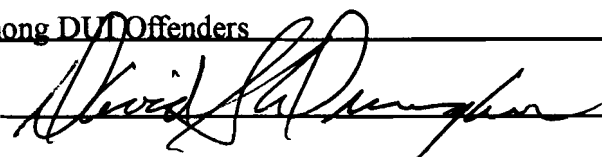# AN ABSTRACT OF THE THESIS OF

Jason B. Hess for the _Master of Science_

in _Psychology_ presented on _March 5 ,1997_

Title: _The Effectiveness of the MacAndrew Alcoholism Scale, the Michigan Alcoholism_
Screening Test, and the Substance Abuse Subtle Screening Inventory - 2 in Identifying
Alcohol Abusers Among DUI Offenders

Abstract approved: _____

Many people arrested for driving under the influence (DUI) of alcohol are repeat

offenders, only a few of which have ever been the recipient of any alcohol/other drug

education. Over the years, three tests, the MacAndrew Alcoholism Scale (MAC), the

Michigan Alcoholism Screening Test (MAST), and the Substance Abuse Subtle Screening

Inventory - 2 (SASSI-2) have been introduced to assist those doing alcohol/other drug

evalutions with DUI offenders in identifying those who abuse alcohol.

The purpose of this study was to determine whether these three tests can

accurately identify those who abuse alcohol. The participants consisted of 101 men and

women from several Kansas counties all of whom had been arrested for DUI and agreed

to a Blood Alcohol Content (BAC) measure. Each had been court referred to a mental

health center to complete a comprehensive DUI evaluation using the previously mentioned

tests. Participants were divided into two groups according to their reported BAC levels

and analyzed as a whole. Next, gender differences were analyzed in the same manner.

Chi-square analysis of the data revealed that none of these tests was able, with any

degree of significance, to categorize correctly those considered to be alcohol abusers.

This was true as well for both male and female participants. The MAST appeared to be oversensitive, and categorized participants as alcohol abusers regardless of their BAC level while both the MAC and the SASSI-2 both categorized participants as non abusive regardless of their BAC level. These findings suggest that those using these tests should only do so with caution, and to back any interpretation up with sufficient supportive information.

THE EFFECTIVENESS OF THE MACANDREW ALCOHOLISM SCALE,

THE MICHIGAN ALCOHOLISM SCREENING TEST, AND THE SUBSTANCE

ABUSE SUBTLE SCREENING INVENTORY - 2 IN IDENTIFYING ALCOHOL

ABUSERS AMONG DUI OFFENDERS

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A Thesis

Presented to

the Division of Psychology and Special Education

EMPORIA STATE UNIVERSITY

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In Partial Fulfillment

of the Requirements for the Degree

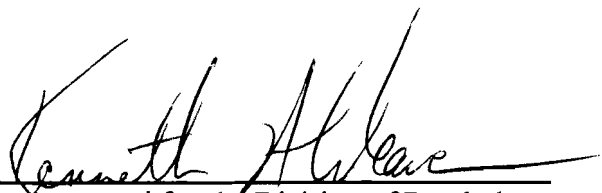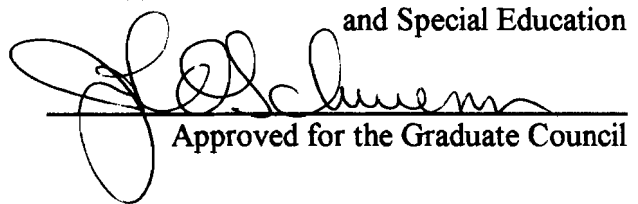Master of Science

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by

Jason B. Hess

May 1997

Approved for the Division of Psychology
and Special Education

Approved for the Graduate Council

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I would like to thank my wife, Kristin, for her support, love, and ability to put up with me during the completion of this thesis. Thanks also to my family for their patience and continued support.

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CHAPTER 1

INTRODUCTION

Many people arrested for driving under the influence (DUI) of alcohol are repeat

offenders, only a few of whom have ever been the recipients of any alcohol or other drug

education. The ability to detect alcohol abuse accurately after the first offense would

increase the opportunity to introduce strategies that would help someone from becoming a

repeat offender.

In Kansas, a DUI offender is required to undergo a comprehensive alcohol and

drug evaluation at a certified alcohol and drug safety action program. Those professionals

doing the evaluations are required to use a minimum of two diagnostic instruments to help

in determining the needs of the offender (Weller, 1996). This requirement establishes the

need for a dependable instrument from which to draw accurate information regarding a

person's abuse of alcohol and the severity of that abuse. Jacobson (1989) described

assessment and the detection of substance use by different instruments as "functionally

equivalent to identification, and as such it may serve a valuable first-level screening

purpose" (p. 20). These instruments tell about the presence of the disease and assist in

determining its intensity. Several instruments have been developed to help serve this

purpose. Among those accepted in the alcohol and other drug abuse field in Kansas are

the MacAndrew Alcoholism Scale (MAC), a subscale of the Minnesota Multiphasic

Personality Inventory (MMPI), the Michigan Alcoholism Screening Test (MAST), and the

Substance Abuse Subtle Screening Inventory - 2 (SASSI-2).

