CONSTRUCTION OF AN ALCOHOLISM SCREENING INSTRUMENT FOR OLDER ADULTS

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CHAPTER I

INTRODUCTION

Alcohol abuse among the elderly has received less attention than such abuse in younger populations, perhaps because it is known that the proportion of people who drink decreases as age increases (Schuckit and Miller, 1977), because the elderly have been a relatively small proportion of the U. S. population (U.S. Bureau of Census, cited in Williams, 1984), and because of the difficulty of identifying older alcohol abusers (Gomberg, 1982; Nace, 1984). It is not, however, an insignificant problem, and is gaining importance as the numbers and proportion of older people in the U.S. population increase (U.S. Bureau of Census, 1987).

From the abusing elderly person's standpoint, alcohol may seem to offer relief from the stresses of aging and related dysphoric moods (Zimberg, 1974); after a time, however, alcohol causes more, rather than less stress, negatively affecting the individual's finances, psychological functioning, social relationships, and health (Lamy, 1986; Lippmann & Manshadi, 1987).

From a societal standpoint, alcohol abuse by the elderly places an added burden on a health care system already

struggling to keep up with the needs of older people. Alcohol affects the health of aging drinkers in several ways. Not only do physical disorders such as liver damage develop in response to alcohol use; alcohol also exacerbates preexisting conditions such as peripheral neuropathy, anemia, cardiac disorders, and psychological disorders, such as depression and mental confusion (Gomberg, 1987; Schuckit & Pastor, 1978). In addition, alcohol-medication interactions can lead to medical crises (Lamy, 1984).

Because of these effects of alcohol upon the physical and emotional health of older adults, it seems reasonable that health care professionals would be particularly interested in and adept at identifying abusers. This does not, however, appear to be the case. Cyr and Wartman (1988) reviewed studies indicating that physicians failed to diagnose (or document) as many as 90% of their alcoholic patients. Other writers suggest that the failure to diagnose and document alcohol abuse can be attributed to a variety of factors, including provider and patient reticence in discussing a socially sensitive topic, (Gomberg, 1982; Nace, 1984), family coverups to protect the elderly drinker (Bloom, 1983), and physicians' lack of awareness of the effects of relatively small amounts of alcohol on the aging body (Hartford & Samorajski, 1982).

A procedure which at least partly circumvents these barriers to accurate diagnosis may be found in the

utilization of self-report screening tests as a preliminary step in diagnosis. Such tests, often given routinely to patients before clinic appointments, highlight those cases in which a diagnosis of alcoholism is probable. Test questions answered in ways positive for alcoholism may then be used by the health care provider to open a discussion of the patient's drinking habits.

Typically these self-report screening tests consist of a number of questions, answered in yes-no fashion. They may be administered orally, or be presented for self-administration as paper-and-pencil tests. When test scores, based on answers suggesting alcoholism, exceed a predetermined cut-point, the test takers are considered positive for the condition of alcoholism.

Three often-used alcoholism screening tests are the Michigan Alcoholism Screening Test (MAST) (Selzer, 1971), the Veterans Alcoholism Screening Test (VAST) (Magruder-Habib, Harris, & Fraker, 1982) and the CAGE (Mayfield, McLeod & Hall, 1974), which is named to reflect the first letters of key words in its four questions. These tests are often used to screen for alcoholism in the elderly, since no separate test has been developed specifically for this population. Their use with this population, and particularly with older medical patients, is problematic for several reasons. First, the questions contained in these tests were chosen for their ability to identify alcoholism either in young populations or

populations containing few elderly persons. Thus, the questions asked may not be maximally effective in identifying alcoholism in older populations, whose expression of alcohol misuse appears to be different from that of younger populations (Gomberg, 1982; Rosin & Glatt, 1971).

The second problem with using these tests on older populations lies in their goal of identifying "alcoholism," a concept which stresses the chronicity of the condition and psychological or physical dependence. The emphasis on chronicity perhaps explains why the MAST and the CAGE do not distinguish between current and past alcohol misuse. For health care providers this is an important distinction, since treatment planning is affected. Furthermore, since all three tests attempt to identify alcoholism, they may fail to identify alcohol abuse, a less severe condition not requiring alcohol dependence. Thus, these tests may not identify those individuals who are good targets for prevention efforts.

A third criticism of these three tests, when used on the elderly, involves the structure of their test questions, all of which ask about behavior and feelings related to alcohol use. It is possible that the elderly may not, through denial or ignorance, be aware of the effect of their alcohol use on their health and behavior, attributing it to "old age."

This study's purpose was to develop an effective self-report screening instrument for identifying current

alcohol abuse and dependence in older adult and elderly medical populations. More specifically, the objective was to develop this instrument using outpatients at Seattle's VA Medical Center. Questions which were candidates for inclusion in this new test were drawn either from existing screening instruments or were newly created, reflecting experts' beliefs about the identifying characteristics of older abusers. Subjects were classified as non-abusers or alcohol abusive according to the diagnostic criteria of the Diagnostic and Statistical Manual, third edition--revised (DSM-III-R) (American Psychiatric Association, 1987), and these classifications were used to determine the usefulness of each question in distinguishing non-abusers from abusers. The validity and reliability of this new test, the EVAST20 (Elderly Veterans Screening Test --20 items) was then investigated.

Definition of Terms

Alcohol Abuse. In the present study, alcohol abuse is defined in accordance with DSM-III-R's criteria for alcohol abuse or alcohol dependence. Appendix A contains these criteria.

Elderly Veterans Alcohol Screening Test--20 items (EVAST20). This test is the alcohol abuse screening instrument developed in this study.

Cutpoint. The minimum score on an alcoholism screening

test which places a test-taker in an alcoholic (alcohol dependent or alcohol abusive) category.

Delimitations of the Study

The scope of this study has been delimited in several ways. First, all subjects are male veterans aged 55 or older who are outpatients at one Veterans Administration Medical Center. Care should be exercised, therefore, in generalizing the results to other elderly populations, medical center populations, or geographic locations. Second, subject selection procedures ensured that approximately one-half of the veteran-subjects were alcohol abusers and the other half were not. Since, however, the prevalence rate of alcohol abuse in older veteran populations is probably considerably less than .5, the positive predictive value of the EVAST20, as well as of other tests used in this study, will not be the same for this sample as for the population in general, or even for outpatient populations within VA health care settings.

Limitations of the Study

The study has been limited by some conditions beyond the investigator's control. Participants in this study were volunteers who were willing to talk about a sensitive topic. They may differ significantly in attitude and characteristics from those who declined to participate. An additional

limitation occurred in the inability of the investigator to control for all of the variables which may have influenced the outcomes of the study; that is, differing demographic variables between the groups of alcohol abusers and non-abusers could not be eliminated or controlled, though efforts were made to assess the impact of these variables. Finally, there is a possibility, and even likelihood, that some subjects went to such extreme lengths to hide their alcohol abuse that their medical records, test scores, interview responses, as well as their spouses' responses do not reflect this use, so that their alcohol abuse classification was erroneous.

CHAPTER II

LITERATURE REVIEW

Alcoholism, alcohol abuse, alcohol dependence, and heavy drinking are terms describing the phenomenon of alcohol misuse. They are sometimes used interchangeably, but carry slightly different meanings, focusing upon different phenomenal aspects. All four terms are defined through one or more of three methods. Atkinson and Schuckit (1981) have labeled these the addiction approach, the socio-normative approach and the social problem approach. The addiction approach focuses upon both physical and psychological withdrawal symptoms. Physical symptoms include a coarse tremor of the hands, tongue, or eyelids, accompanied by nausea or vomiting, malaise or weakness, transient hallucinations or illusions, autonomic hyperactivity, depression, anxiety, a headache or insomnia. In more severe cases, delirium with tachycardia and sweating, and/or lasting hallucinations may be present (American Psychiatric Association, 1987). Psychological addiction is established if the user has a compulsion to drink or complains of subjective discomfort if alcohol is not available (Atkinson & Schuckit, 1981).

The socionormative approach concentrates upon quantity and frequency of alcohol use, with abusive levels determined by cultural norms. Levels of use beyond which a user is considered to be a heavy drinker or alcoholic vary in different studies, but are commonly set at a minimum average of one ounce of ethanol per day (Barnes, 1982) and a maximum average of one and one-half ounces per day (Siassi, Crocetti & Spiro, 1973).

The social-problem approach concentrates upon the presence of significant life-problems related to alcohol use (Atkinson & Schuckit, 1981; Graham, 1986). The nature of these problems vary, but for younger populations usually include the presence of marital, vocational or legal problems or evidence that alcohol use has harmed health (Atkinson & Schuckit, 1981).

Alcoholism, the most commonly used term, has been defined by all three approaches, and sometimes carries an implication of the disorder's chronicity as well. Perhaps this is why several alcoholism screening instruments do not attempt to distinguish current from past alcohol misuse (Magruder-Habib, Harris, & Fraker (1982).

On the other hand, a term such as heavy drinking is often defined in terms of socionormative criteria (Cahalan & Cisin, 1968) and focuses upon current drinking. Epidemiologists conducting prevalence studies often use this term.

Alcohol abuse and alcohol dependence are terms used to

label disorders specified in DSM-III-R (American Psychiatric Association, 1987). They are sub-types under the more general disorders, psychoactive substance abuse and psychoactive substance dependence. In the medical model of DSM-III-R, definitions become criteria for identifying cases. These criteria, focusing upon social problems and addictive symptomatology, are the same for all substance abuse and dependence sub-types. In DSM-III-R terminology, alcohol abuse is the less severe form of alcohol dependence; the alcohol abuser does not have as broad a range of problems as the does the alcohol dependent person. DSM-III-R criteria for alcohol abuse and dependence do not specifically attempt to distinguish current from past alcohol misuse, but diagnosticians are encouraged, after making a diagnosis, to specify the current severity of the disorder and to state whether the disorder is in partial or complete remission.

In each of the studies reviewed in this chapter, writers have chosen one or more of the above terms and approaches, operationalizing them by specifying criteria which differentiate casual alcohol users from those whose alcohol use is more clearly maladaptive. When results vary, it may be because the criteria are different or because samples come from different populations. In addition, as populations vary, the same criteria may become more or less effective in identifying cases. It is one of the main points of this chapter that investigators doing prevalence or clinical

studies must be careful to tailor criteria to characteristics of the population tested.

In the present study, alcohol abuse and alcohol dependence, as presented in DSM-III-R, will be used to define the phenomena of alcohol misuse. The criteria specifying these disorders are stated in general enough terms in DSM-III-R that they can be tailored to meet the special characteristics of elderly populations. Because the term alcoholism is ubiquitous, it will be used in the present study. When used in reference to the present study, it refers to alcohol abuse and dependence, as specified in DSM-III-R.

This chapter documents the importance of and need for an alcoholism screening instrument developed specifically for administration to older (elderly) adults. The following section of this chapter examines the extent of alcohol abuse in the elderly by summarizing relevant prevalence studies.

The second section reviews several types of extant alcoholism screening tests with particular regard to their validity, reliability, and general usefulness in identifying alcoholism in the general population.

The final section of this chapter reviews the alcohol consumption, health-related and social characteristics of elderly alcohol users and misusers. These characteristics will be used to evaluate the adequacy of items in three extant alcoholism screening tests, when these tests are used

to screen for alcohol abuse and dependence in the elderly. Experts' opinions about more appropriate item content for screening tests for the elderly will also be reviewed.

Extent of the Problem

Community Surveys

Several national and regional studies have attempted to determine the prevalence of alcohol use and abuse in older adult populations. Most have used the socionormative approach to case identification, and cases are known as "heavy drinkers." An early study, still quoted in recent publications, was reported by Cahalan and Cisin (1968). In this study, a random sample of 2,746 adults from separate U.S. households answered interviewer questions and a self-administered questionnaire about the quantity, frequency, and variability (Q-F-V) of their drinking. Of 367 people aged 60 or older, 44% admitted to drinking at least once in the previous year. Of these drinkers, 2% were classified as heavy drinkers, based upon an average drinking level of five drinks per week.

Another influential study of the same era was completed by Bailey, Haberman, and Alksne (1965). These investigators surveyed drinking practices in the Washington Heights district in New York City, an upper-lower to upper-middle class neighborhood containing several ethnic groups (Jewish,

Irish, Puerto Ricans, Blacks). Households were again the sample unit, with stratified random sampling and weighting of results being used to obtain representative results. In this study a single informant from each of 3,539 households was interviewed about all adult household residents. Those interviewed were asked about household members' legal, social, job and health problems related to drinking (the social problem approach). In addition, interviewers were instructed to observe signs of alcohol problems in the conversation or behavior of the interviewed behavior. In this study, 1.7% of people aged 55 to 64 were classified as probable alcoholics. For people aged 65-74, 2.2% were similarly classified, and for people 75 and over, the figure was 1.2%.

An interesting study completed in 1973 (Siassi, Crocetti & Spiro) investigated alcoholism in a blue-collar population of United Auto Workers and their spouses. In this study, a Q-F-V type questionnaire was used, and a minimum level of 6 drinks of any alcoholic beverage per week defined heavy drinker status. Investigators interviewed a sample of 1,076 workers and their families. In half the cases, workers were interviewed; the rest of the interviews were with spouses or family members who answered questions about their own drinking habits. In the group of respondents aged 60 and over, 54% of the men and 23% of the women were drinkers; 35% of the men and 9% of the women were classified as heavy

drinkers.

A more recent study by Barnes (1982) uses a modified version of Cahalan and Cisin's (1968) Q-F-V questionnaire to investigate alcohol drinking practices in adults. Households were the sample unit, chosen through stratified random sampling in Erie and Niagara Counties in New York. Here a level of more than one ounce of ethanol per day (average) was used to classify individuals as heavy drinkers. While drinking was found to decrease in older age groups, 28% of males aged 60 to 69 and 14% of males 70 to 96 were classified as heavy drinkers. Among females of comparable ages, 8% and 6%, respectively, were classified as heavy drinkers.

From these studies, it is clear that the prevalence rate of heavy (abusive) drinking in the elderly varies widely, according to the population studied. Thus assumptions must not be made that one figure can describe the prevalence rate of all elderly subpopulations.

In three of the four studies listed above, which are epidemiological in nature, the socionormative approach was operationalized using Cahalan and Cisin's (1968) Q-F-V questions, and identified cases are labeled as heavy drinkers. When criteria for case inclusion are based in other approaches which are more restrictive, such as is true in the addiction approach and may be true for the social problems approach, the number of cases identified naturally will be smaller.

In medical and psychological literature, for instance, the terms alcoholism and alcoholic are frequently used, though they are not always well defined. In general, however, these terms imply the presence of alcohol-related symptoms and consequences and are more restrictive than criteria for heavy drinking status. It is not surprising, therefore, that physicians Schuckit and Pastor (1978), and health care providers Zimering and Domeischel (1982), when referring to the prevalence of active alcoholism in the overall elderly population (including both men and women) estimate it to be only between 2% and 10%. A study confirming these more conservative rates has been reported by Grant, Noble and Malin (1985), in which the DSM-III (American Psychiatric Association, 1980) criteria were used to identify alcohol abusers and dependence. Sampling at five rural and urban sites in the U.S., surveyers found active alcohol abuse and dependence rates among men 65 and older ranged between .9% and 3.7%. For women 65 and older, the range was between 0.0% and 1.9%.

Medical Population Prevalence

Estimates of the prevalence of active alcoholism in hospital settings are often based upon the clinical experience of individual health care providers. Zimberg (1969, 1971, 1978), for instance, estimated that 13% of the elderly patients he saw as a psychiatric consultant for a

medical home care program were alcoholic. Similarly, 12% of patients (65 and over) screened for a geriatric group treatment program with which he was associated, had drinking problems.

McCusker, Cherubin, and Zimberg (1971) utilized an alcohol abuse scale which classified patients by stage of alcohol abuse and alcoholism, based upon physical, social, and occupational impairment brought on by alcohol use. In patients, ages 50 to 69, who were admitted to four medical wards of Harlem (New York) hospital during a three-year period in 1969, 63% of the males and 35% of the females were classed as alcoholic; in patients aged 70 and over, 56% of the males and none of the females were similarly classified (n = 18). This study represents an upper extreme of estimates of alcohol misuse among medical patients, and leaves some question of whether the scale was designed to measure current drinking status only.

In a study reflecting lower rates, Schuckit and Miller (1977) identified alcoholism in men (aged 65 and older) who were inpatients in acute medical wards at VA Hospital in La Jolla, California. Alcoholism was diagnosed when subjects had experienced marital, job, legal, or health difficulties related to alcohol use. Of the 113 men interviewed, 18% were diagnosed as alcoholics; only 8% of the 113 men were active alcoholics.

A treatment team of psychiatrists, psychologists, and

social interviewers assessed psychiatric problems in 534 patients, aged 60 or over, who were admitted to the San Francisco General Hospital (Simon, Epstein, & Reynolds, 1968). Alcohol use was evaluated as part of this assessment, resulting in patient classifications of abstainer, social drinker, heavy social drinker, alcoholic, or no information available. Of these patients, 23% were classified as alcoholics.

These studies and several reviews indicate that alcohol abuse among elderly medical and psychiatric populations exceeds that of the general elderly population (a fact which should be noted by researchers planning to employ control groups of elderly in research designs; medical and psychiatric populations should not be substituted for noninstutionalized groups of elderly). Zimberg (1977) estimated that as many as 20% of elderly individuals who are medical inpatients have life problems related to alcohol. Williams (1984) states that among surveys of hospital admissions, especially to mental health and VA hospitals, the rate of alcoholism may be as high as 49% (though it is not clear that the term alcoholism here includes only current drinkers). Magruder-Habib, Saltz, and Barron (1986) confirm the high rate of alcoholism in VA hospitals, attributing it to the VA's heavily male population, since males have higher alcoholism rates than women. Nursing homes may have particularly high rates. Maletta (1982) states that as many

as 50% of patients over 65 in nursing homes are thought to have alcohol problems. It is apparent that the prevalence of alcohol abuse in elderly medical populations exceeds that of the general elderly population.

The growing size of the aging population makes it virtually certain that the number of elderly alcoholics in this country will increase substantially. Currently about one of every eight persons in the U.S. is aged 65 or older; it is estimated by the year 2030, one out of every five persons will be in that age range (Spencer, 1984). The Veterans Administration (VA) system will be particularly affected. Russell (1984) states that in the early 1980s, 8% of all VA outpatient treatment visits were made by veterans over 65; by the year 2000, 50% of the visits will be made by veterans in that age range.

In VA medical centers and other health care settings, it will become increasingly important to identify and treat alcohol abuse in the elderly. A convenient way of identifying these abusers, as has already been suggested, is through the use of alcohol screening tests. In the next section, various types of such tests and their usefulness for elderly populations will be discussed.

Alcoholism Screening Instruments

Biological Screening Tests

Health care personnel have two kinds of alcoholism screening instruments available for patient use. One utilizes laboratory measures obtained by analysis of biochemical tests. Results deviating from normal limits indicate pathology, leading the health care practitioner to investigate the reason for these results (Allen, Eckardt, & Wallen, 1988).

Since most of the commonly used single biological indicators of alcohol misuse have shown low sensitivity and specificity, recent research has focused upon the development of batteries of diagnostic tests (Watson, Mohs, Eskelson, Sampliner & Hartmann, 1986). Ryback, Eckardt, & Pautler (1980) reported success with such a battery in differentiating alcoholic inpatients in an alcoholism treatment ward and medical wards from a group of non-alcoholic inpatient controls. The screening battery consisted of "routinely used" blood chemistry tests. Subjects were 412 male patients in the alcohol treatment program, 63 male patients in medical wards whose average daily alcohol use exceeded 1.5 ounces during the previous six months, and 40 male inpatient drinkers (controls), whose intake averaged 1.5 ounces per day or less. Test results from these subjects were analyzed via a quadratic multiple

discriminant procedure. The procedure correctly identified all of these medical controls, all the medical ward alcoholics, and 94% of the treatment program patients. An important limitation to this study appeared, however, when the investigators analyzed test results of 12 elderly, nonalcoholic medical controls. One-half of these men were classified as alcoholics and the other half as non-alcoholic. The researchers' conclusion was that study results were not applicable to persons over 65.

