FEMALE MACANDREW SCALE SCORE DIFFERENCES AMONG PSYCHIATRIC PATIENTS, D.U.I. OFFENDERS, ALCOHOLICS, AND NORMALS

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This study investigated MacAndrew Scale score differences of four groups of females. Psychiatric outpatients, first-time D.U.I. offenders, alcoholics, and a group of normal controls were used in the study. An analysis of variance, Newman-Keuls', and Dunnett's test for significance found five of the six comparisons significant. The alcoholic females scored significantly higher than all groups; psychiatrics scored significantly lower than all of the groups; and the D.U.I. and normal (control) group means were not significantly different. Limitations and suggestions for future research were also presented.

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CHAPTER 1

INTRODUCTION

For many years, alcoholism was viewed as a legal and moral transgression. As acceptance and knowledge of the disorder increased, so too did the number of objective personality measures purporting to diagnose it. As a self-report inventory that includes several measures of psychopathology, the Minnesota Multiphasic Personality Inventory (MMPI) is widely used as a descriptive instrument in a vast array of clinical and research endeavors. As early as 1950, Brown investigated MMPI profile configurations of male alcoholics and prompted the search for the "alcoholic personality." In 1978, Butcher and Telligen reported that over one-fourth of the research using the MMPI focused on two major subject areas: alcohol and drug abuse.

The development of several alcoholism scales as part of the MMPI typifies one approach to identifying alcoholism. This approach assumes that the disorder is a distinct diagnostic entity with a substantive personality structure which distinguishes it from other psychiatric groups (Apfeldorph, 1977; Hampton, 1953; Holmes, 1953; Hoyt and

Sedlacek, 1958; MacAndrew, 1965; Rosenberg, 1972; and Atsaides, 1977) all developed scales which assess alcoholism through MMPI item responses.

MacAndrew and Geertsma (1964) critiqued three of the above mentioned scales (the Hampton, Holmes and Hoyt and Sedlacek). Noting that all three scales were developed by contrasting alcoholics with normal controls, the authors questioned whether the scales would be useful in picking alcoholics out of a general psychiatric population. Using an outpatient population of 300 alcoholics and 300 psychiatric patients, MacAndrew and Geertsma administered all three scales and examined their relative accuracy in regard to differentiation by group. Point biserial correlations were quite low and the authors concluded that the three scales were not measures of alcoholism, but of general maladjustment.

As a result of his prior research with Geertsma (1964), MacAndrew (1965) offered yet another MMPI-derived instrument. By contrasting 300 alcoholics and 300 psychiatric outpatients, he found 51 items which discriminated the two groups ($p < .01$). After excluding two items which were directly related to drinking behavior, the 49 item scale was cross-validated on a comparable sample and generated a record level of significance for mean

differences ($p < .001$). Results indicated 81.5% accurate classification which was increased to 84% when the two alcohol related items were included.

MacAndrew's reported results met with skepticism and many investigators immediately set out to determine the validity of the MacAndrew scale. Whisler and Cantor (1966) reported results that were much less promising than what MacAndrew (1965) reported. Seventy-three alcoholic residents in a domiciliary setting and 67 randomly selected inpatient controls were administered the MacAndrew Scale. Mean scores were compared and a significant difference was found. However, the practicality of the MacAndrew Scale was found to be less than satisfactory due to the accurate classification rate of only 55% when a cut-off score of 24 was used. Even when the cut-off score was adjusted to 28, the classification accuracy increased to only 61%. Whisler and Cantor concluded that the statistical significance that MacAndrew found in his original research did not make for the utility of the scale.

Rhodes (1969), in response to Whisler and Cantor (1966), replicated MacAndrew's (1965) original study with a comparable sample. Two hundred male outpatient alcoholics and 200 psychiatric outpatients were studied. When the standard cut-off score of 24 was used, the MacAndrew Scale

correctly classified 80% of the alcoholics and 71.5% of the psychiatric patients for an overall classification rate of 76%, with 10% false negatives and 14% false positives. Rhodes advocated use of the MacAndrew Scale as an adjunct for alcoholism screening and further proposed not modifying the cut-off score as suggested by Whisler and Cantor (1966).

Uecker's (1970) findings were similar to those of Whisler and Cantor (1966) in that in a sample of inpatient alcoholics and psychiatric patients, the psychiatric controls scored much higher on the MacAndrew Scale than did MacAndrew's original research outpatient sample, creating a high rate of false positives. Eighty-five percent of alcoholics were correctly identified, but 61% of non-alcoholics were misdiagnosed. Uecker (1970) suggested that the MacAndrew Scale may not be appropriate for inpatient populations.

The mixed success of the MacAndrew Scale was also reported in studies by Kranitz (1972), DeGroot and Adamson (1973), and Huber and Danahy (1975). Kranitz (1972) in one of the first studies to examine other than psychiatric patients or normals, found the MacAndrew Scale unable to discriminate both inpatient alcoholics and heroin addicts from inpatient and outpatient non-alcoholics. Kranitz found the scores of alcoholics and heroin addicts were not

significantly different. He proposed that the two groups shared a "common addictive propensity" and that the MacAndrew Scale indicated this propensity to addiction as opposed to indicating alcoholism.

