

Occupational Therapy Interventions for People With Alzheimer's Disease

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Evidence Connection articles provide a clinical application of systematic reviews developed in conjunction with the American Occupational Therapy Association's (AOTA's) Evidence-Based Practice Project. In this Evidence Connection article, we describe a case report of a person with Alzheimer's disease. The occupational therapy assessment and intervention process in the home setting is described. Findings from the systematic reviews on this topic were published in the November/December 2017 issue of the *American Journal of Occupational Therapy* and in AOTA's *Occupational Therapy Practice Guidelines for Adults With Alzheimer's Disease and Related Major Neurocognitive Disorders*. Each article in this series summarizes the evidence from the published reviews on a given topic and presents an application of the evidence to a related clinical case. Evidence Connection articles illustrate how the research evidence from the reviews can be used to inform and guide clinical reasoning.

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Clinical Case

Mrs. Clark, at age 75 yr, lived with her husband of 52 yr in a two-story home. Among her daily routines, Mrs. Clark managed the family checkbook, sang in the community choir, and enjoyed caring for her five grandchildren. Over the next 3 yr, paying bills and keeping track of daily activities became progressively more difficult to the point where errors occurred, and Mr. Clark and their daughter had to help. In addition, friends of Mrs. Clark noticed that she gradually stopped returning calls and was late or forgot choir practice. At age 78 yr, Mrs. Clark was diagnosed with Alzheimer's disease (AD) by a neurologist to whom she was referred by her primary care physician. She continued to perform daily self-care activities by herself; however, her husband began to notice a decline in her ability. Her symptoms reflected a progression to the middle stage of the disease. After an appointment with her primary care physician, Mrs. Clark was referred for home-based occupational therapy to promote safety and functional performance at home and to provide caregiver education.

Occupational Therapy Assessment and Findings

During the first home visit, the occupational therapist, Tamara, interviewed Mrs. Clark and her husband to complete an occupational profile using the American Occupational Therapy Association's template (retrieved from <https://www.aota.org/>

~/media/Corporate/Files/Practice/Manage/Documentation/AOTA-Occupational-Profile-Template.pdf). The occupational profile revealed that Mrs. Clark has two children and five grandchildren. Mr. Clark shared Mrs. Clark's interests, which include singing, listening to music, gardening, and baking; however, she stopped singing in the community choir and left the stove on several times. Mr. Clark was concerned because his wife started to need more help in the morning to get ready; however, when he offered help, she often refused and sometimes became agitated. In addition, he reported that his wife has not been sleeping well at night—she will get up and wander around the house. Mrs. Clark told Tamara that she gets ready by herself every morning. When questioned about his priority for therapy goals, Mr. Clark stated he would like his wife to do as much for herself as possible, accept his help when needed, avoid periods of agitation, and sleep more soundly at night. Throughout the evaluation visit, Mr. Clark appeared stressed and overwhelmed.

Guided by the occupational profile, Mrs. Clark's ability to perform self-care activities was assessed with the Performance Assessment of Self-Care Skills (Holm & Rogers, 2008). Mrs. Clark's functional cognition was assessed with the Large Allen Cognitive Level Screen-5 (LACLS-5; Allen et al., 2007) and the Allen Diagnostic

Module—Second Edition (ADM-2; Earhart, 2006) to identify her Allen Cognitive Level (ACL). The ACL describes the functional capacity to perform daily activities safely within the home environment, which is used to guide intervention and caregiver training. In addition, the Disability Assessment for Dementia (Gélinas, Gauthier, McIntyre, & Gauthier, 1999)—a proxy-responder scale that assesses executive functioning skills in relation to performance of basic and instrumental activities of daily living—was administered to Mr. Clark. To assess Mrs. Clark's agitation, Tamara used the Cohen-Mansfield Agitation Inventory (Cohen-Mansfield, 1986). She asked Mr. Clark to rate the frequency of agitated behaviors (physically aggressive, physically nonaggressive, verbally aggressive, and verbally nonaggressive).

To evaluate Mr. Clark's health and well-being over the course of the intervention, Tamara administered the Geriatric Depression Scale—Short Form (Sheikh & Yesavage, 1986; Yesavage et al., 1982) and the Perceived Quality of Life Scale (Patrick, Danis, Southerland, & Hong, 1988). To evaluate home safety, Tamara administered the Safety Assessment of Function and the Environment for Rehabilitation—Health Outcome Measurement and Evaluation (Version 3; Chiu & Oliver, 2006; Chiu et al., 2006). See Table 1 for assessment results.

