SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

To examine the effects of a dynamic patient room lighting cycle on patient sleep patterns and moods within a cardiology ward.

Patient room lighting influences on sleep appraisal and mood in hospitalized people

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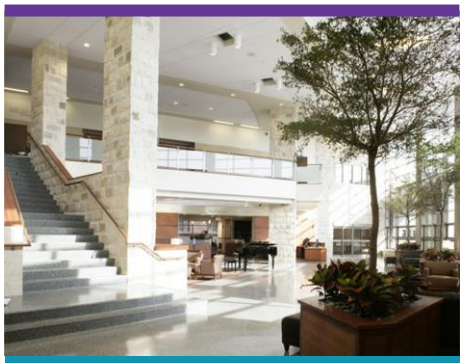
Key Concepts/Context

Hospitalized patients often struggle with sleeping soundly due to various factors that arise within the hospital environment, such as noise, pain, general discomfort, and irregular and inappropriate light exposure. Because sleep is such an integral part of the healing process, healthcare designers should consider different ways to improve hospital sleep conditions. Human sleep-wake patterns are regulated largely by the central circadian pacemaker, which uses light-dark information to control the stability and timing of sleep patterns, moods, and alertness. Thus, proper timing of certain light exposures may be critical in optimizing patient recovery and overall health.

Methods

196 cardiovascular ward patients were recruited as participants. Median length of stay (LOS) was 5 days for patients who were exposed to the dynamic room lighting, and 4.5 days for the control group. The intervention group was assigned to rooms featuring fluorescent lighting fixtures that gradually changed color and illuminance across the day. Patient expectations toward hospital lighting conditions were gathered during intake, and participants were assessed daily under the following criteria: actigraphic sleep, Karolinska Sleepiness Scale (KSS), Hospital Anxiety and Depression Scale (HADS), and Headache and Eye-Strain (HES) symptoms. Wrist actigraphy was employed to gauge total sleep duration (TSD) and sleep-onset latency (SOL). The Pittsburg Sleep Quality Index (PSQI) was completed during both intake and discharge, and a 7-point Likert scale was used to gauge overall patient satisfaction with lighting.



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Findings

Results showed that rooms with standard lighting did not differ in LOS when compared to the rooms outfitted with the dynamic lighting system. Subjective sleep ratings, as well as depression and anxiety ratings, did not differ between the two environments either. However, the lighting intervention did show improvements in actigraphic sleep and general lighting approval among patients. Subjective sleep ratings from patients in the intervention rooms also showed a tendency to improve during hospitalization.

Limitations

The authors note that during the course of the study, the hospital changed its prescription distribution system, making prescription data unavailable for 20% of patients. This data could have contributed to a more thorough analysis of the results, as patients taking beta-blockers may have had altered sleep patterns due to factors aside from lighting conditions. The authors also note that time and budgetary restrictions resulted in a small and incomplete dataset.

Design Implications

Lighting fixtures that fluctuate their brightness and color in accordance with the time of day can contribute to higher levels of patient satisfaction, and may therefore contribute to improved overall patient health and decreased LOS. These lighting fixtures should consider human circadian patterns, as well as other indoor lighting conditions relative to the patients' location.

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