Purpose

The study's intent was to explore how well the MacAndrew Alcoholism Scale (MAC), the Michigan Alcoholism Screening Test (MAST), and the Substance Abuse Subtle Screening Inventory - 2 (SASSI-2) perform in detecting alcohol abusers among DUI offenders. This project provided informative data regarding how well these three instruments categorize people with high Blood Alcohol Content (BAC) levels.

Definitions

Having a Blood Alcohol Content (BAC) of .08 or higher at the time of arrest constitutes driving under the influence in the state of Kansas and defined alcohol abuse for this study. Bootzin and Acocilla (1988) define BAC as "the amount of alcohol in relation to a specific volume of blood" (p. 284). It provided the means by which the testing instruments involved in this study were compared. As those who abuse alcohol continue to do so, their bodies build a tolerance to the effects alcohol produces, and in doing so they may not experience the same effects as someone who does not often abuse alcohol. Ray and Ksir (1990) reported that those found to have a BAC of .15 or higher displayed the most consistent increases in reaction time and significant motor disturbances. Those with a BAC of less than .15 were not considered to have problems with alcohol. The difference between the state's definition of a DUI offender and that of Ray and Ksir appears simply to be the recognition of tolerance rather than how much one has had to drink at the time of arrest.

MacAndrew Alcoholism Scale

The MacAndrew Alcoholism Scale (MAC) is a 49-item scale in which the subject

must answer either true or false in response to a statement. The scale is derived from the Minnesota Multiphasic Personality Inventory (MMPI) and was designed to discriminate between male outpatient alcoholics and male nonalcoholic psychiatric outpatients (MacAndrew, 1965). It has become "one of the most widely used indirect techniques for use with actual and potential alcoholic individuals, who should subsequently be referred for comprehensive evaluation" (Jacobson, 1989, p. 24).

MacAndrew's (1965) original study used 51 items, but because the two items that probed directly about alcohol use produced the highest chi-square values, they were removed and the number was dropped to 49. The 600 male participants were taken from a pool of voluntary applicants to a state-supported alcoholism clinic and psychiatric outpatient individuals in the same clinic. The final 49 items, utilized with a cutoff score of 24, correctly identified the alcoholic individuals 81.75% of the time, and MacAndrew concluded that "significant differences in MMPI responses do exist between these two classes of psychiatric patients" (p. 246). Research conducted since then has produced mixed results.

Ciancio, Saltstone, and Fraboni (1990) utilized volunteer patrons of taverns during varying hours of the day. The MAC was compared with answers of self-reported alcohol use given by the volunteers. They found that the MAC identified alcohol abusers at a rate of 70%. This led them to conclude that the MAC should be used with caution, considering the high prevalence for misidentification. This appears to be a consistent finding among researchers (Colligan & Offord, 1990; Gottesman & Prescott, 1989; Gripshover & Dacey, 1994). Holmes, Dungan, and McLaughlin (1982) studied the scores

of both "voluntary and court-committed admissions to a treatment program" (p. 661). They found more often than not, the alcoholics studied fell into what they described as a "questionable" range (1 to 5 points below the recommended cutoff). They concluded the MAC is not an accurate instrument and do not recommend its use without other supportive information.

Similarly, Gripshover and Dacey (1994) questioned the accuracy of this instrument. They report using the recommended cutoff score (24) did not produce accurate classifications of alcoholics. Their conclusions agreed with Holmes et al. (1982) in that this instrument should be used with caution and in recommending the cutoff score be lowered. Further, Colligan and Offord (1990) expressed caution in their comparison of the MAC to the Substance Abuse Proclivity Scale (SAP), also developed by MacAndrew. They found the SAP was more accurate when used with teenagers though both draw their items from the MMPI.

Not everyone agrees, however, in classifying the MAC as an inaccurate instrument. For example, Knowles and Schroeder (1990) reported the MAC could classify people at risk for developing alcoholism. Several researchers have followed similar lines of thought in attempting to see whether the MAC might be more useful in identifying the personality traits more prevalent among alcoholics. Lee (1992) suggests "the MAC may have become limited by attempts to measure too many aspects of personality without measuring dimensions usually associated with alcoholism" (p. 86).

MacAndrew (1967) appears to have recognized this in his own instrument and reported "diagnosed alcoholics are more likely to claim to be outgoing and, overall,

interpersonally competent than are a comparable group of nonalcoholic psychiatric outpatients" (p. 45). He further concluded people who have been diagnosed alcoholic are less likely to complain about lack of concentration, self-esteem, or sexual problems. Through a study of personality risk for alcoholism, Earlywine (1994) found high-risk individuals do not expect the negative effects of alcohol to be as severe as what low-risk individuals expect. On the other hand, they do expect the same intensity of alcohol's positive effects as do low-risk individuals.