The inefficiency of Ryback et al.'s (1980) test battery for the elderly is not surprising. Old age brings physical ailments which affect test scores and make this approach less likely to succeed. Other drawbacks to the use of biochemical test batteries include the difficulty of getting necessary tests performed routinely (Sieka & Sullwold, 1983), the unwieldiness of statistical techniques needed for analysis, and the cost of tests and test analysis. In their review of screening measures for alcoholism, Allen, Eckardt, and Wallen (1988) state that

> the sensitivity and specificity of self-report measures of alcoholism generally exceed those of biochemical measures, a situation which is not likely to change in the near future. Even if innovative specialized laboratory techniques are refined to the point that they obtain levels of validity comparable to self-report measures, the technology required for

> quantitative assessments and laboratory procedures probably will require greater sophistication than will be available to most primary health care providers. (p. 590)

Allen, Eckardt, and Wallen also point out that biochemical testing is less revealing when used with persons whose alcohol use has not yet resulted in profound physiological changes. This might be especially true of older patients whose abusive drinking is of short duration; yet it is just these patients who, once identified, may benefit the most from treatment interventions.

Self-Report Screening Instruments

The second type of screening instruments for alcohol abuse are self-report measures. In turn, these self-report measures can be separated into two types, classified according to the content of test items. Indirect tests contain items not directly related to drinking or the effects of drinking. Implicit to this type of test is the idea that alcohol abusers share certain characteristics which result in their responding to test items in like manner and in ways different from non-abusers. Direct tests, on the other hand, ask questions about consequences of drinking and about drinking patterns. There is no attempt to hide the intent of the test.

Indirect tests

Since indirect tests attempt to measure those characteristics possessed by alcoholics and not possessed by non-alcoholics, it is hardly surprising that attempts have been made to adapt a well-established personality inventory, the MMPI (Hathaway & McKinley, 1967), for use as an alcohol screening instrument. At least six alcoholism subscales using MMPI items have been developed. One of the most promising is the MacAndrew Scale. This test consists of 49 items embedded in the 566 item MMPI. Because test takers must respond to all MMPI items, even though only 49 are used in the MacAndrew Scale, administration time is between 30 and 90 minutes (Jacobson, 1976). Scoring of the MacAndrew Scale items consists of adding the number of Scale items answered in the alcoholism-positive direction.

Items of the MacAndrew Scale were chosen on an actuarial basis for their ability to distinguish between 200 male alcoholic outpatients and 200 male nonalcoholic psychiatric outpatients, all of whom had MMPI F Scale scores under 16 (MacAndrew, 1965). Two other items had good discriminatory power but were eliminated because they referred to alcohol use. After establishing a cutpoint which optimally separated alcoholics from nonalcoholics, MacAndrew conducted a cross-validation study involving 100 male alcoholics and 100 nonalcoholic psychiatric patients. He reported the MacAndrew

Scale's correct classification rates for alcoholics at 91.5% and for nonalcoholic psychiatric patients at 90%.

Replicatory Studies. Several replicatory studies comparing alcoholic patients with non-alcoholic psychiatric patients found similar results, with correct classification rates for alcoholics falling between 70% and 92% after cutpoints were altered to reflect sampling differences (de Groot & Adamson, 1973; Rhodes, 1969; Uecker, 1970; Vega, 1971). An examination of the false negatives and false positives in these studies, however, makes the MacAndrew Scale look less promising. Rhodes (1969), at one extreme, reported results (10% false negatives and 14% false positives) similar to those of MacAndrew (1965)(8.5% and 10% respectively). At the other extreme, Uecker (1970), testing male alcoholics and nonalcoholic psychiatric patients in a VA hospital, found false negative rates of 15.3% and false positives of 60.7%.

Two studies relevant to elderly populations have been conducted with residents in VA domiciliaries. Whisler and Cantor (1966), testing 74 male alcoholics (M age = 46.8) and 67 nonalcoholics (M age = 43.9) in a Los Angeles domiciliary, found the MacAndrew scale correctly identified 92.1% of the alcoholics, but also misclassified 37.1% of the nonalcoholics (false positives). Similarly, Apfeldorf & Hunley (1975), testing 31 domiciliary alcoholics (M age = 58.9) and 188

domiciliary controls (M age = 64.5), found the MacAndrew scale correctly classified 93% of the alcoholics, but misclassified 30% of the nonalcoholics. It is also of interest that in this study the MacAndrew Scale was not able to distinguish between residents with psychiatric diagnoses who drank excessively and other residents with psychiatric diagnoses who did not drink excessively.

Taken together, these studies suggest that the MacAndrew substantially overdiagnoses alcoholism in certain populations. Furthermore, most studies have compared alcoholics with non-alcoholic psychiatric patients. The applicability of this scale to broader populations is unclear.

Reliability. The test-retest reliability of the MacAndrew scale is extremely high, indicating that relatively enduring traits are being measured. In a review of studies addressing the change in MacAndrew Scale scores over time, MacAndrew (1981) makes the point that his Scale does not reflect either short-term consequences of alcohol misuse or longer term effects of prolonged substance abuse. In fact, Hoffmann, Loper, & Kammeier (1974), comparing MacAndrew scores of subjects obtained in college with scores obtained an average of 13 years later, was able to postdict which subjects would become alcoholic; with an optimum cutpoint, 72% of those who would later become alcoholic were correctly

classified, and 72% of those not becoming alcoholic also were correctly classified (28% false positives).

While the MacAndrew's scale may have value as a predictor of future alcoholism, this characteristic of extreme stability over time makes it less useful for clinicians wishing to distinguish between present and past alcohol abuse in their patients.

In addition, it appears that all alcoholics do not have the same personality characteristics and that the MacAndrew Scale is efficient at identifying only one subtype. In his 1981 review article of research related to the MacAndrew Scale, MacAndrew (1981) reports studies analyzing the personality characteristics of alcoholics correctly identified by the Scale. Such people are characterized as bold, assertive, aggressive, pleasure-seeking, uninhibited, self-confident, sociable, as well as rebellious and resentful of authorities. He speculates that these characteristics identify the primary alcoholic, who begins drinking and becomes alcoholic earlier than do secondary alcoholics. The latter type, he believes, are likely to escape Scale detection because they are neurotics-who-drink-too-much, and do not have the same personality characteristics as primary alcoholics. He believes, based upon MacAndrew Scale correct classification rates, that the ratio of primaries to secondaries is approximately 17 to 3. For reasons to be discussed later in this chapter, however, there is reason to

think that among the elderly, the relative prevalence of primary and secondary alcoholics shifts towards the latter group, who are also known as late onset drinkers. Thus, the MacAndrew Scale may not function well when used to identify elderly alcoholics.

Summary and Conclusions. Although the MacAndrew scale is a useful scale in some situations, it is not a good testing choice when the goal is to identify elderly alcohol abusers in outpatient medical settings. First, testing time is too long, since the whole MMPI must be completed. Second, validation studies have mostly utilized samples of self-admitted alcoholics and non-alcoholic psychiatric patients. Less is known about the MacAndrew Scale's validity with regard to general medical patients. Third, most of the studies do not attempt to establish the usefulness of the MacAndrew Scale in identifying alcohol abusers, a less severe diagnostic category than alcoholism. Fourth, based on domiciliary studies and studies of the personality characteristics of alcoholics, the ability of the MacAndrew Scale to distinguish between elderly alcoholics and elderly non-alcoholics is in doubt. Finally, while the primary advantage to the MacAndrew is thought to be its ability to sidestep denial in alcoholics, many of the validating studies have utilized samples of alcoholics whose denial levels are unknown, or, if known, are low. Whether alcoholics with high

denial levels can be detected by the MacAndrew Scale is still unknown (Preng & Clopton, 1986).

Because of these difficulties, direct tests are more widely used in the diagnosis of alcoholism. The following section describes these tests and related studies.

Direct Tests

To identify cases of alcoholism, direct alcoholism screening instruments may employ any or all of the three definitional approaches previously described. An example of an instrument utilizing the socionormative approach is Cahalan and Cisin's (1968) Q-F-V questionnaire, which determines the quantity, frequency, and variability of alcohol use. For reasons to be described later, however, most direct screening tests rely most heavily on the social problems approach, which determines the extent to which alcohol use is negatively affecting the drinker's social, legal, emotional, and health status. Three well known alcoholism screening tests, the MAST, the VAST, and the CAGE, which will now be described, use the social problems approach and, to a lesser extent, the addiction approach.

Introduction to The MAST. The MAST is undoubtedly the most well known direct screening test for alcoholism. It is widely used because of its ease of administration, short administration time, and, accuracy in identifying alcoholics

in certain populations. Developed by Selzer (1971), the MAST contains 25 questions, drawn from earlier interviewing schedules for identifying alcoholism. These questions are worded to elicit yes or no answers. In its original form, the MAST was designed "to provide a consistent, quantifiable, structured interview instrument for the detection of alcoholism [and heavy drinking] that also could be rapidly administered by nonprofessional as well as professional personnel" (Selzer, 1971, p. 1654). All questions explicitly refer to behaviors and feelings connected with alcohol use. (Appendix B contains MAST questions.)

MAST Validation studies. In initial validation studies, five groups of subjects completed the MAST: alcoholics in inpatient alcohol treatment programs (n = 116), drivers convicted of driving under the influence of alcohol (DUIL) (n = 108), persons convicted of drunk and disorderly behavior (D&D) (n = 110), drivers who had incurred 12 penalty points in two years for moving violations and accidents (n = 98), and nonalcoholic controls drawn from an allergy clinic (n = 103). (The respective mean ages of these groups were 41 years, 44 years, 35 years, 34 years, and 25 years.) Non-drinkers and non-drivers were excluded from the study. Controls and hospitalized alcoholics were all white males; the other three groups contained females and blacks, but white males predominated.

In the first study, after hospitalized alcoholics and controls completed the MAST, Selzer used subject responses to develop a scoring system which weighted questions based upon their discriminatory power; thus, alcoholic responses earned 1, 2, or 5 points, depending upon the particular question so answered. In addition, one question, #7, was not weighted; regardless of the answer, no points were given. After examining the number of false negatives and false positives at several cutpoints, he classified persons with scores of five points or more as alcoholic. Using this cutpoint of five, 98% of the hospitalized alcoholics were correctly identified as were 98% of the controls.

Selzer (1971) subsequently gave the MAST to the DUIL subjects, the D&D subjects, and the subjects under license review. He also obtained records from a variety of medical, social, and law enforcement agencies to identify alcohol-related incidents in which subjects from the five groups were involved. Using a scoring system similar to that of the MAST, he assigned scores to subjects based upon information in the records about their behavior. Subjects obtaining record-based scores of five or more were again classified as alcoholics. Comparing MAST scores and records-based scores, the respective proportions of suspected alcoholics were: DUIL group, 25% and 5%; D&D group, 59% and 40%; license review, 11% and 11%; and control group, 5% and 1%. He accepted control and DUIL group percentages as reasonable estimates of

alcoholism for such groups, but was surprised that more subjects in the D&D group did not receive alcoholic scores. This he attributed to the young age of the sample, speculating that these subjects had not yet developed the sequelae of drinking necessary to place them in the alcoholic range.

Although the research design involving treatment program alcoholics and controls allowed a clear evaluation of the MAST's discriminatory ability, this was not the case for the design involving the DUIL, D&D, and license review groups. Selzer could only say he believed the alcoholism rates found by the MAST to be reasonable (or unreasonable), and he had little to say about the differences between MAST and records-based classifications of subjects within each group, other than a statement that since the MAST identified more subjects as alcoholics, it is preferable to records searches.

An early study of concurrent validity of the MAST was reported in 1972 by Moore. Giving the MAST to 500 adult psychiatric inpatients (270 female, 130 male) shortly after admission, he waited until after each patient was discharged to get the attending psychiatrist's opinion about whether patient was alcoholic. Moore found the agreement between psychiatrists' ratings and the MAST was .78. The MAST, with a cutpoint of five, identified 98% of the psychiatrist-rated alcoholics; it also produced 15% false positives when the psychiatrists' ratings were taken as the standard.

In 1982, Magruder-Habib, Fraker, and Peterson compared MAST results and clinicians' (physicians and other health care providers) diagnoses of alcoholism/problem drinking. Subjects were drawn from ambulatory treatment departments at four VA medical centers. In this study, clinicians were given descriptions of alcoholism and problem drinking to use in making the diagnosis of alcoholism, one which emphasized the chronicity of the illness, the loss of control over drinking, as well as the presence of associated health, and psychosocial problems. Magruder-Habib, et al. set the MAST's cutpoint to six; with this cutpoint, MAST and clinician classifications (with the alcoholism and problem drinker categories combined) were in agreement in 77% of the cases. Disagreement between classifications were either clinician-negative and MAST-positive (15.2%) or clinician-positive and MAST negative (17.1%). Magruder-Habib et al. were not able to account for these disagreements, but speculated that the clinicians probably varied in the diagnostic process they followed in making the diagnosis, thus making their judgments less than uniform. The researchers also suspected that the clinicians were better at identifying active alcoholics than those in recovery (remission), though they could not test this since the MAST does not distinguish between active and remitted alcoholism. While they concluded that the clinicians' lack of uniformity was a negative, the present writer might disagree, because flexibility in applying

diagnostic criteria might result in more accurate, not less accurate, diagnoses. Furthermore, the clinicians' greater sensitivity in identifying active alcoholics seems both reasonable and useful, because treatment planning is more affected by current than past drinking practices. In fact, the MAST's inability to distinguish active alcoholism from remitted alcoholism is a drawback in many clinical situations.

The MAST has not been widely tested upon elderly populations. In 1987, however, Willenbring, Christensen, Spring, and Rasmussen did complete such a study. They gave the MAST to fifty-two consecutively admitted male patients, 60 years or older, in an VA alcohol treatment program, and 33 inpatient and outpatient controls, 60 years or older, determined by interview to be nonalcoholic. With a cutpoint of five, the MAST correctly identified all of the alcoholics and 83% of the non-alcoholics, yielding a false positive rate of 17%. Although these results look promising, it must be remembered that the groups tested represent extremes in alcohol status, thus creating an ideal environment for strong results.

In summary, several studies have established the MAST's validity by comparing alcoholics in treatment programs with non-alcoholic controls. When comparing these two groups, the MAST is good at distinguishing alcoholics from non-alcoholics. Since it is unlikely that alcoholism screening

instruments will be used much in identifying alcoholics already in treatment, however, other sorts of validity studies would be more relevant. The difficulty is in finding a "gold standard" of alcoholism against which the MAST can be validated. This writer believes that clinicians' judgments can offer a proper standard if the clinician is skilled and interested in diagnosing alcoholism, and if criteria for such diagnosis are clearly specified.

Other MAST Psychometric Properties. A study by Skinner (1979) attempted to determine whether the MAST is better described as a unidimensional or multidimensional scale. Skinner presented the MAST in a self-administered paper-and-pencil format to 208 men and women alcoholics and drug addicts. He found the MAST had high internal consistency (coefficient alpha = .9). Item-total and inter-item correlations were also high except for one item with a low frequency endorsement. These findings suggested the MAST was unidimensional in nature. Next Skinner factor analyzed the MAST items. The first principle component accounted for 41.3% of the total variance, capturing almost half of the reliable information. This was more evidence for the unidimensionality of the MAST scale. With varimax rotation, five factors were interpretable, explaining 63.6% of the variance. The first factor, explaining 19.21% of the explained variance after rotation, was labeled Recognition of

Alcohol Problem by Self and Others. This factor suggests that, as Zung (1978) has mentioned, the MAST relies on test takers' awareness of alcohol problems for some of its validity. This is hardly surprising since all MAST questions include references to alcohol use. The other factors and related explained variances after varimax rotation were: Legal, Work and Social Problems (15.46%), Help Seeking (14.37), Marital-Family Difficulties (9.46), and Liver Pathology (5.0).

Social Acceptability, Denial, and the MAST. Because the MAST asks direct questions about alcohol use, and because alcohol use and abuse are socially sensitive subjects in this culture, questions have arisen about its accuracy. Beyond the issue of conscious prevarication by MAST test-takers, there is the question of denial, an unconscious defense in which the consequences and implications of drinking behavior are not recognized. A few studies have attempted to address this problem. Selzer (1971) cites his own earlier research in which 92% of 99 hospitalized male alcoholics, told to lie about drinking, still scored in the alcoholic range. Because this study has not been published in a widely distributed journal or book, however, details are unavailable. Skinner (1971) asked subjects from an addiction treatment program to complete the Personality Research Form (PRF) along with the MAST. Scores on two PRF scales were relevant to questions of

social sensitivity and denial: the Desirability Scale, which assessed the extent to which subjects presented an overly favorable picture of themselves, and the Denial Scale, which tapped individuals' tendencies to be defensive and minimize problem areas. The correlation between MAST scores and PRF Denial Scale scores were not significant, but those between MAST scores and the PRF Desirability Scale were ($p<.01$).

Selzer, Vinokur, and van Rooijen (1975) administered the MAST and the Crowne-Marlowe Social Desirability Scale to alcoholics and to a combined group of drivers getting their licenses renewed and drivers attending a traffic safety school because of moving violations. These researchers then compared the MAST scores and scores obtained on the Deny-Bad subscale of the Crowne-Marlowe. Correlations between test scores for the two groups (alcoholics and combined drinker groups) were -.11 and -.18, respectively, both significant at $p<.01$. Because of the small size of the correlations, however, Selzer et al. interpreted the effect of denial to be negligible.

Unexpected results were found by McAuley, Longabaugh, & Gross (1978), who gave the MAST to 75 psychiatric patients. They also gave the same test, altered to reflect patient behavior, to a member of each patient's family; asked patients' physicians to assess patients' alcohol status; and searched chart problem lists for mention of alcohol problems. With a MAST cutpoint of five, there was 76% agreement between

patients and relatives based upon MAST scores; 75% agreement between patient MAST self-classification and whether alcohol use was mentioned in the problem list; and 67% agreement between patient MAST self-classification and physician diagnosis. The surprise was that in all three comparisons, the patients were more likely, on the basis of MAST scores, to classify themselves as alcoholic.

A different way of assessing the denial problem is through a comparison of indirect and direct test results. Friedrich and Loftsgard (1978) tested 100 persons (14 women) referred for an alcohol education course by court-related personnel or significant others. (The average age of subjects was 35.) These subjects were given the MAST and the MacAndrew Alcoholism Scale. For the MAST, cutpoints of five and seven were used to establish alcohol status; the MacAndrew Scale the cutpoint was 24. The MAST identified a larger number of subjects as alcoholics, regardless of whether the MAST cutpoint of five or seven was used. While the MacAndrew Scale classified 71 of the 100 subjects as alcoholic, the MAST at cutpoint five classified 90 subjects in that category; at cutpoint seven, 79 subjects were so classified. The authors point out that the study was not designed in a manner to allow an estimate of MAST or MacAndrew false-positives, so there is doubt about the accuracy of these two tests in this study.

Summarizing these articles which address denial and

social desirability issues associated with the MAST, it must be said that these factors probably have some effect on scores. Nevertheless, the Friedrich and Loftsgard (1978) study does not suggest that an indirect test like the MacAndrew Scale is more sensitive to alcoholism than a direct test such as the MAST.

MAST Modifications. In the years following publication of the MAST, researchers have modified MAST administration procedures, scoring systems, and content. In Selzer, Vinokur, and van Rooijen's (1975) study, male drivers with one or more moving violations and alcoholic drivers in alcohol treatment programs completed a 24-item, self-administered version of the MAST. (Item #7, never scored in the original MAST, was eliminated). Selzer et al. found the percentage of responses answered by each of these groups to be similar to those obtained in the original validation study (Selzer, 1971), in which the MAST had been orally administered by a health care provider.

Other investigators (Breitenbucher, 1976; Skinner, 1979; Swenson & Morse, 1975) also presented modified paper-and pencil forms of the MAST to subjects for self-administration. Though these investigators did not specifically attempt to evaluate the effects of such self-administration, they appear to have been satisfied with this aspect of the results.

