Home Modifications for People With Alzheimer’s Disease: A Scoping Review

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MeSH TERMS
- Alzheimer disease
- architectural accessibility
- caregivers
- environment design
- patient-centered care
- self-help devices
- social environment

OBJECTIVE. The purpose of this review was twofold: (1) to gain insight into what is known from the literature about home modifications for people with Alzheimer’s disease (AD) and (2) to identify gaps in the literature that could lead to opportunities for research.

METHOD. A systematic scoping review of peer-reviewed articles published from 1994 through 2014 explored home modifications and AD.

RESULTS. Seventeen articles met the inclusion criteria. The three major findings pertain to (1) the caregiver role and caregiver training, (2) a client-centered collaborative approach to assessment and intervention, and (3) modifications for safety and function. Home modifications involved the physical and social environments as well as cognitive strategies at the task level.

CONCLUSION. Opportunities exist for the development of assessment procedures, the exploration of home modifications in the later stages of AD, and the study of home modification needs of people with dementia who live alone.

Alzheimer’s disease (AD) is the most common type of dementia and accounts for 60%–80% of all dementias (Alzheimer’s Association, 2014). The Alzheimer’s Association (2014) has estimated that 5.2 million Americans have been diagnosed with AD; that figure is expected to triple by 2050. Of the 5.2 million people with AD, 5 million are age 65 yr and older (Alzheimer’s Association, 2014). A recent study by AARP (2014) found that more than 87% of adults older than age 65 want to stay in their home as they age and that most people with AD living at home had a caregiver living in the same home. However, it has been estimated that 15% of people with AD live alone (Alzheimer’s Association, 2012). One means of aging in place, whether alone or with a caregiver, is to modify the home environment for safety and participation. Home modifications have been shown to facilitate performance and decrease caregiver stress, both of which support aging in place for people with dementia (Gitlin, Hauck, Dennis, & Winter, 2005).

Gitlin (1998, p. 190) defined home environmental modifications as “a vast array of strategies” that include structural renovation, assistive devices, placement of visual cues and memory aids, and rearrangement or removal of furniture and dangerous household items as well as the simplification of tasks. The Occupational Therapy Practice Guidelines for Home Modifications (Siebert, Smallfield, & Stark, 2014) defined home modifications as adaptations to environments that are intended to increase use, safety, security, and independence. Home modification is a process that includes evaluation, identification and implementation of solutions, training, and outcomes assessment. For people with AD and their caregivers, home modification is an ongoing process because of the
progressive needs of the person with AD and resulting needs of the caregiver (Olsen, Ehrenkrantz, & Hutchings, 1996).

In an attempt to explore the impact of home environmental modifications for people with AD and their caregivers, we found there were no systematic reviews specific to home modifications for people with AD. Evidence-based practice is strengthened by systematic reviews of the literature (Arbesman & Lieberman, 2011). More evidence is needed specific to home modifications for successful aging in place of people with AD.

The purpose of this scoping review was to gain increased insight about home modifications for people with AD and to identify gaps that could lead to further research. Through this scoping review, we sought to answer the question “What is known from the existing literature about home modifications for people with AD?”

Method

A scoping review is a structured method for gathering background information useful in identifying gaps in the literature; summarizing findings (Armstrong, Hall, Doyle, & Waters, 2011); and exploring the extent, range, and nature of the research activity (Levac, Colquhoun, & O’Brien, 2010). A scoping review was chosen over a systematic review because the purpose was to gain knowledge, not to evaluate the quality of the studies.

We worked with a research librarian to obtain guidance on scoping reviews, database choices, and development of search strings. Databases searched for this study were PubMed, CINAHL, PsycINFO, and Google Scholar. RefWorks bibliographic software provided the platform for data storage and review. The combination of key words and MeSH terms identified for the search were as follows: Alzheimer’s disease, home modifications, housing for the elderly, architectural accessibility, environment design, aging in place, assistive technology, and adaptive equipment. Inclusion criteria were peer-reviewed, English-language scientific literature published between January 1994 and July 2014, specific to people with AD, and specific to the home environment. Articles were excluded if they were pharmacological intervention or animal studies or involved dementias that can be definitively diagnosed, such as Lewy body dementia, frontal lobe dementia, Parkinson’s dementia, and vascular dementia. Although we searched specifically for Alzheimer’s disease, some articles used the term dementia interchangeably with Alzheimer’s disease.