Personality characteristics associated with high MAC scores include greater impulsiveness, boldness, pleasure seeking, extroversion, sensation seeking, and aggressiveness (Allen, Faden, Rawlings, & Miller, 1990; Levenson, Aldwin, Butcher, DeLabry, Workman-Daniels, & Bosse, 1990; MacAndrew, 1981; Patton, Barnes, & Murray, 1994; Svanum & Ehrmann, 1992). MacAndrew (1979) further supports this research in demonstrating that there are two types of alcohol/other drug abusers. The first, which includes people scoring as both true and false negatives, do not tend to be as social, self-confident, or rebellious as those falling under the second type. The second type, which includes the true and false positives, has a tendency, as previously noted, to be more sensation seeking and outgoing.

Research in these areas has led to the finding that the MAC does not distinguish between the abuse of alcohol and the abuse of other drugs. In addition, other drug abusers seem to fall into the same character patterns (Gottesman & Prescott, 1989). The MAC has been found to be sensitive as well to smokers, delinquents, criminals, and coffee drinkers (Jacobson, 1989). Conversely, however, some researchers do contend the MAC

can be used to identify alcohol misuse, but caution that it should not be the only method used in making this decision. Wasyliw, Haywood, Grossman, and Cavanaugh (1993) reported that "although our results indicate that MAC hit rates are not highly affected by response bias, MAC scores were significantly correlated with validity scale scores for patients with positive alcohol abuse histories" (p. 262). Lavelle, Hammersley, and Forsyth (1991) also suggest that, while the MAC does not appear to discriminate between alcohol and other drug abusers, it might be useful in detecting problems associated with the misuse of alcohol.

Michigan Alcoholism Screening Test

The Michigan Alcoholism Screening Test (MAST), developed by Selzer (1971), is a 25-question instrument designed to detect problem drinking in a short amount of time. The questions are straightforward and are answered either "yes" or "no." He administered his questionnaire to five groups of individuals, three of which had known drinking problems in the past. He concluded that the MAST was an efficient and accurate way of identifying problem drinkers. Also found was that problem drinkers whom he instructed to "fake good" on the test invariably continued to produce accurate responses.

Selzer's apparent enthusiasm for the MAST has been shared by several other researchers in the field. Parsons, Wallbrown, and Myers (1994) found it detects alcohol dependence and measures other areas of alcohol problems such as "psychoactive substance dependence, denial, antisocial drinker, discord, and vocational impairment" (p. 535). Thus, the MAST can also provide useful treatment information as well. Otto and Hall (1988) concluded, under "honest conditions" the MAST will assist in identifying

problem drinkers who are not aware of the severity of their alcohol related problems and is especially helpful to those people in the helping professions who simply do not know how to recognize the warning signs of alcohol abuse. Lapham, Skipper, Owen, Kleyboecker, Teaf, Thompson, and Simpson (1995) suggested in comparing several alcohol screening tests including the MAC, that the MAST was the instrument most strongly associated with Blood Alcohol Content (BAC). It further produced the highest percentage of "alcoholic" scores among the five tests compared.

Not everyone has come to the same conclusion, however. Svanum and McGrew (1995) stated that the MAST appeared to have "a modest capability for detecting substance dependence" (p. 211). Otto and Hall (1988) did note, however, that because of its high face validity, the MAST is highly susceptible to subjects who deliberately attempt to avoid detection. They caution it probably should not be used in situations where the subjects are highly motivated to avoid detection (e.g., court ordered referrals, etc.). They report the hit rate dropped from 95% to 66% when administered to subjects in this situation. Selzer (1971) attempted to correct for this by adding inquiries about a person's alcohol related legal record. Similarly, Sinnett, Benton, and Whitfill (1991) found the MAST could be manipulated to some extent as best fit the subject's perceived needs. Tulevski (1989) may have directly observed this in a study designed to see whether the MAST could discriminate between industrial workers and DWI offenders. He found the MAST identified 36% of the industrial workers as scoring in the alcoholic range whereas only 40% of the DWI offenders scored that high. This was attributed to the possibility of insincere answers by the DWI offenders.

Others have noted the MAST has a tendency to be highly sensitive and may produce many false-positive results. Jacobson (1989) writes, "using the traditional cutoff score of five results in unacceptably high false-positive rates" (p. 23). He suggests a range of scores be used to identify the severity of problematic drinking rather than a standard cutoff score. Moore (1971) also found the MAST to be more sensitive than medical work-ups and physicians' diagnoses, but suggested this as an agreeable aspect when dealing with a general hospital population. He indicated the MAST identified alcoholics at a rate of 90%, whereas the doctors, through written interviews, identified at a 50% rate. Thus, he concluded the MAST could be used as a tool to place doctors on the right path to diagnosis.

