Tailored Lighting Intervention for Persons with Dementia and Caregivers Living at Home

Light therapy has shown promise as a nonpharmacological treatment to help regulate abnormal sleep-wake patterns and associated behavioral issues prevalent among individuals diagnosed with Alzheimer’s disease and related dementias (ADRD). Previously, LRC researchers showed that a tailored lighting intervention, designed to increase circadian stimulation during the day using light sources that have high short-wavelength content and high light output, improves sleep and behavior in ADRD patients living in long-term care facilities. In the present study, the LRC investigated whether the same lighting intervention could improve sleep and behavior in persons with ADRD and caregivers living at home.

Methods
Thirty-five persons with ADRD and 34 caregivers completed the 11-week study. During week 1, subjective questionnaires were administered to the study participants. During week 2, baseline data were collected using the Daysimeter and actigraph. Researchers installed the lighting during week 3, followed by 4 weeks of the tailored lighting intervention. During the last week of the lighting intervention, Daysimeter, actigraph, and questionnaire data were again collected. Three weeks after the lighting intervention was removed, a third data collection (post-intervention assessment) was performed.

Results
The lighting intervention significantly increased circadian stimulus (CS; Figure 1) and circadian entrainment, as measured by phasor magnitude (Figure 2) and significantly increased sleep efficiency, as measured by actigraphy data (Figure 3); symptoms of depression were significantly reduced in the participants with ADRD (Figure 4).

Conclusions
Although the magnitude of the effect of the lighting intervention in sleep and behavior of those living at home was smaller than of those living in more controlled environments, the tailored lighting intervention was still effective at increasing sleep and improving depression in persons with ADRD living at home.

Citation

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Equipment Donation
GE Lighting (lamps and ballasts)