

Clinical Validity of an App-based Cognitive Screening Tool in Mild Cognitive Impairment

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App-based screening captures a **clinically meaningful cognitive signal** in MCI, tracking cognition, not mood. **Memory tasks align most closely** with the reference standard; processing speed a secondary strength. Refined version now in formal validation with patients and healthy participants.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
The global burden of cognitive impairment continues to rise, with dementia cases projected to roughly triple by 2050 [1]. As earlier intervention becomes feasible, timely identification of mild cognitive impairment is increasingly important. Comprehensive neuropsychological assessment remains the clinical gold standard [2], but it is specialist-administered, time-intensive, and difficult to scale for screening, longitudinal follow-up, or underserved populations. Existing digital tools are frequently not validated for self-administered use or assess only a single cognitive domain. In a large clinical F06.7 cohort, we examined whether app tasks in a self-administered, gamified, multi-domain screening app show convergent associations with an established battery, independence from affective symptoms, and robustness to age and education.	Cohort: 292 patients with diagnosed mild neurocognitive disorder (ICD-11 F06.7). Reference standard: Neuropsychological Assessment Battery (NAB) index and domain scores App: Five tasks spanning memory, processing speed, executive/attention, and reasoning. This analysis focuses on the components with the clearest signal Affective symptoms: Hospital Anxiety and Depression Scale (HADS) Analysis: Spearman rank correlations between app tasks and NAB / HADS scores; partial correlations controlling for age and education, with a sensitivity re-analysis excluding education	Memory: App memory tasks correlated most strongly and specifically with NAB Memory (encoding $rs = .44$, recognition $rs = .45$; $p < .001$), with small-to-moderate links to the global NAB Index ($rs \approx .30-.34$). Processing speed: The speed task tracked the NAB Index ($rs = .28$) and executive function ($rs = .21$; $p < .001$). Specificity & robustness: Memory and speed tasks were unrelated to HADS depression/anxiety; higher age predicted lower performance, and the pattern held when education was removed.	In a large F06.7 cohort, selected components of the app-based tool, most clearly the memory tasks, secondarily processing speed, captured cognitive variation aligned with established neuropsychological assessment, while remaining independent of affective symptoms. The ongoing study in patients and healthy participants will establish norms and test diagnostic performance of improved app screening.	[1] Nichols E, Steinmetz J, Vollset S et al. <i>The Lancet Public Health</i> (2022). DOI: 10.1016/S2468-2667(21)00249-8 [2] Kessels. <i>The Clinical Neuropsychologist</i> (2019). DOI: 10.1080/13854046.2018.1518489
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