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DISCRIMINANT ANALYSIS OF PERSONALITY CHARACTERISTICS OF MALES AND FEMALES IN TREATMENT FOR DRUG OR ALCOHOL ABUSE

The Ohio State University
Ph.D. 1980

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DISCRIMINANT ANALYSIS OF PERSONALITY CHARACTERISTICS
OF MALES AND FEMALES
IN TREATMENT FOR DRUG OR ALCOHOL ABUSE

DISSERTATION
Presented in Partial Fulfillment of the Requirements of
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
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* * * * *

The Ohio State University
1980

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To Harley Blank

who gave me permission to live my life
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CHAPTER I

INTRODUCTION

Since the passage of the Harrison Anti-Narcotic Act in 1914, and in spite of a brief interruption by Prohibition, basic attitudes in this country toward the use of alcohol and the nonmedical use of other drugs have been different: Known users of narcotics have been subject to greater discrimination and negative stereotyping than drinkers by employers, police, the courts, and the public in general. While many psychological and physiological theories have been advanced to account for alcohol addiction, drug addicts have most often been viewed as sociopaths. No disease model has been suggested for drug abuse. In addition, treatment facilities have been conceptualized, funded and implemented separately. Treatment personnel, many of whom are recovered addicts or recovered alcoholics, have debated differences in population characteristics and treatment strategies.

The phenomenon of chemical dependence continues to pose many unresolved problems for psychological research
and for society. Substance abusers come from all socio-economic and educational levels, from all races, and from both sexes. A great deal of research and theorizing has been devoted to discovering what makes these people as a group different from others and what makes them different from each other. Past and current research has established some trends which appear fertile and can benefit from further refinement. One major way of approaching the study of addiction has been through the attempt to identify personality characteristics specific to substance abusers (Brill and Lieberman, 1969; Platt, 1975; Begun, 1977) or to various subgroups (Ullman, 1952; Gilbert and Lombardi, 1967; English and Tori, 1973). The possibility of isolating constellations or patterns of personality characteristics has been attractive to many researchers because such data can provide implications for a wide variety of related concerns, such as etiology, effects, treatment, outcome, and further theoretical research.

One challenge in the field of chemical dependence is the disentanglement of the many possible moderator variables which could potentially be related to the problem of addiction. This study investigated two of these. The first variable studied was the dichotomy between the primary use of alcohol and the primary use of other types of drugs. Some researchers examining this variable have found it to be related to significant differences in
personality characteristics as measured by various instru-
ments (Hill, Haertzen and Davis, 1962; Overall, 1973; 
Ciotola and Peterson, 1976). Others have found a signifi-
cant number of similarities, and differences which they 
considered less important (Gerard, 1955; Ferneau, 1971; 
Freed, 1973; Berzins, Ross, English and Haley, 1974; 
Ottenberg, 1974; Thornburg, 1977). The second variable to 
be considered in this study was that of sex. Although 
there are similarities between drug abusers across sexes 
(Ellinwood, Smith and Vaillant, 1966; Clarke, 1974), there 
is significant evidence that there are sex-related differ-
ences among abusers, even among those who use the same 
drug (Olson, 1964; Ellinwood, Smith and Vaillant, 1966; 
Curlee, 1970; Rathod and Thomson, 1971; Rimmer, Pitts, 
Reich and Winokur, 1971; Winokur, Rimmer and Reich, 1971; 
Linkbeck, 1972; Jansen and Hoffman, 1973; Wanberg and Horn, 
1973; Beckman, 1975; McLachlan, 1975; Waller and Lorch, 
1978).

STATEMENT OF THE PROBLEM

It was the purpose of this study to describe and 
examine the differences and similarities in specified di-
mensions of mood and personality among four groups of sub-
stance abusers at a time when they had just entered treat-
ment. The groups were: male alcoholics, female alcohol-
ics, male drug abusers, and female drug abusers. The
study specifically examined differences and similarities between those in treatment for drug and alcohol abuse, between males and females, and among all four treatment groups.

These comparisons were made with the determination of a mean profile for each group on the Minnesota Multiphasic Personality Inventory (MMPI). The scale scores of the groups were then subjected to discriminant analysis to determine how each scale contributed to the differentiation of each group from the others. Pairwise discriminant analyses were also performed between drug abusers and alcoholics, and between male and female substance abusers. Scale score and configural differences were then compared and contrasted visually, and verbally, by means of actuarial descriptive statements.

The research question being investigated was "What is the nature and intensity of differences among the four sample groups on the dimensions measured by the MMPI scales?" These included the three validity scales and the ten most common clinical scales. These scales are:

L - Social desirability, naivte
F - Deviant responses, subjective distress
K - Defensiveness
1 (Hs) - Hypochondriasis
2 (D) - Depression
These scales will be discussed in greater depth in Chapter III.

The specific research hypotheses generated from the research question are:

1. There will be a linear combination of variables found which will discriminate drug abusers in treatment from alcohol abusers in treatment.

2. There will be a linear combination of variables found which will discriminate males in treatment for substance abuse from females in treatment for substance abuse.

3. There will be linear combinations of variables found which will discriminate males in treatment for alcohol abuse from females in treatment for alcohol abuse from males in treatment for drug abuse from females in treatment for drug abuse.
RATIONALE FOR THE STUDY

Users and abusers of alcohol and of other drugs are segregated in our culture with regard to social attitudes and treatment. Treatment facilities are conceived and run separately. The popular stereotype of an alcoholic is of a down-and-out loser, while a drug addict is thought to be a criminal or sociopath. Whether there are indeed between-group differences and/or within-group similarities which justify separation of these two groups into distinct entities has not been shown by empirical research. Until the development of relatively recent computerized programs for such procedures as factor analysis and discriminant analysis, much of the theorizing about problems of addiction was based on less sophisticated statistics, clinical observation, psychoanalytic theory, and the opinions of experts in the fields, many of whom were ex-abusers themselves. This study will contribute to the research theoretical conclusions which are data-based and largely unbiased.

A second circumstance contributing to the need for this research is the apparent change in drug use patterns in our culture. Past addict and alcoholic stereotypes were based largely on the criminal milieu and activities involved in financing and acquiring drugs. In the past ten to twenty years this picture has changed radically. Marijuana has been decriminalized, and "soft" drugs and even
synthetic opiates are readily available to many classes and ages of people. Investigation of the nature of and differences between these two substance abuse populations at this time in history may shed new light on substance abuse or potential groups of abusers. This study was intended to clarify possible characteristics of substance abusers in treatment, as well as to clarify and contrast some psychological concommitants of the abuse of these two different categories of substances.

The aspect of the study which deals with comparing and differentiating some characteristics of chemically dependent people of different sexes is sorely needed. Most of the research which has been done on sex-related differences among alcohol and drug abusers has been done recently. In terms of empirically validated knowledge and its applications, there is a major gap between female abusers and males, especially concerning drug addiction. Most sources cited agree that there are differences, but investigation and replication of these sparse findings have been sparser still. Tax money and social emphases are now being placed on separate programs for the two sexes to meet the unique needs of women abusers, but hypotheses and assumptions about these needs are not often tested in any methodical way.

This study, then, is important for several reasons. Information about differences and similarities between
substance categories and between sexes will contribute to the more accurate evaluation and planning of treatment strategies and facilities and to a more accurate and current picture of the psychological characteristics of today's drug and alcohol abusers. This, in turn, may lead to more effective handling of this problem by society and, ultimately, to prevention.

This study was designed with the intention of partially replicating, expanding on, and further investigating the implications of the results of two recent studies. The original study, performed by John D. Overall, Ph.D., in 1973, was entitled "MMPI Personality Patterns of Alcoholics and Narcotic Addicts." Overall found that 85 per cent of each group could be differentiated using his discriminant functions, leaving 15 per cent overlap. Both groups had elevated scores on the Pd scale, but alcoholics were higher on D, Hy, Pt, Pa and Sc, while addicts were higher on K and Ma. In general, a drug "prototype" profile peaked on Scales Pd and Ma, while the alcohol "prototype" peaked on D, Pd and Pt. Overall finds Pt to be an indicator of the severity of alcohol abuse. He further predicts that a profile in which Pd and Ma are greater than Hy and Pt will indicate drug abuse, while a profile in which Hy and Pt are higher than Pd and Ma indicates alcoholism. In 1975, John F. C. McLachlan, using a sample of male and female alcoholics, tested Overall's discriminant function to find out
the effects of age, sex and psychopathology and to replicate Overall's classificatory accuracy. He found that Overall's functions discriminated with 65 per cent accuracy, but were affected by differences in sex and age. One aim of this study was to attempt to investigate and to expand Overall's results in comparing and discriminating between mean MMPI profiles of alcoholics and drug abusers, and to expand on McLachlan's results by comparing and exploring possible ways of discriminating chemically dependent males and females both within and across substance.

There are two major conceptual assumptions upon which this study was based. The central assumption was that chemical dependence or addiction is a symptom or result of underlying psychological dynamics. A second assumption was that there are no significant differences, in terms of psychological dynamics, between an addict or alcoholic, that is, someone who is physically dependent, and an abuser, that is, someone who is psychologically dependent. These assumptions are discussed in Chapter II.

DEFINITION OF TERMS

Drug: Operationally defined, a drug is a chemical substance that can be used to cause mood changes or physiological alterations in the body. In this study, the term excludes alcohol, which can be classified as a drug, and includes opiates, sedatives, barbiturates, hypnotics,
amphetamine, hallucinogens and inhalents. These substances may be ingested orally or intravenously, or, less commonly, intramuscularly or through the mucous membranes, usually the nasal cavity.

Narcotics: A term used to refer to opiate drugs, including those of natural origin, such as opium, heroin and morphine, and those of synthetic origin, such as dilaudid, talwin, methadone and others. Narcotics are also called "hard drugs." All other mood changing drugs are generally referred to as "soft drugs," although many of these also produce physical addiction.

Chemical dependence or substance abuse: A general term for the act of being either physiologically or psychologically dependent on a mood altering chemical substance. The term applies to both alcohol and drugs, whether they are obtained legally or illegally. The implication is that the substance is being used in a compulsive and nonadaptive way which creates problems in the abuser's life and blocks or retards constructive behaviors.

Alcoholic: Operationally defined as a person who is physiologically dependent on alcohol, is unable to limit or control its use, and has been admitted to the treatment program for alcoholics referred to in this study.

Addict: Operationally defined as a person who is physiologically dependent on a drug (or drugs), is unable to limit or control drug use, and has been admitted to the
treatment program for drug addicts referred to in this study.

Primary substance of abuse: This term refers to the chemical felt to be most closely related to the subject's primary dependence and immediate problems, whether these be physical or psychological. Operationally defined, diagnosis of primary drug of abuse is based on self-report, on the subject's choice of a treatment facility, on historical and demographic data, and on external opinions. In the facilities utilized for this study these included a physical examination, psychological or psychiatric interviews, and documentation by relatives of other professionals involved with the individual.

Hospital alcoholism unit: The subsection of the hospital which is especially designated for the detoxification and treatment of alcoholics. Operationally defined, this is an inpatient facility which includes medical supervision and counseling or psychotherapy. For the purposes of this study, the term refers to the Alcoholism Unit at the Riverside Methodist Hospital.

Residential or therapeutic community: A live-in treatment facility for drug addicts and abusers which involves a commitment of weeks or months and a highly structured atmosphere with frequent and intensive group and/or individual therapy. For the purposes of this study, the term refers to Human Resources/Integrity House.
Outpatient clinic: A facility where the patient comes for medical or psychological evaluation and care, but does not reside. Operationally defined, this is a facility where a drug addict or abuser receives evaluation, psychotherapy, medical follow-up, and medication if necessary. Patients also leave regular urine samples as a check on continued abuse. For the purposes of this study, the term refers to VITA Counseling Service, which does not dispense medications, and VITA Treatment Center, which dispenses methadone and other medications as prescribed.

Methadone maintenance: The replacement of opiates with a government regulated synthetic opiate under medical supervision and with concommitant counseling in an outpatient setting. The patient can detoxify from methadone immediately after its substitution or can be maintained on a stable dose while underlying problems are dealt with. The methadone maintenance facility referred to in this study is the VITA Treatment Center.

Male or female: The sex of each subject was operationally defined by self-report.

Profile: A graphic representation of a given individual or group's scores on the thirteen MMPI scales being used. Viewed clinically, the profile and the amount of elevation in certain scales are assumed to be valid indicators, when interpreted with the use of actuarial data, of certain personality characteristics or trends of the
individual.

Configuration: The overall shape of the profile as determined by the elevations of the scales in relation to each other. This represents the total meaning of the profile by taking into account the effect that the various scales and their elevations have on one another.

High point code or code type: This term refers to the two or three highest clinical scale scores on a given profile. Although all scores are taken into account in interpretation, this set of numbers, for example: 4-9 or 2-4-7, guides the choice of basic actuarial statements which identify potential psychological and behavioral correlates of a specific profile.

MMPI scales: Operational definitions of each variable or construct represented by an MMPI scale are given in Chapter III.

LIMITATIONS

This study was based on drug and alcohol abusers in treatment. The treatment programs from which these subjects came are located in Columbus, Ohio, and the treatment populations are composed of residents of metropolitan Columbus, its suburbs, and surrounding communities. Results may not be generalizable to extremely large metropolitan areas. This limitation is much more likely to apply to drug abusers in treatment than to alcoholics in
treatment, because such factors as the structure of the drug subculture, the prevalence of violent crime and the number and distribution of minority groups are likely to be different.

The racial composition of the alcoholic population was largely Caucasian, which suggests that the data may not generalize readily to racially pure groups. The drug sample consisted of approximately 64% Caucasians and 36% Blacks. These data may not generalize to populations which are exclusively Black or Caucasian or which have a significant number of members from other minority groups. In addition, there may also be differences between the groups which are related to racial composition as well as, or rather than, to substance of abuse. It has been and continues to be difficult to separate the effects of these two variables, since drug abuse treatment populations universally have a higher number of minority group members than alcoholic treatment populations. Possible effects of racial composition on the MMPI itself will be discussed in Chapter III.

The socioeconomic background of the alcoholic sample was primarily middle for the males, and middle and upper class for the females, with some working class subjects included. Consequently, these results may not generalize to an alcoholic population which is primarily blue collar or not regularly employed. The socioeconomic background of
the drug abusers ranged from welfare clients to children of upper class families, with the majority being laboring or lower middle class. The data generated may not be applicable to drug addicted populations which are largely upper and middle class or largely from welfare backgrounds. As with race, group differences due to socioeconomic status may be confounded with those due to substance of abuse. This is another common problem with this type of research, since alcoholic treatment populations traditionally contain a larger proportion of middle and upper class patients than drug abuse treatment populations. It should also be remembered that substance abuse may function as a leveler of socioeconomic status, and that present socioeconomic status may not reflect past social class or the background in which the abuser grew up. MMPI differences due to socioeconomic status will be discussed in Chapter III.

The average age of the alcoholic sample was 49 years for the men and 47.2 for the women. These data, then, may not generalize to the growing numbers of adolescent alcoholics being treated today. The average age of the drug abuse population was 25 years for the males and 26 for the females. These data may not generalize to older groups of addicts, or to adolescent abusers. Age difference between groups is another common confounding variable in comparing alcoholics with drug abusers. Due to the social
acceptability of drinking and the length of time which alcoholism may take to develop or be recognized, it is uncommon to find a treatment population of young adult alcoholics. Due to the likelihood of burn-out, legal difficulties and premature death, it is rare to find large numbers of middle-aged drug abusers in a treatment population. Effects of age differences on MMPI responses will be discussed in Chapter III.

The alcoholic sample came from an inpatient facility, and the nature and intensity of problems inferred from the data may not generalize to outpatient alcohol abusers. Conversely, approximately 85 per cent of the drug sample were outpatients and may not yield data which are applicable to drug addicts in inpatient facilities. Hospitalization is more common for detoxification from alcohol than from drugs, especially in Columbus. This may be due to the more medically complex and life-threatening nature of alcohol withdrawal, or it may be influenced by socioeconomic status or by the availability of methadone. Although there is a possibility of group differences related to this variable, an examination of the literature reviewed for this study does not reveal a significant or consistent within-group differences which appear to be a function of inpatient or outpatient status. No research was found dealing with possible MMPI score differences for this variable.
Approximately 40% of the drug abusing sample are on varying doses of methadone. However, according to Robert Sweet, Director of the Franklin County Comprehensive Drug Treatment Program, VITA patients have one of the lowest average doses in the United States. For this reason, data from the drug abuse sample may not generalize to entirely drug-free treatment populations. It is generally assumed by medical and mental health professionals that most methadone patients function as they otherwise would. Although examination of the literature and MMPI scores seem to substantiate this assumption, there is little research on effects of methadone on MMPI results.

The primary substance of abuse for each treatment group was determined chiefly by self-report and the subject's choice of a treatment facility. Use of this primary substance was documented medically, by witnesses, or both. However, it is not possible to be certain in all cases that the subject was abusing only this drug and no others. Opiate abusers commonly abuse other substances, including alcohol. In addition, the sample of drug abusers in this study includes users of many different types of drugs and poly-drug users. Alcoholics, although not likely to use narcotics, may abuse sedatives or barbiturates. For this reason, it must be remembered that the division between drug and alcohol abusers made by this study may be much less clear in practice than in theory. Characteristics
attributed to these treatment groups, therefore, may not generalize to a population thought to be using one specific drug only (although the existence of such a population is hypothetical).

These data were gathered from all subjects one to two weeks after entry into their respective treatment program. Because all of the subjects of this study were in treatment at the time of evaluation, MMPI data and inferred characteristics may not be generalizable to alcoholics in general or drug abusers in general. These populations include many abusers who do not reach treatment, or who are treated in other facilities, whose characteristics may differ from those of these subjects. In addition, these subjects, who were just entering the initial stages of treatment, may display different characteristics on the MMPI than those in other stages of treatment.

A final limitation is that this sample represents only 90 to 95 per cent of those who entered treatment. Those who dropped out of treatment, refused to cooperate in testing, or were functionally illiterate may represent a group to which these data are not generalizable. It is not known how this group differs from those who were tested.
SUMMARY AND OVERVIEW

The first chapter has presented the problem to be investigated, the rationale for the study, research questions and hypotheses, definitions of terms, and limitations.

Chapter II consists of a review of relevant literature, including reviews of literature, studies on addiction proneness, work on various hypothesized relationships of alcohol and drug abuse to personality, and suggested variables other than personality which may be relevant to substance abuse. This chapter also contains a review of research on drug and alcohol abusers of both sexes, differences and similarities between sexes within each substance category, and differences and similarities between drug and alcohol abusers.

Chapter III defines the methodology of this study, including the sample, data collection, setting, instrumentation and statistical analysis.

Chapter IV delineates the results of the analysis, describing and presenting statistics relevant to each area of study and summarizing them.

Chapter V summarizes and discuss the findings and their implications, conclusions and recommendations.
CHAPTER II

INTRODUCTION

The first section of the literature review, Theories and Concepts, discusses general theories of addiction, theories of addiction or dependence which are specific to drugs or alcohol, the symptom versus disease controversy, investigation of possible subgroups (including recent typological research), and variables other than personality which may affect the development of addiction or the choice of substance.

Section two, Alcoholism and Personality, reviews literature and research findings on personality characteristics of alcoholics, especially those assessed by the MMPI. Female alcoholics are considered separately on each trait where there is enough research to establish a recognizable trend.

Section three, Drug Dependence and Personality, reviews literature and research on personality characteristics related to drug abuse, with emphasis on constructs measured by the MMPI. Personality characteristics of
female abusers are considered separately wherever possible, although research in many areas is sparse.

The final section, Summary and Overview, summarizes the trends found by the literature review in the areas of the three research hypotheses. These are: comparison of alcoholics to drug abusers, comparison to male substance abusers to females, and comparison of male alcoholics to female alcoholics to male drug abusers to female drug abusers.

