Evaluation of Four Treatment Approaches for Drug Addiction.

Fay Thrasher Guidroz
Louisiana State University and Agricultural & Mechanical College

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FOR DRUG ADDICTION.

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FOR DRUG ADDICTION

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in
The Department of Psychology

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The present investigation compared the treatment effects of: 1) methadone (opiate substitute), 2) group psychotherapy, and 3) a combination of methadone and group psychotherapy on drug addicts using change in self-concept as the primary measure of successful treatment. Other behavioral adjustment measures of treatment effects included: 1) number of days employed, 2) frequency of arrests, and 3) number of days on illegal drugs.

The problem of pathological drug addiction has been approached through several discrete models: 1) the cellular model, (2) the iatrogenic or pharmacodynamic model, 3) the neurophysiological model, 4) the conditioning model, 5) the personality model, 6) the psychoanalytic model, 7) the sociological model, and 8) the law enforcement model. Although these approaches reflect many varieties of data, theories, and biases concerning drug addiction, no single model has adequately accounted for occurrence of drug addiction.

Some of the most promising treatment approaches for drug addiction were: 1) chemotherapy (opiate substitute or antagonist), 2) existentially oriented, self-help groups (Synanon prototype), and 3) psychotherapy (group and individual). Although most studies in this area focused on one treatment approach such as methadone, cyclazocine, or psychotherapy, virtually all forms of treatment for drug addiction appear to have encountered considerable difficulty. The study asked three questions: 1) were there differences between groups prior to
receiving different treatments? 2) were there any differences in behavioral adjustments occurring during treatment as a function of the treatment procedure? 3) were there changes in self-concept as a function of the treatment procedure?

Thirty-eight male drug addicts from the Drug Rehabilitation Clinic, and the City Drug Clinic served as Ss. The Ss were chosen on the basis of the following criteria: 1) an age range of twenty to forty years, 2) literate and at least average intellectual performance (85-110 I.Q. range) as measured by the Shipley-Hartford Institute of Living Scale, 3) presently addicted and had been addicted for at least the past two years, 4) non-psychotic and no previous history of psychosis. All Ss were given the Tennessee Self-Concept Test both before treatment and at the termination of the three month study. A questionnaire was given to ascertain the following behavioral measures: 1) engagement in a gainful occupation, 2) frequency of arrests, and 3) abstinence from illegal drug use, both before and during treatment.

Results of this study indicated that the patterns of behavioral adjustment measures were significantly different across treatment groups. Further analyses revealed that treatment groups receiving methadone were significantly better adjusted in terms of the number of days that they used illegal drugs and frequency of arrests. It appeared that this drug resulted in relatively good immediate adjustment, i.e. these addicts were able to refrain from using heroin. This provided some support for the pharmacodynamic treatment model for drug addiction. Although group psychotherapy resulted in significantly
better behavioral adjustment than no treatment at all, methadone was far superior to any other treatment used. In general, all treatment groups demonstrated an increase or positive change in self-concept over the treatment period, the lack of significant differences across treatment groups suggested that the long-term effects of methadone were unclear and that further studies must investigate adjustment over a much longer time span. Related to the study of overall adjustment and rehabilitation of methadone treated patients was the central problem of withdrawal from methadone. Further long-term studies of adjustment patterns of drug addicts might include a comparison of addictive (methadone) and non-addictive (cyclazocine) treatment approaches.
INTRODUCTION

Despite the extensive literature on drug addiction, very few studies have been directly concerned with the results of experimental variation in treatment procedures. In 1956, Nyswander reported only four papers on the psychiatric treatment of drug addiction. As a result of the sparsity of information on drug abuse, no conclusion has been reached as to the relative efficiencies of various treatments in either alleviating drug abuse or achieving social rehabilitation for drug addicts. While there has been much theoretical speculation in this area, there has been unsystematic study of treatment because of a lack of a definite therapeutic approach to the handling of addiction problems. This lack may be related to conflicting opinions as to the etiology of drug addiction. According to Fenichel (1946, p. 376) addiction began as a search for protection against unpleasant stimulation. Lindesmith (1947) contended that the addict persisted in his use of drugs because of fear of experiencing distress of withdrawal symptoms. Hekimian and Gershon (1968) found that a desire for euphoria was the reason most frequently given by drug addicts for drug abuse. Modlin and Montes (1964) and Ausubel (1963) agreed that it was the desire to reexperience the euphoria which compelled the addict to return to drugs. Contrarily, Preble and Casey (1969) reported that drug addiction did not provide euphoric escape from psychological and social problems. They believed that drug addiction provided motivation and rationale for the pursuit of a
meaningful life, although a socially deviant one. Winick (1962) stated that age was a variable in continued drug usage; older individuals were much more ready to find some alternative mode of gratification. Weeks (1964) suggested that in addition to the socioeconomic factors reported by Cameron (1963), there were very important psychiatric factors to be considered in drug addiction. The 1957 report of the Council on Mental Health (Weeks, 1964) stated that addicts had personality characteristics that played an important role in the genesis of addiction, its maintenance, and the higher relapse rate after treatment. Further, Arieti (1959) concluded that most addicts exhibited behavior manifestations classified as character disorders, inadequate personalities, and various types of neuroses. According to Dole and Nyswander (1967a) there was currently no definitive information for reasons either psychological or metabolic that could account for continued drug abuse. It can be seen that drug addiction was viewed as a vastly complex phenomenon which involved a combination of emotional, social, psychological, and pharmacological factors.