Investigators have also studied the effects of using a

simpler scoring system in which all items are equally weighted, so that a positive response to any item receives a score of one (unit scoring). In Skinner's (1979) study, in which 418 men and women alcoholics and drug addicts completed the MAST, conventional scoring and unit scoring were compared through correlation. This procedure yielded an r of .99 ($p<.01$) indicating, the author states, "a virtually identical rank ordering" of the two sets of scores (p. 835). In a study validating the Self-Administered Alcohol Screening Test (SAAST), an extended version of the MAST which uses unit scoring, Davis, Hurt, Morse, and O'Brien (1987) found the SAAST able to distinguish nonalcoholic, drinking medical patients and alcoholics in treatment with a sensitivity of .98 and a specificity of 96.4. Although in this study there were no comparisons between conventional and unit scoring, the high sensitivities and specificities suggest that unit scoring does not impair the discriminating ability of MAST-like tests.

Several modified MAST tests besides the SAAST have been developed. Selzer, Vinokur, and van Rooijen (1975) developed a 13-item version called the SMAST; Pokorny, Miller, and Kaplan (1972) developed a 10-item version known as the SMAST. Zung (1979) compared both of those tests with the original MAST and found them less accurate than the MAST.

A more extensive and interesting modification of the MAST was executed by Magruder-Habib, Harris, & Fraker (1982).

These investigators were concerned about the lack of a time reference for MAST scores. Their version of the MAST, named the Veterans Alcoholism Screening Test (VAST) contains the MAST's 24 scored items. Each item is followed by three questions fixing the specific time period to which an answer suggesting alcoholism refers. The first time period is the previous year, the second is more than a year but less than five years previous, and the third is more than five years previous. (Appendix C contains the VAST questions.)

In Magruder-Habib et al.'s (1982) validation study of the VAST, a trained interviewer administered the VAST to 118 outpatients in general and surgical clinics at a VA Medical Center and to their close relatives. Relatives were asked the same VAST questions as the patients, but the wordings of questions were changed slightly to refer to patients' behavior. Scoring of items followed traditional MAST weighting procedures.

Four total scores were generated from each subject's VAST responses: a time-free MAST score, a score for the prior year's alcohol-related activities (VAST-C), a score for the one to five year period prior to testing (VAST 1-5), and a score for the period more than five years before testing (VAST>5). Validation of the VAST involved pairing patients' scores and their relatives' scores on each of these four versions. The investigators found the agreement between patient and relative scores to be highest for the VAST-C

(r=.767), with agreement between VAST 1-5 scores (r=.738),being second highest. MAST scores were more highly correlated (r=.492) than the MAST>5 scores (r=.396). (Whether these differences were significant was not reported.) Magruder-Habib et al. (1982) then established six as the minimum score necessary for a classification of alcoholism, and all MAST and VAST scores were classified using this same cutpoint. With patients classified as alcoholic or non-alcoholic according to their own VAST scores, and also according to the VAST scores given by their relatives, agreement between patient and relative classification was studied via chi square analysis. Here again, VAST-C results were the highest (88.9%), followed by VAST 1-5 (83.8%), MAST>5 (79.5%), and VAST>5 (72.6%) results.

Of the 54 people whose MAST scores were in the alcoholism range, only 16 also had VAST-C scores in that range. This suggests that the MAST is not an appropriate screening instrument when the goal is to identify current (active) alcoholism.

The VAST improves upon the MAST in several ways: It distinguishes between active and inactive alcoholism; this is particularly important when the population tested contains a significant number of people who have quit drinking or decreased levels of alcohol consumption, as is the case with older adults. In addition, it was validated with VA Medical Center patients whose average age was considerably older than

that of groups used in validating the MAST. The VAST, however, contains MAST items, which were chosen for their ability to distinguish between younger alcoholics and non-alcoholics. Because of this, the VAST probably fails to identify elderly alcoholics whose manifestations of abuse do not resemble those of younger populations. It may also fail to identify elderly drinkers who are not addicted and who are not experiencing the rather severe social consequences of drinking addressed by MAST and VAST items, but who are nevertheless alcohol abusers, whose health and psychosocial conditions are negatively affected by their drinking.

The CAGE. In 1974, Mayfield, McLeod, and Hall (1974) reported validity studies on a short alcoholism screening test, the CAGE, which Ewing and Rouse had presented four years earlier at the 29th International Congress on Alcoholism and Drug Dependence (cited in Mayfield, et al, 1974). The name CAGE is a mnemonic for an important word in each of the four sentences which form this test's content (see Appendix D). Unit scoring of this test allows total scores to range between zero and four.

Mayfield et al. (1974) conducted a CAGE validation study at a VA hospital psychiatric unit, using 366 inpatients (99% male, 63% between 35 and 55 years). While there was no specific program on this unit for alcoholics, patients were regularly treated for alcoholism on an individual basis.

Each patient was given the CAGE soon after admission. At discharge, diagnostic formulations by a multidisciplinary team were used to establish the alcohol status of the patient. When a cutpoint of two, the CAGE true-positive rate was .81 and the true-negative rate was .89. Thus 85% of the cases were correctly classified by the CAGE. When Mayfield et al. examined the most extreme misclassifications (alcoholics scoring zero or one; nonalcoholics scoring three), they found that half of the false negative scores came from psychotic (incompetent) patients, while all of the extreme false-positives were psychotic. This suggested that with less ill populations, the CAGE correct classification rate might be even higher.

In 1982, one of the CAGE's creators, Ewing, belatedly published a general account of the development of this test and reported additional findings from studies of 166 male subjects in an alcoholism rehabilitation center (mean age not provided). These patients completed a formal interview which contained CAGE questions, and they subsequently responded to questions of whether they perceived themselves as alcoholics or just heavy drinkers. Ewing then developed tables showing the relationship between CAGE scores and self-perceived alcohol status. Although 42% of the sample saw themselves as heavy drinkers and 22% denied being alcoholics, 87% answered at least three or more questions in the alcoholic direction, suggesting that the CAGE is fairly resistant to denial

issues. Ewing (1982) also gave the CAGE to 68 nonalcoholic general hospital male patients who were drinkers (criteria for nonalcoholic classification not specified) and found 100% correct classification, when the CAGE criteria for alcoholism was a score of three or more alcohol positive responses.

While the CAGE offers the advantages of easy administration and short completion time, and its validation studies show it to be a promising instrument, it suffers from some of the same problems as the MAST and the VAST. It does not distinguish between current and past alcoholics, and it has not been shown to be effective in identifying elderly alcoholics. It is also unclear how well the CAGE does at identifying alcohol abusers whose condition is less severe, and who have not yet developed the severe dependency problems characteristic of alcohol dependence.

Summary. When the goal is to identify elderly persons who are active problem drinkers (alcohol abusers) or active alcoholics, there are several problems in using the MAST, the VAST, or the CAGE. First, the MAST and the CAGE do not distinguish between past and current alcoholism. Second, all three tests are designed to identify alcoholism, a somewhat ill-defined concept, which does not clearly include the less severe, but important category of abusive drinkers. Third, since test questions were chosen to discriminate between alcoholics and non-alcoholics of younger ages, it is

far from clear that these questions are the best identifiers of alcoholism, or (to use DSM-III-R concepts) alcohol abuse and dependence in the elderly. Indeed, several authorities believe that the specific alcohol-related characteristics of older problem drinkers and alcoholics are quite unlike those of younger abusers and that different screening test item content is needed for optimal results. In the next section of this review, suspected characteristics of elderly abusers and alcoholics are described.

Characteristics of Alcohol Abuse and Dependence in the Elderly

This section begins with a review of objections to item content of existing alcoholism screening tests, when those tests are used to identify elderly alcoholics and alcohol abusers. Then alcohol consumption patterns of the elderly are described, along with health and psychosocial characteristics of elderly alcoholics. Experts' suggestions of psychosocial characteristics likely to distinguish elderly alcohol abusers from non-abusers are included.

Objections to Existing Screening Tests

The three basic approaches described earlier in defining terms related to alcohol misuse also serve as the source of item content for direct screening tests. Writers interested in the elderly, however, question the value of these

approaches as a source for screening test items.

An objection to the socionormative approach is based upon the likelihood that older persons, especially those abusing alcohol, will have cognitive impairments which limit the accuracy of their accounts. Those impairments include memory deficits and an inability to figure average alcohol use, a mental calculation often required by this approach (Graham, 1986). Atkinson and Schuckit (1981) add another objection: that cultural norms for drinking change considerably according to sex, race, culture, and age; appropriate norms are therefore hard to establish. A third objection is that even small amounts of alcohol can have significant effects upon patients with certain health problems, so that norms based upon these patients' sex, age, or other group membership are not appropriate. Many of these objections are true not only for elderly populations, but for everyone. For this reason, the socionormative approach has fallen out of favor in recent years for use in clinical studies.

Atkinson and Schuckit (1981) also question the usefulness of the addiction approach, when applied to the elderly. Their objection is that adults of all ages vary greatly in their responses to alcohol consumption and withdrawal, and that older people vary even more than younger people. Thus individuals may be severely abusing alcohol without manifesting addiction-based symptomatology. Furthermore, drug effects or symptoms of aging may be similar

to addiction symptomatology, leading to misdiagnosis (Graham, 1986). Graham is also doubtful about whether the elderly are likely to admit to the severe reactions to alcohol associated with addiction, especially if they are questioned in medical or social service settings, the most likely places in which an alcoholism screening test might be used.

The social problems approach has also been criticized, but here the focus is less upon the approach itself than upon the content of items in existing screening instruments. In the MAST, for instance, social problem items address conflicts with family and friends, employment and legal difficulties, neglect of responsibilities, and medical conditions directly related to drinking. Graham (1986) comments that many of these social problems are based in a physically aggressive attitude more characteristic of young than old men (and less typical of women at any age). Moreover, the elderly person may not be living a life style that brings society's attention to that person's alcohol abuse in the ways these MAST items suggest. Thus an older, retired man who does not drive, is widowed, and has few friends or social contacts is less likely than a younger man to answer MAST items in an alcohol-positive direction, whether or not he abuses alcohol.

Atkinson and Schuckit (1981) agree with Graham (1986), pointing out that the specific social problem criteria used in tests like the MAST usually relate to marital, vocational,

or legal difficulties; the elderly, however, are less likely to be married, employed, or to have police records. They add that even if an elderly person is experiencing problems at work, is having conflicts with a wife or friends, and is having legal problems, these difficulties may arise from several sources other than alcohol misuse; the many stresses of old age, such as reduced income or ill health, may very well be the cause of such difficulties.

Nevertheless, Atkinson and Schuckit (1981) believe the social problems approach offers the best guide to diagnosis of elderly abuse. It would seem, however, that items based upon this approach to identifying alcohol abuse must be specifically chosen to reflect those characteristics of elderly alcohol abusers which are different from those of non-abusers. In the remaining three sections of this chapter, these characteristics are examined, and suggestions for appropriate item content are recorded.

Alcohol Consumption Patterns

A number of epidemiological and clinical studies indicate that alcohol misuse among the elderly is less prevalent than in younger populations, and higher percentages of the elderly population abstain from alcohol entirely (Gomberg, 1982). It is not presently clear whether this is a cohort effect or an enduring pattern. Nor is it clear to what extent the declining percentage of drinkers is due to

(a) the early deaths of long-time alcohol abusers, or (b) the cessation of drinking in long-time alcohol abusers as they approach old age. It is known that older drinkers consume smaller quantities per occasion, although they drink at least as frequently as younger age groups (Harford & Mills, 1978). Men are less likely to be abstainers than women and are more likely to drink abusively (Gomberg, 1982).

There is much speculation about the drinking histories of these older abusive drinkers. Some investigators believe there are two types, labeled early onset and late onset drinkers (Gomberg, 1982; Zimberg, 1978; Zimering & Domeischel, 1982). In other literature, the alternate labeling, primary and secondary (or reactive) alcoholism, may be used (Schuckit, 1982). Late onset drinking is thought to develop in response to the increased stresses associated with old age: health problems; losses associated with retirement, deaths of friends and relatives; and reduced income levels. Late onset drinkers are believed to be more stable, psychologically, than early onset drinkers. They are also thought to have fewer physical consequences of prolonged drinking and fewer lifestyle changes (Williams, 1984).

Early onset drinkers, on the other hand, begin drinking abusively earlier in life (before age 40), and more frequently have a family history of alcoholism, suggesting the presence of genetic vulnerability. It is believed that many of these drinkers die early (Schuckit and Pastor, 1984).

Much of the proof of this theory of early and late onset drinkers depends upon statistics which indicate a surge in older adult drinking problems. Magruder-Habib, et al. (1986), in their study of male VA outpatients, using the VAST to identify current and past alcoholics, did not find that the rate of newly incident (one year or less) alcoholics in the 55 to 65 year age group or the 65 and older age group to be significantly larger than for younger groups. They did find, however, that among active alcoholics, the 55 to 64 age group had a high rate of onset one to five years previously; this rate was higher than for any other age group except for the under 35 group. Since 55 to 64 is the age range in which the losses of old age begin to accumulate, this study may provide evidence for the existence of late onset alcoholism. In this study, about two-thirds of the active alcoholics 65 and over reported longstanding alcoholism, resulting in their classification as early onset drinkers, while the rest met criteria for diagnosis as late onset drinkers.

Magruder-Habib et al.'s (1986) findings are useful in establishing overall patterns of use among age groups, but because of the question content of the VAST, a number of late-onset elderly alcohol abusers may have been overlooked. Since the item content of the VAST emphasizes conflicts with relatives, friends, and the law, and also ask questions about psychiatric and alcohol-related hospitalizations, it is possible that late-onset, better adjusted elderly abusive

drinkers did not receive high enough scores to be classified as alcoholic on the VAST. Yet these are the people who may benefit most from treatment for the disorder.

A potential difficulty to the development of a comprehensive alcoholism screening test for the elderly is presented by this theory of early and late onset alcohol abusers. The two groups may manifest the consequences of alcohol abuse in different ways. Under these conditions, an alcohol screening instrument designed to identify both kinds of abusers would have to be multidimensional. One researcher, however, Gomberg (1982), suggests that regardless of the length of alcohol abuse, the commonality of issues faced by the elderly may lead to similar alcohol-related problems and behaviors.

Medical Conditions and Alcohol Use

An important problem related to alcohol abuse in the elderly is health. While alcohol misuse by elderly adults is likely to lead to an array of physical consequences (Williams, 1984), this population is unfortunately subject to a great many health problems regardless of whether they drink or not, and it is difficult to distinguish between cases in which alcohol is the source or at least the intensifier of the problem and those cases in which alcohol use is unrelated (Graham, 1986). At least one epidemiological study shows, however, that alcohol abusers report having more physical

problems than non-abusers (Rathbone-McCuan, Lohn, Levenson, & Hsu, 1976), leaving open the possibility that poor health status is related to alcohol abuse, and can be used as an indicator.

An alternate way to approach the question of health and alcohol use has to do with nutrition. Drinkers often omit meals and become malnourished because necessary nutrients are not ingested. Furthermore, heavy alcohol use leads to functional alterations in the gastrointestinal tract which cause inefficient absorption, utilization, and storage of ingested nutrients.(Eckhardt et al,1981; Hoffman & Heinemann, 1986). Unexplained malnutrition, then, may be an indicator of alcohol abuse in the elderly.

Hingson and Howland (1987) comprehensively reviewed studies for a different health-related connection with alcohol use. Their review suggests that alcohol use increases the risk of accidental falls in the elderly. Graham (1986), Bloom (1983), and Wattis (1981) agree that falls by a person in this age group raise the index of suspicion for alcohol abuse. Although the comments of these writers are based upon clinical experience rather than experimental studies, the authors' unanimity exhibited with regard to the diagnostic value of accidental falls should not be ignored.

Schuckit (1982) discusses the likelihood that older alcohol abusers will experience mental confusion. Making the

point that alcohol is a central nervous system (CNS) depressant, he says alcohol users with preexisting medical disorders which depress CNS functioning are especially vulnerable to mental confusion. Combined use of medications which depress CNS functioning and alcohol also may lead to mental confusion in the user. Schuckit, Atkinson, Miller, and Berman (1980), in a three year follow-up study of elderly alcoholics found that over the three year period, 30% developed "levels of confusion." (The exact meaning of term confusion is not clear; it may mean disorientation and/or attentional and memory deficits.) In a 1977 study of 113 men 65 or older who were inpatients at a VA medical center, Schuckit (1982) found that the records of 36% of the alcoholics versus 11% of the general treatment population (non-alcoholic) contained references to the patient's confusional states. Thus it would appear that confusion might be a good diagnostic indicator of alcoholism in the elderly.

Psychosocial stressors and alcohol use

Brody (1982) posits four factors promoting alcohol abuse among the elderly: "1) retirement, with its attendant boredom, change of role status, and loss of income; 2) deaths occurring among relatives and friends and the awareness that more deaths are coming; 3) poor health and discomfort; and 4) loneliness." He probably based this information upon a study

reported in 1971, in which Rosin and Glatt gathered data on 103 drinking domiciliary residents (male and female), whose status as early or late onset drinkers (abuser) was established. While the early onset drinkers exhibited more dementia, habitual excessive drinking, and pathological personality features, the late onset drinkers showed more recent stresses, consisting of bereavement, retirement, loneliness, marital stress and mental infirmity (anxiety and depression). Items based on these characteristics of late onset drinkers are appropriate for an alcoholism screening test for the elderly, though their relevance to early onset drinkers is unclear.

Graham (1986) suggests that appropriate indicators of alcohol abuse which fit within the psychosocial problems category might include inadequate care of self, clothing and living quarters, social isolation, and lack of physical exercise. A study exploring the role of one of these indicators and alcohol misuse was reported by Brown & Chiang (1983). These investigators studied the association between social isolation and alcohol abuse. In their interviews with 21 older (55 and over) drug and alcohol abusers in treatment, 31 older abusers not in treatment, and 155 older non-abusers, they found substance abuse to be more prevalent in single and divorced elderly and among those who lived alone.

The social indicators just listed reflect specific kinds of stresses. Hochhauser (1981), using the Seligman model of

depression, convincingly relates these stresses to feelings of helplessness and hopelessness in the elderly, which form the base for depression in this population. In this theory, depression precedes alcohol abuse and, indeed, leads to increased drinking. Such individuals are said to have primary depression. Primary depression is likely to continue after drinking has ceased, and untreated, it is associated with increased risk for relapse to problem drinking (Lippmann, Manshadi, Christie, and Gultekin, 1987).

Schuckit (1983) details another kind of depression associated with alcohol abuse, known as secondary depression. This type follows the development of alcoholism and seems to be a direct effect of ethanol on the brain. It usually clears up after two days to two weeks of abstinence.

Aneshensel and Huba (1983) offer an interesting study which suggests a relationship between primary depression, secondary depression, and alcohol use. These investigators collected longitudinal data on 742 adults to study the relationships of depression, alcohol use and smoking. Their analysis suggests that a depressed individual may begin to drink increased levels of alcohol as a coping resource against stress (and primary depression). The initial effect of such use is to decrease depression. After about a year, however, the effect of alcohol is reversed, so that drinking is associated with slightly heightened depression (secondary depression). By this time, however, the drinker may be physically or

psychologically addicted, and is dealing with both kinds of depression as well.

Whether depression is primary or secondary, it seems clear that depression and alcohol abuse are closely associated in the elderly; the presence of this condition, then, may be useful in distinguishing elderly alcoholics from elderly nonalcoholics. Zung (cited in Osgood, 1987) believes that depression in the elderly is manifested somewhat differently than in other age groups. He characterizes elderly depressed persons as anxious, preoccupied with physical symptoms, fatigued, withdrawn, retarded, apathetic, inert, disinterested in their surroundings, and lacking in drive. These symptoms should be addressed in item content of an alcoholism screening test for the elderly.

CHAPTER III

METHODS AND PROCEDURES

Subjects

Subject Selection

One hundred eighteen veterans participated in the study. Data provided by eight veterans were not used for the following reasons: Four veterans did not meet study criteria of having used alcohol in the last year; three veterans were unable to understand test requirements because of cognitive deficits or a poor understanding of English; one veteran left a substantial number of questions unanswered, probably because of overlooking a page of the questionnaire. The final sample, then, contained 110 veterans. In addition, 45 significant others (43 wives, 2 close friends) of the veterans participated in the study. (For a more detailed breakdown of subjects, see Table I.)