Both authors independently reviewed all titles, abstracts, and key words of articles from the search results to identify those articles that met criteria for further review. The authors met to debate and reach agreement on final article selection on the basis of the guiding question “What is known from the existing literature about home modifications for people with AD living at home?” After final selection, both authors reviewed the articles in depth, creating a synthesis table as recommended by Aveyard (2010) to identify main ideas and determine where gaps exist. Figure 1 illustrates the decision-making process.

Results

The search strategy resulted in a total of 513 articles, of which 43 met the criteria for full article review. Application of the inclusion and exclusion criteria resulted in 17 articles on home modifications for people with AD living at home. The design of studies varied; 6 were randomized controlled trials (Chee, Gitlin, Dennis, & Hauck, 2007; Gitlin & Chee, 2006; Gitlin, Corcoran, Winter, Boyce, & Hauck, 2001; Gitlin et al., 2005; Horvath et al., 2013; Tchalla et al., 2013); 1 was a single-group study comparing standard and user-centered intervention conditions.
Hoof et al. (2013) considered the caregiver in the initial stages of dementia, with van Hoof et al. (2010) and Tchalla et al. (2013) also highlighting the caregiver’s role in the initial stages. Sheldon & Teaford (2002) noted the caregiver’s responsibility as the care recipient’s cognitive status declined. The caregiver was the one who implemented home environmental modifications and strategies (Chee et al., 2007; Horvath et al., 2013; Smith, Lauret, Peery, & Mueller, 2001) and wanted resources (Gitlin et al., 1999). Gitlin and Chee (2006) attributed this finding to the importance of identifying the individualized needs of the person with AD. Ten months after training, caregivers reported that 73% of the home modifications were still in use (Gitlin & Chee, 2006). Gitlin and Chee (2006) attributed this finding to the importance of ongoing education and collaboration that fine-tuned caregiver efficacy and reduced strain.

We identified three major findings pertaining to home modifications for people with AD: (1) the importance of the caregiver role and caregiver training; (2) the importance of a client-centered collaborative approach to assessment and intervention; and (3) the importance of a variety of environmental modifications, including physical, cognitive, and social modifications, to improve safety or function. The physical modifications often included the use of adaptive equipment and assistive technology. The cognitive modifications were strategies that occurred at the task level and involved simplification or cueing. The social modifications included supervision and cueing. To a lesser extent, the literature discussed the number of home environmental modifications recommended, the need for follow-up intervention visits to ensure implementation and adherence to recommendations, and the reported under-utilization of adaptive devices and home safety modifications.

**Caregiver Role and Caregiver Training**

The importance of the caregiver’s role in the home environmental modifications process was a common theme throughout the literature. The caregiver was part of the social environment and in this role took on more responsibility as the care recipient’s cognitive status declined. The caregiver was the one who implemented home environmental modifications and strategies (Chee et al., 2007; Mann et al., 1996; Olsen et al., 1996; Sheldon & Teaford, 2002; Tchalla et al., 2013; van Hoof et al., 2010). Van Hoof et al. (2013) considered the caregiver in the initial design of a house being built specifically for a person with AD. An example was the incorporation of an open floor plan in which both the caregiver and the person with dementia could see each other from almost all positions in the home.

The physical health of the caregiver was also associated with adherence to home modification strategies. Researchers found that caregivers in poorer health may not benefit from environmental skills training, meaning that they are less likely to implement or follow through with recommendations (Chee et al., 2007). Other barriers to implementation of home modifications were linked to caregivers’ lack of knowledge about the disease process and available resources (Gitlin et al., 1999). Gitlin and Chee (2006) and Horvath et al. (2013) attempted to overcome these barriers by providing caregiver training and adaptive equipment to their participants. After addressing these barriers, Horvath et al. reported small but significant positive changes in caregiver efficacy and reduced strain.

Improvement in caregiver self-efficacy was a frequent outcome of training (Chee et al., 2007; Gitlin et al., 2001, 2005; Horvath et al., 2013; Lach & Chang, 2007; Sheldon & Teaford, 2002). Ten months after training, caregivers reported that 73% of the home modifications were still in use (Gitlin & Chee, 2006). Gitlin and Chee (2006) attributed this finding to the importance of ongoing education and collaboration that fine-tuned modifications.

