SUMMARY RESULTS FOR TRIAL REGISTRY REPORTING

Feasibility and Preliminary Signals of Neurofeedback Versus Behavioral Working-Memory Training in Children With Mild Intellectual Disability: An Active-Comparator Pilot Study

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Important reporting note

This summary consolidates the results available in the submitted manuscript. The manuscript does not report the number screened before enrolment or provide a formal adverse-event collection table. Those items are therefore identified transparently as not reported rather than inferred.

1. Trial Overview

Item	Details
Study design	Small quasi-experimental, parallel, active-comparator pilot study
Population	Ten children aged 9-12 years with DSM-5-TR intellectual disability and IQ scores in the mild range (55-70)
Intervention arms	EEG neurofeedback (n=5) and structured behavioral working-memory training (n=5)
Intervention dose	24 sessions delivered twice weekly over approximately three months
Behavioral assessments	Baseline, immediately post-intervention, and two-week follow-up
Exploratory neurophysiology	Resting-state QEEG in the neurofeedback arm only: baseline, after sessions 8 and 16, and post-training
Primary purpose	Feasibility and preliminary signal detection; not definitive efficacy, superiority, equivalence, or noninferiority testing

2. Concise Summary of Results

- All 10 enrolled children contributed behavioral working-memory data at baseline, post-intervention, and two-week follow-up; loss to follow-up was zero.
- Both arms showed within-group improvement from baseline to post-intervention: neurofeedback, Z = -2.023, p = .043, r = .90; behavioral training, Z = -2.023, p = .042, r = .90.
- The post-intervention between-group comparison was not statistically significant: U = 11.00, Z = -0.317, p = .751, r = .10. This does not establish equivalence or noninferiority.
- Post-intervention gains were descriptively maintained at two weeks; post-to-follow-up changes were not statistically significant in either arm.
- In the neurofeedback arm, Beta1 was the only EEG indicator with an uncorrected change across four assessment stages (p = .036); this finding is exploratory and not confirmatory.

3. Baseline Characteristics

Baseline characteristics are shown for the two intervention arms. Nonsignificant baseline tests should not be interpreted as evidence of equivalence because each group contained only five participants.

Variable	Neurofeedback (n=5), M ± SD	Behavioral training (n=5), M ± SD	U	Z	p	r
Age (years)	11.60 ± 0.54	11.40 ± 1.34	11.00	-0.387	.699	.12
IQ	64.00 ± 7.38	63.00 ± 3.08	12.00	-0.105	.917	.03
Adaptive behavior	53.00 ± 13.50	48.60 ± 6.98	12.00	-0.104	.917	.03
Socioeconomic status	14.64 ± 4.82	9.22 ± 2.54	5.50	-1.472	.141	.47
Working memory, baseline	12.00 ± 3.80	13.60 ± 3.84	9.50	-0.629	.530	.20

4. Participant Flow

The registry requested a PRISMA flow diagram. Because this is an interventional trial, the diagram below follows a CONSORT-style participant flow while presenting the information available in the manuscript.