Because of the confusion concerning etiology and treatment of drug addiction, research had been limited, and even with treatment, prognosis was notoriously poor. It was generally accepted that rehabilitation of drug addicts had been characterized more by failure than successes. Visotsky (1966) reported that 95 percent of the patients at the Berlin Psychoanalytic Institute failed to refrain from narcotic use following psychoanalysis. Similarly 95 percent of the patients discharged from the federal hospital at Lexington, Kentucky,
returned to narcotic use following their release from the hospital (Duvall, et al., 1963; Hunt and Odoroff, 1962). Vogel, Isbell, and Chapman (1948) reported a recovery rate of 16 percent after treatment in a seven year follow up study of drug addicts. Knight and Prout (1951) reported a 36 percent rate of improvement for 75 addicts after hospital treatment, while Pearson and Little (1965) reported a 38 percent recovery (abstinence from drugs) for 84 patients following individual therapy treatment. Vaillant (1966) after a 12 year follow up study, cited a 30-40 percent abstinence rate for 30 ex-addicts after hospital treatment. Contrary to these findings, Frankau and Stanwell (1960) reported a very high abstinence rate (62 percent) of 51 addicts after withdrawal and individual therapy treatment. Dole and Nyswander (1967b) reported that in three years 91 percent of 304 addicts on methadone maintenance have been successfully rehabilitated and transformed to become socially useful citizens. As can be seen, success of treatment was defined differently, dependent on the goal of the examiner. Those concerned with social productivity defined success in terms of the ability of the patient to live as a normal citizen in the community, whereas, other groups sought total abstinence as the criterion for successful treatment. This confusion of goals has limited effective comparisons of treatment results. It was generally agreed (Freedman, 1965; Guttman, 1965; Cameron, 1963; and Chapple, 1966) that no existing program for the treatment of drug addiction was as yet adequate, and there existed an urgent need for initiation of experimental programs studying causes (psychological,
physiological, and social) of drug addiction.

History and Scope of the Problem of Drug Addiction

The problem of drug addiction has a curious history. According to Lehmann (1963) drug addiction was not considered a pathological or criminal deviation until the early 20th century. This did not imply that addiction did not exist before this time. Records suggested that since thousands of years before Christ, addictive opiates were used by the Sumerians and Assyrians. Tennyson (1953) reported that during the 16th century, opium addiction was evident in Europe, and was introduced by the English in the 18th century via Calcutta to China, from where it was introduced to the United States. In 1909 the United States called a conference for the International Opium Commission in Shanghai to discuss the significance of drug addiction. The recommendations which arose from the Opium Commission were supported by the first international convention on addiction at the 1912 Hague Convention which attempted to bring about the gradual suppression of the abuse of opiates and their derivatives. According to Zusman (1961), the United States, through the introduction of the Harrison Act of 1914, made its first important decision effecting control of narcotics. Although there was controversy surrounding the Act's interpretation, it led to a reduction of the number of drug addicts in the United States. According to Lehmann (1963), one in every 400 Americans was an addict before the Harrison Act, whereas estimates in 1958 showed only one in 3,000 addicted. Currently, estimates of the
number of addicts in the United States ranged from 40,000 to 100,000 (Cameron, 1963; Mueller, 1964). Quinn (1961) stated that Negroes, Mexicans, and Puerto Ricans who constituted about 10 percent of the population in the United States comprised 80 percent of the drug addicts.

Other countries as well as the United States had their addiction problems. According to Tennyson (1953), the ratio of addiction was about one in every 6,000 in Canada, and one in every 10,000 in Germany. In South America, cocaine and amphetamine addiction had reached alarming proportions. Government statistics reported over 200,000 addicts in Japan. Quinn (1961) found England to be slightly higher than the United States per capita consumption of narcotics; however, Visotsky (1966) reported that although the United States had the strictest laws in the area of drug addiction it had the greatest number of addicts per capita in the world. The obvious lesson of history is that a certain segment of the population, probably a much larger one than we would like to believe, must find relief in drugs.

**Definition of Drug Addiction**

Drug addiction was variously defined. According to Seevers (1962, p. 92), "addiction is used by physicians and scientists to denote the excessive use and abuse of drugs which affect the central nervous system." Pearson and Little (1965, p. 164) defined addiction as the "inappropriate, compulsive drive for drugs which are harmful or toxic to the individual." Nelson (1966) agreed with Isbell (1955), Martin (1965), and Wikler (1955) that drug addiction implied a state
of periodic or continuous intoxication harmful both to the individual using the drug and to society. It was evident that the addiction problem is not a simple one; however, for purposes of this paper the definition used by the Expert Committee of the World Health Organization on Drugs Liable to Produce Addiction (1950, p. 7, 1952, p. 9) will suffice:

drug addiction is a state of periodic or chronic intoxication detrimental to the individual and to society, produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include: 1) an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means; 2) a tendency to increase the dosage; 3) a psychic (psychological) and sometimes physical dependence on the effects of the drug.

Theoretical Models of Drug Addiction

It was useful to approach the problem of pathological drug addiction through the presentation of several discrete models. According to Lehmann (1963) these approaches reflected the many varieties of data, theories, and biases concerning drug addiction.

The Cellular Model

According to Isbell and White (1953), addiction to opiate drugs (morphine, heroin, codeine, etc.) led to the sequence: 1) tolerance, 2) physical dependence, and 3) psychic or emotional dependence. Nelson (1966) described tolerance as a decreasing effect from the same drug dosage, which was a result of maximal saturation of cellular receptors, increased excitability of the cell body, or of both. Seevers and Woods (1953) reported that physical dependence was
regarded as the unmasking of increased excitability in the cell body which caused a need for continued administration of the drug which prevented the somatic symptoms known as the "abstinence syndrome." Symptoms included yawning, perspiration, rhinorrhea, lacrimation, restlessness, dilation of the pupils, gooseflesh, muscular twitching, hot and cold flashes, nausea, vomiting, and diarrhea. Quinn (1961) stated that the agonies of withdrawal were strongly overemphasized and that physician addicts reported physical dependence was diminished after a rather rough 72 hours or so. Isbell and White (1953) further stated that this physical dependence in turn led to a psychic dependence which constituted drug substitution for other types of adaptive behavior.

The Iatrogenic or Pharmacodynamic Model

Lehmann (1963) reported that any person who was placed on an opiate or drug with strong addictive properties and left for a considerable period of time invariably became physically dependent on the drug. According to Quinn (1961), the addict created by the physician who prescribed drugs in generous doses over a period of time to reduce pain or discomfort, always made the fallacious assumption that he could refrain from the habit at any time. Pescor (1939) reported that in 1937, 3.8 percent of admissions to the United States Public Health Service Hospital in Lexington, Kentucky, were persons addicted to opiates for medical reasons. Rapaport (1954) in a study of admissions at this same hospital during 1952, found the incidence of
medical addiction was 27 percent among Negro addicts.

