Alcohol screening questionnaires in women: a critical review

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Authors' objectives
To describe the performance of screening questionnaires for heavy drinking and/or alcohol abuse or dependence in general clinical populations of women in the United States.

Searching
MEDLINE was searched from 1966 to July 1997 using the following search terms: 'alcoholism' or 'alcohol-drinking' and 'CAGE', 'BMAST', 'T-ACE', 'TACE', 'TWEAK', 'MAST', 'SMAST', 'SAAST' or 'AUDIT'. A second MEDLINE search was conducted from 1996 to July 1997 to identify more recent screening articles; this used the terms 'alcoholism' or 'alcohol-drinking' and 'screening'. In addition, the Social Sciences Citation Index and the Science Citation Index were searched for material on screening questionnaires without acronyms and more recently developed questionnaires. The bibliographies of the retrieved papers were examined. The searches were restricted to publications in the English language.

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

Specific interventions included in the review
Evaluations of the following alcohol screening questionnaires were included: Alcohol Use Disorders Identification Test (AUDIT); Cut down/Annoyed/Guilty/Eye opener (CAGE); Tolerance/Worried/Eye opener/Amnesia/Kut down (TWEAK); Tolerance/Annoyed/Cut down/Eye opener (T-ACE); Normal drinker/Eye opener/Tolerance (NET); Trauma Scale; 6-Item Quantity-Frequency Screen; and Brief Michigan Alcoholism Screening Test (BMAST). The review was limited to those alcohol screening questionnaires with 10 items at most. Earlier alcohol screening tests with more than 10 items served as the reference tests. These included the Michigan Alcoholism Screening Test (MAST), the Short Michigan Alcoholism Screening Test (SMAST), and the Self-Administered Alcohol Screening Test (SAAST).

Reference standard test against which the new test was compared
Acceptable reference standards for alcohol abuse or dependence were based on criteria of the American Psychiatric Association (DSM criteria) or the International Classification of Diseases (ICD). Reference standards for heavy drinking were based upon in-depth interviews. Studies using self-administered questions as a reference standard were excluded. The reference standards used in the study were: women who met the ICD-10 or DSM-III alcohol dependence/abuse criteria during their lifetime or in the preceding year; heavy drinking or at least one alcohol-related incident in the preceding year; two or more drinks per day preconception in studies of obstetric populations.

Participants included in the review
Evaluations of the general clinical population of American women were eligible for inclusion. Evaluations of non-clinical or special clinical populations were excluded, as were studies comparing patients in alcohol or drug treatment with other drinkers. Two studies of obstetric populations were included.

Outcomes assessed in the review
No inclusion criteria were specified with respect to the outcome measures. The authors stated that they extracted data on the sensitivity and specificity of alcohol screening questionnaires and areas under the receiver operating characteristic (ROC) curves.

How were decisions on the relevance of primary studies made?
The titles and abstracts of the articles were reviewed. The authors do not state how many of the reviewers were involved in this process.
Assessment of study quality
The included studies were assessed in light of the following methodological limitations:

the sampling strategy was not described or only patients with positive screening results were interviewed;

the reported sensitivity was based on fewer than 20 women meeting the diagnostic criteria for alcohol abuse or dependence, or the sensitivity was not reported;

the items were used in more than one questionnaire, sometimes with changes in the timeframe or wording;

multiple alcohol screening questionnaires were administered at one time;

screening questionnaires and comparison standards were administered by the same interviewer or at one sitting;

criterion standards were not interviewer administered;

the racial and/or ethnic makeup of the study population was not explicitly stated, or the data for black and white patients were combined.

Two reviewers independently coded each study for the presence or absence of the methodological limitations.

Data extraction
Data on the sensitivity and specificity of the questionnaires, and the areas under the ROC curves, were extracted by one reviewer and checked by a second.

Methods of synthesis
How were the studies combined?
The results were presented as a narrative summary. The sensitivities, specificities and areas under the ROC curves were tabulated for each questionnaire within each study.

How were differences between studies investigated?
Formal tests for heterogeneity were not presented. However, the authors stated that the studies were heterogeneous, with important population and methodological differences that appeared to affect the performance of the questionnaires. The studies were presented in separate sub-tables according to the study setting (emergency department, primary care or obstetrics).

Results of the review
Nine studies evaluating eight brief screening questionnaires were included. The overall number of women screened was approximately 10,476; of these, at least 723 met the diagnostic criteria for alcohol abuse or dependence, according to the reference test.

The CAGE questionnaire had areas under the ROC curves of 0.84 to 0.92 for alcohol abuse and dependence in predominantly black populations of women, but when using the traditional cut point of 2 or more drinks per day, low sensitivities (38 to 50%) resulted in predominantly white female populations. The TWEAK and AUDIT questionnaires had areas under the ROC curves of 0.87 to 0.93 for past-year alcohol abuse or dependence in black or white women, but had sensitivities of less than 80% at traditional cut points. For detecting heavy drinking, the AUDIT questionnaire had areas under ROC curves of at least 0.87 in female primary care patients. The TWEAK and T-ACE questionnaires had higher areas under ROC curves (0.84 to 0.87) than the CAGE questionnaire (0.76 to 0.78) for the detection of heavy drinking before pregnancy was recognised in black obstetric patients.

Authors' conclusions
The CAGE questionnaire was relatively insensitive in predominantly white female populations. The TWEAK and AUDIT questionnaires performed adequately in black or white women when using lower cut points than usual.

**CRD commentary**

The research question, search strategy, inclusion criteria and validity assessment were adequately explained. Some details of the studies were tabulated. The search strategy was fairly limited and it is possible that additional material may have been identified had other databases and languages been accessed. Also, there was no mention of an attempt to identify unpublished papers. A narrative synthesis would seem appropriate given the authors' reservations concerning between-study heterogeneity; some additional exploration of the possible sources of heterogeneity would have been helpful. The authors' conclusions appear to follow on from the results of the review.

**Implications of the review for practice and research**

Research: The authors state that additional research is needed to assess the performance of alcohol screening questionnaires in diverse clinical populations of women; a gender-specific modification of the AUDIT questionnaire should be evaluated; the performance of the AUDIT, CAGE, and TWEAK questionnaires should be further evaluated in women, using lower cut points than have been recommended for men; and future studies should strive to have adequate numbers of women, in order to stratify analyses by race, ethnicity and age.

**Bibliographic details**


**PubMedID**

9669791

**Original Paper URL**

http://jama.ama-assn.org/

**Other publications of related interest**

This additional published commentary may also be of interest. Saitz R. Review: some alcohol screening tests have acceptable test properties for use in general clinical populations of U.S. women. ACP J Club 1999;130:17.

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

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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.