



KEY POINT SUMMARY

OBJECTIVES

In order to determine the state of knowledge regarding the relationship between BH and the physical environment, a systematic literature review was conducted to review research papers, guidelines, and funding related to this topic. The intention was also to link research with design and guidelines.

Design Research and Behavioral Health Facilities

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Key Concepts/Context

Few studies were done on the design of behavioral health (BH) environments.

Methods

1. 115 peer-reviewed journal papers published after 1960 that were relevant to the topic of BH facilities were reviewed. The review results were operationalized at three levels: emerging evidence, studies requiring additional corroboration, and design consideration.
2. Evaluated existing guidelines and summarized the contents by: intended audience, clinical areas addressed, intent, process, environmental aspect addressed, source of information, peer-reviewed references, and strengths and weaknesses
3. Explored and summarized sources of potential research funding related to behavioral health environments

Findings

Physical environment and social behavior, post-occupancy evaluation, harmful behavior, and children's environments are four of the primary topics targeted in the BH research studies.

1. Physical environment and social behavior: The appropriate number of patients per bedroom has been a significant topic of discussion regarding social behavior. However, no clear conclusion can be drawn from existing studies. While some studies showed that the higher the number of occupants, the higher the percentage of isolated passive behaviors, other studies contend that shared rooms support patient safety and prevent withdrawal from therapeutic group interaction.
2. Post-occupancy evaluation: Some POE studies have focused on change of treatment plans or de-institutionalization of the environment. Others studied the impact of relocation without a fundamental change in the model



- of care. Multiple occupant evaluations have addressed satisfaction. There was a positive correlation between psychiatric nurse job satisfaction and higher scores on Moos' Ward Atmosphere Scale. The result of the Setting-Response Inventory (SRI) showed that different ward settings can elicit different reactions from staff members.
3. Harmful behavior: The physical environment can reinforce and encourage appropriate behavior. For instance, the availability of private rooms, less crowding, movable furniture, better acoustics, nature window views, nature art, higher daylight exposure, homelike design, and proximity and visibility of common spaces to the staff station.
 4. Children and adolescents: Studies demonstrated that for children and adolescents smaller inpatient clusters and smaller number of patient occupancy per room resulted in reductions in vandalism, theft, and incidents, and an increased staff's feeling of belonging, competence, and satisfaction.

The results of the design guidelines review showed that existing BH design guidelines lack direct references to evidence-based research and are not validated by third-party entities.

Few funding opportunities are available to address the BH environment. Government funding sources include the National Institute of Mental Health (NIMH), National Institute of Health, and Agency for Research. Non-profit funding sources include the Robert Wood Johnson Foundation, Johnson & Johnson Grant/Society for the Arts, the Graham Foundation, the Patient-Centered Outcomes Research Institute, and the Kresge Foundation.

Design Implications

- Design of the physical environment for children's hospitals should consider the factors that help relieve children's and parents' stress to reduce the psychological sequelae after discharge.
- The comfort of overnight facilities for parents and the temperature of the room should be improved for higher ratings of accommodation.
- Provide more arts in the public area and family center.
- Provide more spaces and design features in both public area and patient rooms that can offer family activities.

Limitations

Some limitations identified by the authors include:

- Lack of generalizability of the studies to other BH settings. Many studies didn't control other confounding variables such as changes to care protocols



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and transitions in staff and patient populations. It is hard to discern which component of the physical environment is impacting the behavior.

- The wide variety of potential settings for behavioral health settings made it hard to compare and apply results from previous research to other settings.
- Available research does not provide enough evidence to draw conclusions regarding specific design guidelines for each patient group.