



KEY POINT SUMMARY

OBJECTIVES

The purpose of the study was to test the hypothesis that women in bedrooms with dynamic light systems would choose higher light levels when they were allowed to adjust them during the day (11 a.m.–5 p.m.). A second aim of the study was to measure the impact of dynamic lighting control on maternal mood, sleep quality, nighttime urinary melatonin levels, and physical activity levels of mothers and their neonates.

Effects of adjustable dynamic bedroom lighting in a maternity ward

Canazei, M., Pohl, W., Weninger, J., Bliem, H., Weiss, E. M., Koch, C., Berger, A., Firulovic, B., Marth, C., 2019 | *Journal of Environmental Psychology*. Volume 62, Page 59-66

Key Concepts/Context

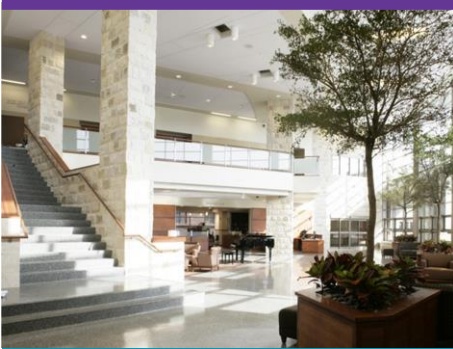
This study considered the impact of dynamic vs. static lighting color and intensity on mothers who had scheduled C-section deliveries of healthy babies in a single Austrian maternity clinic. Two dual occupancy rooms were equipped with dynamic (adjustable) lighting features and two dual occupancy rooms had traditional lighting features.

Methods

Light exposure and physical activity were measured by a device worn on the mother's wrist or on the neonate's ankle. Tailored software was used to record light adjustment behaviors only in the rooms with dynamic lighting systems. Mothers rated their mood, sleep quality, and number of nighttime awakenings through questionnaires. Maternal melatonin levels were measured via urine samples.

Findings

No non-visual light effects were noted on maternal sleep quality, mood, melatonin, and physical activity parameters under increased daytime and decreased nighttime light levels that patients selected. No light effects were observed on the amplitude, fragmentation, and stability of the neonatal diurnal activity rhythms. Set light levels and higher color temperatures in the morning hours (7 a.m.–11 a.m.), may have influenced the choices mothers made later in the day when they were able to control the lighting. A deeper analysis of light changing behaviors revealed that mothers adjusted lights as soon as the static period ended (11 a.m.) and in response to social events including meals or visitors.



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Limitations

Study limitations listed include a short length of stay (5 days) for participants, daytime light intensities were a fraction of those typically used, room light atmosphere was not rated by mothers, and all rooms were double occupancy and recorded light adjustments represented the joint light preferences of two women. Other limitations related specifically to the patient population included pain related to the C-section procedure, unpredictability of maternal interactions with neonates, and fragmented neonatal sleep-wake patterns that are typical immediately after birth.

Design Implications

Although the impact of the lighting intervention on maternal sleep quality, mood, melatonin, and physical activity parameters were largely inconclusive and results did not have specific design implications, it was noticed that when mothers could control lighting they selected higher light levels during the day and darker levels before bedtime. Further research is warranted to examine the reasons for maternal light adjustment and to better understand lighting preferences in different patient populations.

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