Participant Flow

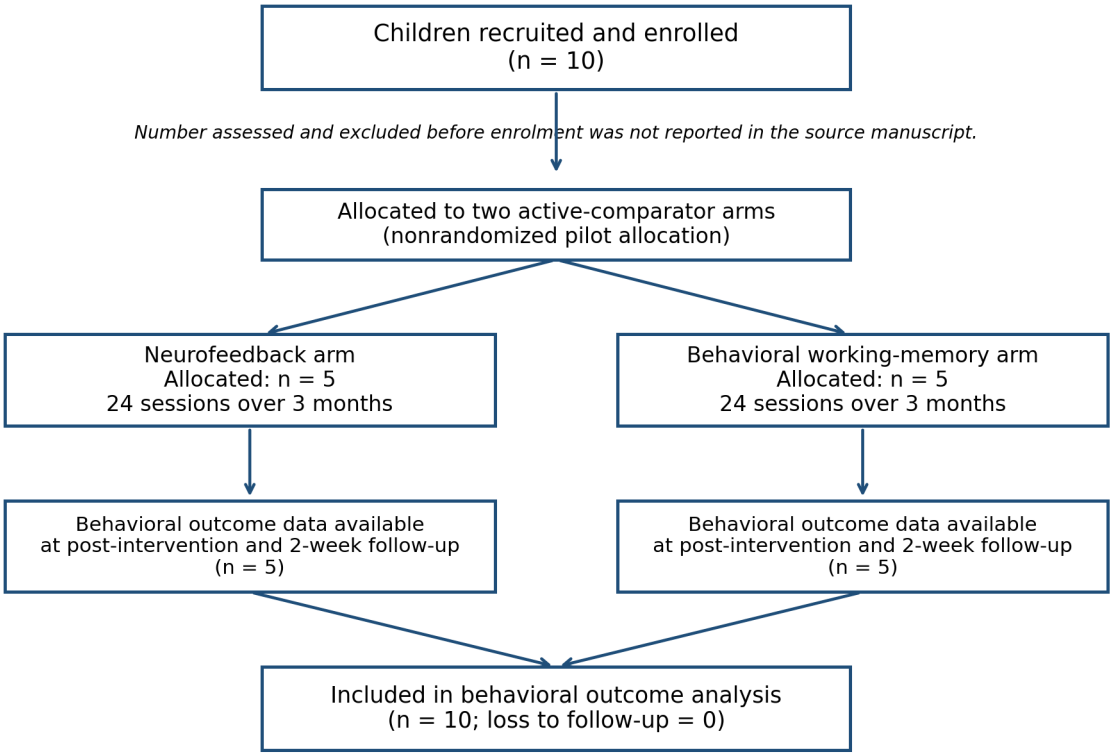


Figure 1. Participant flow. The number screened and excluded before enrolment was not reported in the source manuscript.

5. Adverse Events and Safety Reporting

The submitted manuscript does not describe a prespecified adverse-event monitoring procedure and does not provide counts of non-serious or serious adverse events. All ten participants completed behavioral assessment through two-week follow-up, and no participant loss to follow-up was reported. Accordingly, the available source supports reporting zero withdrawals before follow-up, but it does not support asserting that no adverse events of any kind occurred.

Safety item	Result available from manuscript	Registry interpretation
Loss to follow-up	0 of 10 participants	All participants contributed behavioral data through two-week follow-up.
Withdrawals attributed to adverse events	Not separately reported	No withdrawal occurred, but reason-specific adverse-event reporting was not provided.
Serious adverse events	Not formally reported	A zero count cannot be confirmed from the available manuscript.
Other adverse events	Not formally reported	Event type, severity, relatedness, and timing were not systematically tabulated.

6. Outcome Measures

6.1 Primary Behavioral Outcome: Working Memory

Working memory was measured using a locally validated 31-item Arabic Working-Memory Scale containing visual and auditory components. Results are summarized below.

Group	Baseline M ± SD	Post-intervention M ± SD	2-week follow-up M ± SD	Baseline to post	Post to follow-up
Neurofeedback (n=5)	12.00 ± 3.80	19.60 ± 5.02	20.20 ± 5.35	Z=-2.023; p=.043; r=.90	Z=-1.134; p=.257; r=.51
Behavioral training (n=5)	13.60 ± 3.84	17.80 ± 3.70	18.00 ± 3.74	Z=-2.023; p=.042; r=.90	Z=-0.577; p=.564; r=.26

