

The Effectiveness of Biofeedback Using Heart Rate Variability (HRV) on Working Memory Performance in Children with Attention Deficit/Hyperactivity Disorder (ADHD)

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1. Round 1

1.1. Reviewer 1

Reviewer:

The opening sentence introduces ADHD as a neurodevelopmental disorder. To provide more depth, add a reference or explanation connecting how working memory deficits fit into the broader neurodevelopmental context.

The methods section describes convenience sampling but lacks detail on how clinics were selected. Specify whether these clinics serve a representative ADHD population or if there might be biases.

State precisely how participants were randomized into the experimental and control groups to ensure reproducibility.

The control group was on a waiting list but received no intervention. Explain why this control design was chosen over an active placebo or alternative intervention.

The description of the ProComp 2 device is brief. Consider elaborating on why this device was chosen over others and any calibration steps taken.

The n-back test's reliability and validity coefficients are noted, but add information on how these metrics were established within the Iranian context, given that cultural factors may influence test performance.

The discussion suggests that HRV biofeedback modulates the autonomic nervous system to improve working memory. Strengthen this by explaining the physiological mechanisms in more detail and how they relate to executive function.

Authors revised and uploaded the document.

1.2. Reviewer 2

Reviewer:

The introduction references ADHD prevalence data from 2007 (Polanczyk et al., 2007). Update this with more recent statistics to ensure the study is contextualized within the current understanding of ADHD prevalence.

The introduction discusses various interventions but lacks a compelling rationale for focusing on HRV biofeedback. Explain why HRV biofeedback is particularly promising compared to other non-pharmacological interventions.

When citing research on HRV biofeedback (e.g., Eddie et al., 2015), explain how these studies directly inform your research question or hypothesis.

The study uses the Continuous Performance Test to assess sustained attention. Explain why this measure was included when the primary focus is on working memory.

While you provide F-ratios and p-values, it would be beneficial to include effect sizes for the main findings to quantify the magnitude of the intervention's impact.

Consider adding a figure or graph comparing pre-test and post-test scores for the experimental and control groups to aid in data interpretation.

Authors revised and uploaded the document.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.