



KEY POINT SUMMARY

OBJECTIVES

The objective of this paper was to study ICU patient environment with regard to sleep, rest, and circadian rhythms.

Lighting, Sleep and Circadian Rhythm: An Intervention Study in the Intensive Care Unit

Engwall, M., Fridh, I., Johansson, L., Bergbom, I., & Lindahl, B. 2015 | *Intensive and Critical Care Nursing*, Pages 1-11

Key Concepts/Context

Regular daylight and night darkness provided over 24 hours is important for human health in supporting the body's circadian rhythm. Intensive care unit (ICU) patients are not exposed to this naturally occurring cycle and as result can suffer from sleep deprivation and are at risk for ICU delirium. As these patients are at their most vulnerable in a hospital, it is important that the environment support a restorative process.

Methods

This study was part 2 of study that had an explorative and descriptive design based on data derived from 19 interviews, subjected to qualitative and quantitative content analysis. The study was conducted in an eight-bed general ICU in a regional hospital in Sweden in which a new cycled lighting intervention was designed to promote circadian rhythm and health. The system was installed and used in a modified two-bed patient room (intervention room). An identical two-bed patient room was left untouched for comparison (ordinary room). Patients were randomly assigned to the rooms. The lighting in the intervention room ranged from 2 to 615 lux—cycled throughout the day to mimic daylight and nighttime darkness. The lighting in the control room ranged from 0.07 to 810 lux and was dependent on the lighting fixture activated at any given moment. Part 1 of the study was a comparative, descriptive study using a questionnaire. Part 2 was an explorative and descriptive study based on data analyzed from 19 patient interviews that were subjected to qualitative and quantitative analysis.

Design Implications

How light impacts and entrains our circadian rhythms is a relatively new area of study that has enormous implications for healthcare designers. This population



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studied in this paper is one of the most vulnerable in the hospital. There may be ways to affect their outcomes based on this research. Designers should consider how their designs may be used to enable the best access to daylight and darkness, as well as how artificial light can mimic this natural cycle of life.

Limitations

This study represents an exploratory study with a small sample population (n=19) and therefore the results cannot be generalized to another population.