Improving Quality of Life for Persons With Alzheimer’s Disease and Their Family Caregivers: Brief Occupational Therapy Intervention

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**OBJECTIVE.** This study examined the extent to which adherence to occupational therapy recommendations would increase the quality of life of persons with Alzheimer’s disease living in the community and decrease the burden felt by family members caring for them.

**METHOD.** Using a pretest–posttest control group design, the Assessment of Instrumental Function (AIF) was administered to two groups of persons with Alzheimer’s disease in their own homes (n = 40). Caregivers completed measures of their feelings of burden and the quality of life, including level of function of the persons with Alzheimer’s disease.

**RESULTS.** A significant (MANCOVA) main effect was obtained for caregiver burden and three components of quality of life, positive affect, activity frequency and self-care status, by the treatment group, F(4, 31) = 7.34, p < .001.

**CONCLUSIONS.** Individualized occupational therapy intervention based on the person–environment fit model appears effective for both caregivers and clients. This is especially important in light of a recent directive for more favorable reimbursement for occupational therapy services for persons with dementia.

safety of the individual and stressful time constraints for family members (Haley; Hope, Keene, Gedling, Fairburn, & Jacoby, 1998; Josephsson et al., 2000). Family caregivers of persons with dementia experience high rates of depression and physical illness that may linger for several years after the loved one has been placed in a nursing home or has died (Dunkin & Anderson-Hanley, 1998; Haley, 1997; Small et al., 1997).

Quality of life of caregivers of persons with Alzheimer’s disease, or its related inverse, caregiver burden, is closely tied to quality of life for care recipients (Dunkin & Anderson-Hanley, 1998; Stuckey, Neundorfer, & Smyth, 1996; Walker, Salek, & Bayer, 1998). Quality of life of persons who have Alzheimer’s disease is indicated by their ability to participate in and enjoy daily activities, including self-care and leisure, and in expressions of positive affect, such as pleasure and interest (Albert et al., 1996; Lawton, 1997).

Occupational therapy intervention derived from assessments that determine useable skills and supports are proposed to help a person with Alzheimer’s disease perform maximally in activities of daily living (ADL) and should logically produce a corresponding increase in the quality of life of the individual (Baum, 1995; Brod, Stewart, & Sands, 2000; Corcoran, 1994). The assumption is that when the abilities of persons with Alzheimer’s disease fit well with the demands and opportunities in their environments, they experience better quality of life and fewer behavioral upsets (Baum, 1995; Lawton & Nahemow, 1973). This hypothesis was supported by Rogers et al. (1999) who used a detailed functional assessment to develop individualized intervention programs in self-care tasks for persons with Alzheimer’s disease living in nursing homes. Better quality of life was reflected in fewer episodes of verbal and physical agitation during ADL sessions after therapists carried out intervention programs to help severely cognitively impaired participants utilize and maximize their ADL skills (Rogers et al.).

The Assessment of Instrumental Function (AIF) is an assessment tool that assists occupational therapists in planning appropriate interventions by describing the current skills and supports of the person with Alzheimer’s disease (Brinson & Marran, 1997). If the suggested occupational therapy interventions are successfully implemented, resulting in good person–environment fit, the person who has Alzheimer’s disease should experience a greater quality of life (Allen, 1985; Lawton & Nahemow, 1973).

Behavioral and functional improvements in persons with Alzheimer’s disease have been correlated with lower stress on the part of caregivers (Baum, 1995; Burgener et al., 1998), which Dunkin and Anderson-Hanley (1998) have associated with delayed placement of persons with dementia in institutional settings. Hasselkus (1998) used a qualitative approach to describe the ways in which guided engagement in daily living tasks produced well-being in adult day program clients and considerable feelings of satisfaction in caregivers. She concluded that occupation provided a means for staff members to become connected with the persons with dementia. Corcoran (1994) documented similar experiences of spousal caregivers of persons with Alzheimer’s disease. The spouses reported that they used engagement in daily living tasks, environmental adaptations, and the maintenance of contact with social groups as means of enhancing the well-being of the individuals with dementia. The spouses put considerable energy into these efforts and drew satisfaction from these elements of caregiving (Corcoran).

