



AOTA Critically Appraised Topics and Papers Series Alzheimer's Disease

**A product of the American Occupational Therapy Association's
Evidence-Based Literature Review Project*

CRITICALLY APPRAISED TOPIC (CAT)

Focused Question

What is the evidence for the effect of interventions designed to establish, modify, and maintain activities of daily living (ADL), instrumental activities of daily living (IADL), leisure, and social participation on the quality of life, health and wellness, and client and caregiver satisfaction for persons with dementia?

Clinical Scenario:

Persons with dementia frequently experience challenges in maintaining their abilities to participate in occupations that contribute to their quality of life, health and wellness, and their own and their caregivers' satisfaction (Egan, Hobson & Fearing, 2006).

Occupational therapists organize their understanding of occupations into seven main areas: activities of daily living (ADL), instrumental activities of daily living (IADL), education, work, play, leisure, and social participation (American Occupational Therapy Association, 2002)¹. Of these, four are most relevant to the population of persons with dementia, most of whom are older adults, retired from paid work. Relevant areas of occupation include: ADL, which includes caring for oneself through such activities as bathing, toileting, eating, dressing, and sleeping; IADL, which includes household and community management activities such as meal preparation, cleaning, driving, and banking; leisure, which include the free time activities in which people engage for pleasure; and social participation, which includes engaging with others (e.g., family, friends, others) in community contexts.

Family and other caregivers provide a high degree of support as dementia progresses, frequently assisting the person with dementia in their completion of tasks, or assuming responsibility for activities that the person with dementia can no longer manage, even with assistance.

Because dementia has a major impact on the occupations of persons with dementia and their caregivers, occupational therapists often receive referrals to assess and provide interventions to optimize occupational performance. Referrals may come to community-based occupational therapists for persons with dementia continuing to live in their own homes with primary support from informal caregivers. Other referrals may come from residential or long-term-care facilities, with a focus on persons with dementia, their families, and formal caregivers in the

¹ Since completion of this review, the 2nd edition of the *Occupational Therapy Practice Framework* was adopted in 2008. This revision added "rest and sleep" as an area of occupation.

facilities. Occupational therapists design interventions to maintain or modify occupations in order to promote health, quality of life, and client and caregiver satisfaction. The effectiveness of these interventions has not been clearly established.

Summary of Key Findings:

The findings are grouped under four intervention headings according to the level of evidence:

1. Activities of daily living
2. Instrumental activities of daily living
3. Leisure
4. Social participation

1. Activities of Daily Living

Summary of Levels I, II, and III

- There were no Level I or II studies and five Level III studies on ADL interventions. Without Level I or II studies, it is very difficult to make conclusions about the effectiveness of interventions.
- For residents in the early stages of dementia, the focus is on more direct individual treatment that modifies or improves ADL and on traditional roles, including prescription of assistive devices.
- One study (with two publications) focused on assistive devices. Participants were more likely to receive and adopt physical devices (e.g., bathroom aids, mobility aids) than cognitive devices (e.g., cue cards, memory dial telephones), but reported higher satisfaction with cognitive devices (Nochajski, Tomita, & Mann, 1996). A follow-up study 1–2 years postintervention noted that device use and satisfaction declined, as did overall function (Yang, Mann, Nochajski, & Tomita, 1997).
- As the disease progresses and the person with dementia experiences more decline, the focus for occupational therapy seems to shift to providing training and support to residents with dementia and staff in order to prevent excess disability and to facilitate remaining abilities. In particular, the focus has been on the occupation of feeding/eating with the outcome of maintaining health through weight maintenance (3 studies).
- Results of these studies suggest that behavioral interventions to prevent wandering from the table (Beattie, Algase, & Song, 2004) and encourage self-feeding (Van Ort & Phillips, 1995), as well as adjusting food texture (from regular to soft or puree; Boylston, Ryan, Brown, & Westfall, 1995) may assist with weight maintenance, an indicator of health outcome.

Summary of Levels IV and V

- One Level IV study focused on the impact of family style meals to improve participation and communication during meal time (Altus, Engelman & Mathews, 2002). The intervention resulted in modest increases in participation and communication during meal times, but only when staff training in prompting and praising was added.

2. Instrumental Activities of Daily Living

Summary of Levels I, II, and III

- There were three Level I and two Level III studies focused on interventions using IADL.
- Two Level I studies and one Level III study focused on home-based interventions for persons living in the community.