Behavior was known to vary with dependence on different drugs, e.g. Wikler and Rasor (1953) reported that antisocial behavior was seldom observed, the sensorium remained quite clear, and anxiety associated with anticipation of pain was reduced as long as adequate amounts of opiates were administered. In contrast, former opiate addicts who had received intoxicating doses of barbiturates tended to become hostile, surly, and untidy.

The Neurophysiological Model

Olds and Milner (1954) and Margules and Olds (1962) demonstrated that rats and other animals with electrodes implanted in the anterior region of the hypothalamus or in the septal region of the brain indulged in repeated self-stimulation by activating a switch which allowed an electric current to flow to the electrodes. A model of addiction based on these observations assumed that the addicting agent was a suitable stimulus for the pleasure centers in the brain, which, in turn, induced a self-perpetuating cycle of continuous seeking of the special addicting agent.

The Conditioning Model

This model suggested a process of conditioning as described by Wikler and Rasor (1953) and Kolb (1968, p. 516) whereby the actual drug experience acted as the unconditioned stimulus and the associated physical and symbolic factors served as the conditioned stimulus. Akers and Burgess (1968) described addiction as escape-avoidance
behavior maintained principally by the nonsocial, negative reinfor­
cement of withdrawal alleviation. Extinguishing the escape-avoidance
behavior was seen to be responsible for addiction relapse. Wikler
(1965) emphasized that the instrumental and classical forms of condi­
tioning could provide an unconscious motivation both for continued
drug use and relapse. Instrumentally, the seeking and use of the drug
was viewed as an emitted response. The effects of the drug produced
a progressively stronger tendency to seek and use the drug as each
reduction in tension reinforced preceding drug-seeking behavior. A
return to the situation in which the original responses were made
called forth the drug-seeking behavior. According to Jaffe and
Brill (1966) this point derived much support from clinical data in
which addicts described an ability to remain free from drugs until
they returned to their former environment where they had previously
"hustled" for drugs. Wikler (1965) observed that withdrawal symptoms
became conditioned in the classical sense to stimuli present when
withdrawal occurred. When the patient experienced symptoms of with­
drawal his response to these symptoms was to use drugs to alleviate
this condition. If the conditioned stimuli that emitted the with­
drawal symptoms were presented frequently enough in the absence of
the unconditioned stimulus (the withdrawal of narcotics after the
development of physical dependence) the conditioned stimuli would
eventually lose their capacity to evoke withdrawal symptoms.

The Personality Model

This model, with a history of at least 100 years, assumed that
drug addicts had underlying personality disorders. Rosenberg (1969) further stated that these personality disorders were characterized by immaturity, passivity, difficulty in handling anxiety, and sexual deviation. Laskowitz (1961) described the drug addict as lacking courage, feeling inadequate, being socially distant, using "private logic," being unable to postpone immediate gratification, and incapable of intensive interpersonal relationships. Torda (1968) found that passive obedience was the main factor characterizing drug addicts and agreed with Wikler (1952) in that drug addicts were subject to intellectualization, daydreaming, and omnipotent, narcissistic, and magical thinking. Chein (1964) further described the addict as having a weak ego and superego functioning, inadequate male identification, and distrust of major social institutions. Glatt (1965) implicated the importance of personality factors in addiction by pointing out that only a small minority of adolescents taking marijuana went on to take heroin.

Another important consideration in drug addiction was the addictogenic factor (Little and Pearson, 1966). This concept was formulated to describe a person who found relief from his emotional tension by perpetuating the drug addiction of another individual. The addicted individual often depended on his addicting agent for adaptation to his interpersonal environment. Kraft (1969) on the other hand, attributed drug addiction to the fact that the addict had difficulty in initiating and sustaining interpersonal contact with others, so that he sought refuge in drug addiction. All in all, it was the
general opinion of those who viewed drug addiction as a personality problem that the psychoneurotic individual characterized by low ego-strength and the psychopathic individual with a poorly developed superego were fertile soil for drug dependence. Dole and Nyswander (1967a), on the contrary, cast doubt on the psychogenic theory of addiction by reporting that a careful search of the literature failed to disclose a study in which a characteristic psychopathology or "addictive personality" had been recognized in a number of individuals prior to addiction. Results of their maintenance treatment strongly suggested that the "addict traits" were a consequence, not a cause of addiction.

The Psychoanalytic Model

Rado (1933, 1957) attempted to evolve a general theory of the dependence on drugs using Freud's libido theory as a conceptual framework. His approach suggested that addiction was determined by an autoerotic pleasure system with the libido fixated primarily at the oral stage. Szasz (1958) stressed the counterphobic defense mechanism of denial which incorporated magical thinking and narcissistic fantasies of omnipotence which enabled the drug addict to deny loss of primal love and to master the danger of being abandoned by the mother. Ganger and Shugart (1968) believed that pathology within the family was traced through the dominant defense patterns utilized by parents and siblings in their relationships to the addicted member, and that the core problem was a maternally induced block to the
resolution of the oedipal conflict. Pathology in the family thus obstructed the addict's expression of normal aggressive drives. Rosenfield (1960) purported that addiction was related to the manic-depressive cycle, and that the mechanism of ego-splitting played an important part in its psychodynamics. While Glover (1956) stated that drug addiction served to control sadism and protected the addict against paranoid psychosis, Davidson (1964), on the other hand, stated that drug addiction was strikingly similar to a compulsive reaction (such as kleptomania or pyromania) based on the narcotic user's description of a mounting tension that could be relieved only by taking the drug.

The Sociological Model

According to this view, the social setting in which drug addiction was observed was the most important factor in the development of drug dependence. Lehmann (1963) pointed out that San Francisco and Vancouver had a greater proportion of addicts not only because these locations were the terminal reached by psychopaths who had wandered across the country, but also because they were major port cities. Mason (1960) reported that 30 percent of the addicts in the United States were under 21 years of age, a fact attributable to the adolescent's traditional rebelliousness and defiance of social norms. Cameron (1963) pointed out that although it was evident that socioeconomic factors were associated with the development of addiction, it was important to remember that addicts were found in other
settings and that there were more people in deprived areas who did not become addicts than there were those who did.

