

Brainwave Audio Intervention for Sleep Improvement in Adults with Insomnia Symptoms

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Objective: Insomnia and sleep-onset difficulties remain prevalent in clinical populations. Brainwave Audio, a patented auditory neuro-stimulation tool, has been proposed as a non-pharmacological intervention to improve sleep initiation and continuity. To evaluate an 18-minute Brainwave Audio intervention as a non-pharmacological approach for adults with insomnia symptoms or difficulty initiating sleep, focusing on sleep efficiency, post-audio sleep latency, and subjective sleep measures.

Methods: Thirty participants completed a single-group, repeated-measures study with assessments at baseline, week 2, and week 4. Outcomes included sleep latency after audio exposure, sleep efficiency, the Epworth Sleepiness Scale (ESS), and the Pittsburgh Sleep Quality Index (PSQI). Paired t tests were used to assess changes, with effect sizes calculated; $p < 0.05$ was considered statistically significant.

Results: All 30 participants completed the intervention. Mean post-audio sleep latency decreased from 316 to 142.5 seconds ($p = 0.0168$; Hedges' $g = 0.69$); in the insomnia-symptom subgroup, it decreased from 414 to 182.7 seconds ($p = 0.0269$; $g = 0.80$). Mean PSQI score decreased from 11.80 to 8.20 ($p = 0.0138$; $g = 0.48$). ESS decreased from 6.57 to 4.87, but this change was not statistically significant ($p = 0.0626$). Sleep efficiency improved relative to baseline at week 2 and week 4 (27.18% and 24.15%, respectively; $p = 0.0288$ and 0.0263).

Conclusion: In this small, uncontrolled pre-post study, Brainwave Audio use over 4 weeks was associated with shorter post-audio sleep latency and improvements in subjective sleep quality and sleep efficiency. No statistically significant change was observed in daytime sleepiness. Controlled studies with larger samples are needed to confirm these findings.