supervision per day. Master's-level therapists contacted caregivers by telephone over 12 months. Each contact followed a standardized treatment manual, involving assessment and individualized application of interventions to address mood, family functioning, social support, and health. Outcomes included Zarit Burden Interview, Revised Memory and Behavior Problem Checklist, and the Geriatric Depression Scale at baseline and 12 months (end of treatment).

Results—Caregivers receiving FITT-D exhibited significantly lower burden scores and less severe reactions to memory and behavior problems than caregivers in the standard care condition.

Conclusion—Findings provide preliminary evidence for the efficacy of FITT-D, a potentially highly accessible, low-cost intervention for dementia caregivers.

Keywords

Burden; Caregivers; Dementia; Intervention; Telephone

The prevalence of dementia increases dramatically after age 65 to approximately 42% of the population aged 85 or older (Alzheimer's Association, 2007). Based on the U.S. census, 5.1 million Americans have dementia in 2007, with predicted increases to 13.2 million by 2050 (Hebert et al., 2003). Estimates suggest that from 65 to 75% of dementia patients are cared for at home by family members, including both spouses and adult children (Aneshensel, 1995). There are approximately 10.4 million dementia caregivers in the U.S., providing an average of 16.6 hours of care each week (NAC/AARP, 2003). Given that dementia is a widespread

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problem and that the majority of dementia caregivers provide informal home care, cost-effective and accessible psychosocial interventions are necessary.

Dementia caregiving is associated with a variety of negative health consequences. Dementia caregivers consistently report higher levels of depression and anxiety and exhibit high rates of mood disorders (Schulz & Matire, 2004). There is also evidence that providing caring for an individual with dementia can lead to increased risk for physical health problems and death (Hooker et al., 2002; Vitaliano et al., 2003). Although caregiver demographic characteristics (e.g., age, gender, race), severity of dementia, and behavior problems contribute to emotional burden and distress (Davis, & Tremont, 2006; Hooker et al., 2002; Torti et al., 2004), caregiver appraisal of problems, depression and guilt, social support, quality of life, coping skills, and feelings of self-efficacy are important predictors of caregiver burden (Connell, Janevic, & Gallant., 2001; Gilliam & Steffen, 2006; Markowitz et al., 2003). Recent evidence also shows that satisfying pre-illness relationships between caregivers and persons with dementia and good family functioning are associated with lower reactivity to memory and behavior problems and less burden compared to individuals with unsatisfying prior relationships and poor family functioning (Steadman, Tremont, & Davis, 2007; Tremont, Davis, & Bishop, 2006). Despite the negative consequences for most dementia caregivers, some individuals experience positive effects of providing care (Cohen et al., 2002). In addition, length of caregiving may result in stability or decreases in burden and may increase time to nursing home placement, suggesting adaptation to the caregiving role (Gaugler et al., 2005; Townsend et al., 1989). Overall, factors accounting for emotional distress in dementia caregivers seem to be partially explained by objective caregiver and patient characteristics, although there is evidence that modifiable subjective factors play a major role. Given these findings, psychosocial interventions focused on changing perceptions, improving coping skills, and encouraging resource use are particularly important.

Meta-analyses of psychosocial interventions for dementia caregivers demonstrate small to moderate statistically significant effects on a broad range of mental and physical health outcomes, with particularly strong effects on service utilization, delayed institutionalization, and psychiatric symptomatology (Brodaty, Green, & Kochera, 2003; Knight, Lutzky, & Macosky-Urban, 1993; Schulz et al., 2002; Sorensen, Pinquart, & Duberstein, 2002). Comprehensive caregiver interventions involving regular, individualized contact with a counselor/social worker delivered over an extended period have resulted in reduced caregiver distress compared to control conditions (Brodaty & Gresham, 1989; Mittelman et al., 1993, 1995, 1996, 2004). Well-controlled, large-scaled psychosocial interventions consistently show caregiver satisfaction and subjective benefit from the intervention, improved knowledge about dementia caregiving and the disease course, reduced depression, anxiety, anger, and hostility, and delayed institutionalization. However, reduction in perceived burden has been less consistently identified (Acton & Kang, 2001). It appears that multi-component interventions may result in the best outcomes for perceived caregiver burden and distress. Additionally, individually-tailored interventions and interventions of longer duration (6 months or more) appear more efficacious than fixed, briefer interventions (Belle et al., 2006; Brodaty et al., 2003; Gitlin et al., 2003; Schulz et al., 2002; Sorensen et al., 2002;). Therefore, there is good evidence that psychosocial interventions can improve dementia caregiver well-being. The next step in developing interventions for dementia caregivers is to improve cost-effectiveness, ease of implementation, and accessibility.