**SUBSTANCE ABUSE: THEORIES AND CONCEPTS**

Although they disagree about specific characteristics, many researchers agree that there are common psychological characteristics which underlie the phenomenon of addiction. Meerloo (1952) hypothesizes that in addiction a nonspecific emotional need is translated into a craving for a specific drug. In support of the theory of addiction-proneness, Freed (1973) cites research indicating the willingness of users to switch and substitute when their substance of choice is not available. Mintz (1977) cites an interesting case history of a subject whose addiction was successfully transferred to placebos. Gerard (1955) points out basic personality similarities common to intoxication and to drug addiction. He says both groups have regressive, infantile and oral needs and achieve a kind of autistic contentment through substance abuse. The ingestion of the substance,
he suggests, is pseudosocial, but the enjoyment is in reality asocial. This is related to the essentially isolated and narcissistic nature of the addictive personality, which precludes faith in adult relationships and substitutes autoerotic for genital pleasure. Substance abusers, Gerard believes, suffer from arrested psychosexual development and failure to develop a definite sexual role or identity. Additional characteristics which Gerard cites are poorly sublimated dependency needs, which cause the abuser to both desire and fear passive relationships or institutionalization, and masochism (self-destructive impulses) which stems from the desire to punish both the self and the introjected parental figures. Gerard also acknowledges the role of other factors (which will be discussed later) in the use and choice of a substance.

Other researchers have written about the addictive personality with respect to only one category of substances. Referring to narcotic addiction, Begun (1977), like Gerard, describes the addiction-prone personality in a psychoanalytic tone. He agrees in citing self-destructive impulses, conflicted sexual identity, and narcissism as key personality factors in substance abuse. Begun (1977) adds that abusers are reinforced by games and attention in which their addiction engages others. (This concept is elaborated on by Steiner, 1971, in reference to alcoholics.) Begun (1977) characterizes addicts as having
almost no tolerance for stress or anxiety and a "smouldering rage at the daily battle with life." This exacerbates the addiction, which further decreases the ability to learn to handle anxiety, which yields higher anxiety and frustration, which leads to increased use of chemicals, and so forth. Begun (1977) sees substance abusers as people who anticipate disappointment and failure, which gives them an excuse to return to the use of narcotics. Wurmser (1974), also addressing drug addiction, cites narcissism, self-destruction, the search for regressive gratification and defense against anxiety and tension. Ullman (1952), writing about the alcoholic personality, hypothesizes that tension reduction is the major use of alcohol and that the cause may be any tension producer. Horn and Wanberg (1970), in their alcoholism research, implicate social isolation, feelings of inadequacy and inferiority, perceived inability to cope, anxiety and fear, and psychophysiological tension as relevant personality dimensions. Horn, Wanberg and Adams (1974) say that anxiety and hypochondriasis best represent the major common variance of all factors isolated in their study of alcoholism.

Concomitant with the investigation of possible addiction-proneness and of the separation of alcohol and drug abusers, another long-time controversy continues. Is alcoholism (or dependence on some other chemical) simply a manifestation of one (or a variety of) set of underlying
dynamics, in other words, a symptom? Or are alcoholism and drug addiction distinct entities with symptoms of their own which can be defined, diagnosed (and perhaps even treated) independent of other common nosological classifications such as neurosis, personality disorders or psychosis? Rosen (1960) and Donovan, Chaney and O'Leary (1978) point out that there have traditionally been two schools of thought about alcoholism. One sees alcoholism as a diagnostic category, different from other psychiatric entities, with symptoms such as oral narcissism, sexual conflict and dependency (Gerard, 1955; Rosen, 1960). The other sees alcohol abuse as a symptom of underlying maladjustment whose sufferers range along a nosological continuum from neurotic to psychopathic and psychotic. Some researchers see this as a moot point. Ullman (1952), for example, says that substance abuse is originally a symptom (of tension) but becomes a disease when it gets out of control and prevents adaptive responses. McAndrew (1967) has done research attempting to establish alcoholism as a separate disease entity which can be identified by his Alcoholism scale on the MMPI. Overall and Patrick (1972) contend that alcoholism may be a unidimensional continuum with variations accounted for by duration and severity of abuse. Some current treatment approaches (notably Alcoholics Anonymous and the medical model) view alcoholism as a disease. Berzins, Ross and Monroe (1971), examining drug abuse
subgroups, found some variations on the neurotic-to-psychotic dimension, but did not feel they indicated significant differences among potential subgroups. Collins, Burger and Taylor (1977) found two major groups, but found a correlation of .70 between the two MMPI profiles. Gilbert and Lombardi (1967) feel that their drug addicted sample presented a very unified set of personality dimensions when compared to controls.

In opposition to these unitary or disease theories, research continues on chemical dependence of all types with the aim of integrating current knowledge of this problem with traditional nosological systems. The validity of this view is buttressed by the findings of Brown (1950), who divided MMPI profiles of alcoholics into two groups. Brown (1950) found that his "neurotic alcoholics" were more similar psychologically to nondrinking neurotics than to his other group, "psychopathic alcoholics." Conversely, the "psychopathic alcoholics" were more similar to nondrinking psychopaths. Brown (1950) feels the key lies in looking for "group personality characteristics" rather than "the alcoholic personality." In a similar study, Rosen (1960) found that alcoholic and psychiatric male subjects and alcoholic and psychiatric females were more similar to each other than were the male and female alcoholics. Rosen's question, then, was "if one alcoholic is like other neurotics, what accounts for his choice of
this symptom?"

One line of research with regard to this question has been the effort to correlate various personality characteristics with substance of choice. Hill (1962) suggests that alcohol may release aggression and sometimes homosexual impulses while opiates reduce primary drives and emotional lability. Hill (1962) states that "a particular drug rearranges the response hierarchy in a particular way."

Freed (1973) and Gerard (1955) generally agree that alcohol disinhibits behavior, while drugs offer escape from anxiety. In discussing choices among drugs, Henriques, Arsenian, Cutter and Samarweera (1972), hypothesize that drugs with analgesic and sedative properties might be preferred by abusers who are anxious, while stimulants and mood elevating drugs would be preferred by more depressed abusers. Aaronson (1970) points out that drug classifications reflect what they do to the personality—sedatives, stimulants, and so forth. Ungerer, Harford, Brown and Kleber (1976), who studied sex-guilt and drug preferences, state that users of sedatives appear to have a high level of sex-guilt, while those in their sample who were lowest in sex-guilt preferred stimulants.

Another approach to the question of what problems or disorders may have concomitant substance use as a symptom has been suggested by recent typological research. The typologists have used clustering procedures to isolate
subgroups within the categories of alcohol or drug abuse, based on psychiatric nosology and personality dimensions. Goldstein and Linden (1969), using multivariate classification with MMPI profiles of male alcoholics, classified 45% of their sample into three major groups which have been replicated. These are: hostile and emotionally unstable (I), psychoneurotic (II), and psychopathic (III). These researchers conclude that although addictive behaviors may be overtly similar, the underlying dynamics are different. Whitelock, Overall and Partick (1971), Skinner, Jackson and Hoffman (1974) and Eshbaugh, Tosi and Hoyt (1978) have replicated and expanded on these basic divisions. Whitelock, Overall and Patrick (1971) state that subjective discomfort, anxiety and depression (the psychoneurotic type) correlate most strongly with severe alcohol abuse. Skinner, Jackson and Hoffman (1974) suggest the possibility of schizoid tendencies with some of the subtypes, especially neurotics. Eshbaugh, Tosi and Hoyt (1978) identify a hypomanic type of alcoholic, and two groups of neurotic alcoholics. Their study distinguishes between a psychoneurotic subgroup, which is anxious and obsessive, and a passive-aggressive neurotic subgroup which cycles between episodes of acting out and of guilt and remorse. This division is replicated by Costello, Lawlis, Manders and Celistino (1978). Although similar research on women alcoholics is sparse, Eshbaugh, Tosi and Hoyt (in press)
found basically similar subtypes among their female alcoholic sample. Examining possible subtypes in drug addicted populations, Haertzen and Hill (1959) and Hill, Haertzen and Glaser (1960) classify addicts into three major groups: Primary psychopath (I), Neurotic (II), and Schizoid (III). Berzins, Ross, English and Haley (1974) found that two profile types held across sex. One appears, based on MMPI codes, to be neurotic with schizoid tendencies, while the second is a "pure" psychopath or sociopath. In one of very few typological studies done on female drug abusers, Dick (1979) found seven clusters which were significantly different from each other. Three appear to fall in category I (above): "Psychopathic Character Disorder," "Antisocial Character Disorder," and "Passive-aggressive Character Disorder." Three appear to exhibit a schizoid or paranoid MMPI pattern roughly similar to category III: Pre-psychotic, "Psychotic Reaction, Schizoid or Paranoid," and "Psychotic Reaction, Schizophrenic Type." The final type would be most comparable to group II (Neurotic): "Personality Disorder with Depression." Dick (1979) concludes, however, that all of these subtypes evidence psychoses, borderlines syndromes or personality disorders, rather than neuroses or reactive symptom patterns. The implication of this subgroup research seems to be that drug and alcohol abusers choose and use various substances for different reasons. As Wurmsen (1974) summarizes, some may need
sedatives to defend against overwhelming anxiety and affect, psychedelics to counteract meaninglessness and boredom, stimulants to provide feelings of grandeur and the impetus for aggression, and some may be attempting to self-medicate for symptoms of physical or mental illness.

In spite of different opinions about whether these addictions represent one, two or many sets of personality dynamics, virtually all researchers in this area agree on one thing: there are other factors besides personality characteristics which affect the use and choice of drugs or alcohol. There is a large body of literature, which this review does not attempt to survey, implicating genetic and physiological factors as significant variables in the problem of chemical dependence, although this research has concentrated primarily on alcohol abuse. Resulting theories fall into two general approaches: the idea that a "weakness" or intolerance for alcohol is hereditary (Kissin and Begleiter, 1977), and the idea that physiological differences in individuals determine the effect certain drugs will have and influence the potential for dependence or addiction (Gerard, 1955; Aaronson, 1970).

Additional variables which are frequently addressed in the psychological and personological literature include other hereditary variables, such as sex, race and intelligence, and externals such as family, environment, socialization, education and occupation. Green, Blake, Carboy and
Zenhausern (1971) echo what seems to be a widely accepted opinion that the dynamics of substance abuse do not differ as a function of IQ. There is, however, the possibility of differences in perceptual or learning mechanisms, such as the field dependence in alcoholics cited by Goldstein and Neuringer (1976). When sex and race are discussed, it is usually in a sociological context rather than as internal differences. Characteristics of women abusers are often attributed to the socialization of females (Wanberg and Horn, 1973; Miller, Sensenig, Stocker and Campbell, 1973; Beckman, 1975), social attitudes about drinking or drug using women (Lisansky, 1957; Lindbeck, 1972; Clarke, 1974; Beckman, 1975), or the frequency of female medical problems (Lisansky, 1957; Kinsey, 1968). Racial differences are often attributed to a lack of subcultural sanctions and the availability of drugs (Bourne and Fox, 1973), or to powerlessness, discrimination and discouragement (Ferneau, 1971; Kissin and Begleiter, 1977). In terms of personality dynamics related to drug abuse, Kinsey, Nash and Dodson (1975) found no significant racial differences between drug abusers and other psychiatric categories. Age differences are rarely dealt with, except to note that for most studies which compare these two abuse populations, alcoholics available for study are markedly older than available drug abusers. Ottenberg (1974) believes that young alcoholics are more like young drug abusers than like
middle-aged alcoholics, and that the issue is not the substance, but cultural and social traits. Carrol and Zuckerman (1977) find no correlation between age and drug choice.

Extensive attention is devoted to demographic and other external variable associated with substance abuse. Family history has often been investigated. An unusually high number of alcoholics seem to have experienced the early loss of a parent or had a drinking parent (Lisansky, 1957; Ellinwood, Smith and Vaillant, 1966; Horn and Wanberg, 1970; Rathod and Thomson, 1971). Many drug users have a parental or family history of emotional problems or instability (Lisansky, 1957; Rosenberg, 1969; Smart and Jones, 1970; Kissin and Begleiter, 1977). Both types of abusers are believed by many researchers to have incomplete, unhealthy or conflicted family and community environments where they did not have adequate models or reinforcement for the development of stable values, coping skills, or an understanding and acceptance of social realities (Hill, 1962; McDonald, 1965; Horn and Wanberg, 1970; Jones, 1971; Braucht, Brakarsh, Follingstad and Berry, 1973; English and Tori, 1973). According to Levine (1955), a common occurrence for both groups is the reported presence of a dominant mother and passive or distant father. This is reiterated by Lisansky (1957), Olson (1964), Ellinwood et al. (1966), Wood and Duffy (1966), Kinsey
A major environmental problem cited is stressful interpersonal or life events (Hill, 1962; McDonald, 1965; Goldstein and Neuringer, 1976; Pattison, Sobell and Sobell, 1977). This is especially emphasized in the literature on women as a reason for increased drinking. Other environmental variables mentioned include peer pressure (Pattison et al., 1977), substance availability (Gerard, 1955; Wurmser, 1974), and subcultural sanction and reinforcement of substance use (Ullman, 1952; Gerard, 1955; Wurmser, 1974; Pattison et al., 1977). With respect to level of education and type of occupation, Hill (1962), Horn and Wanberg (1970), Horn, Wanberg and Adams (1974), Kinsey et al. (1975) and Thornburg (1977) find that there are no significant differences between abusers and test norms or controls, but that drug abusers appear less self-sufficient with respect to maintaining stable employment, interpersonal relationships and/or living arrangements. Chambers, Hinesley and Moldestad (1970) find that in their sample of female drug abusers, level of education is inversely proportional to the probability of addiction. Socioeconomic status does not appear to have a consistent correlation with alcohol or drug use (Bourne and Fox, 1973), especially among women (Kinsey, 1968; Wanberg and Horn, 1973). Neither does it show a consistent correlation with many behaviors and problems thought to be connected with substance abuse (Hill, Haertzen and Glaser, 1960).
Another group of factors which some researchers believe motivate drug use are nonpathologic. These include experimentation, recreation and accidental addiction resulting from medical use (Rosen, 1960; Wurmser, 1974). There is continued controversy about whether these classes of drug use really differ from abuse. In addition, McDonald (1965) introduces the idea of a need for differentiation between forces which initiate the abuse and those which perpetuate it. Cahman (1974) makes a similar distinction, stating that personality variables may explain initial addiction and remission, while learning factors have more to do with habitual use.

It seems probable, then, that personality is one of many factors to be considered in the study of substance abuse. It appears that both within and across groups, there exist common traits and individual variations of potential significance.

**ALCOHOLISM AND PERSONALITY**

Alcoholics have generally been considered by researchers, including Rosen (1960), Overall and Patrick (1972) and Lorefice, Steer, Fine and Schut (1976), to be predominantly neurotic rather than sociopathic or psychotic. In her 1975 literature review on female alcoholics, Beckman confirms that they are also found to be neurotic. Waller and Lorch (1978) specify that 60% of
their female sample scored higher than the males on the Cornell Index of Neuroticism. For the purposes of this study, neurosis is operationally defined by the MMPI as being indicated primarily by high scale scores on the first three scales, Hs, D and Hy.

Scale 1 (Hs or Hypochondriasis) measures somatic complaints and is related to hysteria, anxiety, pessimism and egocentricity (Lachar, 1977). High loadings on this scale have been found for alcoholics by Overall and Patrick (1972), McLachlan (1975) and Holland (1977). Horn, Wanberg and Adams (1974), who analyzed factors from several studies, felt that the majority of common variance in their alcoholic sample was accounted for by hypochondriasis and anxiety. Jones (1971), Jenson and Hoffman (1973) and Beckman (1975) suggest that female alcoholics have even more somatic difficulties than males.

The second MMPI scale, Depression, deals with subjective distress, brooding, and mental and physical slowness. Overall and Patrick (1972) and Black and Heald (1975) cite depression as one of the most prevalent factors in their male alcoholics. Weissman, Pottenger, Kleber, Ruben, Williams and Thompson (1977) found 59% of their alcoholic group to be clinically depressed, as opposed to 32% of addicts and 28% of schizophrenics. Pottenger (1978) states that this rate of depression persisted at a one-year-follow-up in spite of treatment for alcoholism, and that
the presence of multiple symptoms increase the probability that this is primary depression. Overall, Brown and Williams (1973) found that depression in detoxified alcoholics appeared very similar to endogenous depression. Green and Jaffe (1977) and Holland (1977) add that among drug addicts, those who also abuse alcohol appear more depressed and neurotic than those who do not. Female alcoholics are seen by most researchers as sharing this depressive outlook, and many believe that this affective disorder is more prevalent or severe among the females. Beckman (1975) in her literature review on female alcoholics, as well as Winokur, Rimmer and Reich (1971) and Waller and Lorch (1978), describe women as more likely victims of affective disorders than males. Weissman et al. (1977) say that a much higher per cent of female alcoholics exhibit primary depression. In studies using the MMPI, such as Jansen and Hoffman (1973) and Eshbaugh et al. (in press), women come out higher on Scale 2 (D). Rathod and Thomson (1971) found that in their sample 30% of the women (as opposed to none of the men) had a history of depression which predated their diagnosis as alcoholics.

Scale 3 (Hy or Hysteria) includes reference to somatic complaints, denial and repression of anxiety and aggression, need for affection, and naive and self-centered rigidity. Overall and Patrick (1972) and McLachlan (1975) cite elevations on this scale.
Scale 7 (Psychasthenia or Pt) is closely related to the concept of neurosis as measured by the first three scales of the MMPI. This scale deals with anxiety and subjective distress, doubt, indecision, worry, and obsessions and compulsions. It has been found by Overall and Patrick (1972), Overall (1973), Kammeier, Hoffmann and Loper (1973), McLachlan (1975) and Holland (1977) that Pt is one of the highest scales on alcoholic MMPI profiles. Overall (1973) finds the elevation of this scale to be a significant predictor of the severity of alcohol abuse. Whitelock, Overall and Patrick (1971) and Donovan et al. (1978), using the MMPI, also state that anxiety is positively correlated with severe alcohol abuse. Ciotola and Peterson (1976) confirm this finding with the 16PF. Horn and Wanberg (1970) confirm "anxiety neurosis" as a significant factor in their study, and break it down into psychophysiological tension, depression and fear, achievement anxiety, and anhedonia. Horn et al. (1974) found anxiety and hypochondriasis to be the two factors accounting for the majority of common variance among primary factors in alcoholism. Researchers on female alcoholics, including Wood and Duffy (1966), Kinsey (1968), Curlee (1970), and Beckman (1975), also cite anxiety as an important factor in females, possibly linked to guilt. Evidence presented by Lisansky (1957), Lindbeck (1972) and Beckman (1975) also indicates that a specific precipitating stress or crises
situation leading to increased drinking is cited by women much more often than by men.

