

COGNITIVE SCREENING TOOLS IN SPANISH FOR MILD COGNITIVE IMPAIRMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS

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1 BACKGROUND

Mild Cognitive Impairment (MCI) represents the earliest stage of a chronic and degenerative condition, often undetected, impacting individuals, families, and healthcare systems. Early identification is critical. This study evaluates the diagnostic accuracy of MCI screening tools in Spanish-speaking populations, aiming to enhance early detection, reduce misdiagnosis and underdiagnosis, and improve clinical outcomes.

This systematic review stems from the **Project Dendrite** (PMP22/00084 - "Personalized Medicine in the Identification of Preclinical Cognitive Impairment: Development of a Predictive Risk Model") in which it was demonstrated that the five screening tests employed in the study (MMSE, MoCA, Fototest, MiniCog, T@M) lacked consistency and yielded variable results, even in the same participant. This finding highlights the need to evaluate the diagnostic accuracy of the screening tools and their applicability in early cognitive decline detection.

2 OBJECTIVES

- Which **cognitive screening tools** are currently available and **validated in Spanish** for detecting MCI in patients aged 50 years and older?
- What is the **diagnostic accuracy (in terms of sensitivity, specificity, and AUROC, along with cut-off scores)** of Spanish-validated cognitive screening tools for detecting MCI in patients aged 50 years and older?
- Which **cognitive screening tool or combination of tools** provides the **highest validity** for the early detection of MCI in patients aged 50 years and older?

3 METHODS

This study is a **systematic review of published studies across seven databases**: CINAHL, Embase.com, PsycInfo, PubMed, ScienceDirect, Scopus and Web of Science. The search strategy combined controlled vocabulary and free-text terms tailored to each database, following the **PIRD approach**. To ensure the novelty of the topic, a thorough search of the Cochrane Library and PROSPERO was conducted, confirming no existing systematic reviews or meta-analyses on this subject.

P (Population)	Adults ≥ 50 years, cognitively unimpaired or with MCI
I (Index Test)	Spanish-validated cognitive screening tools for MCI
R (Reference Standard)	Not applicable
D (Diagnosis of Interest)	Reliable identification of MCI through validated screening tools, evaluated by sensitivity, specificity, PPV, NPV, likelihood ratios, AUROC, and optimal cut-off point

* These authors contributed equally to this work.

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ELIGIBILITY CRITERIA

Population: Adults ≥ 50 years, native Spanish speakers, cognitively unimpaired or meeting DSM-5 criteria for MCI. Excluded were individuals with significant neurological, cardiovascular, psychiatric, or substance use disorders, chronic conditions (diabetes, chronic pain), institutionalization, or major barriers to questionnaire completion.

Intervention: Cognitive screening using Spanish-validated tools for MCI detection. Non-cognitive tools and tools not validated in Spanish were excluded. **No comparator was included.**

Study design: Primary quantitative or mixed-methods studies (randomized or non-randomized) published between 2015–2025 in English or Spanish, reporting diagnostic accuracy measures (e.g., sensitivity, specificity, AUROC). Studies conducted in Spanish-speaking contexts across clinical, academic, or research settings were eligible. Secondary literature, grey literature, non-original articles, and case reports were excluded.

4 STATUS UPDATE

After conducting the search and removing 15 duplicates, **a total of 814 articles were obtained**. These articles were independently screened by two reviewers based on title and abstract, following the predefined eligibility criteria, with a third reviewer available to resolve any discrepancies.

Following this screening process, **141 articles** passed on to the next phase of screening, the **full-text review**, which is the phase the study is currently undergoing.

Review stage	Started	Completed
Pilot work	✓	✓
Formal searching/study identification	✓	✓
Screening search results against inclusion criteria	✓	
Data extraction or receipt of IPD		
Risk of bias/quality assessment		
Data synthesis		

5 NEXT STEPS

Once the final set of articles is selected, data extraction will be carried out using the pre-established template. The risk of bias and the methodological quality of each study will then be assessed according to its specific design. As most studies are expected to be diagnostic accuracy studies, the QUADAS-2 tool will be applied for their evaluation. Subsequently, data synthesis and meta-analysis will be performed, followed by the drafting of the systematic review manuscript. The final results will be published in English.