Telephone interventions are generally highly acceptable to patients and have effects on a broad range of mental and physical health outcomes and medical resource utilization. For example, telephone interventions have been successful in all of the following areas: (1) reducing mortality, hospitalizations, and office visits in the primary care setting (Wasson et al., 1992); (2) improving compliance with medical procedures (Cargill, 1992); (3) increasing knowledge

about medical problems (McCullough, Day, Herlihy, & Rapp, 1989); (4) minimizing stress and anxiety and depressive symptoms in medical patients (Evans & Jauregui, 1982); and (5) bringing about health-related lifestyle changes including smoking cessation (Ockene, 1991). A frequent concern raised in the literature is whether telephone-based interventions work because of nonspecific factors such as increased attention from telephone contacts or are a direct result of the specific therapeutic techniques. Austin et al. (1996) examined this question by assigning patients with systemic lupus erythematosus to either telephone counseling or telephone symptoms monitoring. Counseling was shown to be superior to symptoms monitoring in improving functional status, arguing against the nonspecific effects hypothesis. There are few studies of telephone-based interventions for dementia caregivers. An uncontrolled telephone counseling program for dementia caregivers showed improvement in stress, burden, and anxiety, though was methodologically limited (Strawn & Hester, 1998). Telephone voice mail and computerized interventions for caregivers have had mixed results, with some positive findings in subsets of caregivers (Mahoney, Tarlow, & Jones, 2003), possibly related to the amount of time caregivers spend accessing these interventions.

Because of concerns about cost and accessibility to dementia caregivers, we developed an intervention, Family Intervention: Telephone Tracking – Dementia (FITT-D). The intervention is a modified version of a program designed to help caregivers of stroke victims that has demonstrated preliminary efficacy (Miller et al., 1998). It is delivered entirely over the telephone. Theoretical underpinnings of the intervention are based on psychosocial transition (Tyhurst, 1958), transactional stress and coping (Lazarus & Folkman, 1984), and a systems view of family functioning (i.e., McMaster Model of Family Functioning; Epstein et al., 1978). Taken together, the three underlying theories of the FITT-D are geared toward enhancing coping within the caregiver through active problem-solving and facilitating positive changes within the family system. According to these models, dementia caregiving is comprised of potentially stress-inducing transitions that prompt an appraisal process by the caregiver to identify whether resources (particularly those within a family) can be mobilized to cope with the changes. Within these overlapping models, caregiver burden is viewed as a situation in which demands (both perceived and objective) exceed the coping and resources (both perceived and objective). As burden persists, it becomes a stressor in its own right, leading to feelings of helplessness, hopelessness, and depression. Overall, the FITT-D directly targets caregiver appraisal and coping processes to directly reduce stress, improve caregiver mood and quality of life, and positively impact the family system.

The current study reports preliminary findings of the FITT-D. It was hypothesized that caregivers receiving the FITT-D would show reductions in burden, depression, and reactions to memory and behavior problems compared to caregivers receiving standard care.

Method

Design

This study is a randomized, controlled trial of a telephone-based psychosocial intervention for dementia caregivers (FITT-D) compared to standard care. Caregivers were randomly assigned (Stout et al., 1994) to groups to ensure that the two conditions were balanced on dementia severity (CDR rating 1 or 2), caregiver gender, and relationship type (spouse versus adult child).

