ABSTRACT

QUANTITATIVE ANALYSIS AND CLINICAL IMPRESSIONS OF EGO FUNCTIONING IN PREFERENTIAL ABUSERS OF HEROIN OR AMPHETAMINE

By

Harvey Bruce Milkman

Although most drug abusers have experienced a variety of psychotropic agents, many abusers experience a prolonged and distinct preference for a particular drug. This study was designed to examine the relationships between drug preference and personality in "preferential" abusers of heroin and amphetamine.

Addicts who stated a specific preference for one or the other drug were interviewed under the influence of their "chosen" drug and in the abstinent condition. A control group of normals was interviewed twice under abstinent conditions. Subjects were matched for age, race, social class and psychopathology. They were examined with Bellak and Hurvich's (1969) Interview and Rating Scale for Ego Functioning, a measure which assesses degree of impairment in each of 12 specified ego functions; reality testing, judgment, sense of reality, regulation and control of drives,

object relations, thought processes, adaptive regression, defensive functioning, stimulus barrier, sense of competence, autonomous functioning, and mastery competence. The scale also provides measures of libidinal and aggressive drive strengths.

Statistical findings were integrated with clinical impressions to formulate a comprehensive picture of preferential drug abuse. Amphetamine abusers were found to have greater overall ego strength than heroin abusers. Both groups seemed to decrease in ego functioning capacity in the intoxicated condition. Though not statistically significant, the data strongly suggest a continuum of increasing adaptive strength from the heroin abuser to the amphetamine abuser to the normal. While interview order had a strong effect on the addict's performance, it had relatively little effect on the normal groups.

An ego-analytic frame of reference was used to speculate as to the etiology of preferential drug abuse. It was theorized that the origins of specific drug abuse may be in the nature of the drug-induced altered ego states. These may recapture a series of similar experiences, the originals of which appear to exist in specific phases of child

development. A particular drug may thus facilitate a specific regressive solution to conflict and may, therefore, be preferred.

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TABLE OF CONTENTS

TABLE OF CONTENTS, CONTINUED PAGE

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

A. Description of the Study

This study was designed to examine personality factors underlying the abuse of two potent psychotropic agents, heroin and amphetamine. Addicts who stated a specific preference for one or the other drug were interviewed under the influence of their "chosen" drug and in the abstinent condition. A control group of normals was interviewed twice under abstinent conditions. Subjects were matched as closely as possible for age, race, social class and psychopathology. Subjects were examined using Bellak and Hurvich's (1969) Interview and Rating Scale for Ego Functioning, a measure which assesses degree of impairment in each of 12 specified ego functions; reality testing, judgment, sense of reality, regulation and control of drives, object relations, thought processes, adaptive regression, defensive functioning and sense of competence. The scale also provides measures of libidinal and aggressive drive strengths. The primary focus of the study was to determine the particular defects and alterations of ego functions that

characterize abusers of heroin and amphetamine.

B. General Introduction to Problem

Drug abuse has become an increasingly critical problem in America. In recent years heroin has become available on our streets, marijuana and LSD on our campuses, and bartiturates in our middle class homes. Alcohol continues to infect over nine million of our citizens, while amphetamines are sporadically inducing psychosis in individuals throughout the country. Each year there is an incidence of nearly 8000 deaths due to accidental or intentional overdose of barbiturates· heroin has been related to over 50% of property crimes in some urban areas (i.e., N.Y.C.), and LSD has been linked to chromosome damage. Although legislation in the past 50 years has become more restrictive with regard to the sale and possession of addictive drugs (Harrison Narcotics Act, 1914....Dangerous Drug Penalty Act, 1968), the available evidence suggests that this country's drug problem has become increasingly severe.

Sociological data provide enlightening clues with regard to age, and socio-economic status of the drug abuser. We know for example, that nearly 50% of our nation's drug

addicts are currently living in N.Y.C. (Chein, 1964). The physiological concepts of tolerance and dependency are well defined. Our understanding of the psychology of the drug abuser, however, is far more limited. Psychiatric literature repeatedly describes and claims to understand the typical male addict as a depressed, orally dependent individual who has difficulty in asserting his masculinity and expressing hostility. In most cases he comes from a broken home with a domineering mother and hostile or unavailable father (Hartmann, 1969).

These generalizations are shallow and outdated. A mother's domineering behavior may lead to her child's passivity, sexual disturbances, and neurotic symptoms. These factors are no more specific to drug taking than they are to neuroses, depressions, delinquencies, and psychoses (Hartmann, 1969). Furthermore, these explanations cannot account for the current phenomenon of specificity in drug abuse. As recent as one decade ago, the drugs most commonly used were relatively homogeneous in terms of their pharmacological affects (i.e., alcohol, opiates). There are now, however, in massive usage, many potent pharmacologic agents which produce distinctive experiences (stimulants,

depressants, hallucinogens). The pharmacological and psychological effects of these drugs are so disparate and specific that it has become important to ask not only what are the dynamics of the drug abuser, but what are the personality mechanisms which underlie the predilection for specific drugs. This study is designed to uncover the relationships between personality and two of the most potent and widely abused pharmacologic agents: heroin and amphetamine. Wilker's (1953) definition of drug abuse is applied: "The compulsive use of chemical agents which are harmful to the individual, the society, or both."

C. Physiological Perspective

A detailed description of the physiology of drug abuse is beyond the scope of this introduction. An understanding, however, of basic physiological concepts and mechanisms is critical for the formulation of a methodology and evaluation of the biologically based theories of the psychology of drug abuse, e.g., Eysenck(1957).

Opiates

Heroin is one member of the class of drugs which are designated opiate narcotics. In order of addicting potential,

from the most to the least, these drugs include morphine, heroin, Dilaudid, Demerol, methadone, and codeine (Nyswander, 1959). Like alcohol and barbiturates, these drugs are described in pharmacological literature as C.N.S. depressants. Although the exact sites and mechanisms of action are largely unknown, they share a common ability to depress the functions of the central nervous system. These physiological effects are manifest in 1) calming or relief of emotional tension or anxiety; 2) drowsiness, sedation, sleep, stupor, coma, or general anesthesia; 3) increase of pain threshold; 4) mood depression or apathy; and 5) disorientation, confusion or loss of mental acuity (Nowlis, 1969).

Central to an understanding of heroin's addictive properties are the concepts of tolerance and dependence. Tolerance results from the capacity of the human body to alter itself in response to disturbing stimuli. Organs whose functions are altered by drugs respond by readjusting their functions to restore the status quo. Repeated doses of the opiates will lead the nervous system to function more energetically to counteract the drug-induced depression. At this point, the individual has become physically dependent on the drug. Adjustment to the drug's presence is a gradual

process. If the drug is suddenly withdrawn, the body responds to the absence of the drug on which it has become dependent by withdrawal symptoms (Modell & Lansing, 1969). These symptoms may last from several days to a few weeks, depending upon the degree of tolerance. They vary from one individual to another, but usually include muscular pain, inability to keep still, air hunger, gooseflesh, nausea, bowel urgency, and anxiety.

The result of the body's ability to adapt to the opiates is that the heroin addict must gradually increase his dose if he is to continue to get "high". To a person unaccustomed to morphine, for example, an injection of .004 ounce is normally fatal. In controlled experiments however, addicts have taken up to 50 times that amount in a single day (Modell & Landing, 1969). The average does for an addict is approximately ½ grain (.001 ounce). This minute amount which is roughly equivalent to four millionths of the body's weight, is immediately broken down into morphine and by-products. The lungs, liver and kidneys collect morphine readily so that only an estimated 2% of the original dose is free to enter brain tissue. This type of evidence lends support to the notion that the effects of heroin may be due

not so much to the drug, but to a body chemical released or inhibited by it (Laurie, 1967).

Amphetamines

Broadly classified as C.N.S. stimulants, and colloquially known as "speed", the amphetamines belong to the class of drugs which have the general effect of increasing functional activity. According to the regulations under the Federal Food, Drug and Cosmetic Act, January, 1966 (Nowlis, 1969), drugs are classified as stimulants if they produce any of the following: 1) extended wakefulness, 2) elation, exhilaration, or euphoria (exaggerated sense of well being), 3) alleviation of fatigue, 4) insomnia, irritability or agitation, 5) apprehension or anxiety, and 6) flight of ideas, loquacity, hypomania, or transient deleria.

In pharmacological literature, stimulants are grouped according to the organ sites of primary activity. Because the amphetamines produce effects resembling those resulting from stimulation of the sympathetic nervous system, they are considered sympathomimetics. Other common sympathomimetic drugs are ephedrine and epinephrine. Slightly different in molecular structure, there are quantitative differences in the potency of various amphetamine-related compounds. In

common usage and in order of increasing potency, these drugs are amphetamine (Benzedrine), dextroamphethamine (Dexedrine) and methamphetamine (Methedrine).

Depending upon the dosage, route of administration, and the specific drug, amphetamines have varying degrees of the following types of physiological actions: 1) excitatory action on smooth muscles such as those in blood vessels supplying insulin, 2) inhibitory action on other smooth muscles such as those in the intestinal wall, 3) excitation of heart action resulting in increased heart rate and force of contraction, 4) metabolic actions such as increases in the conversion of glycogen into sugar, 5) an excitatory action of the C.N.S. resulting in respiratory stimulation, an increase in wakefulness, and a reduction in appetite (Nowlis, 1969).

In contrast to the opiates and some C.N.S. stimulants, amphetamines do not produce any specifiable withdrawal symptoms. Tolerance however, does develop, and, because of the user's need to escape the fatigue and depression which follows its use, amphetamine is said to lead to psychological dependency. The normal therapeutic dose ranges from 5-15 mg. The average intravenous "abuser's" dose,

however, is about 310 mg. Some users have been known to "shoot" as much as 1000 mg. (Schick, 1969).

Because of the difficulty in defining a discrete abstinence syndrome, and the knowledge that the amphetamines were being abused in various countries, the World Health Organization (1964) formulated a specific definition of drug dependence of the amphetamine type: A state arising from repeated administration of amphetamine or an agent with amphetamine-like effects on a periodic or continuous basis. Its characteristics include, 1) a desire or need to continue taking the drug; 2) consumption of increasing amounts to obtain greater excitatory and euphoric effects or to combat more effectively depression and fatigue, accompanied to some measure by the development of tolerance; 3) a psychic dependence on the effects of the drug related to a subjective and individual appreciation of the drug's effects; 4) general absence of physical dependence so that there is no characteristic abstinence syndrome when the drug is discontinued.

D. Historical and Demographic Perspective

Although it had been smoked throughout the world for many centuries, opium was not noted for its addictive

potential until about 1880, 20 years after the invention of the hypodermic needles. The advent of the civil war, the synthesis and utilization of morphine for the treatment of wounded soldiers, and the migration of nearly 70,000 Chinese laborers (many of whom were opium smokers) led to the increase of opium imported to the U.S. from 20,000 pounds in 1866 to 295,000 pounds in 1883 (Lasagna, 1970).

Prior to 1920, the number of narcotics addicts in the U.S. was greater than it is now. It is commonly estimated that one out of every 400 people were addicted. Those who were addicted in the early 1900's used opium and morphine preparations, and were primarily Chinese and Caucasian. The Harrison Narcotics Act of 1914 greatly restricted the supply of these drugs. By the years 1940-45 the supply of opiates in this country had become so sparse that the number of known addicts dropped down to about 20,000. After World War II heroin again flowed more freely to the U.S., and it is estimated that the number of addicts rose to approximately 60,000 in the early 1950's. Current estimates range from 100,000 to 200,000 with the majority of addicts living in large metropolitan areas. The addiction services agency in N.Y.C. now estimates that one in 80 persons in the city is

addicted to narcotics (D. Louria, 1969), compared to one out of 4,000 persons in the population of the U.S.

Although most illicit traffic of narcotics occurs in the large city, a relatively small portion of the metropolis is directly involved in the addictive scene. Chein (1964) found that in the most desolate 15% of the city where 75% of addicts live one boy in ten tried heroin, and fewer become addicted. In the ghetto, it is common for adolescents to "skin pop" for years without developing enough of a dependency to produce withdrawal symptoms.

The mean age of addicts has fallen drastically in the past 25 years. In 1937, less than one male patient in five was under 30, while in 1962 almost one-half were (Laurie, 1969). It is currently estimated that as many as one-quarter of our present addict population is teenagers. The ethnic distribution of addicts has also undergone significant changes. Before World War II, only 10% of the patients at U.S.P.H. narcotics hospitals were non-white. It is now estimated that two-thirds of the addicts are Negro or Puerto Rican. The trend may be reversing, however, as demographic data begin to show that heroin addiction is rapidly spreading to the middle class (Time, March, 1970).

America's addicts, by virtue of their life style, socio-economic status, or youth, are for the most part unemployable. Although "dealing" enables some addicts to earn as much as $500.00 per week (Scher, 1962), most users steal to support a $100.00 per day habit. It is estimated that ten million dollars a day in crimes are committed to support addictive habits (Hekimian, Gershon, 1968).

The frantic need to obtain the drug in the context of illicit and unsanitary settings can lead to illness and fatality. In Turkey, one kilogram of heroin is worth $350.00. When it reaches N.Y. and is "cut" into five dollar bags which contain only 5% heroin, the drug has a black market value of $225,000.00. Often users are sold bags of unknown quantity and quality. Fatalities can result from overdose, hepatitis, and poisoning. In one year (1969-70) there were an estimated 900 heroin-related deaths (224 of whom were teenagers) in N.Y.C. (Time, March, 1970).

In attempting to understand the complex question of why certain individuals turn to heroin, some researchers have focused on the addict's family life. In Chein's study (1964), for example, he found that among youthful heroin users, family life was disturbed by separation, divorce, open

hostility, lack of warmth, or lack of mutual interest, in 97% of the cases. In 80% of the homes, the boy experienced an extremely weak father-son relationship; in 48% the boy had no father figure during a "significant" part of childhood; the father figure was cool or hostile in 52%, immoral in 23%. The mother figure was more important than the father in the boy's life during late childhood in 73%. The parental standards were vague or inconsistent in 63%; and in 23% there was no clear pattern of roles in the formation of disciplinary policy. Family chaos was found in all users, independent of whether they were Puerto Rican, Negro, or white.

In another study (Gerard & Kornetsky, 1954) of addicts at the U.S.P.H. hospital in Lexington, the researchers found "no essential relationship between drug addiction and socio-economic groups." The gross aspects of family structures in which patients were reared were "variable". Mothers: excessively controlling and strict (40%) or excessively indulgent, non-disciplinary (48%), and/or seductive (24%). Fathers: absent, deserted, separated or divorced (60%), or actively punitive, moralistic (30%), paranoid and controlling (20%). Relationships between parents: poor (70%), with father a weak and ineffectual figure held in contempt by the

mother and children. The authors concluded that "the least qualified generalization which could be made about the families of these patients is that they were of the types which psychiatric experience suggests are productive of serious difficulties in adjustment."

Given that an individual's mode of coping with the difficulties engendered by his family and surroundings becomes addiction to heroin, his chances of "cure" seem exceedingly slim. After having surveyed the literature on post-institutional adjustment of addicts, Kaplan and Mayerowitz (1969) conclude: "The best information now available on what happens to persons treated for drug addiction is provided by a follow-up study of some 1900 cases. Within six months after having been released from U.S.P.H. service hospitals for narcotics addiction more than 90% were readdicted."

