

Impact of cold and warm morning light exposure on subjective quality of life, objective postural stability, vigilance, neuropsychological performance, and sleep stability in people with chronic insomnia: A randomized, crossover study

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Objective

Artificial light with different color temperatures may affect mental and physical performance differently. People with chronic insomnia disorder (CID) experience a decline in daily performance and cognitive function. The present study aimed to assess the differences in subjective quality of life, static postural stability, vigilance, cognitive performance, and sleep stability between participants exposed to cold and warm light in the morning.

Methods

We conducted a randomized prospective crossover study between January 2015 and January 2017 and included ten ($n = 8$, females) adults (20–65 years old) with CID, exposed to two morning sessions of different light conditions: cold (5900 K) and warm (2900 K), with the same illumination (620 lx) for a duration of 30 min for 5 consecutive days, with a washout period of 14 days. We compared the subjective quality of life, static postural stability, vigilance, neuropsychological tests, and sleep quality before and after each session.

Results

Statistically, cold morning light exposure was associated with a significant better subjective well-being, smaller center of pressure, and anterior–posterior velocities with closed eyes ($p = 0.0316$ and $p = 0.0093$, respectively). In contrast, warm morning light exposure was associated with better scores in the digit symbol substitution test ($p = 0.0007$).

Conclusions

Morning exposure to cold or warm light had different impacts on physical and mental status in patients with CID.

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