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Alcohol Screening Questionnaires in Women: A Critical Review

Katharine Bradley, MD, Jodie Boyd-Wickizer, Suzanne Powell, Marcia Burman, MD

Although less than 5% of women in the United States (U.S.) general population develop alcohol abuse and dependence, rates of lifetime alcohol abuse or dependence among women in primary care settings have ranged from 23-25%. Nine percent of women seeking primary care have had alcohol-related problems during the past year. Twelve percent of asymptomatic gynecology patients met interview criteria for current alcohol abuse and dependence in one setting, while higher rates have been observed in symptomatic gynecology patients.

Problem-drinking women are half as likely as men to have received any alcohol-related treatment, and women who seek specialized alcohol treatment have more severe alcohol problems than men, suggesting delayed treatment. In primary care settings, women's alcohol-related problems are less likely than men's to be recognized and addressed by health care providers, 24% compared to 67% in one study. Routine screening programs that identify patients with alcohol abuse or dependence for their providers increase the proportion of problem-drinking women who are counseled.

Women also appear to be more susceptible than men to the medical complications of drinking. Self-reported drinking over 2 drinks daily on average is associated with increased mortality, cirrhosis, and breast cancer in women. Because brief primary care interventions can decrease heavy drinking and alcohol-related morbidity, screening programs for identifying women who drink heavily are needed.

Screening questionnaires are superior to laboratory tests, including hepatic enzymes, for detecting heavy or problem drinking in unselected populations. Unfortunately, studies validating alcohol screening questionnaires have often not included women or not presented gender-specific analyses. Alcohol screening questionnaires may perform differently in women than men for several reasons. The increased stigma associated with heavy drinking by women might lead women to under-report alcohol consumption and related problems more often than men. Finally, women suffer from adverse consequences of drinking at lower levels of consumption than men. Questions about alcohol consumption that identify men with alcohol abuse or dependence consequently might be less sensitive in women.

The purpose of this review was to summarize the published, peer-reviewed literature regarding the performance of screening questionnaires for heavy drinking and/or alcohol abuse or dependence in general clinical populations of women in the U.S.

METHODS

We limited this review to alcohol screening questionnaires with 10 or fewer items. Longer questionnaires are impractical in many settings given the need to screen for multiple health-related behaviors (e.g. smoking, sexual practices, etc.). Six brief screening questionnaires recommended for use with adult women (CAGE, BMAST, T-ACE, TWEAK, NET, AUDIT) were identified from a recent National Institute of Alcohol Abuse and Alcoholism (NIAAA) review. We included the MAST, SMAST, and SAAST despite their length over 10 items, because they were the earliest alcohol screening tests and we expected brief screening questionnaires to have been compared to these longer screening tests. Studies were included in this review if they compared a brief alcohol screening questionnaire to a standardized comparison standard for heavy drinking or alcohol abuse or dependence in a generalizable, clinical population of U.S. women. We limited our review to U.S. studies because cul-

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Emblem: "Soul Catcher" ...a Northwest Coast Indian symbol used to ward off spirits that brought physical or mental illness. Artist: Marvin Oliver.

tural norms and drinking habits vary markedly in different countries and the performance of screening questionnaires may therefore vary as well.

Acceptable comparison standards for alcohol abuse or dependence were based on Diagnostic and Statistical Manual (DSM) or International Classification of Disease (ICD) criteria. Standardized interviews based on these criteria include: 1) the alcohol module of the Diagnostic Interview Schedule (DIS), 2) the substance abuse and dependence sections of the Composite International Diagnostic Interview (CIDI), and 3) the Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS). Several studies used self-administered versions of the DIS. In general, DSM and ICD criteria show good to excellent agreement for alcohol dependence, but not between ICD harmful use and DSM alcohol abuse. Therefore, we excluded data regarding screening for ICD harmful use.

Acceptable comparison standards for heavy drinking were based on in-depth interviews, and included the AUDADIS and a timeline follow-back procedure. Women who drank about 2 or more drinks daily were considered "at-risk" drinkers. We did not review studies using self-administered questions asking for patients' estimates of typical quantity and frequency of drinking as a comparison standard, because such self-report measures are less accurate.

RESULTS

Thirty-six articles met our inclusion criteria with regard to population and comparison standards, but three included only men, and 20 studies did not specify gender or presented pooled data for women and men. The 13 articles meeting inclusion criteria described nine studies, and evaluated eight brief screening questionnaires.