- Graff, Vernooij-Dassen, Thijssen, Dekker, Hoefnagels, & Olde Rickert (2007) demonstrated the effectiveness of community-based occupational therapy intervention for persons with mild to moderate dementia. The intervention group of clients and their caregivers reported significantly better quality of life and general health status. The intervention included identifying occupational performance issues and goal-setting and helping clients implement compensatory and environmental strategies. These results built on a previous single-group pilot study (Graff, Vernooij-Dassen, Hoefnagels, Dekker, & de Witte, 2003) that implemented a 7-week intervention (maximum of 10 home visits) and demonstrated positive outcomes in satisfaction with performance for clients and caregivers.
- Dooley and Hinojosa (2004) suggest that an occupational therapy home assessment followed by written recommendations and one follow-up visit to discuss the implementation of the recommendations may improve the quality of life and decrease caregiver burden more than just an initial home assessment and receipt of recommendations by mail.
- In a Level I study conducted in a dementia care unit, Fitzsimmons and Buettner (2003) found that a regular (daily) therapeutic cooking group for residents had significant positive impact on behavioral outcomes (reduced agitation and passivity).
- In a Level III study, Avila, Bottino, Carvalho, Santos, Seral, & Miotto (2004) found that neuropsychological rehabilitation (including errorless learning, memory training, and IADL training) may have a place in the treatment of individuals with probable Alzheimer's disease. There was a trend toward improved cognition and ADL function. However, subjects also had pharmacological interventions and it is difficult to attribute the findings to the neuropsychological rehabilitation interventions.

Summary of Levels IV and V

- In six descriptive case studies, Topo, Jylha, and Laine (2002) indicated that an easy-to-use telephone (with identifying photos and preprogrammed numbers) resulted in slightly improved ability of clients to use the phone. Family caregivers reported increased satisfaction with clients' telephone use.

3. Leisure

Summary of Levels I, II, and III

- There were two Level I studies and four Level III studies focused on leisure interventions. All but one study were conducted in nursing homes or other long-term-care facilities; one was conducted in clients' own homes in the communities with informal caregivers.
- A randomized-controlled pilot study evaluated a Tailored Activity Program as a way to involve persons with dementia in activities (often, but not exclusively, leisure-based) to reduce behavioral disturbances and caregiver burden while improving activity engagement (Gitlin, Winter, Burke, Chernett, Dennis, & Hauck, 2008). The intervention led to reduced behavioral disturbances and improved caregiver outcomes when compared to a control group receiving no intervention. The program was readily accepted by persons with dementia and rated positively by caregivers (indicating high client and caregiver satisfaction). Quality of life was not significantly improved.
- A randomized-controlled trial (RCT) compared the impact of a kit-based activity intervention with a time and attention control group on reducing apathy and improving quality of life (Politis, Vozzella, Mayer, Onyike, Baker, & Lyketsos, 2004). Both groups had significant improvements in all outcomes, including quality of life, but there were no significant differences between groups, suggesting that informal interactions are as effective as

expensive activity kits in improving outcomes.

- Two related Level III studies focused on the effect of introducing sensorimotor recreational items to family and other visitors in nursing homes. In the first study (Buettner, 1999), the items were developed and tested, with satisfaction with visits improving significantly during the intervention period. In a second study, satisfaction with visits again improved significantly with the introduction of the structured activities (Colling & Buettner, 2002).
- A cross-sectional Level III study looked at the types of leisure activities in which nursing home residents engaged and the relationship of these activities to well-being. Positive relationships were shown between well-being and activities that had potential for interaction (Chung, 2004).
- One Level III study introduced music therapy to residents of residential care homes while family members were visiting; this resulted in one significant change in caregiver satisfaction with visits (Clair & Ebberts, 1997).

Summary of Levels IV and V

- Three Level IV studies were identified.
- Two studies involved the introduction of specific kits or activities to persons with dementia living in nursing homes. Crispi and Heitner (2004) developed 10 activity kits. Family members who used them during visits reported that they improved the quality of visits and quality of life of the residents. Rentz (2002) reported on the development and pilot evaluation of an art intervention for persons with early and mid-stage dementias. The results suggest positive outcomes in well-being in terms of activity engagement.
- Pool (2001) described the development of a person-centered model of care based on implementation of individualized meaningful activities. Positive results in well-being were reported for 57% of residents.

