

Memory Tests For The Diagnosis of MCI

A Systematic Review And Meta-analysis

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Background

MCI is regarded as a prodrome to dementia, involving subjective memory complaint, greater forgetfulness than one would expect for age and intact activities of daily living in a patient not meeting criteria for dementia. Numerous short bedside cognitive tests can be used to assess cognition. MMSE is a gold standard diagnostic validation test.

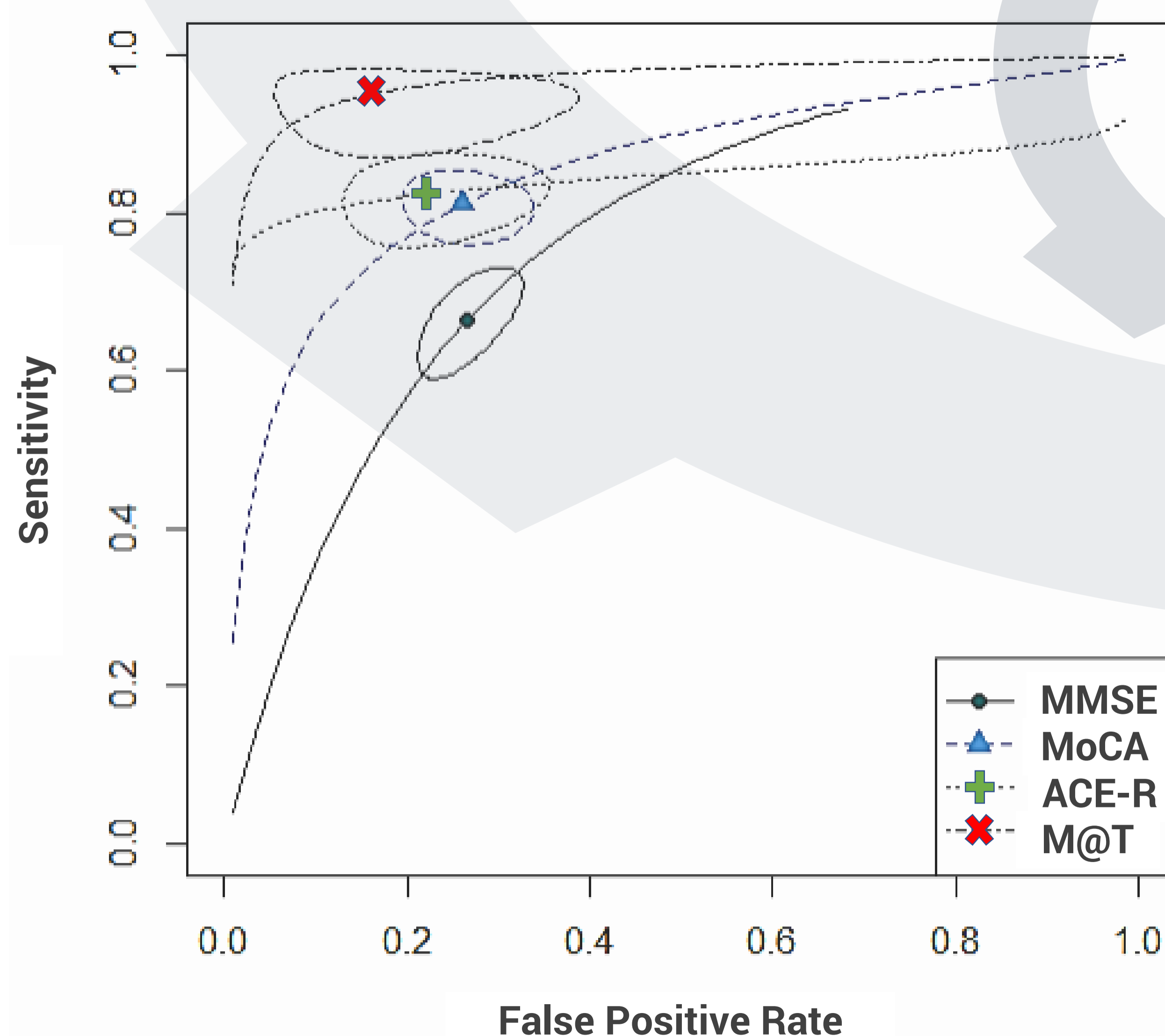
Results

Eight cognitive tests were considered for meta-analysis (Tab.1). ACE-R, CERAD, MoCA, and Qmci were found to have similar diagnostic accuracy (sens. approx. 80%, specif. approx. 75%). The MMSE had lower sensitivity (66%), but similar specificity to the other tests (Fig.2). Memory Alteration Test had the highest sensitivity (91%). The diagnostic accuracies of the CDT-Sunderland and IQCODE were too heterogeneous for quantitative meta-analysis, and diagnostic accuracy is unclear.