Caregivers had a broad range of needs that included training and collaboration with professionals (Smith, Lauret, Peery, & Mueller, 2001) and wanted resources and knowledge of home modifications and of the disease process (Chee et al., 2007; Horvath et al., 2013; Smith et al., 2001). Caregiver training included activities such as education on potential hazards, provision of resources for implementation of modifications, and role-playing and resulted in modification of the social environment as the caregiver learned and implemented new skills (Chee et al., 2007; Gitlin & Chee, 2006; Gitlin et al., 2005; Horvath et al., 2005). None of the articles included a description of the role-playing or training methods in enough detail to replicate them in research or clinical practice. However, the importance of the caregiver’s role in implementing and adhering to home modifications was clearly demonstrated.

**Client-Centered Approach**

The second major finding in the literature was the importance of identifying the individualized needs of the person with AD and caregiver. *Client-centered care* is a
<table>
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<tr>
<th>Author/Date</th>
<th>Design/Sample</th>
<th>Study Aim</th>
<th>Caregiver Involvement</th>
<th>Client Centered</th>
<th>Environmental Modifications</th>
<th>Comment</th>
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<tbody>
<tr>
<td>Chee, Gitlin, Dennis, &amp; Hauck (2007)</td>
<td>RCT; intervention, N = 105 caregivers of people with AD.</td>
<td>To identify predictors of caregiver adherence to strategies</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Caregiver training, implementation, adherence, and efficacy</td>
</tr>
<tr>
<td>Giovannetti et al. (2007)</td>
<td>Crossover design, N = 46 people with AD.</td>
<td>To examine and characterize the effect of environmental adaptations on everyday action in AD</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Cognitive cueing improved performance</td>
</tr>
<tr>
<td>Gitlin &amp; Chee (2006)</td>
<td>RCT; intervention, N = 121 families of people with AD.</td>
<td>To describe the low-cost technology and the reasons why caregivers did not use prescribed equipment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gitlin, Corcoran, Winter, Boyce, &amp; Hauck (2001)</td>
<td>RCT; intervention, N = 171 family caregivers.</td>
<td>To determine the effects of a home environmental intervention on self-efficacy and upset in caregivers and daily function of patients with dementia</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Caregiver training, decision making, and follow-up</td>
</tr>
<tr>
<td>Gitlin, Corcoran, Winter, Boyce, &amp; Marcus (1999)</td>
<td>Feasibility study; intervention, N = 100 family caregivers.</td>
<td>To investigate how caregiver characteristics relate to the delivery of a home modifications intervention</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Caregiver training improved efficacy</td>
</tr>
<tr>
<td>Gitlin, Hauck, Dennis, &amp; Winter (2005)</td>
<td>RCT; maintenance effect at 12 mo, N = 127 family caregivers.</td>
<td>To report the 12-mo maintenance effects of the Home Environmental Skill-Building Program</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Caregiver adherence to intervention and caregiver as client</td>
</tr>
<tr>
<td>Horvath et al. (2005)</td>
<td>Qualitative descriptive, exploratory design, N = 17 interdisciplinary professionals.</td>
<td>To understand caregiver competence in everyday life related to environmental safety in AD</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Caregiver training and collaboration with professionals for confidence and self-efficacy</td>
</tr>
<tr>
<td>Horvath et al. (2013)</td>
<td>RCT; intervention, N = 108 patient–caregiver dyads.</td>
<td>To test an intervention to improve caregiver competence in creating a safer home environment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Caregiver training and resources reduced strain and improved self-efficacy</td>
</tr>
<tr>
<td>Lach &amp; Chang (2007)</td>
<td>Qualitative; group design, N = 39 caregivers of people with AD.</td>
<td>To explore caregivers’ perceptions of safety problems and identify how they manage safety</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Considered caregiver motivation and efficacy</td>
</tr>
<tr>
<td>Lach, Reed, Smith, &amp; Carr (1995)</td>
<td>Qualitative; phone interviews, N = 35 caregivers of people with AD.</td>
<td>To determine which safety problems were most common</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Caregiver training for physical modifications for safety, cognitive management strategies and changed task demands; included driving behaviors</td>
</tr>
<tr>
<td>Mann, Hurren, Charvat, &amp; Tomita (1996)</td>
<td>Quantitative; interviews at 1-yr follow-up, N = 19 people with AD and caregivers.</td>
<td>To examine satisfaction rate of assistive devices used and home modifications implemented during 1-yr study</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Caregiver needs changed as AD progressed</td>
</tr>
</tbody>
</table>

(Continued)
A core concept in the occupational therapy process (AOTA, 2014) and refers to putting the goals of the client at the forefront of evaluation and intervention. Sheldon and Teaford (2002) identified the importance of developing rapport with the client (caregiver and person with AD) for successful home modification intervention. The 1 study that included only people with dementia reported on the importance of a client-centered approach to intervention (Giovannetti et al., 2007). Giovannetti et al. (2007) used client-centered training with environmental adaptations to improve task performance in people with AD. The other studies included both the person with AD and the caregiver as the client when discussing individualized client-centered home environmental modifications.