DeGroot and Adamson (1973) criticized the practice of comparing alcoholics with normals for many of the same reasons MacAndrew and Geertsma (1964) did. The authors felt that comparison with normals yielded differentiation mostly on the basis of factors pertaining to general maladjustment. DeGroot and Adamson reported less overall accuracy on the MacAndrew Scale than previously reported by MacAndrew (1965) and Rhodes (1969), yet encouraged use of the instrument as a screening tool. DeGroot and Adamson also suggested that subjects motivational differences may have played a role in poor MacAndrew Scale accuracy.

Huber and Danahy (1975), in a study of V.A. alcoholics and psychiatric patients, reported one of the highest differentiation rates using the MacAndrew Scale. Using a cut-off score of 25, the MacAndrew Scale accurately identified 95% of the alcoholics. The two alcoholics that were not identified obtained MacAndrew scores of 23 and 24. Huber and Danahy concluded that:

> The MacAndrew Scale is indeed a measure which positively identifies a large percentage of alcoholics.

> It seems to be an accurate, stable, and useful instrument which is not heavily loaded with items tapping general maladjustment or psychological distress. As such it appears to be the best current measure of a general pattern of alcoholism. (p. 1237).

In a study reported by Rohan (1972) it was found that MacAndrew Scale scores remained relatively constant even after treatment of alcoholism. Rohan interpreted his results as an indication that the MacAndrew Scale measures a "stable trait cluster."

Lachar, Berman, Grissell, and Schoof (1976) examined MacAndrew Scale scores of alcoholics, heroin addicts, and poly-drug users and found the three groups obtained similar scores which were significantly higher than those of matched control groups of psychiatric patients. Results supported Kranitz's (1972) contention that the MacAndrew Scale is a general measure of the characteristics associated with various types of substance misuse. The authors also proposed that apparent errors in classification may be due to the fact that the MacAndrew Scale identifies a potential for drug misuse and relatively young patients who obtain high scores but do not demonstrate addictive behavior, may not have had sufficient time to develop this behavior.

In a related study, Sutker, Archer, Brantley, and

Kilpatrick (1979) examined the MacAndrew Scale scores of alcoholic men and heroin addicts as part of an examination of the relative predominance of neurotic symptomatology or character disorder in the two groups. The authors found the MacAndrew Scale to be 60% accurate in classifying the two groups.

Burke and Marcus (1977) examined the validity of the MacAndrew Scale in regard to alcoholism and drug addictiveness. The MacAndrew Scale was 74% accurate as a screening device for identifying alcoholics in 242 males referred for psychological testing in a V.A. (Veteran's Adminstration) facility. Compared with the Cavior Heroin Addiction Scale, the MacAndrew Scale was more accurate in classifying drug abusers. Burke concluded, unlike Uecker (1970), that "the MacAndrew Alcoholism Scale, for all practical purposes, provides a valid screening device for identifying alcoholics in inpatient populations." (p. 147).

Research by MacAndrew (1979) and Clopton, Weiner, and Davis (1980) offered yet further support for the continued use of the MacAndrew Scale. MacAndrew (1979) found his scale to be reliable when given independently or within the complete MMPI. The mean MacAndrew Scale score of hospitalized alcoholics in the study was 28.49 whereas the mean MacAndrew Scale score of individuals charged with

D.W.I. (Driving While Under the Influence) was 25.86 and the mean MacAndrew Scale score of a group of college students used as a control group was 20.22. MacAndrew further examined the stability of individual MMPI profiles and MacAndrew Scale scores in order to assess whether mean scale scores would be affected. Only negligible differences were found between MacAndrew scale scores obtained under the two conditions of administration.

Clopton, Weiner, and Davis (1980) found mixed results when they examined whether the 13 MMPI scales or the MacAndrew Scale scores would more accurately distinguish alcoholics. In the initial comparison, the 13 standard MMPI scales provided more accurate classification of alcoholic and non-alcoholic patients than did the MacAndrew Scale (83% vs. 68%). However, cross validation indicated that the MacAndrew Scale provided more accurate classification, although somewhat lower than prior research had reported (66% vs. 50%). Clopton et al. cited their own prior study in 1978 which found the MMPI scales more accurate in identifying alcoholism. However, given the results of the 1980 study, they supported use of the MacAndrew Scale as a tool for alcoholism screening.

Conley and Kammeier (1980) conducted an item analysis of the MMPI and found that seven items discriminated

alcoholics in treatment both from normals and from psychiatric patients. The authors found the seven items alone were able to discriminate the alcoholics in treatment and the psychiatric patients better than any of the MMPI alcoholism scales, including the MacAndrew Scale. The authors noted, however, that the seven items alone have substantial face validity and the motivation of those used in the alcoholic sample in regard to the obviousness of the seven items was discussed. Conley and Kammeier concluded that the MMPI contains relatively few elements that can be considered specifically alcoholism related.