Teri, Logsdon, Uomoto, and McCurry (1997) also reported positive results with programs that encouraged caregivers to use daily occupation with their family members who had Alzheimer’s disease. Their program encouraging caregivers to plan and provide pleasurable activities. The activities, which the authors called pleasant events, consisted of passive and active leisure pursuits and basic and instrumental ADL (Teri & Logsdon, 1991). Burgener and her colleagues (1998) further supported the effectiveness of changing caregiving strategies in order to improve self-care performance in persons with dementia.

Research Questions

The following research questions were addressed in this investigation:

(1) To what extent will following occupational therapy recommendations, which are derived from Assessment of Instrumental Function (AIF) results, produce improvement in the quality of life of persons with Alzheimer’s disease living in the community?

(2) To what extent will following these occupational therapy recommendations produce a decrease in the level of burden felt by caregivers of persons with Alzheimer’s disease living in the community?

Method

Using a pretest–posttest control group design, the AIF was administered to two groups of persons with Alzheimer’s disease in their own homes. Caregiver burden and quality of life for participants with Alzheimer’s disease were used to determine the effects of the occupational therapy recommendations derived from the AIF on the control and treatment groups.
Participants

Participants were 40 men and women diagnosed with possible or probable Alzheimer’s disease who were recruited from among the clients of a university-affiliated outpatient memory disorders clinic and their 40 caregivers. Participants lived in their homes or apartments and had a caregiver who lived with them, or spent several hours per week with them, who was also willing to participate in the investigation. Participants with Alzheimer’s disease had not been assessed with the AIF as part of the services of the memory disorders clinic in the preceding year and were not receiving other occupational therapy services. Eligible participants with Alzheimer’s disease were rated as being in mild to moderate stages of impairment as determined by Mini-Mental Status Exam (MMSE) scores (Folstein, Folstein, & McHugh, 1975) of 10 or more on a 30-point scale (Knapp et al., 1994). Many participants were using Aricept(r), a medication meant to enhance cognition, but none had begun using it within the previous 6 weeks. Persons with current symptoms of major depression were excluded from the study. All participants and caregivers gave informed consent through procedures approved by the relevant university and hospital institutional review boards.

Instruments

The AIF (Brinson & Marran, 1997) is made up of performance-based test items assessing safety, medication administration, money management, and meal planning and preparation. Test items are completed with standardized props and require performance in common instrumental ADL tasks, such as managing doses of multiple medications, or cooking a light meal. Directed questioning of the respondent and a caregiver helps to individualize the assessment by detailing the client’s usual roles, task demands, and supports. Scoring of the AIF uses a scale in which 2 = independent performance, 1 = successful performance only when assisted or prompted, and 0 = inability to complete the test item accurately even with assistance (Brinson & Marran).

Evidence exists for content validity and criterion-related validity when using the AIF with older adults. AIF scores were significantly associated with ratings on neuropsychological tests of executive function, depression, and visuospatial skills (Cahn-Weiner, Malloy, Boyle, Marran, & Salloway, 2000). All sections of an earlier version of the AIF correlated significantly with the Katz Index of Activities of Daily Living (Nadler, Richardson, Malloy, Brinson, & Marran, 1993). Brinson (1996) reported high interrater reliability of the AIF for adults with geropsychiatric disorders with intraclass correlation coefficients (ICC) of .975 for experienced raters. The test–retest reliability coefficients for each section of the AIF ranged from ICC = .78 to ICC = .87 (Dooley, 1997).

The Zarit Burden Interview is a 29-item questionnaire that uses a 5-point scale, with wording ranging from “never” to “nearly always,” to measure the caregivers’ perceptions of burden associated with various aspects of caring for family members with Alzheimer’s disease. Higher scores indicate greater levels of burden (Zarit, Todd, & Zarit, 1986). The instrument measures the stressful emotional aspects of caregiving and the temporal, social, and interpersonal burdens of the caregiver. Validity of the Burden Interview is supported by findings of significantly lower levels of burden in caregivers who have more support from family members (Zarit, Reever, & Bach-Peterson, 1980), and the association of higher perceived burden with lowered coping ability (Zarit et al., 1986). Reliability of the Burden Interview has been established and it is commonly used to measure dementia outcomes for family caregivers (Smyth et al., 1997).