Stimulants, like opiates, have been used throughout the world for many centuries. The juices of the coca leaves (molecularly similar to amphetamine) provided a sense of well-being and endurance to Andean Indians since before the Spaniards. Among the synthetic stimulants, amphetamine was first prepared by Edeano in 1887, and methamphetamine by

Ogata in 1919. It was not until 1927 that the psychopharmacological effects of amphetamine were first described. Benzedrine was first used medically in 1935 in the treatment of narcolepsy, and was used shortly thereafter as an anorectic. From the 1930's through the 1950's medical use of amphetamine became extensive and it was looked upon as a useful and relatively safe pharmacological agent. As recently as 1963 the AMA Council on Drugs stated that compulsive use of the amphetamines constitutes a small problem in the United States. By 1966, however, the AMA Committee on Alcoholism and Addiction noted that sufficient amphetamine products were available in the United States to supply 25-50 doses to every person in the country that year (Kramer, 1969).

Stimulant abuse, particularly the intravenous use of methamphetamine (methedrine), has become a major problem in many cities throughout the U.S. and Europe. In Stockholm, for example, there are an estimated 6000 addicts, most of whom are intravenously using Preludin and Ritalin. Both drugs are in the same category as the amphetamines used here (N.Y. Times, April 10, 1970). In the U.S., studies show that while 5000 people in Oklahoma City are getting amphetamines illegally, 4000 people in San Francisco are

regular users (Kramer, 1967). Although heroin may currently be America's most widely used addictive agent, amphetamine abuse seems to be a problem of similar magnitude.

Unlike heroin, amphetamine is not a ghetto drug. Fischmann (1968, Int. Journal of Addictions) gathered important demographic data on stimulant users which supports this notion. He describes a "typical" speed user as a white "anglo" native to the San Francisco area. He is more literate, has a somewhat higher I.Q., higher socio-economic background, more education, than the average narcotic addict. Fischmann's study seems to be in accord with the finding that widespread amphetamine abuse is highest amongst medical personnel, with housewives and nocturnal workers ranking second and third. The same study also reported amphetamine abuse to be high in various underworld circles; petty thieves, convicts and prostitutes (J. Black, N.Y. Times, 1970). A study conducted by Clark and Funkhauser (1970) lends further support to the notion that among the middle class, amphetamine is a more preferred drug than heroin. When asked to rate the personal risk in taking each of a variety of drugs, respondents rated opiates and hallucinogens as the most dangerous drugs, while amphetamine, tobacco and sedatives

were regarded as more dangerous than marijuana and alcohol.

The trend toward more youthful abusers of drugs appears to be manifest in amphetamine as well as heroin abuse. In a study of 60 amphetamine abusers conducted at Bellevue Hospital in N.Y.C., the mean age of abusers was found to be 25 years (Angrist, 1969). This mean age seems comparable to the estimate that more than one-half of the heroin abusers are under 30, and one-fourth are teenagers. The age of the abuser and the psychological impact of the drug (see section on psychological aspects) render the amphetamine addict, for the most part, unemployable. Although the price of a speed habit is relatively cheap with respect to heroin ($15-30 per day in 1972), the addict must often resort to stealing to maintain his habit. The instability of the youthful "speeder" has been offered as an explanation for speed's partial exclusion from the lower class. "Like the heroin addict, the speed freak often works up a costly habit and the poor must hustle to pay for drugs. . .the junkie is relatively cool between hits. But the speed freak is generally so completely disoriented and trapped on his private 24-hour treadmill that hustling is out of the question." (J. Black, N.Y. Times, June, 1970). Much of the violence

that is attributed to the speed community may be related to the frantic need to obtain the drug and the inability to stabilize enough to commit non-assaultive burglaries.

Regretably, the demographic data with regard to amphetamine abuse is neither as extensive nor well documented as that of heroin addiction. The apparent gap in the literature between these very potent and widely used psychotropic agents is multiple determined. The recency of the phenomenon, legality of possession and sale, and dramatic impact of toxic effects are all related to the just emergent exploration of amphetamine abuse. While heroin addiction has been a major problem in this country since the turn of the century, addiction to stimulants has emerged as a problem within the past ten years. Although speed may be ultimately as lethal as heroin, its toll does not show up as directly. One cannot estimate, for example, that 250 teenage lives are taken each year as the result of amphetamine addiction. Because amphetamines are somewhat useful clinically, most states are still lenient in their legislation with regard to these drugs. In N.Y.C., for example, the possession of any amount of amphetamine is merely a misdemeanor. With heroin, possession of one-eighth of an ounce is a felony, and more

than a pound can result in a lifetime sentence. There have been far more arrests and convictions related to heroin addiction, and hence more subjects for study.

Although heroin and amphetamine addiction often occur independently, they are by no means mutually exclusive. An unknown number of individuals who are defined by society as one type of addict or another are more appropriately characterized by the term "status-medicamentosis", a condition found in individuals who regularly but indiscriminately medicate themselves with a variety of drugs (Wahl, 1967). It is documented observation that many stimulant users will use opiate or barbiturate drugs to counteract the unpleasant side effects of amphetamines or psychedelics. Some opiate users are known to use stimulants where there is a drought in their heroin supply. Kramer, et al. (1967), in his study of amphetamine abuse at the California Rehabilitation Center took note of this phenomenon of multiple drug abuse. Almost all of his subjects had extensive experience with other drugs, including marijuana, opioids, and barbiturates, and most had tried psychedelics. He was able, however, to differentiate between two discrete categories of amphetamine users: "preferential" and "facultative". The preferential

user has tried opioids in the past but discovered that the effect produced by amphetamines is preferable to him. The retreat and somnolence produced by the opioids are a "waste of time". The facultative user, on the other hand, prefers opioids, but because they are too expensive or difficult to get, is willing to substitute amphetamines. Kramer concludes by stating, "Thus it appears that a difference in drug of choice occurs in drug users, some preferring chemical assistance toward activity-approach, others desiring chemical assistance for passive solitude."

For many abusers, perhaps a majority, the addictive agent is determined by features of the user's social setting, i.e., cost, availability, legality. Clinical experience and research, however, show that many abusers have a preference for a particular kind of psychotropic drug. In order to more clearly assess the relationships between the addictive agent and the user's personality, subjects in this study are individuals who have established addiction to a particular agent as a matter of preference. From here on, reference to the term drug abuser, in the context of our development of hypotheses, shall refer to what Kramer (1967) has defined as the "preferential drug abuser".

E. Psychological Perspective

Pharmacological literature differentiates heroin from amphetamine in terms of its effects on the C.N.S. Social data reveal that age and socio-economic status are relevant variables in understanding the incidence of various types of drug abuse. Psychology has lagged behind related disciplines, however, and has not yet defined the psychological differences between heroin and amphetamine abusers. Primarily because of the high incidence of heroin abuse in previous years (see demographic perspective), drug researchers and theorists have traditionally addressed themselves to the phenomenon of narcotic addiction. Recently, however, attention has been turning to the current trends of multiple drug abuse and addiction to specific pharmacological agents. There is now a sufficient backlog of theoretical material to begin testing hypotheses with regard to specific mind influencing agents: namely heroin and amphetamine.

Early analytic thought viewed addiction in terms of oral libidinal strivings. In 1905 Freud (Yorke, 1970) attributed smoking and drinking to oral eroticism, to a reinforcement of constitutional lip eroticism. Gradually,

analytic theory dismissed a purely "oral" interpretation and began to focus on the more aggressive aspects of addiction. The emphasis on oral modes that was prominent amongst addicted patients was seen as a defense against "primitive excretory sadism" (Glover, 1956). More recent analytic positions emphasize the role of ego defect and of alterations in ego functioning.

In Narcotic Bondage (1957) Rado emphasizes the importance of regression and defect in ego functioning. "Under the revised system of psychoanalytic thought, dependence on narcotic drugs is regarded as a malignant form of miscarried repair artificially induced by the patient himself...To explain the remarkable reaction, we must penetrate into the deepest and oldest strata of the mind formed during the early stages of ontogenic development. The narcotic superpleasure may be viewed as a developmental derivative of alimentary orgasm." Rado views depression as a primary etiological factor. He sees the patient who is about to develop drug dependence as one who has a long history of intolerance for pain coupled with "strong but often overcompensated dependency needs". Pearson (1964) views the addicts dynamics in much the same way as Rado. Drug abuse is seen as an act of self

medication with the pre-addictive personality seeking relief from a state of "tense depression". The drug experience is regarded as powerfully reinforcing, but regressive phenomenon. "When the individual provides himself with a drug that changes his pain to pleasure and his depression is replaced by an increase in self-esteem, the first step to addiction has occurred. The mind experiences an event it will never forget, which may be compared to a trip to the Garden of Eden or a regression to the blissful state of childhood."(p. 1167)

Using the analytic frame of reference, many researchers have attempted to uncover important personality variables related to narcotic addiction. In an intensive research design by Gerard and Korentsky (1954), 32 opiate addicts admitted to the U.S.P.H. service hospital in Lexington were given complete psychological test batteries (Rorschach, TAT, Bender, WAIS, Drawings) as well as comprehensive psychiatric interviews. The researchers found that they were able to assign four discrete diagnostic categories to their addict population: 1) overt schizophrenia (19%); 2) incipient schizophrenia (25%); 3) delinquency dominated character disorders (31%); 4) inadequate personalities (12%).

Within the category of character disorders, two types were identified and dynamic interpretations were given: 1) Pseudo-psychopathic Delinquents - "These patients attempt to deny and repress their underlying wishes for passivity and dependency by establishing role systems in which they defined themselves as if they were dangerous, criminal and strong men. They had been involved in serious delinquencies (gang fights) and interpreted this as pleasureable prior to and during drug abuse." 2) Oral Characters - "The predominant role systems these patients attempted to establish were those in which they were nurtured and cared for. They reacted with rage and refusal of nurturing and had low frustration tolerance. Delinquency was aimed at punishment and control of significant figures."

Aside from the four classifications, all boys were judged to have several features in common. There was a prevalent mood of depression, which was characterized by guilt, inadequacy, unworthiness, and pessimism. Problems in sexual identity and disturbances in interpersonal relationship were apparent. It was felt that opiates fulfilled several adaptive functions: a) The difficulties of living as a drug addict in our society facilitate denial and

avoidance of the patients' underlying problems. b) Opiate drug use helped treat overt psychiatric symptomatology: obsessions, delusions, anxiety. c) The drugs helped to control anxiety in interpersonal relating. d) Regressive and oral satisfactions accompanied by a feeling of separateness and lack of involvement in current difficulties in living were provided.

Hartmann (1969) has reported the results of one of the most comprehensive analytic studies of drug abuse. A study group of the American Association for Child Psychoanalysis studied drug abuse in 12 adolescent patients. The group attempted to study parental background with regard to libido, aggression, superego development, and the relationship of parent to child. The patients' libido, aggression, and superego development were studied, as well as ego functioning, affect and object relationships, both before and after experience with drugs.

In the course of therapy, 10 of the 12 patients were using drugs regularly. These patients were considered by the study group to be orally regressed or fixated. Both ego and superego functioning deteriorated and became less adequate while on drugs. This was apparent in impaired functioning

in school, difficulty in working efficiently and decreased reality testing. Eight of the ten patients were depressed before taking drugs and felt that the drugs helped to alleviate depression. Object relations became more superficial and contacts were primarily with other drug takers. Fusion fantasies were prevalent while sexual life more resembled masturbation than mature emotional relationships.

During childhood, many of the patients had to face the death of a parent or severe illness in a parent or themselves. Although conscious motivation was the avoidance of painful affects and the alleviation of symptoms, unconscious motives were considered to be the replacement of a lost object and a passive identification with the parent.

Reviewing their own findings, the group concluded, "If we look at these findings one by one, we must conclude that none of them could be called pathognomonic for drug users or drug addicts." The multiplicity of factors that seemed to describe the typical addict were summarized as follows:

1. There is a basic depressive character with early wounds to narcissism and defects in ego development.
2. There is an intolerance for frustration and pain with

a constant need to change a "low" into a "high". This may come from an early lack of satisfying object relations.

3. There is an attempt to overcome the lack of affectionate and meaningful object relations through the pseudo-fusion with other drug takers during their common experience.
4. The artificial technique of maintaining self-regard and satisfaction with drugs results in a change from a reality-oriented to a pharmacothymic-oriented regimen. This leads to severely disturbed ego functions and ultimately to conflict with reality. Eventually the drug taking becomes a way of life.

Analytically oriented theories and studies of drug abuse tend to conceive of the drug as a form of self medication, taken by the addict to relieve a sense of "tense depression" generated by a variety of intrapsychic conflicts. The ego is seen as "defective" in providing the necessary internal means for conflict resolution so that an external agent is employed to fulfill several adaptive functions (relief from interpersonal anxiety, maintaining self regard, etc.). The "switch to a pharmacothymic-oriented regimen",

however, leads to altered and more severely disturbed ego functions, and ultimately to greater conflict with reality.

The above generalizations seem applicable to most types of drug abuse but in their lack of specificity there is the sacrifice of much information. We are told, for example, that drug abuse is related to "ego defects", and that the drug effect produces alterations in ego functioning, some of which are adaptive. We have little or no information in regard to which specific ego functions are altered by the use of which psychotropic agent. The abyss in knowledge is even greater, when one considers the likelihood that specific pharmacological agents produce differential alterations in ego functioning. For the most part, psychological literature on drug abuse does not distinguish between the personalities involved in specific kinds of drug abuse (heroin and amphetamines in this study). Yet, there is a sufficient body of psychological (as well as physiological) literature to suggest that amphetamines and heroin produce differential psychological effects. If we accept Kramer's (1967) finding (see social perspective, page 19) that, in some abusers, specific drug choice is based on preference (rather than on drug availability), we are faced with the question of how do

abusers who "choose" heroin differ from those who "choose" amphetamine? Regarding the drug state as an altered ego state, which defects and alterations of ego functions are characteristic of the abuser who prefers amphetamines to opiates?

Ego Psychology and Drug Abuse

The current lack of specificity with regard to the role of the ego in psychoanalytically oriented studies of addiction is paralleled by the relative importance that recent psychoanalytic theory has placed on the role of the ego. More than a decade ago, Hall and Lindzey (1957) evaluated the development of ego-psychology: "There is no question as to how Freud felt regarding the relationship of the ego and the id. The id is the dominant member of the partnership. . . The new thinking among psychoanalytic theorists is to play up the role of ego in the total personality. Not only have they dealt with such problems as the development of the reality principle in childhood, the integrative or synthetic function of the ego, the auxiliary ego processes of perceiving, remembering, thinking, and acting and the defenses of the ego, but there has also been put forward the concept of the autonomy of the ego. . . . Such an ego pscyhology appears

to constitute a radical break from psychoanalytic tradition."

With the increased emphasis on the role of ego in the total personality, researchers have been striving to define and enumerate the various possible ego functions. Because of the complex interrelations of these functions (i.e., reality testing, defensiveness and object relations) progress has been slow. Rapaport (1959) conducted an historical survey of ego functions in which he comments, "The history of ego psychology would be relatively simple to outline if a precise definition of the ego and a full listing of its functions were available." After having extensively reviewed the literature, Bellak (1968,1969), starting with a list of seven ego functions, began to develop definitions and techniques for the comprehensive assessment of ego functioning. After several revisions and experimental validations of his scale, Bellak (1969) has defined the following 12 ego functions: 1) reality testing, 2) judgment, 3) sense of reality, 4) regulation and control of drives, affects and impulses, 5) object (human) relations, 6) thought processes, 7) adaptive regression in the service of the ego, 8) defensive functioning, 9) stimulus barrier, 10) autonomous functioning, 11) synthetic integrative functioning, 12) mastery competence.

