

FPIN's Clinical Inquiries

Does Light Therapy Decrease Depression in Older Adults?

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Clinical Question

Does light therapy decrease depression in older adults without seasonal depression?

Evidence-Based Answer

Light therapy appears to be mildly effective in treating depression in older adults, but ideal wavelength, intensity, and length of treatment are unknown. (Strength of Recommendation [SOR]: B, based on a systematic review of randomized controlled trials [RCTs] with heterogeneity and extrapolated from systematic reviews of RCTs of adults of all ages.) In adults, bright white light exposure in the mornings for less than 60 minutes may be most effective. (SOR: B, based on a systematic review of RCTs.)

Evidence Summary

A 2018 systematic review and meta-analysis of six RCTs (N = 359) examined the effectiveness of light therapy among patients older than 60 years with nonseasonal depression.¹ The trials compared light therapy (of varying wavelength, intensity, and duration) to either dim red or white light, nothing, or usual therapy. Trials were conducted for four weeks (three trials), three weeks

(one trial), or no more than two weeks (two trials). The pooled results of all trials found that geriatric depression symptoms improved more with a small to moderate effect in the light therapy groups compared with the control groups (standardized mean difference [SMD] = 0.45; 95% CI, 0.14 to 0.75). Subgroup analysis by length of intervention revealed no statistically significant differences between treatment and control groups at two weeks (two trials; n = 117; SMD = -0.18; 95% CI, -0.54 to 0.18; $I^2 = 0\%$), three weeks (two trials; n = 165; SMD = 0.38; 95% CI, -0.36 to 1.13; $I^2 = 83\%$), or four weeks (three trials; n = 179; SMD = 0.25; 95% CI, -0.05 to 0.54; $I^2 = 0\%$). In all six trials, there were no significant adverse reactions in the treatment group. The treatment and control groups did not differ in the rates of adverse reactions reported. Because of limited available evidence, the authors were not able to make conclusions regarding the ideal wavelength, intensity, or duration of light therapy in the study population. The findings are limited by moderate heterogeneity ($I^2 = 50\%$).

A 2020 systematic review and meta-analysis of 23 RCTs (N = 1,120) examined the effectiveness of light therapy in adults of all ages with nonseasonal depression.² The studies compared light therapy (of varying wavelength, intensity, and duration) with placebo or control. In one trial, patients received light therapy as monotherapy or as adjunctive therapy to fluoxetine (Prozac). The pooled results of the 23 trials found that light therapy had a mild to moderate effect in improving depression symptoms compared with placebo or control (SMD = -0.45; 95% CI, -0.60 to -0.21; $I^2 = 57\%$). Subgroup analysis found that the bright white light subgroup had significant improvement with a small to moderate effect (20 trials; n = 973; SMD = -0.42; 95% CI, -0.64 to -0.20) and significant heterogeneity ($I^2 = 60\%$). The effects of the other types of light were no different from those in the control groups (three

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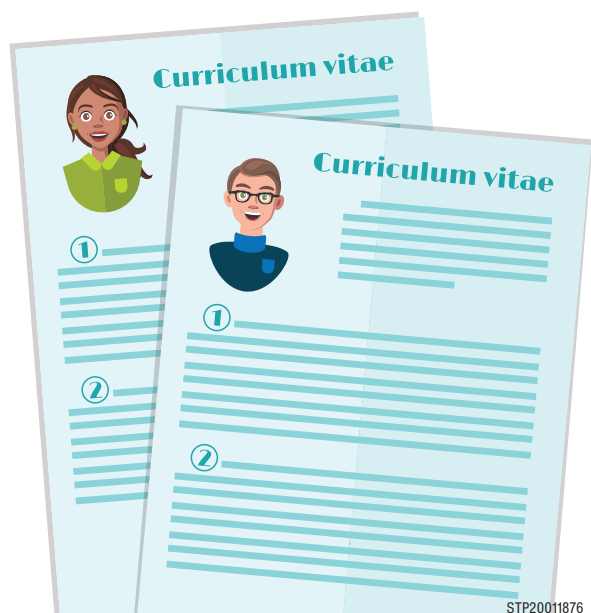
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trials; $n = 147$; $SMD = -0.25$; 95% CI, -0.62 to 0.11 ; $I^2 = 14\%$). Subgroup analysis of the timing of therapy found that morning delivery had a moderately significant effect compared with the control group (18 trials; $n = 843$; $SMD = -0.48$; 95% CI, -0.69 to -0.21 ; $I^2 = 48\%$), whereas delivery at any other time was no different than in the control group (six trials; $n = 277$; $SMD = -0.20$; 95% CI, -0.63 to 0.23 ; $I^2 = 69.1\%$). Further subgroup analysis found that compared with the control group, treatment for less than 60 minutes per day had a moderate effect (eight trials; $n = 381$; $SMD = -0.52$; 95% CI, -0.78 to -0.26 ; $I^2 = 29.7\%$) and treatment for 60 minutes or more per day had a small effect (16 trials; $n = 739$; $SMD = -0.36$; 95% CI, -0.61 to -0.10 ; $I^2 = 63.6\%$). The overall findings of the study are limited by moderate heterogeneity ($I^2 = 56.9\%$).

Recommendations from Others

A 2010 evidence-based guideline from the American Psychiatric Association states that bright light therapy may be considered a low-risk, low-cost treatment option in patients with seasonal affective disorder or nonseasonal major depressive disorder.³

A 2015 American Geriatrics Society Beers Criteria update supports the use of bright light therapy as a low-cost, safe, and effective choice for older adults with nonseasonal depression.⁴

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