The Affect and Activity Limitation-Alzheimer’s Disease Assessment (AAL-AD) (Albert et al., 1996) was created by modifying two existing scales to create an objective measure of quality of life for persons with Alzheimer’s disease that is rated by a caregiver. This assessment includes a rating of the frequency with which the person with dementia engages in pleasurable activities and displays positive or negative affect as evidenced by clearly defined descriptors. Higher scores indicate higher levels of engagement and enjoyment of activities. Higher scores on the two affect scales, which are considered separately, indicate a stronger presence of either positive or negative affect. The criterion-related validity of the AAL-AD was supported by significant correlation with other measures of quality of life in dementia, including ADL ability and cognitive status. The assessment has good interrater agreement for family and institutional caregivers as evidenced by a lack of significant differences between mean scores on activity frequency and enjoyment given by caregivers of the same patients who lived in nursing homes (n = 43). The test–retest reliability of the AAL-AD for persons with moderate to severe dementia in a clinic-based group was kappa = .92 to .53 for observed affect, and kappa > .60 for 12 of 15 activity items (n = 130) (Albert et al.).

The Physical Self-Maintenance Scale (PSMS) (Lawton & Brody, 1969) was used to evaluate the self-care status of participants with Alzheimer’s disease, as a component of their quality of life. The PSMS is a caregiver-report measure that is widely used in clinical and research settings. Reliability coefficients for the PSMS range from .91 to .96.
and evidence for validity exists through significant correlation to measures of function and cognition (Lawton & Brody). Each item is scored on a scale ranging from 0 for dependence, 1 for need for assistance, and 2 for independence. Total scores are calculated with higher scores equaling greater independence in basic self-care.

Procedure

At the beginning of the study, the principal investigator, a registered occupational therapist, administered the AIF to the person with Alzheimer’s disease and the AAL-AD, Burden Interview, and PSMS to the caregiver during a home visit. The investigator then used the AIF results to write a report summarizing the assessment findings and providing occupational therapy recommendations to the caregiver to help maximize the client’s quality of life and ability to function. Development of strategies was guided by the work of Gitlin and Corcoran (1996), elaborating on the person–environment fit framework described by Lawton and Nahemow (1973) (Corcoran & Gitlin, 1991). Researchers avoided experimenter bias by randomly assigning the participant pairs to the control or treatment group after each report was written.

Occupational therapy recommendations for persons in the treatment group were reviewed with the person with Alzheimer’s disease and caregiver during another home visit, lasting about 30 minutes. The written report including recommendations was left with the caregiver at that time. Participants with Alzheimer’s disease varied in their abilities to take part in the problem solving process due to their symptoms. Detailed notes were kept regarding the reactions of the participant with Alzheimer’s disease and caregiver to the report. Potential problems with implementing the recommendations were discussed, as well as any new suggestions that were formulated through input from the participant pair.

Caregiving strategies that were recommended to participant pairs in the treatment group generally fell into three categories: environmental modifications, caregiver approaches, and community-based assistance. All participants received a combination of all three types of recommendations.

The environmental modifications category included recommendations of any change or addition to the physical surroundings of the person with Alzheimer’s disease. Commonly recommended environmental modifications were visual cues such as clearly posting emergency telephone numbers or labeling drawers and cabinets where commonly used items are kept. Some environmental modifications involved the use of adaptive devices such as a pill reminder boxes that are easy for the person with Alzheimer’s disease to use. Other environmental modifications were highly individualized, such as placing a bell and a baby monitor at the apartment door so that a man with Alzheimer’s disease would not wander into his building’s hallways while his wife was asleep. Items needed for environmental modification were not provided as part of this study, but specific purchasing information was provided when requested.

Strategies in the category of caregiver approaches were ways in which the caregiver could interact with the person with Alzheimer’s disease to create more opportunities for success in daily living tasks. Caregiver approaches included suggestions such as providing a structured daily routine to the person with Alzheimer’s disease, or involving the person with Alzheimer’s disease in household chores like preparing meals, putting away dishes, or making beds. This category also included suggested methods for cueing the person with Alzheimer’s disease to perform at his or her highest level. Examples of cueing were to break down tasks and give directions one step at a time, to suggest activities to the person with Alzheimer’s disease when he or she was unoccupied, or to gently remind the person to use visual cues or adaptive equipment. There were no structured opportunities to practice the caregiver approaches.