This client-centered approach with the caregiver, person with AD, and health care provider demonstrated improved caregiver efficacy (Gitlin et al., 2001; Horvath et al., 2013) and adherence to recommendations (Chee et al., 2007; Gitlin et al., 1999). Olsen et al. (1996) acknowledged the importance of an ongoing client-centered approach as the home modification needs of the person with dementia changed as the disease progressed. Consistent with these findings was that resistance to modifications by the person with AD was reported as a barrier to implementation (Gitlin & Chee, 2006; Lach, Reed, Smith, & Carr, 1995). Horvath et al. (2005) noted the challenge of being client centered when safety issues were identified, yet the choices made by clients were unsafe.

### Table 1. Summary of Main Ideas About Home Modifications for People With Alzheimer’s Disease (cont.)

<table>
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<tr>
<th>Author/Date</th>
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</thead>
<tbody>
<tr>
<td>Olsen, Ehrenkrantz, &amp; Hutchings (1996)</td>
<td>Qualitative; interviews N = 90 long-term caregivers of people with AD.</td>
<td>To determine how environmental supports can be achieved most effectively by investigating the relationship between home and AD</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Caregivers designed and implemented many modifications. Client-centered needs changed as AD progressed. Physical and cognitive modifications for safety and support, home design, and devices.</td>
</tr>
<tr>
<td>Sheldon &amp; Teaford (2002)</td>
<td>Multiple case study N = 2 primary caregivers of people with AD.</td>
<td>To identify information that would be helpful in determining what home environment intervention strategies should be proposed</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Caregiver implemented recommendations, wanted more information, improved self-efficacy after OT. Rapport with client was important. Physical modifications for safety and support; devices, cueing.</td>
</tr>
<tr>
<td>Smith, Lauret, Peery, &amp; Mueller (2001)</td>
<td>Qualitative; interviews N = 45 primary caregivers of people with AD.</td>
<td>To identify the needs and concerns of caregivers through their experiences</td>
<td>X</td>
<td>X</td>
<td>Caregivers identified needing training and collaboration. Used a biopsychosocial-spiritual approach to tap into caregiver strengths.</td>
<td></td>
</tr>
<tr>
<td>Tchalla et al. (2013)</td>
<td>RCT; experimental prospective study N = 96 people with AD who had fall history and caregiver to record data.</td>
<td>To evaluate the effectiveness and acceptance of a teleassistance service with a nightlight path and electronic bracelet</td>
<td>X</td>
<td>X</td>
<td>Caregiver implemented and monitored use of technology for fall prevention.</td>
<td></td>
</tr>
<tr>
<td>van Hoof, Blom, Post, &amp; Bastein (2013)</td>
<td>Qualitative; focus groups N = 18 experts in care of aging adults and home modifications</td>
<td>To design a home for people with dementia to support aging in place</td>
<td>X</td>
<td>X</td>
<td>Caregiver considered in design of home. Architectural and technology focus for physical modifications.</td>
<td></td>
</tr>
<tr>
<td>van Hoof, Kort, van Waarde, &amp; Blom (2010)</td>
<td>Qualitative focus groups (4) N not provided; professionals familiar with home modifications</td>
<td>To connect the needs of people with dementia and their caregivers to specific design solutions</td>
<td>X</td>
<td>X</td>
<td>Caregiver considered in design of home. Housing design, assistive devices, and task simplification.</td>
<td></td>
</tr>
</tbody>
</table>

Note. AD = Alzheimer’s disease; OT = occupational therapy; RCT = randomized controlled trial.
When working with the person with AD, the practitioner needs to recognize both the person and the caregiver as clients or care partners as they work together and with the practitioner to collaborate on home modifications that will promote participation and safety.

**Modifications for Safety and Function**

The third major finding was the importance of a range of environmental modifications, including modifications addressing physical, cognitive, and social needs, to improve safety or function.