The Law Enforcement Model

This particular approach to the drug addiction problem was characterized by steadfast disinclination to consider facts and expert opinion in an unbiased manner. According to this model, the approach to drug addiction was one of punishment, coercion, and confinement. Lieberman (1967) pointed out that the most extensive treatment since the 1920's had been the punitive approach. According to Lehmann (1963) the Narcotic Law of 1956 provided the death penalty for narcotic sale to minors. As recently as 1959, the Federal Bureau of Narcotics strongly opposed the report of the joint committee of the American Bar Association and the American Medical Association. Since the Narcotic Addict Rehabilitation Act of 1966, addicts charged with crimes arising from addiction may elect state hospitalization for a period of three months followed by a variable three year aftercare period. Although physicians declared drug addiction to be a medical problem, most neglected it, leaving the responsibility to law enforcement officers.

Previous Attempts to Treat Drug Addiction

It seems straightforward that no single model could either adequately explain or offer a sufficient theoretical basis for treatment of drug addiction. According to Sabath (1964), Sokol (1954), and Nyswander (1958) virtually all forms of treatment for drug addiction
(group, individual, inpatient, outpatient, etc.) appeared to encounter considerable difficulty. Bowman (1963) further stated that realistically, very little help had been available to the addict, and treatment offered to the addict had been primarily in prisons and other punitive and semi-punitive settings. Jurgenson (1966) explained the difficulty of treating addicts has lain in the fact that addiction was a symptom of comfort rather than discomfort, providing relief from both physical and emotional pain for the addict. He further stated that with a symptom of comfort, why should the addict have sought treatment, in lieu of the solace he had come to know so well. Freedman and Fink (1967) agreed that the most common difficulty in drug treatment was engagement of the narcotic addict in treatment and that a large number of admissions and high drop out rates characterized all voluntary treatment centers. Despite the difficulties encountered, such as gaps in knowledge and the diversities of professional opinions, numerous theoretical speculations and scientific investigations were initiated. Now, at least, there is an exciting ferment of creative experimentation in the area of drug addiction.

Some of the most promising treatment approaches, according to Preble and Casey (1969) were: 1) drug treatment (opiate substitute or antagonist); 2) existentially oriented, self-help groups (Synanon prototype); and 3) psychotherapy (group and individual).

Dole and Nyswander (1965) were the leading exponents of the high dosage, methadone hydrochloride technique (maintenance medication) to maintain heroin abusers in a drug-tolerant and drug-dependent state.
Their project begun in 1963 at Rockefeller Institute in New York City was designed to test the hypothesis that, in combination with other treatment techniques, administration of methadone in amounts sufficient to produce a high-level of tolerance resulted in the narcotic-dependent person losing his inclination toward continued abuse of narcotics. Maintenance treatment on methadone was based on the hypothesis that to achieve a homeostatic state, physiologically, and psychologically, the addict had to be provided with a medication which protected him from the drive to obtain addicting drugs and also allowed for social functioning (Jeffe and Brill, 1966; Eddy, 1967).

According to Dole and Nyswander (1955, p. 646), "methadone appeared to have two useful effects: 1) relief of narcotic hunger, and 2) induction of sufficient tolerance to block the euphoric effect of an illegal dose of heroin." Their study, using 22 patients for periods of one to fifteen months, revealed that patients who before treatment appeared hopelessly addicted were then engaged in useful occupations and were drug-free. In fact, Dole and Nyswander (1967b) boasted a 91 percent recovery rate for 304 patients who had entered the methadone program over the past three years. Paulus and Halliday (1967) further substantiated the usefulness of methadone maintenance. They reported signs of positive change (drug abstinence and employment) in 41 percent of the patients on the regular program and in 47 percent of the patients on the prolonged methadone maintenance program.

It can be seen that efforts to treat addicted patients with narcotic medication were previously handicapped by lack of sufficiently
long-acting agents. Methadone met this deficiency and was considered by Nelson (1966), Martin (1965), Beeson and McDermott (1963) and Dole and Nyswander (1965, 1967) to be the drug of choice for withdrawing addicts. Winick (1962) not only agreed but stated that only maintenance medication seemed to prevent the hard core addicts from continuing the in-and-out of jail pattern. Contrary to previous reports, Ausubel (1966) advocated that methadone treatment merely substituted methadone addiction for heroin addiction and that methadone was actively abetting the personality deterioration and social demoralization that had accompanied narcotic addiction over the past 350 years. Kurland (1966) and Vogel (1965) also agreed that attempts to maintain abstinence in the addict had been so unrewarding in the greater majority of patients that controversy had continued relative to the usefulness of this approach. Dole and Nyswander (1966) also cautioned that their limited study did not establish a new treatment program for general application. They agreed with Brill and Jaffe (1967) and Eddy (1967) that, like any new treatment, methadone needed extensive investigation before recommendation for general use.

Cyclazocine, a long-acting narcotic antagonist, was another approach for drug addiction which had been found to antagonize the subjective effects of narcotics. Fraser and Rosenberg (1966) agreed with Deneau and Seevers (1962) and Archer and Harris (1965) that cyclazocine was a potent morphine antagonist and muscle relaxant used with animals, and had a low abuse potential in man. Martin, and Gorodetzky (1966) proposed that regular administration of cyclazocine
was useful in the treatment of ambulatory patients who were highly motivated to avoid relapse after compulsive use of narcotics. They found that post-addicts given 2 mg. of cyclazocine orally twice a day recognized 60 mg. of morphine parenterally but the effect was less than what would have been obtained with 10 mg. of morphine. Jaffe and Brill (1966) agreed with studies by Martin (1966) that cyclazocine was a long-acting, orally effective narcotic agent that presumably prevented morphine-like drugs from reaching the usual receptor sites in the nervous system, thus reduced the subjective and physiological effects of any morphine-like drug. The results of Jaffe and Brill (1966) indicated that cyclazocine administration on an ambulatory basis seemed promising enough to warrant more extensive and controlled studies, as well as studies comparing cyclazocine to other treatment programs such as methadone maintenance.

Group psychotherapy was yet another approach utilized in the treatment of drug addiction. Currently, regarding maladjustment, it was emphasized that disturbances in living originated in interpersonal relations, and consequently, interaction among individuals served as a basic therapeutic agent. This concept, with the demand to offer more patients treatment than individual psychotherapy affords, had resulted in an increasing use of the group psychotherapy approach. Although group psychotherapy had been applied to normal individuals, neurotics, and different types of patients with varying degrees of success, a review of the literature pointed up the fragmentary knowledge and paucity of information which existed concerning the
treatment of drug addicts.