Having definitions of the above characteristics and an instrument for measuring their relative strengths, (see method section), we are now in a position to begin formulating hypotheses in regard to the specific ego characteristics of drug abuse. The focus of our study is to determine the particular defects and alterations of ego functions that characterize abusers of two widely disparate psychotropic agents: heroin and amphetamine. We shall begin our preliminary analyses of the psychic meanings of these two drugs by reviewing their known psychological effects.

The Phenomenology of Drug Abuse

Typical reports on the phenomenology of the two kinds of drug experiences differ widely. "The action of (heroin and morphine) on the C.N.S. is that the addict feels that he has eaten to his heart's content, experienced full sexual satisfaction, and eliminated all anxieties as well." (Nyswander, 1956). Although it is a common belief that a primary action of opiates is the euphoria that follows its use, Savitt (1963) points out that the elation produced by these drugs has been stressed out of proportion to the sleep or stupor which soon follows. The user "seeks desperately to fall asleep as a surcease from anxiety and drug provides obliteration of

consciousness. Well expressed in the vernacular, the addict goes on the nod."

The amphetamine addict, quite contrary to going on the "nod", willfully propels himself on a "trip" that may last several days. He desires neither sleep nor quiescence. Kramer (1969) describes the hyperactivity induced in the amphetamine user. He views the most striking effect of amphetamines as its capacity to induce behavior which is persisted in or repeated for prolonged periods. "If the user is not too disorganized, the activity may, on the surface at least, be useful. Dwellings may be cleaned, automobiles polished or items arranged to an inhuman degree of perfection." These activities may be only partially completed when another compulsive task begins. Those with a mechanical bent may become interested in the non-functional reconstruction of mechanical devices; others may scribble or write for hours.

High intravenous users of amphetamines almost invariably experience some degree of paranoia. If doses are high enough and administration is chronic, the reaction is almost indistinguishable from paranoid schizophrenia. Although it has been suggested that the drug may merely serve to induce underlying psychotic trends, the available evidence suggests

that "anyone given a large enough dose for a long enough time will become psychotic" (Kramer, 1969).

Personality Differences Between Opiate and Amphetamine Abusers

Given that the two drugs produce widely disparate psychological effects, what are the personality differences between individuals who prefer to abuse one or the other agent? There is a paucity of research in this area, but there is a sufficient backlog of theoretical material to begin formulating and testing hypotheses with regard to distinct types of drug abuse. Recent analytic formulations relate the use of particular drugs to specific phases of childhood development and experience, while biologically based theory suggests that constitutional factors are important. We take the position that both factors are important since personality in general, and ego functioning in particular, are seen as the integrated result of maturational and experiential factors.

Weider and Kaplan (1968) theorize that the various possible states of intoxication are chemically induced regressive ego states. Different drugs are said to induce different regressive states that closely resemble specific phases of early childhood development. "The user harbors

wishes or tendencies for a particular regressive conflict solution which the pharmacology of a particular drug may facilitate: the repeated experiences of satisfaction establish preference for the specific drug."

Opiates, which reduce drive, are subjectively experienced as satiation. There is the "loss of libido and aggression and the appetites they serve." This turning inward is related to the "narcissistic regressive phenomena", which is described by Mahler (1968) as characteristic of the second half of the first year of life. The infant copes with the mother's absence by a "diminution of motor activity, an underresponsiveness to external situations, and a reduction of perceptual intake, as if the child must shut out affective and perceptual claims from other sources during the mother's absence" (p. 750).

Stimulants, in contrast to opiates, tend to increase the awareness of drive feeling and impulse strength and reduce fatigue. Motoric restless is viewed as an "illusion of activity which subserves denial of passivity". Stimulant intoxication is reminiscent of the period described by Mahler (1968) as the "practicing period" which occurs in the middle of the second year. Amphetamine intoxication and the

practicing period are both characterized by "a reinforcement of autonomous ego functions which aid in the neutralization of aggressive cathexis of self and object representations" which results in the reinforcement of autonomous ego functions which aid in the neutralization of aggressive cathexis of self and object representations. "The diminished danger of object loss in these analogous ego states facilitates activity approach in object oriented behavior."

F. Hypotheses

1. Total Ego Strength

Following from Weider and Kaplan's description, the opiate addict is coping with conflicts which are resolved in a more primitive style than those of the amphetamine addict. His regression is to an earlier phase of psycho-sexual development, and his coping mechanisms involve withdrawal and under-responsiveness to external stimulation. Using Bellak's (1969, p. 35) definition of ego strength as "total adaptive capacity", the opiate addict at least in the intoxicated condition, should have less "global ego strength" than the amphetamine addict.

By viewing the two states of intoxication as analogous

to specific regressive ego states, we can formulate hypotheses with regard to the alterations of particular ego functions. In Weider and Kaplan's conceptualization of opiate intoxication, they describe a condition of reduced drive which is manifested in "underresponsiveness to external situations, and a reduction of perceptual intake." The amphetamine abuser, on the other hand, neutralizes his "aggressive cathexes of self and object representations" which results in the reinforcement of autonomous ego functions and facilitates "activity approach in object oriented behavior". Based on these descriptions, we hypothesize that, in the intoxicated condition, amphetamine addicts differ from opiate addicts in terms of two specific ego functions: 1) autonomous ego functions, 2) object relations. These functions as well as ten others to be used in this study, are comprehensively defined by Bellak (1970).

To avoid redundancy but preserve clarity, a brief description of each function relevant to the development of hypotheses shall be given.

2. Autonomous Functioning

Autonomous ego functions involves the degree of impairment of apparatuses of primary autonomy (functional

disturbances of sight, hearing, language, etc.) as well as secondary autonomy (habit patterns, learned complex skills, etc.). From Weider and Kaplan's description of amphetamine as a "reinforcer of autonomous functions," as well as laboratory experiments (Cameron, 1965) that show amphetamine to improve certain aspects of intellectual performance, it is hypothesized that in the respective states of intoxication, amphetamine addicts will display a greater capacity to utilize their autonomous ego functions.

3. Object Relations

Object relations, as Bellak (1970) defines the concept, "contributes to adaptive functioning in so far as one's relationships with all others, particularly significant others, is based on an accurate understanding of and response to the other person for what he is today." The opiate addict, turning inward and becoming immersed in "a narcissistic regressive phenomena" in which he shuts out affective claims from the environment, is hardly in a position to engage in an independent, empathic relationship with another person. The amphetamine abuser, also severely regressed, is described, however, as having "neutralized aggressive cathexes of self and object representations", thus being less vulnerable to

object loss and freer to engage in object oriented activity. On the bases of these considerations, the amphetamine abuser is expected to have a greater capacity for object relations than the heroin abuser.

Weider and Kaplan's conceptualization of the addictive phenomenon and the hypotheses which have been derived relate, primarily, to the states of heroin and amphetamine intoxication. Our frame of reference which views the utilization of a chemical agent as a form of self-medication, to alleviate conflicts with which the ego cannot cope, leads us to inquire about the nature of the addictive personality while not under the influence of an intoxicant. In studying the personality with and without the drug, it is hoped that greater insight can be gained into the nature of the psychic meaning and function of the drug experience.

There is little in the literature from which to draw hypotheses about personality differences between heroin and amphetamine addicts while not under the influence of the drug. Fischmann (1968) although quite unsophisticated in his research design, undertook one of the few studies in this area.

Using a research method based upon the observations of

correctional counselors who "had extensive experience with amphetamine and heroin users", he was able to make some interesting comparisons between the two types of addicts in the California Rehabilitation Center. He states that amphetamine users are continuously reported to be: more open in groups, more outgoing, less withdrawn, more flexible, more hypersensitive, more ready to express insecurity, more insightful, with more open displays of hostility.

Although the preceding descriptions are based on behavioral observations, by implication, the amphetamine addict has a more integrated ego apparatus than the heroin addict. These differences, however, are not in accord with the findings of Ellinwood (1967) who compared psychiatric interviews and MMPI profiles of both types of addicts. He found amphetamine abusers to be more withdrawn, sociopathic, resentful of authority, and they had a higher incidence of non-drug psychiatric hospitalizations than the usual opiate addict. MMPI profiles revealed differences between the two groups in terms of psychopathic deviance, schizophrenia, psychasthenia, and hypochondriasis. The authors concluded, "There is evidence from both diagnostic and psychological test data that amphetamine abusers are different from other

addicts. Patients drawn to use amphetamines are more sociopathic and exhibit more bizarre and eccentric behavior." (p. 276).

In evaluating the contradictory findings in the two studies, one must consider differences in methodology and subject populations. While the Federal hospital in Lexington is regarded by many as a last resort for hard core criminal addicts, the California Rehabilitation Center heavily emphasizes treatment and its commitment proceedings are similar to those employed for the mentally ill. Although Ellinwood and Fischmann are in discord with respect to the relative degrees of ego strength in the two types of abusers, amphetamine addicts appear to both researchers as more "acting out" in their behavior. What Ellinwood regards as sociopathic, Fischmann may have seen as "openness, flexibility, and more open displays of hostility". There is an emergent picture of a more active, aggressive, emotionally labile personality of the abuser of amphetamines.

4. Regulation and Control of Drive, Affects, and Impulses

The discrepant findings of the investigators in terms of overall adaptive functioning render us unable to predict the relative degrees of ego strength in each group of

non-intoxicated addicts. We do, however, have some basis for formulating an hypothesis with regard to the specific ego function of "Regulation and Control of Drives, Affects and Impulses." This function concerns the directness of impulse expression and the effectiveness of delay and control mechanisms. The non-intoxicated amphetamine addict appears to differ from his heroin addicted counterpart in this regard. He is portrayed in the comparative literature as more emotionally labile and given to more extreme expressions of drive related behaviors. The non-intoxicated amphetamine addict is predicted to be less adequate in terms of the "Regulation and Contrl" function of his ego.

So far we have made predictions as to the relative adequacy of specific ego functions in heroin and amphetamine addicts under conditions of intoxication and abstinence. A third area of interest is the alteration of ego functions within a specific group of abusers. Viewing the psychotropic agent as a form of seld medication, we are interested in assessing how the addict may benefit from self administration of a particular drug. Within the group of heroin/amphetamine addicts, how are ego functions altered by the intoxicant?

5. Stimulus Barrier

Ellinwood, defining amphetamine abusers as "psychopathic" utilizes Eysenck's (1957) biologically based formulations in explaining the amphetamine addict's attraction to stimulant drugs. According to Eysenck, it has been demonstrated that psychopaths show a strong tendency to be extraverts in their behavior and their test scores. The extraversion is brought about by the psychopath's constitutional reduction of "internal mechanisms for non-specific arousal and for retaining the emotional or conditioned significance of stimuli." In psychopaths, excitatory potential is weak and its generation is slow. (The reverse is true of introverts). Ellinwood (1967) theorizes that amphetamines produce a calming effect on the psychopathic personality by "stimulating internal arousal mechanisms and thereby reducing the need for novel environmental stimuli."

Ellinwood's formulations, in accord with analytically oriented theorists, suggest that the amphetamine abuser, like the narcotic abuser, is using the drug in an attempt at self-medication. The stimulant user's sensitivity thresholds are higher than the heroin addict's, and he alters his state by employing an agent that lowers these thresholds. Eysenck (1957) supports this notion in stating, "There is ample

clinical evidence to suggest that extraverts, and particularly psychopaths, are much more tolerant of amphetamine than are ambiverts and introverts, and that stimulant drugs of this kind have an ameliorating effect on their behavior. Conversely, they do not seem to tolerate depressant drugs as well, and are affected for the worse by them." Based on these considerations, amphetamine and heroin abusers are expected to alter their "stimulus barrier" in the direction of greater adaptation through drug intoxication.

Having reviewed the literature with regard to pertinent aspects of heroin and amphetamine abuse, we have hypothesized specific disturbances and alterations in ego functioning. Our predictions have encompassed three broad areas of inquiry: 1) How do intoxicated heroin and amphetamine addicts differ in specific aspects of ego functioning? 2) How do abstinent heroin and amphetamine addicts differ in specific aspects of ego functioning? 3) How do amphetamine/heroin addicts alter their specific ego functions in the drug induced state?

If the various ego manifestations of heroin and amphetamine abuse differe significantly, the implications for treatment and future etiological explorations are vast. As with current research on schizophrenia (Bellak, 1969) the

study of ego function patterns in this project serves the primary purpose of differentiating the large group of those designated as "drug addicts". We are not asserting that the addictive syndrome is primarily a psychological one, due to ego function disturbances. Sociological, physiological and psychological factors seem to be in interaction, and these factors manifest themselves in affecting general and specific aspects of ego functioning. The study of these ego functions may lead back to causitive factors (i.e., "Stimulus Barrier" disturbance is more likely to be constitutional than "Object Relations"). Having demonstrated specific ego disturbances, we will be in a much stronger position to devise more individualistic, concrete, and effective treatment programs.

II. METHOD

A. Sample

The subjects were 10 male heroin and 10 male amphetamine abusers and 10 "normals", drawn from Bellevue and from informal contacts throughout N.Y.C. They were matched as closely as possible for age, sex, socio-economic status, and involvement with drugs. The absence of psychotic symptomalogy was necessary for inclusion in the project. Ranging in age from 21-30, subjects were Caucasian and middle class (Hollingshead Social Class index). They were diagnosed by two independent psychiatrists (not connected with this project) as non-psychotic. Involvement with drugs in the past year was "preferential", and had reached the level of "abuse". Administration had been primarily intravenous. The definitions of "preferential" and "abuse" were based on the work of other investigators (Kramer, 1967; Shick, 1969) in the hope that this would aid in the comparability of our findings. The "preferential" abuser of amphetamines reported that he had tried opiates but their effects were experienced as unpleasant to him. We were thus insuring that

drug choice was not purely a function of social milieu. "Abuse" was defined in terms of mode of administration (intravenous) and number of times used in the past month (amphetamines: 9-30; heroin: more than five times). Average single doses for amphetamine were in the range of 200-500 mg., while doses for heroin ranged from .5-1.5 grams. Subjects who reported doses in excess of these upper limits were considered "atypical" and not included in the project.

B. Instruments

The principal instruments used in this project were designed by Bellak and his colleagues (1968, 1969, 1970). They included the Interview Guide and coordinated Interview Rating Manual (Bellak, L., Hurvich, M., Gediman, H., 1973). Although the manual is sufficiently comprehensive to permit reliable ratings of ego functions from most clinical interviews, the Interview Guide is especially keyed to provide structured (with some degree of openendedness) questions, tapping various areas of egofunctioning. These areas include: 1) Reality testing, 2) Judgment, 3) Sense of reality, 4) Regulation and control of drives, 5) Object relations, 6) Thought processes, 7) Adaptive regression,

8) Defensive functioning, 9) Stimulus barrier, 10) Autonomous functioning, 11) Synthetic functioning, and 12) Mastery competence.

Originally designed for research on schizophrenia, the coordinated assessment techniques were considered applicable to our current project on drug abuse. As Bellak (1968) noted: "The ego function measuring devices provide a profile of personality variables that reflect the adaptive strengths and weaknesses of the individual. One can readily see the possible applications in drug evaluation. Different drugs could be assessed with regard to their effects on the various ego functions. Specific hypotheses could be worked out comparing differential outcomes for ego functions associated with various drugs." (p. 601).

Starting with a consensually validated list of seven ego functions, Bellak and his colleagues (1968, 1969, 1970) expanded and continuously revised the list to include 12 ego functions which "correlate highly but in independently varying ways with each other and with total ego strength." The conception of ego functions and attempts to measure them is modeled after "general factor" conceptions of intelligence. Ego strength or total adaptive ability can best be understood

as a manifestation of a general factor which is interrelated with a variety of specific factors.