Other concerns about the MAST have arisen from its apparent inability to identify alcoholics who are currently in remission (Rounsaville, Weissman, Wilber, & Kleber, 1983). This may be, in part, attributed to a seeming lack of attention to the length of time a person has spent abusing alcohol (Lee, 1992). As noted in Rounsaville et al. (1983) this might be considered a serious drawback, and clinicians should consider using an extensive interview along with its use.

Pardeck (1991) found family structure and conflict were significantly related to MAST scores. This suggests the MAST is able to recognize the potential for alcoholism among family members in a troubled family system. According to Lee (1992), "it broadly surveys drinking behaviors and social and familial consequences of drinking" (p. 86). Svikis, McCaul, Turkkan, and Bigelow (1991) examined what kind of effect a family history of alcoholism had on MAST scores. They found that individuals with a family

history of alcoholism scored significantly higher on the MAST than individuals with no family history of alcoholism. Thus, the MAST appears to be useful in identifying people who are at risk for becoming alcoholic.

Substance Abuse Subtle Screening Inventory - 2

Miller (1985) developed the Substance Abuse Subtle Screening Inventory (SASSI) to "identify chemical abusers and differentiate them from social drinkers and general psychiatric clients" (p. 1-24). It originally consisted of six "subtle" scales, consisting of statements appearing to have nothing to do with the use of mood altering chemical substances, and three "face valid" scales, consisting of questions probing directly about a person's substance use. It was revised in 1994 (SASSI-2) with three scales added and two original scales dropped. Its main purpose has not changed; however, it continues to attempt to identify chemical abusers by using indirect questions rather than direct. The subject is asked to provide a true or false answer to a seemingly meaningless statement. The responses suggest whether they are chemically dependent.

One of the SASSI's most favorable aspects appears to lie in its ability to identify chemical dependency among high risk populations, such as the learning disabled. Karacostas and Fisher (1993) examined whether a greater frequency of substance abuse could be identified among students with learning disabilities than among students without learning disabilities. They administered the SASSI to 191 adolescent students to detect chemical dependency. They found that students with learning disabilities were more often classified as chemically dependent, suggesting that this population may be at a higher risk for chemical dependency than others. Likewise, Fisher and Harrison (1992) report that

the SASSI can provide school psychologists with a brief, accurate method in determining

alcohol/other drug problems among adolescents.

Kerr (1995) reported "the SASSI is almost as good as its promotion claims it to

be" (p. 1018). She goes on to add that it seems to live up to the claim that it identifies

those attempting to conceal their abuse. Similarly, Cooper and Robinson (1987)

concluded the SASSI appears to be able to identify chemical abusers, regardless of how

honest or dishonest they are in answering the questions. Their study focused on the

relative norms of the SASSI in a general college population. They further concluded that

it seems useful, when used with appropriate norms, in identifying the chemically dependent

in this population.

The SASSI is also accurate when compared with other instruments. Kerr (1995)

found it produced high concurrent validity ($r = .87$) when compared with the MAC.

DiNitto and Schwab (1993) compared the SASSI with the Addiction Severity Index

(ASI). They reported the SASSI appears to be useful with Veteran's Administration

clients and can be good as an initial screening instrument with clients who are "defensive

about their alcohol or drug use" (p. 19). Also indicated was the similarity in numbers of

substance abusers identified by the SASSI and the ASI. Thus, they correctly diagnosed

several VA clients that had previously gone unidentified for chemical abuse, and

confidence in the accuracy of these two instruments was gained.

Not everyone has experienced the same positive results with the SASSI, however.

For example, Klikunas (1988) examined the construct validity of the SASSI as an

alcoholism screening test. He reported an overall accuracy rate of 87% over a five-group

criterion of classifying as an alcoholic, normal, psychiatric outpatient, co-dependent, or drug addict. The SASSI, at least in this study, accurately identified "normals" and drug addicts but was less satisfactory than the MAST when classifying alcoholics and distinguishing between abusers and non-abusers. Similarly, Svanum and McGrew (1995) reported the SASSI demonstrated a reliably accurate ability to discriminate between the dependent and non-dependent client at a rate below the useful range. They found it only correctly classified 25% of the clients it identified as chemically dependent and missed two-thirds of the substance dependent persons who participated in the study. Their conclusion stated "subtle scales, by definition, suffer from poor content validity, i.e., they do not directly assess the central features of the construct" (p. 212). The best way to identify those with alcohol/other drug problems may best be done through instruments using direct inquiry such as the MAST.

Vacc (1995) criticized the SASSI as not meeting professional norms, which is essential when using it with Alcohol Safety Action Programs. The manual also is difficult to use, and Vacc noted it is recommended that anyone who will be administering the test should attend the SASSI training workshop. He further criticizes the SASSI in that it does not provide adequate information about the validity data populations, though a considerable amount of validity information is presented.

