

Alcohol Abusers in Primary Care: Readiness to Change Behavior

Jeffrey H. Samet, MD, MA, MPH, Patrick G. O'Connor, MD, MPH

PURPOSE: Assessing readiness to address alcohol problems is an important early step in managing the alcohol abusing patient. We assessed readiness for behavioral change in primary care of patients who screen positive for alcohol abuse based on the CAGE questionnaire. Our hypothesis was that these patients would be predominantly in the contemplation stage, an opportune stage for physicians to facilitate their movement into substance abuse treatment.

PATIENTS AND METHODS: We administered the CAGE questionnaire, a well-validated screening tool for detecting alcohol abuse, to 1,211 of 1,335 patients (91%) who attended two urban primary care clinics. Patients who responded positively to one or more CAGE questions were administered two validated instruments that assessed readiness to change alcohol use. We also measured quantity and frequency of alcohol use.

RESULTS: Seventeen percent of patients gave a positive response to one or more CAGE questions (209 of 1,211) and were eligible for further evaluation; 92% (192 of 209) agreed to par-

ticipate. These subjects' mean age was 50 years and the majority (58%) were African American. Of these patients, 23% were in the precontemplative (denial) stage, 14% were in the contemplative stage, and 63% were in the action stage of behavior change, indicating that they were in early or long-term recovery. Stage of readiness to change results were similar for those with one positive response and two or more positive responses to CAGE questions.

CONCLUSIONS: Most patients in whom alcohol abuse is detected in primary care using the CAGE questionnaire are either actively addressing their substance abuse or are in recovery. Contrary to our hypothesis, only a minority of patients are in the contemplation stage. Assessment of stage of change is not apparent from the CAGE questionnaire alone. Our results suggest that clinical skills to facilitate relapse prevention would be particularly valuable for clinicians addressing alcohol abuse in the primary care setting. *Am J Med.* 1998;105:302-306. ©1998 by Excerpta Medica, Inc.

Up to 36% of patients in a primary care setting meet criteria for a history of alcohol abuse or dependence (1). Screening for alcohol problems has been recommended by the United States Preventive Services Task Force and the National Institute on Alcohol Abuse and Alcoholism (2,3). The CAGE questionnaire is a recommended and validated approach to screening (2-4). After detection of an alcohol history, the diagnosing physician must assess the patient to determine the most effective approach to address this issue, one important aspect of which is determining the patient's readiness to change his or her alcohol use.

Intervening to change unhealthy behaviors is a fundamental role of the primary care provider (5). However, the process of behavioral change in adults is challenging and far from universally successful (6). Attempts to change patients' behavior have been advanced by the development of theoretical models of the process (7). The

transtheoretical model developed by Prochaska and DiClemente (8) describes a sequence of stages through which patients move. These stages are in a continuum from unawareness of a problem (precontemplation), to recognition but ambivalence about its importance (contemplation), to having decided to change the behavior (determination), to changing the behavior (action), to maintaining the behavior change (maintenance) with the understanding that return to the previous behavior is always possible (relapse). Although this model was initially developed in the study of smoking cessation, it has also been applied to other efforts to change health behaviors, including substance abuse (8,9).

There are clinical approaches to managing the alcohol abusing patient that are tailored to the patient's stage of behavioral change (11). For example, whereas it is appropriate to suggest attendance at an Alcoholics Anonymous meeting for a patient in the determination or action stage, it might be counterproductive to make this suggestion to someone in the precontemplation stage, who is not aware that alcohol use is a problem. Thus determining a patient's readiness for behavior change may be clinically useful. However, the stage of behavioral change readiness among alcohol abusing patients presenting to primary care has not been described. Our purpose was to inform clinical strategies after the detection of alcohol abuse by identifying the stage of readiness for behavioral change in patients who test positive on the CAGE questionnaire. Our hypothesis was that these patients are predominantly

From the Clinical Addiction Research and Education Unit (JHS), Section of General Internal Medicine, Department of Medicine, Boston Medical Center, Boston University School of Medicine, and the Department of Social and Behavioral Sciences, Boston University School of Public Health, Boston, Massachusetts; and the Department of Medicine (PGOC), Yale University School of Medicine and Yale-New Haven Hospital, New Haven, Connecticut.

Requests for reprints should be addressed to Jeffrey H. Samet MD, MA, MPH, Clinical Addiction Research and Education Unit, Section of General Internal Medicine, Boston Medical Center, 91 East Concord Street, Suite 200, Boston, Massachusetts 02118.

Manuscript submitted December 23, 1997, and accepted in revised form May 26, 1998.

in the contemplation stage, and thus at an opportune point for substance abuse treatment.

