Methods of screening for dementia: a meta-analysis of studies comparing an informant questionnaire with a brief cognitive test

Jorm A F

Authors' objectives
To clarify the relative performance of an informant questionnaire with a brief cognitive test in screening for dementia, or dementia plus delirium.

Searching
MEDLINE and PsycLIT were searched using the keywords 'dementia' or 'cognitive' and 'informant' or 'proxy'. The review by Jorm 1996 (see Other Publications of Related Interest) was searched for citations, as were the reference lists of all located studies, and researchers in the area (including the authors of all known informant questionnaires) were contacted.

Study selection
Study designs of evaluations included in the review
Studies that directly compared an informant questionnaire with a brief cognitive test in screening for dementia.

Specific interventions included in the review

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Participants included both males and females, with the mean age in each study ranging from 60 to 82 years. It is not clear whether some participants had already been diagnosed as suffering from dementia or delirium.

Outcomes assessed in the review
The effectiveness (effect size) of the screening tests used in each study was measured using the standardised difference between the means of the demented and control samples.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not report the criteria used to assess validity, or how the validity assessment was performed.

Data extraction
The author does not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The measure of effectiveness proposed by Hasselblad and Hedges (see Other Publications of Related Interest) was used to summarise data from each study. Effectiveness measures from different studies were then combined weighting them by standard error. Means and standard deviations were used in calculating effectiveness, where given otherwise sensitivity and specificity values were used; where several sensitivity and specificity values were given the conventional cut-point of the test or the cut-point which best equalised sensitivity and specificity were used. Where more than one diagnostic standard or set of criteria were given, the one regarded as superior by the authors were used, diagnoses made by clinicians were preferred to computer algorithms and DSM criteria (American Psychiatric Association) were used in preference to other criteria. Where both long and short forms of an informant questionnaire were studied, effectiveness was calculated for the long form.

How were differences between studies investigated?
The chi-squared statistic was used to test for homogeneity; where heterogeneity was found (chi-squared test significant) a random-effects model was used, otherwise a fixed-effect model was used.

Results of the review
All 10 studies (N=2,230) that were located were included.

Heterogeneity: the chi-squared test showed that the effectiveness values were heterogeneous for both informant questionnaires and cognitive tests. The only intervention for which the effectiveness values were homogeneous was the MMSE, for which a fixed-effect model was used.

The weighted mean effectiveness value for the informant questionnaires was 1.74 (95% CI: 1.39, 2.09), for the cognitive tests it was 1.48 (95% CI: 1.23, 1.73). When only the seven IQCODE versus MMSE studies were considered, weighted mean effectiveness was 1.75 (95% CI: 1.36, 2.14) for the IQCODE compared with 1.43 (95% CI: 1.25, 1.61) for the MMSE. For all 8 studies using the IQCODE the weighted mean effectiveness was 1.82 (95% CI: 1.43, 2.21), while for all 8 MMSE studies it was 1.53 (95% CI: 1.36, 1.70).

The mean effectiveness measures were translated into sensitivity and specificity values. Using a cut-point to balance sensitivity and specificity, informant questionnaires would have sensitivity and specificity of 0.83, compared with 0.79 to 0.80 for cognitive tests. If specificity is held to a fixed value of 0.80, the sensitivity of informant questionnaires is 0.86 compared with 0.79 for cognitive tests.

Authors’ conclusions
Informant questionnaires are as effective as brief cognitive tests at screening for dementia and deserve to be used more extensively.

CRD commentary
In this review, the research question is reasonably clear and a literature search is described although more details would be welcomed (which years the databases were searched for, language restrictions, and so on). However no inclusion or validity criteria are given and there is no indication that inclusion criteria were defined a priori, if any were used at all. Information on study design is quite limited, as is information on some of the methods used in the meta-analysis, making it difficult to confidently accept the author’s conclusions.

Implications of the review for practice and research
The author suggests that, as informant questionnaires are used much less than cognitive screening tests, yet perform as well as the cognitive tests, they should be used more often.

Bibliographic details
Jorm A F. Methods of screening for dementia: a meta-analysis of studies comparing an informant questionnaire with a brief cognitive test. Alzheimer Disease and Associated Disorders 1997; 11(3): 158-162
Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Aged; Aged, 80 and over; Alzheimer Disease /diagnosis /epidemiology /psychology; Dementia /diagnosis /epidemiology /psychology; Female; Geriatric Assessment /statistics & numerical data; Humans; Male; Mass Screening; Neuropsychological Tests /statistics & numerical data; Psychometrics; Sensitivity and Specificity

AccessionNumber
11997001155

Date bibliographic record published
31/10/1999

Date abstract record published
31/10/1999

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.