As research continued to confirm the ability of the MacAndrew Scale to identify alcoholics from psychiatric patients, investigators began to examine the scale's utility in regard to other populations. For example, Ruff, Ayers and Templar (1975) found the MacAndrew Scale unable to differentiate alcoholics from criminals. The authors concluded that the scale was "not a useful measure of alcoholism." Clopton (1978) cited Ruff et al. (1975) in a review of alcoholism and the MMPI and indicated some methodological errors which tend to repudiate the conclusions drawn from the criminal and alcoholic MacAndrew Scale score comparisons, namely the failure of the researchers to differentiate alcoholic and non-alcoholic

criminals, not alcoholics and criminals.

Rathus, Fox, and Ortins (1978) used regression equations to determine the predictive power of an abbreviated MacAndrew Scale of the MMPI-168 on the self-reported delinquent behavior of suburban high school students. The authors sought to determine whether the MacAndrew Scale could predict alcohol and non-alcohol related delinquent behaviors in an effort to determine whether the MacAndrew Scale was sensitive to various sorts of alcohol abuse rather than to other delinquent behaviors. Results showed the abbreviated version of the MacAndrew Scale predicted self-reported alcohol abuse among suburban adolescents, but also appeared to predict smoking marijuana as successfully as it predicted getting drunk. MacAndrew Scale scores also appeared to be related to a variety of self-reported crimes against property and persons, particularly theft. The authors concluded, much the same as prior researchers, that the MacAndrew Scale was not uniquely sensitive to alcohol related behaviors.

Possible support for Rathus' et al. (1978) findings was found by Willis, Wehler, and Rush (1979). The authors found that smoking alcoholics scored significantly higher on the MacAndrew Scale than did non-smoking alcoholics.

Hatsukami, Owen, Pyle and Mitchell (1982) found the MacAndrew Scale scores of alcoholic women were significantly higher than those of bulemic women. The authors reported that although mean MMPI profiles were similar, the alcohol and drug profiles were not characterized by obsessive compulsive symptoms the way the bulemic profiles were.

Zager and Megargee (1981) investigated the ability of seven alcohol and drug abuse scales of the MMPI to differentiate groups of black and white youthful prison inmates. In regard to the MacAndrew Scale, it was found that the MacAndrew Scale did not obtain a significant $\underline{F}$ ratio with either the white or black samples. Only one significance was found, that being that white moderate alcohol users scored higher than black moderate users. Zager and Megargee reported no evidence whatsoever to support the validity of the MacAndrew Scale. The authors also suggested a possible explanation for their findings. The results may indicate an inability of the MacAndrew Scale to discriminate alcoholics from character disorders. The authors also stated a reluctance to use the MacAndrew Scale with juveniles or youthful clients.

Walters (1983) believed the usefulness of the MacAndrew Scale was questionable in regard to race. After administering the MacAndrew Scale to 73 male alcoholics (27

blacks and 46 whites) and 73 non-alcoholics (27 blacks and 46 whites), Walters found blacks and whites did not differ significantly in terms of group mean scale scores and accurate identification. However, black non-alcoholics scored significantly higher than white non-alcoholics. The MacAndrew Scale was successful in discriminating white alcoholics and non-alcoholics (66.3%) but not in classifying black alcoholics and non-alcoholics (55.5%). Walters also found that the black and white alcoholics and non-alcoholics demonstrated similar behavioral and personality correlational patterns on the MacAndrew Scale. Walters concluded that the MacAndrew Scale may not be useful with blacks and cited Gynther's (1972) study, which questioned the validity of the MMPI with blacks, as further support for his findings.

The ability of the MacAndrew Scale to differentiate alcoholics from psychiatric controls and its mixed success with other populations prompted statistical comparison between the MacAndrew Scale and other purported indicators of alcoholism. Rich and Davis (1969) compared the validity of the MacAndrew Scale with the Hampton Scale, the Holmes Scale, the Hoyt and Sedlacek Scale, and their own revised scale which consisted of 40 of the items common to at least two of the three earlier scales (Hampton Scale, Holmes

Scale, and Hoyt and Sedlacek Scale). Alcoholics, psychiatric controls, and normal controls were tested with 60 males and 60 females in each group. Results found Hampton's Scale unable to discriminate male alcoholics from psychiatric patients. Hoyt and Sedlacek's Scale failed to differentiate female alcoholics from normals. The other three scales, the Holmes Scale, the MacAndrew Scale, and the revised scale, all produced significant mean differences between alcoholics and normals and between alcoholics and psychiatric controls. The scale composed of common items provided the most accurate differentiation of alcoholics from other groups. It was found that the MacAndrew Scale was superior to the revised scale in discriminating female alcoholics from psychiatric controls. However, Rich and Davis advocated that a separate cut-off score be determined for females.

Further research investigating the efficacy of the MacAndrew Scale in comparison to other MMPI alcoholism scales was conducted by Vega (1971), Rosenberg (1972), MacAndrew (1974), and Hoffman, Loper and Kammeier (1974). Vega found, through separate administration of the Hampton Scale, Holmes Scale, Hoyt and Sedlacek Scale and the MacAndrew Scale to inpatient alcoholics, psychiatric controls and inpatient psychiatric controls, some interesting results. The MacAndrew Scale proved to be the

poorest discriminator (71% accuracy) primarily because of the large number of false positives (19%). Most of the false positives occurred within the normal group, which scored higher on the MacAndrew Scale than did the psychiatric controls. Since MacAndrew used psychiatric controls in his original research, the finding by Vega was significant. Vega found, however, that the MacAndrew Scale was able to identify nine of nine individuals from the psychiatric sample who had been diagnosed as alcoholics and consequently had been excluded from the psychiatric sample.