Within the past few years, the scale has been demonstrated to have sufficient reliability and validity to be used in the current project. A preliminary analysis (Bellak, 1969) was conducted on 16 subjects (5 normals, 5 neurotics, 6 schizophrenics). The interview scale, a standardized psychological test battery (WAIS, Rorschach, T.A.T., Figure Drawings, Bender Gestalt), and laboratory tests, were administered to assess ego functioning. The investigators found that judges could attain high levels of agreement using the interview manual and, that subjects from the three groups which could be expected to differ in the adequacy of ego functioning, were found to differ in the predicted direction on all of the ego functions. Results from the scale were also in accord with psychological and laboratory tests.

In a more expansive application, Bellak (1970) administered the scale to 100 subjects consisting of 50 schizophrenics, 25 neurotics and 25 normals. Subjects were diagnosed by two different raters (other than the interviewer). The scale was again successful in differentiating

the three groups. Product-moment, coefficient correlations, adjusted for the two judges, using the Spearman-Brown formula, ranged from .80-.89 on eight of 11 functions.

The Interview:

The Interview Guide contains twelve sets of specific questions; each set keyed to its corresponding Ego Function Scale as written up in the Interview Rating Manual. Where interview questions could not be placed in a pre-arranged format, or where the subject digresses, the interviewer is expected to utilize his thorough knowledge of the Rating Manual and its relation to the Interview Guide. The primary purpose of the clinical interview is to provide data on the twelve ego functions such that they can be reliably rated. The guide is deliberately overly broad to include extreme degrees of adaptive strengths but interviewers are encouraged to shorten the questioning whenever appropriate. The interviewer is given license to depart from the guide whenever he sees fit, in eliciting information to maximize reliability of ratings. Although the guide offers specific questions, worded in a particular way, the interviewer is instructed to gear his verbalization of the questions to the subject's background and intelligence level. Questions are phrased in such a way as to

Object Relations

General Questions Tapping Degree and Type of Disturbance in Interactions

1. How do you get along with people, generally? Any ups and downs? When there is trouble with whom is it most likely to be? A lover? A friend? Relative? Immediate family member? Casual acquaintance? A stranger? (Interviewers: Probe for what is most relevant.)

2. As a child, how did you get along with your parents? What sort of person was your father? Your mother? (Don't repeat what was offered from initial rapport section.)

3. Do you feel just plain unlucky when things go bad with people, or is it something else? Something you do? Specify. What do you suppose really causes trouble or ups and downs? (Interviewers: Probe for evidence of symbiotic, narcissistic, sado-masochistic possibilities.)

4. Have you discovered that no matter how hard you try to avoid them, the same difficulties crop up in most important relationships? Can you describe these recurrent difficulties?

5. Have you ever had an unhappy love affair? Did it break up? How did you feel about that? How did you react? What about an important friendship that broke up? How did you feel? How did you react? Were you ever separated from your parents when you were a child? For how long, and under what circumstances? How do you remember reacting?

6. When things are going bad, or you feel troubled, do you prefer company or to be alone? (Interviewers: If subject shows evidence of dependency, inquire how he feels and what he does when he wants company but it is not available.) When do you like to be alone?

7. Do you ever feel lonely even when you are among friends and people you know well? Has it ever been so that anybody's company would be better than being alone?

Questions to Tap Contact Needs and Pregenital Fixations

8. Is it important for you to be very close to someone?

9. Would you prefer a great many, a few, or just one or two friends? Or maybe no friends at all? How many friends

do you actually have? Close ones? Acquaintances?

10. How easily are your feelings hurt? Are you sensitive to criticism? To being left out of things?

Questions to Tap Communication and Empathy

11. How important is it for you to understand and be understood? Do you ever have a hard time understanding people and their feelings? Often? What do you think causes this (whether ease or difficulty)?

12. How well do other people understand you? Is it easy or difficult to make your feelings known to others? What do you think the difficulty (or ease)? How do you react when things don't go so well along these lines?

Questions Tapping Object Choice

13. (If long-term mate has not been found): What have the difficulties been in finding a suitable partner? Is this because of a lack of opportunity to meet the sort of person you'd like to spend your time with? Is it due to something else? What?

minimize the social desirability of positive or negative responses.

Although a total presentation of the interview guide is beyond the scope of this section, the reader is presented with the specific questions tapping "Object Relations", so that he may get a feeling for the interview.

The Rating Process:

The Rating Manual defines a 13 point scale for measuring each of 12 ego functions. In addition, it includes an ID scale and a Superego scale. Each of the 12 ego function scales is ordinal; the variables being dimentionalized are rank ordered along a 13 point continuum. Scale points 1, 3, 5, 7, 9, 11, 13 (referred to as modal stops) are defined, while the even numbered stops are not defined. Modal stop #1 represents the most maladaptive manifestation of the function being rated and modal stop #13 represents the most adaptive. Scale stop #11 is defined on all scales as "average"; referring to "absense of any notable maladaptation yet short of optimal". The various levels of adaptation are not based on statistical norms but on consensually validated notions of adaptation. Although scale stops are not equidistant from one another (as in an interval scale) the stops across all

scales are geared to reflect the same degree of adaptation; i.e., stop #3 on any given scale is approximately equal in maladaptiveness to stop #3 on other scales.

The rater's major task is to make an accurate global rating on a 13 point scale for each of the 12 ego functions. He or she is urged to use whatever information is available, whether from a specific indicator or from an overall impression, when making a rating. Degree, intensity, frequency, pervasiveness, and extensity, of the phenomena being rated for any scale are always to be kept in mind. Each may supercede in importance the specific modal description in determining the rating. With respect to pervasiveness, especially, the rater is directed to consider whether the phenomenon is observed only during the present, or whether it is chronic. The more pervasive with respect to long range time spans, the more maladaptation would be reflected in the behavior and thus the assigned rating. The rating sheet allows for each subject to be rated according to lowest level, highest level, present level and characteristic level. (In this project we are more concerned with present and characteristic levels). The rater is cautioned to take environmental conditions into account when formulating his

ratings. He or she considers whether the behavior reflecting any given function occurs in an "average expectable environment" or if it occurs following some precipitating, potentially traumatic stress. (A person who hallucinates after a surgical procedure is not viewed as responding as pathologically as a person who experiences no precipitating stress.)

After having listened to the entire (taped) interview, making notes as he or she goes along, the rater is ready to begin assigning specific ranks to each ego function. The rating sheets provide sections for recording evidence for each ego function rating. For each function, the component factors are designated on the rating sheet so the rater can immediately record his evidence under the component factor to which it pertains. The rater then picks that scale point which most closely reflects the subject's level for the given ego function. He bases the rating on the specific evidence he has recorded on the rating sheet, qualified by his overall impression from the entire interview. When the subject falls between two defined (modal) scale points, then the rating would be made at the non-defined stop falling between the two (i.e., 2, 4, 6, etc.). The portion of the guide which defines "Object Relations" is included below.

Object Relations

Instructions to Raters:

Component Factors

a. the degree and kind of relatedness to others (taking account of withdrawal trends, narcissistic self-concern, narcissistic object choice or extent of mutuality).

b. the extent to which present relationships are adaptively or maladaptively influenced by or patterned upon older ones.

c. the extent to which he perceives others as independent entities rather than as extensions of himself.

d. the extent to which he can maintain object constancy--i.e., can sustain relationships over long periods of time weathering both the physical absence of the object and the presence of frustration or anxiety related to the object.

Object Relations contributes to adaptation insofar as one's relations with all others, particularly significant others, is based on an accurate understanding of and response to the other person for what he is today. Optimal relationships would then be relatively free of maladaptive elements of the sort suggesting patterns of interaction which were more appropriate to old situations than to the present. The most pathological extreme would be essentially an absence of object relations; next would be present relations based on early fixations and unresolved conflicts. Optimal relations would be the most mature: Free of transference distortions, and gratifying to adult libidinal and ego needs.

Intensity, diversity, pervasiveness and so forth are not always essential components to span the entire scale, but to make global ratings, the rater is instructed to keep in mind the quality of the person's relationships to significant people as having more weight than relationships to peripheral people. For more pathological adaptations the disturbances

in object relations will be assumed to extend to a broader range of contacts than they would in the moderately maladaptive categories, where pathology might be limited to one or two significant relationships.

Scale:

1. Essential lack of any object-relatedness. Withdrawal, as into stupor or muteness; or living like a hermit or recluse; "relationships" are pre-symbiotic, mostly autistic.

3. Withdrawal in most situations: (but not as extreme or pervasive as 1.) e.g., schizoid detachment rather than total withdrawal. Or else severely narcissistic or symbiotic relationships: e.g., folie a deux, vicarious objects, intensely sadomasochistic infantile binds. In general, either under-attachment, or over-attachment of an infantile nature. Relationships characterized by such childish traits as oral envy, destructive clinging, intense unresolved ambivalence, anal sadism. Present relationships characterized by transference based on very early fixations, and may reflect other disturbances in early mother-child relationship. Separation anxiety may be prominent as well as maladaptive reactions to object loss, loss of love or narcissistic injury.

5. Same as 3., but less pathological, pervasive and frequent.

7. Relations with significant people are characterized by neurotic-type interactions. Can be withdrawn, or of narcissistic (as in object choice) or symbiotic type, but not as regressed as levels 3. Examples would be Don Juanism, less infantile forms of sadomasochism, dependency, and where only some (usually significant) relationships are of this sort. Relationships might tend toward either the tenuous or the over-attached type. Would also then include the fringe, hanger-on person, most of whose relationships are tangential (yet degree of detachment less than in 1. or 5.). Transference from early fixations usually involving strong oedipal elements are found in current relationships. Castration concerns (anxiety) would be superimposed upon separation concerns (anxiety) determining the quality of relationships.

9. (Like 7. but less severe.) E.g., disturbed interactions with fewer people, or with one or more people but (less of the time than 7.). Variability and fluctuations are seen, from stable "average" relationships to the more disturbed.

11. Tending toward mature, object relations with "genital" goals. Occasional difficulties occur, but are resolved reasonably well.

13. Optimal relationships. No substantial evidence of fixations or distortions from early relationships. Gratifications are appropirate to current adult needs. Relationships are characterized by mutuality and reciprocity, and are so smooth as to permit optimal functioning in other areas as well.

C. Procedure

The initial phase of this project involved alerting administrators at various addiction treatment centers throughout N.Y.C. about the subject requirements for our research. Communications were arranged so that non-psychotic addicts (as diagnosed by two independent psychiatrists who were not directly connected with the study) were referred for possible participation in the project. Non-psychotic subjects were screened and eliminated if they did not fulfill the criteria as outlined in "sample" (p. 45). Population means and variances were matched with respect to age and I.Q. WAIS I.Q. scores were roughly assessed on the basis of the vocabulary subtest since it has the highest correlation with total I.Q. We expected that subjects would be readily accessible. In the course of six months, over six hundred drug abusers were admitted to Bellevue psychiatric hospital (Hekimian, Gershon, 1968); approximately one-fifth of whom were heroin addicts and one-fifth amphetamine addicts.

The initial interview was administered after subjects had been withdrawn from the addictive agent. Detoxification was objectively determined by standard laboratory procedures, i.e., urine analysis, etc. The average length of heroin

detoxification is roughly estimated at one week; amphetamine taking less time. Subjects were matched in terms of length of institutionalization prior to the baseline interview. The interview followed the questions outlined in the Interview Guide (slightly amended to avoid redundancy in the second interview). All interviews were tape recorded for rater evaluation. Each initial interview was expected to last approximately two hours.

The follow-up interview was administered one (1) to two (2) weeks after the initial session. Having carefully assessed the average dose that S's had been taking, (not in excess of 500 mg. of amphetamine or 1.5 grams of heroin) S's received a moderate dose of their chosen drug. In the case of heroin abuse, morphine was substituted for heroin because of its legality and pharmacological similarity. The S's received standard therapeutic doses, 15 mg. morphine, 20 mg. d-amphetamine sulphate. Although each S was interviewed in the drug and intoxicated conditions, he had no fore-knowledge as to whether he would receive the drug in the first or second session. Allowing one (1) hour for drug effects to stabilize, subjects were interviewed for the next two (2) hours. The entire S - interviewer phase of this

project required the closest of medical supervision and cooperation. Normals were interviewed twice under abstinence, as a control for interview effects.

The interviewer was the same in each condition and across all groups. She had no factual knowledge of the subject's drug classification or state of intoxication. S's were instructed not to mention specific types of drugs they have abused, or whether or not they were under the influence of a drug in the current session. In this way, we hoped biases and prejudices of the examiner would be minimized, moderating the tendency to elicit particular responses. Before tapes were rated, they were pre-edited so that accidental references to particular types of drug abuse were eliminated from the record. Hence, interviews couldn't he scored on the basis or pre-conceived notions about types of abusers. All ratings were conducted without specific knowledge of the S's drug preference or state of intoxication.

III. RESULTS

A. Reliability of the Ego Function Rating Scale

The Ego Function Rating Scale provided quantitative measurement of 12 ego functions, libidinal and aggressive drive strength, and super-ego adequacy. Reliability of the instrument was assessed by comparing the analyses of two (2) independent raters on 15 randomly selected interviews. The results of this comparison are presented in Table 1.

Table 1. Correlation Between Scores Obtained from Two Independent Scorers on the Ego Function Rating Scale (N=15)

Scale Dimension	r
Autonomous Functioning	.74
Synthetic Integrative Functioning	.89
Sense of Competence	.90
Reality Testing	.86
Judgment	.93
Sense of Reality	.86
Regulation and Control of Drive Affect and Impulse	.87
Object Relations	.90
Thought Processes	.71
Adaptive Regression in the Service of the Ego	.59*
Defenses	.81
Stimulus Barrier	.79
Libidinal Drive Strength	.78
Aggressive Drive Strength	.76
Super-ego Adequacy	.46*

*insufficient reliability

These correlation coefficients suggest that with the exception of Super-ego and Adaptive Regression in the Service of the Ego, all other dimensions had sufficient reliability for use in this study. Functions for which adequate reliability were not obtained were eliminated from further statistical consideration.

B. Effect of Two Interviews on the Normal Subgroup

To assess the effect of repeated interviews, data from the normal subgroup were submitted to the matched-pair t-test. (Spence, 1968). The insignificant t-scores indicated that in normals, ego function ratings are generally unaffected by familiarity with the interviewer and interviewer setting. These results are presented in Table 2.

Table 2. Differences Between First and Second Interviews in Ego Functions of Normal S's (N=10)

Scale Dimension	t
Autonomous Functioning	- .29
Synthetic Integrative Functioning	- .43
Sense of Competence	1.53
Reality Testing	.43
Judgment	-1.00
Sense of Reality	1.00
Regulation and Control of Drive, Affect and Impulse	1.03
Object Relations	.30
Thought Processes	-1.00
Defenses	3.12*
Stimulus Barrier	1.00
Libidinal Drive Strength	0.00
Aggressive Drive Strength	1.52

*$p < .05$

The significant t-score for Defenses suggests that normals were less defensive in their second interview. All other functions tended to remain consant, independent of repeated interviews.

C. Comparison of Heroin Abusers, Amphetamine Abusers and Normals Under the Condition of Abstinence

Normals in this study were used as a control group. They received no drugs in either interview. In order to define personality differences between heroin abusers, amphetamine abusers and normals, under the condition of abstinence, the data were submitted to unweighted means of analysis of variances. Normals were randomly selected such that for 6, data from the first interview were analyzed, while the scores for the second interview were examined for the remainder. In cases of significant differences as a function of Subject Type, Newman-Keuls tests were conducted to determine which particular groups differed. In cases of significant interactions, tests for simple effects were made to assess how specific subject types were affected by order of interview. Table 3 summarizes these analyses by presenting significant F-scores obtained by comparing specific ego functions and libidinal and aggressive drive strengths in heroin abusers, amphetamine abusers and normals while abstinent. Figure 1 shows mean ratings for the three groups in the abstinent condition. Data for Stimulus Barrier were qualitatively scored and thus not presented in Figure 1.

