

Supplementary Material 2

Protocol Deviations from the PROSPERO Registration (CRD420250655570)

Domain	PROSPERO registration	Final manuscript	Rationale	Manuscript location
Between-study variance estimator (τ^2)	Random-effects model with DerSimonian–Laird estimator by default, with consideration of alternative models if needed.	Random-effects model estimating τ^2 using REML.	The included evidence showed extreme heterogeneity and imbalanced study sizes. REML was selected to provide a more robust and widely recommended estimation of τ^2 under high heterogeneity, while maintaining a random-effects framework consistent with the protocol.	Methods → Analyses (random-effects model; τ^2 via REML).
Risk of bias	QUADAS-2 specified for quality assessment (diagnostic accuracy focus).	Design-appropriate appraisal strategy: RoB 2 (RCTs), ROBINS-I (non-randomized interventions), QUADAS-2 (diagnostic accuracy), COSMIN Risk of Bias (measurement properties), and NIH/NHLBI tools (observational designs).	The included evidence spanned heterogeneous study designs and evidence types (observational, trials, diagnostic accuracy, and measurement-property studies). A single tool would have required off-label application. Using design-matched tools improves construct validity of appraisal and aligns with contemporary guidance.	Methods → Risk of Bias Assessment; Results → Risk of Bias.
Eligibility/reporting of non–peer-reviewed records	Grey literature (e.g., theses) included in searching; eligibility criteria focused on study types rather than publication venue.	Records identified outside peer-reviewed journals were screened using the same eligibility criteria; however, inclusion in the final review required publication as original research in a peer-reviewed journal. Conference abstracts were not eligible due to insufficient methodological detail and extractable quantitative data.	Conference abstracts and other non–peer-reviewed records frequently lack extractable statistics for meta-analysis and do not support robust risk-of-bias appraisal. Screening was retained to reduce retrieval bias, but final inclusion was restricted to ensure reproducibility and adequate methodological reporting.	Methods → Search Strategy; Methods → Inclusion and Exclusion Criteria.

Domain	PROSPERO registration	Final manuscript	Rationale	Manuscript location
Software (packages)	Meta-analyses planned in R, specifying <i>metaform</i> and <i>mada</i> packages.	Meta-analyses performed in R using the implemented workflow (random-effects metamean/meta-regression) consistent with the analytic plan; the specific package implementation differed from the registered placeholder (e.g., use of meta/metafor functions for pooling and meta-regression).	The protocol specified R as the analytical environment; package names in PROSPERO served as an implementation plan. The final workflow used standard, validated functions to execute the prespecified analyses (random-effects pooling, subgroup analysis, and meta-regression), without altering the substantive analytical strategy.	Methods → Analyses (software statement).
Quantitative synthesis focus (operationalization)	Quantitative synthesis planned for validity/diagnostic accuracy metrics and cut-offs, with subgroup analyses and meta-regression to explore heterogeneity where appropriate.	Quantitative synthesis prioritized pooled mean MoCA performance (MRAW) and meta-regression to model study-level moderators (age, clinical condition, education) for Objective 1, alongside narrative synthesis for psychometric properties (Objective 2) guided by COSMIN criteria.	The registered objectives encompassed both “use of MoCA” and psychometric evidence. In the included literature, diagnostic accuracy and cut-off metrics were reported heterogeneously and were not consistently extractable across studies, limiting comparable pooling. Conversely, MoCA mean/SD and demographic moderators were widely available, enabling a robust quantitative synthesis for Objective 1. Psychometric evidence was synthesized narratively under COSMIN-aligned criteria, consistent with the protocol’s planned mixed synthesis strategy.	Methods → Analyses; Results → Quantitative Synthesis; Results → Psychometric Properties (narrative synthesis).

Note. This table documents deviations between the registered protocol and the final manuscript to enhance transparency. “Deviation” is used strictly to denote any change in methods, eligibility, or analytical implementation relative to the PROSPERO record. All deviations were made prior to final analyses or were implemented to improve methodological rigor and interpretability. REML = restricted maximum likelihood; QUADAS-2 = Quality Assessment of Diagnostic Accuracy Studies 2; RoB 2 = Risk of

Bias 2; RCT = randomized controlled trial; ROBINS-I = Risk Of Bias In Non-randomized Studies of Interventions COSMIN = COnsensus-based Standards for the selection of health Measurement INstruments; NIH/NHLBI = National Heart, Lung, and Blood Institute Study Quality Assessment Tools; SD = standard deviation.