Another difficulty which is widely implicated in the problem of alcohol abuse, second only to the neurotic symptoms just discussed, is sex role confusion or inadequate sexual identity. This is dealt with on Scale 5 of the MMPI, Masculine-Feminine or Mf. This scale assesses sexual and occupational identification and interests, and personal and emotional sensitivity. A high T score on this scale for either sex indicates some identification with the opposite sex role, as it is defined by our culture and by the MMPI. Kammeier et al. (1973) found that college males who later became alcoholics had an elevated Mf scale score both in college and at time of treatment. Goldstein and Neuringer (1976) find that male alcoholics have an even higher Mf when they are no longer drinking, and that more males than females in their data have an elevated Scale 5. They hypothesize that this implies discomfort from apparent "feminine" interests or feelings, against which alcohol is a defense. Levine (1955) finds that alcoholics of both sexes express little interest in heterosexual relationships, compared to normals. Passivity, which is actuarially indicated in high Mf males (Lachar, 1977; Webb and McNamara, 1978) is found in male alcoholics by Ottenberg and Rosen (1971), Kammeier et al. (1973), Freed (1973) and Overall (1973). These same authors find dependence to be
a prominent trait in male alcoholics, as do Ciotola and Peterson (1976) and Costello et al. (1978). Two types of sex role problems appear to be found in female alcoholics. Mogar, Wilson Helm (1970) find that hyperfeminism, exaggerated dependency needs, seductiveness and masochism are present in their female sample, characteristics which seem to suggest extreme by nonetheless "traditional" feminine characteristics. At the same time, some researchers cite "masculine striving" as characteristic of their female samples. Lindbeck (1972), in her literature review on female alcoholics, cites dependency and inadequacy in the female role as typical of these women. Similarly, Wood and Duffy (1966) describe their females as submissive, inadequate and having a poor female identification and poor sexual adjustment. On the other hand, McLachlan (1975) notes "masculine identity" among his female subjects. Backman (1975) in her literature review cites sex role confusion which may take the form of either inadequacy or masculine strivings. She cites successful career women to make the point that such masculine attributes, in and of themselves, are not necessarily pathological. The three studies just mentioned all agree that the family constellation believed to produce this sex role confusion in females consists of a rigid, dominant mother and a passive or absent father. Kinsey (1968) also cites this parental combination as yielding daughters with sexual disturbances.
Curlee (1970) makes the interesting observation that many alcohol problems related to life crises occur in women at middle age and in men at retirement, and points out that these two life stages involve sex role readjustment.

One of the things often mentioned along with sex role confusion is a general feeling of inadequacy, inferiority and low self-concept (Freed, 1973; Overall, 1973; Costello et al., 1978). Inferiority and low self-esteem load on several MMPI scales. Although no scale assesses this quality directly, it loads significantly on Scale 7 (Pt), and less heavily on Scales 2 (D), 0 (Si) and 8 (Sc). Ottenberg and Rosen (1971) describe alcoholics arriving at the Eagleville treatment facility as "beaten down." Rosen (1960) and Horn et al. (1974) note that alcoholics may have a greater tendency to self-describe in negative terms due to self-criticism, and Cooper (1958) found that both drug addicts and prisoner controls gave more favorable self-reports than alcoholics. There are a few studies on males which report contradictory results about the self-esteem of alcoholics (Goldstein and Neuringer, 1976). In contrast, virtually all studies cited in this review on female alcoholics mention self-doubt, self-criticism or low self-esteem as a significant psychological factor (Wood and Duffy, 1966; Jones, 1971; Lindbeck, 1972; Beckman, 1975). Beckman (1975), studying self-esteem specifically, found that the self-esteem of women alcoholics is lower than
that of male alcoholics and control females, but equal to that of female psychiatric patients. Kinsey (1968) compared women of upper and lower socioeconomic status and indicated that inadequacy and self-esteem discrepancies are apparently similar for both groups. Many of the studies cited on this topic also mention guilt and/or shame as part of the constellation of self-image problems for females.

The characteristics which remain to be discussed are felt to be more malignant in terms of both mental health and social consequences. While elevations on Scales 1, 2, 3, 7, and 5 are thought to indicate ability to suppress or to control overt acting out behaviors (in addition to negative implications), elevations on Scales 4, 6, 8, 9 and 0 often suggest rebelliousness, resentment or hostility, mistrust, social and self-alienation, or even loss of reality contact. High scores on these scales, especially in certain configurations, often imply personality disorders or pre-psychotic or psychotic states (Marks, Seeman and Haller, 1974; Lachar, 1977; Webb and McNamara, 1978). What role these types of characteristics play in the abuse of alcohol is a complex and controversial issue.

Scale 4, called Psychopathic deviance or Pd, deals largely with social and self-alienation, family discord and poor interpersonal relationship skills, anger, rebelliousness, and authority problems. Adolescents often have an
elevated Pd due to age-appropriate parental conflict and to a personal identity and inner controls which are still developing. With people past their early twenties, however, a high Pd (depending on the configuration) may indicate a character disorder or possible antisocial attitudes or behavior. Whitelock et al. (1971), Jansen and Hoffman (1973), Skinner, Jackson and Hoffmann (1974), and Goldstein and Neuringer (1976) agree that alcoholics as a group show an elevated score on Scale 4 in relation to MMPI normative data. Other researchers agree, but wish to qualify their findings. Overall (1973) states that an elevated Pd score does not necessarily suggest alcoholism when it appears alone, but may if Scales 3 and 7 are also elevated. Similarly, Holland (1977) notes that in addition to an elevated Pd, alcoholics have elevations on Scales 1 and 7 which act as moderators in the interpretation of the Pd scale. Overall and Patrick (1972) state that Scale 4 did not receive one of the higher loadings for their alcoholic group. Kammeier et al. (1973), in their longitudinal study, note that there is little deviance in their pre-alcoholic MMPI profiles of their sample at college age, and conclude that the Scale 4 elevation apparently increased with the development of the alcoholism. Hill et al. (1962), Overall (1973) and Black and Heald (1975) agree that alcoholics as a group have an elevated Scale 4 but find that the elevation of drug abusers on the same scale
is significantly higher. (These studies will be discussed in the section on drug abusers.) Some studies indicate that women have higher or more frequent elevations on Pd (Curlee, 1970; Mogar et al., 1970; McLachlan, 1975; Goldstein and Neuringer, 1976). Others, however, indicate that males have more frequent problems associated with socially deviant behaviors, such as legal or employment difficulties (Wanberg and Knapp, 1970; Wanberg and Horn, 1973; Waller and Lorch, 1978). Ottenberg (1974), head of the Eagleville Hospital Rehabilitation Center in Eagleville, Pennsylvania, makes the same observation of his alcoholic population (which is 85% male). He does not see a great difference in the amount of socially deviant behaviors by alcoholics and addicts. In the Eagleville population, 55% of addicts have spent at least one year in jail, compared to 44% of alcoholics. However, Ottenberg states, "Heroin is not in the same league with alcohol as a causitive factor in violent crime" (e.g. car accidents, rape and homocide).

In terms of individual components which contribute to Scale 4 elevation, research indicates possible difficulties for alcoholics in all areas. Social alienation and isolation are mentioned as significant factors in alcoholism by Gerard (1955), Horn and Wanberg (1970), and Kissin and Begleiter (1977). Jones (1971) and Beckman (1978) cite these same problems in alcoholic women. A history of
family discord and/or current relationship problems are indicated as a major commonality in the demographic data of alcoholic subjects by Levine (1955), Horn and Wanberg (1970), Overall (1973), Kammeier et al. (1973), Horn et al. (1974), Kissin and Begleiter (1977) and Pottenger, McKernon, Patrie, Weissman, Ruben and Newberry (1978). In addition, parental loss is cited by Horn and Wanberg (1970) and Waller and Lorch (1978). Several researchers on women (Lisansky, 1957; Wood and Duffy, 1966; Kinsey, 1968; Rimmer et al., 1971; Rathod and Thomson, 1971; Lindbeck, 1972; Beckman, 1975) believe that a history of family disruption has a particularly devastating effect on female alcoholics. Frequently cited as problems are a lack of maternal closeness and/or an absent or alcoholic father. Commenting on authority problems, many researchers (Gerard, 1955; Rosen, 1960; Horn and Wanberg, 1970; Ferneau, 1971; Kammeier, 1973; Horn et al., 1974) find that alcoholics in general are rebellious and resentful of authority. Wood and Duffy (1966) confirm this in their research on women. Some of the above researchers see the manifestation of this trait as taking stronger forms, and call it hostility. Studies by Gerard (1955), Hill (1962), Mogar et al. (1970), Overall (1973) and Broughan (1976) that this anger is generally repressed, inhibited or maladaptively expressed (often under the influence of alcohol). Jones (1971) and Waller and Lorch (1978) state that hostility is characteristic of
female alcoholics, and Wood and Duffy (1966) and Eshbaugh et al. (in press) further suggest that it is often expressed in passive-aggressive ways.

The general picture of an alcoholic which emerges from the literature is of a substance abuser who displays deviant attitudes and behaviors but also suffers from depression, anxiety, guilt, somatic complaints, low self-esteem and a negative self-image. This person is rebellious and resentful of authority but has difficulty dealing with anger. The alcoholic has a history of family problems (often alcoholism) and difficulty with interpersonal relationships, as well as dependency conflicts, passivity and sex role confusion and inadequacy.

DRUG DEPENDENCE AND PERSONALITY

The major characteristic which has long been associated with abusers of narcotics (and to a less extent with abusers of other drugs) is social deviance and/or sociopathy. This is borne out by much of the research on drug addiction. Most studies on drug abuse cited in this review find a high (two or more standard deviations above the mean) to extreme elevation on the MMPI Scale 4 (Psychopathic deviance or Pd), and concur in viewing drug abusers as deviant. Many researchers find the elevation of Scale 4 to be similar for males and females, although Curlee (1970), Mogar et al. (1970) and McLachlan (1975) state
that women score higher. This review will examine what these empirical data and clinical observations indicate about various personality characteristics which are suggested by a high Pd score, including rebelliousness and resentment of authority, anger and hostility, family and interpersonal relationship problems, and social and self-alienation. Hill, Haertzen and Glaser (1960), Freed (1973), Overall (1973), English and Tori (1973), Black and Heald (1975), Holland (1977), Carrol and Zuckerman (1977), and Gossop (1978) present evidence that drug abusers (as a group) can be characterized as antisocial or sociopathic (psychopathic). Anger and hostility are seen as paramount in the drug addicted personality by Rosenberg (1969), Ottenberg and Rosen (1971), Overall (1973), Vaillant (1975), Broughan (1976) and Gossop (1978). Kilmann (1974) and Waller and Lorch (1978) specifically mention hostility as a characteristic of female addicts. Nonconformity, rebelliousness and resentment of authority are cited as common among drug abusers by Smart and Jones (1970), Ottenberg and Rosen (1971), Ferneau (1971), Overall (1973) and Thornburg (1977).

These difficulties in dealing with authority and conforming to accepted social values are felt by many researchers to be related to other phenomena seen as common to drug abusers. One such commonality is the history of family disruption and interpersonal relationship problems
which many studies associate with drug abuse. Parental and family instability or pathology is mentioned by Rosenberg (1969), Smart and Jones (1970), Wurmser (1974) and Kissin and Begleiter (1977). Many others (Gerard, 1955; Olson, 1964; McDonald, 1965; Gilbert and Lombardi, 1967; Rosenberg, 1969; Overall, 1973; Black and Heald, 1975) cite relationship problems, in terminology ranging from marital and relationship "difficulties" to "an inability to form close relationships." These same family and relationships problems are apparently assumed true of female drug abusers also, although there is little empirical data in this specific area.

These related problems of nonconformity, rebellion against authority, and family and relationship difficulties appear to be connected, in turn, to a more general and pervasive problem: social alienation, or the inability to relate to or accept the shared norms and values of our culture. Also a factor in elevating the Scale 4 score, social alienation is widely mentioned in the literature as problematic for drug abusers. Several different views of social alienation are taken by groups of researchers. Some studies (Kissin and Begleiter, 1977; Gossop, 1978) indicate that drug abusers suffer not just from alienation by from its extreme consequence: withdrawal and social isolation. Patalano (1978) believes that female addicts are more withdrawn than males. Some researchers further suggest that
one major way in which drug abusers attempt to cope with the alienation and isolation they experience is through subcultural identification. Ottenberg (1974) has observed at Eagleville that drug abusing patients show a strong identification with the drug subculture. Ottenberg and Rosen (1971) state that drug abusers have well defined subcultural norms and that they "use these self-conceived differences from others as a rationalization and a defense." Ferneau (1971), also observing abusers in a treatment context, feels that subcultural identification provides a sense of belonging and a "disguise" (of pretended self-esteem) which comes from bragging about deviance, or being the "best-of-the-worst." Hill et al. (1960) point out that many subculture members who experiment with drugs or delinquency do not continue after adolescence. These researchers state that those who become chronic addicts are those who cannot adjust even within their own subculture. The study states that for these people "acquisition of social and economic skills and sexual attitudes for good adjustment is lacking or impaired" and that they are "not prepared to assume adult activities within any culture." This opinion is confirmed by Kinsey et al. (1975), who compare non-opiate drug abusers to psychiatric patients (both groups come from a community mental health center population). They find that drug abusers have greater psychological and social adjustment problems. More members of
their drug abusing sample were in a dependent living situation (with relatives or in an institution), fewer were married or had a stable job or income (although the groups were similar in sex, race, and education). The researchers indicated that the male drug abusers in particular were less mature socially, emotionally and vocationally. All were described as confused and alienated from traditional goals and values. Vaillant (1975), in a discussion of sociopathic behavior, hypothesizes that sociopaths experience emotions which are simply not recognized by society because they are expressed in forms characteristic of children rather than socialized adults. Hill (1962), discussing social deviance, narcotics addicts and alcoholics, concludes that the Scale 4 elevation common to these two groups does not indicate the presence of psychopathic deviance in every individual. Some high scorers, Hill suggests, may simply be "inept, inadequate or immature." They may be deficient in social controls, social values or skills and opportunities.

Several lines of research aimed specifically at certain traits or behaviors appear to confirm this way of viewing social alienation. Many studies hypothesize that the sources of inadequate or inappropriate behavior are cognitive and emotional in origin. They cite such characteristics as value deficits or conflicts (Hill, 1962; Kendall and Pittel, 1971; Wurmser, 1974; Kinsey et al.,
1975), immaturity or irresponsibility (Rosenberg, 1969; 
Braucht et al., 1973; Kinsey et al., 1975; Vaillant, 1975), 
egocentrism or narcissism (Olson, 1964; Torda, 1968; 
Kendall and Pittel, 1971; Braucht et al., 1973; Wurmser, 
1974; Holland, 1977), and inability to delay gratification, 
impulsivity, impatience and low frustration tolerance 
(Olson, 1964; Gilbert and Lombardi, 1967; Kendall and 
Pittel, 1971; Overall, 1973; Black and Heald, 1975; 
(1974) indicates that most of these characteristics apply 
to female drug abusers. Kilmann (1974) and Deren and 
Koslowsky (1977) state that female drug abusers indicate 
more ambition and more interest in leading an independent 
and exciting life than the males in their samples. More 
behaviorally oriented researchers discuss the social alien­
nation of drug abusers in terms of inadequate social skills 
(Hill et al., 1960; Rosenberg, 1969; Black and Heald, 1975; 
Zuckerman, Sola, Masterson and Angelone, 1975; Gossop, 
1978) and poor coping skills (Hill et al., 1960; Hill, 
1962; Begun, 1977). Paradoxically, there are also studies 
which indicate that drug abusers are highly skilled so­
cially (English and Tori, 1973; Segal, Rhenberg and 
Sterling, 1975) and exhibit what Harris and Lingoes (in 
Lachar, 1977) call "social impreturbability" (another com­
ponent of Scale 4) and some studies call "tough poise" 
(Ciotola and Peterson, 1976; Collins et al., 1977).
In drug dependent populations, the elevated Scale 4 is frequently found in combination with an elevation on Scale 9 (Hypomania, or Ma). This high point code (4-9) is commonly viewed as sociopathic. The items on Scale 9 deal with not only psychomotor acceleration, but also with ego inflation or grandiosity, impreturbability and amorality, characteristics which Scale 9 shares with Scale 4 and which may suggest unconventional or antisocial attitudes. A need for excitement, activity and stimulation, along with a lack of impulse control (which was discussed in connection with Scale 4), are implied by elevation on Scale 9 (Lachar, 1977). These traits are felt to be common in drug abusers by Hill et al. (1962), Overall (1973), Black and Heald (1975), Holland (1977), Thornburg (1977), and Collins et al. (1977), and in women by Olson (1964) and Deren and Koslowsky (1977). This impulsivity has already been discussed, as well as the related problems of low frustration tolerance and the inability to delay gratification. Hill et al. (1968) and Overall (1973) specifically mention grandiosity as characteristic of a high Ma score. Some studies which deal with this have been cited in reference to egocentrism and narcissism. However, an additional opinion should be noted. Berzins et al. (1971) point out that the 4-9 code is much less prevalent in research findings on drug abuse than might be expected if all addicts fit the sociopathic stereotype.
A second scale commonly elevated with 4 among drug abusers is Scale 8, Schizophrenia or Sc. The items on this scale deal with social and emotional alienation and various deficits in ego mastery, including bizarre thought patterns, lack of impulse control, and loss of touch with reality. (These constructs are related to the domain of self-alienation included in Scale 4.) Scale 8 also includes items indicating apathy, poor family relationships and poor coping skills. One of the largest subsets of items deals with sexual matters. Scale 8 is found as the highest scale by Fitzgibbons, Berry and Shearn (1973), and as part of the high point code (with Scales 4 and 2) by Berzins et al. (1971) and Overall (1973), who describe their sample as distrustful and retreating from interpersonal contacts, but without hallucinations or other bizarre characteristics. Torda (1968) points to "fantasy and magical thinking" as a characteristic of narcotic addicts. The label schizoid, which refers to a pre-schizophrenic borderline syndrome and has some characteristics implied by Scale 8 elevation, is applied to drug abusers by many researchers, including Freed (1973) and Cahman (1974). Most typological studies on drug abuse cited in the review isolate at least one group which they refer to as schizoid. Hill et al. (1960) find a schizoid group (6-8-9) whose members are socially withdrawn and suffer from delusions. Hill's (1962) schizoid group are "retreatist" and endorse
items with bizarre content. Berzins et al. (1974) find a 2-4-8 group which they describe as socially inadequate, confused, hypersensitive and alienated.

A construct which plays a part in this constellation of problems, although not mentioned in drug abuse literature with the frequency of the scales already discussed, is Paranoia, which is assessed by Scale 6 (Pa). Distrust plays a role in social and emotional alienation and rebellion, the inability to form relationships, and antisocial behavior. Paranoia, distrust, persecutory ideas and hypersensitivity among drug abusers are mentioned by Torda (1968), Berzins et al. (1971), Berzins et al. (1974) and Black and Heald (1975). Olson (1964) and Deren and Koslowsky (1977) find significantly higher Pa scores among female subjects, and feel that women are more suspicious and do more projecting of blame (also a characteristic which Scale 6 assesses).

Scale 0 (Social introversion or Si) is also interrelated with many of the character traits already discussed, including social alienation, mistrust and sensitivity, shyness and withdrawal, poor social skills, inferiority and low self-esteem. In addition to studies previously mentioned which discuss these problems, other research specifically connects drug abuse with introversion and shyness (Rosenberg, 1960; Patalano, 1978 for women), fear of socializing (Zuckerman et al., 1975) and retreat from
interpersonal relationships (McAree, Steffenhagen and Zheutlin, 1969; Berzins et al., 1971; Carrol and Zuckerman, 1977; and Williams and Bates, 1970, on women). Gerard (1955) and Freed (1973) both point out the desire of the addict for asocial, autoerotic and intrapsychic (as opposed to interpersonal) enjoyment. Torda (1968) views the drug abuser's denial of interpersonal (and other) needs as central to the problem of addictions. Poor self-esteem, although not cited with great frequency as a problem of drug abusers, is thought to be important by Ferneau (1971), Burke and Eichberg (1972), English and Tori (1973), Segal et al. (1975), Black and Heald (1975) and Manganiello (1978). Implications of a similar problem for female drug abusers are made in studies on women, but only a few researchers (Olson, 1964; Miller et al., 1973) appear to have addressed this issue directly.

