



KEY POINT SUMMARY

OBJECTIVES

The objective of the study was to empirically investigate patient and nursing staff outcomes in same-handed vs. mirrored unit configurations.

Same-Handed and Mirrored Unit Configurations: Is There a Difference in Patient and Nurse Outcomes?

Watkins, N., Kennedy, M., Ducharme, M., Padula, C.
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Key Concepts/Context

Awareness of the impact of healthcare facility design on a number of diverse patient and staff outcomes is growing. From patient recovery time, satisfaction, and comfort to nursing staff efficiency, error rates, and distraction, varied outcomes are being linked to environmental conditions and design attributes in hospital settings. Inpatient unit configurations, specifically same-handed configurations vs. mirrored units, are a particular area of interest for researchers, with implications for practitioners and patient care. Same-handed configurations, which standardize all rooms within a unit such that they are all identical, may allow for reduced noise as headwalls are no longer shared. Additionally, a degree of repetition and redundancy due to consistent layout is thought to lead to fewer staff errors, as caretakers learn to react the same way by instinct in each patient room. As the construction boom in healthcare continues, there is a need to provide empirical evidence to inform early decision making about factors such as unit configuration, which is costly and difficult to modify once design plans are in place.

Methods

The authors surveyed 89 nurses and 121 patients from eight medical-surgical units within two hospitals over a 2-week period. Surveys were to be completed at the end of the day's shift. One questionnaire was developed for nurses, known as the Patient and Staff Experience Questionnaire: Registered Nurse Portion. It included 94 items asking about nurses' characteristics and care-delivery activities. The Patient Experience Survey developed for patients had 93 items and addressed patient characteristics, experiences, and outcomes. The eight medical-surgical units differed by unit type (mirrored vs. same-handed), room type (semiprivate vs. private), number of beds, number of rooms, pod configurations (yes vs. no), and



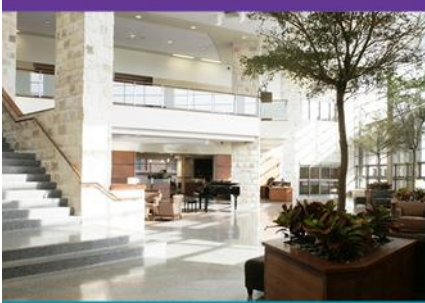
headwall configurations (unbalanced vs. balanced, where balanced headwalls have identical locations for outlets, gases, and call buttons on each side of a patient's bed). Patients were assigned to their rooms based on bed availability, leading to a natural random assignment of participants. Noise at nursing stations was controlled for. Data was analyzed using one-way ANCOVA and one-way ANOVA (analysis of variance), as well as bivariate correlations, to uncover effects of unit configuration type on perceived noise levels, sleep quality, frequency of approaches to the patient's right side, falls or near falls, and organization of workspace.

Findings

Unit configuration was found to have a significant effect on noise levels, with the lowest noise levels being reported in same-handed unit configurations with private rooms. Mirrored units with private rooms were found to be significantly quieter than mirrored units with semiprivate rooms. Patient responses indicated a significant effect of unit configuration type on sleep quality, with better sleep quality reported in same-handed configurations. Configuration type also had a significant effect on reported frequency of approaches to the patient's right side, with same-handed unit configurations having the greatest frequency of these approaches. Correlations in the present study also indicated that patients who perceived more right-side approaches reported fewer instances of near falls. The authors explained that since 88% of North Americans are right-handed, environments catering to right-handed users may be safer and better aligned with people's inclined movements. Finally, significant effects were found between unit configuration type and nurses' evaluations of better-organized workspaces in the patient room, with same-handed configurations being perceived as most organized. The authors failed to uncover any significant effects of IV pole location impacting the nurses' approach to the patients' right sides. They also failed to find a significant difference for near falls when comparing bathrooms location on patients' left vs. right sides.

Limitations

The authors indicated that, while they controlled for confounding variables, complete control was not possible in this experiment. Additionally, of 89 nurses surveyed, only 6 were left-handed, so they could not study any impact of nurse handedness with the present study. Another limitation was that they did not have access to same-handed unit configurations that placed a patient's left side oriented toward the room door, as a comparison. Furthermore, the authors indicated that furnishings within the patient rooms may have influenced nurses' perceptions of the organization of the workspace. Finally, they suggested that future research would benefit from duplicates of different units for comparison and validation purposes, larger sample sizes, and opportunities to unobtrusively observe actual behavior, as the current study relied on self-reported perceptions and evaluations.



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Design Implications

The findings of this study indicate that same-handed unit configurations may reduce perceived noise in patient rooms, improve patients' sleep quality, standardize nursing practices through standardization of layout, and create a more organized workspace for nurses in patient rooms. As a result, same-handed unit configurations may be preferred over mirrored configurations when designing new healthcare facilities or modifying existing buildings. When there is an inability to entirely reconfigure existing units, finding ways to standardize rooms as much as possible may provide some of the same benefits to both patient and staff outcomes.