It appears those in the field of alcohol and other drug abuse place a great deal of emphasis on the results of these instruments when evaluating DUI offenders. This author's experience with each has indicated that many times they fail to detect an individual who abuses alcohol. This author explored the accuracy of the MAC, MAST,

and SASSI-2 and hypothesized that none of the three instruments would be able to

accurately classify alcohol abusers.

CHAPTER 2

METHODS

Participants

Participants consisted of 101 individuals ranging in age from 19 to 55 ($\underline{M} = 30$, $\underline{SD}$ = 8), of which 19 were women and 82 were men from several Kansas counties. Each had been charged with driving under the influence (DUI) of alcohol and court ordered to complete a DUI assessment at a mental health center.

Procedure

The data used in this study came from individuals who completed the group testing process at the mental health center. During this testing session the SASSI-2, MAST, and MAC were administered (in that order) to each participant along with a comprehensive history form. All tests were scored by hand, and the Blood Alcohol Content (BAC) results were provided to the mental health center by each participant's court services officer. Upon arrest for DUI, each individual agreed to a BAC measure.

Once the data had been collected, the participants were divided into two groups according to their BAC level. As previously noted, people who frequently abuse alcohol tend to develop a tolerance to the effects alcohol produces. Thus, they would need to consume larger amounts of alcohol before perceiving the effects of it. Ray and Ksir (1990) reported those found to have a BAC of .15 or higher demonstrated consistent increases in reaction time and significant motor disturbances. In addition, those with a BAC of less than .15 were not considered to have problems with alcohol. Because there does not appear to be much difference in BAC levels around .15, those having BAC levels

from .146 to .154 were excluded from the study. The participants were then divided into two groups. One group consisted of 51 individuals having a BAC level of .155 or higher, hence, having a tolerance to alcohol by abusing it frequently. The second group consisted of 50 individuals having a BAC of .145 or lower and was not considered to be made up of frequent alcohol abusers.

The participants were further divided into groups with regard to each respective test score. MacAndrew (1965) recommended a cutoff point of 24 for the MAC. However, for purposes of this study those scoring 24 were excluded. Scores of 23 or lower were considered low while scores of 25 or higher were considered high. Selzer (1971) recommended a cutoff point of five for the MAST. Again, for purposes of this study those scoring five were excluded. Scores of four or lower were considered low while scores of six or higher were considered high. Participants were classified as either dependent or non dependent as dictated by the SASSI-2's decision rules (those associated with the subtle scales) with those falling in the dependent range being considered alcohol abusers.

CHAPTER 3

RESULTS

The chi-square test of independence was used to examine how often each test

correctly identified alcohol abusers. The data were grouped in three separate 2 x 2 tables,

one each for the Michigan Alcoholism Screening Test (MAST), MacAndrew Alcoholism

Scale (MAC), and Substance Abuse Subtle Screening Inventory - 2 (SASSI-2) (see Table

1). The two variables making up the tables were the Blood Alcohol Levels (BAC)

(designated high or low) and the test scores (also designated high or low). Due to the

high level of error associated with the 2 x 2 design a correction technique called Yates'

correction for continuity was used (Herzon & Hooper, 1976). Interestingly, an almost

equal split was obtained regarding the numbers of high and low BAC levels. Of the 101

participants in the study 51 produced high BAC levels ($\geq$ .155), and 50 produced low

BAC levels ($\leq$ .145).

Total Sample

Chi-square analysis of the data (both women and men combined) resulted in no

significant differences. The chi-square for the MAST scale was not significant, producing

a χ^2 (1, $\underline{N}$=101) = 1.85, $\underline{p}$ > .05. As evidenced in Table 1, the MAST labeled the

participants as alcohol abusers no matter how high or low their BAC level was. Overall,

69% of the participants were labeled alcohol abusers by the MAST. Chi-squares for both

the MAC, χ^2 (1, $\underline{N}$=101) = .64, $\underline{p}$ > .05, and the SASSI-2, χ^2 (1, $\underline{N}$=101) = .05, $\underline{p}$ > .05,

were not significant as well. Conversely to the actual scores produced by the MAST, both

the MAC and the SASSI-2 labeled participants as non alcohol abusers no matter their

Table 1

Classification of Alcohol Abusers for the MAST, MAC, and SASSI-2: Total Participants

	High BAC Level	Low BAC Level
MAST		
High Scores	39	31
Low Scores	12	19
MAC		
High Scores	8	12
Low Scores	43	38
SASSI-2		
High Scores	10	8
Low Scores	41	42

Note. Those scoring Dependent or Non Dependent on the SASSI-2 were considered to have scored high or low, respectively.

BAC levels (see Table 1). Overall, 80% of the participants were labeled non abusers by the MAC, while the SASSI-2 labeled 82% of the participants non abusers. These results suggest that there is no relationship between the BAC level and test scores.