The psychological characteristics which have been discussed up to this point, as well as the MMPI scales which deal with their assessment, are thought to be suggestive of character disorders or (in their most extreme forms) psychosis. Although there are studies which suggest psychosis as a predominant problem in drug abuse (Ellinwood et al., 1966; Carrol and Zuckerman, 1977; Gossop, 1978), the majority of researchers in this field believe that drug abusers as a group fall in the general category of personality or character disorders (Hill et al., 1960;
Gilbert and Lombardi, 1967; Ludenia, 1972; Braucht et al., 1973; Overall, 1973; Holland, 1977; Kissin and Begleiter, 1977). Some studies which do cite a high incidence of psychosis or tendency toward psychosis indicate that this seems much more frequent among poly-drug abusers (McAree et al., 1969; Smart and Jones, 1970; McAree et al., 1972; Black and Heald, 1975) than among narcotic addicts, in whom character disorders appear much more likely.

Although not distinctly under any one nosological category (neurosis, character disorder or psychosis) the attitudes and interests and feelings dealt with by Scale 5 (Masculine-feminine or Mf) seem to play a widely recognized role in drug abuse, especially for males. A significant elevation on Scale 5 for male drug abusers is cited by Hill et al. (1962), Jansen and Hoffman (1973), Black and Heald (1975) and Weiss and Russakoff (1977). Characteristics suggested by a Scale 5 elevation for males include personal and emotional sensitivity, imagination and aesthetic interests, worry, introspection and passivity, and concerns over sexual identity. Difficulties with a confused or inadequate sexual identity are specifically mentioned as a correlate of drug abuse by Gerard (1955), Hill et al. (1960) and Zuckerman et al. (1975). Problems in actual sexual performance or relationships have been investigated by Hill et al. (1968), Overall (1973), Parr (1976) and Ungerer, Harford, Brown and Kleber (1976).
Passivity is a prominent characteristic which is often associated with sex role problems in drug abusers, especially males. Olson (1964), Torda (1968) and McLachlan (1975) see passivity as a problem for male drug abusers, and Rosenberg (1969), Kendall and Pittel (1971), Kissin and Begleiter (1977) and Weiss and Russakoff (1977) for both sexes. Dependency, which may be related to passivity, is cited for drug abusers by Gerard (1955), Freed (1973), Kinsey et al. (1975) and Kissin and Begleiter, and by Kilmann (1974) and Deren and Koslowsky (1977) as a problem for women.

The more neurotic personality characteristics included in the MMPI (assessed primarily by Scales 1, 2, 3 and 7) do not appear to be as widely associated with drug abuse as the traits just discussed. However, there are many researchers who feel that these characteristics do relate to drug abuse. Although no studies cited in this review see neurosis as the major problem or diagnosis of drug abusers, many researchers see neurotic characteristics or tendencies as playing a role in drug abuse or in the personalities of some drug abusers. Typological or taxonomic research usually mentions the presence of some neurotic traits or individuals in the drug abuse population. Haertzen and Hill (1959), Ellinwood et al. (1966) and Gossop (1978) make general reference to these findings. Hill et al. (1962) and Hill (1962) call these people "neurotic psychopaths" and suggest (along with Olson, 1964) that many of them may
simply be inadequate rather than neurotic. Ludenia (1972) says that neurosis is the least common personality type in her drug addicted sample. Zuckerman et al. (1975) say that depression and neurosis do not show in reentry MMPI profiles of drug abusers, and conclude that these symptoms are reactive and not causal.

There is some mention, however, of elevations in drug abusing samples on some MMPI scales which are viewed as indicating neurosis. Some researchers mention a high level of somatic complaints among drug abusing males (Weissman et al., 1977; Patalano, 1978) and females (Ellinwood et al., 1966). This trait is measured by Scale 1 (Hs) of the MMPI. Holland (1977), on the other hand, comments specifically on the absence or low elevations of Hs in his drug abusing subjects. He relates this to "psychopathic trends" in the personalities of drug abusers, because of the role Hs is believed to play as a suppressor variable. He comments that in drug abusers who also abuse alcohol, neurotic trends are more common.

Scale 2 elevations (Depression) appear to be somewhat more common than Scale 1 among drug populations. Berzins et al. (1971) and Berzins et al. (1974) both found an elevated 2 (with 4 and 8) prevalent in their sample. Weissman et al. (1977) find secondary depression in 32% of their addict sample. Collins et al. (1977) found depression in 12.5% of their sample. They add, however, that their
depressive high point code (2-4) correlates .70 with the 4-9 high point group, and only .29 with the neurotics. Hill et al. (1960) and Olson (1964) conclude that apparent depression in drug addicts is likely to be due to fear of consequences or restriction of freedom rather than to regret or guilt.

Little mention is made in drug abuse literature of elevation on Scale 3 (Hy). Overall (1973) comments that when Hy (3) and Pt (7) are low relative to Pd (4) and Ma (9), the likelihood of drug abuse is increased.

Scale 7 (Pt) elevation is mentioned relatively rarely by drug abuse studies. However, anxiety and worry and difficulties in handling them are discussed by several researchers (Olson, 1964; Rosenberg, 1969; Vaillant, 1975; Ungerer et al., 1976; Carrol and Zuckerman, 1977). Vaillant (1975) hypothesizes that sociopathy may be an "offense" which is a disguise for and defense against anxiety. Gossop (1978) reports higher anxiety among those who take drug orally (as opposed to intravenously), and Olson (1964), Kilmann (1974) and Deren and Koslowsky (1977) cite greater anxiety and worry among women.

The general picture of a drug abuser which emerges from the review of literature is of a substance abuser who displays deviant attitudes and behaviors but appears to experience little overt anxiety or guilt. This person seems angry and hostile, distrustful and hypersensitive,
and socially and emotionally alienated, sometimes to the point of psychosis. The drug abuser may be passive, dependent and confused about sexual identity. Family instability and an impaired ability to form interpersonal relationships (or even avoidance of them) are frequent. Neurotic symptoms among drug abusers do not appear to be common.

**SUMMARY AND OVERVIEW**

There seem to be several important characteristics which differentiate drug abusers from alcoholics, as well as several which the two groups share.

Both groups seem to be insecure in their sex role and sexual identity, as well as passive and dependent. Both have difficulty relating to other adults and sustaining interpersonal relationships. Both groups are resentful, rebellious and self-destructive in their behavior. Finally, both appear to suffer from impaired coping skills, and may be using substances in excessive amounts to escape from something which they believe they cannot deal with.

However, alcoholics are clearly thought by most researchers to be neurotic, especially concerning the extent to which they suffer from depression, guilt, anxiety, subjective distress and low self-esteem. Neurosis, anxiety and depression are infrequently associated with drug abuse. When they are mentioned, they are often seen as reactions
to an environmental press, rather than internally motivated.

In contrast, drug abusers appear to be seen as largely suffering from character disorders with some psychotic tendencies or symptoms. They can be antisocial or sociopathic, and are often nonconforming and socially alienated. They often act impulsively and irresponsibly. They may avoid interpersonal closeness and conduct relationships in superficial and manipulative ways, and are frequently hypersensitive and mistrustful of others. Little is mentioned in the literature on alcoholics about psychotic tendencies, paranoia, hypomania or extreme withdrawal.

Anger, rebelliousness and resentment of authority are apparently inhibited or handled passive-aggressively by alcoholics, while they seem to be more overt in drug abusers. Many drug abusers identify with a subculture as a way of openly expression rebellion, while alcoholics seem to have a much greater desire to conform to social standards. It appears that more alcoholics may direct some of this anger at themselves, resulting in depression, while many drug abusers direct their anger at society.

Alcoholics seem to have better controls and a more responsible attitude toward jobs, relationships and social values than do drug abusers. Although they have difficulties with acting out and with intimacy, alcoholics usually maintain a job and a marriage with more stability
and success than addicts, who seem less willing (or able) to put forth consistent effort in these directions.

One hypothetical explanation for many differences, which has not been previously mentioned in this review, is the theory that alcohol disinhibits, while drugs (especially opiates) reduce primary drives (Gerard, 1955; Hill, 1962; Freed, 1973). This could imply that alcoholics, who act conforming and responsible much of the time, release their anger and acting out behaviors under the influence of alcohol, while drug abusers, who are angry and act out in their "normal" state, become more passive under the influence of opiates and many other types of drugs. This could also explain Gerard's (1955) observation that alcoholics become less functional when using, while drug abusers often seem more functional. These hypotheses would seem to suggest that drug and alcohol abusers are trying to cope with basically different problems.

Comparing male substance abusers with females, differences and similarities seem less evident, perhaps obscured by contrasts between substance categories. Somatic difficulties are indicated for both sexes. Both have Scale 4 elevations, and there are some researchers who believe that women in general score higher. Women are also believed to be more sensitive, which is related to elevation on Scale 6 (Pa), and to be subject to greater anxiety and worry (primarily Scale 7). Both groups apparently suffer
from sex role confusion and feelings of sexual inadequacy, although these problems appear to be more severe in males. Passivity and dependence also seem to be mutual traits, and may also be more severe in men. These similarities and differences may indicate different problems for the sexes, and certainly warrant further investigation.

In addition to the commonalities and differences already cited for the two pairwise comparisons made, there appear to be potential distinguishing features for each of the four subgroups in the sample.

Male alcoholics appear to have the most well documented problem with somatic complaints, although these are mentioned for other groups. This is also the only group for which elevation on Scale 3 (Hy) is discussed.

Women alcoholics may be more masochistic and more (or more frequently) depressed than male alcoholics and, of course, are more likely to be so than drug abusers. More females also report that they have been pushed into increased drinking by a stressful life situation. It also appears that female alcoholics have the lowest self-esteem and the greatest problem with guilt and shame of all groups, although this cannot be directly confirmed by MMPI data. They are also likely to have the most difficulty expressing anger directly. Women alcoholics appear to have the least overt conflicts with society over deviant behavior.
Male drug abusers appear to have the most severe problems with deviance and acting out behavior, and are viewed by some researchers as being socially, emotionally and vocationally the least responsible and mature group. They also appear to have the most elevation on Scale 8 (Sc), which indicates a relative lack of ego mastery and reality contact. They are labeled schizoid by several researchers, who indicate that they are socially inadequate, withdrawn, alienated and possibly pre-psychotic. Male drug abusers may also have the highest Scale 9 (Ma) elevation (grandiosity, psychomotor acceleration, impulsivity), although female addicts are also found to have these traits.

Female drug abusers are said by some researchers to have a higher Scale 4 (Pd) elevation than males, and if so will probably have the highest of all four groups. Although their acting out is often not as overt as that of males, they are thought by some studies to be the most independent and excitement-oriented group. These women are probably the least passive, since they appear less passive than female alcoholics, while both female groups appear less passive than the males. They may also be the most distrustful, hypersensitive and paranoid.

It seems apparent that the similarities and differences among these four groups of substance abusers which appear in the literature merit further clarification and
study. Information is especially sparse on personality characteristics of female substance abusers and comparisons of their traits with traditional views of male populations from earlier research. Further study of these groups in relation to one another and to MMPI norms and constructs has much potential for use in guiding treatment strategies and in pointing the way for further research.
CHAPTER III

INTRODUCTION

This chapter presents descriptions of the setting in which the study was done, the sample groups and subjects used, and the populations to which the results may be generalized. It also discusses the instrument which provided the data and the procedures used for administration. Finally, the statistical methods employed to analyze the data are explained and justified.

SETTING

This study was conducted in Columbus, Ohio, a mid-western state capital with a population of approximately 500,000. The Columbus business community is composed largely of concerns related to city, state, and county government and to The Ohio State University. Several large businesses have state or national headquarters in Columbus, and there is some moderate and a small amount of heavy industry. The city is ringed by affluent suburbs and surrounded by the smaller communities and rural atmosphere.
of central Ohio. The population of metropolitan Columbus is approximately one million. Of this number approximately 88 per cent are white and 12 per cent are black.

**SAMPLE**

The first subgroup of the sample consists of 254 alcohol dependent males admitted to the alcohol inpatient unit at Riverside Methodist Hospital from 1974 to 1976. The primary diagnosis of the patients from which the sample was drawn, based on self-report, history, and physical exam, was the abuse of alcohol. The patient population was largely Caucasian. All were to be exposed to the same treatment program, including inpatient care and counseling. These data were supplied by an associate staff member, Department of Internal Medicine, Riverside Hospital. The test scores were identified by code number only, and the only information revealed about the examinee was sex and substance of abuse. These procedures were designed to protect the confidentiality of the patients.

The second group consists of 183 alcohol dependent females admitted to the alcohol inpatient unit at Riverside Methodist Hospital from 1974 to 1976. Primary diagnosis of the patient group from which the sample was drawn was the abuse of alcohol. The treatment population was largely Caucasian. All were in the same treatment program, which included inpatient care and counseling. These data were
supplied by the same staff member, in keeping with same confidentiality procedures.

The third subgroup is composed of 444 drug dependent males who entered treatment at the VITA Treatment Center, VITA Counseling Service, and Human Resources-Integrity House during the period of July, 1976, through December, 1978. Primary diagnosis of the treatment population from which the sample came, based on self-report, history and physical exam, was abuse of a drug other than alcohol. Subjects who were physically dependent on the drug of abuse chose either outpatient treatment with methadone or inpatient residential detoxification. Those with psychological dependency, loss of control, or personal, social or legal problems received outpatient counseling only. The group of male drug abusers from which this sample came contained approximately 40 per cent methadone patients, 45 per cent who had counseling only, and 15 per cent who entered the residential facility. Group composition by race was approximately 68 per cent Caucasian and 32 per cent Black. These data were supplied by the Coordinator of Patient Care. Test scores were released accompanied by sex and drug of abuse of the examinee, since patient confidentiality prohibits release of any personal information about clients.

The fourth group consists of 176 drug dependent females who entered treatment at the VITA Treatment Center,
VITA Counseling Service, and Human Resources-Integrity House during the period of July, 1976, through December, 1978. The primary diagnosis of the group from which the sample was drawn, based on self-report, history, and physical exam, was abuse of a drug other than alcohol. Those who were physically dependent on the drug of abuse chose either outpatient treatment with methadone or inpatient residential detoxification. The treatment population from which this sample was drawn consisted of approximately 40 per cent methadone outpatients, 45 per cent outpatients who received counseling only, and 15 per cent inpatients in a residential community. Group composition by race was approximately 60 per cent Caucasian and 40 per cent Black. These data were also supplied by the Coordinator of Patient Care, under the same confidentiality restrictions as the male drug abusers.

The population to which the conclusions from the data on alcoholics may be thought to be generalizable may be described as midwestern urban and suburban, middle and upper-middle class, largely Caucasian inpatients between the ages of 21 and 60. This description applies to both male and female groups, with the males having a slightly wider age spread (18 to 70).

The population to which the conclusions from the data on drug abusers may be likely to be generalizable can be described as midwestern urban and suburban, middle and
laboring class, racially mixed, largely outpatient drug abusers between the ages of 18 and 40. This description applies to male and female populations.

Each sample group was formed by using the MMPI scores of all patients who entered their treatment program during the specified time period, with the exception of those not tested and those with profiles judged invalid, as defined by Lachar (1977). Each sample was composed of approximately 90% of those who started treatment during the time period. The remaining 5 to 10% either dropped out of treatment before testing, refused to be tested, or gave an invalid profile due to reading problems or lack of cooperation. Since people who are not in treatment or are not disposed to cooperate generally do not take the MMPI, and since there is little literature on the profiles of the functionally illiterate, it is not known how this missing 5 to 10% would differ from the subjects used in the sample.

INSTRUMENTATION

The Minnesota Multiphasic Personality Inventory (MMPI) was used to collect the data for this study. A basic and comprehensive explanation of the construction and use of this instrument can be found in Hathaway and McKinley (Welsh and Dahlstrom, 1956), Hathaway and Meehl (1951), and Hathaway and McKinley (1967). This test was designed to provide an objective way of assessing some of the major
domains with which the study of personality and mental health concern themselves. These include personal issues which cover physical, emotional, intellectual, perceptual and moral areas, as well as environmental, familial, interpersonal and social issues. This test has 550 items, arranged randomly, which cover all these areas. They can be answered True or False, with the option not to answer. More than 30 "Cannot Say" responses jeopardize the validity of the test results, although this is rarely a problem.

The test was given in its common booklet form and subjects used an answer sheet designed for use with these booklets. They answered only the first 399 questions, since these responses pertain to the three validity and ten basic clinical scales being used in this study. The final 150 questions are used to score other special scales.

The MMPI was chosen for use in this study largely due to two practical considerations. First, many treatment facilities of this type administer the MMPI routinely at intake, which means that data is available and is relatively homogenous in its administration. Second, much of the literature which has studied the personality dynamics of alcohol and drug abusers has used this instrument, so that its use in the present study facilitates comparison with and replication of data from other research.

In the literature on the validity of the MMPI, McKinley and Hathaway (1944) found that the clinical
diagnosis of psychiatric admissions can be accurately predicted by an elevated MMPI scale score in more than 60% of cases, and that a high score on a scale almost always indicated the presence of that characteristic to an abnormal degree. Little and Schneidman (Welsh and Dahlstrom, 1956) state that "substantial agreement may occur between descriptions of an individual based on his MMPI profile and those based upon an elaborate clinical history." They say "may" because of the extent to which this conclusion is dependent on both clinical and interpretive competence. Siegel (1976), who has examined the use of many different psychological tests to evaluate drug abusers, indicates that although testing has not been highly effective in differentiating drug abusers from other groups, the MMPI is one of two tests with limited success in this area.

Rosen (1953) computed test-retest reliability data for male psychiatric patients over a 7 day period. Holzberg and Alessi (1949) reported test-retest coefficients for psychiatric patients between the long and short forms over a 3 day period. The short form used employed 350 questions and is analogous to the 399 question form used in this study. Results of these studies are presented in Table 1.

Interpretive statements made about hypothesized psychodynamics and potential behaviors of individuals or groups are based on high point codes, certain profile configurations, and scale score evaluations. Although these
Table 1

Reliability Coefficients for the MMPI

<table>
<thead>
<tr>
<th>Scale</th>
<th>Rosen&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Holzberg and Alessi&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>.62</td>
<td>.85</td>
</tr>
<tr>
<td>F</td>
<td>.81</td>
<td>.93</td>
</tr>
<tr>
<td>K</td>
<td>.65</td>
<td>-</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>.85</td>
<td>.67</td>
</tr>
<tr>
<td>2 (D)</td>
<td>.80</td>
<td>.80</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>.88</td>
<td>.87</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>.88</td>
<td>.52</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>.64</td>
<td>.76</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>.75</td>
<td>.78</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>.80</td>
<td>.72</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>.83</td>
<td>.89</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>.56</td>
<td>.58</td>
</tr>
<tr>
<td>0 (Si)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.83</td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>N=40</sub>

<sup>b</sup><sub>N=30</sub>

<sup>c</sup>Scale 0 was added after the development of the original nine scales, and was not included in early studies. Hathaway and McKinley (1967) indicate a reliability coefficients of .93 for a sample of 100 normals.
may be taken from a variety of sources (Marks, Seeman and Haller, 1974; Lachar, 1977; Webb and McNamara, 1978), they are based on the principle of actuarial interpretation. This means that there is a high probability, based on the statistical analysis of accumulated MMPI data, that an individual or group with a certain profile configuration or a scale score within a given range will have certain characteristics. A more complex explanation of the bases for actuarial interpretation is found in Marks, Seeman and Haller (1974).