Alcohol abuse and dependence - The CAGE, AUDIT, and TWEAK were the optimal tests for identification of alcohol dependence in women. Although an emergency department study suggested that sensitivities are higher for the TWEAK and CAGE than the AUDIT, the sensitivity of the AUDIT using cut-points less than seven was not reported for women. The high specificity of the AUDIT at a cut-point of seven (95%) suggests that using lower cut-points might result in the optimal balance of sensitivity and specificity.

While the CAGE has performed adequately in predominantly black populations of women, it has had a sensitivity of only 0.50 for past-year alcohol abuse and dependence in white female emergency department patients using the usual cut-point. The sensitivity of the CAGE for a lifetime diagnosis of alcohol abuse or dependence was 0.38 in the only primary care study of a predominantly white population of women. In emergency department patients, however, the AUDIT and TWEAK trended toward increased sensitivity for alcohol dependence in black women.

Heavy drinking - The only study to evaluate a screening questionnaire for detecting heavy drinking in nonpregnant women found the AUDIT to be effective. In studies of black obstetric populations, the CAGE had a relatively low sensitivity for peri-conceptional heavy drinking, while questionnaires asking about tolerance (TWEAK, TACE, NET) were more sensitive.

Most studies of alcohol screening questionnaires have observed trends toward lower sensitivities in women than men at equivalent cut-points. Gender differences in the sensitivity of alcohol screening questionnaires, particularly the CAGE, may be greater in white populations than black. Several studies of alcohol screening questionnaires found higher specificities in women than men, although this finding is not consistent. In one study, the differences in specificities between men and women were far greater than differences in sensitivities, resulting in much higher positive likelihood ratios for women than men.

DISCUSSION

Several trends emerged from our review, despite the diverse settings and methodologies of included studies. First, the performance of alcohol screening questionnaires in women may vary by race/ethnicity. The CAGE, AUDIT and TWEAK questionnaires were more sensitive for alcohol abuse and dependence in studies of black than white women. In addition, the TWEAK may perform better than the CAGE or AUDIT in white women. Second, brief alcohol screening questionnaires may be less sensitive for alcohol abuse or dependence among women than men, particularly screening questionnaires asking about alcohol consumption. Therefore, it may be necessary to use different cut-points in women than men. The sole study to compare a screening questionnaire to an adequate comparison standard for heavy drinking in nonpregnant women only evaluated the AUDIT. Inconsistent findings between studies may in part reflect methodologic differences.

Additional research is needed to assess the performance of alcohol screening questionnaires in diverse clinical populations of women. In addition, the performance of the AUDIT, CAGE, and TWEAK in women should be further evaluated, using lower cut-points than have been recommended for men.

Implications for generalist clinicians

Based on the data reviewed, the 5-item TWEAK appears to be the optimal screening questionnaire for identifying women with heavy drinking or alcohol abuse and dependence in racially-mixed populations. Although the "Hold" version of the TWEAK has been validated more extensively, many women will never have passed out from alcohol use. Therefore the "High" tolerance question may be more appropriate for screening some populations. The CAGE questionnaire is a reasonable choice for identification of past-year or lifetime alcohol dependence (but probably not heavy drinking) in predominantly black female populations. Whichever questionnaire is used, lower thresholds for a positive screen should be used for women than men to identify equal proportions of problem-drinking women and men. Reasonable cut-points for women are: TWEAK >2; AUDIT > 4, and CAGE > 1.

Screening is only the first step in the process of assessment of alcohol problems. For women who screen positive, current drinking practices, adverse consequences of drink-

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ing, symptoms of dependence, and motivation to change should be assessed. When possible, use of a standardized instrument for diagnosing alcohol abuse or dependence will improve diagnostic accuracy. Depending on the severity of problem drinking, women should be offered referral to an alcohol treatment program and/or brief feedback and advice. In referring women to alcohol treatment, the approach should be empathetic and non-confrontational, and care should be taken to address specific barriers, including childcare. Referring women to all-female alcohol treatment programs may improve drop-out rates and outcomes.

Note: See the original article for data, complete references, and questionnaires.

Dr. Bradley is a Core Investigator with HSR&D Center of Excellence and PI on "Veteran Women's Alcohol Problems: Prevalence, Screening and Self-Help" (GEN 97-022).