Rosenberg (1972) evaluated the MacAndrew Scale, Hoyt and Sedlacek Scale, and Holmes scale and found that these three scales had very low intercorrelations. A composite scale was constructed using common items from at least two of the scales. Items common to all three scales were found to discriminate inpatient alcoholics from psychiatric controls. Through correlating the scales with the Welsh Anxiety Scale, Rosenberg suggested that an alcoholism scale shich contains a strong element of anxiety may prove to be invalid in discriminating alcoholics within a psychiatric setting. Rosenberg found the Hampton alcoholism scale contained a high anxiety content.

In response to the numerous studies both advocating and repudiating his scale, MacAndrew (1974) critiqued the

Hampton Scale, Holmes Scale, and Hoyt and Sedlacek Scale. Each of the scales had demonstrated ability to differentiate alcoholics from normals, but MacAndrew sought to assess their ability to classify alcoholics and psychiatric controls. As MacAndrew predicted prior to the development of his scale in 1965, none of the scales were able to significantly distinguish between the alcoholic and psychiatric samples, supporting his contention that the scales were more measures of general maladjustment as opposed to alcoholism.

Apfeldorph and Hunley (1975) and Burke and Marcus (1977) further investigated the MacAndrew Scale utility in regard to other scales, but applied the scales to different samples. Apfeldorph and Hunley (1975) examined the four alcoholism scales (Hampton, Holmes, Hoyt and Sedlacek and the MacAndrew) to see if they could differentiate older persons with disciplinary problems from older domiciled alcoholics and non-alcoholics with no disciplinary problems. The authors found the four scales able to differentiate the groups and advocated the use of the scales to identify problem drinkers who have not yet been identified as alcoholics.

Burke and Marcus (1977) compared the efficacy of the MacAndrew Scale and the Cavior Heroin Addiction Scale in

differentiating black and white alcoholics and heroin addicts. The MacAndrew Scale correctly classified 74% of the alcoholics. The authors found the MacAndrew Scale did not differentiate those with a history of alcoholism. Their findings prompted them to agree with the statement made by Kranitz (1972) that the MacAndrew Scale measures a "general addictive propensity."

Atsaides, Neuringer and Davis (1977) developed and validated an eight-item MMPI scale, the Institutionalized Chronic Alcoholism Scale (ICAS), which differentiated inpatient alcoholics from inpatient neurotics. Over 85% of the psychiatric inpatients were correctly classified in both the original and the cross-validation studies. The alcoholism scales developed by Hoyt and Sedlacek, Holmes, and more importantly for this review, the MacAndrew Scale did not do so well with this particular differentiation. Atsaides et al. stated that their research found the MacAndrew Scale to be an inadequate measure due to its inability to differentiate alcoholics from neurotics. Atsaides et al. cited one study in support of their conclusions regarding the MacAndrew Scale, but the numerous studies advocating the MacAndrew Scale were not mentioned.

Rhodes and Chang (1978) replicated Atsaides et al.

(1977) and found results which did not support the statement that the ICAS was more of an adequate instrument for discriminating alcoholics from neurotics when compared with the MacAndrew Scale. Rhodes and Chang cautioned against using the ICAS for purposes other than differentiating alcoholics from neurotics.

Apfeldorph (1978), in a critical examination of the alcoholism scales of the MMPI, commented on methodological problems that much of the research investigating the scales fail to address. Sampling errors and the lack of a concise operational definition as to what constitutes alcoholism were discussed. Apfeldorph pointed out the lack of research with pre-alcoholics and agreed with the assumption that alcoholics have personality characteristics that distinguish them from other groups. Apfeldorph supported use of the MacAndrew Scale and believed that the scale needed to be subjected to validation with pre-alcoholic populations.

Friedrich and Loftsgard (1978) compared the efficacy of the MacAndrew Scale with another proposed indicator of alcoholism. Friedrich and Loftsgard compared the MacAndrew Scale and the Michigan Alcoholism Screening Test (MAST). One hundred diagnosed alcoholics were investigated and the MacAndrew Scale correctly identified 71 of the 100 subjects as alcoholics whereas the MAST identified 90 of the subjects

as alcoholics. The authors commented on the relative appropriateness of each scale in regard to the population being examined. The MAST, a direct scale, seemed to perform best with subjects who identified themselves as alcoholics, whereas the MacAndrew Scale, an indirect scale, performed best with subjects who tended to deny their alcohol problem.

Bruder (1982) created the Drug and Alcohol Abuse Predictor (DAAP) by combining two scales of anomie and one scale of authoritarianism. In an effort to develop a device that would identify alcoholic inpatients, Bruder compared the 77 item true-false scale to the MacAndrew Scale in a sample of 60 alcoholic and 60 non-alcoholic inpatients in a V.A. hospital. Results found the DAAP failed to provide significantly more accurate classification than did the MacAndrew Scale. However, when psychosocial scores were transformed to deviation scores, the DAAP proved to be the more accurate means of classification.

