DIAGNOSIS

Review: some alcohol screening tests have acceptable test properties for use in general clinical populations of North American women

Bradley KA, Boyd-Wickizer J, Powell SH, et al. Alcohol screening questionnaires in women. A critical review. *JAMA* 1998 Jul 8;280:166-71.

Question

Are alcohol screening questionnaires sensitive and specific for identifying heavy drinking or alcohol abuse or dependence in women in general clinical populations in the US?

Data sources

English language studies were identified using Medline (1966 to July 1997) with a combination of the search terms alcoholism, alcohol drinking, screening, CAGE, BMAST, T-ACE, TACE, TWEAK, MAST, SMAST, SAAST, and AUDIT; Social Science and Science Citation Indexes; and bibliographies of relevant studies.

Study selection

Studies were selected if they compared a brief alcohol screening questionnaire (≤ 10 items) with an appropriate criterion standard for alcohol abuse or dependence (ie, based on *DSM-IV* or *ICD-10*) or heavy drinking (ie, based on the Alcohol Use Disorder and Associated Disabilities Interview Schedule or a timeline follow back interview) in a generalisable clinical population of women in the US.

Data extraction

Sensitivity, specificity, and area under receiver operating characteristic (ROC) curve.

Main results

13 of 759 studies met the inclusion criteria. They evaluated 8 screening questionnaires in various settings (emergency department, primary care, and obstetric clinic), in different populations (black, white, and Hispanic), and assessed test properties using various cutoff points. Data were not meta-analysed because of study heterogeneity. The table lists test properties for 7 tests. Test

sensitivity varied by race or ethnicity and tended to be lower for women than for men at equivalent cutoff points.

Conclusions

Some brief alcohol screening questionnaires have acceptable test properties for women, although test sensitivities vary by race or ethnicity and tend to be lower for women than for men. Using lower than usual thresholds for a positive screen may therefore be appropriate when giving alcohol screening questionnaires to women.

Ranges of sensitivities and specificities of alcohol screening questionnaires for women

Test	Sensitivity, %	Specificity, %	Area under ROC curve*
CAGE ≥ 2 (7 studies)	38 to 83	92 to 96	0.76 to 0.92
CAGE ≥ 1 (4 studies)	59 to 89	81 to 86	
AUDIT ≥ 8 (3 studies)	59 to 66	93 to 97	
AUDIT ≥ 7 (1 study)	70	95	0.87
TWEAK (hold) ≥ 3 (3 studies)	67 to 80	90 to 94	0.90
TWEAK (hold) ≥ 2 (1 study)	87	87	
BMAST ≥ 6 (2 studies)	23 to 53	97 to 99	
BMAST ≥ 4 (1 study)	57	90	0.75
Trauma scale ≥ 2 (3 studies)	40 to 53	80 to 93	0.59 (1 study)
T-ACE ≥ 1 (2 studies)	76 to 91	70 to 79	0.84 to 0.89 (1 study)
NET ≥ 1 (1 study)	71	86	0.79

*ROC = receiver operating characteristic.

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Abstract and commentary also published in *ACP Journal Club*.

Commentary

Dozens of studies confirm the efficacy of brief interventions for alcohol problems.¹ Translating this evidence into practice has been difficult, however, because of limited physician time and expertise and under recognition of alcoholism.² Although the CAGE questions are almost 25 years old, screening tools have only recently been tested in women, minorities, and the elderly, and used to detect hazardous drinkers (people drinking detrimental amounts but with no consequences).^{3,4}

The systematic review by Bradley *et al* finds that alcohol screening questionnaires may be less sensitive for problem

drinking in women than in men. The authors also point out that their conclusions should be viewed as tentative because, unfortunately, there were few studies to review.

Alcohol problems are more likely to be detected by standardised screening tools.² For sex specific screening, the evidence supports using TWEAK (with questions about Tolerance, Worried, Eye openers, Amnesia, and Kut down) (2 points as a positive test) in women; it is brief, works in diverse populations, and detects current hazardous drinking (particularly important in women who are pregnant or con-

sidering pregnancy). If one instrument is used for all patients, we need a brief, sensitive test that is valid in diverse populations and identifies both current and past hazardous and problem drinking.

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1 Bien TH, Miller WR, Tonigan JS. *Addiction* 1993;88:315-35.

2 Rydon P, Redman S, Sanson-Fisher RW, et al. *J Stud Alcohol* 1992;53:197-202.

3 O'Connor PG, Schottenfeld RS. *N Engl J Med* 1998;338:592-602.

4 Kitchens JM. *JAMA* 1994;272:1782-7.