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Comparative Effectiveness of Neurofeedback and Cognitive Behavioral Therapy on Inattention, Anxiety, and Hyperactivity in Children With Attention-Deficit/Hyperactivity Disorder

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E d i t o r	R e v i e w e r s
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1. Round 1

1.1. Reviewer 1

Reviewer:

In the “Design and Setting” paragraph, the manuscript describes the study as “quasi-experimental” despite subsequently stating that eligible participants were assigned by “simple random allocation” to three groups. This terminology requires resolution. If allocation was genuinely random and prospectively implemented, the design has elements of a randomized controlled trial, albeit with purposive recruitment and a passive control. If assignment was not concealed or was only partially randomized, the quasi-experimental label may be appropriate. The authors should clearly justify the chosen design label according to the actual allocation procedure rather than using quasi-experimental terminology by convention.

The “Participants” section states that the target population comprised “approximately 200 children aged 7–12 years with suspected or established ADHD in Karaj,” but the manuscript does not explain how this population size was determined or how the final sample size of 60 was justified statistically. A formal sample-size or power analysis should be added, preferably specifying the assumed effect size, alpha level, desired statistical power, number of groups, number of repeated measurements,

and anticipated attrition. Given the very large observed partial eta-squared values, the absence of an a priori power calculation raises concern regarding effect-size instability and potential overestimation in a relatively small sample.

The manuscript reports using a “45-item version” of the Spence Children’s Anxiety Scale, whereas the standard scored child SCAS is generally described differently, and the authors themselves later acknowledge this discrepancy as a limitation. This issue should be resolved before publication rather than merely noted. The authors should verify the exact translated version administered, specify whether all 45 items contributed to the total score or whether one item was non-scored, provide the source and validation study for the Persian version, and report internal consistency in the present sample. If the instrument deviated from the standardized scoring method, this should be explained transparently and its implications for validity discussed.

The neurofeedback protocol is described in useful technical detail, but the statement that “Sessions 1–10” used beta reinforcement and “Sessions 10–20” used SMR reinforcement creates an overlap at Session 10. The protocol should clearly specify whether Session 10 belonged to the first phase, second phase, or represented a transition session. In addition, the manuscript should clarify whether the reported “SMR reinforcement (13–20 Hz)” reflects the actual protocol, because this frequency range is broader than conventional SMR definitions. Threshold-setting procedures, artifact rejection, electrode impedance criteria, number of training trials per session, reward contingencies, and whether the protocol was individualized should also be reported to permit replication.

Response: Revised and uploaded the manuscript.

1.2. Reviewer 2

Reviewer:

The eligibility criteria should be reported with greater diagnostic precision. The sentence “ADHD was confirmed against DSM-5 criteria by a child psychiatrist or clinical psychologist” does not state whether diagnosis was based on a structured or semi-structured diagnostic interview, clinical judgment alone, medical records, teacher reports, or a combination of sources. The manuscript should specify the diagnostic procedure, whether ADHD presentation/subtype and severity were recorded, and whether common comorbid disorders such as oppositional defiant disorder, learning disorders, and anxiety disorders were systematically assessed. These factors could materially influence responsiveness to both neurofeedback and CBT.

The baseline demographic table demonstrates comparability in age, sex, and school grade, but the manuscript does not report several clinically important baseline characteristics. Medication status, ADHD presentation, symptom severity, duration since diagnosis, comorbid anxiety diagnosis, learning difficulties, parental education, socioeconomic status, and previous psychological treatment should be described by group. Particularly important is medication use, because the exclusion criterion refers only to “a major medication change during the study,” implying that some participants may have been receiving medication. Stable pharmacotherapy could interact with treatment response and should therefore be transparently reported and, if necessary, controlled analytically.

The description of the Integrated Visual and Auditory Continuous Performance Test requires substantial expansion. The manuscript currently states that “the inattention score reported in the dissertation was used,” but does not identify the exact IVA-CPT index analyzed, its scoring range, psychometric properties, or the rationale for selecting that particular index. Since the IVA-CPT yields multiple attention and response-control indices, readers must be able to determine precisely which score served as the dependent variable. The authors should also report evidence of reliability and validity for the age group and, preferably, for the Persian-speaking population if available.

The description of the Conners Parent Rating Scale also requires more precise psychometric and scoring information. The statement that the “hyperactivity outcome was analyzed as the study’s designated scale score” is insufficiently specific because the 48-item Conners measure contains several dimensions and different scoring conventions. The manuscript should identify the exact subscale used, number of items contributing to the analyzed score, response options, possible score range, interpretation of higher scores, and reliability in the current sample. Because parents were not blinded to group assignment, the

manuscript should additionally acknowledge in the Methods—not only later in the Discussion—that this outcome is particularly vulnerable to expectancy and observer bias.

Response: Revised and uploaded the manuscript.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.