



## KEY POINT SUMMARY

### OBJECTIVES

The objectives were to conduct a comprehensive search of therapeutic design literature on long-term care facilities for residents with dementia, published during the past seven years, and discuss its links to improving the physical environment.

## The Influence of the Physical Environment on Residents With Dementia in Long-Term Care Settings: A Review of the Empirical Literature

Chaudhury, H., Cooke, H. A., Cowie, H., Razaghi, L., 2017 | *The Gerontologist*. Volume 58, Issue 5, Pages e325-e337

### Key Concepts/Context

Several studies have shown that properly designed interior spaces have a positive effect on residents with dementia in long-term care facilities. Wayfinding and orientation can be enhanced through good planning of the facility as well as activities of daily living and autonomy. Good design can reduce anxiety, agitation, aggressive behavior, and falls. This study was based on literature reviewed on the physical environment and its impact on dementia sufferers. The initial focus was on the effect of the built environment on behavior such as wandering, agitation, and aggression. Later, physical functioning, emotional well-being and social interaction were added as they were acknowledged in the literature reviewed.

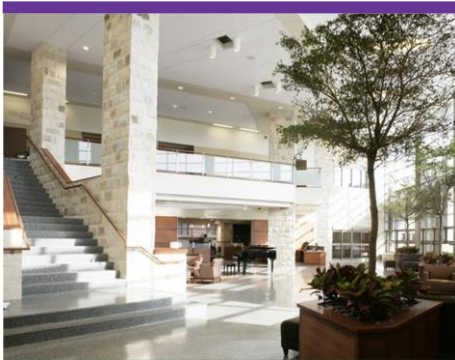
### Methods

Several search engines were used to look for relevant literature in five databases using a narrative approach to analyze 94 empirical studies and nine reviews. The following design elements were identified for the search:

1- Unit size; 2- Spatial layout; 3- Homelike character; 4- Sensory stimulation; 5- Environmental characteristics of social spaces.

### Findings

Results from the analysis of the literature were grouped into two broad sections – unit or facility level (e.g., unit size, architectural layout, homelike/institutional character, and interior design) and selected areas (dining, bathing, and outdoor area). In conclusion, these were linked to therapeutic goals proposed in the literature as follows:



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1- Unit size: The authors were actually referring to the residents' density in the facility rather than the size of the space. It was found in several studies that a fewer number of residents – five to 15 -- had a positive effect on aggression, intellectual deterioration, emotional disturbance, and cognitive functions. In addition, social interaction was improved in the smaller group of residents.

2- Spatial layout: It was found that long corridors leading to the residents' rooms were associated with higher dyspraxia, restlessness, lack of vitality, and identity loss. Disorientation within the living unit was less of a problem in an open square plan than in one with unseen areas. Also, the study found that color coding did not help much with floor recognition; instead, large numerals or identifiable objects provided better orientation.

3- Homelike/institutional character: The study suggested more homelike design with appropriate furnishings had more positive effects with reduced aggression, anxiety, and agitation. Furthermore, interior cheerful colors helped with social interaction and improved well-being, resulting in less pacing and more sitting.

4- Sensory stimulation: The research revealed that high sound levels at facilities were associated with aggression, increased agitation, and reduced social interaction. Exposure to low light levels had negative results, while adequate light levels including natural light improved circadian rhythm and sleep patterns. Moreover, better mood and alertness were noted among the literature reviewed.

5- Dining area: Social interaction during meal time was important and the authors noted that smaller dining rooms were preferred. They had a positive effect on eating habits and overall mood since they were similar in size to home dining rooms.

6- Bathing area: Very few articles were found on bathing areas, but it was noted that most discomfort emanated from inadequate water and air temperatures. Additional problematic issues were inappropriate staff behavior and noise levels from mechanical lifts.

7- Outdoor area: Spending more time outside had positive impacts both physically, mentally, and socially.

### Limitations

The study was based on a literature review, with no data collected by the authors. Therapeutic design was not actually tested on residents with dementia. It was also mentioned that the information found was based on subjective evaluations. At the end, the authors noted gaps and limitations in their findings that needed further research.



## Design Implications

The authors spoke of specific areas in long-term care facilities that could be improved based on their findings. Examples included more homelike design with appropriate furnishing, shorter corridors, more cheerful interior colors, controlled acoustics, and natural light levels. The information provided could be used as a guideline for future facility design but with more substantiated numbers. Nevertheless, there was some inconclusive data as with patient density in the facility, since one study pointed to positive impact with lower numbers while another found no difference.

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