PATIENTS AND METHODS

Study Sites and Population

This study was conducted at primary care centers in urban hospitals in Boston, Massachusetts (Boston City Hospital), between June and August 1994, and in New Haven, Connecticut (Yale-New Haven Hospital), between February and July 1995. We used the following eligibility criteria to identify patients for this study: (1) attendance at a physician or nurse practitioner appointment at selected clinical sessions during the designated periods; (2) fluency in either English or Spanish; and (3) ability to understand and respond to study questions as assessed by study interviewers. This study was approved by the institutional review boards at the two institutions.

Study Design

We attempted to administer the CAGE questionnaire to all eligible subjects. The CAGE questionnaire is a commonly used and well-validated screening tool for detecting alcohol abuse (4,12). It consists of the following four questions: Have you ever felt you should *cut* down on your drinking? Have people ever *annoyed* you by criticizing your drinking? Have you ever felt bad or *guilty* about drinking? Have you ever taken a drink first thing in the morning (*eye-opener*) to steady your nerves or get rid of a hangover? A single positive response was considered a positive screening test. This corresponds to a sensitivity of 85% and a specificity of 89% in an inpatient population with 20% prevalence of alcohol abuse or dependence (13), and a sensitivity of 89% and specificity of 81% in an outpatient population with 36% prevalence of alcohol abuse or dependence sensitivity (1).

A single bilingual interviewer at Boston City Hospital distributed the CAGE questionnaire and performed interviews in English or Spanish as necessary. Patients who gave at least one positive response were asked to provide informed consent for further interview. At Yale, a single interviewer distributed the CAGE questionnaire in English only, and an interpreter was used when appropriate. In New Haven, informed consent was obtained prior to distribution of the CAGE questionnaire.

Patients who were CAGE positive received a more extensive 15- to 20-minute interview that included questions concerning demographic data, clinic utilization, alcohol intake, and readiness for behavioral change. Demographic data included date of birth, gender and race/ethnicity. Healthcare utilization information included whether the encounter was the initial one to the clinic and the number of years in attendance at the clinic. The patient's readiness to change substance abuse behavior was assessed using validated instruments (Appendix). The

Readiness to Change questionnaire is a 12-item instrument used to assess readiness to change behavior in alcohol abusers (14). It produces scale scores that correspond to the transtheoretical model stages of precontemplation, contemplation, and action.

Another instrument, the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES), version 7, short form, was also used to describe the readiness for behavior change of this population (15). This 20-item scale yields three factors: recognition of drinking problems, ambivalence or uncertainty about drinking, and taking steps to change (Recognition, Ambivalence, and Taking Steps).

We gauged patients' quantity and frequency of alcohol use using 2 specific questions from the 10-item AUDIT questionnaire (Alcohol Use Disorders Identification Test) (16): "How often do you have a drink containing alcohol?" and "How often do you have six or more drinks on one occasion?" Based on responses to these AUDIT questions ("never" or "monthly or less" for the first question and "never" for the second question), patients were assessed as likely to be in recovery.

Statistical Analysis

The readiness to change instruments were scored as described (14,15). Comparisons of differences in patient characteristics between readiness to change groups were performed using the chi-square test or Fisher's exact test for categorical variables and the Student's *t* test for continuous variables (17,18). A two-tailed *P* value <0.05 was considered statistically significant.

RESULTS

The CAGE questionnaire was administered to 1,211 (91%) of 1,335 eligible patients, of whom 209 (17%) had one or more positive responses and were eligible for the complete assessment. Of these patients, 192 (92%) agreed to participate (Figure 1). Study participants (*n* = 192) were primarily middle aged; a majority were African Americans (Table 1). Most had been cared for in the clinics for several years. No significant differences in gender, ethnicity, and age were found between those who participated in the study compared with those who were eligible but refused to participate (*n* = 17).

The Readiness to Change questionnaire was completed in 184 (96%) of CAGE positive patients, who were categorized into the following stages of behavioral change regarding their alcohol use: 44 (23%) were precontemplative; 25 (14%) were contemplative; and 116 (63%) were in action. There were no significant differences between the study sites and these stages.