Participants

Caregivers were recruited from memory disorder clinics, support groups, and newspaper/television advertisements in the southern New England region. Participants were telephone screened for eligibility by a trained research assistant. Caregivers were eligible for study participation if they were (1) age 21 or older; (2) lived with a relative with dementia in the

community; and (3) provided a minimum of 4 hours of supervision or direct care per day for at least 6 months prior to enrollment. Caregivers were excluded if they had a significant psychiatric illness (e.g., schizophrenia, bipolar disorder) or cognitive impairment (Mini Mental State Examination score < 25; Folstein, Folstein, & McHugh, 1975).

Care recipients were required to (1) have a medical diagnosis of dementia as indicated by a formal *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* diagnosis of dementia (confirmed by a physician); (2) Clinical Dementia Rating (CDR; Hughes et al., 1982) score of 1 (mild) or 2 (moderate), and (3) be age 50 or older. Patients' level of functional impairment was assessed by caregiver report using a standardized measure of activities of daily living (Lawton & Brody, 1969).

Instruments

A trained research assistant conducted face-to-face assessments with the caregiver at the caregivers' homes. The Institutional Review Board at Rhode Island Hospital approved the study and all caregivers and care recipients provided written informed consent prior to participation. Assessments were completed before treatment (Baseline) and at the end of treatment (12 months). The research assistant was blind to group membership. The evaluations consisted of standardized, well-validated self-report measures of mental health, caregiving, and social and family functioning. All participants completed a treatment satisfaction measure at the 12-month assessment using a 7-point likert scale format. Primary outcomes were caregiver depression, burden, and reaction to memory and behavior problems.

Burden Interview—(ZBI; Zarit et al., 1980). This 22-item inventory assessed caregivers' subjective feelings of the impact of caregiving on emotional and physical health functioning, social life, and financial status. Higher scores reflected greater burden. The scale has been shown to have good internal consistency, content validity, and test-retest reliability (Young & Kahana, 1989).

Revised Memory and Behavior Problem Checklist—(RMBPC; Teri et al., 1992; Zarit, et al., 1985). This 24-item checklist requires caregivers to rate the frequency of problem behaviors and memory difficulties in patients during the previous week and caregiver ratings of their own reaction to each of the behavior problems. Ratings are made on a 5-point scale for frequency of behavior problems (0 = never occurred to 4 = occurs daily or more often) and reactions to these problems (0 = not at all bothered/upset to 4 = extremely). The scale has good reliability and validity (Teri et al., 1992).

Geriatric Depression Scale—(GDS; Yesavage et al., 1983). The GDS is a 30-item self-report yes/no measure that is designed specifically for older adults by excluding somatic signs and symptoms of syndromal depression. Total scores range from zero to 30. A cutoff score of 11 on this scale yields a sensitivity of 84% and a specificity of 95%, whereas a cutoff of 14 yields 80% sensitivity and 100% specificity (Brink & Yesavage, 1982).

Caregivers completed additional measures to address secondary goals of the intervention, including the Alzheimer's Disease Knowledge Test (Dieckmann et al., 1988), SF 36 General Health (Ware, 1988), Self Efficacy Scale (Fortinsky et al., 2002), Family Assessment Device (Epstein et al., 1983), and Multidimensional Scale of Perceived Social Support (Zimet et al., 1988).

Procedure

Caregivers randomized to the FITT-D group received telephone calls from trained therapists on a set call schedule. Two master's level therapists delivered the intervention. They were

trained in the FITT-D procedure and were required to achieve at least 80% correct on a 50-item multiple-choice test about dementia and the FITT treatment manual prior to initiating treatment. Doctoral level staff supervised therapists weekly to ensure adherence to the protocol and minimize drift. Sessions were audiotaped, and two raters reviewed 30 randomly selected telephone contacts and independently completed adherence and competence scales. Both therapists demonstrated competency and adhered to the treatment. Average Cronbach alphas were .71 and .82 for the adherence and competence scales, respectively, reflecting acceptable to very good internal consistency. The average across-rater correlation between the adherence total score and competence total score was .51.

Both groups received a binder containing local resource information (e.g., list of support groups, adult day care centers) and educational materials from the Alzheimer's Association. Caregivers in the standard care group did not receive any formal intervention. Neither group was prevented from using resources or services available in the community.