Gender Differences

In addition to analyzing the data based on the total sample of the study, gender differences were also explored (see Tables 2 and 3). Again, using the same technique used for the overall data, none of the chi-squares were significant. MAST and MAC scores of the female participants resulted in χ^2 (1, $\underline{N}$=19) = .83, $\underline{p}$ > .05, and χ^2 (1, $\underline{N}$=19) = .13, $\underline{p}$ > .05 respectively. Chi-square analysis of the women's SASSI-2 scores could not be accomplished as the expected values for at least two of the cells did not exceed zero. Similar results were found regarding the men's scores. Chi-square analyses for the MAST, χ^2 (1, $\underline{N}$=82) = .82, $\underline{p}$ > .05; MAC, χ^2 (1, $\underline{N}$=82) = .79, $\underline{p}$ > .05; and SASSI-2, χ^2 (1, $\underline{N}$=82) = .04, $\underline{p}$ > .05, were all not significant.

The women were classified by the MAST as alcohol abusers 58% of the time. The men in the study were classified by the MAST as alcohol abusers 72% of the time, and produced scores similar to the total sample. The MAC and SASSI-2 scores for female and male participants were more similar to those of the total population in that participants were more likely to be classified as non alcohol abusers regardless of their BAC levels. Women were classified non abusers 89% and 100% of the time on the MAC and SASSI-2 respectively. Men were classified as non abusers 78% and 79% of the time on the MAC and SASSI-2 respectively.

Table 2

Classification of Alcohol Abusers for the MAST, MAC, and SASSI-2: Female Participants

	High BAC Level	Low BAC Level
MAST		
High Scores	5	6
Low Scores	2	6
MAC		
High Scores	0	2
Low Scores	7	10
SASSI-2		
High Scores	0	0
Low Scores	7	12

Note. Those scoring Dependent or Non Dependent on the SASSI-2 were considered to have scored high or low, respectively.

Table 3

Classification of Alcohol Abusers for the MAST, MAC, and SASSI-2: Male Participants

	High BAC Level	Low BAC Level
MAST		
High Scores	34	25
Low Scores	10	13
MAC		
High Scores	8	10
Low Scores	36	28
SASSI-2		
High Scores	9	8
Low Scores	35	30

Note. Those scoring Dependent or Non Dependent on the SASSI-2 were considered to have scored high or low, respectively.

CHAPTER 4

DISCUSSION

This study investigated how well the MacAndrew Alcoholism Scale (MAC), the Michigan Alcoholism Screening Test (MAST), and the Substance Abuse Subtle Screening Inventory - 2 (SASSI-2) classified alcohol abusers among those who have been arrested for driving under the influence (DUI). As expected, none of the measures identified alcohol abusers with any significant amount of accuracy. This is disturbing given how much emphasis is placed on these three instruments in the alcohol and drug abuse field in Kansas.

While the MAST did correctly classify the majority of those participants falling into the "alcohol abuser" category, it did an extremely poor job of recognizing those who did not fall into this category. In fact, nearly as many participants were incorrectly categorized as "abusers" as were correctly categorized. This is probably due to the extreme sensitivity of the MAST. Questions such as "Have you ever been arrested for drunk driving or driving after drinking?" and "Have you ever been arrested, even for a few hours, because of drunk behavior?" (Selzer, 1971, p. 1655) appear to weight the test in favor of classifying people as alcohol abusers. Whatever the reason for the MAST's extreme sensitivity, the results should be interpreted with caution and should be used in conjunction with other sources of information. In contrast to the Otto and Hall (1988) study in which they found that those having motivation to avoid detection (e.g., court ordered referrals) could manipulate the MAST in their favor, the participants of this study (all court ordered) did not appear to show much tendency to deliberately avoid detection.

The number of those falling into this category was fewer than any other.

The MAC and SASSI-2 produced results almost opposite to those of the MAST. Both instruments classified most of the participants as "non abusers," regardless of how high their BAC. The MAC has come under considerable scrutiny since it was introduced in 1965, and most researchers appear to agree that considerable caution should be exercised when interpreting the results. Especially troubling was the high number of false negatives recorded. Not much was found to justify the MAC's use for any reason. The SASSI-2 did not fair much better. The participants produced a high number of false negatives while very few who presented high BAC levels were classified as alcohol abusers. These results seem to negate the enthusiasm for the SASSI-2 and suggest that it is not nearly as accurate an instrument as once purported. As suggested with the MAST, these instruments should probably only be used if there is other supportive information readily available.

None of the tests fared well in this study, but there may be reason for this. Alcohol abuse was defined as having a high BAC level at the time of the arrest, inferring that those having high BAC levels were more likely to be alcohol abusers due to tolerance to the effects alcohol produces. Though tolerance suggests the abuse of alcohol, a more accurate comparison might have been had by using each participant's alcohol related arrest record (e.g., DUI's, Public Intoxication). However, for most participants, an accurate legal history was unable to be obtained and therefore not collected. In addition, the SASSI-2 was really developed to test for alcohol and other drug abuse. As the abuse of drugs other than alcohol was not the focus of the present study the poor performance

may, to some extent, be attributed to that.