Veteran-subjects were male, age 55 or older, and outpatients at the Seattle VA Medical Center (SVAMC). Women were not included in this sample of veterans because the small number of older women using the Seattle VA precluded an adequate sample size. The minimum age of 55 was chosen in

accordance with the National Bureau of the Census, which designates those 55 and over as the "older" population (Williams, 1984). Only veterans who had used alcohol within the previous year were included in the study; nondrinkers were excluded because (a) a simple question about whether the veteran ever uses alcohol is probably the most efficient way to screen for alcohol abuse in these veterans, (b) most other validation studies of alcoholism screening tests do not include nondrinkers in their samples, and (c) considerations of time and money precluded the use of extra subjects who would have been required by a study involving nondrinkers, non-abusive drinkers, and abusive drinkers.

For 106 subjects, the selection process began with the investigator's obtaining permission to contact patients from health care providers working in several outpatient medical clinics (Medical Comprehensive Care, Hypertension, Gastrointestinal, and Pain Clinics). The investigator then used patient appointment lists and a computer records search to identify veterans meeting age requirements. Initial contact with potential subjects was by form letter, in which the study was explained and veterans using alcohol were encouraged to participate. (A copy of this letter is found in Appendix E). During a follow-up telephone call, determination was made of whether the veteran met drinking criteria and was willing to participate in the study. The veteran was also asked whether he had a significant other

(SO), preferably living with him, who might be willing to participate in the study. When possible, appointments for the testing session were arranged before or after already scheduled medical appointments at SVAMC. In ten cases, the investigator went to the homes of veterans because the veteran had no convenient VA appointments scheduled.

Approximately 550 veterans were contacted by phone. Because they had been informed in the initial letter of the need for subjects who used alcohol (in accordance with Human Subjects Committee requirements), drinking veterans who did not wish to participate could deny drinking. Hence, turndowns by drinkers and non-drinkers were not distinguishable.

Five veterans were contacted in a slightly different fashion. These were veterans who had applied for inpatient treatment in SVAMC's alcohol and drug dependence treatment unit. Just before attending a pre-admission intake interview, they were asked to participate in the study. Only one of the five refused. Two of the four participants had SOs who also took part in the study.

The study design called for roughly equal numbers of veterans using alcohol abusively and non-abusively. Since the category of veterans using alcohol non-abusively filled faster than the abusive drinker category, in the latter period of data collection, the drinking criteria for participation in the study was increased from "uses alcohol

at least once during the year" to "uses alcohol several times a month." It is possible, therefore, that episodic drinkers (those whose intake occurs in short time spans, separated by longer periods of abstinence) were underrepresented in the final sample.

Within a period of three weeks after the testing session, each veteran-subject was classified as alcohol abusive or non-abusive. Of the 110 veterans, 53 were classified as abusive, and 57 as non-abusive.

Subject Characteristics

Characteristics of the veterans-subjects are shown in Table II. Some recoding of data recorded on the Demographic Data form was necessary in order to eliminate equivocal categories and, in the case of data requiring chi square analysis, to avoid expected frequencies of less than 5. In addition, for data gathered into education and age categories, such as the age of first drink, the age of first increase in drinking, and the age of last decrease in drinking, mid-points in each category were determined and used in the analysis.

Differences between the alcohol abusing group and the non-abusing group were not significant ($p<.05$) with regard to amount of education, retirement status, number employed, number looking for work, number of times married, or age at which drinking first began to increase. In addition,

veterans with participating SOs reported level of alcohol usage by their SOs. When grouped by the veterans' alcohol status, differences in SO level of alcohol use were not significant either.

The groups did vary significantly as to age, marital status, age of first drink, and age at which alcohol use last decreased. Studies indicate that age and marital status differences are to be expected (Gomberg, 1982; Sherin, Piotrowski, Panek, & Doot, 1982), and it is not surprising that there are differences in history of alcohol use between these two groups. While the age of first drink difference might not be expected, the age of last decrease is directly related to current alcohol status and should pose no threat to the study results.

In the context of the present study, differences in age, marital status, and age of first drink could conceivably pose a threat to the study in that these characteristics, rather than current alcohol use, may account for variability in test scores. One method of assessing the extent to which variance may be explained by these characteristics is suggested by Marascuilo and Levin (1983), using the formula $\underline{r}^2_{pb} = \underline{t}^2/(\underline{t}^2 + \underline{df})$. The explained variance associated with age, using this formula, is .09, $\underline{t}(102)=3.21$, and that associated with age of first drink is .04, $\underline{t}(107)=2.04$). The statistics indicate, therefore, that these characteristics account for relatively small amounts of the variance in

scores.

Group differences in marital status were quite significant; chi square(1)=17.02, $p<.001$. Explained variance associated with marital status was $phi^2= .17$. The strength of this difference is made even more apparent if it is recognized that the study design required a certain number of veterans from each group who had participating SOs, thus reducing potential differences in group marital status. Further consideration of this difference appears in the Discussion section.

Materials

Veterans were asked to complete several measures: a 66-item Questionnaire, the Geriatric Depression Scale (Yesavage et al., 1983), a Demographic Information form, and a portion of the Structured Clinical Interview for DSM-III-R (SCID). In the discussion below, these four instruments are described.

The Questionnaire

This test, designed for self-administration, consisted of 66 questions, each to be answered by circling "yes" or "no" (see Appendix F). All questions contained the phrase "in the last year" or "in the past year," in order to focus test takers' attention upon current thoughts, feelings, and behavior. Twenty-three of these questions were slightly

modified forms of the VAST-C questions. Three supplementary VAST-C questions, not appearing in the MAST, were omitted, since scoring procedures for these two items were not clear. An additional item, was also omitted, unintentionally. All four CAGE questions, in modified form, were included in the questionnaire. In addition, 39 original questions appeared in the Questionnaire; these questions addressed physical and social/emotional conditions thought by experts to be useful in diagnosing problem drinking (Appendix G contains these questions, categorized as to content). Thus, the original questions addressed health and nutrition, housing difficulties, cognition and memory, relationships/social isolation, and suspected elements of depression (low self-esteem, mood, lack of interest in activities, and poor personal care). One subset of these original questions connected the conditions to alcohol use, the other subset did not. Thus, in addition to questions like "Have you had trouble remembering information after a period of drinking in this past year," there were others which made no reference to alcohol use; for example "In this last year, has your mind been as clear as it was several years ago?" These questions not referencing alcohol use were included because of the possibility that veterans might be unaware of the connection between their drinking and their problems or might not be willing to admit to that connection and would therefore respond to the question untruthfully.

The 66 items were assigned randomly to positions in the Questionnaire. Some of the questions were phrased so that an affirmative answer was suggestive of alcohol abuse; for other questions the affirmative answer suggested non-abuse. Time required for finishing this test was approximately 15 minutes. In six cases, veterans were unable to read the Questionnaire items because of poor vision or perhaps because of illiteracy (the interviewer did not attempt to determine the exact reason in order to avoid embarrassing the subjects). Time required to finish the verbally given test was approximately 20 minutes. The 45 SOs involved in this study filled out a similar form of this questionnaire. Modifications were made to the questions so that the SOs answered questions about their veterans, not about themselves (see Appendix H).

The Geriatric Depression Scale

This test, developed by (Yesavage et al., 1983) is a 30-question scale designed for self-administration (see Appendix F). It has high internal consistency (Chronbach alpha = .94) and test-retest reliability (r=.85). Criterion validity was established in a study by Brink, Yesavage, Lum, Heersema, Adey and Rose (cited in Yesavage et al., 1983). The Geriatric Depression Scale was able to distinguish between elderly normals and elderly depressed individuals with a sensitivity rate of 84%, and a 95% specificity rate,

when the cutpoint was 11. Convergent validity was investigated through correlations of Geriatric Depression Scale scores with scores of two other depression tests administered to depressed and non-depressed subjects: the Hamilton Rating Scale for Depression (HDS), and the Zung Self-Rating Depression Scale (SDS). Correlations of these two scales with the Geriatric Depression Scale were .84 and .83, respectively. When compared to clinicians' diagnoses, with specificity rates of the three measures set at 80%, these three tests yielded sensitivity rates of 90% (Geriatric Depression Scale), 82% (SDS), and 86% (HDS) (Yesavage et al., 1983). Thus the Geriatric Depression Scale compares favorably with similar tests. An additional advantage of the Geriatric Depression Scale is that it is not heavily loaded with physical-symptom items; therefore, poor health in the test taker does not lead to biased responses; as a result, it is particularly useful in medical settings. Only "yes" and "no" responses are required; this simple format is desirable when test takers are elderly, because it is less confusing than multiple categories (Kazniak & Allender, 1985). The test was usually finished by veterans in 10 minutes.

The SCID

Diagnosis of alcohol abuse or dependence according to the DSM-III-R (American Psychiatric Association, 1987) was

made through the use of the verbally administered Structured Clinical Interview for DSM-III-R (SCID), developed by Spitzer, Williams, Williams, and Gibbons (1987). Veterans received only those portions of the interview related to alcohol abuse and alcohol dependence. (Appendix J contains the administered portion of the SCID.) The SCID is a recently developed instrument, designed to be administered by a clinically-trained interviewer. Its test-retest reliability on 500 patients, non-patients, and alcohol and drug abusers, has been established (kappa=.73, Miriam Gibbons, personal communication, February 22, 1988). Completion time for the SCID varied according to the amount of detail veterans conveyed about their drinking levels, drinking histories and alcohol related symptomatology, but time for completion was approximately 15 minutes.

Demographic Data

The interviewer orally gathered demographic information from each veteran, entering it into the Demographic Data form found in Appendix K. The format and content of this form is drawn from Polich, Armor, and Braider (1980), and Hedrick, Rothman, Chapko, and Kelly (1987). This portion of the testing session took less than five minutes to complete.

Other materials

Two other forms were used in this study. The first, the

Chart Abstract, was used to record information from veterans' medical records, related to health problems and alcohol use within the most recent two years. (See Appendix L.)

The second form, entitled the Clinician/Rater Form, contains two four-interval scales. (See Appendix M.) This form was used by clinician/raters in making judgments about each veteran's alcohol use status as non-abusive, alcohol dependent and/or alcohol abusive. The scales' interval labels allowed clinician/raters to rate their certainty about their diagnoses by indicating whether the subject "clearly" or "probably" met or did not meet criteria for diagnoses. Because of DSM-III-R's overlapping criteria for alcohol abuse and dependence, an individual who meets the criteria for alcohol dependence also meets the criteria for abuse. The reverse, however, is not true.

Procedures

Test and Interview Procedures

Those veterans scheduled for testing at SVAMC were met by the interviewer in one of two hospital waiting areas. While walking the veteran (and, in some cases, his SO) to the testing area, the interviewer assessed the impact of the veteran's anticipated or just completed medical appointment and allowed the veteran to reset the testing appointment if he wished. In addition, the interviewer used the time to

establish a comfortable, non-threatening relationship so that the veteran would be more likely to speak openly of his alcohol use. If the veteran was accompanied by a SO, the two were placed in separate rooms in the testing area. The interviewer began the veteran's session by explaining his rights and obtaining his signature on two consent forms. The subject was then presented with the Questionnaire and the Geriatric Depression Scale and the interviewer described the veteran's task with the following words:

> What you are asked to do here is to read each question and circle the "yes" or "no" answer, according to what is true for you. There are two kinds of questions on this first test. Some have to do with alcohol; the others are health questions. For instance, [an alcohol-related question was read to the subject]--alcohol is mentioned here. On the other hand, in this question [a question was read which had no mention of alcohol], alcohol is not mentioned. Please answer the question as it stands. If it does not refer to alcohol, don't add it in when you are considering your answer. If you have any questions about the items, just mark them and we will discuss them later. You may find some overlap on the questions. That's intended."
>
> "You see that there are two questionnaires to complete. They are answered in the same manner, by circling the answer that is true for you."

Subjects appeared to understand these instructions, and few asked any questions. The interviewer then left the room for a few minutes in order to allow the subject to feel more comfortable about answering test questions and to discourage ongoing comments from some of the more talkative or dependent subjects.

In those cases in which a SO was waiting, the interviewer joined her and repeated the same procedure as for the veteran except that only the modified version of the Questionnaire was administered.

After the interviewer rejoined the veteran, and determined that he had finished the Questionnaire and the Geriatric Depression Scale, she encouraged subjects to comment and ask questions about confusing or exasperating questions. The interviewer then administered the SCID and, lastly, obtained demographic data. Veterans (and SOs) were then given directions or taken back to the waiting area. Total time from leaving the waiting area to returning there was approximately an hour.

Clinician/Rater Procedures

Two clinician/raters participated in this project, using SCID responses and chart abstracts to evaluate subjects' alcohol status. These clinician/raters were licensed clinical psychologists at SVAMC, both of whom had extensive professional experience with alcohol-abusing older veterans.

Each clinician/rater evaluated all subjects and classified them as non-abusers, or alcohol abusive and/or alcohol dependent. Their evaluations were recorded on the Clinician/Rater Forms. Although the clinician/raters were given two four-interval scales to mark, their answers were later simplified to reflect diagnoses of whether the person was or was not abusing alcohol. A rating by the clinician/rater that the subject was (probably or certainly) abusing alcohol and/or alcohol dependent resulted in the subject receiving a diagnosis positive for alcohol abuse. If the clinician/rater marked the subject as (probably or certainly) not abusing alcohol and not alcohol dependent, then the subject received a diagnosis negative for alcohol abuse. When clinician/raters disagreed, a note was made for statistical purposes. Subsequently, clinician/raters met in conference and came to consensus on the ratings for these subjects.

Data Analysis

Data analysis was completed in six steps. In analyses requiring a preset significance level, that level was set at $p < .05$. With 110 veterans, a medium effect size of .5 can be detected at a power of approximately .94 and an alpha level of .05, when t-tests are performed. Similarly, medium effect sizes of .3 can be detected at a power of approximately .90 and an alpha level of .05, when the test

utilized is chi square. When correlations are performed on the data of two groups of n = 45, a medium to large effect size of .3 to .5 is detectible at a power of .79 and an alpha level of .05 (Cohen, 1977).

In the first step of analysis, interrater agreement was estimated using the kappa statistic. The second step involved item analysis, with the objective of choosing the questions comprising the new screening instrument. Here several non-parametric statistics were utilized, along with inter-item correlations and factor analyses. In order to determine whether certain of the new test's questions were related to depression, point biserial correlations were run between the items and Geriatric Depression Scale scores. In addition, correlations between EVAST20 scores, the Geriatric Depression Scale, and (clinician/rater) criterion ratings were run to establish the extent to which EVAST20 scores are influenced by veterans' depression.

The third step involved establishing an optimal cutpoint for the new screening instrument, named the EVAST20 (The Elderly Veterans Alcohol Screening Test -- 20 items). This was accomplished through an examination of the sensitivity and specificity of the new test as cutpoints were set at varying levels. An optimal cutpoint was chosen for the study's sample of veterans.

In the fourth step, the internal consistency of the instrument was investigated. Item-total correlations were

calculated, and a total alpha level was established using the Kudor-Richardson Formula 20, a version of Chronbach's alpha.

Criterion (concurrent) validity was studied in the fifth step, through a comparison of scores generated by SOs with those of the veterans. Correlational procedures were used to establish the relationships between these scores.

Construct validity was addressed in the sixth step; it involved making comparisons between the performance of the EVAST20, 23 questions from the VAST-C, the CAGE and the Geriatric Depression Scale. Correlational procedures are again utilized in this step.

CHAPTER IV

RESULTS

Interrater Agreement

Chance-corrected agreement between raters can be estimated using the kappa statistic. If the observed agreement is greater than chance, kappa is >= 0. If there is complete agreement, kappa = 1.0 (Fleiss, 1981). In this study, the two clinician/raters disagreed on subjects' status with regard to alcohol abuse 13 out of 110 times, resulting in a kappa value of .76, z = 8.336. (In all cases, raters disagreed about proper category placement in "probably" categories. Thus disagreements were all between adjoining categories). According to Landis and Koch (cited in Fleiss, 1981), this value represents excellent agreement beyond chance. The clinician/raters' reconciled judgments on the 110 subjects represented, for study purposes, the true diagnostic states of the subjects. These ratings became the "gold standard" diagnosis against which items were evaluated. The modified versions of the VAST-C, the CAGE, and the new EVAST20 were similarly evaluated through a comparison of test scores with these diagnoses.

Item Analysis

Responses were recoded so that all answers suggesting alcohol abuse were given the same value (1). Decisions about whether 'yes' or 'no' responses were suggestive of alcohol abuse were based on VAST-C and CAGE scoring directions when questions were from these scales. Scoring decisions for original questions were based upon experts' beliefs, as set forth in this study's literature review.

After eliminating one question infrequently answered, the investigator compared veterans' responses to each question with the clinician/raters' classifications of veterans' alcohol status (abusive or non-abusive). Comparisons were made through the calculations of several statistics: phi, lambda (with subject alcohol status as the dependent variable), and kappa. In order to facilitate comparisons, rankings within each statistic (across items) were assigned, based upon the strength of agreement between item response and rater classification. Table III contains these statistical values and rankings.

Thirty other questions were eliminated because most of the veterans answered them in the same way. (Examination of the data and computer printouts showed that these thirty questions could be identified by referring to computer output related to phi calculations, which indicated that the expected frequency of cells was less than 5). This left a

group of 35 questions which had good phi, kappa, and lambda levels. These items were subjected to principal components factor analysis. Nine factors emerged (See Table IV for factor eigenvalues greater than one and related percentages of variance explained). Subsequently, a varimax rotation of the factors was performed. (Table V contains the resulting rotated factor matrix.) Those questions which loaded heavily on one or more of the rotated factors and which had satisfactory rankings on the non-parametric statistics were retained in the final group of 20 items comprising the EVAST20. Five of the nine factors are thus represented by items in the EVAST20. When two items loading on a single factor had high correlations, one was dropped. Three items were eliminated in this way. (See Table VI for inter-item correlations.) Appendix N contains the 20 items comprising the EVAST20.

EVAST20 total scores were then calculated for veterans and SOs. Each question answered in the direction of alcohol abuse was given a point, with the sum of those points (unweighted) being the EVAST20 score. For the 57 non-abusing veterans' EVAST20 scores, $\underline{M}$ = 1.1, $\underline{SD}$ = 1.3; for the alcohol abusers, $\underline{M}$ = 8.2, $\underline{SD}$ = 5.4.

In order to determine whether some of the items in the EVAST20 reflected the presence or absence of depressive symptoms, point biserial correlations were run between veterans' Geriatric Depression Scale scores and their

responses to each EVAST20 item (Table VII). All items were significantly correlated with Geriatric Depression Scale scores; one was significant at $p<.01$; the others at $p<.001$. Correlations were highest between the Geriatric Depression Scale scores and items #43, #56, #35 and #10. (These items also load most heavily on the second factor of the previously discussed factor analysis, suggesting that this factor may reasonably be labeled "depression.") It should be noted, however, that questions #56, #35, and #10 are very similar to questions #4, #16, and #17 in the Geriatric Depression Scale.

Such significant correlations between EVAST20 and Geriatric Depression Scale items raise the question of whether the EVAST20 is simply measuring depression. Indeed, the correlation between the EVAST20 and Geriatric Depression Scale scores was fairly high, $r(43) = .68$, $p < .001$, $r^2 = .46$ (See Table VIII). When Geriatric Depression Scale scores and veterans' diagnostic statuses were compared, however, it was apparent that the GDS had limited power as a predictor of alcohol abuse $r(43) = .41$, $p < .001$, and $r^2 = .17$. A similar comparison between EVAST20 scores and veterans' diagnostic statuses yielded $r(43) = .68$, $p <.001$, $r^2 = .46$. These results suggest that the EVAST20 is a much better indicator of alcohol status than the Geriatric Depression Scale.

To further investigate these results, in which the EVAST20 and the Geriatric Depression Scale are substantially correlated, but differ considerably in the strengths of their

correlations with diagnostic status, two single-sample chi squares were performed. The first sample was composed of persons receiving Geriatric Depression Scale scores that classified them as normal (i.e. not depressed). In this sample, the number of alcohol abusers and non-abusers did not vary significantly from expected values, which were proportional to the total number of study alcohol abusers and non-abusers (chi square = 2.2423, $p[1]<.12$).