The thirteen basic MMPI scales were used for this study. The first three are considered validity scales, and ten are clinical. These scales are their major characteristics are as follows (Lachar, 1977):

<table>
<thead>
<tr>
<th>Validity Scales</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>repression, denial, lack of insight, excessive rigidity, conscious deception</td>
</tr>
<tr>
<td>F</td>
<td>ego dysfunction, disinterest, lack of cooperation, misunderstanding, poor reading skills</td>
</tr>
<tr>
<td>K</td>
<td>defensiveness, lack of insight, minimization of faults, ego strength</td>
</tr>
<tr>
<td>l (Hs)</td>
<td>concern about bodily functioning, vague, diffuse and nonspecific somatic complaints, pessimism, egocentricity, immaturity</td>
</tr>
<tr>
<td>Validity Scales</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>2 (D)</td>
<td>depression, pessimism, worry, apathy, physical malfunctioning, denial of happiness or personal worth</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>immaturity, egocentricity, suggestibility, denial and repression, naivety, rigidity, conformity, hysteroid characteristics</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>nonconformity and rebelliousness, impulsivity, low frustration tolerance, poor social adjustment and alienation, acting out, amorality</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>sex role identification and interest patterns, personal and emotional sensitivity, passivity and dependence versus aggression and competitiveness</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>over-sensitivity, rigidity, suspiciousness, distrust, resentment, project of blame</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>worry, apprehension, anxiety, tension, low self-esteem, moodiness, doubt and indecision, fears, obsessions and compulsions</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>unconventional thinking, peculiar perceptions, social and interpersonal alienation, lack of control, inability to cope, ego intactness, reality contact</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>hyperactivity and agitation, irritability, restlessness, grandiosity, euphoria, impulsivity</td>
</tr>
</tbody>
</table>
0 (Si) discomfort in interpersonal situations, low social interest, distrust, sensitivity, withdrawal, feelings of inferiority

As with any paper and pencil measure attempting to assess human characteristics, there are questions about validity and contamination of MMPI data and about the limitations of the instrument.

One phenomenon which must be kept in mind when evaluating the significance of MMPI profiles is that there are some intercorrelations among the thirteen scales used in this study. Table 2 shows intercorrelations among the basic scales. These correlations were compiled by Swenson, Pearson, and Osborne (1973), who used a sample of 50,000 medical outpatients of both sexes (approximately 50% of each sex). Dahlstrom, Welsh and Dahlstrom (1975), discussing sources of variance in the MMPI, state that Scales 2, 7 and 8 are the most highly related to other scales, and that Scales 5 and 6 show little common variance with the others. It can be concluded from this and other data (Marks, Seeman and Haller, 1974; Webb and McNamara, 1978) that certain intercorrelations will need to be considered in interpretation of the data. These include:

1) moderate correlations between Scales 1 (Hs), 2 (D) and 3 (Hy), the "neurotic triad"

2) moderate correlation between Scales 2 (D) and 4 (Pd)
Table 2

MMPI Scale Intercorrelations

<table>
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<tr>
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<td>1 (Hs)</td>
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<tr>
<td>6 (Pa)</td>
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<tr>
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<td>44</td>
<td>62</td>
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<tr>
<td>8 (Sc)</td>
<td>-27</td>
<td>54</td>
<td>-54</td>
<td>43</td>
<td>52</td>
<td>13</td>
<td>56</td>
<td>-04</td>
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<td></td>
<td></td>
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<td>9 (Ma)</td>
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<td>42</td>
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<td>32</td>
<td>44</td>
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</tr>
<tr>
<td>0 (Si)</td>
<td>-07</td>
<td>27</td>
<td>-45</td>
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<td>52</td>
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<td>07</td>
<td>61</td>
<td>48</td>
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</tr>
</tbody>
</table>
3) moderate to high correlation of Scale 1 (Hs) with Scales 7 (Pt) and 8 (Sc)

4) moderate to high correlation of Scale 7 (Pt) with Scales 8 (Sc) and 9 (Ma)

5) moderate to high correlation between Scales 8 (Sc) and 9 (Ma)

6) moderate to high correlation of Scale K with Scale 3 (Hy) and negative correlations of K with Scales 7 (Pt) and 8 (Sc)

A second limitation of this instrument in this situation is the possibility of variance in MMPI scale scores due to characteristics of subjects not controlled for in this study. In reference to the racial mix of the drug abusing group, Gynther (1972) and sources cited by Lachar (1974) and Dahlstrom, Welsh and Dahlstrom (1975) agree that blacks in psychiatric and nonpsychiatric populations consistently score higher than whites on Scales F, L, 8 and 9. Harrison and Kass (1967) compared black and white women of comparable socioeconomic status. Black women showed greater self and social alienation, greater cynicism in interpersonal relationships and admitted to more deviant behavior but fewer personal faults. Discussion in Dahlstrom, Welsh and Dahlstrom (1975) indicates that these differences could be artifacts of the "white norms," but may reflect actual psychological differences based on different perceptions and experiences within our culture. Attention to these differences is advised when comparing the alcoholic groups with the drug abusers, who are 32%
(males) and 40% (females) black. Differences in MMPI responses due to socioeconomic status or education are reflected largely on Scales K and 5 (for males). According to McKinley, Hathaway and Meehl (in Welsh and Dahlstrom, 1956), persons from higher socioeconomic levels are more defensive and less willing to self-disclose, and will score higher on K. Lower socioeconomic classes are more open and often seem to exaggerate faults and troubles, according to Dahlstrom, Welsh and Dahlstrom (1975). The exception is Scale 5, on which males with higher status and education will endorse more deviant items (Dahlstrom, Welsh and Dahlstrom, 1975; Lachar, 1977). Moderate differences in socioeconomic status between drug and alcohol groups should be considered when interpreting MMPI profiles and differences. Effects of age on MMPI profiles have been investigated by Aaronson (1958), who found that Scales 1 (Hs) and 2 (D) are common high points in older populations, while 4 (Pd), 7 (Pt), and 8 (Sc) are more common in younger patients. Lachar (1977) notes that in general the left side of the profile increases with age while the right side decreases. Dahlstrom, Welsh and Dahlstrom (1975) confirm moderate increases in Scales 1 and 2 and a decrease in 9 (Ma) beyond age 50. These data suggest caution in the interpretation of group differences between the drug and alcohol samples of the discrepancy in mean ages. Finally, Dahlstrom, Welsh and Dahlstrom (1975) and Lachar
(1977) indicate that, although there have been sex-related differences on MMPI scale scores, none has ever been significant or consistent enough to warrant separate norms.

A third limitation and source of potential confusion in the use of the MMPI is the issue of construct validity. Most of the literature which addresses the validity of the MMPI takes one of three approaches. Some studies show to what extent the MMPI can differentiate from normals the various abnormal populations. Others match the MMPI against the diagnostic skill of clinicians in terms of who is discriminated or which diagnosis they are given. These approaches utilize concurrent validity. Other studies are longitudinal and attempt to demonstrate predictive validity. None of this research addresses the validity, or even the definition, of the constructs which the MMPI attempts to assess. These are specified only by scale names and actuarial statements about the implications of scale scores and configurations. In order to clarify possible meanings and components of these constructs, factor analytic studies of the scales will be examined.

Scale 1 (Hs) has 33 items and is described by Lachar (1977) as a stable "trait" scale which reflects the operation of somatization defenses. It has had less in-depth investigation than many of the other scales, possibly because there is a relatively high level of agreement about what it attempts to measure. Andrew Comrey (1957) has
factor analyzed most of the MMPI scales, using a mixed-sex and age sample with subjects ranging from hospitalized psychiatric patients to outpatients to normals. He found two main factors in Scale 1: Poor Physical Health and Digestive Difficulties. Other minor factors, with only a few items, include Bad Eyesight, Lung Damage, Poor Bowel Function and Sinusitis. O'Connor and Stefic (1959) did a similar study on males with a mean age of 32. They identified two factors which overlap Comrey's (1957) Factor I. These are Aesthenic Reaction (general health complaints) and Vague Somatic Complaints (complaints about specific organs or areas). These authors emphasize that this factor seems more like neurasthenia than hypochondriasis. Their third factor, Gastrointestinal Reaction, corresponds to Comrey's (1957) Factor II. Lachar (1977) confirms that Scale 1 reflects undue concern about health, vague and nonspecific physical complaints, sympathy seeking, hysteria, depression and anxiety reactions, pessimism, egocentricity and immaturity. These latter characteristics are commonly accepted but have not been confirmed by factor analysis.

Scale 2 (D) is a 60 item scale described by Lachar (1977) as a "state" scale reflecting variations in mood. O'Conor, Stefic and Gresock (1957) found five major factors in Scale 2, all of which have been replicated in previous studies. Their Factor A relates to ill-health and overlaps with items on Scale 1. It appears to be similar to a Poor
Physical Health factor isolated by Comrey (1957) for Scale 2 and to Harris and Lingoes' (1968) Physical Malfunctioning factor. O'Connor et al.'s (1957) Factor B reflects moodiness, brooding and excitability. This seems to relate to two of Comrey's (1957) factors, Euphoria and Tearfulness, and to Harris and Lingoes' (1968) Brooding. Factor C, hostility or belligerence, is found by the first two studies but not by Harris and Lingoes (1968). Factor D, inferiority or sense of personal inadequacy, seem to be included in Harris and Lingoes' (1968) Subjective Depression factor and in Comrey's (1957) Neuroticism, which he judges to be the most important factor. O'Connor et al. (1957) describe their final factor as self-effacing melancholy or depression. This seems similar both to Harris and Lingoes' (1968) Psychomotor Retardation and to Mental Dullness, as well as to Comrey's (1957) Depression. This factor has a flavor of apathy. These factors reflect a general agreement with Lachar's (1977) description of Scale 2 as reflecting physical symptoms, variations in mood, poor morale, denial of happiness and personal worth, hopelessness, lack of interests, and apathy. Hostility is not mentioned by Lachar (1977).

Scale 3 (Hy) is a 60 item scale which suggests the use of conversion symptomology to solve conflicts or avoid responsibilities when under stress. It varies over time with the individual's defense mechanisms, which mirror perceived
levels of internal and external stress. Comrey (1957) found five major factors in analyzing this Scale: I-Poor Physical Health, II-Shyness, III-Cynicism, V-Headaches and IX-Neuroticism. Harris and Lingoes' (1968) factor Somatic Complaints seems related to both I and V, while Comrey's (1957) Neuroticism factor seems somewhat similar to Harris and Lingoes' (1968) Lassitude-Malaise. The item content of Shyness overlaps heavily with Harris and Lingoes' (1968) Denial of Social Anxiety, although the two are labeled from different perspectives. The same is somewhat true of Cynicism and Harris and Lingoes' (1968) Need for Affection. They also identify one factor, Inhibition of Aggression, which is not replicated by Comrey (1957). Components of Scale 3 given by Lachar (1977) include somatic complaints, sadness and lack of satisfaction, and denial of inadequacy of self and others. Psychodynamic implications include repression and denial, rigidity and defensiveness, naivete and a manipulative and self-centered outlook. When Scale 1 is elevated above Scale 3, psychological problems will be evident and physical complaints diffuse. If Scale 3 is higher, there may be physical syndromes and the appearance of psychological adjustment.

Scale 4 (Pd) is a 50 item scale which assesses the level of social deviation, ranging from conformity to antisocial acting out. This dimension appears to be a fairly stable trait. Comrey (1958) finds a family Dissension
factor similar to Harris and Lingoes' (1968) Family Discord. Astin's (1959) Emotional Deprivation overlaps this to some extent. Harris and Lingoes' (1968) Social Alienation seems closely related to two of Comrey's (1958) factors, Paranoia and Antisocial Behavior, as well as to Astin's (1959) Hypersensitivity. Another of Comrey's (1958) factors, Delinquency, has high item overlap with Harris and Lingoes' (1968) Authority Conflict and Astin's (1959) Social Maladaptation. Comrey's (1958) Psychopathic Personality is similar in content to Harris and Lingoes' (1968) Social Impreturability. Astin's (1959) Impulse Control seems similar to Comrey's (1958) Euphoria. Astin's (1959) Self-Esteem seems to overlap two of Comrey's (1958) factors, Shyness and Neuroticism. These factors are somewhat similar to Harris and Lingoes' (1968) Self-Alienation. (Harris and Lingoes specifically state that items in this factor are often endorsed by alcoholics who refer themselves for treatment.) In general, areas indicated by these groupings of factors are: family problems, social alienation, delinquency and authority problems, sociopathy, impulsivity, and comfort with self. Lachar (1977) describes Scale 4 as assessing rebelliousness and dissatisfaction, poor interpersonal relationships, poor social adjustment, authority and legal problems, low frustration tolerance, impulsivity and acting out. It can be seen that Scale 4 is especially complex and that there are general
areas of agreement, as well as some difference of opinion, about what it assesses.

Scale 5 (Mf) is a 60 item scale described by Lachar (1977) as dealing with sex role identification. It is quite stable, although affected by education in males. Although this scale is thought to be the least "pure" scale on the MMPI, little factor analytic work has been done on it. Pepper and Strong (1958) categorized the items in five content areas on the basis of clinical judgment: 1) Personal and emotional sensitivity, 2) Sexual identity, 3) Altruism, 4) Feminine occupational identification, and 5) Denial of masculine occupations. According to Lachar (1977), elevation in males suggests sensitivity, imagination, education and aesthetic interests, and a basic passivity and dependence. A low Scale 5 male will have more traditional masculine interests and be more active and less creative. High Scale 5 females are described as aggressive, competitive and adventurous. This is common in teenage girls. Low scoring females are characterized by traditional feminine interests, modesty, and passivity and dependence. They may also be constricted, critical and masochistic. In other words, the poles are reversed for many individual characteristics (passivity would be high for males, low for females; aggression would be low for males, high for females) but they vary together for sex role identification (low Scale 5 elevations indicate
traditional sex role interests and identification for both sexes; high Scale 5 elevations indicate varying degrees of identification with opposite sex interests and roles).

Scale 6 (Pa) has 40 items and was designed to evaluate delusions, ideas of reference, feelings of persecution and grandeur, hypersensitivity, suspiciousness, and rigidity. This scale appears stable in normals but fluctuates according to paranoid ideation in psychiatric populations. Harris and Lingoes' (1968) factor Persecutory Ideas is replicated by Comrey (1958). Their factor Poignancy includes content similar to his Neuroticism and Hysteria (sensitive, high-strung). Harris and Lingoes' (1968) third factor Naivety (or Moral Virtue) overlaps Comrey's (1958) Rigidity and opposes his Cynicism. Lachar (1977) describes the Paranoia scale as tapping projection, sensitivity, worry, and distrust.

Scale 7 (Pt) contains 48 items normed on a criterion population characterized by excessive doubt, indecision, fear, and compulsions and obsessions. This scale measures some personality characteristics which may be thought of as traits (perfectionism, self-doubt, sensitivity, intellectualization and rationalization), but is affected by changes in levels of stress, anxiety and moods. Relatively little investigation has been done on this scale, apparently due to the relatively restricted and "face valid and obvious" (Lachar, 1977) nature of the content. Factors
deemed important by Comrey (1958) include Neuroticism, Anxiety, Agitation, Poor Concentration, Withdrawal (from reality), Psychotic Tendencies, and Poor Physical Health. Griffith and Fowler (1960) conclude that people with an elevated Scale 7 have a strict conscience and feel a strong pressure toward conformity, which seems to fit the ideas of Neuroticism and Anxiety. Lachar (1977) describes Scale 7 as "highly related to conventional measures of neurotic tendency" and calls it the "best single index of anxiety." He includes among the personality characteristics of high scorers: anxiety, guilt, over-reaction, low self-confidence and self-esteem, dissatisfaction, moodiness, excessive sensitivity, and general inefficiency.

Scale 8 (Sc) is a 78 item scale with varied item content, including perceptual and thought disturbances, lack of interests, apathy, feelings of social alienation, poor family relationships, and general coping problems. This scale also has a large subset of sexual items. This scale indicates level of ego intactness, creativity, and imagination. It also reflects variations in degree of reality contact. This is an extremely complex scale. Harris and Lingoes' (1968) factors Social Alienation and Emotion Alienation seem reflected in Comrey's (1958) two factors Paranoia and Rejection. Their Lack of Ego Mastery (Cognitive) is somewhat similar to his Poor Concentration. Their Lack of Ego Mastery (Conative) includes ideas similar
to his two factors Repression and Withdrawal. Harris and Lingoes' (1968) Sensorimotor Dissociation is similar to both Comrey's (1958) Psychotic Tendencies and Poor Physical Health. They mention Defective Inhibition and Control, which Comrey (1958) seems not to duplicate, while he is unique in citing Sex Concerns. Lachar (1977) confirms feelings of alienation and of being different, isolated and inferior, as well as withdrawal (often into fantasy), schizoid mentation and self-control problems. Elevation can be due to agitated neurosis or adolescent adjustment, as well as psychosis or pre-psychosis.

Scale 9 (Ma) is a 46 item scale including items on expansiveness and euphoria, irritability, activity and excitement, and moral and somatic concerns. This is a "state" scale which is sensitive mood and energy and usually varies inversely with Scale 2 (D). Harris and Lingoes' (1968) Amorality factor is similar to both Comrey's (1958) Psychopathic Personality and Defensiveness. Another of their factors, Impreturnability, seems negatively related to Comrey's (1958) Shyness and his Acceptance of Taboos. In this regard, Griffith and Fowler (1960) see a high 9 individual as nonconforming and rebelling against authority. Harris and Lingoes' (1968) also isolate a Psychomotor Acceleration factor, which seems to relate to three of Comrey's factors: Hypomania, Thrill Seeking, and Agitation. Harris and Lingoes' (1968) final factor,
Ego Inflation, is not paralleled in Comrey's (1958) work. His unique factors on this scale are Bitterness, Social Dependency, and Poor Reality Contact. According to Lachar (1977), high scoring normals may be uninhibited, restless and hyperactive. Elevations in psychiatric patients indicate amoral behavior, narcissism, interpersonal difficulties, and impulsivity and distractability.

Scale 0 (Si) is a 70 item scale developed by Drake after the other nine scales. It is intended to measure social participation and comfort. It is a fairly stable index of interpersonal comfort and introversion-extroversion. Graham, Schroeder and Lilly (1971) found six factors: 1) inferiority-discomfort, 2) lack of affiliation, 3) low social excitement, 4) sensitivity, 5) interpersonal trust, and 6) somatic concerns. People with Scale 0 elevations (according to Lachar, 1977) are generally inhibited, lacking self-confidence and social presence, insecure and sensitive. Those with low Scale 0 are social, verbally fluent, persuasive and may be manipulative and superficial with others.

In conclusion, it should be remembered that the discriminatory power of the MMPI is limited by whatever constitutes its operational definition of each construct.

A final topic to be discussed with regard to instrumentation is the assumptions which are made in using the MMPI. First, it is assumed that personality constructs
can be identified and assessed through the use of a standardized instrument which is consistent with those constructs. Second, it is assumed that self-report can accurately convey the attitudes and feelings of the subjects. Third, it is assumed that each MMPI scale measured what is it said to measure and what is commonly understood to be the clinical meaning of the construct by which it is named. Fourth, MMPI normative data are assumed to be applicable to the subjects of this study. Finally, the actuarial statements made about groups of subjects based on their MMPI code types are assumed to be reasonably valid.

DATA COLLECTION

The MMPI was administered to subjects between seven and fourteen days after entry into the treatment program of their choice. At that time they were judged to be adequately detoxified. The test was administered to each subject individually, in booklet form, using a standardized answer sheet. Administration was carried out by a licensed psychologist, a supervised psychology trainee, or a trained mental health or medical professional, according to the instructions for administration of the booklet form which appear in the MMPI manual (Hathaway and McKinley, 1967).
STATISTICAL ANALYSIS

Analysis of data was accomplished in two steps. Step one was the computation of the arithmetic mean standard scale score for each of the thirteen scales for each of the four groups, in order to obtain a mean MMPI profile for each group. The use of group profiles in this study does not indicate an assumption that no individual differences exist within groups. This choice is based on the theory that group profiles can work "to distill basic signals from the noise of individual errors" and to highlight possible underlying processes (Goldberg, 1972). Goldberg has found that in classification of MMPI profiles, accuracy is subject to scoring unreliability and response errors when individual profiles are used. However, using group profiles and discriminant functions, Goldberg (1972) notes that classificatory accuracy is extremely high, ranging from 90 to 97%. Standard deviations based on individual data are about twice as large as those based on group data. According to Goldberg's data, groups profiles are particularly useful in distinguishing neuroticism, sociopathy and deviance, categories which are of particular interest in highlighting potential variables suggested by previous research on alcoholics and drug abusers.