Recommendations for community-based assistance were referrals to resources available in the local area. The most common recommendations for community-based assistance were for caregivers to attend support groups offered by the Alzheimer’s Association. Other referrals were for services in the home such as home-delivered meals for persons who were home alone during the day and forgetting to eat lunch. Other recommendations included homemaker services, occupational therapy driving evaluations, senior centers, and adult day programs. Finally, this category included information about financial assistance programs for which some participants were eligible, such as pharmaceutical assistance, and reduced rates on homemaker services.

One month after completing the AIF, caregivers were contacted by telephone to complete a second Burden Interview, AAL-AD, and PSMS. Due to scheduling problems and the demands of caring for a person with Alzheimer’s disease, completion of the follow-up assessments was delayed with some caregivers. Caregivers in the treatment group rated the frequency with which they utilized strategies that the occupational therapist recommended on an ordinal scale with 3 choices of “never, sometimes, or often.”

Although the occupational therapy recommendations included more than five strategies in some cases, they were listed in order of importance, by the principal investigator’s
judgment, and only the top five were recorded. The researchers recorded comments from the caregivers about how the strategies worked or did not work. The caregivers were also asked whether any changes had occurred with the client or family since the initial assessment and these were recorded. Examples of changes included a client developing a new medical condition, a client moving to a new apartment, or the family having taken a vacation. Caregivers in the control group received the written report of the occupational therapy recommendations in the mail after completing the follow-up Burden Interview, AAL-AD, and PSMS.

Data Analysis

Analysis of results was performed using SPSS Graduate Pack 10.0 for Windows with an alpha level of .05 for all analyses. Cases with missing data, two cases for number of comorbid conditions and two for use of Aricept, were eliminated from analyses that involved the missing variables. Analysis of all dependent variables using skewness and kurtosis statistics and histograms indicated that none departed significantly from normal distribution curves.

No significant differences were found between treatment and control groups on client age, MMSE score, number of comorbid conditions, and initial self-care status (PSMS) using two-tailed t tests for independent samples. The treatment and control groups were equivalent for caregiver gender, with each group having 16 female caregivers. Neither client gender nor use of Aricept was significantly related to group membership as determined by cross-tabulations and Pearson’s chi-square.

Multiple analysis of covariance (MANCOVA) was used to examine the effects of the occupational therapy intervention on two outcome measures: caregiver burden and quality of life of participants with Alzheimer’s disease. Functional status, the first component of quality of life for the participants with Alzheimer’s disease, was indicated by PSMS scores. Administration of the AAL-AD produced two observed affect variables (negative affect and positive affect) and three activity variables (activity opportunity, activity frequency, and activity enjoyment). Because the magnitude and direction of correlations among the potential dependent variables can affect the MANCOVA results, Pearson product–moment correlation coefficients were calculated among these five variables to determine which ones should be retained (Tabachnick & Fidell, 2001). The magnitude and significance of these correlations are presented in Table 1. The data were analyzed with the goal of retaining one activity variable and one affect variable so that both components of quality of life measured by the AAL-AD would be represented along with caregiver burden and self-care status. Activity frequency and enjoyment were so highly correlated (r = .84, p < .001) that inclusion of both variables would be redundant (Tabachnick & Fidell). Activity frequency was a more objective measure so it was retained for the MANCOVA.

Tabachnick and Fidell (2001) point out that some significant correlation among dependent variables helps to increase the power of MANCOVA to detect treatment effects. Examination of the correlation matrix revealed that activity frequency and positive affect (r = .65, p < .001) were the most logical of the dependent variables to enter the MANCOVA equation together. Negative affect was not significantly correlated with activity frequency or opportunity.

Thus, for the MANCOVA, treatment was the independent variable. Posttest scores on self-care status, activity frequency, positive affect, and caregiver burden were the dependent variables and their pretest counterparts were the covariates.