Patients' stage of change was not associated with the number of positive CAGE responses (*P* = 0.43), although

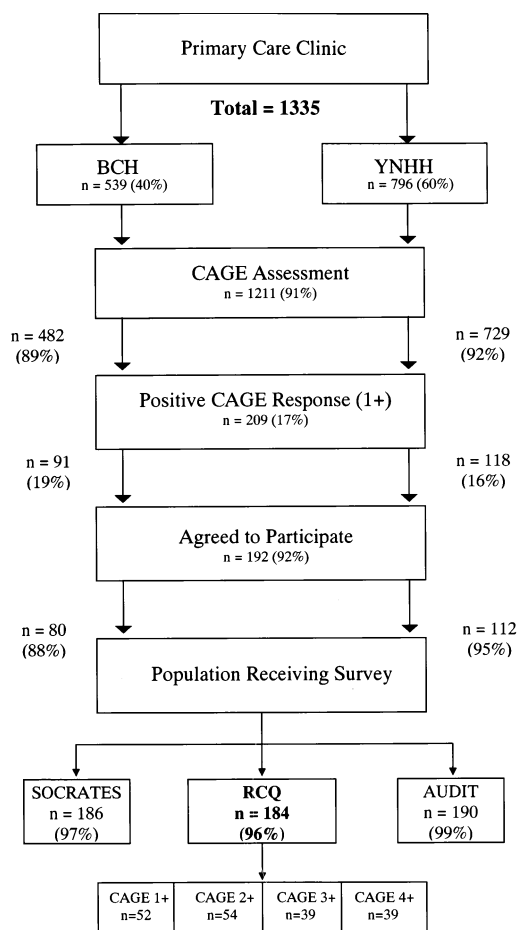


Figure 1. Schematic of patient enrollment. BCH = Boston City Hospital; YNHH = Yale-New Haven Hospital; RCQ = Readiness to Change questionnaire; SOCRATES = Stages of Change Readiness And Treatment Eagerness Scale; AUDIT = Alcohol Use Disorders Identification Test.

fewer patients were in the precontemplative stage as the number of positive CAGE responses increased (Figure 2).

Readiness to change was also assessed using the

SOCRATES instrument (Table 2). In addition to the scores of our primary care patient sample, scores reported in a sample of patients after substance abuse treatment are included for comparison. Not surprisingly, recognition of alcohol abuse as a problem is lower in primary care patients than in patients after alcoholism treatment. However, taking steps scores of the highest scoring 40% from primary care are in the same range (30+) as the highest 80% after substance abuse treatment.

Responses to the AUDIT questions suggest that more than half of CAGE positive primary care patients are in recovery (56% as assessed by the first question concerning frequency of ever drinking alcohol, 54% as assessed by the second question concerning drinking 6 or more drinks at once, and 38% when using the responses to both questions to define recovery).

DISCUSSION

Understanding a patient's stage of readiness to change one's alcohol abuse behavior has been advocated as the first clinical step after the detection of the problem (11). Our original hypothesis was that alcohol abusers in primary care settings would be predominantly in the contemplation stage of behavioral change; thus, detection of an alcohol problem would be an opportunity to move a patient to the next stage of deciding to seek treatment. Despite its potential importance, determining an alcohol abusers' stage of readiness to change has been examined mainly in the substance abuse treatment setting (14,15), in which the instruments were developed. Understanding where primary care patients are within the spectrum of change readiness regarding alcohol abuse would inform clinicians and medical educators about skills and clinical approaches that might enhance care for patients with alcohol problems.

Our hypothesis was proven false at both sites. Although a small minority (14%) were in the contempla-

Table 1. Characteristics of CAGE Positive Patients at Two Urban Primary Care Clinics*

Characteristic	Combined (n = 192) n (%)	Boston City (n = 80) n (%)	Yale-New Haven (n = 112) n (%)
Female gender [†]	75 (39)	19 (24)	56 (50)
Age, years	49.5 ± 14.2	50.9 ± 11.8	48.5 ± 15.7
Race/ethnicity			
African American	112 (58)	48 (60)	64 (57)
Hispanic [†]	23 (12)	19 (24)	4 (4)
White [†]	51 (27)	8 (10)	43 (38)
Other	6 (3)	5 (6)	1 (1)
First visit to clinic	26 (14)	12 (17)	14 (13)
Years attending same clinic [‡]	6.4 ± 10.3	7.1 ± 11.9	5.9 ± 8.8

* Plus-minus values are mean ± SD.

[†] P < 0.05, comparing the BCH population with the YNHH population.

