Screening for alcohol problems in primary care: a systematic review

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Authors' objectives
To evaluate the accuracy of screening methods for alcohol problems in primary care.

Searching
MEDLINE was searched from 1966 to 1998 for peer-reviewed English language publications. Full details of the search strategy (MeSH terms and textwords applicable to alcohol problems, detection and primary care) were given.

Study selection
Study designs of evaluations included in the review
No inclusion criteria relating to the study design were specified.

Specific interventions included in the review
Studies evaluating screening methods for alcohol problems conducted in a primary care setting were eligible for inclusion. The screening methods studied included the Alcohol Use Disorders Identification Test (AUDIT) and variations; the CAGE questionnaire and variations; the Michigan Alcoholism Screening Test (MAST) and variations; the 2-question screen proposed by Cyr and Wartman; mental and general health screens; quantity-frequency questions; and clinical indicators such as clinical recognition and laboratory tests.

The studies were conducted in the following primary care settings: community physicians' offices; hospital-based clinics; community practices; family practices including those affiliated to academic institutions; and general medical clinics.

Reference standard test against which the new test was compared
The included studies were required to use an identified diagnostic instrument or an operational definition as the reference standard, to establish the presence or absence of an alcohol problem. The reference standards used included: hazardous drinking (5 or more drinks per week for men); harmful drinking (medical, trauma, domestic or social problems caused by alcohol); ICD-10; the Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS); Trilevel World Health Organization interview; Diagnostic Interview Schedule (DIS); at-risk drinking (various definitions); excessive drinking (more than 14 and more than 7 drinks per week for men and women, respectively); heavy drinking (variably defined); and the Composite International Diagnostic Interview (CIDI).

Participants included in the review
No inclusion criteria relating to patient characteristics were specified. The mean age of the patients in the included studies (where reported) ranged from 36 to 72 years. The proportion of males ranged from 19 to 100%.

Outcomes assessed in the review
The included studies were required to report performance characteristics (e.g. sensitivity and specificity) for the test evaluated. Sensitivity and specificity were the outcome measures reported by the review.

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

Assessment of study quality
Standard validity criteria were used to assess the quality of evidence in screening and diagnostic tests (four studies were referred to). The criteria included: adequate description of patient spectrum (demographic, co-morbidity, eligibility criteria, and number of eligible and screened individuals); individuals received both the screening and criterion standard
test (avoidance of work-up bias); blinding was reported (avoidance of review bias); and separate analysis by demographic characteristics or diagnostic category. All eligible studies were appraised using a standardised form to record study characteristics and results according to predefined coding criteria. The authors do not state how many of the reviewers performed the validity assessment.

Data extraction
The following data were extracted: author; date of publication; setting; screening goal; screening instrument used and cut-off score (where reported); reference standard; age of patients; proportion of males; prevalence of alcohol abuse or dependence; definitions and categories of alcohol use; and sensitivity and specificity. The authors do not state how many of the reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken.

How were differences between studies investigated?
The included studies were grouped by category of alcohol dependence (at-risk or hazardous drinking, and lifetime and current abuse or dependence), and by the screening method under investigation.

Results of the review
Twenty-seven studies were included.

The prevalence of alcohol problems in the population ranged from 2 to 41% depending on the diagnosis and whether lifetime or current criteria were applied. In most studies (66%), screening was performed by the research staff.

The quality assessment identified included inconsistent adherence to methodological standards for diagnostic research: 8% provided a full description of the patient spectrum; 30% avoided work-up bias; 35% avoided review bias; and 55% performed an analysis in pertinent clinical subgroups.

The operating characteristics of all the screening tests varied with the cut-off used to determine the positive results of a screen and the criterion standard. AUDIT was most effective in identifying participants with at-risk, hazardous or harmful drinking. The sensitivity ranged from 51 to 97%, and the specificity from 78 to 96%, when using a cut-off score of 8 (6 studies). The CAGE questionnaire was superior for detecting alcohol abuse and dependence. The sensitivity ranged from 43 to 94%, and the specificity from 70 to 97%, when using a cut-off score of 2 (4 studies). When using a cut-off score of 2, SMART had a sensitivity of 68% and a specificity of 92% for at-risk or hazardous drinking (1 study). For lifetime abuse or dependence, the sensitivity ranged from 38 to 82% and the specificity from 88 to 97% (3 studies). For current abuse or dependence, the sensitivity was 100% and the specificity was 85% (1 study).

The results were reported from individual studies (applicable to differing populations with differing criterion standards) for the following screening tools: MAST (7 studies used MAST or a variant), quantity-frequency questions (3 studies), clinical indicators (6 studies), and mental and general health screening (2 studies).

Authors' conclusions
Despite the methodological limitations, the literature supports the use of formal screening instruments over other clinical measures to increase the recognition of alcohol problems in primary care. Future research in this field will benefit from increased adherence to methodological standards for diagnostic tests.

CRD commentary
The aims of the review were clearly stated and appropriate inclusion criteria were defined. Relevant details of the included studies were presented in tabular format, and aspects of the review methodology were described. By restricting
the included studies to those published in English and identified from one database, other relevant articles may have been omitted. No attempts were made to locate unpublished material, thus raising the possibility of publication bias.

The validity of the primary studies was assessed using defined criteria and the results were presented. Some methodological limitations of the evidence were discussed along with limitations of the review process: a number of strategies were investigated in different settings; methodological standards were inconsistently adhered to; few studies compared instruments; clinicians infrequently performed the screening; the possibility of publication bias; the many sources of differences among the studies; and the variability in criterion standard assessments. A narrative synthesis seems appropriate given the apparent heterogeneity of the included studies. The results were generally not considered according to the methodological validity of the studies. Thus, there was no indication of the quality of the evidence on which the conclusions were based. No comment was made on the validity of the criterion standards used in the individual studies. In view of the issues highlighted, caution must be applied when considering the authors’ conclusions.

Implications of the review for practice and research
Practice: The authors state that in situations where time allows for more in-depth interviewing, incorporating the AUDIT questionnaire may help identify a wider spectrum of alcohol problems. The concise nature of the CAGE questionnaire followed by questions about the quantity and frequency of consumption is pragmatic and shows promise. Additional history should be obtained from all patients who have positive results from standardised screening instruments or quantity-related questions and those suspected of having an alcohol disorder, irrespective of their screening scores. Further diagnostic efforts to assess for specific disorders should be undertaken in this group.

Research: The authors state that attention should be directed at developing uniform diagnostic schemes and accurate criterion standard tests, and that future research should report the characteristics of the study population, the avoidance of work-up and review bias, and a description of test performance in pertinent clinical subgroups.

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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.