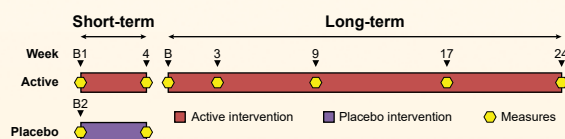


Lighting's Effects on Sleep, Mood, and Behavior in Older Adults with ADRD

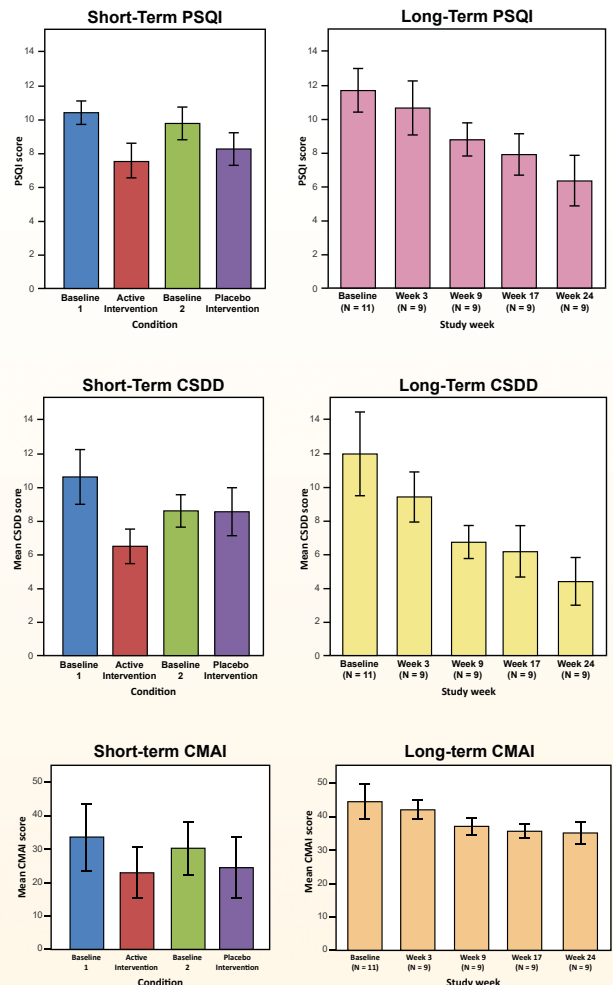
Disruption of circadian cycles among Alzheimer's disease and related dementias (ADRD) patients, specifically including a lack of consolidated sleep-wake cycles, increases as the diseases progress. This disruption causes stress and fatigue for family caregivers—frequently leading to the patient's institutional placement—and is also associated with mood and behavioral problems.

The LRC hypothesized that an active, tailored lighting intervention designed to deliver a circadian stimulus (CS) ≥ 0.3 during the day (07:00 am to 06:00 pm) and a CS ≤ 0.1 during the evening would result in reduced depression and agitation, improved sleep, and better quality of life for both patients and caregivers, compared to an inactive lighting intervention that continuously delivered a CS ≤ 0.1 during waking hours. This ongoing study set out to recruit 60 moderate- to late-stage ADRD patients living in controlled environments. Forty-five patients have completed the study thus far. Sleep, mood, and behavior were assessed using the Pittsburgh Sleep Quality Index (PSQI), Cornell Scale for Depression in Dementia (CSDD), and Cohen-Mansfield Agitation Inventory (CMAI) outcome measures.



Participants were exposed to both short-term (4 weeks) and long-term (24 weeks) experimental conditions that involved bright-light therapy. The short-term condition involved active and placebo interventions. The times of PSQI, CSDD, and CMAI measurements are shown in yellow.

- Compared to baseline (no intervention) and the placebo intervention, the short-term lighting intervention significantly improved (lowered) sleep quality (PSQI), depression (CSDD), and agitation (CMAI) scores.
- The active lighting intervention delivered over the long term showed continuous improvements in scores for all measures, particularly depression (CSDD) scores.



Mean scores for the three measures of sleep, mood, and behavior employed in this study. The error bars represent mean \pm standard error of the mean.

These data point to a need to investigate the impact of this lighting intervention in persons with ADRD who live at home, where caregiver burdens and needs are perhaps the most pronounced. Light has the potential to delay the transition of those living at home to more-controlled environments by improving sleep, behavior, and mood in persons with ADRD.

Sponsor

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