According to Sokol (1954), group psychotherapy with outpatient addicts had failed primarily because customary group counseling techniques were not effective with an addict population. Sabath (1964) indicated from follow-up data that the results of inpatient groups did not result in lasting improvement after the patient returned to the community. Dole and Nyswander (1966, 1967a) using methadone maintenance with patients found no indication that structured group therapy contributed to rehabilitation. They further stated that a careful search of the literature failed to disclose a single report in which a combination of chemotherapy and psychotherapy had enabled a significant fraction of the patients to return to the community and live as productive individuals. Similarly, Rice and Cohen (1965) in a study at Pilgrim State Hospital found that psychotherapeutic intervention with voluntary patients during withdrawal from narcotics was futile.

Contrary to these reports, Rubin (1966) reported that approximately 35 percent of 108 cases remained in the community with no evidence of drug use after group therapy at the California Rehabilitation Center. Further contradiction to negative reports concerning group psychotherapy was found in the efforts of Synanon Foundation Inc., which employed the process of self-appraisal through leaderless group therapy. Cherkas (1965) reported that from September 1, 1958 to April 1, 1964, Synanon had 844 admissions of whom 359 were still in residence at the latter date, and another 26 were living and working
outside of Synanon; a 45 percent recovery rate. Yablonsky (1965) further added that keeping 400 persons in Synanon, drug free, saved society at least $10,000 each day and around $3,500,000 per year.

Tiebout (1949), Appel (1955), and Pearson and Little (1965) advocated individual psychotherapy for treatment of the underlying emotional disorder in drug addicts. Soria (1967) supported the hypothesis that a pathological factor which caused people to desire drugs was attributable to a personality trait which could be modified by psychotherapy. Freedman (1965), on the other hand, stated that analytic therapy was not a suitable tool for treating drug addiction since, in the majority of addicts, most of their energy was expended obtaining the drug; they therefore lacked motivation for treatment. Several studies which provided support for psychotherapy as a treatment approach for drug addiction included Pearson and Little (1965) who reported a 38 percent abstinence rate with 84 patients who received individual therapy and Frankau and Stanwell (1960) who boasted a 62 percent abstinence rate with 51 addicts treated by individual psychotherapy.

**Statement of the Problem**

Although different kinds of treatment approaches had been endorsed, many came to recognize the need for a broad spectrum of therapeutic approaches. Kaplan and Meyerowitz (1969) suggested that the removal of undesirable adaptation to drugs was a necessary first step in rehabilitation of the narcotic addict. However, this would be
futile if the second step could not be reached, that is, a provision for purpose and socially accepted adaptive mechanisms which would permit addicts to adjust to society and hopefully maintain positive self-evaluation.

Although there were no studies reported which used positive self-evaluation or self-concept as an indication of successful treatment with drug addicts, it was generally agreed that during treatment with other emotionally disturbed patients there appeared to be a positive change in attitude toward self or acceptance of self (Ashcroft and Fitts, 1964; Brills, 1953; Raimy, 1948; Rogers, 1951; Seeman, 1949; Sheever, 1949; Snyder, 1945; Stock, 1949). Since Laskowitz (1961) indicated that the addict's self-respect was low when he was on the street and Dole and Nyswander (1967b) reported an increase in pride and self-esteem in addicts following treatment, it seemed reasonable to assume that some changes were taking place in the addict over time.

It was the purpose of this investigation to compare the treatment effects of: 1) methadone (opiate substitute), 2) group psychotherapy, and 3) a combination of methadone and group psychotherapy with 4) a control group of Ss who were merely placed on a waiting list and received no treatment. The study focused on three phases of assessment of Ss as a function of treatment procedure: 1) general assessment of Ss prior to treatment, 2) behavioral adjustments during treatment, and 3) assessment of changes following treatment.

Related to the three phases of the assessment procedures this
study asked the following questions: 1) Were there differences between groups prior to receiving different treatments? Although the Ss were randomly assigned to groups they may have differed on one or more variables which related to changes both during and following treatment. Therefore, if any differences were found on any of the pre-treatment variables, these measures may be used to statistically adjust for the effect of these differences on measures obtained during and following treatment. Using this procedure, any changes which occurred during treatment or following treatment may be attributed to differential treatment effects and would not be a function of pre-treatment differences.

2) Were there any differences in behavioral adjustments occurring during treatment as a function of the treatment procedure? Assuming no prior subject differences existed before treatment, the behavioral adjustments of Ss assigned to the treatment and control groups were investigated to assess behavioral changes that might have resulted from any variation in treatment procedure.

3) Were there changes in self-concept as a function of the treatment procedure? More specifically, was the pattern of changes in self-concept from pre to post testing a function of variation in treatment procedure?
METHOD

Subjects

Thirty-eight male patients were selected randomly from a larger population of hard-core heroin addicts in the Drug Rehabilitation Clinic, and the City Drug Clinic of New Orleans, Louisiana. Only males were used because most of the voluntary admissions to this clinic were predominantly male. The total sample consisted of six white and thirty-two Negro patients. Experimental and control groups were chosen on the basis of the following criteria:

1. An age range of twenty to forty years
2. Literate and of average intelligence (85-110 I.Q. range) as measured by the Shipley-Hartford Vocabulary Test
3. Presently addicted to heroin and had been addicted for a period of at least two years
4. Non-psychotic as evaluated by psychiatric staff of the clinic and with no history of psychosis.

In age distribution, ethnic background, and previous arrests, patients met all the criteria for ordinary street addicts.