4. Social Participation

Summary of Levels I, II, and III

- There were two Level I studies and one Level II study focused on social participation interventions. These included a variety of interventions, including a volunteer intervention, a life story approach to reminiscence, and drama. Most involved persons with dementia in early or middle stages of dementia.
- An RCT provided some evidence for caregiver satisfaction outcomes resulting from a volunteer intervention program that consisted of walking when able, crafts, conversation, or cognitive stimulation when compared to a wait-list control group (Wishart et al., 2000).
- A second RCT compared well-being outcomes in a reminiscence group compared with a group participating in general discussions and a control group receiving no intervention. While there were significant improvements in well-being in the reminiscence group, there were no statistically significant differences between groups over time (Lai, Chi, Kayser-Jones, 2004).
- In a small ($N = 16$) Level II study, persons with dementia in a psychiatric day hospital who enrolled in a drama group experienced deterioration in general health compared to a comparison group (Wilkinson, Srikumar, Shaw, & Orrell, 1998).

Summary of Levels IV and V

- Two Level IV studies were identified.
- In one single-case design study, volunteers reported increased satisfaction in social interactions with clients with dementia in day care when a memory wallet intervention was introduced (Bourgeois & Mason, 1996).
- In a descriptive study, well-being was higher for participants in a day hospital engaged in a reminiscence activity compared with structured group activities or unstructured time (Brooker & Duce, 2000).

Contributions of Qualitative Studies:

No qualitative studies were identified through the search.

Bottom Line for Occupational Therapy Practice:

ADL: Limited evidence was identified on interventions that focus on ADL, with no Level I or II studies located. For persons with dementia living in the community, assistive devices (physical and cognitive) may have at least short-term benefit. For persons needing long-term care, interventions focused on improving feeding by reducing wandering and adjusting food textures may help maintain weight, an indicator of health.

IADL: Based on the evidence available, we can identify some IADL interventions that result in trends toward improved quality of life, health status, and satisfaction of clients with dementia and their caregivers. Results from community-based RCTs are very promising. Regular occupational therapy intervention over a period of weeks, structured interventions (e.g., memory training, goal setting, compensatory and/or environmental strategies) followed by focused discussions related to implementation of occupational therapy recommendations resulted in the most positive outcomes. Some simple environmental modifications (e.g., adapted phones) showed promise in maintaining IADL function in persons with dementia.

Leisure: One community-based study, although preliminary, shows promising results with high client and caregiver satisfaction in reducing disturbing behaviors from introducing persons with dementia and their caregivers to an individually tailored activity program. All other included studies focused on interventions using leisure in nursing homes or other long-term-care settings. A common intervention is the use of structured activities to guide interactions with residents with dementia. While three Level III studies (without comparison groups) suggest that these types of structured activities improve satisfaction for visitors, a randomized-controlled trial comparing a structured activity with less formal interpersonal interactions found no significant improvement in quality of life for the residents. This may suggest that the value in these activities actually is to be found in the family visitors or caregivers, and the interactions (regardless of whether they are structured or not) are what matter most to persons with dementia.

Social participation: Since social participation typically requires a level of interpersonal awareness, it is not surprising that most of the interventions were developed for persons in early or middle stages of dementia. One RCT suggested positive satisfaction for caregivers of a walking or crafts intervention when compared to wait-list control; in a second RCT, there were no differences between groups. Overall, the evidence seems to suggest that there can be benefits from interventions that involve social participation, but a specific intervention has not emerged.

Review Process:

Procedures for the selection and appraisal of articles

Inclusion Criteria:

<ul style="list-style-type: none"> • 1994–2005 • Human subjects • English language • Population/sample included people with age-related dementias • Intervention focused on at least one of the following: ADL, IADL, leisure, or social participation • Outcomes of the study included at least one of the following: quality of life, health, wellness, client or caregiver satisfaction
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Exclusion Criteria:

Population/sample with AIDS-related dementia
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Search Strategy

Categories	Key Search Terms
Patient/client population	Dementia (exploded to include all types)
Intervention	(Activities of daily living) or (instrumental activities of daily living or household or household management) or (social interaction or social participation or social behavior or interpersonal interaction or interpersonal interactions or participation or social behavior or religion or religious practice or worship) or (recreation or leisure or leisure participation) or (sexual behavior or sexual intimacy or intimacy)
Comparison	Not included in search terms
Outcomes	Not included in search terms

Databases and Sites Searched
Ageline, Cumulative Index of Nursing and Allied Health Literature <1982 to March Week 5 2006>, EMBASE <1980 to 2005 Week 43>, Healthstar <1966 to September 2005>, Medline <1966 to October Week 3 2005>, PsychInfo <1985 to October Week 2 2005>

Quality Control/Peer Review Process:

<ul style="list-style-type: none"> • The first, third, and sixth authors were responsible for designing the search strategy • The sixth author conducted the searches. • Review group members reviewed all titles and abstracts ($N = 6,621$). Articles were acquired for any that potentially met the inclusion criteria ($n = 291$) • Complete articles were reviewed by the review group members to select articles meeting the inclusion criteria. Each article was assigned to one of the four intervention foci (ADL, IADL,

leisure, social participation). Group consensus was used to resolve any uncertainties related to selection or assignment to intervention focus.

