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Mental and behavioral health environments: critical considerations for facility design

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ABSTRACT

Objectives: The purpose of the study was to identify features in the physical environment that are believed to positively impact staff and patients in psychiatric environments and use these features as the foundation for future research regarding the design of mental and behavioral health facilities.
Methods: Pursuant to a broad literature review that produced an interview script, researchers conducted 19 interviews of psychiatric staff, facility administrators and architects. Interview data were analyzed using the highly structured qualitative data analysis process authored by Lincoln and Guba (1985). Seventeen topics were addressed ranging from the importance of a deinstitutionalized environment to social interaction and autonomy.
Results: The interviewees reinforced the controversy that exists around the implications of a deinstitutionalized environment, when the resulting setting diminishes patient and staff safety. Respondents tended to support open nurse stations vs. enclosed stations. Support for access to nature and the provision of an aesthetic environment was strong. Most interviewees asserted that private rooms were highly desirable because lower room density reduces the institutional character of a unit. However, a few interviewees adamantly opposed private rooms because they considered the increased supervision of one patient by another to be a deterrent to self-harm. The need to address smoking rooms in future research received the least support of all topics.
Conclusion: Responses of interviews illustrate current opinion regarding best practice in the design of psychiatric facilities. The findings emphasize the need for more substantive research on appropriate physical environments in mental and behavioral health settings.

1. Introduction

There has been an increase in the number of mental and behavioral health (MBH) facilities built and renovated in the last few years; however, research has not kept pace with the design process. Currently, little is known about facility design in MBH settings, and appropriate policies and standards of best practice have yet to be established. The emergent use of evidence-based design (EBD) strategies in healthcare settings has opened the door for dialogue and research.

EBD, defined as the use of research to inform the design process, is a relatively recent development and was inspired by evidence-based medicine [25]. The intention of EBD is to advise design teams, including staff and patients, regarding the creation of the most appropriate environments for building users. The origins of EBD are in the field of environmental psychology.

This paper describes research on the physical environment of MBH facilities. The review does not include a summary of therapeutic environments for individuals with developmental disabilities, autism spectrum disorder or dementia. The emphasis in the literature is placed on inpatient facilities of all levels of acuity and outpatient environments. The purpose of the study is twofold: (1) to identify design features that are perceived to be critical in terms of their impact on staff and patients in psychiatric environments and (2) to develop the content for a tool that will be used for the evaluation of MBH facilities. The development of such a tool takes place in the context of new policies proffered by the Joint Commission and the Department of Veterans Affairs.

The approach taken in pursuit of these goals was to establish a grounded theory informed by interviews with clinicians, researchers and designers that would help to determine the primary considerations when designing or conducting research on MBH facilities. Rather than conducting open-ended interviews, the research team sought a structure for raising questions by undertaking an extensive literature review. This review, represented Phase 1 of this project and entailed a 300+ article literature review on MBH design research published in 2013

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Table 1
Summary of literature review

Design topic	Comment	Related references
Deinstitutionalized and homelike environment	Multiple researchers address the importance of and attempt to define deinstitutionalized and homelike environments.	[30,33–35]
Orderly and organized environment	Researchers often recommend order and organization in an inpatient unit environment. Order and organization are known to support satisfaction.	[10,20]
Well-maintained environment	Quality maintenance of finishes, furniture and landscaping is desirable. Proper maintenance may decrease patient violence and staff absence.	[6]
Visual or physical access to nature	Access to outdoor recreation is needed for appropriate psychological, physical and cognitive development.	[2]
Damage-resistant and attractive furnishings	Furnishings that resist damage and are easily repaired and replaced are considered to be a priority.	[5,8]
Maximum daylight	Presence of daylight is an important factor in behavioral health facilities A well-illuminated interior space may contribute to reduced aggression.	[8,14,31,33]
Staff safety/security	Researchers found that operational modifications reduced the severity of aggressive events and reduced staff absences; the physical layout was critical to support these operational objectives.	[19]
Staff support/respite	Health care facility staff lounges, particularly those with access to nature, in health care settings, are highly desirable by staff.	[21,22]
Private or shared bedrooms	Private rooms are recommended by multiple authors but have been challenged as difficult to supervise.	[11,17,19,24]
Social interaction/community	Multiple researchers recommend providing common areas to promote both social interaction and a sense of community.	[8,13,26,31]
Mix of seating	Seating can positively or negatively impact patient behavior.	[18,23,27,29]
Autonomy and spontaneity	Autonomy and spontaneity are generally recommended and among the 10 factors listed on the Ward Atmosphere Scale.	[28]
Patient staff interaction/observation	Newly remodeled wards have been associated with positive interactions and decreased burnout.	[32]
Nurse stations	Open stations encourage staff to interact more frequently with patients and facilitate observation of patient spaces. They may also improve staff mood, reduce unscheduled absences, improve patient self-image and reduce violence.	[6,34]
Indoor/outdoor therapy	Encourage therapy rooms with window views, accessible gardens and nature art. Most facilities incorporate several indoor therapy spaces. Outdoor therapy space is less common but strongly supported.	[7,33]
Smoking rooms	Smoking contributes to pollution; however, because curtailing the habit can increase patient anxiety, some researchers have expressed support for smoking rooms.	[24]
Suicide-resistant furniture, finishes and equipment	Multiple authors have written about safety considerations including tamperproof electric and mechanical devices, and avoidance of traditional doorknobs and handles.	[5]