More recent research by Holmes, Dungan, and McLaughlin (1982) examined the validity of five of the MMPI alcoholism scales (Hampton, Holmes, Hoyt and Sedlacek, MacAndrew and Rosenberg). The ability of the scales to classify 120 self- or court-committed alcoholics and 60 non-alcoholic psychiatric inpatients was investigated. Using chi-square analysis, Holmes et al. concluded that none of the scales

were accurate enough to warrant use without supporting data.

In reply to Holmes et al. (1982), Hays and Stacy (1983) re-analyzed Holmes et al. and disagreed with the prior authors' conclusions due to errors in statistical findings. Hays and Stacy criticized Holmes et al. for using chi-square as the only measure of association because chi-square reveals whether any association exists between two variables, not the strength of the relationship. Upon re-examination of Holmes et al. data, Hays and Stacy concluded that all five of the alcoholism scales significantly differentiated the alcoholics from non-alcoholics used in the prior study. Hays and Stacy did agree with the cautions expressed by Holmes et al.

Holmes, Dungan, and Davis (1984) replied to Hays and Stacy's (1983) criticisms by offering support for their original conclusions and comments on Hays and Stacy's re-analysis. Holmes et al. cited the various uses of chi-square analysis and further noted that Hays and Stacy's re-analysis revealed that many subjects were misdiagnosed by the scale. Holmes et al. stood by their prior findings.

With a great deal of research investigating the efficacy of the MacAndrew Scale, many researchers began to examine what exactly the scale revealed in regard to the personality aspects of high scorers. Finney, Smith,

Skeeters, and Auvenshire (1971) found high scorers on the MacAndrew Scale "to be bold, uninhibited, self-confident, sociable people who mix well with others." Rebellious urges and resentment of authority figures were also characteristics described as well as a tendency to engage in "carousing, gambling, playing hookey, and general cutting up." Finney et al. noted that high MacAndrew Scale scorers MMPI item responses indicated a drawing to religion. The authors suggested that high scorers use repression, faith, and inspiration as a way of trying to hold their delinquent impulses in check. One question that was not addressed by Finney et al. was whether or not individuals with alcoholic problems have always possessed the characteristics described in the authors content analysis or if the personality changes occur after involvement with the substance. Friedrich and Loftsgard (1978) found the MacAndrew Scale more useful in identifying alcohol abusers in the more advanced stages of the disorder suggesting that personality changes do occur.

Findings by MacAndrew (1967), Finney et al. (1971), and Ruff et al. (1975) suggested that the MacAndrew Scale is sensitive to acting out behaviors. Schwartz and Graham (1979) investigated the construct validity of the MacAndrew Scale and found the scale to be composed of six major

factors: cognitive impairment, school maladjustment, interpersonal competence, risk taking, extroversion and exhibitionism, and moral indignation. The MacAndrew Scale was found to be sensitive to impulsivity, high energy levels, interpersonal shallowness, and general psychological maladjustment, but was not found to be sensitive to a general dimension of antisociality.

In reply to Schwartz and Graham (1979), Merenda and Sparadeo (1981) questioned the design and statistical method used in the previous study and suggested that the dichotomous (T-F) nature of the MacAndrew Scale led to errors in variance. The authors suggested that a Likert type scale would be more suitable.

MacAndrew examined his scale on separate occasions. In 1967, MacAndrew conducted a factor analysis of the MacAndrew Scale and found 13 factor dimensions characteristic of the alcoholics he examined.

In an interpretive review, MacAndrew (1981) expressed prior research findings and then his beliefs about the MacAndrew Scale. He believes that the MacAndrew Scale taps a fundamental bipolar dimension of characteristics, and that these characteristics are either full-blown or seen as tendencies in a relatively stable majority of approximately 85% of the members of the diverse samples identified as

alcoholics. MacAndrew believes that these characteristics pre-date the onset of misuse and that only a minority of alcoholics give the appearance of being neurotic. MacAndrew went on to describe two types of alcoholics: primary and secondary. The primary, he described, are the majority of alcoholics and can be characterized by the "presence of strong emotions which are easily aroused and a mode of behavior within the world which is focused primarily on its potentially rewarding characteristics." MacAndrew described the secondary alcoholics in many of the same terms except for the focus being on the "potentially punishing characteristics." MacAndrew believed either of these personalities is present in alcoholics in a full-blown sense or expressed in tendencies. He denied the existence of an "alcoholic personality."

MacAndrew suggested in 1979 that the high efficacy of the MacAndrew Scale may be quite specific to outpatient settings and that "considerable discriminative efficiency is lost when the scale is used in other settings." This limitation seems to have credence with respect to his proposed bipolar alcoholism characteristics.