- Review group members discussed the searches and findings to ensure that key articles or areas of research had not been overlooked.
- Reference lists of selected articles were reviewed to identify any other articles that might meet the inclusion criteria. These then were acquired and reviewed to see if they met the inclusion criteria.
- Review group members continued to monitor newly published papers throughout, and during the review process became aware of a relevant research study that was published in 2007 and another published in 2008, which were then included in the review.
- Review group members completed the evidence table for all articles that met the inclusion criteria ($n = 26$). For studies that were Level I or II (as described in the AOTA CAP guidelines), a CAP worksheet was also completed ($n = 8$).
- A second member of the review group then reviewed the article and the completed evidence table, and if applicable, the completed CAP worksheet, to look for unanswered questions and discrepancies in interpretation of the results, and to ensure that implications were clear.
- For each of the four intervention foci (ADL, IADL, leisure, social participation), a summary of the evidence was drafted by a review group member and reviewed by the first author.
- The CAT was drafted by the first author after review of the evidence tables with the review group. It was then reviewed by all members of the review group.

Results of Search:

Summary of Study Designs of Articles Selected for Appraisal

Level of Evidence	Study Design/Methodology of Selected Articles	Number of Articles Selected
I	Systematic reviews, meta-analysis, randomized-controlled trials	7
II	Two groups, nonrandomized studies (e.g., cohort, case-control)	1
III	One group, nonrandomized (e.g., before-and-after, pretest–posttest)	11
IV	Descriptive studies that include analysis of outcomes (single subject design, case series)	7
V	Case reports and expert opinion, which include narrative literature reviews and consensus statements	0
	Qualitative studies	0
	TOTAL	26

Limitations of the Studies Appraised

Levels I, II, and III

- Sample sizes were seldom justified.
- Many outcome measures had limited explanation or information about psychometric properties.
- Some Level III studies had no or limited comparison groups.

Levels IV and V

Many of these lower-level studies were designed to pilot an intervention for further evaluation. However, limited conclusions can be made from these studies, since there is no comparison group, small samples, and limited information about statistical analyses.

Articles Selected for Appraisal

Altus, D. E., Engelman, K. K., & Mathews, R. M. (2002). Using family-style meals to increase participation and communication in persons with dementia. *Journal of Gerontological Nursing*, 28, 47–53.

Avila, R., Bottino, C. M., Carvalho, I. A., Santos, C. B., Seral, C., & Miotto, E. C. (2004). Neuropsychological rehabilitation of memory deficits and activities of daily living in patients with Alzheimer's disease: A pilot study. *Brazilian Journal of Medical & Biological Research*, 37, 1721–1729.

Beattie, E. R., Algase, D. L., & Song, J. (2004). Keeping wandering nursing home residents at the table: Improving food intake using a behavioral communication intervention. *Aging & Mental Health*, 8, 109–116.

Bourgeois, M. S., & Mason, L. A. (1996). Memory wallet intervention in an adult day-care setting. *Behavioral Interventions*, 11, 3–18.

Boylston, E., Ryan, C., Brown, C., & Westfall, B. (1995). Increasing oral intake in dementia patients by altering food texture. *American Journal of Alzheimer's Disease*, 10, 37–39.

Brooker, D., & Duce, L. (2000). Well-being and activity in dementia: A comparison of group reminiscence therapy, structured goal-directed group activity and unstructured time. *Aging & Mental Health*, 4, 354–358.

Buettner, L. L. (1999). Simple pleasures: A multilevel sensorimotor intervention for nursing home residents with dementia. *American Journal of Alzheimer's Disease*, 14, 41–52.

Chung, J. C. C. (2004). Activity participation and well-being of people with dementia in long-term-care settings. *OTJR: Occupation, Participation and Health*, 24, 22–31.

Clair, A. A., & Ebberts, A. (1997). The effects of music therapy on interactions between family caregivers and their care receivers with late stage dementia. *Journal of Music Therapy*, 34, 148–164.