The following abstracts were presented at the Society of General Internal Medicine, 22nd Annual Meeting, San Francisco, CA, April 29-May 1, 1999

VARIATIONS IN GENERAL AND CONDITION-SPECIFIC HEALTH STATUS AMONG VA GENERAL INTERNAL MEDICINE CLINICS. SD Fihn, MB McDonell, University of Washington and VA Puget Sound Health Cam System, Seattle WA. ***Objective***. Recent efforts to improve quality of care and productivity have involved measurements of patients' general health status to adjust for case-mix and to assess outcomes. As part of the Ambulatory Care Quality improvement Project (AQUIP), we compared geographic variability in general and condition-specific measures of health status among VA primary care patients.

Setting/Participants: All 23,889 active eligible patients in 7 VA GIM clinics.

Study Design: Cross-sectional mailed survey.

Measures: Data collected on all respondents included an inventory of active medical conditions and the SF-36, a measure of general health status that includes a depression screen (the MHI-5). Patients who reported one of six target conditions were then mailed the relevant condition-specific health status measure(s) that included the Seattle Angina Questionnaire (SAQ) and the Seattle Obstructive Lung Questionnaire (SOLQ). Patients with a positive MHI-5 were mailed the SCL-20, a measure of depression.

Results: 66% of patients responded to the baseline inventory. The mean age was 64; 96% were male. Of the 24,287 patients who were mailed follow-up SF-36 and condition-specific surveys, 15,007 (62%) responded. Statistically (p<.0l) and clinically significant differences among sites were observed on all SF-36 scales including Physical Function (range 39.1 to 58.6), General Health (36.2 to 54.8), Vitality (34.0 to 50.5); Bodily Pain (44.9 to 6l.0). Significant but smaller variation was observed on social and mental health scales. Relative differences among sites were consistent across scales and approximated a full standard deviation comparing the highest and lowest sites.

Of 9,004 patients who reported angina on the initial questionnaire, 5,697 (63%) returned the SAQ. Highly significant differences among sites were also observed for scores on all SAQ scales including Anginal Frequency (69.7 to 81.1), Anginal Stability (50.9 to 63.9) and Physical Function (43.6 to 56.5). 5,553 patients who reported COPD, 3,302 (59%) returned the SOLQ. Again, highly significant differences among sites were present for all scales including Coping (59.8 to 70.8), Emotional Function (51.5 to 65.4) and Physical Function (33.6 to 50.4).

Using a score of 17 as a cut off for the MHI-5, the percentage of patients screening positive for depression averaged 32.6% with a range from 20.8 to 33.2%.

After adjusting for age, education, income and race, geographic location remained highly significant (p<.01) for all comparisons.

Conclusions: Although potentially limited by response bias, these results suggest there are clinically important differences among primary care patients in different geographic locations with regard to both general and condition-specific health status.

AFRICAN AMERICAN VETERANS WITH CORONARY ARTERY DISEASE REPORT WORSE HEALTH AND LESS SATISFACTION WITH CARE. CI Kiefe, ME McDonell, DM Martin, SD Fihn, Dept of Medicine, University of Alabama at Birmingham, Birmingham, AL, and VA Puget Sound, Seattle, WA.

Background: Racial differences in management of coronary artery disease (CAD) are well known but poorly understood. Several studies document less intense management of African Americans (AA) compared to Whites (W), even within the Department of Veteran Affairs (DVA). We examined AA vs. W differences in self-reported health status and satisfaction among veterans with CAD.

Methods: Cross-sectional analysis of surveys were mailed to 38,642 General Internal Medicine Clinic patients at 7 VAs. Patients reporting CAD on

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an initial checklist received follow-up surveys including: the Seattle Angina Questionnaire (SAQ); the Seattle Outpatient Satisfaction Questionnaire (SOSQ) which measures satisfaction with humanistic and organizational aspects of care; and the Medical Outcomes Study SF36. All scales were scored from 0 (worst) to 100 (best).

Results: 66% of patients responded to the baseline surveys; 4,204 (16.4%) classified themselves as AA, and 15,391 (63.5%) as W. AAs compared to Ws were younger (58.9 vs. 62.8 years), less likely to use non-VA health care (27.9% vs. 37.2%) or to be married (44.8% vs. 59.2%); more likely to have income below $10,000 (39.9% vs. 24.8%), to smoke (33.6% vs. 25.6%), and to screen positive for drinking problems (39.2% vs. 30.4%). AAs were also more likely to report diabetes (25.8% vs. 20.2%) and hypertension (65.4% vs. 52.0%), but less likely to report CAD (26.6% vs. 37.9%); $p<0.001$ for all contrasts. CAD was reported by 9,287 patients (36%); 1,118 AAs, 5,836 Ws and 2,333 other, and the contrasts between Ws and AAs reported above were also observed in CAD patients. Among CAD patients, 61.3% returned the SAQ SF-36 and SOSQ. Statistically significant differences were:

	SF-36		SOSQ		SAQ		
	Vitality**	Emotional Function**	Humanistic**	Organizational**	Physical Function*	Disease Percept**	Satisfaction**
AA	40.9	41.0	65.6	58.7	48.6	58.8	77.1
W	35.21	54.7	74.3	64.2	52.4	64.1	84.4

*AA vs. W contrast significant at $p<0.005$;**$P<0.001$.