The second step of the statistical analysis perform discriminant analyses on the data, in an attempt to
discover whether there were linear combinations of the thirteen variables which would distinguish between the drug and alcohol abusers in treatment, between the male and female substance abusers in treatment, and among the four treatment groups.

The major goal of this study was to explore, expand and confirm or reject hypotheses about differences and similarities among the groups on the MMPI scale variables. A univariate method of analysis was not appropriate. The only way to compare multiple variables across groups with ANOVA is to test for significant differences between every pair of mean scale scores. Although this has been widely done in substance abuse research, it was not felt to be the best method of analysis for several reasons. First, it would have accumulated an unacceptable risk of alpha error. Second, it would not have given any information about the relative discriminative power of the individual scales. Finally, such single comparisons would have been heavily influenced by intercorrelations between scales due to item overlap, whereas successive discriminant functions correct for this problem and are uncorrelated.

With regard to multivariate analysis, one method of investigating multiple variables on multiple dimensions is with factor analysis. This method has been used in various kinds of research on chemical dependence, chiefly in the exploration of demographic variables (Horn and Wanberg,
1969; Horn and Wanberg, 1970; Horn, Wanberg and Adams, 1974) or with the 16PF (Lawlis and Rubin, 1971; Nerviano and Gross, 1973; Nerviano, 1976; Ciotola and Patterson, 1976; Costello et al., 1978). Only two of the studies on personality variables which appear in this literature review were done with factor analysis (Hill, Haertzen and Davis, 1962; Overall and Patrick, 1972). For the purposes of this study, there were several reasons why factor analysis was not thought to be the most appropriate procedure. It is often used when there are a number of mutually dependent variables and no specific independent variables, which is not the case in this research design. An approach of a taxonomic nature, which would clarify the nature of potential variables not fully identified, seems unnecessary and possibly redundant when there are already thirteen variables defined which warrant further investigation. In addition, factor analysis is usually performed with one group, rather than to compare groups, and concentrates primarily on identifying areas of commonality within variables rather than on differentiation. Finally, it seems likely, judging from the literature reviewed, that factor analysis of MMPI scores for this population would be likely to yield a few large factors which have already been identified, such as social deviance, isolation, depression, and subjective distress. In Hill, Haertzen and Davis (1962) and Overall and Patrick (1972), the two studies done on MMPI
variables for this population with factor analysis, results are discussed largely in terms of relative loadings on the basic MMPI scales. No new variables appear to have been revealed. Factor analysis appears to reveal little about fine discriminations among subgroups of this population with a common problem.

Given these experiences of other researchers and the aims of this study, discriminant analysis seemed the best multivariate statistical method to use. The purposes of discriminant analysis are: to discriminate between groups in terms of multiple variables, to parsimoniously explain and describe these differences in terms of the descriptor variables, to learn the relative efficacies of the variables in making the discriminations, to discover which if any differences are statistically significant, and to predict group membership of new individuals on the basis of the variables. Since the aim of this study was to determine which MMPI scales contribute most and least to maximal differentiation between groups, discriminant analysis was the method of comparison chosen.

The final step in the study is the examination of group differences. Group means are compared and the differences are tested for statistical significance. The mean Y score is actually the population centroid, or the central point about which a given sample group would cluster when graphed. In this study the test of statistical
significance used was Bartlett's chi-square. Another necessary test of significance is the determination of which discriminant functions are statistically significant. This involves examining what percent of the total variance is accounted for by the eigenvalue associated with each function.

There are several assumptions made for the use of discriminant analysis. First, it is assumed that the descriptor variables, in this case the MMPI scores, will be normally distributed, which will result in a normal distribution of Y scores. Second, it is assumed that the population covariance matrices will be equal. This is analogous to the homogeneity of variance assumption for ANOVA. Third, it is assumed that discriminant analysis has sufficient discriminatory power to withstand slight or even moderate violations of these first two assumptions (Tatsuoka, 1969). Fourth, it is assumed that sample size will be at least two to three times the number of variables, a requirement which is met by this sample. Fifth, it is assumed that each individual subject has the characteristics of or is associated with only one of the four groups being discriminated. This requirement is met by subjects in this sample as they are operationally defined, based on self-report and treatment facility chosen. Finally, since no data are missing, this study does not violate the assumption of discriminant analysis that
missing data will be minimal.

An additional assumption, not directly connected with discriminant analysis, is the assumption that the use of group profiles, although it obliterates some individual differences, can work to highlight major underlying processes and commonalities (Goldberg, 1972).

The large size of the sample used in this study may be partially responsible for the high statistical significance of some differences found. To give an estimate of the extent of differentiation, or total discriminatory power, of each discriminant function, an additional statistic has been included. This index of total discriminatory power indicates what percentage of the variability in the discriminant space of each function is attributable to group differences. This power statistic is found by the formula

\[
 w_{\text{multi}}^2 = 1 - \frac{N}{(N-k)(1+\lambda_1)(1+\lambda_2) \ldots (1+\lambda_r)+1},
\]

where \( N \) is the sample size, \( k \) is the number of groups, and \( \lambda_1, \lambda_2 \ldots \lambda_r \) are the eigenvalues. An explanation of this statistic and its origin can be found in Tatsuoka (1970).
This chapter describes the setting in which this study was conducted, the treatment population from which the sample was taken, and the procedures for sample selection. The section on instrumentation includes a description of the Minnesota Multiphasic Personality Inventory and justification of its use in this study. Data are given on its validity and reliability, followed by an explanation of accepted interpretive practices and an in-depth description of what each scale is believed to assess. Some limitations of the MMPI are discussed, including intercorrelations among scales, sources of variance, and construct validity. Empirical and theoretical data on what constructs each scale attempts to assess are discussed. Assumptions with regard to the use of the MMPI in this study are mentioned. Data collection procedures are described. Finally, the steps in statistical methods and analyses used for the study are explained and justified, and assumptions about these are stated.
CHAPTER IV

INTRODUCTION

This chapter presents the findings from the study. The data are presented based on hypotheses generated in Chapter I. They are presented in table form with figures and discussed following each table. The first part of the chapter presents the characteristics of the sample. The second part presents the findings of the study.

SAMPLE

The first two groups in the sample are those diagnosed as alcoholics and selected from the treatment population described in Chapter III. This group consists of 254 male alcoholics in treatment with a mean age of 49 years and an age range from 17 to 73, and 183 females with mean age of 47.2 years and ages ranging from 21 to 67. The total number of alcoholics is 437. The group is 58 per cent male and 42 per cent female. The other two sample subgroups are from the treatment population described in Chapter III as diagnosed drug abusers. This group is composed of 444 drug dependent males with a mean age of 25 and ages ranging from
18 to 44, and 176 female drug abusers with a mean age of 26 and a range of 18 to 46 years. The sample of male drug abusers in treatment include 232 self-reported opiate users (52.3% of the male group) and 212 poly-drug users (the remaining 47.7%). The group of female drug abusers in treatment includes 128 (or 72.5%) who reported opiates as the primary drug of abuse, and 48 (the remaining 27.5%) who reported the primary use of other types of drugs. The total number of drug abusers is 620 with 72 per cent male and 28 per cent female. Opiate users comprise 58 per cent of this group, while 42 per cent are poly-drug users. Table 3 describes the sample.

FINDINGS

The first hypothesis presented in Chapter I was as follows:

There will be a linear combination of variables found which will discriminate alcohol abusers in treatment from drug abusers in treatment.

Table 4 presents the raw and the standardized discriminant weights for each variable, which, when combined in a regression equation, maximally differentiate the alcoholics in treatment from the drug abusers in treatment. The most heavily weighted scales are Scale 2 (negatively) and Scale 4 (positively). Scale 0 also has a high positive weight.
### Table 3

#### Sample Characteristics

<table>
<thead>
<tr>
<th>Sample subgroup</th>
<th>n</th>
<th>Mean age</th>
<th>In treatment for alcohol abuse</th>
<th>In treatment for opiate abuse</th>
<th>In treatment for poly-drug abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male alcoholics in treatment</td>
<td>254</td>
<td>49</td>
<td>254(100%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female alcoholics in treatment</td>
<td>183</td>
<td>47.2</td>
<td>183(100%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Male drug abusers in treatment</td>
<td>444</td>
<td>25</td>
<td>0</td>
<td>232(52.3%)</td>
<td>212(47.7%)</td>
</tr>
<tr>
<td>Female drug abusers in treatment</td>
<td>176</td>
<td>26</td>
<td>0</td>
<td>128(72.5%)</td>
<td>48(27.5%)</td>
</tr>
</tbody>
</table>

This discriminant function, labeled Discriminant Function A, may be viewed as a continuum with one pole representing characteristics indicated by an elevated Scale 4, a moderately elevated Scale 0, and a low Scale 2, and the other pole characterized by an elevated
Table 4
Weights for Discriminant Function A

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw weights</th>
<th>Standardized weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>0.030</td>
<td>0.232</td>
</tr>
<tr>
<td>F</td>
<td>0.025</td>
<td>0.302</td>
</tr>
<tr>
<td>K</td>
<td>0.023</td>
<td>0.212</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>0.009</td>
<td>0.130</td>
</tr>
<tr>
<td>2 (D)</td>
<td>-0.052</td>
<td>-0.800</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>-0.026</td>
<td>-0.320</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>0.054</td>
<td>0.734</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>0.020</td>
<td>0.241</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>-0.003</td>
<td>-0.034</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>-0.026</td>
<td>-0.346</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>-0.016</td>
<td>-0.236</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>0.028</td>
<td>0.339</td>
</tr>
<tr>
<td>0 (Si)</td>
<td>0.042</td>
<td>0.479</td>
</tr>
</tbody>
</table>

Scale 2 with relatively low scores on Scales 4 and 0.
The first pole, to which drug abuse treatment groups are closer, indicates greater acting out, impulsivity, rebellion and alienation. Nearness to this pole also suggests a less outgoing nature and less distress and anxiety.
For the purpose of identification in the context of this
study, the label Alienation has been chosen for this pole. The label does not comprehend all of the qualities implied by this pole, nor does it indicate that alienation is the most important. The opposite pole, to which alcoholic treatment groups are closer, indicates a more outgoing and controlled personality. Although it does not preclude acting out, this pole indicates a great deal more anxiety, distress, guilt and remorse, as well as clinically significant levels of depression. The label chosen for this pole in the study is Distress. Figure 1 graphically illustrates the relative locations of the alcohol and drug abuse groups on Discriminant Function A.

Table 5 presents group means for this discriminant function, as well as its eigenvalue, statistical
Table 5
Statistics for Discriminant Function A

<table>
<thead>
<tr>
<th>Discriminant function</th>
<th>Mean for alcoholics in treatment</th>
<th>Mean for drug abusers in treatment</th>
<th>Eigenvalue</th>
<th>Bartlett's chi-square</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5.480</td>
<td>6.601</td>
<td>0.302308</td>
<td>270.6093</td>
<td>23%</td>
</tr>
</tbody>
</table>

significance, and discriminatory power.

The group differentiation and characteristics indicated by Discriminant Function A is confirmed by the group means on the MMPI scales. The highest significant differences are on Scales 2, 3, 4 and 9. The drug abusers in treatment are higher on 4 and 9, and the alcoholics in treatment are higher on 2 and 3. It should be remembered that Scales 2 and 3 are moderately intercorrelated. Again, these scores indicate more impulsivity and acting out by the drug abusers and more distress and control among the alcoholics.

Table 6 presents the means, standard deviations, F-ratios and levels of statistical significance for both groups on all thirteen scales. Figure 2 represents the mean MMPI profile of alcoholics in treatment plotted with
<table>
<thead>
<tr>
<th>Scale</th>
<th>Alcoholic Means</th>
<th>Drug Abuse Means</th>
<th>Standard Deviations</th>
<th>F-ratios</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>48.297</td>
<td>50.313</td>
<td>7.666</td>
<td>17.164</td>
<td>0.001</td>
</tr>
<tr>
<td>F</td>
<td>61.478</td>
<td>64.166</td>
<td>11.854</td>
<td>12.756</td>
<td>0.001</td>
</tr>
<tr>
<td>K</td>
<td>49.906</td>
<td>50.771</td>
<td>9.196</td>
<td>2.194</td>
<td>none</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>61.613</td>
<td>58.947</td>
<td>14.002</td>
<td>9.000</td>
<td>0.01</td>
</tr>
<tr>
<td>2 (D)</td>
<td>71.300</td>
<td>63.897</td>
<td>15.104</td>
<td>59.599</td>
<td>0.001</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>64.877</td>
<td>61.157</td>
<td>12.178</td>
<td>23.152</td>
<td>0.001</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>70.191</td>
<td>75.024</td>
<td>13.688</td>
<td>30.934</td>
<td>0.001</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>54.447</td>
<td>57.680</td>
<td>11.911</td>
<td>18.279</td>
<td>0.001</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>61.920</td>
<td>62.722</td>
<td>12.202</td>
<td>1.071</td>
<td>none</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>61.967</td>
<td>60.018</td>
<td>13.142</td>
<td>5.467</td>
<td>0.05</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>61.688</td>
<td>62.406</td>
<td>14.949</td>
<td>0.571</td>
<td>none</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>61.394</td>
<td>67.711</td>
<td>12.266</td>
<td>65.802</td>
<td>0.001</td>
</tr>
<tr>
<td>0 (Si)</td>
<td>55.261</td>
<td>54.771</td>
<td>11.395</td>
<td>0.459</td>
<td>none</td>
</tr>
</tbody>
</table>
Figure 2. Mean Profile for Alcoholics in Treatment
K-corrected mean scores. Figure 3 represents the mean profile of drug abusers in treatment.

The second hypothesis presented in Chapter I was as follows:

There will be a linear combination of variables found which will discriminate male substance abusers in treatment from female substance abusers in treatment.

Table 7 presents the raw and the standardized discriminant weights for each variable, which, when combined in a regression equation, maximally differentiate male substance abusers in treatment from female substance abusers in treatment. The most heavily weighted scales are Scales 1 and 5 (positively) and Scale 3 (negatively).

This discriminant function, labeled Discriminant Function B, represents a continuum, with the characteristics of one pole being those attributed to elevated scores on Scales 1 and 5 and a moderate or low score on Scale 3. The other pole would be characterized by a high Scale 3 score and relatively low scores on Scales 1 and 5. The first pole described, to which males proved to be closer, indicates heavy use of somatization (Scale 1 elevation) and some failure of repression (lower Scale 3 than females) in dealing with emotional conflicts. The nature of these conflicts may be revealed by Scale 5, whose elevation on this pole (especially in conjunction with an elevated Scale 1) suggests emotional dependence and passivity in male
Figure 3. Mean Profile for Drug Abusers in Treatment
Table 7
Weights for Discriminant Function B

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw weights</th>
<th>Standardized weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>-0.004</td>
<td>-0.029</td>
</tr>
<tr>
<td>F</td>
<td>-0.003</td>
<td>-0.031</td>
</tr>
<tr>
<td>K</td>
<td>0.032</td>
<td>0.297</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>0.051</td>
<td>0.715</td>
</tr>
<tr>
<td>2 (D)</td>
<td>0.020</td>
<td>0.313</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>-0.064</td>
<td>-0.782</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>-0.011</td>
<td>-0.157</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>0.083</td>
<td>0.878</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>-0.027</td>
<td>-0.323</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>0.026</td>
<td>0.344</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>-0.011</td>
<td>-0.169</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>0.005</td>
<td>0.065</td>
</tr>
<tr>
<td>0 (Si)</td>
<td>0.046</td>
<td>-0.517</td>
</tr>
</tbody>
</table>

substance abusers. For purposes of this study, this pole has been labeled Passivity. The opposite pole, to which the women are closer, suggests a more functional level of repression and denial, as well as naivete, conformity and rigidity. These characteristics are indicated by the moderately high Scale 3 elevation. The "normal" or
moderate elevation for Scale 1 on this pole indicates few somatic problems. Scale 5 is low enough to indicate "average middle-class female...interest patterns" (Lachar, 1977), but not low enough to indicate passivity and dependence. (See Table 9 for mean scale scores.) The label chosen for this pole in the context of this study was Repression. Figure 4 visually illustrates the relative locations of the male and female substance abuse treatment groups on Discriminant Function B.

Table 8 presents group means for this discriminant function, as well as its eigenvalue, statistical significance and discriminatory power.
Table 8
Statistics for Discriminant Function B

<table>
<thead>
<tr>
<th>Discriminant function</th>
<th>Mean for males in treatment</th>
<th>Mean for females in treatment</th>
<th>Eigenvalue</th>
<th>Bartlett's chi-square</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>3.109</td>
<td>1.530</td>
<td>0.546840</td>
<td>446.9015</td>
<td>35%</td>
</tr>
</tbody>
</table>

The group means of the thirteen MMPI scales confirm and expand the picture of group differences provided by discriminant analysis. The highest difference between the two treatment groups is on Scale 5. Other significant differences are on Scales 1 and 9, on which males are higher, and on Scales 3, 6 and 0, on which females are higher. These present a picture similar to that inferred from Discriminant Function B. Added information suggests that the males may be more active and restless, and that females may be more distrustful, resentful, passive-aggressive, and withdrawn.

Table 9 presents the means, standard deviations, F-ratios and levels of statistical significance for the two groups on the MMPI scales. Figure 5 is a graph of the mean MMPI profile of male substance abusers in treatment,
<table>
<thead>
<tr>
<th>Scale</th>
<th>Male means</th>
<th>Female means</th>
<th>Standard deviations</th>
<th>F-ratios</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>49.476</td>
<td>49.567</td>
<td>7.729</td>
<td>0.032</td>
<td>none</td>
</tr>
<tr>
<td>F</td>
<td>62.650</td>
<td>64.003</td>
<td>11.911</td>
<td>2.919</td>
<td>none</td>
</tr>
<tr>
<td>K</td>
<td>50.660</td>
<td>49.931</td>
<td>9.199</td>
<td>1.422</td>
<td>none</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>60.759</td>
<td>58.466</td>
<td>14.021</td>
<td>6.057</td>
<td>0.05</td>
</tr>
<tr>
<td>2 (D)</td>
<td>66.888</td>
<td>66.812</td>
<td>15.534</td>
<td>0.005</td>
<td>none</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>62.056</td>
<td>63.881</td>
<td>12.284</td>
<td>4.995</td>
<td>0.05</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>72.652</td>
<td>73.994</td>
<td>13.877</td>
<td>2.117</td>
<td>none</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>60.374</td>
<td>48.072</td>
<td>10.543</td>
<td>308.183</td>
<td>0.001</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>61.285</td>
<td>64.725</td>
<td>12.101</td>
<td>18.295</td>
<td>0.001</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>60.729</td>
<td>60.946</td>
<td>13.176</td>
<td>0.061</td>
<td>none</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>61.688</td>
<td>63.015</td>
<td>14.940</td>
<td>1.786</td>
<td>none</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>66.036</td>
<td>63.394</td>
<td>12.590</td>
<td>9.966</td>
<td>0.001</td>
</tr>
<tr>
<td>0 (Si)</td>
<td>53.827</td>
<td>57.343</td>
<td>11.278</td>
<td>22.008</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Figure 5. Mean Profile for Males
plotted with K-corrected mean scores. Figure 6 is a graph of the mean profile of female substance abusers in treatment.

The third hypothesis presented in Chapter I was as follows:

There will be linear combinations of variables found which will discriminate male alcoholics in treatment from female alcoholics in treatment from male drug abusers in treatment from female drug abusers in treatment.