Results

The following characteristics apply to the 16 men and 24 women (n = 40) diagnosed with Alzheimer’s disease who participated in this study. They had a mean age of 77.08 (SD = 8.86) years and high school was their median level of education (47.5%). The majority of participants were married (67.5%), with the next largest group being widowed (22.5%). Their MMSE scores ranged from 11 to 29 out of 30 and the majority of participants (60.5%) were taking Aricept to enhance cognition. In addition to Alzheimer’s disease, they had a median of three comorbid conditions, with a range of 1 to 8.

Caregiver participants were mostly women (80%), and 70% of them lived with the person who had Alzheimer’s disease. The relationships of caregivers to participants were: spouse (50%), adult child (42.5%), and one each of sibling, daughter-in-law, and significant other. Although people of all racial and ethnic backgrounds were recruited, all the participating clients and caregivers were Caucasian.

The time period between initial and follow-up assessments was planned to be one month. Due to difficulties in

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Table 1. Bivariate Correlations Between Dependent Variables

<table>
<thead>
<tr>
<th></th>
<th>Activity Opportunity</th>
<th>Activity Frequency</th>
<th>Activity Enjoyment</th>
<th>Positive Affect</th>
<th>Negative Affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver Burden</td>
<td>.05</td>
<td>-.16</td>
<td>-.33</td>
<td>-.44**</td>
<td>.49**</td>
</tr>
<tr>
<td>Activity Opportunity</td>
<td>.63**</td>
<td>.54**</td>
<td>.22</td>
<td>-.09</td>
<td></td>
</tr>
<tr>
<td>Activity Frequency</td>
<td>.84**</td>
<td>.65**</td>
<td>-.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity Enjoyment</td>
<td>.71**</td>
<td>-.45**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td></td>
<td></td>
<td></td>
<td>.41**</td>
<td></td>
</tr>
</tbody>
</table>

n = 40, p < .05, *two-tailed **p < .01, two-tailed
scheduling meetings and telephone calls with many caregivers, however, the mean follow-up time was actually 2.33 months (SD = 1.18), with a range of 1–6 months.

The percentage of strategies followed by caregivers in the treatment group was determined by calculating the number of strategies that each caregiver followed, either sometimes or often, divided by the number of strategies that were recommended to each caregiver. Caregivers in the treatment group followed a mean of 65.1% (SD = 1.18), with a range of 1–6 months.

The MANCOVA results mean that difference in treatment group was most influential on the combination of caregiver burden, positive affect, activity frequency, and self-care status when pretest scores were held constant. The univariate analyses demonstrated that caregiver burden made the largest contribution to the variance in the main effect of the treatment. Demonstration of positive affect and improvement in self-care status were the specific components of quality of life that drove the overall improvement for participants diagnosed with Alzheimer's disease.

The present study is one of the first to document improvements in quality of life of persons with Alzheimer's disease and lower caregiver burden after a brief occupational therapy intervention (Gitlin et al., 2001). The present study used a combination of strategies that have evidence for effectiveness with persons who have Alzheimer's disease and their caregivers including encouraging participation in familiar daily activities (Josephsson et al., 1993; Teri et al., 1997) and modification of the physical and social home environment (Gitlin et al., 2001; Robinson, Adkisson, & Weinrich, 2001). Gitlin and her colleagues (2001) found that recipients of an occupational therapy intervention aimed at the home environment maintained their instrumental ADL abilities better than members of the control group over a 3-month study period. Certain subgroups of caregivers in the treatment group also experienced fewer caregiving upsets. While the present study did not duplicate the home environmental intervention described by Gitlin, Corcoran, Winter, Boyce, & Marcus (1999), there is considerable overlap in the approaches, as they are both based on theoretical information describing the fit between a person's competence and quality of life variables at the posttest than those who did not receive the recommendations. Caregivers had significantly lower feelings of burden than those who did not receive the recommendations.