The second sample was composed of persons whose Geriatric Depression Scale scores classified them as mildly or severely depressed. In this instance, the number of alcohol abusers and non-abusers did vary significantly from expected values (chi square =.6.767, $p(1)<.009$). The results of these two tests suggest that although non-depressed older veterans may or may not drink abusively, those that are depressed are likely also to be drinking.

Following the completion of these procedures a second factor analysis was performed, this time on the items of the EVAST20 only (see Table IX for the unrotated factors with eigenvalues greater than one and related percentages of variance explained). Varimax rotation yielded four interpretable factors, the first might be entitled "awareness of alcohol use-related problems related to drinking"; the second, "internal events leading to drinking"; the third, "depression unrelated to drinking"; and the last factor, "self-enhancing activities." (Table X contains the rotated

factor matrix.)

A separate factor analysis was run using only those veterans classified as alcohol abusers. (See Table XI for factors with eigenvalues greater than one and related percentages of variance explained.) After varimax rotation, five interpretable factors emerged, which were similar to those generated using all veterans' EVAST scores. (Table XII contains the rotated factor matrix.) While loadings on items varied somewhat between the two analyses, in this analysis of the alcohol abusers' answers to EVAST20 questions, the first factor again could be labeled "awareness of alcohol use-related problems related to drinking," The second factor in this analysis was interpretable as "depression unrelated to drinking," and the third was "internal events leading to drinking." Two items loaded heavily on the fourth factor; they referred to "confusion/clarity of mind." (These two questions loaded most heavily on the first factor in the previous analysis of all veteran's responses.) The fifth factor was interpretable as "self-enhancing activities."

Determination of EVAST20 Cutpoint

The optimum cutpoint for distinguishing alcohol abusers from non-abusers was determined through an examination of the sensitivity and specificity of the EVAST20 at varying cutpoints. Table XIII presents the sensitivities and specificities of the EVAST20 (as well as for the CAGE and the

VAST-C). Inspection indicates that for this sample, an EVAST20 cutpoint of three is probably optimal. At this level the sensitivity rate is .87 and the specificity rate is .89. Higher sensitivity is obtained by lowering the cutpoint to two or one, but the specificity rate declines (substantially, if the cutpoint is reduced to one). Table XIII shows that for each specificity rate, the sensitivity rate of the EVAST20 exceeds that of the modified CAGE and the modified VAST. Indeed, the CAGE and VAST have sensitivities which decline precipitously as the cutpoint is raised above the minimum level of one. The low optimal cutpoint of these two modified tests suggests that they are somewhat insensitive to alcohol abuse in this study's subjects.

Measures of EVAST20 Internal Consistency (Reliability)

Table XIV contains a number of measures relating to the EVAST20's internal consistency. The effect of each item upon the scale's mean, variance, and $alpha_{20}$ level is presented, along with corrected-item total correlations and squared multiple correlations. For the test as a whole, $alpha_{20}$ = .92, which represents excellent reliability. The standardized item alpha = .93; the similarity of these two $alpha_{20}$ levels indicates that all items in the scale have fairly comparable variances.

Validity Measures

Criterion (current) validity was investigated through a comparison of EVAST20 scores by veterans who had SOs participating in the study, and the EVAST20 scores obtained from those SOs. Although SO reports cannot be accepted as the final word on veterans' drinking behavior, they do offer an outside source of information regarding veterans' alcohol use and its consequences.

Correlations between the 45 veterans (19 rated by the clinicians as abusive drinkers, 26 rated as non-abusive) and their SOs were substantial, $r(43) = .78$, $p<.001$.

In order to look more closely at the congruence between test scores of veterans and their SOs, two additional correlation procedures were undertaken. The first compared alcohol abusers' EVAST20 scores with those of their SOs. Here again, veterans' and SOs' test scores were significantly correlated, $r(17) = .6406$, $p <.003$.

The second comparison was made between non-abusers' EVAST20 scores and those of their SOs. In this case, the scores were not significantly correlated. An examination of the scores of these non-abusive drinkers and their SOs revealed that the range of answers was limited, which may partially account for the lack of significant correlation. Difference scores were calculated by subtracting the score of each SO from the score of her veteran. These difference

scores are presented in Figure 1 as a frequency distribution. Negative scores represent instances in which the veteran gave himself a higher score than his SO gave him. It may be seen from Figure 1 that differences between the ratings of the veterans and their SOs are, in most cases, small.

An examination of the sensitivities and specificities of SOs' EVAST20 scores (based upon clinicians assessments of alcohol abuse status) indicates that three is an optimal cutpoint for determining alcohol status, as was true for the veterans (See Table XIII). For this and all other cut-points, the SO EVAST20-based alcohol abuse classifications are in less agreement with clinician judgments than are the veterans' EVAST20-based classifications and the subgroup of veterans-with-SOs EVAST20-based classifications (See Table XIII). This is not surprising since items were picked for the EVAST20 according to veterans' responses and clinicians' ratings without considerations of SO scores.

EVAST20 scores from only those veterans clinician-classified as non-abusers and EVAST20 scores from their SOs were examined. A cutpoint of three was used to classify these veterans as abusers or non-abusers based upon their own EVAST20 scores and those of their SOs. In 69.2% of the cases there was agreement in classification by the veterans and their SOs. In 26.9% of the cases there was disagreement in which the veterans EVAST20 scores suggested a non-abuser status, and the SOs scores indicated abuser status. In only

3.8% of the cases was the direction of the disagreement reversed. This finding is consistent with the results of Figure 1 which showed that in most cases SO scores were higher than veterans scores, where the comparison was between EVAST20 scores of veterans clinician-rated as non-abusers and EVAST20 scores from their SOs. The two findings raise questions about the relationship of veterans' EVAST20 scores and their SOs' EVAST20 scores: Are SOs' EVAST20 scores more sensitive to alcohol abuse than veterans' scores? Should SOs responses to SCID questions have been used to determine alcohol status instead of veterans' responses?

In order to investigate these questions, additional analyses were performed. All 45 EVAST20 scores of SOs indicated that 46.7% of all veterans-with-SOs were alcohol abusers; in contrast were the 45 EVAST20 scores generated by those veterans, which indicated that 40% were alcohol abusers. Clinicians, using veteran-provided SCID responses and chart records found 42.2% of these same men to be alcohol abusers, thus placing the clinicians' estimate between that of the SOs and the veterans themselves.

Classification agreement of all 45 SOs and their veterans, based upon EVAST20 scores, was then examined. There was agreement 75.5% of the time; 15.6% of the time classification was SO-positive and veteran-negative; 8.9% of the time the disagreement was reversed, with classification being SO-negative and veteran-positive.

Another way of analyzing these differences is to compare classifications based on EVAST20 scores of the 45 SOs with clinician-based classifications. In this comparison, SOs and clinicians are in agreement as to classification in 73.3% of the cases; for 11.1% of the cases, the clinician classification is positive and that of the SO is negative; for the remaining 15.6% of the cases the clinician classification is negative and the SO classification is positive.

In summary, the above analyses of SO-generated and veteran-generated classifications suggest that SOs of (clinician designated) non-abusers tended to produce higher EVAST20 scores than do the non-abusers themselves, thereby leading to a higher rate of abuser classifications by SOs. When all 45 SOs and their veterans were considered, however, the picture was less clear; scores of SOs were not uniformly the same as or higher than those of their veterans; some were lower. The questions stated above will be addressed again in the Discussion section of the next chapter.

The significant correlations between EVAST20 items and Geriatric Depression Scale scores, combined with the relatively low optimal EVAST20 cutpoint, raise a question of whether depressed, non-abusive elderly drinkers may be falsely identified as alcohol abusers by the EVAST20. To examine this possibility, all cases (6) of EVAST20 false positive results were identified, and the Geriatric

Depression Scale scores of these individuals were examined. Three subjects' scores were in the depresssed range, the other three were not. This proportion of depressed subjects is somewhat higher than might be expected; the overall proportions of depressed and and non-depressed subjects in this study were .26 and .74, respectively. Six cases, however, are not enough to establish the extent to which depression in test-takers threatens the EVAST20's validity.

Construct validity was studied through a comparison of correlations between the EVAST20, and the two related instruments, the modified VAST-C and the modified CAGE. Two CAGE and three (of 23) VAST-C questions appear in the EVAST20 questionnaire, so that these correlations are somewhat inflated. It is possible, however, to use these correlations to establish the similarities in test results. Table VIII contains these correlations. Correlations between the three alcohol screening instruments exceed their correlations with the Geriatric Depression Scale, which suggests that the EVAST20 is indeed measuring alcohol abuse and non-abuse. In addition, note that all three alcohol instruments correlate more highly with clinician-rated alcohol status than does the Geriatric Depression Scale. Table VIII also shows that the EVAST20 is more highly correlated with clinician-rated alcohol status than are the modified CAGE and VAST-C, though this is not surprising since the EVAST20's development was based upon these subjects' responses. An additional study

using other subjects is needed to establish the relative merits of the CAGE, the VAST-C, and the EVAST20.

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

This study developed an alcohol abuse screening instrument, the Elderly Veterans Alcohol Screening Test-20 items (EVAST20), which identifies older alcohol abusers in a medical population and is designed as a self-administered test, requiring yes-no answers to 20 questions.

Subjects were 110 Seattle Veterans Administration Medical Center (SVAMC) male veterans, ages 55 and older. In addition, 45 of the veterans had a spouse or friend who participated in the study. Most of the veterans (106) belonged to populations of SVAMC outpatient clinics; 4 were prospective inpatients in SVAMC's alcohol treatment program.

Subjects completed a 66-item questionnaire containing slightly modified questions from two existing alcohol screening instruments, the Veterans Alcoholism Screening Test (VAST) and the CAGE (letters stand for key words in items); original items thought to reflect the special characteristics of elderly abusers also appeared in the questionnaire. In addition, subjects completed the Geriatric Depression Scale and portions of the Structured Clinical Interview for DSM-

III-R (SCID) related to alcohol abuse and dependence. Demographic information about the subjects was gathered. Spouses and friends completed the 66-item questionnaire with regard to their veterans' behavior.

Two SVAMC clinical psychologists used the SCID data and medical chart abstracts to judge the status of each veteran as either an alcohol abuser or non-abuser. They judged that 53 of the veterans were abusing alcohol, while 57 were judged to be drinking non-abusively. Rater agreement was high.

Statistical analysis of demographic data obtained from the alcohol abusers' group and the non-abusive group suggested several significant differences in the characteristics of these two groups; most of these differences explained only small amounts of variance. Marital status was also significantly different between the groups, with alcohol abusers being less likely to be married.

Using the psychologists' ratings as the criterion measure, and employing phi, lambda, and kappa statistics, as well as factor analysis, the investigator chose 20 of the 66 items to form the EVAST20. Through an examination of the sensitivities and specificities of the EVAST20 at various cutpoints, the optimal cutpoint for distinguishing abusers from non-abusers was established for populations similar to that of the study sample.

Internal consistency of the EVAST20 was established via item-total correlations, squared multiple correlations, and

the Kudor-Richardson formula 20. Criterion validity was evaluated through correlations of veterans' EVAST20 scores with SOs' EVAST20 scores. Construct validity was explored through correlations of EVAST20 scores with two other alcohol screening instruments and with the Geriatric Depression Scale.

Statistical analysis suggests that the internal consistency of this instrument is satisfactory. Concurrent validity of the instrument also appears to be satisfactory based upon correlations performed between EVAST20 scores of 45 veterans and their SOs. A similar comparison of EVAST scores of the subsample of non-abusers and their SOs did not yield significant results. The limited range of scores may have accounted for this lack of significance, but it appears that SOs did give their spouses slightly higher scores than the veterans gave themselves. Correlations between the EVAST20 and the other two alcohol screening instruments were higher than correlations between the EVAST20 and the Geriatric Depression Scale, supporting construct validity of the instrument.

Discussion

Interpretation of Findings

The analysis of data collected relative to the development and assessment of an alcohol screening instrument

for older adults indicates that the EVAST20 is an instrument which has sufficient internal consistency and validity to warrant further study.

In addition, the small number of VAST-C items which survived the item competition for inclusion in the EVAST20, suggests that, as the literature states (Gomberg, 1982; Graham, 1986), older men express alcohol related problems in different ways than do younger men. For instance, VAST-C items related to DWIs and arrests, psychiatric hospitalizations, severe physical reactions to heavy drinking, and work were eliminated from the EVAST20 because they did not discriminate as well as other non-VAST-C items relating to consequences of drinking, depression, internal states leading to drinking, and self-enhancing activities. An alternate explanation for the survival of only a small number of VAST-C items is that the veterans in this study were mostly of the late onset type. As discussed earlier, late onset alcohol abusers are thought to display fewer of the extreme social and legal difficulties which are the subject of VAST-C item queries.

Two CAGE items appear in the EVAST20, although two other questions, drawn from the VAST-C (included in the EVAST20) are very similar to the unused CAGE items. Three of the four CAGE questions focus on internal reactions, such as annoyance, guilt, and self-control issues, rather than upon extreme social and legal consequences of drinking. Perhaps

this is why a greater percentage of CAGE items (50%) survived the item competition for inclusion in the EVAST20.

A question may arise as to whether the CAGE is as useful a test as the EVAST20. Because it is shorter, the CAGE may indeed be preferred in some cases, but the EVAST20 has certain advantages. First the EVAST20, according to statistics appearing in Table VIII, correlates somewhat more highly with alcohol diagnoses of the subjects than does the CAGE. Second, from a clinical standpoint, the CAGE does not give as much information about test-takers' alcohol related feelings and behaviors. Third, the CAGE is such a short test that sensitivities and specificities change drastically at varying cutpoints. As a result, there is not much flexibility in choosing cutpoints which are responsive to the special characteristics of differing subpopulations.

Another interesting finding is the EVAST20's depression factor. To what extent depression in elderly alcoholics is primary or secondary is not clear, but the EVAST20 results suggest that persons treating elderly alcohol abuse should be prepared to treat depression as well. This is particularly important since, according to Lippman, Manshadi, Christie, and Gultekin (1987), untreated depression among alcoholics in alcohol treatment programs increases risk for relapse to problem drinking.

With regard to the question of whether, within the subgroup of clinician-defined non-abusers, SO EVAST20

scores reflect higher sensitivity to alcohol abuse than the EVAST20 scores of the veterans themselves or even than the clinicans' ratings (which were based on veterans' SCID responses and chart records), it must be said that some supposedly non-abusive veterans may be correctly classified as abusers by SOs' EVAST20 scores. On the other hand, SO scores may suggest non-abuse in cases in which veterans have been classified as abusers, based on their own and clinicians' responses. So the evidence for the superiority of SO responses is not clearly established.

Furthermore, the present study was deliberately designed to include veterans without SOs, since the literature suggests that loneliness is often associated with drinking in the elderly (Brown & Chiang, 1983). A screening instrument whose items and norms were based upon SO responses, rather than veteran responses, would exclude those lonely drinking veterans from the study. Thus, while it may be desirable to use SO information where possible, it does not seem advisable to base the development of a test upon SO data.

Problems and Limitations of the Study

As the study proceeded, several problems in study design and procedures became apparent which should be considered when interpreting the data. The first was posed as we contacted veterans about participating in the study. To meet ethical requirements it was necessary to be forthright with

veterans about our study's purposes and the criteria for participating. Thus, as previously stated, we were unable to determine our true turndown rate from alcohol abusers and non-abusers. Approximately one of every five men we contacted became an alcohol abuser subject in our study. Since Magruder-Habib, et al. (1986) have found a higher percentage of elderly heavy drinkers in the VA population, the sample tested probably is not fully representative of elderly drinkers at the VA. Although some of these drinkers may have chosen not to participate for the same reasons as some non-abusive drinkers--lack of time, energy, and interest--study results must be interpreted with some caution because of this sampling difficulty.

A second study problem relates to differences in demographic characteristics found in the two criterion groups, consisting of abusive drinkers and non-abusive drinkers. Some of these differences occur with items related to alcohol use, such as age of first drink, and age of last decrease in drinking; these items are so closely related to the study topic that differences seem to offer little threat to the internal validity of the study. Age differences explain only a limited amount of variance. One item, marital status, however, was significantly different between groups, in spite of a study design which artificially lessened the differences, i.e., the design called for approximately equal numbers of couples with non-abusing veterans and the same

number of couples with veterans abusing alcohol. Brown and Chiang's (1983) research bears out the findings of the present study. As mentioned earlier, they investigated characteristics of social background and social support among older (55 and up) abusers and non-abusers (identified through drug treatment programs, hospitals, social services agencies and public housing residents in the Madison, Wisconsin area). After controlling for age and gender, these researchers found that abusers were more likely to live alone and to be single, separated or divorced.

Although these demographic differences raise some issues about the study's validity, it is hard to imagine that groups of abusers and non-abusers would be similar on all variables except alcohol use, because alcohol abuse has such far-reaching consequences to the veteran's physical and social conditions. Indeed, it is just such consequences that make the study and treatment of alcohol abuse so important. If groups had been matched on all factors but alcohol abuse, the test probably would not have been validated on as typical a sample as was actually the case. Nevertheless, these differences should be kept in mind as the study in evaluated.

Recommendations

Clinical Uses of the EVAST

The EVAST20 has been designed for use in medical

outpatient clinics as an alcohol screening instrument for the identification of older, male alcohol abusers. It should be of special value in Veterans Administration Medical Centers, where the patient population is rapidly aging (Administrator of Veteran Affairs, 1985). Since it is a paper-and-pencil test, taking only a few minutes to complete and score, it can, with further validation, be used by health care givers during initial health evaluations or, perhaps, yearly checkups. Since health care givers sometimes have difficulty in addressing alcohol use with their patients, it could serve two purposes if given to patients before their appointments. First, it would help identify those patients for whom alcohol abuse seems most likely, and target those whom the health provider must speak to about alcohol use. Second, the content of questions answered affirmatively for abuse by a veteran could be used by his health care provider in opening discussions about alcohol abuse.

Pending further study of the effect of depression on the EVAST20's sensitivity, clinicians using this test should not assume that all patients scoring more than three points are abusers. Indeed, this test is a screening, not a diagnostic, instrument; it therefore is an indicator of abuse, not a definitive test for the condition.

Directions for Additional Research

Although this study has begun establishing the

reliability and validity of the EVAST20, more studies are necessary. Probably most important is a cross-validation study, since test validities often fall considerably in such studies. In this cross-validation study, the EVAST20 would be presented, for the first time, as a separate instrument with questions appearing together.

Such a cross-validation study might address the degree to which depression affects EVAST20 classification accuracy by establishing the test's ability to distinguish non-abusive, depressed, elderly patients from those who are non-depressed alcohol abusers.

When investigating a strongly proscribed behavior, it is important to examine the extent to which test results may have been influenced by the test taker's concern about presenting a socially desirable image (McCutcheon, 1985). Several tests of social desirability exist which could be correlated with EVAST20 test scores in order to determine the extent of influence of this factor. The social desirability model offers another way of approaching the wide-ranging controversy about the truthfulness of self-reports of alcohol abusers.

The present study addressed only internal consistency; hence, test-retest reliability should be established. The EVAST20 is a test intended to register behavior changes over the period of a year or more, so that the testing interval should be shorter.

Since questions about alcohol use can offend patients and negatively affect not only test answers, but also patient reactions to health care providers who have asked those questions (or given an alcohol screening test), the acceptability of the test to its potential users should be assessed. In the present study, people taking the test were volunteers and expected to be asked about alcohol use. While their attitudes towards the 66-item questionnaire were generally quite tolerant, a separate study is needed to determine the reactions of those who are presented the test as part of a health care routine. A related concept, which could be addressed in the same study, would be the face validity of the test.

A future study utilizing the EVAST20 might determine the drinking histories of elderly alcohol abusers in order to establish their status as early or late onset alcohol abusers. With this information, investigators could investigate differences in the response patterns of the two types of abusers on the EVAST20.