Table 10 presents the raw and the standardized weights for each variable, which, when combined in a regression equation, maximally differentiate each of the four groups from the other three. The table includes weights for the two major discriminant functions (designated X and Y) which were found to distinguish the four groups from one another. A third discriminant function was found which will not be discussed. Subgroup differences on this function are extremely small, and it accounts for only 3.6% of the total variance. The first discriminant function (X) has its heaviest loadings on Scales 1 and 5 (positive) and Scale 3 (negative). Scale 0 also has a high negative loading (in relation to the remaining scales), although it is not as high as 1, 3 and 5. The second discriminant function (Y) has its heaviest loadings on Scales 4 and 0 (positive) and Scales 2 and 7 (negative).

The loadings on Discriminant Function X are very similar to those on Discriminant Function B, which
Figure 6. Mean Profile for Females
Table 10
Weights for Discriminant Functions X and Y

<table>
<thead>
<tr>
<th>Scale</th>
<th>Discriminant Function X</th>
<th></th>
<th>Discriminant Function Y</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raw weights</td>
<td>Standardized weights</td>
<td>Raw weights</td>
<td>Standardized weights</td>
</tr>
<tr>
<td>L</td>
<td>-0.007</td>
<td>-0.054</td>
<td>0.030</td>
<td>0.228</td>
</tr>
<tr>
<td>F</td>
<td>-0.003</td>
<td>-0.037</td>
<td>0.026</td>
<td>0.307</td>
</tr>
<tr>
<td>K</td>
<td>0.028</td>
<td>0.261</td>
<td>0.019</td>
<td>0.178</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>0.055</td>
<td>0.736</td>
<td>0.004</td>
<td>0.050</td>
</tr>
<tr>
<td>2 (D)</td>
<td>0.020</td>
<td>0.308</td>
<td>-0.054</td>
<td>-0.822</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>-0.065</td>
<td>-0.794</td>
<td>-0.019</td>
<td>-0.228</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>-0.009</td>
<td>-0.120</td>
<td>0.055</td>
<td>0.755</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>0.084</td>
<td>0.881</td>
<td>0.011</td>
<td>0.119</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>-0.025</td>
<td>-0.299</td>
<td>0.000</td>
<td>0.004</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>0.022</td>
<td>0.290</td>
<td>-0.031</td>
<td>-0.406</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>-0.014</td>
<td>-0.202</td>
<td>-0.014</td>
<td>-0.207</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>0.003</td>
<td>0.041</td>
<td>0.027</td>
<td>0.326</td>
</tr>
<tr>
<td>0 (Si)</td>
<td>-0.044</td>
<td>-0.496</td>
<td>0.048</td>
<td>0.545</td>
</tr>
</tbody>
</table>
distinguishes male substance abusers in treatment from females. For the purposes of distinguishing between these two discriminant functions, the poles of X will be given expanded labels: Passivity-somatization and Hysteroid repression. The male treatment groups are closest to the Passivity-somatization pole, with the male alcoholics closer than the male drug abusers. The two groups have similar elevations on Scale 5, which indicates passivity and dependence, as well as deviation from the culturally stereotyped masculine role and interest patterns. Of the two groups, male alcoholics are significantly higher on Scale 1. Their Scale 1 elevation indicates vague and diffuse somatic complaints and a tendency to control unacceptable impulses through somatization defenses, as well as pessimism, passive-aggressive expression of anger, egocentricity, and the probability of anxiety or depression reactions. In contrast, the mean score of male drug abusers on Scale 1 suggests a more realistic concern about bodily functioning. Both male groups are lower than females on Scale 3, which suggests a relative failure of repression and denial in dealing with conflicts. The male drug abusers are noticeably lower on this scale than the other three groups.

The female treatment groups are nearer the opposite pole, which has been labeled Hysteroid repression. Female alcoholics are much closer to this pole than female drug
abusers. The female alcoholics have the highest mean score of the four groups on Scale 3, which suggests that they may tend to be demanding, manipulative and need affection, as well as rigid and defensive. Because their Scale 1 mean is low relative to Scale 3, they come close to fitting Lachar's (1977) criteria for a hysteroid personality, which he describes as naive, self-centered and lacking insight. This does not apply to female drug abusers, since they show much less difference between Scales 1 and 3. Neither group of female substance abusers appears to have problems with somatization. There is also a major difference between the means of the female groups on Scale 5. While the female drug abusers are well within the average or normal range, the alcoholic women are close to having a maladaptively low mean scale score which indicates, as with high 5 males, passivity, emotional dependence and a higher level of neurotic symptoms.

Figure 7 illustrates graphically the relative locations of the four treatment groups on Discriminant Function X.

The second discriminant function found, which has its heaviest loadings on Scales 4 and 0 and on 2 and 7, has been designated Discriminant Function Y. It can be seen that these poles are similar to those of Discriminant Function A, which distinguished alcoholics in treatment from drug abusers in treatment. The only difference is
the addition of Scale 7. To differentiate this positive 4 and 0 pole from the similar pole on Discriminant Function A, it will be given the extended label Acting out-alienation. Drug abusers were nearer to this pole than alcoholics, with female drug abusers being closer than male drug abusers. Female drug abusers have significantly higher mean scores than any other group on Scales 4 and 0. The females' elevation on Scale 4 is close to the level indicated by Lachar (1977) for a diagnosis of psychopathy. The nearness of both drug abuse treatment groups to this pole indicates acting out, impulsivity, rebellion and alienation for both sexes. The lower scores of these two
groups on Scales 2 and 7 (relative to their scores on Scale 4) suggest a level of anxiety and distress which is insufficient to modify acting out behaviors or to cause guilt or remorse. These mean scores on Scales 2 and 7, although above normal, are one standard deviation below those of alcoholics.

The opposite pole of Discriminant Function Y, characterized by elevations on Scales 2 and 7 and lower scores on 4 and 0, is also similar to the Distress pole of Discriminant Function A. On Discriminant Function Y it will be labeled Neurotic distress. The addition of Scale 7 introduces neurotic, fearful and compulsive elements. The alcoholic treatment groups are nearer to this pole, with the males being closer than the females. The male alcoholics have a higher score than any other group on both Scales 2 and 7. These two scales are found by some studies to be correlated. The male alcoholics' score on Scale 2 indicates clinically significant levels of depression (Lachar, 1977), while the female alcoholics' Scale 2 score is on the borderline between mild and clinical depression. Both groups of alcoholics have Scale 7 scores which suggest perfectionism, self-criticism, anxiety, tension and indecision. The alcoholics' lower Scale 4 scores (relative to their Scale 2 scores) indicate a more outgoing and affiliative nature and greater conformity and control over impulses.
Figure 8 is a graph which illustrates the relative positions of the four treatment groups on Discriminant Function Y.

Examination of Discriminant Functions X and Y plotted against each other gives a general description of each treatment group relative to the others. The male alcoholics in treatment are likely to be passive and dependent and to have a tendency toward "feminine" interests (as defined by the MMPI). They score the highest of all groups on Scale 1, indicating somatic complaints, and on Scales 2 and 7, suggesting depression, anxiety and neurosis.
They appear more controlled, conforming and outgoing than drug abusers, and less repressive than female alcoholics.

Female alcoholics in treatment score the highest of all groups on Scale 3, suggesting repression and denial, naivete and insightlessness. They score lowest of all groups on Scale 5, which indicates more passivity and dependence than both normal women and female drug abusers, although apparently less than suggested by the high Scale 5 scores of both groups of males. They appear less neurotic, anxious and depressed than the alcoholic males, but more so than the drug abusers.

The male drug abusers in treatment, who have a Scale 5 score equal to that of male alcoholics, also appear abnormally passive and dependent and are likely to have "feminine" interests. They seem likely to use less repression than any group, as indicated by their low Scale 3 scores. They have the lowest mean scores on Scales 2 and 7 of all groups, indicating the least distress, anxiety, depression and neurosis. They are much higher than normals on acting out, rebellion, impulsivity and alienation (Scales 4 and 0), and somewhat higher than the alcoholic groups, but lower than female drug abusers.

Female drug abusers in treatment have scores which indicate more repression than male abusers but less than female alcoholics. They also have a significantly higher Scale 5 than female alcoholics, indicating less passivity
and submissiveness. This is supported by Discriminant Function Y, on which female drug abusers have a significantly higher score than all other groups on Scale 4, and a high score on 0, indicating rebellion, acting out, impulsivity and social alienation. Their scores on Scales 2 and 7 are slightly higher than those of the male drug abusers, but much lower than those of alcoholics.

Figure 9 illustrates the location of all four treatment groups on Discriminant Functions X and Y together.

Table 11 presents group means for these two discriminant functions, as well as its eigenvalue, its statistical significance, and discriminatory power.

The group means, many of which have been discussed in regard to the interpretation of Discriminant Functions X and Y, largely confirm the distribution of characteristics suggested by the discriminant functions. In addition, according to mean scale score differences, both female treatment groups score higher on Scale 6 (paranoia, distrust, hypersensitivity) than males, and drug abusers score higher than alcoholics on Scale 9 (hyperactivity, grandiosity, impulsivity). These scales, however, were not found to differentiate significantly on any of the discriminant functions.

Table 12 presents group means, standard deviations, F-ratios and levels of statistical significance for the thirteen scales.
The method used to plot the relative spacing of these four treatment groups on the two axes should not be interpreted as representing four equal quadrants. The intention of this graph is to illustrate the mathematical and spatial relationships among the four groups in relation to the characteristics represented by the two discriminant functions.
Table 11
Statistics for Discriminant Functions X and Y

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Discriminant Function X</th>
<th>Discriminant Function Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean for male alcoholics in treatment</td>
<td>2.982</td>
<td>5.154</td>
</tr>
<tr>
<td>Mean for female alcoholics in treatment</td>
<td>1.065</td>
<td>5.237</td>
</tr>
<tr>
<td>Mean for male drug abusers in treatment</td>
<td>2.768</td>
<td>6.252</td>
</tr>
<tr>
<td>Mean for female drug abusers in treatment</td>
<td>1.434</td>
<td>6.391</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>0.573</td>
<td>0.298</td>
</tr>
<tr>
<td>Percentage of variance accounted for</td>
<td>63.387</td>
<td>32.982</td>
</tr>
<tr>
<td>Bartlett's chi-square</td>
<td>764.173</td>
<td>300.285</td>
</tr>
<tr>
<td>Power*</td>
<td>37%</td>
<td>23%</td>
</tr>
</tbody>
</table>

*The combines power of Discriminant Functions X and Y is 51%.
<table>
<thead>
<tr>
<th>Scale</th>
<th>Male alcoholics</th>
<th>Female alcoholics</th>
<th>Male drug abusers</th>
<th>Female drug abusers</th>
<th>Standard deviations</th>
<th>F-ratios</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>47.629</td>
<td>49.384</td>
<td>50.544</td>
<td>49.733</td>
<td>7.645</td>
<td>7.932</td>
<td>0.001</td>
</tr>
<tr>
<td>F</td>
<td>61.020</td>
<td>62.258</td>
<td>63.605</td>
<td>65.580</td>
<td>11.836</td>
<td>5.748</td>
<td>0.001</td>
</tr>
<tr>
<td>K</td>
<td>49.371</td>
<td>50.704</td>
<td>51.382</td>
<td>49.233</td>
<td>9.165</td>
<td>3.778</td>
<td>0.05</td>
</tr>
<tr>
<td>1 (Hs)</td>
<td>63.805</td>
<td>58.176</td>
<td>59.034</td>
<td>58.727</td>
<td>13.907</td>
<td>8.501</td>
<td>0.001</td>
</tr>
<tr>
<td>2 (D)</td>
<td>72.254</td>
<td>69.767</td>
<td>63.799</td>
<td>64.142</td>
<td>15.091</td>
<td>20.847</td>
<td>0.001</td>
</tr>
<tr>
<td>3 (Hy)</td>
<td>64.328</td>
<td>65.704</td>
<td>60.729</td>
<td>62.233</td>
<td>12.168</td>
<td>8.712</td>
<td>0.001</td>
</tr>
<tr>
<td>4 (Pd)</td>
<td>70.391</td>
<td>70.000</td>
<td>74.000</td>
<td>77.602</td>
<td>13.651</td>
<td>13.118</td>
<td>0.001</td>
</tr>
<tr>
<td>5 (Mf)</td>
<td>60.301</td>
<td>45.126</td>
<td>60.440</td>
<td>50.733</td>
<td>10.432</td>
<td>113.295</td>
<td>0.001</td>
</tr>
<tr>
<td>6 (Pa)</td>
<td>60.852</td>
<td>63.660</td>
<td>61.544</td>
<td>65.688</td>
<td>12.091</td>
<td>7.053</td>
<td>0.001</td>
</tr>
<tr>
<td>7 (Pt)</td>
<td>62.414</td>
<td>61.333</td>
<td>59.788</td>
<td>60.597</td>
<td>13.147</td>
<td>2.262</td>
<td>none</td>
</tr>
<tr>
<td>8 (Sc)</td>
<td>61.496</td>
<td>62.038</td>
<td>61.813</td>
<td>63.898</td>
<td>14.939</td>
<td>1.044</td>
<td>none</td>
</tr>
<tr>
<td>9 (Ma)</td>
<td>62.348</td>
<td>60.025</td>
<td>68.217</td>
<td>66.438</td>
<td>12.263</td>
<td>23.589</td>
<td>0.001</td>
</tr>
<tr>
<td>0 (Si)</td>
<td>54.356</td>
<td>56.691</td>
<td>53.515</td>
<td>57.932</td>
<td>11.273</td>
<td>8.000</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Figure 10 represents the mean MMPI profile of the male alcoholics in treatment. Figure 11 represents the mean MMPI profile of the female alcoholics in treatment. Figure 12 represents the mean MMPI profile of the male drug abusers in treatment. Figure 13 represents the mean MMPI profile of the female drug abusers in treatment.

SUMMARY

Drug abusers in treatment are found to have scores which indicate greater tendencies toward acting out, impulsivity, rebellion and alienation, with a relatively low level of anxiety. Alcoholics in treatment seem to be more controlled, conforming and outgoing, and experience more depression, anxiety and distress.

Males have scores which suggest passivity and emotional dependence, with a high level of somatization and less use of repression. Females' scores indicate less passivity, more repression and denial, and the likelihood of egocentricity and rigidity.

In comparing all four groups, alcoholic males in treatment show the highest level of depression, anxiety and somatic complaints on the MMPI. Their scores suggest passivity and dependence. Alcoholic females in treatment appear passive, repressive and controlled, with possible hysteroid or depressive tendencies. The male drug abusers in treatment have scores which suggest they are passive and
Figure 10. Mean Profile for Male Alcoholics in Treatment
Figure 11. Mean Profile for Female Alcoholics in Treatment
Figure 12. Mean Profile for Male Drug Abusers in Treatment
Figure 13. Mean Profile for Female Drug Abusers in Treatment
dependent, impulsive, rebellious, alienated, and admit to little anxiety or guilt. Female drug abusers in treatment appear on the MMPI to be the most rebellious, nonconforming and alienated, and the least passive, of all groups. They are hypothesized to demonstrate little depression, anxiety, or remorse, and appear to utilize repression and denial as defense mechanisms.
CHAPTER V

SUMMARY

It was the purpose of this study to examine and describe the differences and similarities in specified dimensions of personality among four groups of substance abusers at a time when they had just entered treatment. When findings are discussed it will be assumed that references to alcoholics and drug abusers are to be defined as applying to populations in treatment. The groups were: male alcoholics in treatment, female alcoholics in treatment, male drug abusers in treatment and female drug abusers in treatment. The study specifically examined differences and similarities between drug and alcohol abusers of both sexes, between male and female substance abusers, and among all four treatment groups.

The study was performed on a sample consisting of the four subgroups mentioned above. The two alcoholic treatment groups were 254 males and 183 females admitted to the alcoholic inpatient unit at Riverside Methodist Hospital from 1974 to 1976. The males had a mean age of 49 years, the females 47.2 years. The subjects were selected from
a treatment population which was largely Caucasian and middle to upper middle class. The two drug abuse treatment subgroups were 444 males and 176 females from the Franklin County Comprehensive Drug Program, who entered treatment at the VITA Treatment Center, VITA Counseling Service, and Human Resources-Integrity House between July, 1976 and December, 1978. The males had a mean age of 25 years and the females 26. The subjects were selected from a treatment population which was 30 to 40% Black, with the balance being Caucasian, and laboring class or on welfare. Approximately 40% of the treatment population were on methadone maintenance, 45% were treated with counseling only, and 15% entered the residential facility. The treatment population contained people who were physiologically dependent on drugs, as well as those whose dependence was psychological, and included both opiate and non-opiate abusers.

The Minnesota Multiphasic Personality Inventory was administered to subjects between seven and fourteen days after their entry into the program. The test was administered to each subject in booklet form by trained personnel. The three validity scales and the ten basic clinical scales were used. Test scores were released with only a code number for identification, in order to protect the confidentiality of the subjects. The only information released with the scores was the sex and substance of abuse
of the examinee.

The statistical analyses were accomplished in two steps. First, mean profiles were determined for each subgroup. Second, these profiles were compared visually, in terms of actuarial interpretive statements, and by discriminant analysis. The purpose of discriminant analysis was to discover a linear combination of variables for each group which would maximally distinguish it from the group(s) to which it was being compared. Results of these discriminant functions were plotted graphically and described.

The findings indicate that statistically significant differences among the mean MMPI profiles of the four groups can be found using discriminant analyses. Linear combinations were found which distinguished the alcoholics from the drug abusers, the male substance abusers from the females, and the four treatment groups from each other. Alcoholics in treatment were found to be more controlled, conforming and outgoing, while drug abusers in treatment acted out and appeared impulsive, rebellious and alienated. The alcoholics experienced high levels of depression, guilt and anxiety, while the drug abusers reported relatively little internal distress or remorse.

Males report higher levels of somatization and less repression than females, and tend toward passivity and emotional dependence. Females are less passive (in
comparison to same-sex norms) and utilize more repression and denial. They may be more rigid and egocentric.

In comparing all four treatment groups, male alcoholics show depression, anxiety and somatic complaints, and tend toward passivity and dependence. Female alcoholics are passive, repressive and controlled, with hysteroid and depressive tendencies. The drug abusing males are impulsive, rebellious and alienated, but passive and dependent. They report little anxiety or guilt. Female drug abusers are the most resentful, nonconforming and alienated, and the least passive, of all groups. They also report little anxiety, and appear to use repression and denial as defenses.

CONCLUSIONS

The first conclusion, based on Discriminant Functions A, X and Y, is that profiles of alcoholics in treatment indicate they would internalize much of their distress, while drug abusers in treatment would seem likely to externalize theirs.

According to the findings of this study, alcoholics' profiles indicate that they suffer from a high level of somatization and depression, guilt, anxiety, and other neurotic symptoms, compared to normals. All of these characteristics strongly indicate internal distress and discomfort. Studies cited earlier (Cooper, 1958; Kinsey, 1968;
Lindbeck, 1972; Wanberg and Horn, 1973; Horn, Wanberg and Adams, 1974; Beckman, 1975, 1978; Broughan, 1976; Waller and Lorch, 1978) support this conclusion in that alcoholics are reported to have extremely low self-esteem, and to be self-critical and introspunitive.

In contrast, the findings indicate that drug abusers' profiles, to a large extent, indicate that they handle their difficulties with self-image and socially unacceptable behaviors by externalizing the blame and projecting it onto society and other people. They would appear to be rebellious and resentful about authority and social rules and values, and to act out these feelings with relatively little anxiety or guilt. Drug abusers' profiles also indicate a level of social alienation and withdrawal which suggests anger, distrust and distance. This is confirmed in the literature by examples of rejection of socially accepted behaviors and values in favor of subcultural identification and open defiance and scorn for societal norms (Hill, Haertzen, and Glaser, 1960; Hill, 1962; Ottenberg and Rosen, 1971; Ottenberg, 1974; Black and Heald, 1975). In addition, the literature indicates greater difficulties with legal and employment problems for drug abusers (Ferneau, 1971; Overall, 1973; Kinsey et al., 1975).