Replication of this study is strongly encouraged. Should this happen, however, a control group should be utilized so the results might have more meaning. Obviously, because of the relative newness of the SASSI-2, more research needs to be done to test what all it has to offer. It also might prove interesting to compare different cutoff's for the MAC and the MAST to see if any adjustment needs to be made to make them more accurate. This could possibly be accomplished through correlation as well as chi-square analysis. In addition, the three tests should be studied in relation to each participant's legal history as well as clinical diagnoses. This might provide more insight into whether they are measuring alcohol abuse or simply identifying persons having personality traits similar to those with alcohol abuse problems. Others have suggested this might be the case, especially with the MAC (Allen et al., 1990; Levenson et al., 1990; MacAndrew, 1981; Patton et al., 1994; Svanum & Ehrmann, 1992), but the SASSI-2 does not appear to have been the focus of much of this type of research.

Gender differences did not seem to be a factor in how the tests performed. All three tests performed equally poorly regardless of whether the participant was male or female. Overall, the results do not indicate that any of the three tests are dependable instruments that provide accurate information regarding a person's abuse of alcohol. It is suggested that if they are to be used, they should be used with caution, and only with sufficient supportive information.

REFERENCES

Allen, J.P., Faden, V., Rawlings, R., & Miller, A. (1990). Subtypes of substance abusers: Personality differences associated with MacAndrew scores. Psychological Reports, 66, 691-698.

Bootzin, R.R., & Accocella, J.R. (1988). Abnormal psychology: Current perspectives (5th ed.). New York: McGraw-Hill.

Ciancio, C., Saltstone, R., & Fraboni, M. (1990). Tavern patrons and the MacAndrew Alcoholism Scale: Self-reported drinking behavior in relation to the MMPI L and K scales. Journal of Clinical Psychology, 46, 687-691.

Colligan, R.C., & Offord, K.P. (1990). MacAndrew versus MacAndrew: The relative efficacy of the MAC and the SAP scales for the MMPI in screening male adolescents for substance misuse. Journal of Personality Assessment, 55, 708-716.

Cooper, S.E., & Robinson, D.A.G. (1987). Use of the Substance Abuse Screening Inventory with a college population. College Health, 36, 180-183.

DiNitto, D.M., & Schwab, A.J. (Spring, 1993). Screening for undetected substance abuse among vocational rehabilitation clients. American Rehabilitation, 12-20.

Earleywine, M. (1994). Personality risk for alcoholism and alcohol expectancies. Addictive Behaviors, 19, 577-582.

Fisher, G.L., & Harrison, T.C. (1992). Assessment of alcohol and other drug abuse with referred adolescents. Psychology in the Schools, 29, 172-178.

Gottesman, J.I., & Prescott, C.A. (1989). Abuses of the MacAndrew Alcoholism Scale: A critical review. Clinical Psychology Review, 9, 223-241.

Gripshover, D.L., & Dacey, C.M. (1994). Discriminative validity of the MacAndrew scale in settings with a high base rate of substance abuse. Journal of Studies on Alcohol, 55, 303-308.

Herzon, F.D., & Hooper, M. (1976). Introduction to statistics for the social sciences. New York: Thomas Y. Crowell.

Holmes, C.B., Dungan, D.S., & McLaughlin, T.P. (1982). Validity of five MMPI alcoholism scales. Journal of Clinical Psychology 38, 661-664.

Jacobson, G.R. (1989). A comprehensive approach to pretreatment evaluation: I. Detection, assessment, and diagnosis of alcoholism. In Hester, R.K. & Miller, W.R. (Eds.), Handbook of alcoholism treatment approaches: Effective alternatives (pp. 17-43). Elmsford, NY: Pergamon Press.

Karacostas, D.D., & Fisher, G.L. (1993). Chemical dependency in students with and without learning disabilities. Journal of Learning Disabilities, 26, 491-495.

Kerr, B. (1995). Substance Abuse Subtle Screening Inventory [Review of the Substance Abuse Subtle Screening Inventory]. The twelfth mental measurements yearbook. (Test No. 381). University of Nebraska.

Klikunas, W. (1988). Construct validity of the Substance Abuse Subtle Screening Inventory (SASSI) as a screening instrument. Dissertation Abstracts International, 49, 5522B.

Knowles, E.E., & Schroeder, D.A. (1990). Concurrent validity of the MacAndrew Alcoholism Scale: Mixed-group validation. Journal of Studies on Alcohol, 51, 257-262.

Lapham, S.C., Skipper, B.J., Owen, J.P., Kleyboecker, K., Teaf, D., Thompson, B., & Simpson, G. (1995). Alcohol abuse screening instruments: Normative test data collected from a first DWI offender screening program. Journal of Studies on Alcohol, 56, 51-59.