Assuming the EVAST20 continues to show promise after the above studies have been completed, issues of generalizability can be assessed. Appropriate populations for testing would include male inpatients, older women, and non-patient older populations. Since the number of false positive test results rises as the prevalence in a population drops (Baldessarini,

Finklestein, and Arana 1983), the value of the test and its acceptability would need reassessment.

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APPENDIXES

APPENDIX A

DSM-III-R CRITERIA FOR ALCOHOL DEPENDENCE AND ABUSE

Alcohol Dependence

A. At least three of the following:

(1) substance often taken in larger amounts or over a longer period than the person intended

(2) persistent desire or one or more unsuccessful efforts to cut down or control substance abuse

(3) a great deal of time spent in activities necessary to get the substance, taking the substance, or recovering from its effects

(4) frequent intoxication or withdrawal symptoms when expected to fulfill major role obligations at work, school, or home, or when substance use is physically hazardous

(5) important social, occupational, or recreational activities given up or reduced because of substance use

(6) continued substance use despite knowledge of having a persistent or recurrent social, psychological, or physical problem that is caused or exacerbated by the use of the substance.

(7) marked tolerance: need for markedly increased amounts of the substance (i.e., at least a 50% increase) in order to achieve intoxication or

desired effect, or markedly diminished effect with continued use of the same amount

(8) characteristic withdrawal symptoms

(9) substance often taken to relieve or avoid withdrawal symptoms

B. Some symptoms of the disturbance have persisted for at least one month, or have occurred repeatedly over a longer period of time.

Alcohol Abuse

A. A maladaptive pattern of psychoactive substance use indicated by at least one of the following:

(1) continued use despite knowledge of having a persistent or recurrent social, occupational, psychological, or physical problem that is caused or exacerbated by use of the psychoactive substance

(2) recurrent use in situations in which use is physically hazardous

B. Some symptoms of the disturbance have persisted for at least one month, or have occurred repeatedly over a longer period of time.

C. Never met the criteria for Psychoactive Substance Dependence for this substance.

APPENDIX B

MICHIGAN ALCOHOLISM SCREENING TEST

1. Do you feel you are a normal drinker?
2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before?
3. Does your wife (or parents) ever worry or complain about your drinking?
4. Can you stop drinking without a struggle after one or two drinks?
5. Do you ever feel bad about your drinking?
6. Do friends or relatives think you are a normal drinker?
7. Do you ever try to limit your drinking to certain times of the day or to certain places?
8. Are you always able to stop drinking when you want to?
9. Have you ever attended a meeting of Alcoholics Anonymous (AA)?
10. Have you gotten into fights when drinking?
11. Has drinking ever created problems with you and your wife?
12. Has your wife (or other family member) ever gone to anyone for help about your drinking?
13. Have you ever lost friends or girlfriends/boyfriends because of drinking?
14. Have you ever gotten into trouble at work because of drinking?
15. Have you ever lost a job because of drinking?

16. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?
17. Do you ever drink before noon?
18. Have you ever been told you have liver trouble? Cirrhosis?
19. Have you ever had delirium tremens (DTs), severe shaking, heard voices or seen things that weren't there after heavy drinking?
20. Have you ever gone to anyone for help about your drinking?
21. Have you ever been in a hospital because of drinking?
22. Have you ever been a patient in a psychiatric hospital or on a psychiatric ward if a general hospital where drinking was part of the problem?
23. Have you ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergyman for help with an emotional problem in which drinking had played a part?
24. Have you ever been arrested, even for a few hours, because of drunk behavior?
25. Have you ever been arrested for drunk driving or driving after drinking?

APPENDIX C

VETERANS ALCOHOLISM SCREENING TEST

0. Did you ever drink beer, wine or whisky?

   Do you enjoy a drink now and then?

   When was the last time you had a drink of beer, wine or whiskey?_____

1. Do you feel you are a normal drinker? (By normal we mean you drink less than or as much as most other people.)

   Do you feel that you have always been a normal drinker?

   (IF NO) Do you feel you were a normal drinker

   in the last 1-5 years?

   more than 5 years ago?

2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before?

   (IF YES) Has this occurred in the last year?

   in the last 1-5 years?

   more than 5 years ago?

3. Does your wife, husband, a parent or other near relative ever worry or complain about your drinking?

   In the past did your wife, husband, a parent or other near relative ever worry or complain about your drinking?

   (IF YES) Did this happen during the last 1-5 years?2

   more than 5 years ago?

4. Can you stop drinking without a struggle after one or

two drinks?

In the past could you stop drinking without a struggle after 1 or 2 drinks?

in the last 1-5 years?

more than 5 years ago?

5. Do you ever feel guilty about your drinking?

In the past, did you ever feel guilty about your drinking?

(IF YES) Did you feel guilty about your drinking

in the last 1-5 years?

more than 5 years ago?

6. Do friends or relatives think you are a normal drinker?

Do friends and relatives think you were always a normal drinker?

(IF YES) Do they think you were a normal drinker

in the last 1-5 years?

more than 5 years ago?

7. Are you able to stop drinking when you want to?

Were you always able to stop drinking when you wanted to?

(IF NO) Were you able to stop drinking when you wanted to in the last 1-5 years?

more than 5 years ago?

8. Have you ever attended a meeting of Alcoholics Anonymous (AA)?

(IF YES) Has you attended a meeting of AA

in the last year?

in the last 1-5 years?

more than 5 years ago?

9. Have you gotten into fights when drinking?

(IF YES) Has this occurred

in the last year?

in the last 1-5 years?

more than 5 years ago?

10. Has drinking ever created problems with you and your wife, husband, a parent, or other relative?

(IF YES) Has this occurred

in the last year?

in the last 1-5 years?

more than 5 years ago?

11. Has your wife, husband (or other family members) ever gone to anyone for help about your drinking?

(IF YES) Did this happen in the last year?

in the last 1-5 years?

more than 5 years ago?

12. Have you ever lost friends because of your drinking?

(IF Yes) Have you lost friends in the last year?

in the last 1-5 years?

more than 5 years ago?

13. Have you ever gotten into trouble at work because of

drinking?

(IF YES) Was it in the last year?

in the last 1-5 years?

more than 5 years ago?

14. Have you ever lost a job because of drinking?

(IF YES) Was it in the last year?

in the last 1-5 years?

more than 5 years ago?

15. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?

(IF YES) Did this occur in the last year?

in the last 1-5 years?

more than 5 years ago?

16. Do you drink before noon fairly often?

Did you ever drink before noon fairly often?

(IF YES) in the last 1-5 years?

more than 5 years ago?

17. Have you ever been told you have liver trouble?

Cirrhosis?

(IF YES) Were you told in the last year?

in the last 1-5 years?

more than 5 years ago?

18. After heavy drinking, have you ever had delirium tremens (DTs), severe shaking, heard voices or seen things that

really weren't there? (put 2 checks if DTs)

(IF YES) Did this occur in the last year?

(2 checks if DTs)

in the last 1-5 years?

(2 checks if DTs)

more than 5 years ago?

(2 checks if DTs)

19. Have you ever gone to anyone for help about your drinking?

(IF YES) Was this in the last year?

in the last 1-5 years?

more than 5 years ago?

20. Have you ever been in a hospital because of drinking?

(IF YES) Were you in a hospital because of drinking

in the last year?

in the last 1-5 years?

more than 5 years ago?

21. Have you ever been seen at a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was a part of the problem that resulted in hospitalization?

(IF YES) Was this in the last year?

in the last year?

in the last 1-5 years?

22. Have you ever been seen at a psychiatric or mental

health clinic, or gone to a doctor, social worker, or clergyman for help with an emotional problem where drinking was part of the problem?

(IF YES) Was this in the last year?

in the last year?

in the last 1-5 years?

23. Have you ever been arrested for drunk driving, driving while intoxicated, or driving under the influence of alcoholic beverages?

(IF YES) How many times? _____

Was this in the last year?

How many times? _____

in the last 1-5 years?

How many times? _____

more than 5 years ago?

How many times? _____

24. Have you ever been arrested for drunk driving or taken into custody, even for a few hours, because of other drunken behavior?

(IF YES) How many times? _____

Was this in the last year?

How many times?

in the last 1-5 years?

How many times?

more than 5 years ago?

How many times?

SUPPLEMENTARY QUESTIONS

Do you feel that you ever had a drinking problem?

(IF YES) Was this in the last year?

in the last year?

in the last 1-5 years?

Do you feel that you have ever been an alcoholic?

(IF YES) Was this in the last year?

in the last year?

in the last 1-5 years?

APPENDIX D

CAGE QUESTIONNAIRE

1. Have you ever felt you should cut down on your drinking?
2. Have you ever felt annoyed by criticism of your drinking?
3. Have you ever felt bad or guilty about your drinking?
4. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover? [Eyeopener]

APPENDIX E

FIRST CONTACT LETTER

Dear

I am writing to tell you about a Seattle VA Medical Center research project designed to gather information about patterns of alcohol use in veterans 55 and over. The results of this study will help VA personnel in delivering better health care to their veterans.

Currently the researchers are looking for veterans to assist in developing a questionnaire. They hope to contact all veterans in several outpatient clinics, including the Hypertension Clinic. Each veteran who participates in the study will be asked to complete two questionnaires and answer a few questions. This should take about 30 to 40 minutes.

All responses to this study are strictly confidential and will be used only for research purposes. None of the information will be given to physicians, nurses, or other health care providers, nor will it appear in your medical chart. Study results will report only group data.

The study requires that people with varying levels of alcohol use abe interviewed. For the next two months, the researchers are concentrating upon talking with veterans who have a drink of wine, beer, or their alcoholic beverage at least four times a month.

Linda Wilson, research assistant, will call in the next few days to tell you more about the study and answer any questions you might have. She will ask whether you can help with this phase of the study and will set up the appointment if you agree to participate. If you wish to call her to ask questions or to volunteer, she can be reached at 764-2468, on Monday and Friday mornings between 8:00 A.M. and noon.

Your participation is, or course, entirely voluntary and will not affect your health care in any way. I do think this is a worthwhile project and know that the researchers will appreciate your help.

Sincerely,

[Name of Health Care Provider]

APPENDIX F

VETERANS' QUESTIONNAIRE

The questions below cover a variety of issues. Some will mention alcohol use and others will not.

Please read each question and circle one of the answers following each question, according to what is true for you.

Do not spend too much time on any one question. Just answer according to your first thought.

A.	In this past year have you enjoyed a drink now and then?	Yes	No
1.	This past year have you sometimes taken a drink in order to relax?	Yes	No
2.	In this past year, when you have felt unable to control your life, have you felt an urge to take a drink?	Yes	No
3.	Have you been arrested or taken into custody, even for a few hours, because of drunken behavior this past year?	Yes	No
4.	Have you felt you should cut down on your drinking during this past year?	Yes	No
5.	Have you gotten into trouble at work because of drinking in this past year?	Yes	No
6.	In this past year, have you been a patient in a psychiatric hospital or a psychiatric ward of a general hospital where drinking was a part of the problem that resulted in hospitalization?	Yes	No
7.	During this past year, have you had someone living with you who kept others from knowing that you drink?	Yes	No
8.	In this last year, have you generally talked with a good friend every day?	Yes	No
9.	Have you had trouble remembering information after a period of drinking in this past year?	Yes	No
10.	Have you sometimes felt useless or worthless this last year?	Yes	No
11.	After heavy drinking in this past year, have you had Delirium Tremens (DTs) or severe shaking, or heard voices or seen things that really weren't there?	Yes	No

12. Have you often felt tired in this last year? Yes No

13. In this last year, have you neglected your obligations, your family or your work for 2 or more days in a row because you were drinking? Yes No

14. In this last year, have you drunk alcohol more often with friends than with strangers or by yourself? Yes No

15. Have friends or relatives thought you to be a normal drinker in this past year? Yes No

16. Have you had any accidents or injuries as a result of drinking alcohol in this past year? Yes No

17. Have you generally been able to stop drinking when you wanted to, in this past year? Yes No

18. Have you attended a meeting of Alcoholics Anonymous (AA) in this past year? Yes No

19. Have you had any health problems related to drinking in this past year? Yes No

20. In this past year, have you sometimes felt useless or worthless? Yes No

21. In this past year, has a doctor told you that you should stop or cut down on your drinking? Yes No

22. Have you lost a job because of drinking in this past year? Yes No

23. Have you lived in a half-way house, nursing home, or a group home during this last year? Yes No

24. In this past year, have you been arrested for drunk driving, driving while intoxicated, or driving under the influence of alcoholic beverages? Yes No

25. During this past year, have you moved to a new home because of conflicts at the former home? Yes No

26.	Have you lost any friends because of your drinking in this last year?	Yes	No
27.	In this past year, when you return to a book or magazine after several hours, do you remember what you've already read?	Yes	No
28.	Have you gotten into physical fights when drinking this last year?	Yes	No
29.	This last year, have you worried about losing your balance as a result of drinking?	Yes	No
30.	Have you become involved in conflicts with friends and relatives when you were drinking this last year?	Yes	No
31.	In this past year have you sometimes had your first drink before noon?	Yes	No
32.	In this past year have you been able to stop drinking without a struggle after one or two drinks?	Yes	No
33.	Has some family member gone to anyone for help about your drinking in this last year?	Yes	No
34.	Have you been in good health this last year?	Yes	No
35.	Have you felt down hearted and blue much of the time in this past year?	Yes	No
36.	In this last year, have you neglected your appearance after drinking for several days?	Yes	No
37.	This past year, have you usually eaten at least two good meals a day?	Yes	No
38.	This last year, have you had a drink first thing in the morning to steady your nerves or get rid of a hangover?	Yes	No
39.	Do you feel you have been a normal drinker in this past year? (By normal we mean you drink less than or as much as most other people.)	Yes	No
40.	Has your family situation changed in this past year?	Yes	No

41. Have you felt guilty about your drinking this past year? Yes No

42. Have you had trouble keeping your balance this past year? Yes No

43. Have you often felt disappointed in yourself this past year? Yes No

44. This last year, have you generally felt hopeful about the future? Yes No

45. Have you been in a hospital because of drinking this past year? Yes No

46. On some days in this last year, have you decided not to get dressed or have you neglected to brush your hair or your teeth? Yes No

47. Have you changed residences in this last year? Yes No

48. In this past year, has your drinking created problems between you and your wife, husband, a parent or other relative? Yes No

49. In this last year, have you pursued a hobby at least once a week? Yes No

50. Do you have fewer good friends than you did several years ago? Yes No

51. In this past year has your mind been as clear as it was several years ago? Yes No

52. Have others lived with you in this last year? Yes No

53. Have you felt disgusted with yourself for drinking too much in this past year? Yes No

54. In this past year have you sometimes taken a drink because there was nothing interesting to do? Yes No

55. Has it been important to you this last year to dress as well as you did ten years ago? Yes No

56. Have you often become bored in this last year? Yes No

57. In this last year, have you awakened the morning after some drinking, and found that you could not remember a part of this evening? Yes No

58. Have you sometimes passed up meals in favor of a drink in this past year? Yes No

59. In this past year, has anyone suggested that you have memory problems or are confused because you are using alcohol? Yes No

60. In this last year, have you been told you have liver trouble? Cirrhosis? Yes No

61. Have you used a cane or crutch in this last year? Yes No

62. Have you gone to anyone for help about your drinking in this last year? Yes No

63. Have you felt bad or guilty about your drinking in this last year? Yes No

64. In this last year have you sometimes had a drink in order to feel better? Yes No

65. Have you felt annoyed by criticism of your drinking in this past year? Yes No

66. This past year, have you been seen at a psychiatric or mental health clinic or gone to any doctor, social worker, or clergyman for help with any emotional problem where drinking was part of this problem? Yes No

APPENDIX G

NEW QUESTIONS

Items without reference to alcohol use	Items with reference to alcohol use
HEALTH AND NUTRITION	
Have you often felt tired in this last year?	Have you had any accidents or injuries as a result of drinking in this past year?
In this past year, has a doctor told you that you should stop drinking?	Have you had any health problems related to drinking in this past year?
Have you been in good health this last year?	In this last year, have you worried about losing your balance as a result of drinking?
This last year, have you usually eaten at least two good meals a day?	Have you often passed up meals in favor of a drink in this last year?
Have you had trouble keeping your balance this last year?	
Have you used a cane or crutch in this last year?	
HOUSING DIFFICULTIES	
Have you lived in a half-way house, nursing home, or a group home during this last year?	
During this past year, have you moved to a new home because of conflicts at the former home?	
Have you changed residences in this last year?	
COGNITIVE AND MEMORY	
In this past year, has your mind been as clear as it was several years ago?	Have you had trouble remembering information after a period of drinking in this past year?

Items without reference to alcohol use	Items with reference to alcohol use
	In this past year, has anyone suggested that you have memory problems or are confused because you are using alcohol?
RELATIONSHIPS/SOCIAL ISOLATION	
In this last year, have you generally talked with a good friend every day?	During this past year, have you had someone living with you who kept others from knowing that you drink?
Has your family situation changed in this last year?	In this last year, have you drunk alcohol more often with friends than with strangers or by yourself?
Have others lived with you in this last year?	During this past year, have you moved to a new home because of conflicts at the former home?
Do you have fewer friends than you did several years ago?	Have you become involved in conflicts with friends and relatives when you were drinking this last year?
LOW SELF-ESTEEM	
Have you sometimes felt useless or worthless this last year?	Have you felt disgusted with yourself for drinking too much this last year?
In this past year, have you sometimes felt useless or worthless?	
Have you often felt disappointed in yourself this past year?	

Items without reference to alcohol use	Items with reference to alcohol use
MOOD RELATED	
Have you felt downhearted and blue much of the time in this past year?	This past year have you sometimes taken a drink in order to relax?
This last year, have you generally felt hopeful about the future?	In this past year, when you have felt unable to control your life, have you felt an urge to take a drink?
	In this last year have you sometimes had a drink in order to feel better?
LACK OF INTEREST	
In this last year, have you pursued a hobby at least once a week?	In this past year have you sometimes taken a drink because there was nothing interesting to do?
Have you often become bored in this last year?	
PERSONAL CARE	
On some days in this last year, have you decided not to get dressed or have you neglected to brush your hair or your teeth?	In this last year, have you neglected your appearance after drinking for several days?
Has it been as important to you to this last year to dress as well as you did ten years ago?	

APPENDIX H

SIGNIFICANT OTHERS' QUESTIONNAIRE

The questions below cover a variety of issues. Some will mention alcohol use and others will not.

Please read each question and circle one of the answers following each question, according to what is true for your veteran.

Do not spend too much time on any one question. Just answer according to your first thought.