These findings are consistent with the current conceptualization of alcoholics and drug abusers by treatment providers and by society. Alcoholics in treatment do
appear, when assessed by the MMPI, to be chronically de­pressed, anxious and neurotic, as well as more conforming and less deviant than drug abusers. Drug abusers in treat­ment, when assessed by the MMPI, appear more deviant than both normals and alcoholics, more alienated from shared social values, less capable of inhibiting impulses, and less anxious and guilty about the consequences of their behavior.

It should be remembered that these MMPI scores may be influenced by age, racial composition, and socioeconomic status of the treatment groups as well as by the difference in substance of abuse. This may be true of actual per­sonality differences as well.

A second conclusion, related to the first, is that the profiles of alcoholics in treatment suggest that they may be more dependent than normals on interpersonal rela­tionships and affiliation, while drug abusers in treatment appear less so. Alcoholics of both sexes appear to be highly passive and dependent (compared to MMPI norms), and to need support and structure from others. They would appear to be generally overtly submissive to authority, in spite of likely ambivalent or resentful feelings about it. Alcoholics' profiles also demonstrate less social with­drawal than drug abusers on Discriminant Functions A and Y (although slightly more than normals), and they tend to be unwilling to express anger directly. Alcoholics would seem
to exert continued effort to conform to social standards, in spite of episodes of acting out behavior. The literature confirms this need for affiliation and approval among alcoholics (Wood and Duffy, 1966; Kinsey, 1968; Jones, 1971; Overall, 1973; Ottenberg, 1974; Beckman, 1975). It also appears that alcoholics maintain family relationships, friendships and jobs successfully, although sometimes with difficulty.

Drug abusers' profiles, on the other hand, suggest that they may be reserved, socially manipulative, distrustful and defensive, with little empathy or social "conscience." Their rebelliousness and resentment imply extreme difficulty in establishing interpersonal relationships and in dealing with authority in employment and legal contexts (Torda, 1968; Stein, Sarbin and Kulik, 1971; Ferneau, 1971; Overall, 1973; Kinsey et al., 1975; Black and Heald, 1975; Gossop, 1978).

This conclusion supports the current concepts and practices which regard alcoholism, to a much greater extent than drug abuse, as a "family disease." The alcoholic's reported relative success at maintaining an intact family structure in spite of chemical dependence may be partially due to the high level of motivation produced by the alcoholic's need for this support and belongingness.

It should be considered that evidence supporting this conclusion could also be influenced by the differences in
the age and racial composition of the groups.

A third conclusion, related to the first two, is that a significant amount of the differentiation between alcoholics in treatment and drug abusers in treatment which is indicated by the MMPI may be related to the illegal activities and the subculture surrounding drug use.

The findings of this study indicate that subjects who are in treatment for alcohol abuse would have a need to conform and be approved, and a fear of overt deviation. In addition, they would appear to be already anxious, guilt-ridden and self-critical. Such people would probably be very uncomfortable about the illegal activities involved in acquiring drugs.

The drug abusers have no apparent reason, in terms of personality dynamics measured by the MMPI, to fear illegal activities. They are engaged in overt rebellion and are often alienated from cultural values, either by choice or due to the consequences of impulsive behavior. Neither do they seem concerned about feeling guilty or depressed following illegal behaviors unless, of course, they get caught.

It may be that there are psychodynamics which are common to both types of abuse examined in this study, such as regressive needs, narcissism, arrested psychosexual development, dependency needs, or masochistic or self-destructive tendencies (Gerard, 1955; Freed, 1973). These are not
within the purview of the MMPI. It appears that regardless of these potential commonalities, the way in which alcohol and drug abusers respond to such basic problems are different, and give rise to different personality characteristics and different behaviors. These differences, of course, may well be influenced by environmental variables. Primary among these may be race and socioeconomic status.

A fourth conclusion about drug and alcohol abusers is that these two treatment groups would appear to have different personality dynamics and different motives for substance abuse. The findings show that drug abusers tend toward impulsivity and acting out, while alcoholics tend toward control and conformity. These findings support the conclusion that alcoholics in treatment would be reasonably controlled and socialized people who would internalize emotional distress. They drink to disinhibit themselves and to release pressure, and their acting out behaviors occur while they are under the influence of alcohol. This conclusion is supported by Gerard (1955), Hill (1962), Ottenberg and Rosen (1971), Overall (1973), Freed (1973), Ottenberg (1974), and Black and Heald (1975). In contrast, drug abusers in treatment are impulsive and socially alienated people who would tend to project blame for their discomfort onto externals, and release their resentment and frustration by acting out. They use drugs to relieve the pressure of poorly socialized drives and impulses or of
societal limitations. Their level of acting out often decreases while they are under the influence of drugs. This conclusion is supported by the research just cited, and, in addition, by Gilbert and Lombardi (1967), Smart and Jones (1970), Kendall and Pittel (1971), Ludenia (1972), and Kinsey et al. (1975).

Another difference indicated by the profiles of the two groups is that, because alcoholics in treatment are aware of their psychological discomfort and of their responsibility for many of their external difficulties, they may drink to escape facing these perceived inadequacies. Drug abusers in treatment would be less willing to admit their responsibility for their own problems and may use drugs to avoid taking responsibility, or to have a scapegoat for problems. In other words, they are avoiding even the perception of their inadequacies.

These differences do not contradict the apparent superficial commonalities between the two groups. One such belief is that both groups abuse chemicals in order to relieve discomfort created by low self-esteem or by anxiety. Either of these characteristics could be a common reaction to discomfort which has its root in different dynamics. Another commonality is that although both groups may feel, seem or actually be more functional under the influence of the chemical in the early stages of use, they eventually become dysfunctional. In the final stages of the
addiction, users of both substances find that their lives revolve around acquisition and consumption of the substance.

Even within this apparent commonality, however, the basic differences between the treatment groups reassert themselves. Given addictions of equal severity, drug abusers would be the ones who consistently experience serious disruptions in jobs and relationships. This seems to relate to basic personality characteristics as outlined in this study. The acting out and lack of foresight creates difficulty for drug abusers, and their resentment and rebelliousness alienate them from potential helpers and make them unwilling to accept help. The relative conformity and desire to please attributed to alcoholics would ingratiate them with employers and family members, and make it easier for them to attract and to accept help.

Again, it must be emphasized that differences reflected in substance choice may be impossible to separate from other characteristic differences between the groups: age, racial composition and socioeconomic background.

A fifth conclusion is that the findings of this study confirm John Overall's (1973) conclusion that "alcoholics are discriminable from the addict population by virtue of a larger proportion of neurotic depressive profile patterns." These findings also lend support to Overall's conclusion that "profiles in which Pd and Ma are elevated
relative to Hy and Pt are more likely to be associated with
drug addiction. On the other hand, if Hy and Pt are elev­
vated in addition to Pd and Ma, the pattern suggests
alcohol abuse."

These conclusions are confirmed by mean scale scores
and also by the appearance of Scales 3 and 7 on the dis­
criminant functions. However, these differences are more
dramatic in Overall's study, because his overall mean pro­
files were slightly higher for alcoholics and lower for
drug abusers. This could be due to sample differences,
especially if the sex composition of the samples is dif­
ferent. This cannot be ascertained, since Overall gives
virtually no descriptive information about his sample.

The mean profile configurations found by Overall
(1973) for these two groups are very similar to those found
in this study (see Figures 2 and 3). For both studies, the
alcoholics' high point code is 2-4-7, and the drug abusers'
high point code is 4-9. Overall's findings agree with
this study that alcoholics have noticeably higher scores
on Scales 1, 2 and 3, while drug abusers have higher scores
on Scale 9. Overall did not find the magnitude of differ­
ence on Scale 4 which was found in this study. This may be
due to the inpatient status of Overall's drug abusers, or
it may indicate that he had fewer females, since they ap­
pear to score higher on Scale 4.
This study and Overall's (1973) study provide support for the conclusion that there are major differences in the psychological dynamics of drug and alcohol abusers, and that alcoholics appear to be more neurotic and experience more subjective distress. Unlike Overall, this study does find that elevations on the Psychopathic deviance scale are significantly different and do contribute to differentiation of the two groups. Both Overall and this study emphasize that these findings do not rule out the possibility of personality subgroups or the need for individuation of treatment within groups.

It is important to remember that this difference may be accentuated by the higher age of the alcoholic population, which causes elevation in the neurotic Scales 1 and 2, and by the youth of the drug users, which may elevate Scales 4, 7 and 8. The higher percentage of blacks among drug users may also increase Scales 8 and 9.

A sixth conclusion is that the findings of this study confirm John McLachlan's (1975) contention that the sex of the abuser is a variable which should be considered and which will increase discriminatory power. McLachlan did not make any comments or predictions on the direction or nature of these differences.

Discriminant Functions B and X both distinguish male from female substance abusers on the basis of personality characteristics. Discriminant Function X, the first one
found in the differentiation of the four subgroups, accounts for 63% of the total variance among the four groups. It appears from this study that a number of significant differences in personality characteristics and behaviors would be lost if the sexes were not discriminated in research of this kind.

A seventh conclusion is that male substance abusers (of both types) deviate from their culturally prescribed sex role to a greater extent than the female abuse groups. Males of both groups were one standard deviation above the mean on Scale 5. It can be hypothesized that some of the discomfort implied for males by Discriminant Functions B and X (higher somatization and less effective repression, relative to females) may stem from their awareness that they have interests, feelings or behaviors not considered appropriate for males in this culture.

In contrast, female drug abusers have a normal mean elevation on Scale 5, while female alcoholics were one half of one standard deviation lower, and could be considered more passive and dependent than the norm for their sex. Women substance abusers in general may cope better and make better use of repression and denial of problems partially because their behavior is more congruent with sex role expectations in our society.

It may even be concluded that for women, the use of drugs or alcohol may represent a greater break with sex
role expectations than many other behaviors. For males, passivity, dependence or "feminine" interests may be a problem for which substance abuse provides an escape or even an antidote, since drinking, or in some subcultures drug use, are considered masculine behaviors.

This may imply different reasons for chemical dependence for the sexes, although the possibility exists that low self-esteem can be the motivator in either case. It seems certain, however, that these findings imply different social and psychological consequences of substance abuse for the different sexes, a fact which must be considered in treatment.

An eighth and final conclusion, based on both statistical and clinical significance of discriminant functions and mean scale score differences (Lachar, 1977), is that there are significant differences among the four treatment groups. There does not appear to be any one characteristic or set of characteristics measured by the MMPI which is common to all four groups.

The L Scale elevations show no consistent significance for any of the four groups.

The F scores on all groups fall into a range of scores received by people who are actuarially described as "moody, changeable, dissatisfied, opinionated, restless and unstable." For these groups, given their other characteristics, these F elevations could indicate acute
neurosis, character disorder, or social or stress problems.

The K Scale scores for all groups are in the normal range. It should be noted that many psychiatric patients fall within this range.

Scale 1 (Hs) elevations for three of the groups indicate realistic concern about bodily functions. For the male alcoholic group, the elevation suggests control of unacceptable impulses through somatization.

Scale 2 elevations indicate mild depression and pessimism for drug abuse groups. For the alcoholics, the elevations indicate clinical depression for males and borderline depression for females.

It should be remembered that elevations in Scales 7 and 2 do increase with age, although differences of this magnitude are unlikely to be due to age alone.

Scale 3 scores, combined with others which affect their interpretation, seem to have little consistent significance except to indicate that alcoholic females have the highest level of repression and denial. For this group, the difference between Scales 1 and 3 indicates hysteroid tendencies, which include naivety, egocentricity and lack of insight.

Scale 4 elevations are at least two standard deviations above the MMPI mean for all four groups. For alcoholics, the significance is borderline, and is tempered by somatic and depressive tendencies. It probably
indicates rebellion, limited frustration tolerance, and some difficulties with societal limits, but not grossly inappropriate acting out. The drug abusing groups have much higher scale scores, which indicate resentment, impulsivity, poor social adjustment, and superficiality in relationships. Female drug abusers have the highest elevation on Scale 4, and are close to the score range designated "psychopathic."

Scale 4 elevations do tend to be higher for youthful populations, but the average ages for the drug abuse treatment groups is high enough that, for statistical purposes, this tendency should have been moderated. Therefore, it is probable that Scale 4 elevations for all groups, and differences between groups, are due to actual personality characteristics.

Scale 5, for both alcoholic and drug abusing males, indicates a high level of emotional dependence and passivity (compared to MMPI norms), as well as sensitivity and deviation from stereotyped masculine interest patterns. Female alcoholics have a scale score which suggests greater passivity than normal women. Female drug abusers show a normal pattern (for females) without excessive passivity or dependence. This combines with the high Scale 4 elevation for drug dependent females to indicate that this group is likely to be less passive, more overtly angry and more prone to acting out than other groups.
Scale 5 elevation in males is directly related to level of education. Given the socioeconomic status of the two groups, it may be that drug abusing males are more passive than alcoholic males in terms of actual personality characteristics.

Scale 6 elevations indicate general problems for all groups with hypersensitivity, rigidity, resentment, distrust, and feelings of being pressed and limited by environmental expectations. These characteristics are more pronounced for women, and highest for female drug abusers. This may indicate manipulative dealings with others and skill at the indirect expression of hostility for this group.

Scale 7 elevations are not widely separated, but do indicate some differences. Male drug abusers have the lowest score, which is at a level that indicates freedom from undue worry and self-doubt. Female drug abusers are slightly higher. Female alcoholics are high enough to move into the score range indicating that they are more likely to be conscientious, perfectionistic, orderly and self-critical, as well as tense and anxious. Male alcoholics are slightly more likely than the females to have these same characteristics.

Scale 8 elevations for all groups are moderate. Combined with depression, as it is with alcoholics, this Scale 8 elevation suggests neurosis, as well as abstract
and creative interests. With drug abusers, however, this Scale 8 elevation is combined with high scores on Scales 4 and 9 and moderate scores on the "neurotic" scales. In this kind of a configuration, this moderate Scale 8 elevation indicates a schizoid social adaptation. The female drug abusers have the highest scores on Scales F, 4, 6, 8, and 0. In view of this combination, their elevation on Scale 8 strongly suggests general alienation, and even a tendency toward psychosis.

Scale 9 elevations are noticeably higher for both sexes of drug abusers than for alcoholics. The alcoholics' scores may indicate agitation and restlessness. With the drug abusers, the elevation suggests hyperactivity and ineffectiveness. The female alcoholics have the lowest score, indicating activity levels which are only slightly higher than normal. Male drug abusers have the highest score, indicating the possibility of a hypomanic condition.

The elevated scores on Scales 8 and 9 may be due in part to the youth and the racial composition of the drug abuse groups, since young test subjects and black test subjects tend to have elevated scores on these scales.

Scale 0 elevations are slightly higher for females than for males. None of these scores is extremely high, and they all fall in the same diagnostic range. The differences between groups on Scale 0 is much clearer on the discriminant functions than on the mean scale scores.
Each of the four treatment groups studied appears to have a unique combination of the personality traits assessed by the MMPI. It is apparent that there are differences in the personalities of substance abusers in treatment, linked to both sex and substance of abuse, which have statistical and practical significance.

IMPLICATIONS

The conclusions discussed in the previous section imply some important differences in treatment strategies and modalities. Although many researchers discuss the importance of differential treatment (Brown, 1950; Goldstein and Linden, 1969; Whitelock, Overall and Patrick, 1971; Pattison, Sobell and Sobell, 1977), they seem not to make the obvious next step to the importance of using the knowledge of differential personality characteristics as one basis for treatment. The medical or "sick" model, as Pattison et al. (1977) point out, takes the responsibility away from the alcoholic. This is especially true when it results in failure to label the alcoholic's problem while it is still in its early stages and under the client's control. Alcoholics Anonymous, although it provides excellent sources of support, relationships, and alternative activities to drinking, does not deal with individual psychological dynamics of its members. Therapeutic communities, although they provide confrontation and enforced
limitations which can break through the defenses of drug abusers, usually do not have personnel trained to follow up this advantage in terms of individual personality characteristics. Outpatient agencies, such as methadone, probation or parole, may provide counseling for both types of abuse which deals with problems in an individual way. However, the personnel of these agencies usually do not have the time or the training to do long-term intensive psychotherapy with these populations based on their individual psychological characteristics.

The recommendation of this study is that effective counseling for substance abusers must deal with the psychological characteristics which are related to each individual, each type of abuse, and to the subpopulations within each group. The knowledge that male alcoholics are depressive and somaticize to control impulses, that female alcoholics have hysteroid and depressive tendencies, that male drug abusers are defending against dependency conflicts and sex role confusion, and that female drug abusers are angry, alienated and possibly schizoid should be made the major issues of treatment, rather than the substance abuse or other overt characteristics. Psychotherapeutic techniques and goals aimed at dealing with these basic personality dynamics should be interfaced with present treatment modalities if lasting change is to be the outcome. It should be remembered that the primary goal of
assessing personality characteristics is not to label an individual as an alcoholic or drug addict, but to discover psychological dynamics which have implications for treatment.

It is felt that implications of a more specific nature cannot be accurately formulated based on these data alone. Current research in the field of substance abuse indicates that innovations in treatment strategies and modalities will need to take into account many factors, in addition to personality characteristics.

RECOMMENDATIONS

It is recommended that multivariate analysis be used in future studies with the MMPI, rather than univariate analysis. The resulting clustering and weighting of scale scores will enhance understanding of which components of various scales are really being endorsed by subjects.

It is recommended that further research be done on the psychological characteristics found relevant to the groups in this study with instruments other than the MMPI. The MMPI, as Hill (1962) points out, is excellent for providing "pilot information." For a deeper understanding of these apparent differences, however, more precise instrumentation or clinical exploration of these characteristics is needed. It also appears that although there may be commonalities across various kinds of addictive problems,
they are not likely to be isolated or confirmed by the MMPI.

It is recommended that more in-agency research be done. Ideally, such studies would be done by on-site personnel in a treatment facility. The results could then be used to modify existing treatment strategies and experimental approaches would yield immediate feedback that could be evaluated and used to guide additional treatment modifications.

It is recommended that experimental studies be conducted to evaluate the outcomes of differential treatment for the four sample groups in this study. This could be done most effectively in the context of the previous recommendation.

It is recommended that more research be done on the sex role development and identities of substance abusers of both sexes. This issue appears to be a major source of distress for at least three of the sample groups, and little research is available on the topic.

It is recommended that studies be done comparing adolescent or young adult drug and alcohol abusers. This could clarify whether or not some of the differences commonly found between these two populations are a function of age.

It is recommended that research be done comparing opiate abusers with poly-drug abusers. The literature
read for this study leaves the impression that there may be differences, but little research is available.

It is recommended that further research be done on sex-contingent differences between abusers and on female substance abusers, particularly female drug abusers.

It is recommended that research be done on the reasons and feelings involved in a subject's choice of a treatment facility. This could yield valuable data on self-perception and self-labeling of abusers.

It is recommended that future research attempt to identify and to classify abusers who use both drugs and alcohol. This differences found in this study are based on self-report and on choice of treatment facility. It seems likely, based on the literature and on clinical observation, that most subjects are not "pure" alcoholics or "pure" drug abusers.
BIBLIOGRAPHY


Burke, E. L. & Eichberg, R. H. Personality characteristics of adolescent users of dangerous drugs as indicated by the MMPI. *The Journal of Nervous and Mental Disease*, 1972, 154, 291-298.


Cahman, J. A. Personality variables associated with narcotic addiction as measured by the Minnesota Multiphasic Personality Inventory. *Dissertation Abstracts International*, 1974, 35-B, 1039.


Gendreau, P. & Gendreau, L. P. A theoretical note on personality characteristics of heroin addicts. Journal of Abnormal Psychology, 1973, 82, 139-140.


Rosen, A. C. A comparative study of alcoholic and psychiatric patients with the MMPI. *Quarterly Journal of Studies on Alcohol*, 1960, 21, 253-266.