(authors, 2013) supplemented by a follow-up literature of an additional 100+ publications. The material was organized according to 17 topics covering both staff and patient needs. A summary of these topics is summarized in Table 1.

2. Methods

In addition to the extensive literature review, interview and focus group methods were employed to explore this topic. Interviewees were identified via snowball sampling and included psychiatric staff, academics/researchers, architects/designers and facility administrators, individuals typical of a design team planning a new facility. The snowball process was initiated with four known experts in the field. These individuals had 20 or more years of experience as clinicians, design researchers or design practitioners in the field of MBH and had published or produced buildings associated with this specialty. These individuals identified a secondary group of experts and so on. After four iterations, representatives from each discipline had been identified and the credentials of the potential subjects were reviewed. The PI contacted the potential interviewees by email and phone. The final group included 22 potential subjects from the United States and Australia, 19 of whom responded and agreed to participate, none of whom dropped out. Nine of the interviewees were male and eleven were female. The final pool included 7 clinicians, 4 academics/researchers, 5 architects/designers, 1 researcher/practitioner and 2 administrators.

Interviewees were asked to explore the importance of a set of 17 issues in facility design, which were based on a 100+ citation update of a previous review by authors (2013). The PI contacted the participants by phone or email to schedule the interview and provided them with a copy of the questions before the interview. Interviews lasted approximately 40 min. The first two interviews were used to pilot the interview transcript. Minor modifications were made and the remaining 17 interviews were incorporated in the study.

Interview transcriptions were analyzed using segments of the grounded theory method described by Lincoln and Guba [16], which is intended to increase trustworthiness by supporting credibility, transferability, dependability and confirmability of the data. The process entailed a line-by-line perusal of the transcripts and generation of a "notecard" for every idea that was mentioned by the interviewees. Each card was encrypted with a code identifying the interviewee. After generating 761 notecards, a member of the research team sorted the cards into common topics. To enhance the credibility of the method, a second reviewer analyzed the cards independently to confirm consistency of the categorization.

The interviews, in combination with the literature review, enabled the generation of a pilot survey document. A group of four experts was recruited to participate in the pilot survey and a subsequent focus group the purpose of which was to revise the survey. An overview of the process leading to the development of survey topics is provided in Fig. 1.

3. Results

3.1. Deinstitutionalized and homelike environment

The first question in the interview addressed the importance of a deinstitutionalized and homelike environment in a psychiatric setting. Every interviewee considered this to be a critical aspect of a psychiatric environment; however, the definition of homelike was unclear. A Veterans Administration staff member stated,

> *You're dealing with a population that is probably 25% literally homeless, and at least another 25% are sort of homeless, like they're living in somebody's garage or their relative's basement or some place that would hardly seem like home* [*to many of us*].

One interviewee commented that not everyone embraces the traditional vision of home and that the notion of home may be disturbing to some. A common sentiment was that the essence of 'home' has little to do with a particular genre of design and more to do with feeling welcome and secure.