Assessment Instruments and Measures

Pre-Treatment Measures. These measures were used to determine the similarity of Ss assigned to the four treatment groups. Chronological age (to nearest birthday) was determined. The Shipley Institute of
Living Scale (Buros, 1965, p. 173) was used to estimate the intellectual level for each S. In addition, a number of behavioral adjustment measures were obtained on Ss three months prior to treatment. These measures were 1) number of days employed in gainful occupation, 2) frequency of arrests, and 3) abstinence from illegal drugs. Appendix A indicates the nature of the questionnaire used to get information on arrests, employment, and drug abstinence. The Tennessee Department of Mental Health Self-Concept Scale (TDMH), developed by Fitts (1964), was used to measure self-concept. The psychometric data, an example of the score sheet and of the profile sheet of the TDMH Scale are presented in Appendix B. The total P score of the TDMH was used as the measure of self-concept in this study. It reflected the overall level of self-esteem and was the most important single score on the counseling form. According to Fitts, (1965, p. 2) "persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth; see themselves undesirable; often feel anxious, depressed, and unhappy; and have little faith or confidence in themselves."

Six pre-treatment measures were thus available on all Ss. Means and standard deviations for all of these measures for each treatment group are found in Appendix C.

Measures During Treatment. Measures of behavioral adjustment during treatment were determined by: 1) frequency of arrests monitored by
contact with local law enforcement when possible and self reports, 2) employment was verified by verbal reports from both Ss and his employer when possible, 3) abstinence from heroin was measured by verbal reports and substantiated when possible by a weekly urinanalysis using two-stage thin-layer chromatographic techniques. Measures obtained here were compared to similar measures obtained prior to any treatment.

**Post Treatment Measures.** A single measure of self-concept was obtained following treatment using the TDMH Self-Concept Scale. This measure was used to determine change in self-perception as an immediate result of treatment received.

**Procedure**

Subjects were selected randomly from a waiting list of patients who had applied for treatment of drug addiction at the City Drug Clinic and the Drug Rehabilitation Center. All Ss accepted in the clinics and who met previously stated criteria were included. These Ss were randomly assigned into four treatment groups consisting of ten Ss in each group (with the exception of the psychotherapy group where there were 8 Ss). The four treatment conditions were: 1) no treatment, 2) methadone alone, 3) methadone and psychotherapy, and 4) psychotherapy alone. Neither examiner nor psychotherapists had knowledge of the treatment condition to which each S was assigned. The Ss had no knowledge of the experimental design. All Ss were tested prior to assignment to groups and three months later at the
termination of the study. Behavioral adjustment reports were obtained on Ss prior to and during the treatment phase itself.

Administration of methadone was under the direction of the same two physicians. Thus, although dosages differed (ranging from 4cc to 13 cc) with individual cases, physiological effects of methadone were held relatively constant. Subjects receiving drug treatment were given methadone orally, once daily, between the hours of 8:00 A.M. and 7:00 P.M. seven days a week. Two measures of control included: 1) oral administration of methadone in the presence of a clinical nurse to insure that the patient actually swallowed the liquid medication and 2) a urinanalysis collected randomly before administration and analyzed by chromatographic methods for detection of illegal drugs.

Group psychotherapy was geared toward development of interpersonal communication, confrontation of personal problems, and socially acceptable methods of handling these problems to afford the addict an opportunity for changing a fundamental misconception of himself and his social surroundings. Each of the two psychotherapy groups met for one hour weekly in the same therapy room, on the same day, with the same therapists, thus insuring a degree of consistency of treatment.

Instructions

Testing directions were presented to all Ss in standardized form. Each S was asked to complete the basic questionnaire, the Shipley-Hartford Vocabulary Test, and the TDMH Self-Concept Scale in
that order. Instructions were given to each S individually with the aid of practice exercises. Details of test administration may be found in Appendix D.

Analysis

To answer previously posed questions regarding assessment of pre-treatment differences, differences in behavioral adjustment during treatment, and changes in self-concept following treatment, a series of multivariate analyses were performed. In general, multivariate analyses were particularly useful in dealing with multiple measures on S. While it was necessary to assume that a random sample of multivariate observations had been collected from different individuals, it was not necessary to assume similar correlations among the various dimensions across cells. Thus, multivariate analysis of variance provided a more exact solution to analysis of variance problems than did a simple analysis of variance. All analyses in the present study were planned with respect to assessment procedures of the following three phases of the investigation.

Assessment of Pre-Treatment Measures

All measures obtained on Ss prior to treatment were submitted to a multivariate analysis of variance to determine if the pattern of pre-treatment measures (i.e., age, I.Q., self-concept, days employed, frequency of illegal drug use, and arrests) was different across groups. Further univariate analyses were conducted to determine the variable or variables responsible for pattern differences.
Assessment of Behavioral Adjustment During Treatment

A multivariate analysis of covariance was performed on behavioral adjustment measures obtained during treatment, using any significant covariate or covariates obtained in the previous analysis to adjust for pre-treatment differences in the four treatment groups. Further, univariate analyses were conducted on each of these behavioral adjustment measures across treatment groups to determine the variable or variables which contributed to any obtained pattern difference.

Assessment of Changes in Self-Concept Following Treatment

A multivariate analysis of covariance was performed on pre- and post-treatment self-concept scores to determine whether the pattern of change in self-concept was different across the four treatment groups. An additional analysis of variance was performed on self-concept scores as a function of treatment groups and assessment phase (i.e., pre- to post-testing).
RESULTS

Assessment of Pre-Treatment Measures

The overall multivariate analysis of variance (using Wilks Lambda Criterion) on measures obtained on Ss prior to treatment was significant (multivariate $F=2.93, p<.001$). This indicated that the pattern of pre-treatment measures was different for the four treatment groups. Further univariate analyses, as shown in Table 1, indicated that the frequency of illegal drug use was the only significant variable across treatment groups ($F=19.04, 3/34 \text{ df}, p<.001$). Since this measure had a major influence on the significant multivariate pattern, it was selected as a covariate in further analysis involving behavioral adjustment and change in self-concept measures.

Assessment of Behavioral Adjustment During Treatment

Results of multivariate analysis of covariance on the three behavioral adjustment measures across treatment groups are reported in Table 2. The overall pattern of these behavioral adjustment measures was significant (multivariate $F=8.15, p<.001$). Further univariate analyses indicated that there were significant differences across treatment groups on the frequency of illegal drug use ($p<.001$) and the number of arrests ($p<.05$) during treatment.