Intervention

FITT-D was systematically developed. The FITT model was initially identified as a potentially effective intervention for dementia caregivers because of preliminary data showing efficacy for stroke caregivers (Miller et al., 1998). Modifications were based on dementia caregiver input gathered through a focus group and from several professionals who routinely work with dementia caregivers. Major changes included lengthening the intervention from 6 to 12 months, focusing only on the caregiver, and modifying key areas of focus to include social support. A treatment manual and interventions guide were created, and a feasibility trial was then conducted in which 11 caregivers were enrolled in a 3-month pretest of the intervention. Following the 3-month pretest, further modifications to the intervention and outcome measures were made based on feedback from caregivers participating in the pretest. However, these modifications were minimal (e.g., simplification of sample dialogue, addition of questions to assess key areas) because the intervention appeared to be feasible, was well-received by the participants, and attrition was low (i.e., 9 completed the entire pretest).

FITT-D was delivered to caregivers by 23 telephone calls over one year. Telephone calls included an initial call (orientation and psychoeducation), weekly calls for six weeks, 12 additional contacts every two weeks, and four monthly termination calls. Initial contacts lasted approximately 60 minutes, and follow-up contacts lasted about 15-30 minutes. The intervention involved approximately 12 hours of contact between the therapist and caregiver. Participation in the study was terminated if the caregiver missed three consecutive calls. If a care recipient was placed in a supervised living setting (e.g., nursing home, assisted living centers), we continued to work with the caregiver. For the current study, only a minority of care recipients were placed by the end of treatment (7 care recipients).

The calls focused on providing emotional support, directing caregivers to appropriate resources, encouraging caregivers to attend to their own physical, emotional, and social needs, and teaching caregivers strategies to cope with ongoing problems. The intervention did not provide case management, serve as a question-and-answer hotline, or provide psychotherapy over the telephone. The intervention addressed a broad range of issues and problems related to caregiving. For the current study caregivers were dealing with care recipient behavioral and neuropsychiatric symptoms (e.g., delusions, hallucinations, agitation), memory and cognitive deficits (e.g., repetitive questioning, communication difficulties), and physical difficulties (e.g., gait problems, incontinence). Caregivers were also coping with feelings of isolation, family conflict about providing care, fatigue, and their own medical problems.

The FITT method consists of two stages. The initial stage, Orientation and Psychoeducation, involved providing caregivers with a rationale for the FITT, an introduction to educational and

resource materials, a description of what would happen during future phone contacts, and an assessment of key areas thought to be instrumental in addressing caregiver burden and mental health (i.e., caregivers' health, functioning, mood, thinking, and family life). The psychoeducation component of this initial stage involved reviewing information about dementia and common psychological, emotional, psychosocial, and medical effects of caregiving. The second stage, Follow-up, involved weekly and biweekly contacts in which new problems were identified, positive and negative changes in caregivers or care recipients were discussed, and psychoeducational information was reviewed and applied for particular situations. The initial and follow-up calls were structured around assessment of key areas of functioning in both the caregiver and care recipient. Specific interventions were applied at the therapists' discretion, including supportive approaches (i.e., empathy, giving permission, normalizing, provision of information, validation, or venting) or more active strategies (i.e., bibliotherapy, interpretation, positive reframing, problem solving, reference to resource packet, referral, and setting task directives). These most often involved problem-solving training, bibliotherapy, normalizing, and reframing. The final four follow-up calls (monthly) addressed issues of termination by allowing caregivers to anticipate FITT contacts coming to an end and to foster reliance on the support network established during the intervention.

