



KEY POINT SUMMARY

OBJECTIVES

The objective of this study was to study the impact of IE factors on dementia residents in RCH in Hong Kong. The specific question the study addressed was how and to what extent IE factors affect the well-being of dementia residents and caregivers in RCH in Hong Kong.

The Effects of the Indoor Environment of Residential Care Homes on Dementia Sufferers in Hong Kong: A Critical Incident Technique Approach

Wong, J.K-W., Skitmore, M., Buys, L., & Wang, K. 2014 | *Building and Environment* Volume 73, Issue N/A, Pages 32-39

Key Concepts/Context

The authors introduce their paper pointing to the increase, globally, in the number of individuals affected with dementia, and a growing need to improve the quality of life of such individuals. The behavioral and psychological challenges associated with this syndrome often necessitates the referral of the patient to be placed in residential care homes. Literature indicates that the physical environments of facilities designed for dementia patients impact their well-being and quality of life. However, there are few studies addressing all such indoor environmental (IE) factors potentially affecting the behavior of the residents of these facilities. This paper reports findings from research conducted in six residential care homes (RCH) in Hong Kong studying the impact of IE factors on the behavior of dementia residents. The study found lighting, acoustic, and thermal environments to be the main IE factors that impact the behavior of dementia patients.

Methods

This was a qualitative study. Data collection was undertaken using the critical incident technique or CIT within the framework of focus groups. CIT involves using a set of procedures to collect observation data. The data may be of research participants observing others or of themselves. For this study six focus groups (each group having six to eight members) with a total of 36 participants were conducted to determine if internal environment factors contributed to behavioral and psychological symptoms of dementia (BPSD -- Behavioral and Psychological Symptoms of Dementia) in residents. The participants included RCH staff, registered nurses, professional caregivers, and architects recruited from four



facilities in Hong Kong. The audiotaped focus group sessions were transcribed verbatim. The transcripts were read several times before being thematically analyzed.

Findings

The focus group participants shortlisted the following IE factors as contributory to BPSD (some of the symptoms were: emotional outbursts, shock, annoyance, headaches, insomnia, hallucinations, etc.). The two most discussed IE factors in all focus groups were acoustic comfort and illumination.

Acoustic environment: Residents were sensitive to:

- Noise from electronic devices – air conditioners (including the sound of dripping water), electric fans, TV, and announcement speakers
- Renovation and refurbishment sounds from other parts of one RCH that was part of a residential block
- Sounds made by roommates (most rooms were shared by up to three residents)

Thermal environment: Although the heating and air conditioning are set at generally acceptable temperatures, delays in switching them on triggered symptoms.

Indoor air quality:

- The three RCHs in urban locations (except for the one with rooms whose windows faced a vehicular flyover) kept their windows open at day for ventilation.
- Early-stage dementia patients, as opposed to middle-late-stage dementia patients, got annoyed if their rooms were not ventilated adequately, were muggy or stuffy.
- One of the RCHs was located near a rubbish collection point – foul odors and insects bothered the residents.

Lighting: Lighting was found to be a key IE factor affecting residents in the early and middle stages of dementia.



- Indoor lighting and illumination:
- Patients preferred dim light over bright light. Very dim lighting was not preferred.
- Confusion, restlessness, and insecurity increased among the patients in the late afternoon and early evening when the lights were low in the RCHs.
- Glare and reflection from glasses, windows, and polished floors, flames from incense sticks, night lights, and light from mosquito repellants led to hallucinations and emotional disorders.

Other issues:

- Fixtures and furniture:
- Glass mirrors in bathrooms caused confusion.
- Furniture and appliances needed to be located to avoid causing falls.
- Medicine cabinets needed to be locked.
- Residents often forgot where their bed or bathroom was located.

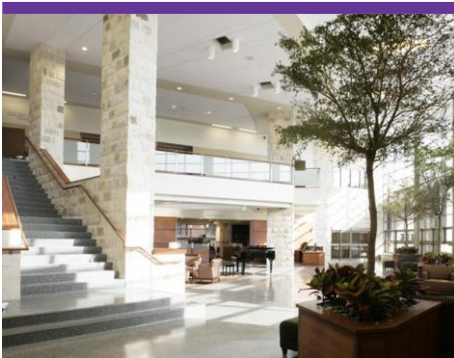
Costs:

The climatic condition of Hong Kong is such that it is wet, hot, and humid during summers and this results in different skin ailments among the residents. Dehumidifiers are used to alleviate this. Electricity usage increases because of this and the residents have to eventually bear the burden of these costs.

One of the RCHs was located near a vehicular flyover – noise and pollutants necessitated keeping the windows facing it to be closed at all times. This also meant that the air conditioners or the electric fans had to be kept on all the time, thus contributing to higher electricity costs that were then passed on to the residents.

Limitations

The authors allude to the preliminary nature of the study and recommend a larger-scale research to confirm the findings. They also point out the need for empirical studies to examine the impact of IE factors on residents with varying degrees of dementia.



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Design Implications

According to the authors, the following are the design recommendations for dementia care facilities:

- **Acoustic environment:** Split-type air conditioning units instead of window-type ones; sound-absorbing screens, partitions, wall panels, and ceiling finishes. Given that residents had different auditory tolerances, the following recommendations were made: separate areas for different auditory levels and providing residents with individual headsets.
- **Lighting:** Curtains were recommended for minimizing the impact of glare of sunlight in the afternoon. Provision of adequate indoor lighting that minimizes brightness, dimness, and glare. Having separate areas for residents needing brighter lights for vision assistance was also recommended. It was suggested that shiny, reflective or glare-producing floor tiles not be used for flooring. The ideal floor tile for these facilities, according to the authors, would be resilient flooring with non-reflective and non-slip surface.
- **Thermal environment:** In order to reduce heat gain in the rooms, authors suggest the use of tightly-woven, light colored opaque fabrics for curtains on the windows.
- **Other:** Provide photographs or signage for guidance in corridors; paint beds in different colors to help residents find their beds.

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