**Physical.** The physical environmental problems were specifically related to safety. Lach and Chang (2007) identified that 94.9% of caregivers had concerns about the safety of the person with AD. Lach et al. (1995) reported that 71% of caregivers identified unsafe behaviors, and of those caregivers only 24% reported taking precautions. Safety concerns related to home modifications included wandering, falls, inattention, poor judgment, medication management, adaptations for temperature, cooking, use of appliances, and use of sharp objects (Lach et al., 1995).

To promote implementation of modifications, Horvath et al. (2013) developed a home safety tool kit of adaptive equipment and a resource booklet for caregivers to make the home modifications needed for improved home safety.

The physical home modifications most frequently identified were removal of throw rugs, removal of access to kitchen items such as stove knobs and sharps, and the addition of door locks and lighting and bathroom safety equipment such as grab bars, handheld spray hoses, nonslip mats, raised commode seats, and shower seats (Gitlin & Chee, 2006; Gitlin et al., 1999, 2005; Horvath et al., 2005; Lach & Chang, 2007; Lach et al., 1995; Mann et al., 1996; Olsen et al., 1996; Sheldon & Teaford, 2002; Smith et al., 2001; van Hoof et al., 2010). Lowering the hot water temperature was another frequently identified home modification (Lach & Chang, 2007; Lach et al., 1995; Mann et al., 1996; Olsen et al., 1996).

Olsen et al. (1996) divided the home modifications by stages of AD. In the early stages of AD, home modifications were adaptations, such as grab bars, that promoted safety and independence. In the middle stages of AD, home modifications were more restrictive, such as gates, locks, and closed-in yards. In the later stages of AD, home modifications such as ramps and lifts tended to support the caregiver (Olsen et al., 1996). Van Hoof et al. (2010) also identified that home modifications in the early stages of dementia may be different and, at that stage, support performance deficits. Mann et al. (1996) reported that decline in cognitive function resulted in a parallel decline in the use of assistive technology (adaptations) by the person with AD; however, use of assistive technology by the caregiver increased.

Assistive technology was used as a home modification to improve safety and function and to assist the caregiver. Two studies reported on advanced (high-tech) technology. Tchalla et al. (2013) used an automatic night light path that activates when the person’s foot touches the floor. This system reduced the incidence of indoor falls that required intervention. Van Hoof et al. (2013) identified 54 technological focus points in a design of a home for people with AD and their caregiver. Many of these points were built-in items such as lighting, hearing systems, and adjustable-height fixtures. Low-tech assistive technology was also included, such as a towel warmer and a memory board for daily scheduling. Two studies were forward thinking in that the design of the home was developed before the person with AD and the caregiver took up residence (van Hoof et al., 2010, 2013).

**Cognitive and Social.** Home modifications designed to compensate for the progressive cognitive decline associated with AD appeared to be implemented at the task level. These modifications were made in combination through both the physical environment and the social environment. An example was simplifying the task (Chee et al., 2007). Cognitive strategies that included setup of task supplies were shown to improve performance in simple cooking activities of toast and coffee making (Giovannetti et al., 2007). Training caregivers in simplification of tasks and setup were other cognitive home modifications that resulted in caregiver self-efficacy (Gitlin et al., 1999, 2005; Sheldon & Teaford, 2002). Creating routines and engaging the person with dementia in activities provided yet more cognitive modifications that appeared to reduce caregiver upset and improved safety (Gitlin et al., 2005; Sheldon & Teaford, 2002). Sheldon and Teaford (2002) provided an example in a case study in which the caregiver engaged her mother (with AD) in a gardening activity that was incorporated into their routine and accommodated her mother’s need for constant supervision.

The increased need for supervision of the person with AD was also identified as a modification by Horvath et al. (2005) and Lach and Chang (2007). On the basis of the *Occupational Therapy Practice Framework: Domain and Process* (3rd ed.; AOTA, 2014), it would be considered a modification to the social environment. Other social environmental modifications included use of additional social support networks (Smith et al., 2001), use of verbal cueing, and use of communication strategies (Gitlin et al., 1999). Lach and Chang reported that caregivers discussed the need to modify their social activities because of safety concerns that affected activities in the home as well as in the larger community.
Discussion

In this scoping review, we found two significant gaps in the literature. The first is the minimal use of standardized assessment tools to determine intervention needs or outcomes. Only two home modification assessments were identified in this scoping review. The first one, the Home Safety Checklist, has preliminary psychometric properties (Horvath et al., 2013). The other one, a Home Safety Inventory, was developed for the study in which it was used and is not a measurement tool (Lach et al., 1995). Neither assessment examines the full scope of the home environment of people with AD. Researchers described an assessment process that involved an interview with structured and probing questions, observation, and a home tour (Chee et al., 2007; Gitlin & Chee, 2006; Gitlin et al., 1999, 2001, 2005). The lack of standardized home modification assessment in these studies demonstrates the need for more research toward the development of such a tool.

