



KEY POINT SUMMARY

OBJECTIVES

This study aimed to explore the perceptions of healthcare personnel regarding the physical environment, and how it supported or hindered care during the COVID-19 pandemic.

A qualitative study of hospital interior environments during the COVID-19 pandemic

Bae, S. 2023 | International Journal of Environmental Research and Public Health, Volume 20, Issue 4, Page(s) 3271

Key Concepts/Context

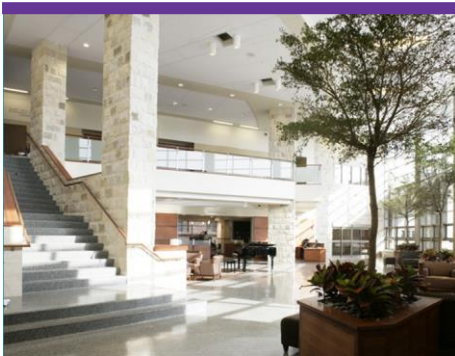
There is a substantial body of research on the relationship between the physical environment and human health, and more recently, a growing understanding around how the healthcare environment impacts users, such as healthcare personnel. The results of this qualitative study reveal the challenges healthcare staff faced in the midst of the COVID-19 pandemic related to the physical environment and provision of care while trying to maintain safety standards.

Methods

The researcher used semi-structured interviews with healthcare personnel at a Midwestern University Hospital to gather data around lived experiences in this qualitative exploratory study. All interviews were conducted virtually between February and March 2021, about one year into the COVID-19 pandemic. Participants were staff recruited from three departments, selected based on being primarily responsible for treating patients with COVID-19: an intensive care unit (ICU), a progressive care unit (PCU), and an emergency department (ED). Out of 46 staff who showed an interest in participating, 15 healthcare personnel were interviewed. All participants were female and average age was 27.75 (ranging from 21 to 50 years old), and the average number of years in the healthcare profession was 6.9 years (ranging from 1 year to 30 years).

The interview included five questions, focusing on changes in the physical environment due to the COVID-19 pandemic. The researcher asked how the physical environment affected medical practice, and specifically how healthcare personnel perceived safety to be affected. They were also asked how the environment could be better designed to help them feel safer in future outbreaks.

The interviews were recorded and transcribed for data analysis. Two researchers reviewed the transcriptions to evaluate and code primary and secondary themes. After coding the data independently, the researchers compared their codes and worked to determine the primary themes. Inter-rater reliability was good (0.89).



The Center for Health Design: Moving Healthcare Forward

The Center for Health Design advances best practices and empowers healthcare leaders with quality research that demonstrates the value of design to improve health outcomes, patient experience of care, and provider/staff satisfaction and performance.

Learn more at
www.healthdesign.org

Findings

Responses included both positive and negative perceptions around how the physical environment helped or hindered the work of healthcare personnel, as well as safety provisions.

PCU staff discussed how the unit had to be converted to ICU-level care to support the overflow from the ICU, and single rooms converted to double rooms to accommodate more patients. Staff had to remove furniture to accommodate both patients. The lack of space in the patient room was also an issue when trying to accommodate all of the equipment necessary to treat patients with COVID-19. Staff discussed needing to bring in additional supplies to the rooms to treat COVID-19 patients effectively. Staff also shared details of the emotional experience in these double-occupancy rooms, specifically, the stress and fear a patient would feel when their roommate's health began to decline.

Staff described the challenges related to the personal protective equipment (PPE) shortage, and how they put the intravenous (IV) poles outside patient rooms so they could access the IV without having to use PPE and enter the patient room more than was necessary. Staff were positive about sliding glass doors that allowed them to visually monitor patients without entering the room.

The theme of physical separation of space came up frequently in the interviews, with staff talking about the importance of separating COVID-19 patients from non-COVID-19 patients and how they took advantage of the unit layouts and brought in new signage to designate COVID-19 pods with infected patients. Unfortunately, the separate COVID-19 pods were located far from supplies, adding to staff travel distance. Staff appreciated some of the physical barriers between patients and staff to reduce infection; however, staff did not have favorable comments regarding the plexiglass installed between staff at the workstations, which caused spatial constraints and seemed futile.

Limitations

The authors acknowledge limitations in the study, including the possible “self-selection” bias of participants who volunteered to participate. The authors also discuss the fact that the staff perceptions were based on experiences from the early part (first year) of the pandemic, and may have changed after more time had passed. The study may also be limited by the small sample size. Additionally, it is unclear what roles these healthcare personnel were in, and if there was adequate representation of different roles in the departments (e.g., nurses, physicians, maintenance staff, administrative staff, etc.).

Design Implications

Findings from the study include certain design strategies that healthcare personnel find helpful during a pandemic. These include: negative-pressure rooms, adequate ventilation, larger rooms (that can be converted to double-occupancy and/or accommodate additional equipment), easily wipable (cleanable) surfaces, options



for signage designating different areas, glass doors to enhance visibility, and durable and stable divider options between patients.

The Knowledge Repository is a collaborative effort with our partners

Academy of
Architecture for Health
an AIA Knowledge Community



Additional key point summaries provided by:



RESEARCH DESIGN
connections