[‡] (n = 180)

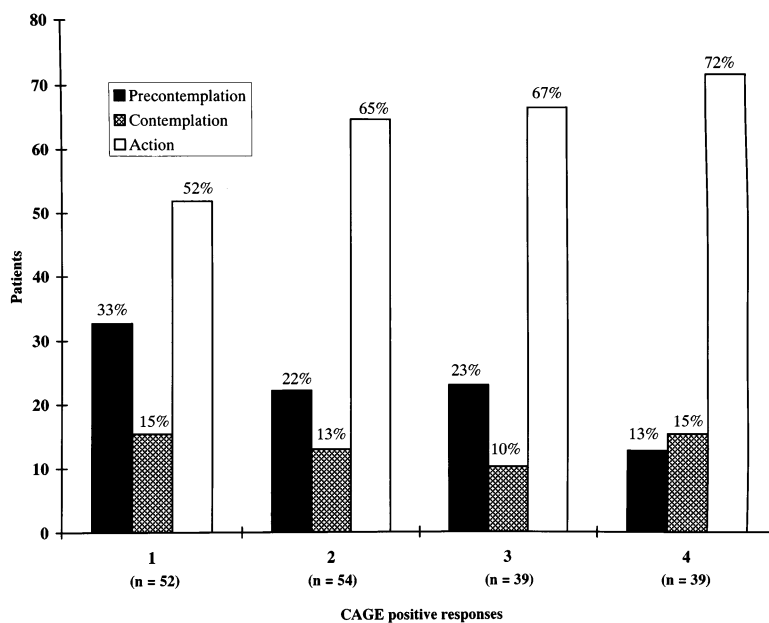


Figure 2. Patients' stage of change stratified by number of positive CAGE responses. X axis = CAGE, number of positive responses; Y axis = percentage of patients.

tion stage, the majority were in the action stage, representing patients who were in early and long-term recovery. This was a consistent finding among patients with one, and with more than one, positive CAGE response, and was confirmed by the quantity/frequency questionnaire, and the results from the SOCRATES questionnaire. Compared with a post-substance abuse treatment population, primary care patients scored lower on the recognition scale (15). This finding suggests that many primary care patients do not recognize their alcohol abuse as a problem. Indeed, the taking steps scale indicates that a majority of primary care patients look very similar to patients having undergone substance abuse treatment.

That most patients in primary care who have a positive response to the CAGE questionnaire are not actively using alcohol should direct attention to enhancing physician skills in relapse prevention (19). Primary care physicians have unique opportunities to support, monitor, and intervene with patients who are struggling to remain in recovery from alcoholism. Recognizing that a patient is in recovery enables the physician to provide positive feedback about successfully remaining abstinent for a specified period of time and to emphasize the need to remain that way. Recently, a clinical guide to physicians' management of adults recovering from alcohol or other drug problems has become available (20).

Table 2. Scale Scores for the Three SOCRATES Categories by Decile Rankings For Posttreatment Patients and Primary Care Patients*

Decile Rankings (%)	Ambivalence Scores [†] (Range 4–20)		Recognition Scores [†] (Range 7–35)		Taking Steps Scores [†] (Range 8–40)	
	Posttreatment	Primary Care	Posttreatment	Primary Care	Posttreatment	Primary Care
10	8	4	26	8	25	13
20	11	5	28	10	29	19
30	13	7	30	13	30	24
40	14	8	31	14	32	26
50	15	10	33	17	33	28
60	16	11	34	18	35	30
70	16	12	35	20	36	32
80	18	13	35	23	38	33
90	19	14	35	27	40	35

* Posttreatment patients, n = 1,672 (15); primary care patients, n = 186.

[†] Scores assess each patient's ambivalence or uncertainty about drinking, recognition of drinking problems, and taking steps toward change. The higher the score, the more prominent these characteristics are in the individual.

The unexpected finding that the majority of primary care patients with positive CAGE responses were not actively using alcohol requires careful scrutiny. One possibility is that the instruments used are relatively new and were developed for alcohol abusers or harmful drinkers. They thus may not be appropriate for assessing primary care patients. This concern is substantially tempered by the consistency of our finding using three different instruments.

It is also possible that the reason that most CAGE-positive patients did not drink alcohol is that the CAGE questionnaire is not perfect. The positive predictive value for a single positive response in a population that has a 20% prevalence of alcohol problems is only 54%. We used a single positive CAGE response as the entry criteria for this study in order to make the results most applicable to clinical practice. CAGE has been recommended for screening by the National Institute of Alcohol Abuse and Alcoholism (2), and its test characteristics have been examined critically (1). With each additional positive response to the CAGE questionnaire, the likelihood of an alcohol abuse diagnosis increases, such that the positive predictive value of the CAGE approaches 100% with four positive responses (1). We were concerned that our finding about stages of readiness to change were unduly influenced by patients—especially those with only one positive CAGE response—who would not meet diagnostic criteria for alcohol abuse. To allay this concern, we examined stage of readiness to change by the number of positive responses to the CAGE questionnaire. The distribution of stages by number of positive CAGE responses were similar: a majority of each group were in the action/maintenance (recovery) stage (Figure 2).