Table 3. Significant F-scores obtained by comparing Heroin Abusers, Amphetamine Abusers, and Normals under the condition of Abstinence (P < .01)

Scale Dimension	A (subject type)	B (measure-1st or 2nd interview)	AB
Autonomous Functioning	8.11		
Synth. Integ.	19.14***	4.08*	
Sense of Competence	14.68***		3.70*
Reality Testing			
Judgment	23.81***	8.82*	
Regulation and Control	14.42***	4.11*	
Sense of Reality	3.64**	3.20*	
Object Relations	19.60***		
Thought Processes	5.47	3.93*	
Defenses	16.57***	4.91**	
Stimulus Barrier+	8.09**		
Libidinal Drive Strength			
Aggressive Drive Strength	8.10	5.08**	

* P < .10
** P < .05
*** P < .001

\+ rated qualitatively

In all cases of significant main effects for Subject Type, Newman-Keuls tests indicated that normals and amphetamine abusers showed significantly more adaptive ego functioning than heroin abusers. There were no statistically significant differences between normals and amphetamine abusers. The

significant and nearly significant results for Interview Order indicated a trend for subjects to score more adaptively in the second interview (the abstinent condition was randomly assigned to either the first or second interview.) Figure 1 shows that with the exception of Autonomous Functioning and Sense of Competence, there is a trend toward a continuum of adaptive strength from heroin abusers to amphetamine abusers to normals. The significant interaction of Subject Type and Interview Order for Sense of Competence indicated that in either the first or second interview, abstinent amphetamine abusers had a higher Sense of Competence than heroin abusers. Normals showed a higher Sense of Competence than heroin abusers under the first interview but not the second. There was no apparent difference between normals and amphetamine abusers, irrespective of interview order. The qualitative analysis of Stimulus Barrier showed amphetamine abusers as significantly higher than heroin abusers with no apparent differences between normals and amphetamine abusers or normals and heroin abusers. Heroin abusers were seen as having significantly more aggressive drive strength than amphetamine abusers, with no apparent differences between normals and amphetamine abusers.

D. Personality Differences Within and Between Heroin and Amphetamine Abusers

Drug abusers were interviewed while under the influence of their preferred drug. Heroin abusers were given 15 mg. morphine intramuscularly. Amphetamine abusers were given 30 mg. of dextroamphetamine sulphate, orally. Each drug subject was interviewed once while intoxicated and once while abstinent. Data for drug subjects were submitted to factorial analyses of variances to determine differences within and between heroin and amphetamine abusers, under conditions of abstinence and intoxication, taking interview order into account. Table 4 summarizes these analyses by presenting significant F-scores obtained for specific ego functions and for libidinal and aggressive drive strengths. In cases of significant interactions, tests for simple effects were conducted to determine how subject types were affected by condition of intoxication and/or order of interview. Figures 2 and 3 show mean ratings for heroin and amphetamine abusers, under abstinent and intoxicated conditions.

TABLE 4

Significant F-scores obtained by comparing Heroin and Amphetamine Abusers under abstinent and intoxicated conditions with repeated administration of the Ego Function Rating Scale ($P < .05$).

Scale Dimension	A (drug type)	B (1st or 2nd interview)	C (abstinence or intoxication)	AB	AC	BC	ABC
Autonomous functioning	13.26**	4.60					
Synthetic Integ. Funct.	10.56**	4.87					
Sense of Competence	42.38***	7.55**			7.06**	3.45	
Reality Testing			3.25*				
Judgment	15.59**	5.83**			4.27		
Sense of Reality	5.37**	3.09*					
Reg. & Control of Drive Affect and Impulse	12.91**	6.09**	6.01				
Object Relations	13.31**						
Thought Processes	3.56	4.51					
Defenses	6.21						
Libidinal Drive Strength							3.25*
Aggressive Drive Strength	8.37	4.35					

* $P < .10$
** $P < .01$
*** $P < .001$

A significant main effect for Drug Type was observed for all Ego Function Rating Scale dimensions with the exception of Reality Testing and Libidinal Drive Strength. Irrespective of the subject's condition of abstinence or intoxication, amphetamine abusers showed scores which indicated a higher level of adaptive functioning on eight of ten ego functions. Sense of Competence was significantly higher for amphetamine abusers under both interview conditions. This function was rated according to the subject's subjective feelings of self-worth, independent of underlying defensive maneuvers. Interview Order yielded significant results in five of the 12 rated categories. Subjects had a tendency to score more adaptively in the second interview, whether or not they were intoxicated. The only significant result on Condition was recorded for Regulation and Control of Drive, Affects and Impulses. Both types of abusers tended to have greater control of drives, affects and impulses while abstinent. The nearly significant results for Reality Testing suggests that subjects tend to preserve a higher level while abstinent. There were no interactions between Drug Type and Interview Order, suggesting that drug abusers functioned more adaptively in their second interview independent of their drug preference.

There were two cases in which significant results were obtained for the interaction of Drug Type and Condition. Within heroin abusers, Sense of Competence is higher in the abstinent condition. Within amphetamine abusers, Judgment tended to be better without the drug. In one case there was a significant interaction between Interview Order and Condition. When the drug was administered in the first interview, Sense of Competence tended to be lower for both groups. Although there were no significant differences within or between groups for Libidinal Drive Strength, the nearly significant interaction effect of Drug Type and Interview Order and Condition, suggested that within the group of heroin abusers, there was a higher level of libidinal energy in the first interview, independent of the state of intoxication. The significant main effect for Drug Type on Aggressive Drive Strength showed heroin abusers as having more aggressive drive energy across both interview conditions. All subjects tended to be more aggressive in the second interview.

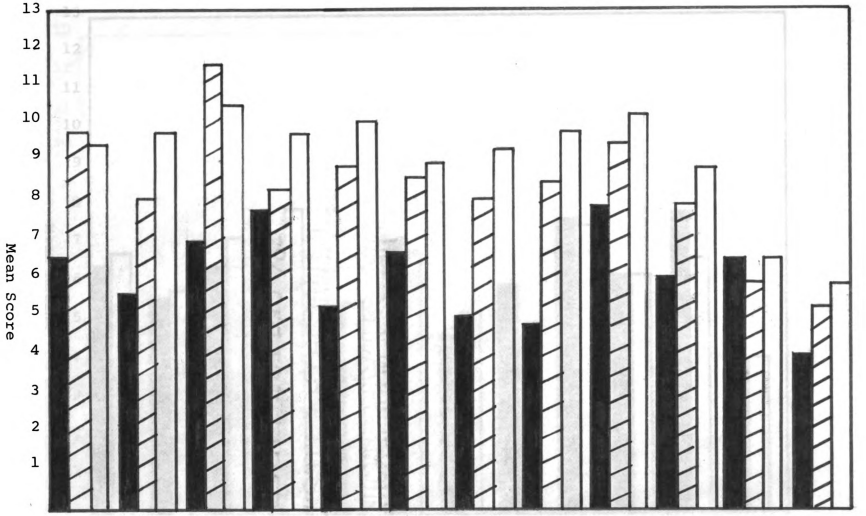


FIGURE 1. Mean ego function ratings for amphetamine S's, heroin S's & normals in the abstinent condition with ratings for libidinal and aggressive drive strengths.
*High score reflects lower drive strength.

FIGURE 2. Mean ego function ratings for heroin abusers in abstinent and intoxicated conditons with scores for libidinal and aggressive drive strength (N = 10).
*High score reflects low drive strength.

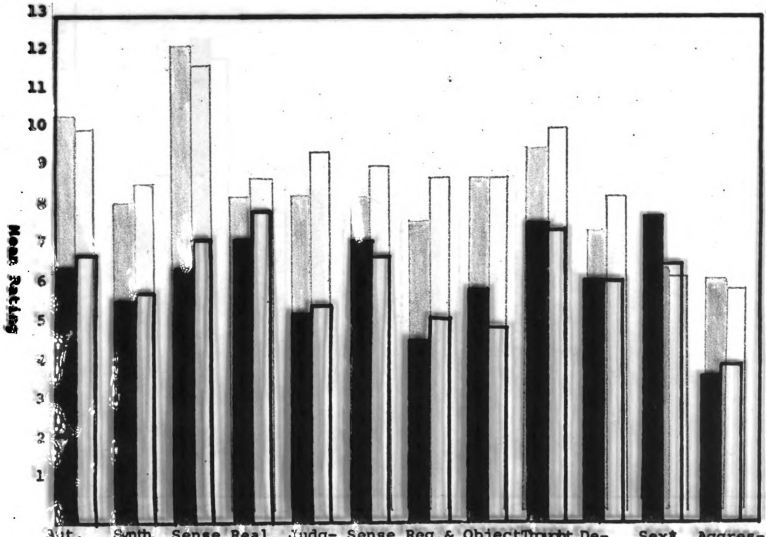


FIGURE 2. Mean ego function ratings for heroin abusers in abstinent and intoxicated conditons with scores for libidinal and aggressive drive strength (N = 10).
*High score reflects low drive strength.

**Underlay shows scores for amphetamine abusers.

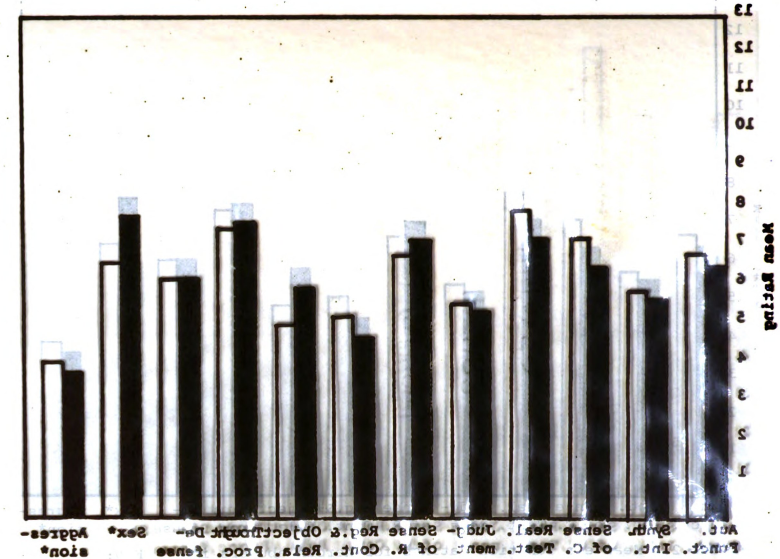
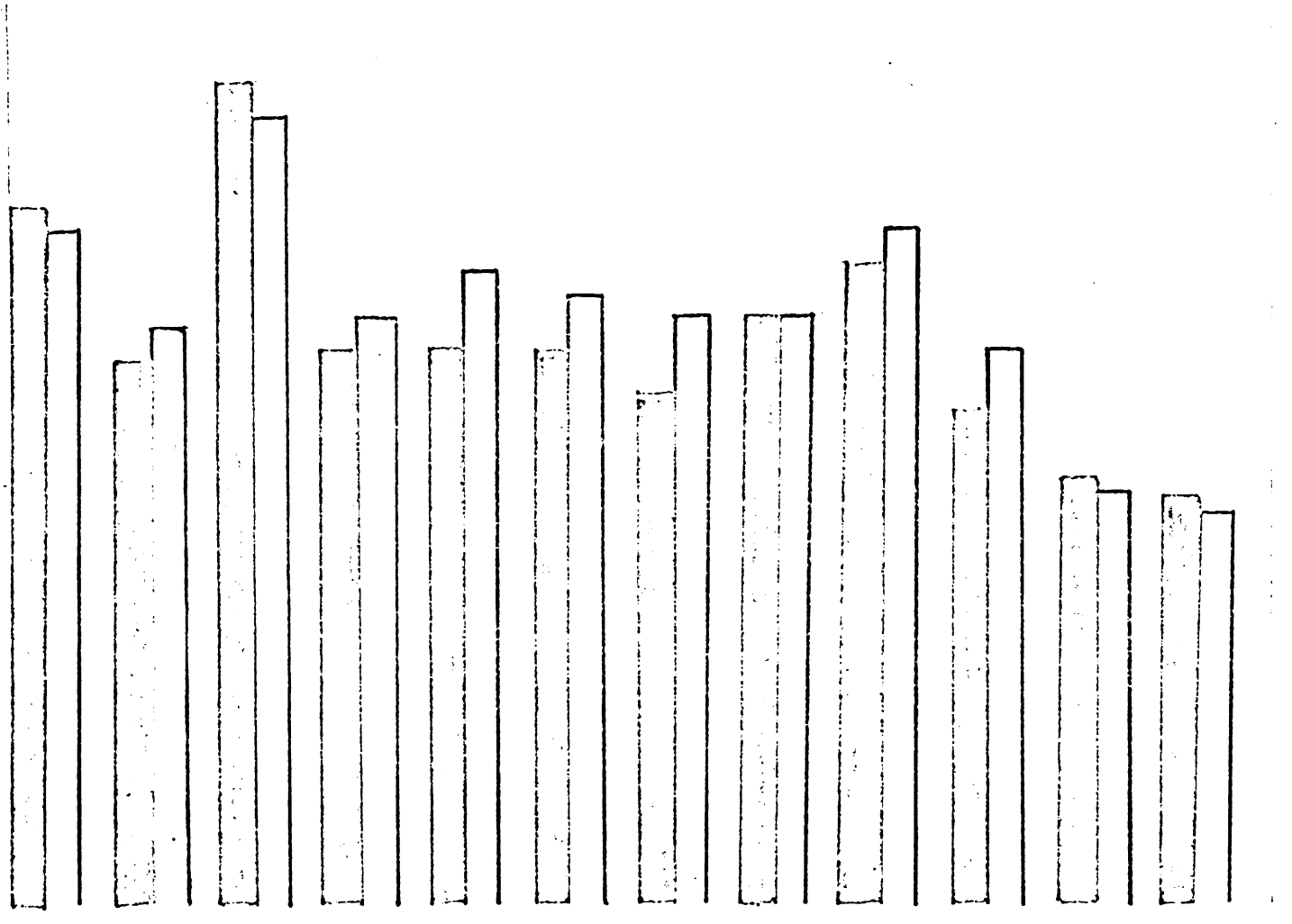


FIGURE 2. Mean ego function ratings for heroin abusers in abstinent and intoxicated conditions with scores for libidinal and aggressive drive strength (N = 10).
*High score reflects low drive strength.