Lavelle, T., Hammersly, R., & Forsyth, A. (1991). A short scale for predicting drug misuse using selected items from the MMPI. British Journal of Addiction, 86, 49-55.

Lee, A.L. (1992). Diagnosing alcoholism: Toward a multisource approach. Stout, C.E., Levitt, J.L., & Ruben, D.H. (Ed.), Handbook for assessing and treating addictive disorders (pp. 83-96). New York: Greenwood Press/Greenwood Publishing Group.

Levenson, M.R., Aldwin, C.M., Butcher, J.N., DeLabry, L., Workman-Daniels, K., & Bosse, R. (1990). The MAC scale in a normal population: The meaning of "false positives." Journal of Studies on Alcohol, 51, 457-462.

MacAndrew, C. (1965). The differentiation of male alcoholic outpatients from nonalcoholic psychiatric outpatients by means of the MMPI. Quarterly Journal of Studies on Alcohol, 26, 238-246.

MacAndrew, C. (1967). Self-reports of male alcoholics: A dimensional analysis of certain differences from nonalcoholic male psychiatric outpatients. Quarterly Journal of Studies on Alcohol, 28, 43-51.

MacAndrew, C. (1979). Evidence for the presence of two fundamentally different, age-independent characterological types within unselected runs of male alcohol and drug abusers. American Journal of Drug and Alcohol Abuse, 6, 207-221.

MacAndrew, C. (1981). What the MAC scale tells us about men alcoholics: An interpretive review. Journal of Studies on Alcohol, 42, 604-623.

Miller, G.A. (1985). The Substance Abuse Subtle Screening Inventory Manual. Spencer, IN: The Spencer Evening World.

Moore, R.A. (1971). The prevalence of alcoholism in a community general hospital. American Journal of Psychiatry, 128, 130-131.

Otto, R.K., & Hall, J.E. (1988). The utility of the Michigan Alcoholism Screening Test in the detection of alcoholics and problem drinkers. Journal of Personality Assessment, 52, 499-505.

Pardeck, J.T. (1991). A multiple regression analysis of family factors affecting the potential for alcoholism in college students. Adolescence, 26, 341-347.

Parsons, K.J., Wallbrown, F.H., & Myers, R.W. (1994). Michigan Alcoholism Screening Test: Evidence supporting general as well as specific factors. Educational and Psychological Measurement, 54, 530-536.

Patton, D., Barnes, G.E., & Murray, R.P. (1994). The reliability and construct validity of two measures of addictive personality. The International Journal of the Addictions, 29, 999-1014.

Ray, O., & Ksir, C. (1990). Drugs, society, and human behavior (5th ed.). St. Louis, MO: Times Mirror/Mosby College Publishers.

Rounsaville, B.J., Weissman, M.M., Wilber, C., & Kleber, H.D. (1983). Identifying alcoholism in treated opiate addicts. American Journal of Psychiatry, 140, 764-766.

Selzer, M.L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. American Journal of Psychiatry, 127, 89-94.

Sinnett, E.R., Benton, S.L., & Whitfill, J. (1991). Simulation and dissimulation on alcoholism inventories: The ALCADD and the MAST. Psychological Reports, 68, 1360-1362.

Svanum, S., & Ehrmann, L.C. (1992). Alcoholic subtypes and the MacAndrew Alcoholism Scale. Journal of Personality Assessment, 58, 411-422.

Svanum, S., & McGrew, J. (1995). Prospective screening of substance dependence: The advantages of directness. Addictive Behaviors, 20, 205-213.

Svikis, D.S., McCaul, M.E., Turkkan, J.S., & Bigelow, G.E. (1991). Effects of item correction on Michigan Alcoholism Screening Test scores in college men with and without a family history of alcoholism. Psychological Assessment, 3, 654-659.

Tulevski, I.G. (1989). Michigan Alcoholism Screening Test (MAST) - its possibilities and shortcomings as a screening device in a pre-selected non-clinical population. Drug and Alcohol Dependence, 24, 255-260.

Vacc, N.A. (1995). Substance Abuse Subtle Screening Inventory [Review of the Substance Abuse Subtle Screening Inventory]. The Twelfth Mental Measurements Yearbook. (Test No. 381). University of Nebraska.
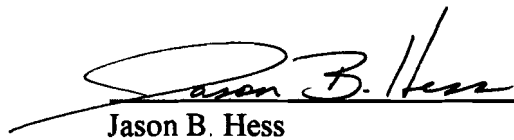
Wasyliw, O.E., Haywood, T.W., Grossman, L.S., & Cavanaugh, J.L. (1993). The psychometric assessment of alcoholism in forensic groups: The MacAndrew scale and response bias. Journal of Personality Assessment, 60, 252-266.

28

Weller, D.M. (1996). Standards and guidelines for DUI evaluations. (Report of the Evaluation Committee). Topeka: Kansas Community Alcohol Safety Action Project Association.

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