Results

Participant Demographics

There were 60 caregivers enrolled in the study at baseline, with 32 assigned to the treatment condition and 28 assigned to standard care. By the 12-month assessment point, 33 caregivers had data for analysis. The main factor in attrition for the study was death of the care recipient (15 caregivers excluded). The majority of deaths occurred in caregiver families assigned to FITT-D (11 in treatment and 4 in control). Deaths were not directly due to dementia, but were a result of other medical illnesses (e.g., cardiac, stroke). An additional 20% of caregivers did not complete 12-month assessments because of withdrawal ($n = 5$), loss of contact ($n = 5$), termination due to missed calls ($n = 1$), and caregiver stroke ($n = 1$). Analysis of baseline measures and demographic characteristics between caregivers who completed the 12-month assessment and those caregivers whose care recipient died showed that care recipient age was the only statistically significant difference between the groups (Death $M = 81.94$, $SD = 9.31$; Completers $M = 75.50$, $SD = 10.01$), $t(46) = -2.20$, $p = .035$. Attrition not associated with death (i.e., dropout/termination) was low. More care recipients in the treated group ($n = 5$) were in supervised living situations by the end of treatment than in standard care ($n = 2$), although this difference did not significantly differ between the groups, $\chi^2 = 1.87$, $p = .17$. To address any possible effect of placement had on primary outcomes, we removed data from caregivers whose care recipient was placed and analyzed group differences. Because there were no differences in analysis results, we chose to retain all subjects for the subsequent analyses.

Data include 16 caregivers receiving FITT-D and 17 caregivers in standard care. Table 1 presents characteristics of the treatment and control groups. There were 20 spousal caregivers and 13 adult child caregivers. Groups did not differ in caregiver age, caregiver gender, caregiver relationship (spouse versus adult child), care recipient age, severity of dementia, length of caregiving, or length of dementia diagnosis. The average CDR rating for all care recipients was 1.33 ($SD = .48$). Twenty-two care recipients were rated as having mild dementia ($CDR = 1$) and 11 rated as moderate ($CDR = 2$).

A comparison of all completers and non-completers (including those whose care recipient died) on the main outcome measures at baseline (i.e., burden, depression, caregiver reaction to behavior problems) showed no significant group differences for GDS scores, ZBI scores, or RMBPC scores. Because more caregivers were lost in the treatment group, we conducted a group (treatment vs. control) by drop-out (completed 12 months vs. non-completers) analysis

of variance with the primary outcomes at baseline serving as dependent variables. Results show a significant interaction between group and dropout for baseline depression scores, $F(1, 56) = 4.47$, $p = .04$. Caregivers in the control group who did not complete 12-month assessments had higher depression scores ($M = 13.27$, $SD = 6.84$) than the caregivers who completed assessments ($M = 5.94$, $SD = 6.47$). In contrast, caregivers assigned to treatment showed little difference between depression scores whether they completed treatment ($M = 7.19$, $SD = 5.74$) or not ($M = 7.44$, $SD = 6.60$). There was also a main effect for drop-out, $F(1, 56) = 5.13$, $p = .03$. That is, caregivers not completing 12-month assessments reported higher levels of depression ($M = 9.81$, $SD = 7.19$) than those completing 12-month assessments ($M = 6.55$, $SD = 6.06$). For ZBI and RMBPC scores, there was no significant interaction or drop-out main effect.

Data were analyzed with an analysis of covariance, using baseline values of each variable as the covariate. Table 1 presents results of the major outcome variables. After completion of the telephone intervention, caregivers in the FITT-D group showed significantly lower perceived burden as measured by the ZBI than caregivers in standard care. In terms of clinical significance, FITT-D caregivers' average burden scores declined from the moderate range to the very mild range, whereas control caregivers remained in the moderate range. FITT-D caregivers also reported significantly less severe reactions to memory and behavior problems compared to those caregivers receiving standard care. Again, caregivers receiving the intervention showed clinically significant reductions in their reactions to memory and behavior problems, with 12-month scores falling almost 1 SD below published means for dementia caregivers (Teri et al., 1992). FITT-D caregivers showed fewer depressive symptoms than caregivers receiving standard care, although this difference did not reach statistical significance. It is important to note that average depression levels were below clinical cut-offs for depression at all time points. Other measures of caregiver functioning (i.e., dementia knowledge, physical health, self efficacy, family functioning, social support, and relationship satisfaction) did not show any statistically significant differences between the groups at the end of treatment, and there was no evidence that any measures were worse in the FITT-D group after treatment.