**Underlay shows scores for amphetamine abusers.

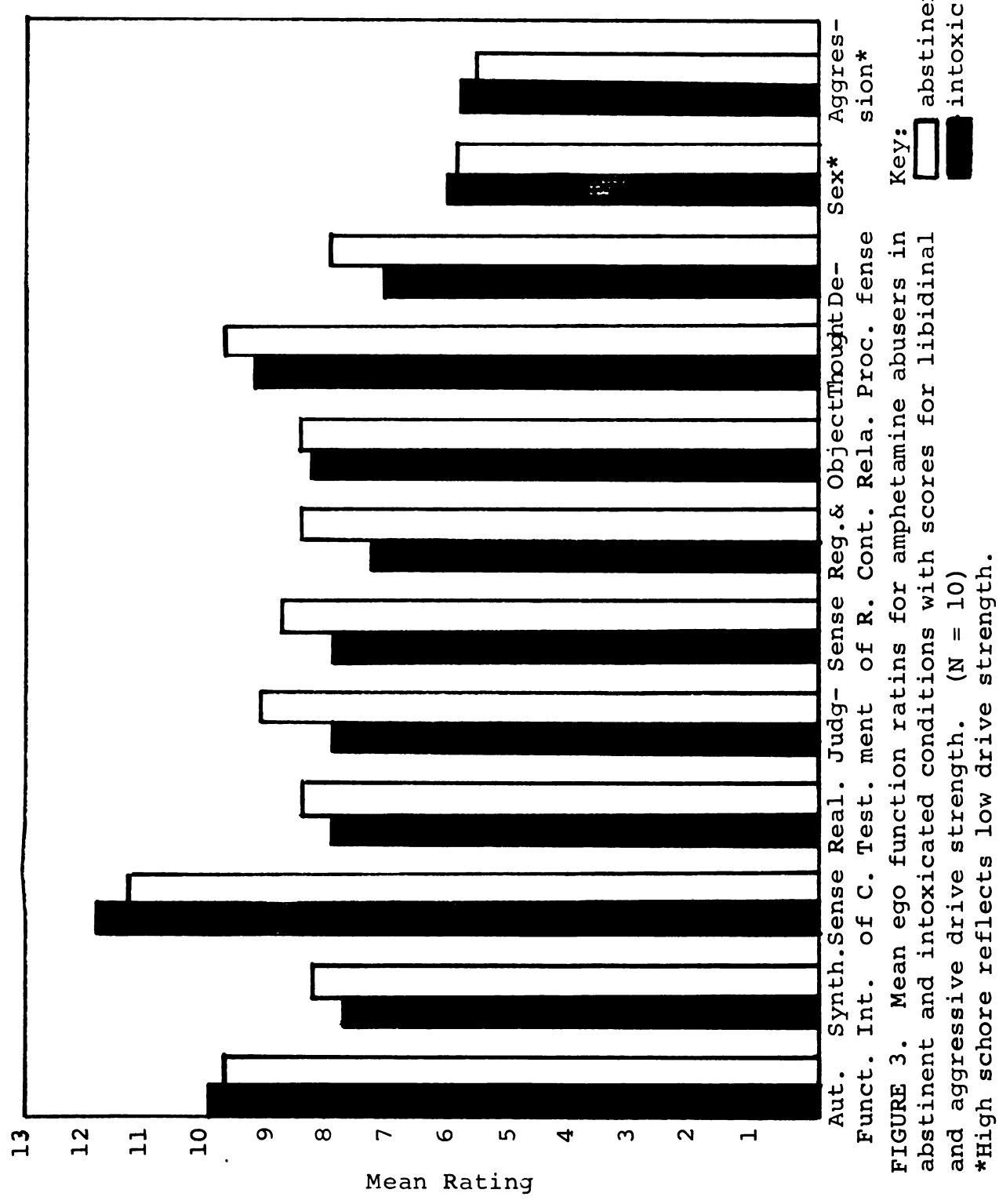


FIGURE 3. Mean ego function ratins for amphetamine abusers in abstinent and intoxicated conditions with scores for libidinal and aggressive drive strength. (N = 10)
*High schore reflects low drive strength.

IV. CLINICAL IMPRESSIONS

Heroin and amphetamine abusers differed markedly in self-concept. Although both groups had relatively poor object relations and vocational adjustment, the amphetamine abuser copes with this by a consciously inflated sense of self-worth. He often views himself as endowed with special sensitivity and unusual capacity for personal growth and social contribution. He calls attention to his physical appearance with elaborate costumes, hair styles and jewelry. Decorations are exhibitionistic and socially alienated. The swastika and the German cross are not uncommon.

The heroin addict is far less conspicuous in appearance. Hair styles are convential, clothing is shabby and tatoo and needle marks are shielded by long-sleeved shirts. He consciously views himself with contempt; his aspirations are limited to self-maintenance. The examples shown in Table 5 are illustrative of characteristic differences in the management of self-esteem. The heroin addict's mood of depression and despair is contrasted with the amphetamine abuser's denial of depression and compensatory optimism.

Table 5. Self - Esteem

Heroin	Amphetamine
Q. How do you feel about yourself generally?	
Lousy, I don't like myself.	I think I'm all right ya' know.
Q. What about your looks, do you think you're good looking?	
I don't like them and I don't know why.	I think they're all right, I'm satisfied. Yeh, I think I'm good looking.
Q. How do you compare with others your age?	
Right now I know I don't compare well. I can't control my desire for drugs, I can't be a man, I am not doing anything.	I don't think I'm as mature, serious or business-minded as a 25-year-old should be. As a man I'm all right. I'm big and strong and I try to be kind. I love women and I dig kids.
Q. What do you believe that other people think of you?	
That I'm a cop out; some people would say degenerate.	I think others like me a great deal. They keep saying they do. They don't really say it but I know they do. I make friends easily and people smile and they embrace me and make you feel like you're not rejected.
Q. What kind of person would you like to be?	
I'd just like to be average and just get along; say middle class. I want to be able to work and be middle class. I don't have goals	I would like to be free of drugs. I would like to not ever have to put a grape ice pop in my mouth if I didn't want to. Right now I'm taking

of making a million or anything, just making a living.	grape ice pops. I'm playing with kids. I bought a yo-yo yesterday. I'm laughing a lot and enjoying life.

The amphetamine abuser is characterized by active confrontation with his environment. While the heroin addict feels overwhelmed by his low self-esteem, the amphetamine abuser utilizes a variety of compensatory maneuvers. He reassures and arms himself against a world perceived as hostile and threatening via physical exhibition of alienated symbols of power and strength. Identification with radical political groups further serves the need for active expression of hostility. Promiscuity and prolonged sexual activity may be the behavioral expression of needs to demonstrate adequacy and potency. High level artistic and creative aspirations are usually unrealized self-expectations, bordering on delusional grandiosity. Such belief often lead to compulsive and unproductive behavior. Active participation in hand crafts, music, drawing or physical labor is striking in nearly all the amphetamine abusers studied. To maintain his tenuous sense of self as a potent and potentially productive individual, the amphetamine abuser uses many defenses. Denial,

projection, rationalization and intellectualization, are characteristically observed. Equilibrium is maintained at the cost of great expenditures of psychic and physical energy.

In contrast, conscious of his self contempt and chronically depressed, the heroin abuser seeks to avoid confrontation with his surroundings. His major pre-occupation is survival. Rarely identifying with people or causes, he believes that satisfaction is achieved through self-indulgence. Like the amphetamine abuser, he perceives the environment as hostile and threatening, but maintains equilibrium via withdrawal and passive expression of hostility. His parasitic relationship to the community is rationalized by perceiving himself as victim. For the heroin abuser, interpersonal communication is characterized by an initial front of honesty and openness in the service of opportunism. When the facade is relinquished, the addict appears introverted, distrustful and lacking in conviction. In contrast to the amphetamine abuser, thinking is more concrete and personalized, and defensive structures are more primitive and fragile. Under stress, repression is easily disrupted, permitting the emergence of self-derogation, hostile fantasy and impulsive acting out.

Interview material exemplifies these differences between heroin and amphetamine abusers. The amphetamine abuser's abstract and intellectualized mode of relating is contrasted with the heroin addict's concrete and personalized styles in Table 6.

Table 6. Style of Relating

Heroin	Amphetamine
Q. Do you believe that there is too much expression of hostility, anger or agression in our society?	
Yes...these people who want all these changes. All these different groups... Panthers, Weathermen, it's too hostile, it makes me feel uneasy.	Gee that's hard...Revolution is a difficult thing; yes, I think there's too much hostility. I think that the establishment is too hostile toward the people or the dissenters. In other words, I think the right is too hostile toward the left. If you have long hair or a beard which is a protest thing, they absolutely refuse to listen to you and become very violent. Like that thing in Chicago; it shouldn't have happened. From the establishment's point of view, they call us radicals. We really aren't. I think we're too lenient towards them. We should beat them back.

Q. What makes you angry?

When people criticize me.	Apathy makes me angriest.

Q. What do you do (when angry)?

I go all out like war.	Sometimes I get angry enough to point it out to the person who is being apathetic.

Q. What makes you sad, blue or depressed?

Oh, sad stories, love stories, people breaking up in general.	Poverty makes me the saddest. There's a difference between sad and concern. When you're sad it's about yourself or a personal thing. A concern is, well, I think I'm concerned about what's happening to the country.

The personality profiles and illustrative interview material here presented are abstractions culled from many subjects. As expected, we found a wide range of individual variation among the abusers in our experimental population. However, these observations provide a framework for conceptualizing possible psychological differences between preferential abusers of heroin and amphetamine.

V. DISCUSSION

A. Global Ego Strength

Tables 3 - 4 summarize results for analyses of variances comparing heroin and amphetamine abusers under abstinent and intoxicated conditions. With the exception of Reality Testing, amphetamine abusers seemed to exhibit significantly higher ego strength, on each variable considered, across both interview conditions. This result strongly supports the hypothesis, using Bellak's (1969) definition of ego strength as "total adaptive capacity", that the opiate addict has less "global ego strength" than the amphetamine abuser. It is also in accord with clinical observations that in heroin abusers, thinking is more concrete and personalized, regression is to an earlier level, and defensive structures are more primitive and fragile.

Although relative to heroin abusers ego functioning is more adaptive in amphetamine abusers in the intoxicated condition, one cannot necessarily extend this finding outside of the laboratory situation. There is no reason to assume, for example, that experimental doses of 30 mg. and 15 mg. for

amphetamine and heroin abusers respectively, are comparable in effect to average "field" doses of 310 mg. and 100 mg. The results do, however, suggest a trend in both groups for ego functioning to be negatively affected by the utilization of their respective drugs. Figure 2 compares mean ego function ratings for heroin abusers in abstinent and intoxicated conditions. Seven of the ten means observed are lower in the intoxicated condition. Figure 3 compares mean ego function ratings for amphetamine abusers in both conditions. Nine of the ten means observed are lower in the intoxicated condition. There are three cases in which ego functioning is significantly lower in the intoxicated condition ($p < .05$): Regulation and Control of Drive, Affect and Impulse (for both groups); Judgment (for amphetamine abusers); Sense of Competence (for heroin abusers). A nearly significant result is observed ($p < .10$) for Reality Testing (this function is lower for both groups in the intoxicated condition). It is speculated that under conditions of higher doses, greater impairment of ego functioning could be observed and more significance obtained. An increase in sample size would also be expected to yield more significant results.

B. Specific Ego Functions

Autonomous functioning: The rating of this function is based on the degree of impairment of apparatuses of primary autonomy (functional disturbances of sight, hearing, intention, language, memory, learning or motor function) and secondary autonomy (disturbances in habit patterns, learned complex skills, work routines, hobbies and interests). Although there are no significant drug effects observed for this function, amphetamine abusers are significantly more adept across both interview conditions. Figure 3 reveals respective mean scores of 6.6 and 9.7 for heroin and amphetamine abusers in the abstinent condition. Statistical data and interview material suggest that while amphetamine abusers are relatively unimpaired in this area ($\bar{X}$ normals = 9.5) heroin abusers are subject to moderately high interference, by conflict, of their apparatuses of primary and secondary autonomy.

Interview material suggests specific problems in the areas of concentration, the manifestation of which is relatively high difficulty in carrying out routine tasks, and engaging in skilled behaviors. Although drug effects were not significant for either group, it is noteworthy to observe

that amphetamine abusers obtain a higher mean score on this function in the intoxicated condition (see Figure 3). Though not significant, this observation supports Weider and Kaplan's (1968) description of amphetamine as a "reinforcer of autonomous functions." The data confirms the hypotheses that in their respective states of intoxication, amphetamine addicts would display a greater capacity to utilize their autonomous ego functions.

Synthetic Integrative functioning: The rating of this function is based on the degree of integration of potentially incongruent attitudes, values, affects, behaviors and self-representations; the ability to relate actively psychic and behavioral events. Although there were no observed drug effects for this function, amphetamine abusers were significantly more adept across both interview conditions. Figure 1 shows respective mean scores of 5.6 and 8.1 for heroin and amphetamine abusers in the abstinent condition. Although normals did not significantly differ from amphetamine abusers on this variable, the obtained mean is noticeably higher (9.8). Synthetic Integrative functioning is the factor which correlates most highly with total ego strength (Bellak, 1969) and the data suggest a continuum from heroin abusers to amphetamine

abusers to normals along the dimension of total adaptive capacity.

Statistical data and interview material portray the heroin abuser as an individual with no consistent life goals, and serious identity conflicts. There is no adequate organization in daily life, although simple activities may be carried out effectively. Psychological mindedness is virtually absent. For the amphetamine abuser, identity problems are less severe. Identifications with political or artistic groups remain moderately stable. Purposeful, planned actitivies can be carried out but he is usually a step or two behind in meeting the obligations of everyday life and carrying out what he has agreed to do. There is some psychological mindedness but active efforts to relate different areas of experience are only moderately successful.

Sense of Competence: The rating for this function was based on the subject's overt, conscious statement of his feelings of adequacy. No attempt was made at assessing the underlying dynamics for this statement (i.e., unconscious denial of helplessness, etc.). Scores reflect the person's expectation of success or the subjective side of actual performance (how he feels about how he does and what he can

do). The data show amphetamine abusers as having a higher Sense of Competence across both interview conditions. It is noteworthy to observe that although there was no significant drug effect for amphetamine abusers on this variable, the obtained mean (11.9) is higher in the intoxicated condition (see Figure 3). While amphetamine appears to bolster feelings of adequacy, heroin appears to have the opposite effect. Sense of Competence was significantly lower within heroin abusers under the condition of intoxication. Although normals did not significantly differ from amphetamine abusers on this variable, the observed mean was considerably higher for amphetamine abusers (see Figure 1). A dynamic interpretation of these results is that while the amphetamine abuser is invested in denying feelings of helplessness and inadequacy, the heroin addict is prone to accept and wallow in feelings of hopelessness and despair. These findings are consistent with clinical impressions of the amphetamine abuser as bordering on delusional grandiosity with regard to self expectations, while the heroin addict is concerned with survival and self-maintenance.

Reality Testing: The rating for this function is based on the subject's ability to distinguish inner and outer

stimuli; his accuracy of perception, including orientation to time and place; his psychological mindedness or "reflective awareness." The data show no significant differences between heroin and amphetamine abusers across both interview conditions. Table 4 does, however, reveal a nearly significant drug effect within groups. This result suggests that heroin and amphetamine abusers tended to preserve a higher level of Reality Testing in the abstinent condition. Although analysis of variance revealed no significant differences between heroin and amphetamine abusers and normals on this variable, the obtained means (see Figure 1) suggest a continuum of adaptive strengths (7.8, 8.3, 9.8).

Interview and statistical data indicate that abstinent drug abusers may be given to occasional perceptual errors and coarse misinterpretations of inner and outer reality but with a considerable degree of self-recovery leading to objectivity. Amphetamine abusers tend to have a predisposition toward projection and rationalization while heroin abusers utilize more primitive defenses of denial and repression. In both cases, drug intoxication seems to lower the thresholds of Reality Testing and increase the addict's potential toward perceptual distortions and relative out-of-touchness. In most

cases, hallucinations and delusions only occur under extreme conditions such as prolonged amphetamine intoxication or ingestion of psychedelic drugs.

Judgment: The rating for this function is based on the subject's anticipation of the consequences of intended behaviors (legal culpabilities and social censure, disapproval or inappropriateness) and the extent to which manifest behavior reflects the awareness of these consequences. Amphetamine abusers tended to have significantly better Judgment than heroin abusers across both interview conditions. Although drug intoxication did not significantly impair the Judgment of heroin abusers in this situation, amphetamine abusers underwent a significant decrement in their judgmental capacity while under the influence of amphetamine. Comparison of heroin and amphetamine abusers and normals in the abstinent condition found normals and amphetamine abusers as having significantly better Judgment than heroin addicts with no statistical difference between amphetamine abusers and normals. A comparison of the obtained means, however, (Figure 1) suggests a continuum of adaptation from the heroin addict, to amphetamine abuser, to normal.

