



KEY POINT SUMMARY

OBJECTIVES

The purpose of this study is to quantify the relationship of the AL physical environment with resident outcomes including neuropsychiatric symptoms (NPS), the quality of life (QOL), and the fall risk, and to compare the effects on demented and non-demented residents.

DESIGN IMPLICATIONS

The physical environments that relate to greater resident dignity appear to be associated with fewer neuropsychiatric symptoms (NPS), suggesting that design strategies to support resident dignity should be used. TESS-NH/RC items such as privacy, call buttons, and telephones have some of the highest correlations with NPS and ADQRL for residents with or without dementia and design can support these items.

Influences of the Physical Environment on Neuropsychiatric Symptoms and Other Outcomes in Assisted Living Residents

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2010 / *International Journal of Geriatric Psychiatry*
Volume 25, Issue 10, Pages 1044-1054

Key Concepts/Context

Assisted living (AL) facilities are thought to serve residents with minor functional limitations. However, recent research suggests that AL facilities also primarily house a cognitively disabled elderly population with considerable general medical morbidity, in which about two-thirds of the residents suffer from dementia. While the physical environment has been shown to correlate with cognitive and physical well-being of residents in nursing homes (NHs), few studies have systematically investigated the effects of the physical environment of AL facilities on the outcomes.

Methods

This cross-sectional, prospective cohort study analyzed a stratified, random sample of 326 current AL residents of AL facilities in central Maryland. This random sample was stratified by facility size to ensure sufficient numbers of residents from large and small facilities. Thirty AL facilities, 13 large (16 \geq beds) and 17 small (16 < beds) were randomly selected from the facility list of the state of Maryland. Then, in each large facility, 15 residents were randomly selected regardless of dementia-specific care unit designation. In small facilities, all residents were asked to participate to balance the number of residents in each type of facility. Facilities were evaluated with the Therapeutic Environment Screening Survey for Nursing Homes and Residential Care (TESS-NH/RC), which items include facility maintenance, cleanliness, handrails, call buttons, light therapy, light glare, light evenness, hallway length (shorter), homelikeness, room autonomy, telephones, tactile stimulation,



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visual stimulation, privacy, and outdoor areas. Summing scores from the 15 items yield the AL Environmental Quality Score (AL-EQS), a summary score with range 0-30. Higher scores indicate better environmental quality. Individuals were assessed for diagnosis of dementia and rated for standardized clinical, cognitive, and QOL measures. The association of higher AL-EQS scores with lower Neuropsychiatric Inventory (NPI), better quality of life (higher Alzheimer Disease Related Quality of Life; ADRQL), and lower risk of having fallen in the past month (lower fall risk) was tested. The following associations between specific TESS-NH/RC items and resident ratings were also tested: Higher scores on maintenance, cleanliness, handrails, call buttons would be associated with lower NPI scores and lower risk of falls and higher scores on room autonomy, hallway length, telephones, tactile stimulation, visual stimulation, privacy, and outdoor areas would be associated with higher ADRQL scores. A series of regression models was constructed to test hypotheses of the interest. Dependent variables were NPI score, ADRQL score (linear model), or fall risk (a logistic model). Covariate included AL-EQS, individual TESS-NH/RC item scores, and the three sets of TESS-NH/RC item scores specified in the hypotheses.

Findings

The AL Environmental Quality Score (AL-EQS) was negatively associated with Neuropsychiatric Inventory (NPI) total score ($p < 0.001$), positively associated with Alzheimer Disease Related Quality of Life (ADRQL) score ($p = 0.010$), and negatively correlated with fall risk ($p = 0.042$). Factor analysis revealed that a two-factor solution, Dignity and Sensory, was strongly associated with NPI and associated with ADRQL.

Limitations

No limitations have been mentioned in the study.