Table 2. Multiple Analysis of Covariance of Caregiver Burden and Quality of Life Variables by Treatment Group: Multivariate Tests

<table>
<thead>
<tr>
<th>Effect</th>
<th>Hypothesis of Error</th>
<th>Error</th>
<th>Sig.</th>
<th>Eta squared</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.68</td>
<td>4</td>
<td>31</td>
<td>.179</td>
<td>.177</td>
</tr>
<tr>
<td>Self-care</td>
<td>15.44</td>
<td>4</td>
<td>31</td>
<td>&lt;.001</td>
<td>.666</td>
</tr>
<tr>
<td>Caregiver Burden</td>
<td>17.21</td>
<td>4</td>
<td>31</td>
<td>&lt;.001</td>
<td>.690</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>1.59</td>
<td>4</td>
<td>31</td>
<td>.201</td>
<td>.177</td>
</tr>
<tr>
<td>Activity Frequency</td>
<td>11.78</td>
<td>4</td>
<td>31</td>
<td>&lt;.001</td>
<td>.603</td>
</tr>
<tr>
<td>Group</td>
<td>7.34</td>
<td>4</td>
<td>31</td>
<td>&lt;.001</td>
<td>.486</td>
</tr>
</tbody>
</table>

*R Tests calculated using Pillai’s Trace (Tabachnick & Fidell, 2001). Pretest values serve as covariates for positive affect, activity opportunity, and activity frequency. N = 40

Discussion

In the present study, adherence to occupational therapy recommendations derived from individualized assessment produced significant improvements in quality of life for persons with Alzheimer's disease living in the community and significant diminishment of burden felt by family members caring for them. Participants whose caregivers received and followed occupational therapy recommendations derived from the AIF had significantly higher scores on quality of life variables at the posttest than those who did not receive the recommendations. Caregivers had significantly lower feelings of burden than those who did not receive the recommendations.

Two assumptions for using MANCOVA, equality of covariance matrices of the dependent variables across groups and equality of error variance, were tested and satisfied. The MANCOVA results demonstrated that there was a significant difference in the levels of burden felt by caregivers and of quality of life for participants with Alzheimer’s disease associated with the treatment group, after adjusting for differences in pretest scores on the dependent variables.

A significant MANCOVA main effect was obtained for caregiver burden, positive affect, activity frequency, and self-care status by treatment group, after adjusting for effectiveness with persons who have Alzheimer’s disease and lower caregiver burden after a brief occupational therapy intervention (Gitlin et al., 2001). The present study used a combination of strategies that have evidence for effectiveness with persons who have Alzheimer’s disease and their caregivers including encouraging participation in familiar daily activities (Josephsson et al., 1993; Teri et al., 1997) and modification of the physical and social home environment (Gitlin et al., 2001; Robinson, Adkisson, & Weinrich, 2001).

Gitlin and her colleagues (2001) found that recipients of an occupational therapy intervention aimed at the home environment maintained their instrumental ADL abilities better than members of the control group over a 3-month study period. Certain subgroups of caregivers in the treatment group also experienced fewer caregiving upsets. While the present study did not duplicate the home environmental intervention described by Gitlin, Corcoran, Winter, Boyce, & Marcus (1999), there is considerable overlap in the approaches, as they are both based on theoretical information describing the fit between a person’s competence and quality of life variables at the posttest than those who did not receive the recommendations.

The univariate analyses demonstrated that caregiver burden made the largest contribution to the variance in the main effect of the treatment. Demonstration of positive affect and improvement in self-care status were the specific components of quality of life that drove the overall improvement for participants diagnosed with Alzheimer's disease.

The present study is one of the first to document improvements in quality of life of persons with Alzheimer's disease and lower caregiver burden after a brief occupational therapy intervention (Gitlin et al., 2001). The present study used a combination of strategies that have evidence for effectiveness with persons who have Alzheimer's disease and their caregivers including encouraging participation in familiar daily activities (Josephsson et al., 1993; Teri et al., 1997) and modification of the physical and social home environment (Gitlin et al., 2001; Robinson, Adkisson, & Weinrich, 2001).
and the demands of his or her environment (Lawton & Nahemow, 1973).

