



KEY POINT SUMMARY

OBJECTIVES

This study set out to measure the extent and nature of crowding in nursing homes and assisted living facilities among residents with dementia, and to assess the tools for measuring crowding to better understand what aspects of these environments contribute to or alleviate feelings of being crowded.

Estimates of Crowding in Long-Term Care: Comparing Two Approaches

Algase, D. L., Antonakos, C., Beattie, E., Beel-Bates, C., Song, J.
2012 | Health Environments Research and Design Journal
Volume 4, Issue 2, Pages 61-74

Key Concepts/Context

People's psychological responses to the feeling or sense of being crowded (known as crowding) has been widely examined in the literature on health, disease, and housing regulation and can be associated with negative outcomes. For vulnerable groups where crowding has been studied (such as in low-income housing, prisons, daycare centers, schools, and refugee camps), these negative outcomes include the spread of infectious disease, lack of sleep, stress, reduced altruism, and negative personal interactions. Some studies indicate that it is not crowding alone that is negative, but that as density of people increases, reactions and emotions may be intensified. These effects have not been well studied in long-term care facilities or nursing homes, where the elderly, especially those with dementia, may be more susceptible to the negative effects of crowding. The environment can play a greater role in affecting behavior where cognition is impaired. Consequently, behaviors such as aggression or wandering, which can occur in response to environmental conditions, may be heightened when conditions are crowded. In long-term care settings, where density exceeds that of a normal residence, increased social interaction may be sought or imposed and perhaps unwelcome; unfamiliar people are close by, other cognitively impaired residents may ignore social norms, and staff may invade a resident's personal space to perform care procedures. To contribute to a better understanding of the state of crowding in long-term care facilities and nursing homes, this study developed a Long Term Care Crowding Index (LTC-CI). The index accounted for density and proximity in relation to a given individual's physical position in space and time in order to better understand crowding patterns and influences. Additionally, this study explores the relationship between crowding and other physical characteristics of the environment in these settings, namely sound level and the engaging quality of the environment.



Methods

This cross-sectional correlational study was carried out in 22 nursing homes and six assisted living facilities. A total of 185 participants were observed on multiple occasions. The participant's location, extent of crowding, and sound levels were measured. Ambiance was assessed using an Ambiance Scale. The measurements used in this analysis were taken at the beginning, after 10 minutes, and at the end of each observation period. Crowding was assessed in two ways. The Long Term Care Crowding Index (LTC-CI), developed for this study, was used to capture the density and proximity of people present in the area where a given study participant was at a specific point in time and calculated as a weighted sum. A simple count of people present with the participant in the same room (e.g., dining room) or area (e.g., hallway) was also made. Statistical analyses were carried out to analyze variance between crowding measurement types and correlation or association between crowding and sound levels and ambiance and crowding.

Findings

By either the LTC-CI or people-count measure, crowding was greatest in the dining and activity rooms, lowest in residents' rooms and shower/baths, and similar across all other locations.

Both location and the interaction of location and time had significant effects on measures of crowding. Some locations were significantly more crowded than others, and crowding within a location was likely to vary by time of day. Crowding was found to be highest at mealtimes and higher in the morning than in the afternoon or evening, thus the crowding effect could be explained both by location and time of day.

The LTC-CI and people counts were evaluated for association to sound levels and ambiance ratings; both expected to vary with crowding. Small, highly significant and nearly identical correlations in the expected direction were found for each crowding measure. However, LTC-CI generated a wider range of values and greater variation in all instances where it was assessed. It also afforded a more nuanced estimate of crowding relative to a given individual.

Crowding in the nursing homes was more pronounced than in the long-term care environments. But in both, living rooms and dining areas were the most crowded as measured by the study.

The study confirms a relationship between crowding and other physical characteristics of the environment in nursing homes and assisted living facilities. Increased crowding is positively correlated with sound level and the engaging quality of an environment, whereas the soothing quality of an environment is compromised by increased crowding.



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Limitations

The authors note that women may be more sensitive to the effects of crowding, but results or analysis did not consider gender differences in crowding.

Design Implications

People in the dining room are more evenly spaced due to regular furniture placement, whereas in an activity room people are more likely to be bunched together within a large space by virtue of their involvement in a common activity. From the vantage point of an individual, this may feel more crowded, even if not unpleasantly so.

In private and personal spaces such as the shower/bath, people had the greatest feeling of crowdedness, thus, providing adequate room for residents and caregivers might be warranted.

Adding square footage will not necessarily reduce crowding because the sense of crowding can depend on activity or interactions among people. Crowding in a dining room might be alleviated by lengthening the timeframe over which meals are offered or assigning residents to a first or second seating for each meal, spreading people out in the dining room over a greater period of time.