To address treatment satisfaction, caregivers in the FITT-D group completed a 12-item treatment satisfaction questionnaire at the end of treatment. Caregivers reported a high level of satisfaction across all domains. Most caregivers gave the intervention the highest possible rating for the following categories: satisfied with quality of service (94%), kind of service wanted (82%), meeting needs (77%), recommend to friend (88%), amount of help (82%), deal with problems effectively (82%), therapist skills (100%), convenience (94%), written materials (88%), and clear and understandable (94%). For overall satisfaction, 94% of caregivers reported that they were very much satisfied. Most caregivers (88%) reported that they would be very likely to seek similar treatment again.

Discussion

Results of this study demonstrate that the FITT-D significantly reduced caregiver burden and reactions to memory and behavior problems in the care recipient compared to standard care, relatively uncommon findings for psychosocial caregiver interventions. This is the first study to show that an entirely telephone-based intervention can reduce dementia caregiver burden. We found significant effects of the intervention despite a relatively small sample. The findings are consistent with results from multi-component intervention studies, involving extensive face-to-face contact (e.g., Mittelman et al., 1993; Belle et al., 2006). Our findings also appear to have clinical significance, with caregivers in the treatment group reporting very mild burden levels and minimal reactions to memory and behavior problems by the end of treatment. We found that caregivers who received the FITT were very satisfied with the treatment and the

approach was feasible with this population. These findings suggest that the telephone may be a cost-effective alternative to in-office interventions and psychological treatments. A telephone-based approach can also reach caregivers who may be homebound or live in rural areas. Given the widespread availability of telephones, this type of approach may better serve individuals who are socioeconomically disadvantaged. Although a computer or web-based approach may be more technologically advanced, it is quite possible that current generation of dementia caregivers has some difficulty using this level of technology. Computer-based technology may also be more costly and less accessible than the telephone. In the future, the FITT-D approach could be adapted for computer use.

Conceptually, FITT-D is based on three theoretical constructs (i.e., stress and coping theory, psychosocial transition, and the McMaster Model of Family Functioning). We can only hypothesize about the potential mechanisms of the FITT-D that brought about improvement in the caregivers, but the intervention emphasized active problem-solving, coping, and changes within the family system. Furthermore, although the intervention is manualized and structured, it maintains considerable flexibility to allow for individualized application of interventions as deemed necessary and appropriate. The length of the intervention may also be important. Most caregiver interventions are 6 months or less. Although the telephone contacts were generally short (less than 30 minutes), FITT-D was delivered over one year. This provided an opportunity for the therapist to help caregivers apply problem-solving skills in a variety of situations and in the face of cognitive and behavioral decline in the care recipients. Multiple intervention techniques were used based on the problem and situation. Caregivers were encouraged to identify the positive aspects of caregiving throughout the intervention and to identify their effective problem solving by the end of the intervention. Overall, we believe that the multifaceted, individualized approach to dementia caregiving was responsible for bringing about improvement in burden and reaction to memory and behavior problems. Future studies of the FITT-D can examine the most effective ingredients and appropriate treatment duration.

Surprisingly, FITT-D was not associated with any statistically significant change in depression scores. Comparing our sample to other dementia caregiver studies, we had lower rates of caregivers reporting depressive symptom levels above the clinical cut-off at baseline. For example, Mittelman et al. (2004) reported 42% of caregivers had GDS-30 item scores of 11 or greater whereas in our sample, only 24% had scores in this range. In addition, their mean GDS scores at baseline were considerably higher than in our sample. It is possible that our sample is not representative of community-based dementia caregivers due to some bias in our recruitment strategies. We found evidence that caregivers who dropped from the study (either because of care recipient death or for other reasons) had higher baseline depression scores than those who completed the study, which may account for less depression in our caregivers than is typically seen. Caregivers assigned to the control condition who did not complete the study showed higher baseline depression scores than control caregivers completing the study, which may have disguised any antidepressant effect of FITT-D. However, our caregivers were significantly burdened, and caregivers receiving FITT-D reported significant reductions in burden. Therefore, it is unclear how caregivers with moderate to severe depressive symptoms would respond to FITT-D.

