The effectiveness of neurofeedback on attention deficit disorder in Iran: a meta-analysis study

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Abstract

Background and aims: Neurofeedback is a relatively new therapy focusing on the core symptoms of inattention, impulsivity and hyperactivity. We undertook a meta-analysis to estimate the effectiveness of neurofeedback on attention deficit disorder in Iran.

Methods: International databases of PubMed, Scopus, ISI, Google Scholar, and national databases of Sid, Medlib, Iranmedex, Magiran were searched using the terms of neurofeedback, attention deficit and hyperactivity. The standardized effect size (SMD) of the control group’s mean difference was calculated by the standard deviation integration. Data were analyzed using meta-analysis (random effects model). Heterogeneity of studies was assessed using I2 index and the DerSimonian-Laird method.

Results: 9 studies were reviewed with a sample size of 204 individuals during 1997 to 2005 and Neurofeedback’s overall standardized effect size (SMD) on attention deficit disorder was significant in the experimental group before and after the intervention (SMD = 1.14; 95% CI, 0.91-1.38, P = .000). The SMD was not significant in the control group before and after the intervention (SMD = .09; 95% CI, .07-.24). Meta-regression showed no statistically significant relationship between the year of study, sample size and SMD.

Conclusion: Although international randomized clinical trials have shown that neurofeedback is not effective in ADHD treatment, In Iran, results of the studies showed that neurofeedback was effective in the treatment of some ADHD’s indicators and ineffective in some other ADHD’s indicators. Overall, neurofeedback was effective in the treatment of ADHD.