



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 effectiveness of intervention designed to modify the activity demands of the occupations of self care, work, leisure, and social participation for persons with Alzheimer's disease?

Clinical Scenario:

Alzheimer's disease is a progressive condition affecting older adults, although younger-onset dementia is also possible (Ohman, Nygard, & Borell, 2001). As the population of the United States continues to age, the number of persons diagnosed with Alzheimer's disease and other dementias will increase. Therefore, the need for occupational therapy practitioners who are well versed in the best interventions for this group of people will increase dramatically.

Persons with Alzheimer's disease experience decreasing independence in a wide range of occupations, including activities of daily living, work, leisure, and social participation (Levitt, 2007). As their abilities decline, there is a need for supportive strategies to assist in maintaining the person's independence and safety for as long as possible. Few quantitative studies have been done that specifically focus on the effectiveness of interventions designed to modify the activity demands of occupations for this population, particularly in the areas of work and social participation. Additionally, care for persons with Alzheimer's or other forms of dementia is a significant cost for families and health care in general (Graff et al., 2006). Identifying effective interventions to maintain independence and enhance safety with this population has the potential to decrease the burden and costs to caregivers and the health care system, as well as improve quality of life for persons with dementia.

A significant portion of persons with Alzheimer's live at home, either by themselves or with caregivers (Dooley & Hinojosa, 2004; Nygard & Starkhammar, 2003). High levels of stress for caregivers can result as they attempt cope with the difficulties associated with caring for a person with increasing dependence (Dooley & Hinojosa, 2004; Graff et al., 2006). Persons with Alzheimer's not living at home typically reside in assisted living facilities or nursing homes, including dementia care units.

Occupational therapy practitioners are well prepared to provide interventions that focus on safety and independence for persons with a variety of conditions and in a variety of settings. Occupational therapy professionals frequently modify the demands of an activity in order for the client to reach his or her goals. Activity demands are "the aspects of an activity, which include the objects, space, social demands, sequencing or timing, required actions, and required

underlying body functions and body structure needed to carry out the activity” (American Occupational Therapy Association [AOTA], 2002, p. 624). Modifications to activities may include changing the materials used, varying the space in which the activity is carried out, and providing social interaction in the form of verbal cues. Other modifications may include resequencing the required steps or actions of an activity, and/or altering the position of the person completing the activity (AOTA, 2002). Changes to how the activity is completed create a requirement or demand for the person to use his or her abilities to succeed (Mastos, Miller, Eliason, & Imms, 2007). In order to meet the needs of this specific population, research evidence is needed to inform practice and justify the use of interventions designed to modify the activity demands of occupations for persons with Alzheimer’s disease.

Summary of Key Findings:

Summary of Levels I, II, and III

- Brief occupational therapy intervention focusing on persons with Alzheimer’s disease living at home and their caregivers has been shown to be effective for increasing quality of life, positive affect, and independence in self care (Dooley & Hinojosa, 2004, Level I). Specific recommendations for caregiver approaches in this study included cueing to break down tasks, giving step-by-step instructions, structuring daily routines, and suggesting activities when the client is unoccupied.
- Community-based occupational therapy intervention is effective when focusing on improving functioning of persons with dementia in daily activities. A combination of compensatory and environmental strategies significantly improved clients’ short-term and long-term functioning in activities of daily living (ADLs; Graff, et al., 2006, Level I).
- Adapting daily tasks to match ability level while administering cognitive stimulation therapy (CST) improves cognition and quality of life of persons with dementia compared to control groups engaging in typical daily activities (Spector et al., 2003, Level I). There were no differences, however, between those receiving CST and those receiving usual care in functional ability, communication, anxiety, or depression.
- Standardized verbal prompts and positive reinforcement during meals led to a significant difference between the experimental and control groups for both solid and liquid foods on task performance, indicating greater independence (Coyne & Hoskins, 1997, Level I). Results of this study indicate that the diagnosis of dementia should not preclude the possibility that nursing home patients with dementia may regain some lost skills used in eating.
- A systematic literature review identified several changes in activity demands as effective interventions to assist with feeding difficulties with this population, including changes in meal presentation and consistent behavioral prompts across carers. The report also identified environmental changes that were helpful, including use of music during the meal, change of dining setting, and alternating carers feeding the individual (Watson & Green, 2006). This Level I systematic review included only one randomized controlled trial and confounding factors were not taken into consideration.
- Theory-based activity selection used to tailor activities to match skill level and interests was found to be effective for increasing mean time spent on task (Kolanowski, 2001, Level I). However, it did not result in a significant difference in the degree of participation between intervention and control groups.
- Behavioral rehabilitative care, including both skill elicitation (graded assist designed to elicit the highest level of skill retained by the participant) and habit training, significantly improved ADL participation among nursing home residents with dementia (Rogers, et al., 1999, Level III). Compared with usual care, skill elicitation participants exhibited greater independence in

performing dressing tasks, participated more in assisted dressing, and asked more appropriately for assistance with ADLs.