We found that more caregivers in treatment placed care recipients in supervised living settings by the end of treatment than caregivers in standard care. The difference did not reach statistical significance and did not appear to have any significant impact upon results of the intervention. In many intervention studies, goals of treatment are to prevent or postpone nursing home placement (e.g., Mittelman et al., 1993). Inappropriate or premature placement would clearly reflect a negative outcome for an individual with dementia, although there are many situations in which nursing home placement is timely and appropriate. In the current study, we chose to continue treating caregivers after placements. We believed that the FITT-D was adaptable

enough to be effective with these caregivers. In addition, there is evidence that caregiver burden and distress levels do not change after institutionalization of the care recipient (Schulz et al., 2004). Our group has developed and preliminarily testing a specific intervention to deal with this important transition.

Importantly, this study demonstrated that master's level individuals can be effectively trained to deliver the FITT-D intervention. We trained two individuals who had no prior experience with dementia or caregiving in general. Therefore, we expect that the intervention could be easily learned and delivered by other healthcare professionals, such as nurses and social workers. In addition, because the FITT-D is manualized, it has the potential to be implemented in the community on a large scale. For example, the intervention methods could be adapted and integrated into care consultation provided by staff of local Alzheimer's Association chapters. Similarly, state elderly affairs agencies could use the intervention approach to assist rural or isolated caregivers.

The current study has some limitations, and we experienced a relatively high attrition rate, mostly due to care recipient death. The sample size was small, possibly limiting our statistical power. Despite this, we were able to show statistical significant effects on burden and reaction to behavior problems. Future studies of FITT-D will need a larger sample to explore the relationship between treatment, burden, and depression. Our small sample limited our ability to identify variables that predict best response to treatment, such as dementia type, relationship type, ethnic identity, gender, and living arrangement. An additional limitation of a small sample size was that we could not address the relationship between the treatment process and outcome. The study did not involve a long-term follow-up of the intervention, which would address whether the intervention effects persist past the end of treatment. The intervention included only in-home caregivers providing substantial care. Therefore, results have somewhat limited generalizability. It is anticipated that future studies of this intervention can investigate its effects in a larger more diverse sample to address these limitations.

Overall, the study showed that an entirely telephone-based psychosocial intervention reduced perceived burden and reactions to memory and behavior problems in dementia caregivers.

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Table 1

Demographic Characteristics for Caregivers Receiving FITT-D and Standard Care

	FITT-D (n = 16) M (SD)	Standard Care (n = 17) M (SD)	t	p
Caregiver Age	65.75 (13.71)	61.00 (9.60)	-1.16	.26
Care Recipient Age	75.94 (9.14)	75.29 (10.79)	-0.18	.86
Caregiver Education (years)	14.22 (3.41)	15.88 (2.14)	1.69	.10
Length of Care (months)	48.06 (34.96)	40.71 (40.42)	0.56	.58
Months Since Dementia Diagnosis	34.63 (41.82)	42.38 (32.40)	0.59	.56
Average Hours per week of care	19.88 (7.88)	17.59 (7.88)	-0.83	.41
ADL	8.63 (2.96)	8.29 (2.89)	-0.33	.75
IADL	4.69 (3.48)	4.24 (4.13)	-0.34	.74
Sum of CDR Box Score	5.53 (2.22)	6.22 (2.99)	0.74	.47

Table 2
Baseline and Post-Treatment Outcome Measures for Caregivers receiving FITT-D and Standard Care

Measures	Standard Care (n=17)		FITT-D (n=16)		F	p
	Baseline M (SD)	Post-Treat M (SD)	Baseline M (SD)	Post-Treat M (SD)		
GDS	5.94 (6.47)	7.82 (7.24)	7.19 (5.74)	6.63 (5.14)	1.18	.29
ZBI	33.47 (11.64)	35.53 (11.39)	32.50 (19.61)	23.81 (13.52)	7.63	.01
RMBPC-RT	22.41 (15.76)	20.12 (13.16)	16.06 (7.10)	8.56 (6.43)	7.56	.01

Note. GDS = Geriatric Depression Scale (30-item); ZBI = Zarit Burden Interview; RMBPC-RT = Revised Memory & Behavior Problem Checklist – Reaction to Problems Total.