AAs and Ws did not differ on the other 6 SF-36 scales at $p<0.01$, but AAs tended to score lower; nor did they differ on angina frequency and stability. All significant differences persisted after adjustment for age, income, education and marital status.

Conclusions: Compared to Ws, AAs in this DVA sample had poorer socioeconomic circumstances, were markedly less satisfied with all aspects of their care, and, for most measures, tended to have worse self-reported health status, both general and specific to CAD. These differences remained after adjustment for socioeconomic factors, and parallel differences in treatment observed in other studies.

CHOOSING A PHYSICIAN: DOES RACE MATTER? S Saha, M Komaromy, and AB Bindman, VA Puget Sound Health Care System, Seattle, WA, and Primary Care Research Center, Department of Medicine, University of California, San Francisco.

Black and Hispanic physicians serve as primary care providers for large numbers of black and Hispanic patients. Racial and ethnic pairing of patients and physicians may be attributable to greater accessibility of minority physicians within minority communities. Pairing may also result from patients' preferring to see physicians of their own race or ethnicity, for reasons related to language, culture, or discrimination. We sought to determine the degree to which racial and ethnic matching between patients and physicians is attributable to the geographic accessibility of physicians vs. patients' choice.

We analyzed data from a national telephone survey conducted in 1994. Among 2045 white, black, and Hispanic respondents, we assessed predictors of racial pairing between patients and physicians, including patients' ratings of the convenience of their physicians' office location, and their ability to choose their physicians.

Black respondents chose black physicians more often than non-black physicians (adjusted OR 3.37, 95% CI 1.54-7.36), even after controlling for sociodemographic factors and convenience of physician's office location. Among Hispanics, primary language (Spanish) was associated with having a Hispanic physician (adjusted OR 2.16, 95% CI 1.17-3.99). Convenience of physician's office location was associated with having a racially concordant physician for whites (adjusted OR 3.04, 95% CI 1.22-7.61), but not for blacks or Hispanics.

Blacks and Hispanics may obtain care from physicians of their own race and ethnicity more because of personal preference and language than because of geographic accessibility. Efforts to increase the supply of underrepresented minority physicians and to enhance cultural and linguistic competence among health care providers will be necessary to meet the needs and demands of an increasingly diverse population of health care consumers. ✠

FELLOWS' PROFILES

Traci Takahashi, MD

Having Dr. Fihn as her medicine ward attending at the VA when Traci Takahashi was a second year resident was the spark that eventually led her to become an HSR&D ambulatory care fellow this year. She did not intend to stay in the Seattle area so long (almost five years now!), but it seemed that each year she stayed, it prompted her to stay even longer.

Traci's research interests include basic education and health care for underserved, high risk populations, women's health issues and clinical research and the understanding of epidemiology and statistical analysis.

Traci is originally from San Leandro, California, which is east of San Francisco in the Bay Area. She lived in the Bay Area for the first 22 years of her life, having attended Stanford University in Palo Alto as an undergraduate. After college, Traci thought it was time to move on, and attended U.C. San Diego medical school. Traci enjoyed the beaches, sunshine, and snow skiing opportunities there but still managed to graduate and match for internal medicine at the University of Washington. Residency was a hard three years but while attending in the Harborview emergency department she had time to recuperate and enjoy all the reasons why she chose to come to Seattle.

Now, Traci enjoys hiking, reading a good novel, playing tennis, and eating at the excellent Seattle restaurants. This winter, she's looking forward to many trips to Stevens Pass and Crystal Mountain as study breaks from her MPH classes and research.

Mark Micek, MD

Mark is currently in his second year as an HSR&D ambulatory care fellow. His major research interests at HSR&D include exploring issues around patient satisfaction and patient-physician communication, and is currently involved in both quantitative and qualitative projects with satisfaction and informed consent. Other areas of interest include the integration of complementary medicine in medical care, and international medicine.