A. In this past year has your veteran enjoyed a drink now and then? Yes No

1. This past year has he sometimes taken a drink in order to relax? Yes No

2. In the past year, when he has felt unable to control his life, has he felt an urge to take a drink? Yes No

3. Has he been arrested or taken into custody, even for a few hours, because of drunken behavior in this last year? Yes No

4. Has he felt he should cut down on his drinking during the past year? Yes No

5. Has he gotten into trouble at work because of drinking in the past year? Yes No

6. In the past year, has he been a patient in a psychiatric hospital or a psychiatric ward of a general hospital where drinking was a part of the problem that resulted in hospitalization? Yes No

7. During this past year, has he had someone living with him who kept others from knowing that he drinks? Yes No

8. In the last year, has he generally talked with a good friend each day? Yes No

9. Has he had trouble remembering information after a period of a period of drinking in the past year? Yes No

10. Has he sometimes felt useless or worthless this last year? Yes No

11. After heavy drinking in this past year, has he had Delirium Tremens (DTs) or severe shaking, or heard voices or seen things that really weren't there? Yes No

12. Has he often felt tired in this last year? Yes No

13. In the last year, has he neglected his obligations, his family or his work for 2 or more days in a row because he was drinking? Yes No

14. In the last year, has he drunk alcohol more often with friends than with strangers or by himself? Yes No

15. Have friends or relatives thought him to be a normal drinker in the past year? Yes No

16. Has he had any accidents or injuries as a result of drinking alcohol in the past year? Yes No

17. Has he generally been able to stop drinking when he wanted to in the past year? Yes No

18. Has he attended a meeting of Alcoholics Anonymous (AA) in this past year? Yes No

19. Has he had any health problems related to drinking in the past year? Yes No

20. In this past year, has he sometimes felt useless or worthless? Yes No

21. In the past year, has a doctor told him that he should stop or cut down on his drinking? Yes No

22. Has he lost a job because of drinking in the past year? Yes No

23. Has he lived in a half-way house, nursing home, or a group home during the last year? Yes No

24. In the past year, has he been arrested for drunk driving, driving while intoxicated, or driving under the influence of alcoholic beverages? Yes No

25. During the past year, has he moved to a new home because of conflicts at the former home? Yes No

26. Has he lost any friends because of his drinking in this last year? Yes No

27. In the past year, when he returns to a book or magazine after several hours, does he remember what he's already read? Yes No

28. Has he gotten into physical fights when drinking this last year? Yes No

29. This last year, has he worried about losing his balance as a result of drinking? Yes No

30. Has he become involved in conflicts with friends and relatives when he was drinking this last year? Yes No

31. In the past year has he sometimes had his first drink before noon? Yes No

32. In the past year has he been able to stop drinking without a struggle after one or two drinks? Yes No

33. Have you (or some other family member) gone to anyone for help about his drinking in the last year? Yes No

34. Has he been in good health this last year? Yes No

35. Has he felt down hearted and blue much of the time in the past year? Yes No

36. In the last year, has he neglected his appearance after drinking for several days? Yes No

37. This past year, has he usually eaten at least two good meals a day? Yes No
good meals a day?

38. This last year, has he had a drink first thing in the morning to steady his nerves or get rid of a hangover? Yes No

39.	Does he feel he has been a normal drinker in this past year? (By normal we mean he drinks less than or as much as most other people.)	Yes	No
40.	Has his family situation changed in the past year?	Yes	No
41.	Has he felt guilty about his drinking this past year?	Yes	No
42.	Has he had trouble keeping his balance this past year?	Yes	No
43.	Has he often felt disappointed in himself this past year?	Yes	No
44.	This last year, has he generally felt hopeful about the future?	Yes	No
45.	Has he been in a hospital because of drinking this past year?	Yes	No
46.	On some days in this last year, has he decided not to get dressed or has he neglected to brush his hair or his teeth?	Yes	No
47.	Has he changed residences in the last year?	Yes	No
48.	In the past year, has his drinking created problems between him and his wife, a parent or other relative?	Yes	No
49.	In the last year, has he pursued a hobby at least once a week?	Yes	No
50.	Does he has fewer good friends than he did several years ago?	Yes	No
51.	In this past year has his mind been as clear as it was several years ago?	Yes	No
52.	Have others lived with him in this last year?	Yes	No
53.	Has he felt disgusted with himself for drinking too much in this past year?	Yes	No

54. In this past year has he sometimes taken a drink because there was nothing interesting to do? Yes No

55. Has it been important to him this last year to dress as well as he did ten years ago? Yes No

56. Has he often become bored in this last year? Yes No

57. In this last year, has he awakened the morning after some drinking, and found that he could not remember a part of the evening? Yes No

58. Has he sometimes passed up meals in favor of a drink in this past year? Yes No

59. In the past year, has anyone suggested that he has memory problems or is confused because he is using alcohol? Yes No

60. In the last year, has he been told he has liver trouble? Cirrhosis? Yes No

61. Has he used a cane or crutch in the last year? Yes No

62. Has he gone to anyone for help about his drinking in this last year? Yes No

63. Has he felt bad or guilty about his drinking in this last year? Yes No

64. In this last year has he sometimes had a drink in order to feel better? Yes No

65. Has he felt annoyed by criticism of his drinking in the past year? Yes No

66. This past year, has he been seen at a psychiatric or mental health clinic or gone to any doctor, social worker, or clergyman for help with any emotional problem where drinking was part of the problem? Yes No

APPENDIX I

GERIATRIC DEPRESSION SCALE

Please read each question below and circle the answer to the right which best reflects your feelings. Do not spend too much time on any one question. Just answer according to the first thought that comes into your mind.

1.	Are you basically satisfied with your life?	Yes	No
2.	Have you dropped many of your activities and interests?	Yes	No
3.	Do you feel that your life is empty?	Yes	No
4.	Do you often get bored?	Yes	No
5.	Are your hopeful about the future?	Yes	No
6.	Are you bothered by thoughts that you just cannot get out of your head?	Yes	No
7.	Are you in good spirits most of the time?	Yes	No
8.	Are you afraid that something bad is going to happen to you?	Yes	No
9.	Do you feel happy most of the time?	Yes	No
10.	Do you often feel helpless?	Yes	No
11.	Do you often get restless and fidgety?	Yes	No
12.	Do you prefer to stay home at night, rather than go out and do new things?	Yes	No
13.	Do you frequently worry about the future?	Yes	No
14.	Do you feel that you have more problems with memory than most?	Yes	No
15.	Do you think it is wonderful to be alive now?	Yes	No
16.	Do you often feel downhearted and blue?	Yes	No
17.	Do you feel pretty worthless the way you are now?	Yes	No
18.	Do you worry a lot about the past?	Yes	No
19.	Do you find life very exciting?	Yes	No

20.	Is it hard for you to get started on new projects?	Yes	No
21.	Do you feel full of energy?	Yes	No
22.	Do you feel that your situation is hopeless?	Yes	No
23.	Do you think that most people are better off than you are?	Yes	No
24.	Do you frequently get upset over little things?	Yes	No
25.	Do you frequently feel like crying?	Yes	No
26.	Do you have trouble concentrating?	Yes	No
27.	Do you enjoy getting up in the morning?	Yes	No
28.	Do you prefer to avoid social gatherings?	Yes	No
29.	Is lit easy for you to make decisions?	Yes	No
30.	Is your mind as clear as it used to be?	Yes	No

APPENDIX J

STRUCTURED CLINICAL INTERVIEW

FOR DSM-III-R

1. What are your drinking habits like? (How much do you drink?)

2. Was there ever a period in your life when you drank too much? (Has alcohol ever caused problems for you?)

IF YES: When was that?

IF YES: What problems did it cause?

IF YES: Have you had any of these problems in the last year?

3. Has anyone ever objected to your drinking?

IF YES: has anyone objected in the last year? (Have you ever been told by a doctor or other health care professional that you need to cut down or stop using alcohol?)

IF YES: Why?

IF NO SUGGESTION THAT EVER DRANK ALCOHOL EXCESSIVELY OR HAD ALCOHOL RELATED PROBLEMS, CHECK HERE_____ AND TERMINATE INTERVIEW.

4. When in your life were you drinking the most? (How long did it last?)

"Now I am going to ask you several questions about your drinking habits in this past year."

5. Have you often found that when you started drinking you ended up drinking much more than you thought you would?

IF NO: What about drinking for a much longer period of time than you thought you would?

6. Did you ever try to cut down or stop drinking in this last year?

IF YES: Did you ever actually stop drinking altogether?

(How many times did you try to cut down or stop altogether?)

IF NO: Did you want to stop or cut down?

IF YES: Is this something you kept worrying about or was it just a passing concern?

A. At least three of the following:

(1) Alcohol often taken in larger amounts OR over a longer period than the person intended.

? 1 2 3

(2) Persistent desire OR one or more unsuccessful efforts to cut down or control alcohol use

? 1 2 3

?=inadequate information
1=absent or false
2=subthreshold
3=threshold or true

7. Have you spent a lot of time, this last year, drinking or being hung over?

8. In this last year, have you had a time when you were often intoxicated or high or very hungover, when you were doing something important, like being at school or work, or taking care of children?

IF NO: What about missing something important like staying away from school or work or missing an appointment because you were intoxicated, high or very hungover?

(What about drinking while doing something where it might have been dangerous to drink at all?)

9. In the last year, were you drinking so often that you started to drink instead of working or spending time with your family or friends?

IF NOT ALREADY KNOWN: Has your drinking caused problems with other people, such as with family members or people at work in this last year?

IF NOT ALREADY KNOWN: In this last year, has your drinking caused psychological problems, like making you depressed?

(3) A great deal of time spent in activities necessary to get alcohol, taking alcohol, or recovering from its effects

? 1 2 3

(4) Frequent intoxication OR

? 1 2 3

(5) Important social, occupational, or recreational activity given up or reduced because of alcohol use

? 1 2 3

(6) Continued alcohol use despite knowledge of having a persistent or recurrent social, psychological, or physical problem that is caused or exacerbated by the use of alcohol

? 1 2 3

?=inadequate information
1=absent of false
2=subthreshold
3=threshold or true

IF NOT ALREADY KNOWN: In this last year, has your drinking caused physical problems or made a physical problem worse?

IF YES TO ANY OF ABOVE: Did you keep on drinking anyway?

10. Have you, in the last year, found that you need to drink a lot more in order to get high than you did when you first started drinking?

    IF YES: As much as twice as much?

    IF NO: What about finding that when you drank the same amount, it had much less effect than before?

11. In the last year, have you had the shakes when you cut down or stopped drinking (that is, your hands shook so much that other people would have been able to notice it?)

12. IF HAD WITHDRAWAL SXS: In this last year, after not drinking for a few hours or more, do you often drink to keep yourself from the shakes or becoming sick?

    IF NO: What about drinking when you were having the shakes or feeling sick so that you would feel better?

(7) Marked tolerance: need for markedly increased amounts of alcohol (i.e., at least a 50% increase) in order to achieve intoxication or desired effect, or markedly diminished effect with continued use of the same amount?

? 1 2 3

(8) Characteristic symptoms, such as coarse tremor ("shakes"), seizures, DTs. (Do not include simple "hangover.")

? 1 2 3

(9) Alcohol often taken to relieve or avoid withdrawal symptoms

? 1 2 3

AT LEAST ONE "A" ITEM CODED "3,"

1 2 3

?=inadequate information
1=absent or false
2=subthreshold
3=threshold or true

IF UNCLEAR: For how long a time were you having (SYMPTOMS OF ALCOHOL ABUSE OR DEPENDENCE

B. Symptoms of the disturbance have persisted for at least one month, or have occurred repeatedly over a longer period of time?

ALCOHOL DEPENDENCE: AT LEAST 3 "A" ITEMS ARE CODED "3"

ALCOHOL ABUSE: DOES NOT MEET CRITERIA FOR DEPENDENCE BUT DOES MEET EITHER (1) OR (2) BELOW:

(1) continued use despite knowledge of having a persistent or recurrent social, occupational, psychological, or physical problem that is caused by or exacerbated by use of alcohol.

(2) recurrent use in situations when use is physically hazardous (e.g, driving while intoxicated)

NEITHER DEPENDENCE OR ABUSE:

?	1	2	3
	Non-Alcohol Abuse	Alcohol Abuse	Alcohol Dependence

APPENDIX K

DEMOGRAPHIC DATA FORM

1. Subject Number _____ Age _____

2. Are you currently married, widowed, divorced, separated, or have you never been married?
   - Married . . 1
   - Widowed . . 2
   - Separated/ Divorced . 3
   - Never Mar . 4

3. If someone living in your home is going to participate in this study, please state your relationship to this person.
   - Wife . . . 1
   - Girlfriend. 2
   - Friend. . . 3
   - Child . . . 4
   - Sibling . . 5
   - Other relative . 6
   - No one . . 0

4. What is the highest grade or year you finished in school?
   - No school . 1
   - Elementary . 2
   - Some high school . . 3
   - High school. 4
   - Some college 5
   - College grad 6
   - Grad/prof. . 7

5. Are you currently employed outside the home?
   - No 1
   - Yes. 2
   - Yes, 1-20 hrs. 3
   - Yes, 12-40 hrs 4
   - Yes, > 5 yrs . 5

6. Are you looking for work?
   - Yes. 1
   - No 2

7. Are you retired? IF YES, for how long?
   - No 1
   - Yes, < 1 yr . 2
   - Yes, 2-5 yrs . 3
   - Yes, > 5 yrs . 4

8. How many people do you live with, including children?
   - 0 0
   - 1 1
   - 2 2
   - 3 3
   - 4 or more . . . 4

9. If someone you live with is participating in this study, do you think of this person drinking occasionally, drinking frequently, having a drinking problem, or doesn't that person drink?

Drinks occ. . 1
Drinks freq . 2
Drinking pb . 3
Doesn't drink 4
No one. . . . 5

10. How old were you when you had your first alcoholic drink?

0-10 1
11-15 2
16-20 3
21-30 4
31-40 5
41-50 6
51-60 7
61-70 8
71-80 9
81 or older .10
Never 11

11. Some people go through times in their lives when their alcohol use increases. If this is true for you, approximately what age were you when you began to drink more?

0-10 1
1-15 2
16-20 3
21-30 4
31-40 5
41-50 6
51-60 7
61-70 8
71-80 9
81 or older .10
Never 11

12. Some people also go through times in their lives when their alcohol use decreases. If this is true for you, approximately what age were you when you last decreased your use?

0-10 1
1-15 2
16-20 3
21-30 4
31-40 5
41-50 6
51-60 7
61-70 8
71-80 9
81 or older .10
Never 11

APPENDIX L

CHART ABSTRACT

Subject I.D. _____ Chart Checked by _____

PROGRESS NOTES;

PROBLEM LIST/HOSPITAL SUMMARIES;

LAB REPORTS:

OTHER:

APPENDIX M

RATER EVALUATION

Subject ID_____ Rater Name_____

Please mark the line segment which best reflects your opinion:

Subj. clearly meets criteria for alcohol dependence	Subj. probably meets criteria alcohol dependence	Subj. probably does not meet criteria for alcohol dependence	Subj. clearly does not meet criteria for alcohol dependence

Subj. clearly meets criteria for alcohol abuse	Subj. probably meets criteria alcohol abuse	Subj. probably does not meet criteria for alcohol abuse	Subj. clearly does not meet criteria for alcohol abuse

Comments:

APPENDIX N

ELDERLY VETERANS ALCOHOLISM

SCREENING TEST - 20

1. This past year have you sometimes taken a drink in order to relax? (1)
2. In this past year, when you have felt unable to control your life, have you felt an urge to take a drink? (2)
3. Have you felt you should cut down on your drinking during this past year? (C) (4)
4. Have you had trouble remembering information after a period of drinking in this past year? (9)
5. Have you sometimes felt useless or worthless this last year? (10)
6. In this past year, has a doctor told you that you should stop or cut down on your drinking? (21)
7. In this past year have you sometimes had your first drink before noon? (V) (31)
8. Have your felt down hearted and blue much of the time in this past year? (35)
9. This last year, have you had a drink first thing in the morning to steady your nerves or get rid of a hangover? (38)
10. Have you felt guilty about your drinking this past year? (V) (41)
11. Have you often felt disappointed in yourself this past year? (43)

12. On some days in this last year, have you decided not to get dressed or have you neglected to brush your hair or your teeth? (46)
13. In this last year, have you pursued a hobby at least once a week? (49)
14. Have you felt disgusted with yourself for drinking too much in this past year? (53)
15. In this past year have you sometimes taken a drink because there was nothing interesting to do? (54)
16. Have you often become bored in this last year? (56)
17. In this last year, have you awakened the morning after some drinking, and found that you could not remember a part of the evening? (V) (57)
18. Have you sometimes passed up meals in favor of a drink in this past year? (58)
19. In this last year have you sometimes had a drink in order to feel better? (64)
20. Have you felt annoyed by criticism of your drinking in this past year? (C) (65)

---

[1](V) indicates modified VAST-C question; (C) indicates modified CAGE question; number in parenthesis is the number assigned to the item in the 66-item Questionnaire.

APPENDIX O

TABLES

TABLE I

SUBJECT GROUPINGS

Subject Groups	n Sub-total	n Total
Veterans		
Non-abusers		
With participating significant other	26	
Without participating significant other	31	
Alcohol abusers		
With participating significant other	19	
Without participating significant other	34	
Total Veteran sample		110
Significant others		55
Total sample		155

TABLE II

DEMOGRAPHIC CHARACTERISTICS OF
ALCOHOL ABUSERS AND NONABUSERS

	Alcohol status	
	Non-abusers	Abusers
Age		
n	57	53
M	68	64.0*
SD	7.5	5.3
Marital Status (*n*)		
Married	52	29*
Unmarried[a]	5	24
Education		
n	57	53
M	13.3	12.4
SD	2.9	3.0
Employment (*n*)		
Employed	41	46
Unemployed	16	7
Looking for work? (*n*)		
Yes	2	5
No	55	48

TABLE II (Continued)

	Alcohol status	
	Non-abusers	Abusers
Retired (n)		
Yes	11	12
No	46	41
Participating significant others' drinking (n)		
None or occasional use	17	13
Frequent or problem use	4	6
Age of first drink		
n	56	53
M	16.0	13.6*
SD	6.0	6.5
Age when alcohol use first increased		
n	49	50
M	24.9	23.4
SD	12.7	7.5
Age when alcohol use last decreased		
n	40	42
M	40.0	52.4*
SD	16.6	12.8

[a]Never married, divorced, or widowed.

*T-test indicates differences are significant at $p<.05$.

TABLE III

ITEM STATISTICS AND RANKINGS

ITEM	PHI	PHI RANK	EXPECTED CELL FREQ<5	LAMBDA	LAMBDA RANK	KAPPA	KAPPA RANK
1	.43	10.0	0	.00	63.0	.45	5.0
2	.33	19.5	0	.26	16.0	.28	17.0
3	.01	65.0	2	.00	63.0	.02	55.0
4	.59	3.0	0	.55	3.5	.57	4.0
5	.14	50.5	2	.04	51.5	.04	48.5
6	.10	55.5	2	.02	57.0	.02	55.0
7	.14	50.5	2	.04	51.5	.04	48.5
8	.02	62.0	0	.00	63.0	.00	60.0
9	.46	6.0	0	.34	7.5	.36	9.0
10	.32	22.0	0	.28	13.0	.31	13.0
11	.27	27.0	2	.13	32.5	.14	32.0
12	.10	53.0	0	.04	48.0	.09	43.0
13	.23	39.5	2	.09	43.5	.10	41.5
14	.00	66.0	0	.00	63.0	.01	59.0
15	.05	61.0	0	.00	63.0	-.02	63.0
16	.17	45.5	2	.06	46.5	.06	45.5
17	.26	29.0	0	.19	27.0	-.17	66.0
18	.20	42.0	2	.08	45.0	.08	44.0
19	.29	24.0	2	.15	31.0	.16	29.0

TABLE III (Continued)

ITEM	PHI	PHI RANK	EXPECTED CELL FREQ.< 5	LAMBDA	LAMBDA RANK	KAPPA	KAPPA RANK
20	.29	25.0	0	.25	19.5	.27	19.5
21	.43	9.0	0	.31	10.0	.33	11.0
22	.10	55.5	2	.02	57.0	.02	55.0
23	.06	59.0	2	.02	57.0	-.02	62.0
24	.14	50.5	2	.04	51.5	.04	48.5
25	.10	55.5	2	.02	57.0	.02	55.0
26	.14	50.5	2	.04	51.5	.04	48.5
27	.06	60.0	0	.04	51.5	.03	51.0
28	.10	55.5	2	.02	57.0	.02	55.0
29	.23	38.0	0	.13	32.5	.15	31.0
30	.24	33.5	2	.13	36.0	.14	34.5
31	.64	1.5	0	.57	1.5	.59	1.5
32	.22	41.0	0	.17	30.0	-.16	64.5
33	.23	39.5	2	.09	43.5	.10	41.5
34	.20	43.0	0	.18	28.0	.19	28.0
35	.39	14.0	0	.28	13.0	.30	14.0
36	.27	28.0	2	.13	36.0	.14	36.0
37	.28	26.0	0	.21	23.0	.21	27.0
38	.35	17.0	0	.21	23.0	.22	25.0
39	.24	35.0	0	.17	29.0	-.16	64.5

TABLE III (Continued)