Josephsson et al. (2000) emphasized the need to use a flexible and collaborative approach when helping caregivers solve the everyday functional problems of individuals with Alzheimer's disease. It is essential to respect what is valued, meaningful, and habitual to the family and to provide assessment and intervention in the home environment (Sifton, 2000; Toth-Cohen, 2000). Many recommendations were modified during the second visit to families in the treatment group, to help fit the preferences and usual lifestyles of the families. It is not known whether additional sessions would have produced greater improvements in quality of life or more frequent use of suggested strategies by caregivers.

Caregivers in the present study demonstrated a high degree of receptivity to the strategies that were recommended to them. The fact that two thirds of the strategies were followed indicates that the caregivers tended to see a significant need for help in their daily lives with a person who has dementia. All caregivers in the treatment group followed at least one strategy at least part of the time.

Gitlin and her colleagues (1999; 2001) have investigated factors related to caregiver adherence to occupational therapy strategies. Depression in caregivers, which was not measured in the present study, may be a factor that moderates treatment by influencing caregiver adherence to recommended strategies (Gitlin et al., 1999). Future research should include screening for depression in caregivers and determination of the influence of caregiver mental health on adherence to recommended strategies.

Interventions targeting persons with Alzheimer's disease living in the community have tended to focus on caregiver outcomes with varying results (Dunkin & Anderson-Hanley, 1998; Gitlin et al., 1999). Previous studies have been more successful at improving knowledge levels of caregivers, than at impacting their feelings of burden associated with caregiving or at changing the behavior or functioning of the persons with dementia (Bower, McCullough, & Pille, 2002; Burgener et al., 1998; Sorenson, Pinquart, & Duberstein, 2002). The effects of interventions for caregivers of persons with dementia are also generally smaller than for those caring for older persons with other problems (Sorenson et al.). The magnitude of the effects on caregivers and persons with dementia in the present study compare favorably with the mean effects of studies included in the meta-analysis of 78 caregiver intervention studies done by Sorenson et al.

This study was the first to use the AAL-AD as an outcome measure for a treatment aimed at persons with Alzheimer’s disease and their caregivers. Measurement of quality of life of persons who have Alzheimer’s disease is challenging, and instruments for this purpose have been developed only in the past few years (Lawton, 1997; Rabins & Kasper, 1997). When used with a measure of functional status, such as the PSMS, the AAL-AD appears to be a useful tool for measuring some of the more subjective aspects of quality of life for persons with dementia (Albert et al., 1996; Lawton, 1997). Tools such as the AAL-AD should prove very valuable as occupational therapists attempt to further quantify their contributions to the care of persons with dementia.

Suggestions for Future Research

In this study significant changes were seen in positive affect in the person with Alzheimer’s disease and decreased caregiver burden with a brief occupational therapy intervention consisting of one assessment visit and one follow-up session. By contrast, the intervention described by Gitlin et al. (2001) included five 90-minute occupational therapy sessions. Further study is needed to determine the optimal period of occupational therapy intervention for persons with Alzheimer’s disease and their caregivers. Another suggestion for future research is to determine whether caregiving strategies derived from the AIF have similar effects over a longer period of time than the average of 2.33 months in this study. Also, the use of the AIF could be combined with other interventions to determine if a greater treatment effect can be obtained. For example, provision of financial and practical assistance to help make environmental modifications or apply for community-based assistance may improve adherence to strategies and produce even stronger positive outcomes.

Conclusions

The unrelenting progression of Alzheimer’s disease robs people of their abilities to function in daily tasks and to enjoy life through time spent on meaningful activities. This study appears to be the first to simultaneously use quality of life and caregiver burden as measures of the outcome of occupational therapy for persons with Alzheimer’s disease. The results of this study support the unique value of occupational therapy with progressive conditions such as Alzheimer’s disease, when the prevention of unnecessary decline and maintenance of quality of life for individuals and caregivers are essential. These promising results present an opportunity for occupational therapists because the Centers for Medicare and Medicaid Services has recently directed that coverage for occupational therapy services for persons who have dementia cannot be denied solely on the basis of diagnosis (2001).
Individualized occupational therapy intervention based on the person–environment fit model using a valid and reliable assessment, such as the AIF, appears effective for both caregivers and clients. Following occupational therapy recommendations produced significant improvements in quality of life for persons with Alzheimer’s disease living in the community and significant diminishment of burden felt by family members caring for them.▲

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