Table 1. Assessment Data—Occupational Therapy in the Home

Assessment	Evaluation	Discharge
Mrs. Clark (patient)		
PASS (5 tasks)	Bed mobility: I = 3; S = 1	Maintained
	Toilet mobility: I = 3; S = 2	I = 3; S = 3 with raised toilet seat and correct cueing strategies
	Shower and tub mobility: I = 2.3; S = 1	I = 2; S = 2 with tub bench and correct cueing strategies
	Oral hygiene: I = 2.5; S = 3	Maintained
	Dressing: I = 1.7; S = 1	I = 2; S = 2 with setup and correct cueing strategies
ADM-2	ACL = 3.8 (requires cueing prompting, and assistance for at least 7 hr over a 16-hr wakeful period; 46% cognitive assist)	NA
DAD	Total score = 22/40 = 55% (lower percentage indicates higher level of disability)	NA
CMAI	Behavior severity score = 68/203 (higher score indicates greater severity)	32/203
	Number of behaviors = 11/29 (higher score indicates greater number of behaviors)	6/29
Mr. Clark (caregiver)		
GDS-SF	Total score = 8/15 (mild depression)	5/15 (lower score; mild depression)
PQOL	Mean score = 5.30/10 (<7.5 indicates dissatisfied with quality of life)	8.01/10 (higher score; >7.5 indicates satisfied with quality of life)
Home environment		
SAFER-HOME	Score = 43 (range 0–222; higher score indicates greater number and severity of safety hazards)	6 (range 0–222)

Note. ACL = Allen Cognitive Level; ADM-2 = Allen Diagnostic Module—Second Edition; CMAI = Cohen-Mansfield Agitation Inventory; DAD = Disability Assessment of Dementia; GDS = Geriatric Depression Scale—Short Form; I = independence mean score (sum of subtask scores/total subtasks performed = 0 [total assistance] to 3 [no assistance]); NA = not assessed; PASS = Performance Assessment of Self-Care Skills; PQOL = Perceived Quality of Life Scale; S = safety score (3 = safe practices, 2 = minor safety risk, 1 = risk to safety with cueing provided to prevent potential harm); SAFER-HOME = Safety Assessment of Function and the Environment for Rehabilitation—Health Outcome Measurement and Evaluation.

Assessment results revealed Mrs. Clark was independent in functional mobility; however, she was at a fall risk when transferring to and from the toilet and tub. In self-care performance, Mrs. Clark required verbal cues for accuracy and demonstrated poor safety awareness. Consistent with these findings, Mrs. Clark's functional cognition reflected a reliance on well-established procedural memories to complete basic daily routines. The ACL indicated that Mrs. Clark could not live alone and needed 24-hr supervision to organize daily activities and to remove dangerous objects. Less than once a week, Mrs. Clark became agitated during self-care activities in the morning, and the most prevalent type of agitation was physical nonaggressive behaviors such as pacing and rummaging.

As the primary caregiver, Mr. Clark indicated that he was mildly depressed with a poor self-rated quality of life. Overall, the home environment had minor to major problems, primarily in the kitchen and with household activities. Of concern was numerous scatter rugs throughout the home and the storage of dangerous items (e.g., knives, cleaning solutions) in full view. Intervention goals focused on optimizing performance of activities of daily living (ADLs), targeting the morning and evening self-care routines; decreasing agitation; increasing activity engagement, including physical activity, to promote sleep; and improving caregiver communication and cuing skills.

Tamara reviewed the evidence from the September/October 2017 issue of the *American Journal of Occupational Therapy* (Jensen & Padilla, 2017; Piersol et al., 2017; Smallfield & Syrovatka-Keckenlaible, 2017) and also read the intervention recommendations with strong evidence from the *Occupational Therapy Practice Guidelines for Adults With Alzheimer's Disease and Related Major Neurocognitive Disorders* (Piersol & Jensen, 2017). She was encouraged to find strong evidence that rooms designed consistent with the intended purpose, as is found in home environments, improved behaviors of people with AD because she had often anecdotally noted this as a benefit for her clients receiving therapy in the home. Additionally, she found the following strong evidence that she used to plan the intervention for Mrs. Clark:

- ADL training or activity modification to improve or maintain ADL performance (McLaren, Lamantia, & Callahan, 2013; Olazarán et al., 2010; Padilla, 2011b)
- Errorless learning and prompting strategies to improve ADL performance (Brenske, Rudrud, Schulze, & Rapp, 2008; Dechamps et al., 2011; Lee, Yip, Yu, & Man, 2013; van Tilborg, Kessels, & Hulstijn, 2011)
- Ambient music (Hodgkinson, Koch, Nay, & Lewis, 2007; Lancioni et al., 2013; Padilla, 2011a) and multisensory interventions (e.g., Snoezelen®; Fleming & Purandare, 2010; Kim, Yoo, Jung, Park, & Park, 2012; Marques, Cruz, Barbosa, Figueiredo, & Sousa, 2013;

