

Improvement of sleep quality in hospital-based nursing home residents using innovative light facility

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Objective: The quality of sleep is decreasing in long-term care institution. The environment of institutions may play a major role. Previous studies had suggested that light therapy might improve sleep by providing more illumination, while high intensity usually came with irritative glares. In this study, we tested the effect on sleep of an innovative light facility, featuring newly designed high illumination and low glare lamps with rearrangement to provide high homogeneity light in the room.

Methods: This study was done in 2017-2018. The subjects were residents in the nursing home. We used Cohen-Mansfield Agitation Inventory, Pittsburgh sleep quality index and ADL/IADL scale as indicators, all measurements were performed with their Chinese version by the same caregiver. The light facilities improvement lasted for 2 weeks between pre-test and post-test. STATA 12.0 was used for statistics.

Results: Fourteen subjects were enrolled, including 8 men (Aged 69.75±16.99) and 6 women (Aged 69.5±11.21). Paired t-test revealed that improvement of lighting facility is associated with shorter sleep latency (38 to 30 minutes), longer sleep duration (7.35 to 8.14 hrs), better self-reported index (11.71 to 6.57) and fewer parasomnia behaviours statistically significant(P<0.05).

Conclusion: The result is in line with previously study that higher illumination may be helpful. In our study we proved change of lighting facilities for less glare, more biorhythm friendly and better light homogeneity could improve mood and sleep, as well as decrease behavior problems. We also proved that even short duration exposure of adequate light could bring better quality of care. We suggest hospital based nursing home redesign their lighting facilities to improve quality of care.

中文題目：創新照明系統優化用以改善護理之家住家的睡眠品質

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