Colling, K. B., & Buettner, L. L. (2002). Simple pleasures: Interventions from the need-driven dementia-compromised behavior model. *Journal of Gerontological Nursing, 28*, 16–20.

Crispi, E. L., & Heitner, G. (2002). An activity-based intervention for caregivers and residents with dementia in nursing homes. *Activities, Adaptation & Aging, 26*, 61–72.

Dooley, N. R., & Hinojosa, J. (2004). Improving quality of life for persons with Alzheimer's disease and their family caregivers: Brief occupational therapy intervention. *American Journal of Occupational Therapy, 58*, 561–569.

Fitzsimmons, S., & Buettner, L. L. (2003). A therapeutic cooking program for older adults with dementia: Effects on agitation and apathy. *American Journal of Recreation Therapy, 2*, 23–33.

Gitlin, L. N., Winter, L., Burke, J., Chernett, N., Dennis, M. P., & Hauck, W. W. (2008). Tailored activities to manage neuropsychiatric behaviors in persons with dementia and reduce caregiver burden: A randomized pilot study. *American Journal of Geriatric Psychiatry, 16*, 229–239.

Graff, M. J. L., Vernooij-Dassen, M. J. F., Hoefnagels, W. H. L., Dekker, J., & de Witte, L. P. (2003). Occupational therapy at home for older individuals with mild to moderate cognitive impairments and their primary caregivers: A pilot study. *OTJR: Occupation, Participation and Health, 23*, 155–164.

Graff, M. J. L., Vernooij-Dassen, M. J. M., Thijssen, M., Dekker, J., Hoefnagels, W. H. L., & Olde Rikkert, M. G. M. (2007). Effects of community occupational therapy on quality of life, mood and health status in dementia patients and their caregivers: A randomized controlled trial. *Journals of Gerontology (Medical Sciences), 62A*, 1002–1009.

Lai, C. K. Y., Chi, I., & Kayser-Jones, J. (2004). A randomized controlled trial of a specific reminiscence approach to promote the well-being of nursing home residents with dementia. *International Psychogeriatrics, 16*, 33–49.

Nochajski, S. M., Tomita, M. R., & Mann, W. C. (1996). The use and satisfaction with assistive devices by older persons with cognitive impairments: A pilot intervention study. *Topics in Geriatric Rehabilitation, 12*, 40–53.

Politis, A. M., Vozzella, S., Mayer, L. S., Onyike, C. U., Baker, A. S., & Lyketsos, C. G. (2004). Randomized, controlled, clinical trial of activity therapy for apathy in patients with dementia residing in long-term care. *International Journal of Geriatric Psychiatry, 19*, 1087–1094.

Pool, J. (2001). Making contact: An activity-based model of care. *Journal of Dementia Care, 9*, 24–26.

Rentz, C. A. (2002). Memories in the making: Outcome-based evaluation of an art program for individuals with dementing illnesses. *American Journal of Alzheimer's Disease & Other Dementias, 17*, 175–181.

Topo, P., Jylha, M., & Laine, J. (2002). Can the telephone-using abilities of people with dementia be promoted? An evaluation of a simple-to-use telephone. *Technology and Disability, 14*, 3–13.

Van Ort, S., & Phillips, L. R. (1995). Nursing intervention to promote functional feeding. *Journal of Gerontological Nursing, 21*, 6–14.

Wilkinson, N., Srikumar, S., Shaw, K., & Orrell, M. (1998). Drama and movement therapy in dementia: A pilot study. *The Arts in Psychotherapy, 25*, 195–201.

Wishart, L., Macerollo, J., Loney, P., King, A., Beaumont, L., & Browne, G., et al. (2000). “Special steps”: An effective visiting/walking program for persons with cognitive impairment. *Canadian Journal of Nursing Research, 31*, 57–71.

Yang, J., Mann, W. C., Nochajski, S., & Tomita, M. R. (1997). Use of assistive devices among elders with cognitive impairment: A follow-up study. *Topics in Geriatric Rehabilitation, 13*, 13–31.

Other References in the CAT

American Occupational Therapy Association. (2008). Occupational therapy practice framework: Domain and process. *American Journal of Occupational Therapy, 62*, 625–683.

Egan, M., Hobson, S., & Fearing, V. (2006). Dementia and occupation: A review of the literature. *Canadian Journal of Occupational Therapy, 73*, 132–140.

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CAT format adapted from a template provided by Dr. Annie McCluskey and freely available for use on the OT-CATS website (<http://otcats.com>).

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