Maseda et al., 2014; Padilla, 2011a; Riley-Doucet & Dunn, 2013; Sánchez, Millán-Calenti, Lorenzo-López, & Maseda, 2013; Zimmerman et al., 2013) to improve short-term behavior

- Exercise-based interventions to improve or maintain ADL performance, including functional mobility and sleep (Blankevoort et al., 2010; Forbes, Thiessen, Blake, Forbes, & Forbes, 2013; McLaren et al., 2013; Pitkälä et al., 2013; Potter, Ellard, Rees, & Thorogood, 2011; Rao, Chou, Bursley, Smulofsky, & Jezequel, 2014)
- Monitoring devices to prevent falls in the home (Rowe et al., 2009; Tchalla et al., 2013)
- Communication skills training to promote caregiver quality of life and well-being (Egan, Bérubé, Racine, Leonard, & Rochon, 2010)
- Multicomponent psychoeducational interventions (education, skill training, and coping strategies) to improve caregiver well-being and moderate evidence to delay nursing home placement (Corbett et al., 2012; Ducharme et al., 2011; Elliott, Burgio, & DeCoster, 2010; Gitlin, Winter, Dennis, Hodgson, & Hauck, 2010a, 2010b; Kouri, Ducharme, & Giroux, 2011; Kuo et al., 2013; Livingston et al., 2013).

Occupational Therapy Intervention

Mrs. Clark received 12 home visits over 8 wk. Tamara asked that Mr. Clark be present during every visit. Mrs. Clark's daughter attended 4 of the home visits.

Sample Intervention 1—Morning Home Visit Focused on Optimizing ADL Performance and Reducing Agitative Behaviors

Tamara scheduled several visits for early morning to address Mrs. Clark's morning routine. A raised toilet set and tub bench were obtained from a local equipment loan closet, and, with Mr. Clark present, Tamara provided training in safe transfers with these devices using an errorless learning approach. During each session, Mrs. Clark performed several repetitions of both transfers, with Tamara preventing mistakes and ensuring a consistent sequence by using simple instructional cues, communication strategies, and occasional guiding for proper hand placement. At the end of the first training session, she left a written sequence of the steps with Mr. Clark and educated him on appropriate cuing and communication strategies to solidify a consistent routine and to promote reliance on procedural memories.

Errorless learning was also initiated for dressing and grooming, with Tamara consulting with Mr. Clark on Mrs. Clark's past habits to ensure the best morning routine. Mrs. Clark appeared distracted and confused by

extra items on the sink and in her closet, and this triggered agitation and refusal to accept assistance. Tamara assisted Mr. Clark in reducing clutter and setting out only needed hygiene and clothing items to reduce activity demands and agitation. To improve safety during dressing, Mrs. Clark sat in her favorite chair in the bedroom while Mr. Clark cued and assisted her through getting dressed. Multisensory stimulation, including softer lighting and quiet ambient music played during Mrs. Clark's morning routine, seemed to decrease her tendency to become agitated.

Sample Intervention 2—Afternoon Home Visit Focused on Enhancing Sleep and Preventing Nighttime Falls

Given the strong evidence that exercise improves or maintains ADL performance, including sleep, Tamara used Mrs. Clark's interest in gardening to introduce increased physical activity into her daily routine. Mr. and Mrs. Clark's neighborhood sponsored a community garden, which was only two blocks from their home. During an afternoon home visit, Tamara, Mrs. Clark, and Mr. Clark walked to the garden, and Mrs. Clark participated in gardening activities at several raised flower beds in the garden. Resources for group exercise programs at the local community center were provided as additional exercise options.

To address Mrs. Clark's night wandering and risk for falls, Tamara provided Mr. Clark with resources for renting a bed-exit alarm. She also recommended automatic nightlights in the bedroom and bathroom and arranging the bedroom to allow Mrs. Clark a clear path to the bathroom from her bed.

Conclusion

After 12 home visits over 8 wk, Mrs. Clark had met her goals designed to optimize independence and safety despite the cognitive decline inherent in AD. Through activity and environmental modifications, ADL training with an emphasis on errorless learning techniques, and deliberate caregiver education on appropriate cueing and assistance, Mrs. Clark was able to maintain or improve in several areas of the Performance Assessment of Self-Care Skills and decrease agitated behaviors (see Table 1). Mr. Clark demonstrated improved scores on the Geriatric Depression Scale—Short Form and the Perceived Quality of Life Scale, largely because of improved communication and ADL skills with his wife. Tamara provided Mr. Clark with recommendations for local professionally led support groups for caregivers of people with AD because Tamara found strong evidence for these groups to enhance caregiver well-being and quality of life. ▲

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