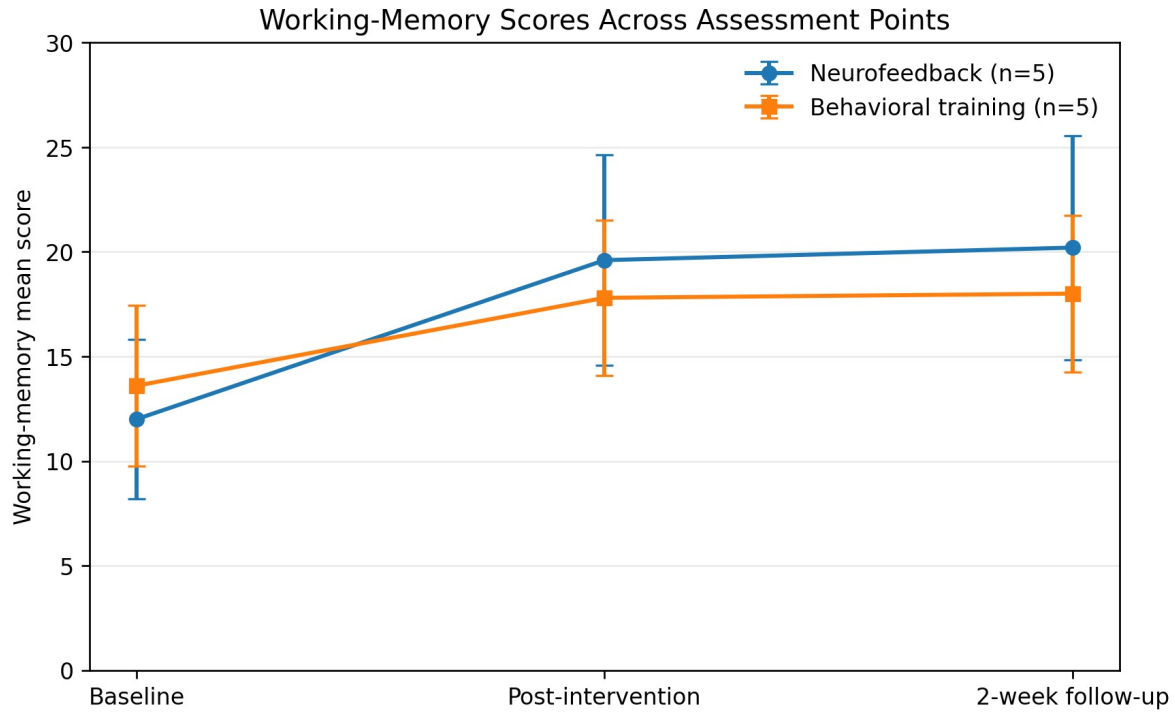


Figure 2. Mean working-memory scores with standard-deviation error bars. The plot is descriptive and does not establish comparative efficacy.

Between-group comparison at post-intervention: U = 11.00, Z = -0.317, p = .751, r = .10. Because the pilot was underpowered, this nonsignificant result must not be interpreted as equivalence or noninferiority.

6.2 Exploratory EEG Outcomes in the Neurofeedback Arm

QEEG was collected only in the neurofeedback arm. The analyses were exploratory and were not corrected for multiple comparisons.

EEG indicator	Baseline M ± SD	After 8 sessions	After 16 sessions	Post-training	p
Delta (1-3 Hz)	18.30 ± 5.19	17.84 ± 4.07	16.94 ± 4.77	17.92 ± 5.12	.178
Theta (4-8 Hz)	18.51 ± 4.56	17.87 ± 4.62	16.93 ± 4.77	17.76 ± 4.98	.158
Alpha (8-12 Hz)	13.53 ± 5.26	13.00 ± 5.68	12.54 ± 4.72	13.42 ± 5.35	.066
SMR (12-15 Hz)	8.51 ± 2.73	8.19 ± 2.96	7.80 ± 2.17	8.40 ± 2.40	.061
Beta1 (13-21 Hz)	11.21 ± 3.53	10.49 ± 3.56	10.15 ± 2.58	10.97 ± 2.66	.036*
Beta2 (21-35 Hz)	9.53 ± 2.78	8.44 ± 1.78	8.48 ± 1.15	9.19 ± 0.92	.056
Gamma (35-64 Hz)	3.78 ± 1.55	3.11 ± 0.47	3.34 ± 0.60	3.66 ± 0.71	.090
Theta/Beta ratio	1.70 ± 0.34	1.75 ± 0.31	1.68 ± 0.33	1.62 ± 0.32	.914
Theta/SMR ratio	2.25 ± 0.52	2.26 ± 0.48	2.20 ± 0.48	2.14 ± 0.45	.372
Alpha/Theta ratio	0.73 ± 0.22	0.72 ± 0.19	0.74 ± 0.20	0.75 ± 0.20	.066

* $p < .05$, uncorrected. The Beta1 finding is hypothesis-generating only and cannot support a between-group neural comparison.

7. Interpretation and Limitations

- This was a feasibility and signal-detection pilot with five participants per arm.
- There was no wait-list, treatment-as-usual, sham-neurofeedback, or untreated control group.
- Formal assessor blinding was not implemented.
- Follow-up lasted only two weeks.
- QEEG was collected only in the neurofeedback arm.
- The working-memory measure had local psychometric support but was not an internationally normed measure.
- Statistical significance in such a small pilot does not establish causal efficacy or comparative superiority.

8. Publication and Data-Sharing Status

Item	Status
Date of first journal publication of results	Not yet published as of 29 July 2026. Leave the PACTR date field blank until the article is first published.
Results availability	Results are available in the submitted manuscript and this consolidated registry summary.
Individual participant data	Not publicly deposited. De-identified data may be considered upon reasonable request, subject to ethics approval, confidentiality safeguards, and an appropriate data-use agreement.

9. Source and Verification Statement

This summary was prepared from the manuscript titled "Feasibility and Preliminary Signals of Neurofeedback Versus Behavioral Working-Memory Training in Children With Mild Intellectual Disability: An Active-Comparator Pilot Study." All numerical results in the baseline and outcome tables reproduce values reported in that manuscript. Information not supplied by the manuscript is explicitly marked as not reported.