Means and standard deviations for the behavioral adjustment measures for each treatment group are reported in Table 3.
### TABLE 1

**UNIVARIATE F TESTS ON PRE-TREATMENT VARIABLES**

FOR ALL GROUPS

<table>
<thead>
<tr>
<th>Variable</th>
<th>$F(3/34 , df)$</th>
<th>$MS$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.54</td>
<td>15.36</td>
<td>0.66</td>
</tr>
<tr>
<td>IQ</td>
<td>0.66</td>
<td>54.77</td>
<td>0.59</td>
</tr>
<tr>
<td>Self-Concept</td>
<td>0.90</td>
<td>1241.50</td>
<td>0.45</td>
</tr>
<tr>
<td>Days Employed</td>
<td>0.98</td>
<td>1466.06</td>
<td>0.42</td>
</tr>
<tr>
<td>Frequency of Illegal Drug Use</td>
<td>19.04</td>
<td>4884.24</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of Arrests</td>
<td>1.41</td>
<td>0.38</td>
<td>0.26</td>
</tr>
</tbody>
</table>
### TABLE 2

**ANALYSIS OF PATTERNS OF BEHAVIORAL ADJUSTMENT MEASURES**

**DURING TREATMENT ACROSS TREATMENT GROUPS**

<table>
<thead>
<tr>
<th>Multivariate Tests Using Wilks Lambda Criterion</th>
<th>F</th>
<th>df (Numerator)</th>
<th>df (Error)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Pattern</td>
<td>8.15</td>
<td>9.00</td>
<td>75.60</td>
<td>0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Univariate F Tests</th>
<th>F(3/33 df)</th>
<th>MS</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days Employed</td>
<td>1.01</td>
<td>1414.68</td>
<td>0.40</td>
</tr>
<tr>
<td>Freq. of Illegal Drug Use</td>
<td>37.43</td>
<td>14045.66</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of Arrests</td>
<td>2.90</td>
<td>0.91</td>
<td>0.05</td>
</tr>
<tr>
<td>Treatment Groups</td>
<td>N</td>
<td>Days Employed</td>
<td>Frequency of Illegal Drug Use</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----</td>
<td>---------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Control</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10</td>
<td>33.00</td>
<td>87.50</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>41.11</td>
<td>7.91</td>
</tr>
<tr>
<td>Methadone</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10</td>
<td>59.10</td>
<td>4.40</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>38.32</td>
<td>9.51</td>
</tr>
<tr>
<td>Methadone and Group</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10</td>
<td>57.80</td>
<td>8.80</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>32.03</td>
<td>9.31</td>
</tr>
<tr>
<td>Group</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>8</td>
<td>46.00</td>
<td>62.25</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>34.97</td>
<td>39.24</td>
</tr>
</tbody>
</table>
Inspection of this table suggested that the pattern of behavioral adjustment measures reflected the effectiveness of differential treatment of drug addicts. Although there was a significant relationship between the number of arrests and days employed ($r= -0.465, p < 0.05$), there were no significant relationships between frequency of illegal drug use and days employed ($r= -0.225$) and number of arrests ($r= 0.013$).

Table 4 reports all $t$ ratios for comparisons of the two significant behavioral adjustment measures by treatment groups. These comparisons indicated that the control (no treatment) group had a significantly ($p < 0.01$) greater frequency of illegal drug use and greater number of arrests during the treatment phase than did any of the treatment groups. However, the psychotherapy group showed a significantly ($p < 0.01$) greater frequency of illegal drug use (but not a greater number of arrests) than either methadone or methadone plus group psychotherapy group.

**Assessment of Changes in Self-Concept Following Treatment**

Results of multivariate analysis of covariance on changes in self-concept from pre- to post-treatment assessment, across treatment groups are reported in Table 5. The overall pattern of changes in self-concept was not significantly different across groups (multivariate $F= 1.09, p < 0.38$). Further univariate analyses also failed to show any significant differences across groups for either pre self-concept or post self-concept assessment.
TABLE 4

TABLE OF t RATIOS FOR COMPARISONS OF TWO BEHAVIORAL ADJUSTMENT MEASURES ACROSS TREATMENT GROUPS

<table>
<thead>
<tr>
<th>Treatment Groups</th>
<th>Behavioral Adjustment Measures</th>
<th>Control</th>
<th>Methadone</th>
<th>Methadone Plus Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>Drugs</td>
<td>9.53 *</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Arrests</td>
<td>2.08 *</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Methadone Plus Group</td>
<td>Drugs</td>
<td>9.03 *</td>
<td>.50</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Arrests</td>
<td>2.50 *</td>
<td>.42</td>
<td>-</td>
</tr>
<tr>
<td>Group Psychotherapy</td>
<td>Drugs</td>
<td>2.73 *</td>
<td>6.25 *</td>
<td>5.77 *</td>
</tr>
<tr>
<td></td>
<td>Arrests</td>
<td>2.08 *</td>
<td>.19</td>
<td>.19</td>
</tr>
</tbody>
</table>

* p < .01
<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre Self-Concept</th>
<th>Post Self-Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>F(3/33 df)</td>
<td>0.86</td>
<td>0.72</td>
</tr>
<tr>
<td>MS</td>
<td>1223.37</td>
<td>1191.43</td>
</tr>
<tr>
<td>p</td>
<td>0.47</td>
<td>0.55</td>
</tr>
</tbody>
</table>
Results of an analysis of variance of pre- and post-treatment self-concept as a function of treatment groups are reported in Table 6. This analysis indicated that overall change in self-concept from pre- to post-treatment assessments was significant ($F=3.72, 1/68 \text{ df, } p \leq .05$). Thus, the pattern of change in self-concept showed a relatively consistent increase from pre- to post-treatment assessment across treatment groups and indicated general improvement in self-concept over time. The overall means (averaged over groups) for pre and post self-concept scores are reported in Figure 1. Mean pre and post self-concept scores for each treatment group were also shown and indicated the relative consistency of positive changes in self-concept over time, with the exception of the psychotherapy group which showed a negative change in self-concept.
**TABLE 6**