In a study examining the relationship between MacAndrew Scale scores and MMPI profiles, Pfost, Kunce, and Stevens (1984) found through examination of 38 white male V.A.

alcoholics that MacAndrew Scale scores were related to personality type with high scorers on the scale having high F-K-4-9 profiles. Pfost et al. believed their results collaborated Finney's et al. (1971) findings and also suggested that their results were consistent with MacAndrew's (1981) proposal that the MacAndrew Scale is sensitive to one pole of a bipolar dimension found in alcoholics.

Application of the MacAndrew Scale with female samples has received minimal research attention. Five studies previously reviewed (Rich and Davis, 1969; Schwartz and Graham, 1979; Conley and Kammeier, 1980; Rathus, Fox, and Ortins, 1980; and Hatsukami, Owen, Pyle, and Mitchell, 1982) included females in their investigations. Research that has been done with female samples has produced mixed results.

Navarro (1979) examined three groups of women. Women members of Alcoholics Anonymous, psychiatric inpatients and normals were used in the study. Results of the MacAndrew and Holmes alcoholism scales revealed no significant differences between the three groups on the scales. Navarro questioned Rich and Davis (1969) who felt that the MacAndrew Scale was an accurate indicator of alcoholism in women although a separate cut-off score was needed. Navarro did indicate the limitations of his study and the possible sample differences

that exist in many studies that lead to generalization errors.

Other research endeavors investigating females and the MacAndrew Scale were not as skeptical as that done by Navarro (1979). Jones, Jones, and Watcher (1980), although not intending to investigate only the MacAndrew Scale, found that mean MacAndrew Scale scores of menstruating and non-menstruating women alcoholics did not differ significantly. The authors suggested that the MMPI items that discriminate men alcoholics from non-alcoholics might also discriminate alcoholic women from non-alcoholic women.

An interesting study by Friedrich and Loftsgard (1978) revealed that often times a complementary relationship exists between problem drinking husbands and their wives. Through application of multiple regression equations, the authors compared the scores of couples on the Michigan Alcoholism Screening Test (MAST) and the MacAndrew Scale. Results found the MAST identified all 36 males as alcoholics and 46% of the females. The MacAndrew Scale identified 79% of the men as alcoholics and 29% of the females. The authors noted the complementary relationships that appeared to exist and stated that the wife's score was the best indicator of the husbands score.

A recent study by Svanum, Levitt, and McAdoo (1982), examined the comparative validity of the MacAndrew Scale and the Rosenberg Composite Scale in classifying known groups of men and women alcoholic inpatients and non-alcoholic psychiatric outpatients. The MacAndrew Scale was found to significantly differentiate alcoholics and psychiatrics for both sexes. An optimal cutting score for females was found to be 23. Females scored lower on the MacAndrew Scale than the men. Eighty-one percent reported accuracy was found with females with nine percent false negatives and 10 percent false positives. The Rosenberg Composite Scale was not found to be able to differentiate significantly either of the sexes.

Sinnett (1985) expressed concern about the errors and conflicts in major sources of information regarding the MacAndrew Scale, especially in regard to the composition of the scale (i.e., 49 or 51 items). Sinnett remarked on the limited application of the MacAndrew Scale with females. The discrepancy reported in regard to the cut-off score with respect to females was commented on. Sinnett concluded by disagreeing with MacAndrew's original contention that psychiatric controls be used as a comparison group with alcoholics. He believed that validation of the MacAndrew

Scale should focus on normals and would therefore be of more clinical utility.

Preng and Clopton (1986) in a comprehensive review of literature concerning the MacAndrew Scale, examined the scale in respect to a number of variables related to alcoholism. The authors confirmed the ability of the scale to differentiate alcoholic and non-alcoholic groups, however they did not feel the scale has demonstrated clinical utility. The authors cited a weakness (use of volunteer alcoholics) in studies which support the continued use of the scale. The question of the MacAndrew Scale's ability to identify alcoholics who attempt to conceal their alcoholism was also discussed. Preng and Clopton raised the issue of the importance of understanding the base rate of alcoholism with respect to the population for which the MacAndrew Scale is intended to be used. They point out that knowing the base rate of alcoholism in a population is an important statistic for measuring the utility of the scale. Finally, the authors propose investigation of the scale's ability to detect alcoholism when it co-exits with various types of psychopathology and in particular, personality disorders.

This review of the MacAndrew Scale has addressed the origin, development, and efficacy of the scale when compared with similar instruments on repeated occasions. The

percentage of correct classification found in available studies revealed differentiation rates between 51% and 95%. However, as this review further indicates, there is a paucity of research examining the MacAndrew Scale and its utility in regard to females.

A neglect of women in alcohol research may be associated with a popular notion that women are far less likely than men to develop alcohol problems. However, acknowledgement of an increase in the prevalence of the malady in females has not resulted in a significant increase in research investigating females. Various instruments have been devised purporting to assist in the screening or diagnosing of alcoholism. However, as the prior review of literature indicated, the majority of accepted and researched tools were constructed, normed, and scrutinized through repeated application on alcoholic males. Relatively few research endeavors have included females when investigating the MacAndrew Scale. Given this, the present research will focus on the search for significant differences in MacAndrew Scale scores of four groups of females: outpatient psychiatric patients; alcoholics; first-time D.U.I. (Driving Under the Influence) offenders; and a normal (control) group. To date, no research endeavors have attempted to investigate MacAndrew Scale differences

between these four groups. The significance of this study is clear. By determining whether these groups score significantly different on the MacAndrew Scale, the assumptions, utility, and clinical significance of the scale was tested.

