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Effectiveness of an Integrated Cognitive Control–Metacognitive Intervention on Obsessive–Compulsive Symptoms: The Roles of Executive Function, Inhibitory Control, Metacognition, and Neurophysiological Indices

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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:

The paragraph describing eligibility states that “diagnosis was established through a structured clinical interview conducted by a trained clinical psychologist and, when clinically indicated, confirmed by a psychiatrist.” The exact diagnostic instrument is not identified. Please specify the structured interview used to establish DSM-5-TR OCD and comorbid diagnoses, provide information regarding interviewer training and interrater reliability where applicable, and clarify what criteria determined whether psychiatric confirmation was required. Given that exclusion criteria included psychotic disorders, bipolar disorder, severe major depression, suicidality, and substance use disorders, a reproducible diagnostic procedure is essential for evaluating internal validity and sample characterization.

The randomization paragraph reports that participants were randomized using “concealed permuted blocks” and stratified by Y-BOCS severity and medication status, but insufficient information is provided to evaluate allocation concealment. Please specify the block sizes or whether varying undisclosed block sizes were used, the method used to generate the random sequence, the mechanism through which allocation was implemented, and who retained access to the sequence. For example, clarification is needed as to whether assignment was administered through sequentially numbered opaque envelopes, centralized randomization, or an electronic system. Because predictability of block assignment can introduce selection bias, reporting these details is especially important in a trial with only 40 participants per arm.

The EEG/ERP paragraph requires more comprehensive reporting of acquisition and preprocessing decisions. The statement “EEG signals were acquired from 64 Ag/AgCl scalp electrodes positioned according to the extended international 10–20 system” should be expanded to include the amplifier system, online reference, electrode impedance criterion, ocular-channel placement, epoch windows, prestimulus baseline interval, ICA algorithm, criteria used to identify ocular components, and the exact procedure for artifact rejection. Please also clarify whether ERP scoring windows and electrode regions were selected a priori or partly based on inspection of the present data. Given the large treatment effects reported for NoGo-N2 and NoGo-P3, transparent specification of preprocessing choices is essential to reduce concerns about analytic flexibility.

The intervention paragraph beginning “The integrated cognitive control–metacognitive intervention consisted of eight weekly group sessions” provides a useful overview, but the manuscript needs a more rigorous description of treatment fidelity and therapist competence. Please report the number of therapists, their professional qualifications, duration and nature of protocol-specific training, whether each therapist treated participants in both study waves, and whether therapist effects were considered analytically. The statement that “a randomly selected proportion of audio-recorded sessions was independently evaluated using a 12-item adherence checklist” should specify the proportion of sessions reviewed, qualifications and independence of raters, scoring procedure, average adherence score, interrater agreement, and any remedial supervision triggered by fidelity deviations.

Response: Revised and uploaded the manuscript.

1.2. Reviewer 2

Reviewer:

In the same section, the manuscript states that “clinical assessors remained blind to allocation throughout the study, and participants were instructed not to disclose their treatment assignment.” Please evaluate the success of assessor masking rather than assuming that masking was maintained. Because participants in the ICCMI condition received eight intensive group sessions while controls remained on a wait-list, accidental disclosure is plausible. If assessors were asked to guess treatment allocation after post-treatment assessments, please report the findings. If masking integrity was not formally assessed, this should be acknowledged as a methodological limitation because expectancy or detection bias may affect clinician-administered Y-BOCS ratings.

The manuscript should substantially strengthen reporting of ethical and trial-registration information. The Methods section currently describes informed consent but does not provide the approving institutional ethics committee, approval number, trial-registration platform and registration number, or whether registration occurred prospectively before recruitment. For an assessor-blinded randomized clinical trial involving psychiatric patients, EEG procedures, and an untreated wait-list comparison, these elements are essential. Please also clarify procedures for managing worsening OCD symptoms, suicidality, adverse events, or clinically necessary medication changes during the controlled period, particularly because participants were asked to maintain stable treatment whenever clinically feasible.

In the paragraph describing the Yale–Brown Obsessive–Compulsive Scale, the sentence “The total Y-BOCS score was defined as the primary clinical outcome” should be accompanied by greater information concerning outcome assessment reliability in the present trial. Since the Y-BOCS was clinician administered and constituted the primary endpoint, please report assessor training, whether the same assessor evaluated each participant at all time points, and whether interrater reliability was

established. The manuscript should also clarify whether the $\geq 35\%$ response criterion and Y-BOCS ≤ 12 remission criterion were prespecified before data analysis. If these thresholds were adopted from consensus recommendations, the rationale should be stated clearly.

The executive-function paragraph states that “selected indices from the Tower of London and Wisconsin Card Sorting Test were direction-corrected... standardized relative to the baseline sample, and averaged to produce an executive-function composite score.” This procedure requires considerably greater methodological detail. Please identify exactly which Tower of London and WCST variables were included, describe the formula used for direction correction and standardization, explain how missing component scores were handled, and state whether equal weighting was used. Because the composite is a central secondary outcome and later enters the mediation model, its construction must be fully reproducible. It would also be useful to report its internal coherence or correlations among constituent measures and justify combining planning and set-shifting into a single standardized index.

In the inhibitory-control section, the sentence stating that “the stop-signal delay was dynamically adjusted through a tracking procedure designed to produce successful inhibition on approximately 50% of stop trials” is appropriate but incomplete relative to contemporary stop-signal reporting standards. Please provide the number of go and stop trials, proportion of stop trials, initial stop-signal delay, staircase increment, stimulus-response mapping, intertrial intervals, practice procedures, exclusion criteria, and the precise integration-method formula used for SSRT. Please also report whether violations of the independent race-model assumptions were examined, including whether failed-stop reaction times were shorter than go reaction times. These details are necessary because SSRT was both a major treatment outcome and a significant mediator of symptom improvement.

Response: Revised and uploaded the manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.