Mark is originally from the Chicago area, has an undergraduate degree in philosophy from the University of Notre Dame in Indiana, and a medical degree from Northwestern University in Chicago. He then moved to the northwest for his internal medicine residency at the University of Washington in Seattle, Washington, in the Seattle-Boise primary care track. He then spent a year as a chief resident at the Boise VAMC site, before starting his HSR&D fellowship at the Seattle VA.

Mark's main hobbies include musical and outdoors activities. He is a pianist and clarinetist, and is actively involved with musical ensembles at the University of Washington, including the symphony orchestra, opera, and wind ensembles. Since moving to the Pacific Northwest, he has also spent a good deal of time enjoying the surrounding environment by backpacking, mountaineering, and rock climbing.

CHAUN-FEN LIU, PH.D.

Fen is a health economist with a Ph.D. in Health Services Research from the University of Minnesota. She received her MPH in Public Health Administration from National Taiwan University and was a public health administrator in the Department of Health in Taiwan before coming to the United States.

After completion of her Ph.D., she was a research associate at the Institute of Health Services Research at the University of Minnesota. She worked on a study examining the effect of Medicaid managed mental health plan in Utah on utilization, mental health status, physical health status, and satisfaction with medical care services. Prior to joining Northwest Center of Excellence, she was a Senior Economist at Health Economics Research in Boston, she worked on research projects related to Medicare risk adjustment and payment issues, and state health care reform. She joined the Northwest Center of Excellence in November 1998.

Fen's research interests include cost and utilization analysis, health economics, risk adjustment, and mental health. She is a PI on a study funded by the Agency of Health Care Policy and Research which examines the impact of bundled payment of bypass surgery on hospital costs using micro-cost data. This study also examines the effects of risk factors and in-hospital mortality of bypass surgery on direct variable costs. She is also working with Dr. Hedrick on the evaluation of the effectiveness of treatment for depression in primary care.

Fen and her husband, Hom, have one three-year-old son, Alexander. Since moving to Seattle last year, they have been exploring places around this area. Alexander's favorite place is the Seattle Center where he can take the Monorail and go up to the Space Needle. They have enjoyed living in the Seattle area while enjoying all the cultural diversity..

Northwest HSR&D Center of Excellence

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HSR&D Newsletter

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HSR&D Deadlines

Local deadline for proposal review is two weeks prior to Research Review Committee meeting and two months prior to VAHQ deadline. Review Committee meets on 1st Friday of each month.

VAHQ Deadlines

Letters of Intent (LOI): Accepted any time, reviewed monthly. Guidelines in Instructions for Submitting a Letter of Intent, October, 1998.

Investigator-Initiated Research Proposals (IIR): Due May 1 and November 1. An approved LOI is required prior to submission. Guidelines in Instructions for Preparing Invstigator-Initiated Research Proposals, October, 1997.

Research Career Scientist: March 1 and September 1. Guidelines in RCS Directive VHA Notice 98-02.

Career Development: Due February 15 and August 15. Must have approved LOI prior to submission; due November 1 and May 1. Guidelines in CDA Directive VHA 1201.8.

For current guidelines and forms, please refer to www.va.gov/resdev.

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HSR&D SERVICE

Department of Veterans Affairs

18th Annual Meeting

March 22-24, 2000
Renaissance Washington DC Hotel
202-898-9000 or 800-228-9898

Systematizing Quality in Health Care: Approaches that Work

Hosted by:
Veterans Evidence-Based Research, Dissemination and Implementation Center (VERDICT)
San Antonio, TX
Jacqueline Pugh, MD, Director

The VA health care system has committed to putting quality first. New tools, such as performance monitoring, practice guidelines, evidence-based decision making, provider payment and organizational theory are being used by policymakers and leaders to shape VA care and improve quality. VA health services research plays a critical role in the development and evaluation of new methods like those for improving care, and in the dissemination of research findings to managers and policymakers.

The Health Services Research and Development Service Eighteenth Annual Meeting will bring together researchers, clinicians, and policymakers interested in exploring new methods to improve health care. As in previous years, the program will feature invited speakers, competitively selected oral and poster presentations, workshops, and exhibits. In addition, a research funding proposal development workshop and a video presentation will be offered (prior to registration) on Wednesday, March 22, 2000. Throughout the conference, attendees will be encouraged to articulate the linkages between scientific activities, VA policy development, and clinical service delivery.

The deadline for registration is January 25, 2000.