CHAPTER 2

METHODS AND PROCEDURES

Population and Sampling

This study consisted of four groups of females. Other than age and sex, no other demographic data were obtained. The specific details of each group are presented individually.

The psychiatric patient group consisted of 30 white females between the ages of 18 and 65. Subjects were chosen at random from outpatients evaluated at a mid-west private practice office. Only those not diagnosed as having an alcohol abuse or substance dependent condition were used in this investigation.

The D.U.I. (Driving Under the Influence) offender group consisted of 30 randomly selected white females between the ages of 18 and 65. All of the D.U.I. offenders had contacted a mid-west mental health center that conducted court-ordered assessments as part of the client's diversion or probation agreement. The D.U.I. offenders had the D.U.I. arrest as their only reported alcohol related legal involvement. Only those D.U.I. offenders who were not diagnosed as having a

psychiatric disorder were used in the study.

The alcoholic group consisted of the last 30 white females between the ages of 18 and 65 who were admitted to a mid-west inpatient substance abuse facility. All subjects in the alcoholic group received a primary diagnosis of alcohol dependence.

The normal (control) group consisted of the 60 females used in a study by Rich and Davis (1969). The normals were from two sources, applicants to a hospital personnel office for employment, and college student volunteers.

Materials and Instrumentation

All subjects completed the entire MMPI, even though the MacAndrew Scale was the only scale investigated. Only valid profiles were used in the investigation. A valid profile was defined as a profile that did not have an MMPI F scale score above a T score of 80 (raw score of 16). Furthermore, only profiles with L scale T scores less than or equal to 65 (raw score 9) and K scale T scores less than or equal to 80 (raw score 28) were included. The MacAndrew Scale was hand scored.

Data Collection

The D.U.I. offender group was administered the booklet

Form R of the MMPI and testing was done in a supervised group setting. The Alcoholic group was administered the booklet form of the MMPI as part of standard admission procedures to the facility. The psychiatric patient group was composed of individuals who had taken the MMPI booklet form as part of their clinical assessment for voluntary treatment. The normal (control) group was also administered the booklet form of the MMPI.

Design of the Study

This study was primarily designed to investigate the score differences that might occur when four groups of females were scored on an alcoholism scale. A fixed-effects, one-way between-subjects design was used. In this study the independent variable was the classification of the four groups of females: alcoholic, outpatient psychiatric patient, D.U.I. offender, and normal (control). The dependent variable was the MacAndrew Scale scores of the respective groups.

Statistical Technique

A one-way analysis of variance (ANOVA) was used to compare the means of the psychiatric, D.U.I., and alcoholic groups. Raw scores were not available for the normal group

as only the mean and standard deviation were reported by Rich and Davis (1969).

The Newman-Keuls' test for significance was conducted in order to compare the D.U.I., psychiatric, and alcoholic group means for significance. The Newman-Keuls' test provided a relatively powerful measure for testing significance between group scores (Linton and Gallo, 1975). For comparing the D.U.I., psychiatric patient, and alcoholic means with the normal group, Dunnett's test for comparing means with a control was used (Kirk, 1968).

CHAPTER 3

RESULTS

In order to analyze the MacAndrew Scale scores of the four groups, a fixed effects between-subjects one-way analysis of variance was conducted. Since scores were not available for the normal (control) group, the ANOVA was conducted using the scores of the remaining three groups. Dunnett's test for comparing means with a control allowed for comparison of the normal (control) mean with the other group means. The factors involved in the ANOVA were the groups and their respective MacAndrew Scale scores. An ANOVA was appropriate because this study dealt with score data. Furthermore, this technique tested for differences between the four levels of the independent variable (identified group) on the dependent variable (MacAndrew Scores). Table 1 and Table 2 show the differences found between the four groups after the two types of analysis were used.

Insert Table 1 and Table 2 about here

Scores of The Alcoholic Group

The alcoholic group mean (M = 25.63: SD = 5.05) differed significantly at the $p < .01$ level when compared to the other groups. Newman-Keuls' and Dunnett's tests for signficance found significant differences between the alcoholic group mean and the D.U.I. group (M = 22.40: SD = 3.37), psychiatric patient group (M = 19.07: SD =3.74), and normal (control) group (M = 22.00: SD = 5.5) means.

Scores of The Psychiatric Patient Group

The psychiatric patient group mean (M = 19.07: SD = 3.74) differed significantly from the alcoholic group mean (M = 25.63: SD = 5.04) and the D.U.I. offender group mean (M = 22.40: SD = 3.37) according to Newman-Keuls' and Dunnett's tests for significance. The psychiatric patient group mean (M = 19.07: SD = 3.74) did not differ significantly when compared to the normal (control) group mean (M = 22.00: SD = 5.5).