The convergent picture of statistical and interview

data portray the heroin addict as an individual with judgment so defective that he repeatedly causes danger to health, work and interpersonal relationships. Usually he can verbally anticipate the consequences of his actions but manifest behavior rarely reflects this awareness. For the amphetamine abuser, poor Judgment usually occurs in fairly encapsulated or conflict-related areas. In cases of drug involvement, amphetamine abusers are more prone to utilize their ability to anticipate the consequences of their actions. It is not unusual, for example, for the amphetamine abuser to take massive doses of vitamins to compensate for the physical deterioration known to result from amphetamine abuse.

Sense of Reality: The rating for this function is based upon the extent to which external events are experienced as real and as being embedded in a familiar context; the extent to which the body and its functioning are experienced as familiar and unobtrusive; the degree to which the person has developed individuality and self-esteem. Table 4 shows significant differences between heroin and amphetamine abusers across both interview conditions. Sense of Reality was more adaptive in the amphetamine abuser in abstinent and intoxicated conditions. Under abstinence, normals and

amphetamine abusers were significantly more adequate than heroin abusers. Although normals are not significantly higher on this function than amphetamine abusers, the obtained mean scores suggest a continuum of adaptive strength from heroin abuser to amphetamine abuser to normal (see Figure 1).

The combined clinical and statistical impression of the heroin abuser suggests an individual of quasi-stable sense of identity but mostly with feedback from outside sources. When external signals and cues are absent, identity can become poorly integrated. Occasional derealization and depersonalization can be observed with some unrealistic feelings about the body. In most cases self-esteem is quite low. The amphetamine abuser is less dependent on environmental feedback and depersonalization-like phenomena are more likely to occur under unusual conditions; falling asleep, drugs, radical environmental changes. The heroin abuser's need for external regulation of self-esteem is seen as a potent factor in the relative success of the therapeutic community. Peer pressure is generated to support non-addictive behavior. For an individual lacking in a sense of independent identity, the group ideal is easily adopted and until the addict returns to his addictive community, his drug

taking and criminal activity may be curtailed.

Regulation and Control of Drive, Affects, and Impulses: This function refers to the directness of impulse expression and the effectiveness of delay and control mechanisms; the degree of frustration tolerance, and the extent to which drive derivatives are channeled through ideation, affective expression and manifest behavior. Amphetamine abusers were more adaptive in this function in both intoxicated and abstinent conditions. Both groups tended to have less Regulation and Control of Drive, Affects, and Impulses in the intoxicated condition. Comparison of heroin abusers, amphetamine abusers and normals, under abstinence found amphetamine abusers and normals significantly higher than heroin abusers with no statistical difference between normals and amphetamine abusers. The observed means (Figure 1) suggest a continuum of adaptation for the heroin abuser to the amphetamine abuser to normals.

The significant drug effect for this function is particularly interesting because it suggests that under intoxication both groups might be expected to have less impulse control and present a greater danger to themselves and/or community. Combined clinical and statistical data

present the heroin abuser as an individual given to sporadic rages, tantrums or binges. Periods of overcontrol may alternate with flurries of impulsive breakthroughs. This may be observed dramatically when the heroin addict voluntarily submits himself to extended periods of incarceration, in drug programs, where impulse expression is minimized. Temporarily the addict appears to have magnificent impulse control. Suddenly and without warning, however, impulses gain the upper hand and once again the addict is seen on a self-destructive binge. Learning experiences are issued and once again impulses are quieted through self-regulation and authoritative and peer pressures. The cycle tends to repeat.

For the amphetamine abuser, impulse expression is less direct, pervasive and frequent. Aggressive behavior is more often verbal than physical and fantasies predominate over unusual behavior. Manifestations of drive related fantasies are seen in quasi-artistic productions such as "speed freak" drawings where primitive and threatening fantasies are portrayed through massive expenditures of compulsive energy. The amphetamine abuser may sit for hours at a time drawing frightened faces, decapitated bodies, etc.

Object Relations: This rating takes into account the

degree and kind of relatedness to others; the extent to which present relationships are adatively patterned upon older ones; the extent of object constancy. Amphetamine abusers were significantly more advanced in the quality of their Object Relations than heroin abusers across abstinent and intoxicated conditions. Amphetamine abusers and normals were significantly more adept in this function than heroin abusers. Although amphetamine abusers did not significantly differ from normals, examination of the obtained means (Figure 1) suggests a continuum of adaptation from the heroin abuser to the amphetamine abuser to normals. The data support hypothesis III, that under conditions of intoxication, amphetamine abusers tend to be more adequate in Object Relations than heroin abusers.

It is interesting to note that for heroin abusers, the obtained mean for this function is higher in the intoxicated condition (Figure 2). Perhaps in this dose range, heroin tends to reduce anxiety and allow for a smoother and more relaxed communication between people. This notion supports Hartmann's (1969) observation that "there is an attempt to overcome the lack of affectionate and meaningful object relations through the pseudo-fusion with other drug takers

during their common experience." The general impression of the heroin abuser is one in which he is detached from people while under stress and is moderately striving for nurturant relationships, of a highly dependent nature, leading to stormy or strained attachments.

The amphetamine abuser, although more advanced in Object Relations, tends to become involved in relationships involving strong unresolved oedipal elements. Castration concerns tend to manifest themselves in unusual and extreme sexual behaviors such as Don Juanism and homosexuality. Underlying concerns about masculinity and adequacy are expressed through compulsive sexual activity and a boasting attitude of sexual prowess and potency. Relationships may, however, endure for long periods of time although they rarely have the stability and sustaining power of the idealized marital situation.

Thought Processes: The rating for this function is based on the adequacy of processes which adaptively guide and sustain thought (attention, concentration, anticipation, concept formulation); the relative primary-secondary process influence on thought. Amphetamine abusers were higher on this variable in both abstinent and intoxicated conditions.

There were no apparent differences within groups between intoxicated and abstinent conditions. While abstinent, amphetamine abusers and normals were significantly more adept at Thought Processes than heroin abusers. Although there was no significant difference between normals and amphetamine abusers, examination of mean scores (Figure 1) suggests a continuum of adaptation from heroin abusers to amphetamine abusers to normals.

Clinical and statistical data, combined, portray the heroin abuser as somewhat distractible, with intruding thoughts resulting in disruptive communication. There is some vagueness and lack of specificity in memory and under stress thinking becomes concrete. Communication is best achieved on a direct, down to earth basis with little room for the addict to interpret hidden meanings. Evaluative statements are likely to be interpreted as absolutes; i.e., "he thinks I am good" or "he thinks I am bad." In most cases, thinking is logical and well-ordered.

The amphetamine abuser is far more abstract in his mode of conceptualizing. Occasionally thinking is disrupted by tangentially related but irrelevant thoughts. His level of distractibility is less severe than the heroin addict's

and he appears to have the capacity to recover quickly and respond appropriately. Although thinking is for the most part logical and well ordered, it may at times become so abstract that direct communication is extremely difficult.

Defenses: The rating for this function is based upon the extent to which defenses adaptively or maladaptively affect ideation and behavior; the extent to which these defenses have succeeded or failed (degree of emergence of anxiety, depression or other dysporhic states). Amphetamine abusers were higher on this variable in both abstinent and intoxicated conditions. There were no apparent differences within groups between abstinent and intoxicated conditions. While abstinent, amphetamine abusers and normals were significantly more adept at Defensive functioning than heroin abusers. Although there was no significant difference between normals and amphetamine abusers, examination of mean scores (Figure 1) suggests a continuum of adaptation from heroin abusers to amphetamine abusers to normals.

Clinically, the heroin abuser appears to be relatively primitive in his defensive structure. Repression and denial are massively deployed and withdrawal is a predominant mode. Under stress, repression is easily disrupted and the emergence

of anxiety and depression are readily observed. Defensive functioning may become minimal, as evidenced by recurrent outbursts of inner and outer directed aggression.

The amphetamine abuser is characterized by a variety of defensive maneuvers. He is more successful in preventing the emergence of anxiety and dysphoric affect but is relatively similar in his sacrifice of Reality Testing (see Figure 1). Denial projection, rationalization and intellectualization are typically observed.

Stimulus Barrier: The rating for this function is based on the subject's threshold for, sensitivity to, or awareness of stimuli impinging upon various sensory modalities; the nature of responses to various levels of sensory stimulation in terms of the extent of disorganization, withdrawal or active coping mechanisms employed to deal with them. Subjects were rated on this variable in terms of high, medium, or low Stimulus Barriers and weightings of 3, 2, and 1 were assigned to the respective categories. While there were no apparent differences between normals and either drug group on this variable, amphetamine abusers have significantly higher Stimulus Barriers than heroin abusers. Examination of the raw data reveals that six of ten amphetamine abusers

interviewed were rated high on this variable (1 low) and nine of ten heroin abusers were rated low.

The data tend to support Ellingwood's (1967) formulations in explaining a biological predilection for particular drugs. Although it may be argued that long term involvement with particular drugs may have specific effects on stimulus thresholds, Stimulus Barrier is considered to be the most constitutionally based ego function (Bellak, 1957). The notion of amphetamine abusers, with biologically high thresholds for excitatory stimulation, seeking homeostasis through self-medication, is suggested by the data. Amphetamine, a C.N.S. stimulant seems to put the abuser into closer touch with environmental stimuli that might otherwise be unavailable because of constitutionally based high Stimulus Barriers. Conversely, the heroin abuser may have a predisposition toward excessive vulnerability to environmental stimuli. His use of a depressant drug may have the self medicating effect of raising stimulus thresholds and allowing him to function more adaptively in a world of relatively painful and extreme stimulation.

Libidinal Drive Strength: The rating for this variable takes into account: overt sexual behavior (frequency and

intensity); associated and substitue sexual behavior; fantasies and other ideation; dreams; symptoms, defenses, and controls. There were no statistically significant differences between heroin and amphetamine abusers and normals in Libidinal Drive Strength in either intoxicated or abstinent conditions. Examination of the mean scores for heroin abusers indicated a mean rating of 7.8 in the intoxicated condition and 6.6 in the abstinent condition. For this variable, the higher rating reflected a decrease in drive strength. Though not statistically significant, this observation is consistent with subject reports of decreased sexual drive while under the influence of heroin. There was a significant interaction between interview order and Libidinal Drive Strength within heroin abusers. Independent of condition of intoxication there was significantly higher libidinal energy in the first interview. This finding is difficult to interpret but we might speculate that since the interviewer was female, the first interview contact might have stimulated a degree of sexual arousal which dissipated with increased exposure and consistent professional orientation.

The finding of non-significance between heroin abusers, amphetamine abusers and normals on this variable is interesting

to note. It is speculated that the lack of sexual involvement reported by most heroin abusers is more related to a sense of inadequacy and compensatory style of withdrawal from Object Relations, than to a deficiency in Libidinal Drive Strength. Similarly, the reports of excessive promiscuity and compulsive sexual activity given by amphetamine abusers, may be related to a style of active confrontation with underlying fears of helplessness and inadequacy.

Aggressive Drive Strength: The rating for this variable was based upon: overt aggressive behavior (frequency and intensity); associated and substitute aggressive behavior (verbal expressions, etc.); fantasies and other ideation; dreams; symptoms, defenses, and controls. Heroin abusers have significantly higher Aggressive Drive Strength across both interview conditions. Normals and amphetamine abusers were significantly lower in Aggressive Drive Strength than heroin abusers, in the abstinent condition. There was no apparent difference between normals and amphetamine abusers on this variable.

The heroin abuser is seen as an individual whose overt acts of aggression are considerably more intense and frequent than average. The presence of physical assaultiveness and

multiple suicide gestures is common. Hostile punning and witty repartee are often observed. It is speculated that the relative success of residential treatment programs is related to this phenomenon. Intensive confrontation in group therapy (a major treatment modality in drug programs) provides an outlet for excessive aggressive energy. Violent verbal expressions are often encouraged and readily tolerated, thus reducing the addict's tendencies toward repression and withdrawal. This approach seems to be effective in decreasing the heroin addict's potential for overt violence of an inner and outer directed nature.

For the amphetamine abuser, aggressive energy appears to be less excessive and channeled more adaptively. Periodic breakthroughs of violence occur but, with the exception of amphetamine psychosis, these expressions are usually not as frequent or intense as the heroin addict's. Fantasies of violence are usually expressed verbally and sometimes find their expression through identification with radical political groups. Artistic productions often reflect bizarre and destructive ideation. It is suggested that treatment programs in which strong confrontation is a primary modality are not as effective in the treatment of amphetamine abuse. For

amphetamine abusers, treatment might be geared more at providing a creative and loosely structured environment for the investigation of underlying fears of helplessness and inadequacy.

Interview Effects

With the exception of Defensive Functioning, normals tended to remain consistent in their performance across both interviews. They were significantly less Defensive ($t=3.12$, $p < .05$) in the second interview situation. It is speculated that familiarity with the examiner and setting tended to reduce anxiety and decrease reliance on defensive maneuvers. All other ego functions remained highly adaptive and relatively unchanged across both interviews.

In contrast, drug abusers tended to be strongly affected by repeated interviews. In five cases, ego functioning was significantly ($p < .05$) improved during the second interview (Autonomous functioning, Synthetic Integrative functioning, Sense of Competence, Judgment, Regulation and Control). The obtained near significance ($p < .10$) in two cases (Judgment, Thought Processes) reinforces this trend. Several speculations are offered to account for this result: (1) Since normals knew that they would not receive drugs in

either interview, their level of understanding and familiarity with the experimental design was higher throughout. This would tend to reduce anxiety and provide for a more consistent performance. (2) Drug abusers interviewed in Bellevue Psychiatric Hospital might tend to fear psychological evaluation or physical incarceration because of the nature of their activities. These fears might tend to dissipate with increased familiarity towards the interviewer and setting. (3) Drug abusers have generally less ego strength and are thereby more highly affected by their immediate surroundings.

It is interesting to note the nearly significant interaction effect (Table 3) for Sense of Competence. If the drug was administered in the first interview, Sense of Competence tended to be lower for both types of abusers. It is speculated that the use of drugs in unfamiliar surroundings tended to render the user more vulnerable to unpleasant sensations and feelings of being out of control.

C. Theoretical Considerations

Although the observations for this study were made while male addicts were under abstinent and somewhat

intoxicated conditions, it must be recalled that our subjects had all been heavy drug users for several years. It is, therefore, difficult to know if our findings represent a factor in the etiology of the pattern of drug use or the result of such drug use and its imposed life patterns. However, quantitative analyses and clinical impressions provide a framework for conceptualizing possible psychological differences between preferential abusers of heroin and amphetamine. Some speculate that these differences are related to early, pre-drug patterns of childhood experiences.

"Having once experienced a particular drug induced pattern of ego functioning, the user may seek it out again for defensive purposes as a solution to conflict or for primary delight. This seeking out of a special ego state will be related to the individual's previous needs for the resolution of conflict or anxiety. If a particular drug induced ego state resolves a particular conflict, an individual may seek out that particular drug when in that particular conflict situation. This will result in preferential choice of drug" (Frosch, 1970).