Tab.1

Test	N	Participants
ACE-R	6	563
CDT-Sunderland	7	4263
CERAD	5	4076
IQCODE	5	1372
M@T	5	1485
MoCA	24	4095
MMSE	46	17749
Qmci	5	1206

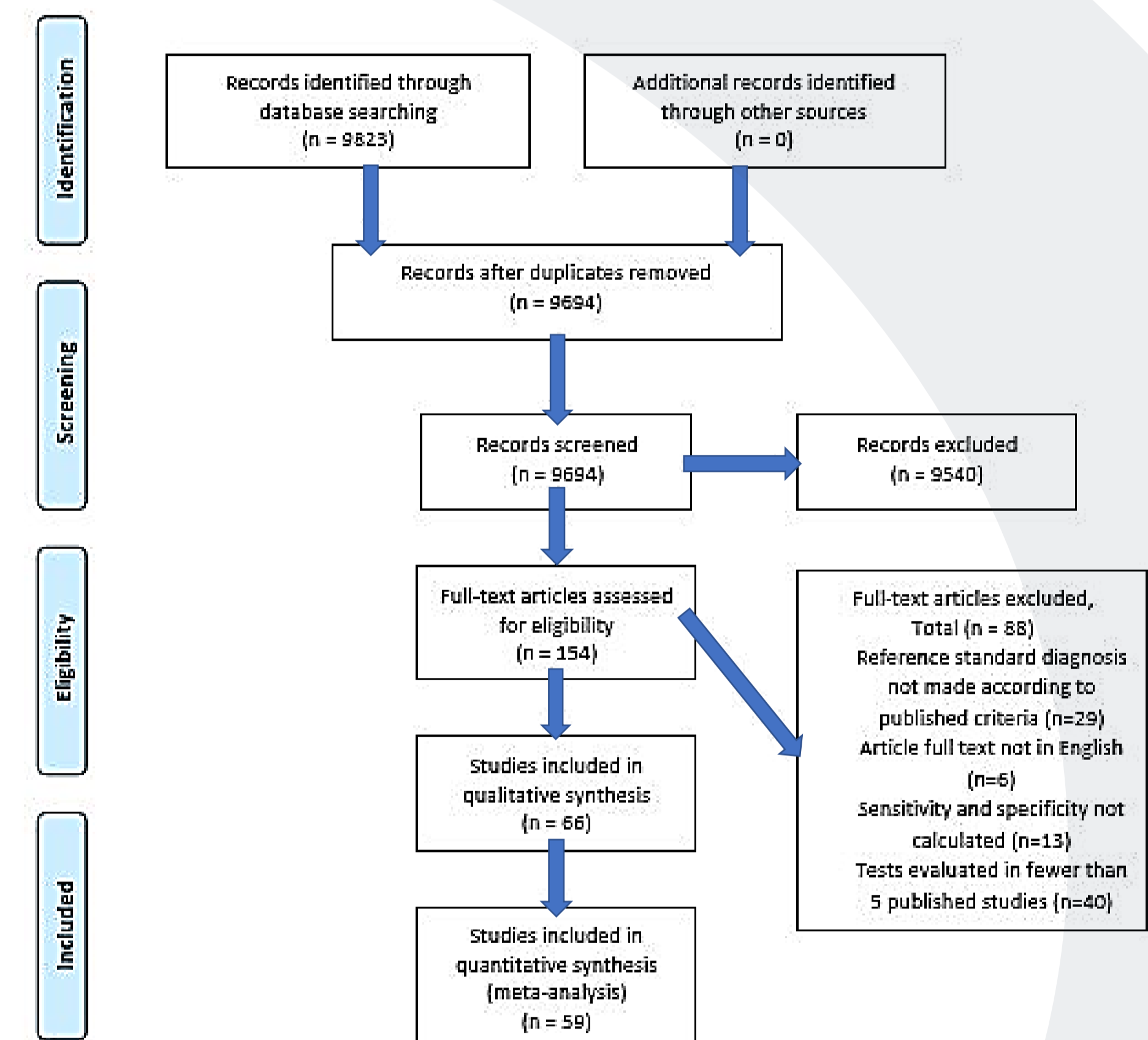
Fig.2



Methods

We conducted a systematic review of the literature for 'MCI' and 'diagnosis' or 'screening', seeking studies evaluating the diagnostic accuracy of a cognitive test for MCI diagnosis as per published criteria compared to a reference standard diagnosis made by psychiatrist/MDT consensus. Search strategy detected 9823 initial studies (Fig.1). Where a single test had been evaluated in at least five published studies (n=59), we conducted bivariate random effects meta-analysis to calculate a summary sensitivity and specificity, and SROC curves¹.

Fig.1



Discussion and Conclusions

>10%

1) More than 10% of MCI patients are being underdiagnosed when you use the MMSE.
2) Clinicians should avoid using it.
3) MMSE is still copyrighted.

- 1) Memory Alteration Test², is a short test with a more detailed focus on verbal learning and recall.
- 2) M@T has the highest sensitivity for MCI.
- 3) QMCI⁴ is an effective quick way to screen for prodromal stage of dementia

- 1) ACE-R, MOCA and CERAD have similar diagnostic accuracy^{3,5}.
- 2) Multi-domain tests are still desirable in tertiary and memory clinic settings.
- 3) ACE-III and MoCa are copyright free for clinical use.

Meta-analysis

References

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