The clinical significance of subjective memory complaints in the diagnosis of mild cognitive impairment and dementia: a meta-analysis

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CRD summary
The review assessed the usefulness of self-reported subjective memory complaints in confirming or ruling out diagnoses of dementia and mild cognitive impairment and concluded that absence of subjective memory complaints may help rule out dementia. Weaknesses in the review process and analysis and dependence of validity upon low disease prevalence mean that this conclusion should be interpreted with caution.

Authors' objectives
To assess the diagnostic value of subjective memory complaints when assessing current dementia or mild cognitive impairment.

The review also assessed the prevalence of subjective memory complaints in dementia and mild cognitive impairment, but these data did not form part of this abstract.

Searching
MEDLINE, PsychINFO and EMBASE were searched from inception to February 2008. Science Direct, Ingenta Select, Ovid Full text, Blackwell Online and Web of Knowledge ISI were also used to search for studies. Search terms were reported. The bibliographies of key articles were screened for additional studies.

Study selection
Studies that assessed the diagnostic ability of subjective memory complaints to confirm or rule-out a diagnosis of dementia or mild cognitive impairment were eligible for inclusion. Studies had to include healthy elderly controls without dementia or mild cognitive impairment as comparators. Subjective memory complaints were defined as cognitive or memory performance difficulties in response to any relevant verbal question. Studies that either related subjective memory complaints to future cognitive decline or assessed subjective memory complaints through questions to relatives were excluded. Mild cognitive impairment could be defined using any recognised method; studies that did not define dementia or mild cognitive impairment were excluded. Reference standard methods used to verify diagnosis included: Dementia Rating Scale; Activities of Daily Living assessment; Hospital Anxiety and Depression Scale; and Mini-Mental State Examination. Subjective memory complaints were assessed using single and multiple question approaches.

The author stated neither how studies were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
The author stated that studies were critically appraised using guidelines for diagnostic tests outlined in Evidence-Based Medicine.

No further details were reported. Criteria assessed included: study setting; data integrity; reference standard method; and method of subjective memory complaint assessment.

Data extraction
Data were extracted to calculate sensitivity and specificity values, with 95% confidence intervals (CIs) for subjective memory complaints.

The author stated neither how data were extracted for the review nor how many reviewers performed the data extraction.
Methods of synthesis
Pooled estimates for sensitivity and specificity were calculated in a weighted fixed-effect meta-analysis; the author did not state how studies were weighted (for example, by sample size or inverse variance). Pooled estimates were used with local prevalence data to calculate positive and negative predictive values. In addition, the clinical utility index was calculated: positive utility index was defined as sensitivity x positive predictive value and the negative utility index was defined as specificity x negative predictive value.

Results of the review
Ten studies provided data on the accuracy of subjective memory complaints for the diagnosis of dementia and/or mild cognitive impairment.

The pooled sensitivity of subjective memory complaints for the diagnosis of dementia was 0.43 (95% CI 0.40 to 0.46) and the pooled specificity was 0.86 (95% CI 0.85 to 0.87) based on data from eight studies (n=6,868).

The pooled sensitivity of subjective memory complaints for the diagnosis of mild cognitive impairment was 0.37 (95% CI 0.35 to 0.40) and the pooled specificity was 0.87 (95% CI 0.86 to 0.88) based on data from seven studies (n=8,912).

Community studies with a low prevalence gave positive and negative predictive values of 18.8% and 93.7% for dementia and 31.4% and 86.9% for mild cognitive impairment. The clinical utility index suggested that subjective memory complaints had poor value for ruling in a diagnosis of dementia but good value for ruling out a diagnosis.

Authors’ conclusions
The absence of subjective memory complaints may be useful in ruling-out dementia and mild cognitive impairment and could be incorporated into short screening programs. However, assessment of subjective memory complaints was not sufficiently accurate alone to establish a diagnosis. No robust studies in clinical settings had been published.

CRD commentary
The review addressed a clearly stated research question defined by appropriate inclusion criteria. A range of sources, including abstract databases, were searched to identify published and unpublished studies. However, the inclusion of terms that related to diagnostic accuracy study methodology in the search strategy may have limited its sensitivity. The reporting of the review process and critical appraisal of included studies was limited. It was, therefore, unclear to what extent the findings of the review were affected by error and bias in the review process and/or methodological weaknesses in the included studies. The decision to pool sensitivity and specificity values was of questionable value given the between-study heterogeneity apparent in Forest plots presented; no formal assessment of between-study heterogeneity was reported. It was unclear what estimates of prevalence were used to derive positive and negative predictive values. However, as the author acknowledged, the statement that absence of subjective memory complaints may be useful in ruling out dementia would only be applicable in low prevalence contexts; low sensitivity tests are not generally useful in ruling-out the target condition. Weaknesses in the review process and analysis and the dependence of validity upon low disease prevalence mean that this conclusion should be interpreted with caution.

Implications of the review for practice and research
Practice: The author stated that absence of subjective memory complaints may be useful in ruling out dementia and mild cognitive impairment.

Research: The author stated that robust studies conducted in clinical settings were needed.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.