Summary of Levels IV and V

Not included in review

Contributions of Qualitative Studies:

Not included in review

Bottom Line for Occupational Therapy Practice:

Maintaining independence for as long as possible helps to increase quality of life for persons with Alzheimer's disease. Overall, evidence supports the use of interventions that focus on modifying the activity demands of daily occupations with this specific population, whether in the person's home or in a health care facility such as a nursing home. The goal of occupational therapy in working with this population is to promote safe and independent functioning for as long as possible; the interventions reviewed are ways to facilitate this goal. The results of the studies selected for review indicate that modifications in the ways in which people with Alzheimer's dementia carry out daily activities can help them maintain their independence longer and even regain some lost function. Further, the studies indicate that keeping people with Alzheimer's dementia engaged in meaningful activities for longer periods of time reduces dementia-related behaviors such as screaming, wandering, and physical aggression.

It is important that occupational therapy practitioners match the activity (and any modifications thereof) with the person's level of skill and global patterns of interest or personality style (Kolanowski, 2001). While provision of simple sensorimotor activities may reduce agitated behaviors, they may have little impact in the person's level of independence in activities of daily living. Modification of daily living activities to match the person's current cognitive and physical abilities affords the person the opportunity for participation. Further, modifications of activities that match the person's interest style, as determined by premorbid personality traits, provide the amount of social stimulation and novelty preferred, and thereby capture the person's interest.

Verbal cues provided by professionals and/or caregivers during activities are one of the most important ways to modify activity demands. The consistent use of directed verbal prompts and positive reinforcement maximizes ADL functional status, particularly with feeding (Coyne & Hoskins, 1997; Watson & Green, 2006). Improvements in orientation and subjective sense of quality of life resulted from verbal cues that encouraged the person to use information processing rather than factual knowledge (Spector et al., 2003). The findings further suggest that reality orientation groups are likely to be beneficial for many people with Alzheimer's dementia. Improvements were comparable to those that resulted from drug programs, although caution is required when making this comparison because of the different nature cognitive and drug interventions.

Intensity of therapy that includes caregiver training on modifications of activity demands to compensate for cognitive decline and maintain or improve daily functioning varied depending on setting. Effects of daily therapy for feeding at each meal over a period of 2 days were still present at 7 days posttreatment (Coyne & Hoskins, 1997). Effects in improved daily functioning

through community-based cognitive and behavioral interventions twice weekly over a period of 10 weeks were still present at 12 weeks posttreatment, which justifies implementation of this intervention (Graff et al., 2006).

The lack of research found on work and social participation of persons with Alzheimer’s indicates that these are areas that need investigation. Intervention strategies that are effective for engagement in these occupations need to be developed and studied, as qualitative studies have indicated that self-interventions by participants are ineffective. Occupational therapy practitioners could conduct research studies in these areas utilizing some of the strategies that have been found to be effective for modifying the activity demands of other occupations.

Review Process:

Procedures for the selection and appraisal of articles

Inclusion Criteria:

- Published between 1987 and 2007
- Research participants were persons with dementia
- Included an intervention that could be used by occupational therapy professionals
- Level I, II, and II studies
- Related to self-care and other ADL, work, leisure, or social participation
- Written in English

Exclusion Criteria:

- Published prior to 1987
- Did not include an intervention
- Interventions did not modify the way in which the activity was to be carried out
- Level IV and V studies
- Qualitative studies

Search Strategy

Categories	Key Search Terms
Patient/Client Population	Alzheimer’s, dementia
Intervention	Strategy, technique, treatment, intervention, adapt, modify, adjust, change, alter
Comparison	Not searched
Outcomes	Self care, ADL, activities of daily living, work, employment, occupation, vocation, job, leisure, recreation, socialization, interaction, social participation, communication, social interaction, social engagement, engagement

Databases and Sites Searched

Academic Search Premiere, AgeLine, CINAHL, Google Scholar, EBSCOhost, Medline, OT Search, PsycINFO, PubMed, ScienceDirect, Web of Science

Quality Control/Peer Review Process:

- A group of five Creighton University Doctor of Occupational Therapy students developed search terms in consultation with the course instructor for OTD 541 Critical Analysis of Occupational Therapy Practice
- The group conducted searches in the databases
- A medical librarian reviewed the group's search strategies and results to improve them
- AOTA staff and project consultant reviewed results of the search and provided additional suggestions for search strategies
- The group completed a critically appraised paper (CAP) and evidence table for each article that met the criteria
- An individual student enrolled in the same course followed up and conducted the database searches again 1 year later to make sure no new articles were missed; two articles were added to the review
- The same student completed an evidence table for each article included in the review
- The instructor and AOTA staff and project consultant reviewed the evidence table for unanswered questions and discrepancies in interpretation of the results
- The student and the instructor completed the CAT
- AOTA staff and project consultant reviewed the CAT

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	6
II	Two groups, nonrandomized studies (e.g., cohort, case-control)	0
III	One group, nonrandomized (e.g., before and after, pretest, and posttest)	1
IV	Descriptive studies that include analysis of outcomes (single subject design, case series)	0
V	Case reports and expert opinion, which include narrative literature reviews and consensus statements	0
	Qualitative Studies	0
		TOTAL 7

Limitations of the Studies Appraised

Levels I, II, and III

<p>Level I</p> <ul style="list-style-type: none">• Non-representative sample: all subjects were female, took place in one dementia-unit, small sample size (Coyne & Hoskins, 1997)• Inconsistency in time frame for completing follow-up assessment (Dooley & Hinojosa, 2004)• Single blind study—subjects and therapists were not blinded to the intervention; selected subjects only from outpatient clinics—non-representative sample (Graff et al., 2006)• Significant variation between treatment centers and the improvement of cognitive function scores (Leach, 2004)• Lack of statistical reporting and suspected reporting bias (Watson & Green, 2006) <p>Level II N/A</p> <p>Level III</p> <ul style="list-style-type: none">• Outcome measures were only based on observations (Rogers et al., 1999)
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Levels IV and V

N/A

Articles Selected for Appraisal

Coyne, M. L., & Hoskins, L. (1997). Improving eating behaviors in dementia using behavioral strategies. *Clinical Nursing Research*, 6, 275–290.

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.

Graff, M. J. L., Vernooij-Dassen, M. J. M., Thijssen, M., Dekker, J., Hoefnagels, W. H. L., & Olde Rikkert, M. G. M. (2006). Community based occupational therapy for patients with dementia and their care givers: Randomised controlled trial. *British Medical Journal*, 333, 1196–1201.

Kolanowski, A. (2001). Capturing interests: Therapeutic recreation activities for persons with dementia. *Therapeutic Recreation Journal*, 35, 220–235.

Rogers, J. C., Holm, M. B., Burgio, L. D., Granieri, E., Hsu, C., & Hardin, J. M. (1999). Improving morning care routines of nursing home residents with dementia. *Journal of the American Geriatrics Society*, 47, 1049–1057.

Spector, A., Thorgrimsen, L., Woods, B., Royan, L., Davies, S., Butterworth, M., & Orrell, M. (2003). Efficacy of an evidence-based cognitive stimulation therapy program for people with dementia. *British Journal of Psychiatry*, 183, 248–254.

Watson, R., & Green, S. (2006). Feeding and dementia: a systematic literature review. *Journal of Advanced Nursing*, 54, 86–93.

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Mastos, M., Miller, K., Eliason, A., & Imms, C. (2007). Goal-directed training: Linking theories of treatment to clinical practice for improved functional activities in daily life. *Clinical Rehabilitation*, 21, 47–55.

Nygaard, L., & Starkhammar, S. (2003). Telephone use among noninstitutionalized persons with dementia living alone: Mapping out difficulties and response strategies. *Scandinavian Journal of Caring Sciences*, 17, 239–249.

Ohman, A., Nygaard, L., & Borell, L. (2001). The vocational situation in cases of memory deficits or younger-onset dementia. *Scandinavian Journal of Caring Sciences*, 15(1), 34–43.

This work is based on the evidence-based literature review completed in November 2007 by René Padilla, PhD, OTR/L, FAOTA with contributions from Brittany Bennett, Tessa Cooper, Katie Horsage, Miranda Materi, Lisa Parr, Ana Smith, Heather Valasek who were doctoral students in the occupational therapy program at Creighton University at the time of this work.

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

For more information about the Evidence-Based Literature Review Project, contact the American Occupational Therapy Association, 301-652-6611, x 2052.



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