Scores of The D.U.I. Offender Group

The D.U.I. Offender mean (M = 22.40: SD = 3.47) differed significantly at the $p < .01$ level according to Newman-Keuls' and Dunnett's tests for significance. The D.U.I. offender group mean differed significantly when

compared to the alcoholic group mean (*M* = 25.63: *SD* = 5.04) and psychiatric patient group mean (*M* = 19.07: *SD* = 3.74), but did not differ significantly from the normal (control) group mean (*M* = 22.00: *SD* = 5.5).

Scores of the Normal (control) group

The normal (control) group mean (*M* = 22.00: *SD* = 5.5) differed significantly at the $p < .01$ level according to Newman-Keuls' and Dunnett's tests for significance. The normal group mean differed significantly when compared to the psychiatric patient group mean (*M* = 19.07: *SD* = 3.74) and the alcoholic group mean (*M* = 25.63: *SD* = 5.64). No significant difference was found between the normal (control) group mean (*M* = 22.00: *SD* = 5.5) and the D.U.I. offender group mean (*M* = 22.40: *SD* = 3.47).

Table 1

ANOVA OF MACANDREW SCALE SCORES OF FEMALE PSYCHIATRIC PATIENTS, DUI OFFENDERS AND ALCOHOLICS

Source	*SS*	*DF*	*M*	*F*	*p*
Groups	646.867	2	323.433	19.115	< .001
Error	1472.033	87	16.920		
Total	2118.900	89			

Table 2

DUNNETT'S TEST FOR COMPARING ALL MEANS WITH A CONTROL

	M	Psychiatric	Control	DUI	Alcoholic
Psychiatric	(19.07)		2.93*	3.33*	6.56*
Control	(22.00)		--	.40	6.63*
DUI	(22.40)			--	3.23*
Alcoholic	(25.63)				--

* $p < .01$

CHAPTER 4

DISCUSSION

This study sought to examine whether significant differences existed between MacAndrew Scale scores of four groups of women. Findings from this study were consistent with most of the reported research, summarized in the literature review, which focused on males and the scale. Alcoholic females scored significantly higher than all of the groups, although the female alcoholic mean was somewhat lower than previous studies have reported when investigating males. The female psychiatric patients scored significantly lower than female controls, which was similar to reported findings with males (MacAndrew, 1965; Rhodes, 1969; Uecker, 1970; DeGroot and Adamson, 1973; Vega, 1971). The female controls scored significantly lower than the female alcoholics which was also consistent with prior research investigating male scores (Vega, 1971). MacAndrew (1974) advocated comparison with psychiatrics as a means of strengthening the validity of the MacAndrew Scale with the belief being that distinguishing between these two groups would ensure that the scale was not an indicator of "general

maladjustment" as he believed the other proposed alcoholism scales were (MacAndrew and Geertsma, 1974).

The female alcoholics also scored significantly higher than the female D.U.I. offenders. This finding seems to strengthen the notion that a D.U.I. arrest alone does not necessarily indicate alcoholism, but merely represents a possible part of an overall symptom picture. The female controls and female D.U.I. offender scores were not significantly different, a conclusion of caution for facilities that use the MacAndrew Scale as part of D.U.I. assessment procedures.

Although this study found that many findings drawn from prior MacAndrew Scale investigations with males were consistent for females, this study had limitations. The subjects which composed three of the groups (psychiatric patients, D.U.I. offenders, and alcoholics) were drawn from a limited population, that of the Midwestern United States. It is possible that there are regional differences in MacAndrew Scale scores. Therefore, the results and conclusions of this study cannot be generalized to the population in general.

Another limitation inherent in any study which addresses the issue of alcoholism is the lack of an agreed upon definition of the disorder. As such, no test can be

fully accepted as an accurate indicator.

The representativeness of the "normal" sample (college students) borrowed from Rich and Davis (1969) was questionable. The author's description of the sample was vague and lacking necessary information for replication and complete statistical analysis.

An added limitation was the diversity in MacAndrew Scale scores obtained from the three groups used in the analysis of variance. The range of scores showed one alcoholic scoring low on the scale; a D.U.I. offender scoring high; and a psychiatric scoring high. Such a difference makes for difficulty in interpretation and generalization of the results. The question being, if the MacAndrew Scale is an indicator of alcoholism, then why did an alcoholic score low on the scale? False negatives and false positives tend to make for poor clinical significance when interpreting scores.

Future research might examine the multiple D.U.I. offender and investigate how the differences between alcoholic and D.U.I. MacAndrew Scale scores may narrow as the number of D.U.I. arrests increases. If that differences does not narrow, then the clinical utility of the MacAndrew Scale in regard to abuse would be questionable. Another interesting research endeavor would be to examine B.A.C.

(blood alcohol content) levels of D.U.I. offenders and MacAndrew Scale scores.

Examination of MacAndrew Scale scores of adult children of alcoholics, both with and without alcohol problems would add to the data on the scale. It would seem that if the MacAndrew Scale does indeed tap certain alcoholic traits, then investigation of these two populations would be an invaluable validity study.

Finally, this study made no attempt to address the cut-off score issue with females because the purpose of the study was not to attempt to classify the groups as alcoholic or non-alcoholic. However, the results of this study will hopefully inspire further research which can go beyond the limitations summarized in this section.

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