ITEM	PHI	PHI RANK	EXPECTED CELL FREQ.< 5	LAMBDA	LAMBDA RANK	KAPPA	KAPPA RANK
40	.01	63.0	1	.00	63.0	.01	58.0
41	.41	12.0	0	.28	13.0	.30	15.0
42	.18	44.0	0	.13	36.0	.15	30.0
43	.40	13.0	0	.34	7.5	.36	8.0
44	.33	19.5	0	.26	16.0	.27	19.5
45	.17	45.5	2	.06	46.5	.06	45.5
46	.32	21.0	0	.25	19.5	.24	21.0
47	.07	58.0	0	.04	51.5	.03	52.0
48	.35	17.0	0	.21	23.0	.22	25.0
49	.29	23.0	0	.26	16.0	.29	16.0
50	.01	64.0	0	.00	63.0	-.00	61.0
51	.23	36.0	0	.20	26.0	.22	23.0
52	.15	48.0	0	.13	36.0	.14	33.0
53	.43	11.0	0	.30	11.0	.32	12.0
54	.64	1.5	0	.57	1.5	.59	1.5
55	.25	32.0	0	.21	23.0	.23	22.0
56	.58	4.0	0	.55	3.5	.57	3.0
57	.47	5.0	0	.36	6.0	.37	7.0
58	.44	8.0	0	.32	9.0	.34	10.0
59	.24	33.5	2	.13	36.0	.14	34.5

TABLE III (Continued)

ITEM	PHI	PHI RANK	EXPECTED CELL FREQ.< 5	LAMBDA	LAMBDA RANK	KAPPA	KAPPA RANK
60	.25	31.0	2	.11	40.0	.12	39.0
61	.16	47.0	0	.11	40.0	.13	37.0
62	.25	30.0	2	.11	40.0	.12	38.0
63	.39	15.0	0	.25	18.0	.27	18.0
64	.46	7.0	0	.40	5.0	.41	6.0
65	.35	17.0	0	.21	23.0	.22	25.0
66	.23	37.0	2	.10	42.0	.10	40.0

TABLE IV

Eigenvalues and Percent of Variance Explained in Unrotated Factor Analysis for 35 Items

Factor	Eigenvalue	Percent of Variance Explained
1	11.96	34.2
2	2.84	8.1
3	1.79	5.1
4	1.69	4.8
5	1.44	4.1
6	1.40	4.0
7	1.22	3.5
8	1.13	3.2
9	1.02	2.9

TABLE V

Varimax Rotated Factor Matrix After Rotation with Kaiser Normalization for 35 Items

	Factor				
Item	1	2	3	4	5
1	.28	.01	.74	-.04	.13
2	.42	.25	.54	.14	-.15
4	.52	.08	.50	.10	-.02
9	.73	.13	.13	-.01	-.03
10	.07	.86	.12	.10	-.02
12	.02	.24	.13	-.12	.24
17	.50	.04	.03	.19	-.23
20	.13	.83	.02	.00	-.03
21	.56	.04	.22	-.04	.13
29	.57	.17	-.07	.25	.01
31	.49	.27	.51	.04	.00
32	.26	.05	.12	.78	.04
34	.11	.26	-.01	-.02	.03
35	.16	.71	.20	.22	.20
37	.50	.35	.25	.07	-.37
38	.67	.15	.06	.29	.21
39	.43	.14	.19	.31	.27
41	.81	.01	.19	.03	.17

TABLE V (Continued)

	Factor				
Item	1	2	3	4	5
42	.26	.03	.06	.29	-.11
43	.36	.72	.05	-.05	.17
44	.07	.50	.03	.30	.15
46	.20	.22	.09	.55	.05
48	.42	.43	-.04	.47	.39
49	.15	.07	.07	.05	.19
51	-.08	.15	.61	.32	-.01
53	.73	.21	.28	.25	-.01
54	.58	.23	.48	-.02	.07
55	.01	.22	.07	.11	.71
56	.36	.54	.23	-.03	.29
57	.74	.15	.09	.13	.15
58	.67	.31	.18	.23	-.05
61	-.07	.16	-.02	.09	-.01
63	.83	.10	.19	.07	-.07
64	.46	.12	.48	.02	.47
65	.53	.28	-.12	.40	.41

TABLE V (Continued)

	Factor				
ITEM	6	7	8	9	Commun-ality
1	-.05	-.09	.06	.01	.65
2	-.10	-.04	.06	-.06	.59
4	.15	-.10	.10	.10	.58
9	.13	.10	.29	-.06	.69
10	.02	.12	.11	.16	.83
12	.01	-.01	.70	.11	.65
17	.07	.39	.17	.18	.56
20	-.06	.17	.12	.19	.79
21	-.10	.32	-.09	.41	.66
29	.00	.09	.43	-.21	.66
31	.27	.14	-.09	.21	.72
32	-.01	-.00	.09	.00	.70
34	.04	.81	.10	.10	.76
35	.13	-.09	-.01	-.03	.69
37	.27	.06	.16	-.15	.71
38	.11	.06	-.13	.09	.66
39	-.31	.18	-.21	.14	.61
41	-.02	.20	-.01	-.03	.76
42	.13	.30	.64	.17	.71

TABLE V (Continued)

ITEM	Factor 6	7	8	9	Commun-ality
43	.15	.19	.04	-.09	.75
44	-.05	.37	.07	-.13	.53
46	.45	.20	-.07	.16	.67
48	.01	-.13	.05	.11	.76
49	.82	.02	.08	.03	.76
51	.23	.33	.11	-.14	.69
53	-.04	-.07	.05	.02	.72
54	.33	.05	-.16	.16	.79
55	.23	.03	.13	-.04	.65
56	.27	-.05	.15	.12	.68
57	.16	-.01	-.01	-.04	.65
58	.25	-.13	.11	-.04	.73
61	.07	.07	.16	.88	.85
63	-.06	.06	.14	-.03	.77
64	.03	.19	.12	.01	.73
65	.10	-.09	-.03	.23	.78

TABLE VI

INTER-ITEM CORRELATIONS

Item	Q1	Q2	Q4	Q9	Q10	Q12	Q17
Q2	.45	-					
Q4	.47	.49	-				
Q9	.33	.30	.59	-			
Q10	.12	.28	.19	.25	-		
Q12	.06	.11	.04	.15	.29	-	
Q17	.22	.31	.32	.47	.21	.08	-
Q20	.09	.23	.16	.29	.87	.30	.25
Q21	.30	.28	.38	.51	.19	.07	.35
Q29	.15	.34	.36	.59	.24	.19	.38
Q31	.40	.47	.50	.39	.36	.16	.31
Q32	.20	.22	.25	.25	.23	.04	.30
Q34	.01	.15	.06	.17	.33	.12	.34
Q35	.21	.32	.30	.22	.54	.18	.09
Q37	.30	.49	.35	.52	.31	.15	.41
Q38	.20	.34	.36	.34	.24	.11	.27
Q39	.23	.25	.25	.33	.26	.00	.28
Q41	.33	.49	.47	.54	.14	.11	.40
Q42	.10	.16	.27	.38	.20	.31	.32
Q43	.19	.30	.27	.42	.62	.24	.26
Q44	.03	.15	.13	.17	.41	.16	.21

TABLE VI (Continued)

Item	Q1	Q2	Q4	Q9	Q10	Q12	Q17
Q46	.06	.25	.26	.22	.29	.06	.27
Q48	.14	.34	.36	.34	.38	.18	.27
Q49	.14	.07	.22	.23	.13	.16	.21
Q51	.25	.27	.29	.21	.31	.18	.13
Q53	.35	.47	.49	.58	.29	.17	.35
Q54	.43	.42	.55	.50	.31	.12	.31
Q55	.16	.03	.07	.18	.25	.17	-.01
Q56	.31	.37	.46	.41	.54	.28	.13
Q57	.30	.28	.56	.64	.22	.09	.38
Q58	.32	.44	.46	.63	.38	.18	.41
Q61	-.01	.02	.08	-.02	.26	.16	.21
Q63	.31	.56	.43	.61	.19	.15	.42
Q64	.50	.40	.45	.39	.20	.32	.30
Q65	.14	.26	.29	.34	.31	.11	.27

TABLE VI (Continued)

	Q20	Q21	Q29	Q31	Q32	Q34	Q35
Q21	.22	-					
Q29	.28	.20	-				
Q31	.33	.44	.27	-			
Q32	.16	.15	.34	.26	-		
Q34	.35	.31	.24	.23	.05	-	
Q35	.44	.19	.27	.41	.20	.18	-
Q37	.29	.25	.35	.47	.21	.18	.39
Q38	.21	.38	.39	.54	.41	.15	.28
Q39	.24	.43	.23	.30	.32	.13	.21
Q41	.12	.51	.40	.53	.31	.23	.20
Q42	.15	.30	.42	.29	.30	.34	.15
Q43	.61	.23	.36	.44	.17	.36	.62
Q44	.37	.14	.16	.24	.22	.31	.45
Q46	.28	.26	.31	.43	.45	.27	.37
Q48	.35	.30	.39	.27	.41	.15	.61
Q49	.09	.06	.11	.25	.11	.08	.20
Q51	.16	.15	.13	.35	.22	.24	.27
Q53	.27	.49	.46	.56	.42	.09	.39
Q54	.28	.50	.27	.77	.21	.17	.36
Q55	.21	.11	.14	.14	.16	.09	.31
Q56	.44	.31	.34	.51	.18	.25	.55

TABLE VI (Continued)

	Q20	Q21	Q29	Q31	Q32	Q34	Q35
Q57	.21	.35	.49	.53	.36	.11	.33
Q58	.31	.32	.44	.53	.34	.07	.37
Q61	.25	.21	-.07	.19	.03	.18	.12
Q63	.22	.49	.53	.54	.29	.16	.24
Q64	.23	.37	.35	.57	.25	.24	.35
Q65	.28	.39	.39	.34	.41	.15	.44

TABLE VI (Continued)

	Q37	Q38	Q39	Q41	Q42	Q43	Q44
Q38	.35	-					
Q39	.19	.50	-				
Q41	.43	.66	.39	-			
Q42	.37	.27	.13	.25	-		
Q43	.43	.43	.26	.37	.21	-	
Q44	.27	.23	.22	.22	.28	.43	-
Q46	.25	.38	.22	.21	.26	.30	.25
Q48	.25	.49	.41	.40	.20	.43	.39
Q49	.30	.24	-.03	.19	.14	.24	.09
Q51	.28	.16	.21	.12	.27	.29	.25
Q53	.49	.55	.45	.59	.29	.41	.21
Q54	.47	.54	.36	.53	.19	.44	.13
Q55	-.03	.14	.19	.12	.11	.31	.20
Q56	.39	.40	.28	.39	.30	.55	.31
Q57	.35	.65	.39	.59	.25	.50	.16
Q58	.62	.61	.35	.49	.34	.44	.25
Q61	.03	.08	.09	-.05	.28	.10	.08
Q63	.56	.54	.36	.77	.36	.31	.20
Q64	.27	.46	.40	.57	.19	.42	.28
Q65	.25	.59	.41	.49	.20	.36	.31

TABLE VI (Continued)

	Q46	Q48	Q49	Q51	Q53	Q54	Q55
Q48	.38	-					
Q49	.37	.24	-				
Q51	.29	.14	.24	-			
Q53	.39	.46	.11	.20	-		
Q54	.38	.34	.34	.35	.61	-	
Q55	.28	.35	.28	.15	.10	.19	-
Q56	.34	.47	.36	.19	.36	.51	.40
Q57	.34	.41	.21	.14	.63	.53	.16
Q58	.37	.53	.31	.25	.68	.64	.20
Q61	.19	.16	.09	.00	.00	.08	.05
Q63	.25	.36	.12	.11	.73	.54	.04
Q64	.26	.40	.28	.28	.51	.53	.31
Q65	.38	.80	.30	.07	.46	.41	.35

TABLE VI (Continued)

	Q56	Q57	Q58	Q61	Q63	Q64
Q57	.44	-				
Q58	.49	.53	-			
Q61	.16	-.02	-.01	-		
Q63	.40	.52	.63	-.03	-	
Q64	.41	.46	.42	.07	.48	-
Q65	.47	.49	.53	.23	.45	.40

TABLE VII

CORRELATION COEFFICIENTS BETWEEN EVAST20 ITEMS AND GERIATRIC DEPRESSION SCALE SCORES

Item Number	r
1	.2703*
2	.3629**
3	.3516**
4	.3731**
5	.5736**
6	.2955**
7	.3793**
8	.6298**
9	.4040**
10	.3530**
11	.6826**
12	.4018**
13	.3767**
14	.4240**
15	.4754**
16	.6314**
17	.4214**
18	.4697**

TABLE VII (Continued)

Item Number	r
19	.4590**
20	.4835**

*p<.01

**p<.001

TABLE VIII

INTER-TEST AND DIAGNOSIS CORRELATIONS

TEST	2	3	4	5
1. EVAST	.83**	.88**	.68**	.68**
2. VAST	-	.83**	.56**	.45**
3. CAGE		-	.55**	.58**
4. GDS[a]			-	.41**
5. DIAGNOSIS				-

Notes: [a]Geriatric Depression Scale
df = 43; 2-tailed Significance: ** p<.001;

TABLE IX

Eigenvalues and Percent of Variance Explained in Unrotated Factor Analysis of EVAST20 Scores of 110 Veterans

Factor	Eigenvalue	Percent of Variance Explained
1	8.69	43.5
2	1.79	8.9
3	1.28	6.4
4	1.06	5.3

TABLE X

Varimax Rotated Factor Matrix after Rotation with Kaiser Normalization for EVAST20 Items

		Factor			
Item	Communality	1	2	3	4
1	.71	.09	.83	.05	.02
2	.53	.25	.63	.27	-.05
3	.61	.39	.65	.11	.13
4	.56	.63	.36	.14	.03
5	.75	.09	.08	.85	.04
6	.45	.60	.30	.06	-.04
7	.63	.44	.52	.30	.29
8	.70	.13	.17	.79	.15
9	.70	.77	.06	.18	.26
10	.69	.75	.35	.04	.06
11	.71	.33	.13	.76	.09
12	.53	.29	.02	.28	.60
13	.80	.04	.14	.07	.88
14	.69	.72	.34	.24	.02
15	.69	.51	.52	.22	.33
16	.64	.25	.33	.61	.31
17	.66	.75	.21	.20	.14

TABLE X (Continued)

Item	Communality	Factor 1	2	3	4
18	.62	.62	.27	.32	.25
19	.55	.40	.55	.16	.23
20	.60	.63	-.06	.32	.32

TABLE XI

Eigenvalues and Percent of Variance Explained in Unrotated Factor Analysis of EVAST20 Scores of 53 Alcohol Abusers

Factor	Eigenvalue	Percent of Variance Explained
1	6.71	33.5
2	2.46	12.3
3	1.46	7.3
4	1.27	6.3
5	1.17	5.9

TABLE XII

Varimax Rotated Factor Matrix after Rotation with Kaiser Normalization for 53 Alcohol Abusers

		Factor				
Item	Communality	1	2	3	4	5
1	.70	.08	-.14	.80	.16	-.04
2	.63	.28	.32	.66	-.02	-.13
3	.78	.07	.06	.72	.50	.12
4	.77	.29	.12	.23	.79	.01
5	.80	.04	.89	.04	-.01	-.05
6	.47	.60	-.01	.08	.13	-.31
7	.71	.56	.24	.46	-.33	.16
8	.72	.04	.84	.10	-.04	.06
9	.70	.78	.18	.01	.11	.22
10	.66	.73	-.01	.25	.27	.00
11	.67	.28	.74	-.05	.21	.09
12	.46	.33	.38	.05	-.15	.42
13	.84	.02	.10	-.03	.12	.90
14	.65	.64	.24	.34	.25	-.08
15	.60	.54	.15	.45	-.07	.28
16	.57	.11	.69	.08	.18	.21
17	.64	.53	.17	.09	.56	.12
18	.56	.45	.35	.26	.33	.24

TABLE XII (Continued)

		Factor				
Item	Communality	1	2	3	4	5
19	.52	.52	.02	.38	.08	.36
20	.56	.56	.34	-.18	.21	.24

TABLE XIII

EVAST20, CAGE, AND VAST Sensitivities
and Specificities at Varying Cutpoints

Cut-point*	Sensitivity	Specificity
	EVAST (110 men)	
1	.96	.40
2	.89	.70
3	.87	.89
4	.79	.93
5	.74	.98
6	.64	.98
	EVAST SCORES (45 SOs)	
1	.95	.27
2	.84	.58
3	.74	.73
4	.68	.92
	EVAST20 SCORES (45 men with SOs)	
1	1.00	.54
2	.90	.90
3	.90	.96

TABLE XIII (Continued)

Cut-point	Sensitivity	Specificity
4	.68	1.00
	CAGE	
1	.70	.95
2	.30	1.00
3	.19	1.00
4	.08	1.00
	VAST	
1	.77	.72
2	.58	.89
3	.38	.96
4	.32	1.00
5	.21	1.00
6	.17	1.00

*Scores falling below the cut-point are negative for alcohol abuse; scores at or above the cut-point are positive.

TABLE XIV

RELIABILITY MEASURES

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected Item-total correlation	Squared multiple correlation	Alpha if item deleted
1	3.80	23.77	.43	.40	.92
2	4.12	23.53	.61	.57	.92
3	4.05	23.18	.63	.59	.92
4	4.20	23.86	.64	.68	.92
5	4.03	23.93	.43	.56	.92
6	4.19	24.07	.56	.52	.92
7	4.07	22.71	.76	.71	.91
8	4.15	24.04	.50	.50	.92
9	4.24	24.15	.65	.75	.92
10	4.21	23.88	.66	.71	.92
11	4.06	23.29	.61	.69	.92
12	4.19	24.44	.45	.37	.92
13	4.03	24.49	.31	.34	.93
14	4.21	23.71	.72	.71	.92
15	4.09	22.85	.75	.70	.92
16	4.01	23.01	.64	.54	.92
17	4.18	23.61	.68	.76	.92
18	4.20	23.50	.75	.70	.92

TABLE XIV (Continued)

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected Item-total correlation	Squared multiple correlation	Alpha if item deleted
19	4.05	23.10	.64	.55	.92
20	4.22	24.03	.63	.53	.92

Note: Total scale alpha = .9235
Standardized item alpha =.9288

APPENDIX P

FIGURE

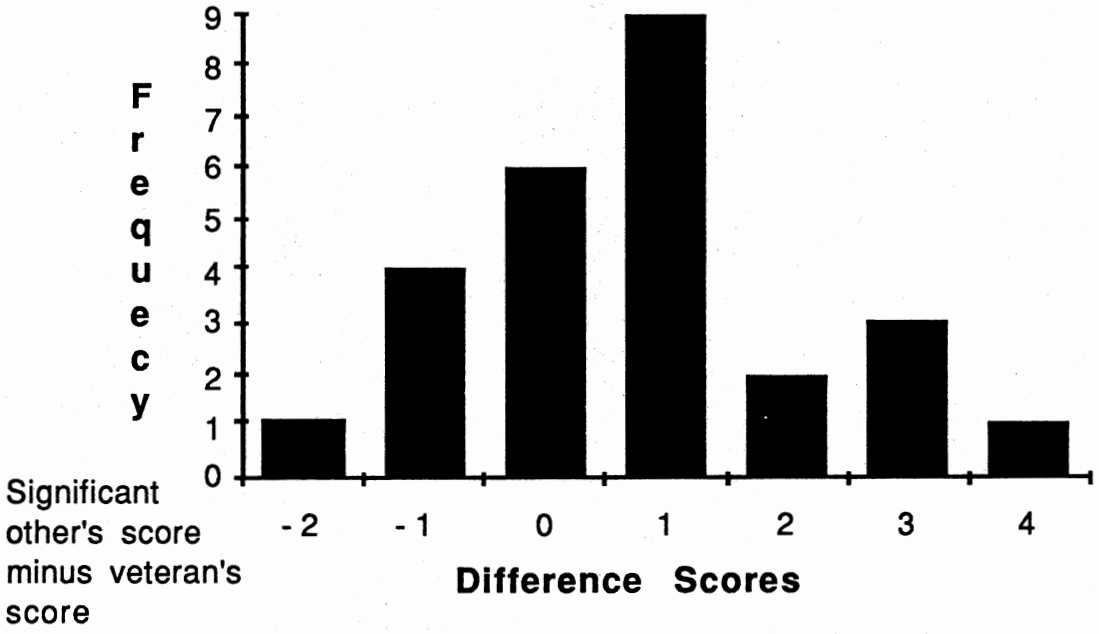

Figure 1: Comparison of paired EVAST20 scores of veterans and their significant others.

VITA

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