Limitations of this study include its examination of only primary care sites in urban northeastern United States. The ethnic make-up of our sample is not representative of the US population. Information as to patients' past or current substance abuse treatment would be of interest but as our original hypothesis did not relate specifically to patients in recovery, we did not obtain this information.

In conclusion, a majority of patients in primary medical care who respond positively to the CAGE questionnaire actually consume little or no alcohol and are in recovery from their alcohol problems. These results suggest that relapse prevention may be an important clinical tool for the primary care provider and deserves attention in the training of physicians.

ACKNOWLEDGMENTS

Dr. Samet is the Project Director of the Boston University School of Medicine Faculty Development Program for the Prevention of Alcohol and Other Drug Abuse funded by the Center for Substance Abuse Prevention. He was a Robert Wood Johnson Foundation Generalist Physician Faculty Scholar during the

study's activities. We appreciate the help of our staff, Lyla G. Johnson, RN, and A. Kate Karter, as well as BUSM student contributions to the project by Michele Vega and Jim O'Callaghan, and our data management consultants Tom Clark and Carol Williams, PhD.

REFERENCES

1. Buchsbaum DG, Buchanan RG, Centor RM, et al. Screening for alcohol abuse using CAGE scores and likelihood ratios. *Ann Intern Med.* 1991;115:774-777.
2. Preventive Services Task Force. *Guide to Clinical Preventive Services.* 2nd ed. Alexandria, Va: International Medical Publishing; 1996.
3. National Institute on Alcohol Abuse and Alcoholism. *Alcohol and Health: Eighth Special Report to the U.S. Congress.* Rockville, Md: US Department of Health and Human Services; 1993.
4. Kitchens JM. Does this patient have an alcohol problem? *JAMA.* 1994;272:1782-1787.
5. Institute of Medicine. *Broadening the Base of Treatment for Alcohol Problems.* Washington, DC: National Academy Press; 1990.
6. Prochaska JO, Redding CA, Harlow LL, et al. The transtheoretical model of change and HIV prevention: a review. *Health Educ Q.* 1994;21:471-486.
7. Becker DM, Windsor R, Ockene JK, et al. Setting the policy, education, and research agenda to reduce tobacco use. Workshop I. AHA Prevention Conference III. Behavior change and compliance: keys to improving cardiovascular health. *Circulation.* 1993;88:1381-1386.
8. Prochaska JD, DiClemente CC. Transtheoretical therapy: toward a more integrative model of change. *Psychother Theory Res Pract.* 1982;19:276-288.
9. O'Connor PG, Samet JH. The substance-using human immunodeficiency virus patient: approaches to outpatient management. *Am J Med.* 1996;101:435-444.
10. Marcus BH, Simkin LR. The transtheoretical model: applications to exercise behavior. *Med Sci Sports Exer.* 1994;26:1400-1404.
11. Samet JH, Rollnick S, Barnes H. Beyond CAGE: a brief clinical approach after the detection of substance abuse. *Arch Intern Med.* 1996;156:2287-2293.
12. Mayfield D, McLeod G, Hall P. The CAGE questionnaire: validation of a new alcohol screening instrument. *Am J Psychiatry.* 1974;131:1121-1123.
13. Bush B, Shaw S, Cleary P, et al. Screening for alcohol abuse using the CAGE questionnaire. *Am J Med.* 1987;82:231-235.
14. Rollnick S, Heather N, Gold R, Hall W. Development of a short 'readiness to change' questionnaire for use in brief, opportunistic interventions among excessive drinkers. *BMJ.* 1992;87:743-754.
15. Miller WR, Tonigan JS. Assessing drinkers' motivation for change: The stages of change readiness and treatment eagerness scale (SOCRATES). *Psychol Addict Behav.* 1996;10:81-89.
16. Saunders JB, Aasland OG, Babor TF, et al. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. *Addiction.* 1993;88:791-804.
17. Kuzma JW. Estimation of population means. In: Kuzma JW, ed. *Basic Statistics for the Health Sciences.* Palo Alto, Calif: Mayfield; 1984:89-100.
18. Kuzma JW. The chi-square test. In: Kuzma JW, ed. *Basic Statistics for the Health Sciences.* Palo Alto, Calif: Mayfield; 1984:141-155.
19. Marlatt GA, Gordon JR, eds. *Relapse Prevention.* New York: Guilford Press; 1985.
20. Friedmann PD, Saitz R, Samet JH. Management of adults recovering from alcohol or other drug problems. Relapse prevention in primary care. *JAMA.* 1998;279:1227-1231.