Weider and Kaplan (1969) define the altered ego state induced by opiates, alcohol, barbiturates, and other sedative

drugs as "blissful satiation." As Savitt (1963) pointed out, the elation produced by these drugs has been stressed out of porportion to the sleep or stupor which follows. The transient euphoria preceding the stupor may be related both to the decreased pressure of the drives, libidinal and aggressive and to the sense of gratification of needs. The user "seeks desperately to fall asleep as a surcease from anxiety, and the drug provides obliteration of consciousness. Well expressed in the vernacular, the addict 'goes on the nod'".

The heroin addict who characteristically maintains a tenuous equilibrium via withdrawal and repression bolsters these defenses by pharmacologically inducing a state of decreased motor activity, under responsiveness to external situations and reduction of perceptual intake ". . .state of quiet lethargy. . . (is). . .conducive to hypercathecting fantasies of omnipotence, magical wish fulfillment, and self-sufficiency. A most dramatic effect of drive dampening experienced subjectively as satiation may be observed in the loss of libido and aggression and the appetites they serve" (Weider and Kaplan, 1969).

Though, as expected, the dramatic effects outlined

above were not brought on by our low level, experimental dose, the observed data points in a parallel direction. Elevated scores for Object Relations, and Sense of Reality, suggest greater relaxation and less pressure from the drives. Though not significantly lower, the mean score for Libidinal Drive Strength points to a dampening of sexual appetite.

Weider and Kaplan further point out that this style of coping is reminiscent of the Narcissistic Regressive Phenomena described by Mahler (1967), as an adaptive pattern of the second half of the first year of life. It occurs after the specific tie to the mother has been established and is an attempt to cope with the disorganizing quality of even her brief absences. It is as if the child must shut out affective and perceptual claims from other sources during the mother's absence.

This formulation is consistent with earlier remarks by Fenichel (1945). Addicts are "fixated to a passive-narcissistic aim" where objects are need-fulfilling sources of supply. The oral zone and skin are primary and self-esteem is dependent on supplies of food and warmth. The drug represents these supplies. Addicts are intolerant of tension and cannot stand pain or frustration. In our study,

the notion of low pain thresholds is supported by the observation that nine of the ten addicts interviewed received a "low" rating for Stimulus Barrier. Drug effects alleviate these difficulties by reproducing the "earliest narcissistic state." The specific need gratification of the passive-narcissistic regression reinforces drug taking behavior.

The overall decrement in ego functioning (which is clearly observed in our study, even at this low dose) and the pressures of physiological dependency, however, set the groundwork for a vicious cycle. The addict must increasingly rely on a relatively intact ego to procure drugs and attain satiation. Ultimately he is driven to withdrawal from heroin by the discrepancy between intrapsychic needs and external demands. Hospitalization, incarceration, or self-imposed abstinence subserve the addict's need to resolve his growing conflicts with reality.

In contrast to heroin and other sedative drugs, amphetamines have the general effect of increasing functional activity. Extended wakefulness, alleviation of fatigue, insomnia, loquacity, and hypomania are among the symptoms observed. Subjectively there is an increase in awareness of drive feeling and impulse strength as well as heightened

feelings of self-assertiveness, self-esteem and frustration tolerance. Though not statistically significant, our observations support most of these generalizations. Amphetamine intoxication produced in our subjects elevated scores on Autonomous Functioning and Sense of Competence. Interview material suggests a feeling of heightened perceptual and motor abilities accompanied by a stronger sense of potency and self-regard.

As in the case of heroin, the alterations induced by amphetamine intoxication are syntonic with the abuser's characteristic modes of adaptation. This formulation is in agreement with the observations of Angrist and Gershon (1969) in their study of the effects of large doses (up to 50 mg. 1 hour) of amphetamine. ". . . it appears that in any one individual, the behavioral effects tend to be rather consistent and predictable. . . Moreover these symptoms tended to be consistent with each person's personality and 'style'."

Energizing effects of amphetamine serve the abuser's needs to feel active and potent in the face of an environment perceived as hostile and threatening. Massive expenditures of psychic and physical energy are geared to defend against

underlying fears of passivity (Pittel and Hoffer, 1970). Weider and Kaplan (1969) suggest that the earliest precursor to the amphetamine abuser's mode of adaptation is the "practicing period" described by Mahler (1967). This period "culminates around the middle of the second year in the freely walking toddler seeming to feel at the height of his mood of elation. He appears to be at the peak of his belief in his own magic omnipotence which is still to a considerable extent derived from his sense of sharing in his mother's magic powers." There is an investment of cathexis in "the autonomous apparatuses of the self and the functions of the ego; locomotion, perception, learning."

Our subjects' inflated self-value and emphasis on perceptual acuity and physicial activity support the notion that amphetamine abuse is related to specific premorbid patterns of adaptation. The consistent finding that ego structures are more adaptive in the amphetamine abuser than they are in the heroin abuser suggests that regression is to a later phase of psychosexual development.

Reich's (1960) comments on the "etiology of compensatory narcissistic inflation" may provide further insight into the personality structure of amphetamine abusers. "The need

for narcissistic inflation arises from a striving to overcome threats to one's bodily intactness." Under conditions of too frequently repeated early traumatizations, the primitive ego defends itself via magical denial. "It is not so, I am not helpless, bleeding, destroyed. On the contrary, I am bigger and better than anyone else." Psychic interest is focused "on a compensatory narcissistic fantasy whose grandiose character affirms the denial." The high level artistic and political aspirations witnessed in our subjects appear to be later developmental derivatives of such infantile fantasies of omnipotence. Although the amphetamine abuser subjectively experiences increments in functional capacity and self-esteem, biological and psychological systems are ultimately drained of their resources. As in the case of heroin, our study points to an overall decrement in ego functioning under the influence of amphetamine. The recurrent disintegration of mental and physical functioning is a dramatic manifestation of the amphetamine abuse syndrome.

REFERENCES

Angrist, B. and Gershon, S., Amphetamine Abuse in New York City, 1966 to 1968. Semin. Psychiatry. 1969, Vol. 1, pp. 195-207.

Bellak, Leopold, Research on Ego Function Patterns: A Progress Report. The Schizophrenic Syndrome. Grune & Stratton Inc., 1969, pp. 11-61.

_____, Hurvich, M., A Systematic Study of Ego Functions. The Journal of Nervous and Mental Disease. 1969, Vol. 148, (6), pp. 569-585.

_____, Hurvich, M., and Crawford, P., Psychotic Egos. The Psychoanalytic Review. 1970, Vol. 56, (4), pp. 526-541.

_____, Hurvich, M., Gediman, H., Ego Functions in Schizophrenics, Neurotics, and Normals. Wiley, 1973.

_____, Hurvich, M., Gediman, H., and Crawford, P., Study of Ego Functions in Schizophrenic Syndrome. Arch. Gen. Psychiat. 1970, Vol. 23, pp. 326-336.

_____, Hurvich, M., Silvan, M., and Jacobs, D., Toward an Ego Psychological Appraisal of Drug Effects. Amer. J. Psychiat. 1968, Vol. 125:5, pp. 45-56.

_____, and Rosenberg, M., Effects of Anti-Depressant Drugs on Psychodynamics. Psychosomatics. 1966, Vol. 7, pp. 106-114.

Black, J., The Speed That Kills. N.Y. Times. March, 1970.

Brenner, C., An Elementary Textbook of Psychoanalysis. International Universities Press, Inc., New York, 1955, pp. 41-70.

Cameron, Dale C., Youth and Drugs. JAMA. 1968, Vol. 206, pp. 1267-1271.

Caperon, J.S., Sprecht, P.G., and Wendt, G.R., Effects of Amphetamines on Moods, Emotions, and Motivations. J. Psycho. 1965, Vol. 61, pp. 93-121.

Chein, I., Gerard, D.L., Lee, R.S., and Rosenfeld, E., The Road to H. New York, Basic Books, Inc., 1964.

_____, et al., Narcotics, Delinquency and Social Policy. Tavistock London, 1964.

Clark and Funkhauser, Psychedelic Drugs. Psychology Today. April, 1970, Vol. , p. 52.

Davidson, H.A. Confessions of a Goof Ball Addict. American J. of Psychiatry. 1964, Vol. 120, pp. 750-756.

DiMascio, A., Klerman, G., Psychophysiological Studies of Psychoactive Drugs. J.: Drugs and Behavior ed. Uhr, L. and Miller, New York: John Wiley & Sons, 1964, pp. 360-364.

Edwards, A., Bloom, M., Sohen, S., The Psychedelics: Love or Hostility Potion? Psychological Reports. 1969, Vol. 24, pp. 843-46.

Ellinwood, E. H., Amphetamine Psychosis: I. Description of the Individuals and Process. Journal of Mental and Nervous Diseases. 1967, Vol. 144, pp. 273-283.

Eysenck, H. J., Drugs and Personality, I: Theory and Methodology. Journal of Mental Science. 1957, Vol. 102, pp. 119-131.

Fenichel, O. The Psychoanalytic Theory of Neurosis. Norton, New York, 1945.

Fischmann, V.S., Stimulant Users in the California Rehabilitation Center. International J. of the Addictions. 1968, Vol. 3, No. 1, pp. 123-129.

Frosch, W.A., The drug abuser's chosen drug. In Pittel, S.M. Ed. Drug Use and Drug Subcultures. U. S. Government Printing Office, Washington, D. C. In press.

Gerard, D.L., and Kornetsky, C., A Social and Psychiatric Study of Adolescent Opiate Addicts. Psychiat. Quart. 1954, Vol. 28, pp. 113-125.

Goodman, L., and Gillman, A., The Pharmacological Basis of Therapeutics. New York: The Mac Millan Co., 1955, pp. 517-523.

Glover, E., On the Early Development of Mind: Selected Papers on Psycho-Analysis. N.Y.: Imago Publishing Co., Ltd., 1956, Vol. I, pp. 187-201.

Haertzen, C. A., Hooks, M. T., Changes in Personality and Subjective Experience Associated with the Chronic Administration and Withdrawal of Opiates. Journal of Nervous and Mental Disease. 1969, Vol. 148 (6), pp. 606-614.

Hall, C., Lindzey, G., Theories of Personality. New York: John Wiley and Sons, Inc., 1957.

Hartmann, D., A Study of Drug-taking Adolescents. Psychoanalytic Study of the Child. 1969, Vol. 24, International Universities Press, Inc., pp. 384-397.

Hekimian, L., Gershon, S., Characteristics of Drug Abusers Admitted to a Psychiatric Hospital. JAMA. 1968, Vol. 205, pp. 125-130.

Hill, H.E., Haertzen, D.A., and Glaser, R., Personality Characteristics of Narcotics as indicated by the MMPI. J. Gen. Psychol. 1960, Vol. 62, pp. 127-139.

Hurst, P., Radlow, R., Perchonok, H., Some Dimensions of Affective Response to Drugs. Psychological Reports. 1969, Vol. 24 (1), pp. 239-261.

_____, Weidner, Marianna, F., Radlow, R., The Effects of Amphetamine upon Judgments and Decisions. Psychopharmacologica. 1967, Vol. 11 (5), pp. 397-407.

Kaplan, H.B., and Meyerowitz, J., Psychosocial Predictors of Postinstitutional Adjustment Among Male Drug Addicts. Arch. of Gen. Psychiatry. 1969, Vol. 20 (3), pp. 278-284.

Kramer, J.C., Introduction to Amphetamine Abuse. J. of Psychedelic Drugs. 1969, p. 2.

_____, Fischman, V.S., and Littlefield, D.C., Amphetamine Abuse: Pattern and Effects of High Doses Taken Intravenously. J.A.M.A. 1967, Vol. 201 (July), pp. 89-93, 305.

Lasagna, L., The Many Faces of Drug Abuse. Modern Medicine. 1970, April, pp. 144-176.

Laurie, P., Drugs: Medical, Psychological and Social Facts. Great Britain: C. Nicholls and Co., Ltd., 1967.

Louria, D.B., The Drug Scene. New York, N.Y.: McGraw Hill, 1968, Vol. 8, pp. 215.

Mahler, M., On Human Symbiosis and the Vicissitudes of Individuation. J. of Am. Psychoanalytic Association. 1967, Vol. 15, pp. 740-760.

Mansfield, N.J., Amphetamine and Barbiturate Abuse. Canada's Mental Health. 1969, Vol. 17 (5), pp. 2-5.

McCormack, A., Toxic Reaction of the Amphetamines. Diseases of the Nervous System. 1962, Vol. 22 ( ), pp. 219-224.

Mensch, J.N., Psychopathic Condition, Addiction, and Sexual Deviation. In Handbook of Clinical Psychology. B.B. Wolman, ed., 1965.

Modell, W., Lansing. A., Drugs. New York: Time, Life Books, 1969, pp. 50-76.

Nowlis, H., Drugs on the College Campus. New York: Doubleday and Co., Inc., 1969.

Nyswander, M., The Drug Addict as a Patient. Grune and Stulton, New York, 1956.

_____, Drug Addictions. American Handbook of Psychiatry. S. Arieti, ed., New York: 1959, Vol. 6, pp. 614.

Pearson, M., and Little, R., The Addictive Process in Unusual Addictions: A Further Elaboration of Etiology. Am. J. of Psychiatry. 1969, Vol. 125 (9), pp. 1166-1171.

Phililipson, R., Modern Trends in Drug Dependence and Alcoholism. New York: Appelton-Century Crofts, 1970.

Pittel, S.M., Hoffer, R., The transition to amphetamine abuse. In Ellinwood, E.E. and Cohen, S., Eds. Current Concepts of Amphetamine Abuse. U. S. Government Printing Office, Washington, D.C. In press.

Rado, S., Narcotic Bondage. Amer. J. Psychiat. 1957, Vol. 114, pp. 165-170.

Rapaport, D., An Historical Survey of Psychoanalytic Ego Psychology. Identity and the Life Cycle: Selected Papers, ed. E. Erikson. (Psychological Issues, Monogram 1). New York: International Universities Press, 1959.

Reich, A., Pathologic forms of self-esteem regulation. Psychoanal. Study Child., 15:215-232, 1960.

Savitt, R.A., Psychoanalytic Studies on Addiction: Ego Structure in Narcotic Addiction, Psychoanalytic Quarterly. 1963, Vol. 32, pp. 43-57.

Scher, J., Patterns and Profiles of Addiction and Drug Abuse. Arch. of Gen. Psychiatry. 1966, Vol. 15, pp. 539.

Seevers, M.H., (U. Michigan), Psychopharmacological Elements of Drug Dependence. JAMA 1968, Vol. 206 (6), pp. 1263-1266.

Shick, R.J., Smith, D., Meyers, F., Use of Amphetamine in the Haight-Ashbury Subculture. J. of Psychedelic Drugs. 1969, Vol. 2 (2), pp. 139-161.

Smith, R., The World of the Haight-Ashbury Speed Freek. J. of Psychedelic Drugs. 1969, Vol 2 (2), pp. 172-188.

Spence, J., Underwood, B., Duncan, C., Cotton, J., Elementary Statistics, Appleton-Century-Crofts, New York, 1954, pp. 142-143.

Wahl, C.W., Diagnosis and Treatment of Statusmedicamentosis. Dis. Nerv. Syst. 1967, Vol. 28, pp. 318-322.

Weider, and Kaplan, Drug Abuse in Adolescents: Psychodynamic Meaning and Pharmacogenic Affect. The Psychoanalytic Study of the Child. 1968, Vol. 24, pp. 399-431.

Winer, J., Statistical Principles in Experimental Design, McGraw-Hill Book Company, 1962, pp. 452-464.

World Health Organization Expert Committee on Addiction Producing Drugs. Thirteenth Report, WHO, Technical Report Series 273, May, 1964.

Yorke, C., A Critical Review of Some Psychoanalytic Literature on Drug Addiction. Br. J. Med. Psychol., 1970, Vol. 43, pp. 144.