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The effect of noise and light levels on the perceived quality of sleep among Jordanian intensive care patients

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Background: Previous studies have showed that the noise and light levels in the intensive care units exceeded the recommended levels by the World Health Organization and the Environmental Protection Agency. This might disturb the patients' sleep in these units.

Objectives: The general aim of this study is to explore the noise and light levels in the ICU and its correlation with the patients' quality of sleep.

Methods: A cross-sectional exploratory correlational design was used in this study. The noise and light levels were measured at hourly bases from 10 pm to 6 am, and their impact on the ICU patients' quality of sleep was evaluated.

Results: The results showed that the light levels ranged from 3 to 271 lux with overall mean of 104.1 lux. The overall light level correlation with the overall quality of sleep (QOS) was statistically significant at a level of 0.05, $r(101) = -0.35$, $p < 0.001$. The sound levels ranged from 29.4 dB to 102 dB with overall mean of 63.9 dB. The Pearson correlation between the overall ICU nocturnal sound level and the patients' overall perceived quality of sleep was statistically significant at a level of 0.05, $r(101) = -0.42$, $p < 0.001$.

Conclusion: The noise and light levels in the ICU in the selected hospitals are higher than the recommended levels. High noise and light levels have negative correlation with the patients' quality of sleep.

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