The second gap identified in this scoping literature review is the lack of information on home modifications in the later stages of AD. A small group of researchers (Mann et al., 1996; Olsen et al., 1996) discussed the changes in modifications used as the stages of AD progress. This gap may be the result of the more intensive needs and cost of remaining at home during the later stages of the disease that often result in residential placement. Future research could identify the progressive needs of the caregiver and how to implement environmental modifications during the later stages of AD. A special report by the Alzheimer’s Association (2012) estimated that 800,000 (15% of 5.4 million) people in the United States who have AD live alone in the community. No articles that met inclusion criteria discussed living alone with AD. Future research is needed to explore environmental supports for people with AD who live alone in the community.

Strengths of the literature include intervention emphases on caregivers and client-centered care. The literature demonstrates that caregiver training improves not only the home modifications process but also caregiver self-efficacy. Client-centered care partnerships with the person with dementia and caregivers, both personal and professional, improved the implementation of home modifications and caregiver self-efficacy. In addition, client-centered environmental interventions improved task performance. Effective home modifications included a range of adaptations that addressed the physical, cognitive, and social needs of the person with AD. Limitations of the literature include lack of perspective of the person with dementia, lack of high-level evidence, and small sample sizes.

Research challenges exist in studying home modifications because of the vast amount of modifications and variations on modifications (van Hoof et al., 2010). Research with people with AD is further challenged by the high attrition rate of participants as the disease progresses (Mann et al., 1996). In addition to these challenges, the home modification needs of the person with AD and the caregiver change throughout the disease process (Olsen et al., 1996; van Hoof et al., 2010). The demands of caring for this population and their individualized needs challenges research in the home environment.

Limitations

This study was limited by the number of databases searched (four). Searching additional databases may have provided more articles for review. Including more reviewers in the process may have added alternative perspectives that could have resulted in a different number of articles selected. Inclusion criteria did not require a review of levels of evidence; thus, we found a range of designs and rigor.

Future Research

Areas of research that would strengthen the evidence for the home modification process for people with dementia include identification of what environmental modifications are used during the later stages of AD and exploration of environmental supports for people with AD who live alone in the community. Further research with higher level trials is needed to assess the efficacy and effectiveness of environmental modification for people with dementia. An additional area to explore is translation of the research on residential care settings to the home. Some environmental design elements incorporated into facilities may have benefit in the private home. Way-finding systems (Quayle, 1997), lighting (Brawley, 2009), and safe outdoor spaces (Ruga, 1996) are just a few examples of design elements for residential facilities that may have value in the private home.

Implications for Occupational Therapy Practice

The results of this study have the following implications for occupational therapy practice:

- Because occupational therapy is an evidence-based, science-driven profession, evaluators need instruments with solid psychometric properties and clinical utility to inform practice in the area of home modifications for people with AD.
- As occupational therapy moves toward more community-based practice settings, and as the incidence of AD
Because occupational therapy practitioners provide services to people with AD, including people with AD who live alone, evidence is needed on how to best promote safety and function while maintaining a client-centered approach.

Conclusion

The interventions delivered in these studies were not described in enough detail to replicate them, in part because of the client centeredness of the interventions. Although more research is needed, the evidence gathered in this study indicates that home modifications for people with AD and related dementias should include the caregiver and be client centered. The majority of home modifications were related to the physical built environment, although the evidence for modifications that incorporate virtual technology into physical home modifications is growing. Evidence for home modifications is emerging in the areas of cognitive and social modifications.

The profession would benefit from more research targeting home modifications for people with AD, specifically (1) what standardized evidence-based assessment procedures best determine what home modifications are indicated, (2) what home modifications are needed in the later stages of AD, and (3) what home modifications promote living alone with dementia and at what point home environmental modifications are no longer sufficient to promote safety at home alone. The research in this area is further challenged by the time, cost, and accessibility of studying participants in their private homes. As the population continues to age and the incidence of AD continues to rise, there is an increased urgency to learn about home modifications for people with AD who want to age in place.

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References