**ANALYSIS OF VARIANCE ON SELF-CONCEPT SCORES BY TREATMENT GROUPS AND BY ASSESSMENT PHASE (PRE-POST TESTS)**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Groups (A)</td>
<td>4496.21</td>
<td>3</td>
<td>1498.74</td>
<td>1.00</td>
<td>0.39</td>
</tr>
<tr>
<td>Self-Concept Pre-Post Tests (B)</td>
<td>5559.13</td>
<td>1</td>
<td>5559.13</td>
<td>3.72</td>
<td>0.05</td>
</tr>
<tr>
<td>AB</td>
<td>5069.99</td>
<td>3</td>
<td>1690.00</td>
<td>1.13</td>
<td>0.34</td>
</tr>
<tr>
<td>Within Cells</td>
<td>101699.44</td>
<td>68</td>
<td>1495.58</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Figure I.
Mean Self-Concept Scores on Pre and Post Treatment for Four Treatment Groups
DISCUSSION

This study focused on effects of experimental variation of treatment of drug addicts on their behavioral adjustment during treatment and their self-perceptions following treatment. In general, there appeared to be some merit for all of the experimental treatment procedures (i.e., methadone, methadone and group, and group psychotherapy) at least in terms of immediate changes towards positive behavioral adjustment. However, no conclusions were drawn with respect to long term improvement since these data were not within the scope of this study. Thus, while one treatment may have been more effective in terms of current behavioral adjustment (significantly reducing the frequency of illegal drug use and frequency of arrests) other treatment procedures may have been more effective in the total rehabilitation of the individual. On the basis of this study, it would therefore seem unwise to eliminate any of these treatment procedures for drug addiction.

Discussion of the results of this investigation focused on two main phases of assessment, i.e., behavioral adjustments during different treatment procedures and changes in self-concept as a function of differential treatment.

Assessment of Behavioral Adjustment During Treatment

During treatment, there were some behavioral changes occurring across groups, which reflected the effectiveness of differential
treatment of drug addicts. This major pattern suggested consistently better adjustment for those groups which received methadone than for those which did not (i.e., control and psychotherapy groups). Since there were no significant relationships between frequency of illegal drug use, days employed, and number of arrests it was seen that although changes occurred across all three behavioral adjustment measures, methadone may have been primarily effective in reducing the frequency of illegal drug use. It appeared that the effect of methadone alone resulted in significantly better adjustment of drug addicts during the treatment phase. This finding was in agreement with Kaplan and Meyerowitz (1969), Dole and Nyswander (1965, 1967b), Eddy (1967), Paulus and Halliday (1967), Nelson (1966), Martin (1965), and Beeson and McDermott (1963), who suggested that the removal of the adaption to drugs was a necessary first step in the rehabilitation of the narcotic addict.

It may be seen that methadone served as a remarkable leveling agent in treatment. That is, it was effective in stabilizing the addict and alleviating depression and anxiety stemming from an almost constant concern of supplying the physiological craving for drugs which is in agreement with Brill and Jaffe (1967). Thus, by being relieved of the necessity to attain illegal drugs (i.e., being placed on methadone maintenance) the addict was free to break his acting-out behavior and to remain in treatment hopefully until rehabilitated. It seemed reasonable to assume that the comfortable physiological state incurred by administration of methadone enabled the addict more
opportunity for social functioning. Further advantages of methadone administration to be considered were: 1) since taken orally, it eliminated the use of the needle which had come to be known as a secondary reinforcement in drug usage, 2) since medication was dispensed in a legitimate agency it could have been instrumental in drawing addicts away from the underworld culture and into contact with values and goals of a more accepted environment, and 3) methadone clinics placed value on social productivity and curtailment of anti-social activity (Brill and Jaffe, 1967).

Findings of the present study supported the pharmaco-dynamic model of addiction and the hypothesis that methadone was an effective treatment when defining success of treatment as 1) abstinence from illegal drugs and 2) reduction of anti-social activity which led to the in-and-out jail pattern which characterized the majority of hardcore heroin addicts. Although the behavioral adjustment measure (number of days gainfully employed) failed to meet the established level of significance, it was believed that this variable might be involved as the second step in rehabilitation, that is, the provision of purpose and socially accepted adaptive mechanisms which permitted the addict to adjust to society as advocated by Kaplan and Meyerowitz (1969), and which was not adequately measured over the three month period covered by this study.

Although group psychotherapy treatment appeared to be better than no treatment at all, which was in agreement with Rubin (1966) and Cherkas (1965), this group also showed significantly greater frequency
of illegal drug use \(p < .01\) than did either the methadone or the methadone plus psychotherapy group, which was in agreement with results of Sokol (1954), Sabath (1968), and Rice and Cohen (1965). Similarly, the addition of group psychotherapy to methadone treatment resulted in no greater improvement than the methadone group alone. This could have been a result of the relatively short treatment period or more specifically to the sporadic attendance of Ss in both psychotherapy groups. It appeared that drug addicts were not motivated to attend regular group activity and that an out-patient setting such as was maintained in the drug clinics involved in this study did not have adequate control of patient activity to be conducive to group psychotherapy attendance. Of eight Ss assigned to group psychotherapy alone, only four attended group sessions regularly. Similarly, of ten Ss assigned to methadone and group psychotherapy only three attended group meetings regularly. This poor attendance should be considered when interpreting the results of the present study; however, poor attendance and lack of interest in group activity did point up the fact that the engagement of drug addicts in group psychotherapy was impractical, at least on an out-patient basis. This was not to say that the social rehabilitation, or second phase of treatment of drug addicts as suggested by Kaplan and Meyerowitz (1969), was not necessary: only that it was highly difficult to attain.

**Assessment of Changes in Self-Concept Following Treatment**

Although the results of assessment of changes in self-concept
following treatment indicated that overall pattern of change in self-concept was not significant across treatment groups and similarly was not significant for either pre or post self-concept assessments, analysis of change from pre- to post-treatment self-concept as a function of differential treatment indicated an overall generally positive change in self-concept (averaged over treatment groups). There appeared to be a general improvement in self-concept over time regardless of treatment group. This was in agreement with literature which reported a positive change in self-concept as a result of treatment (Ashcroft and Fitts, 1964; Brills, 1953; Raimy, 1948; Rogers, 1951; Seeman, 1949; Sheever, 1949; Snyder, 1945; Stock, 1949; and with Dole and Nyswander (1967b) who reported an increase in pride and self-esteem in addicts following treatment. Although Ss in the control group were not given specific treatment, they came into contact with treatment clinics and were anticipating placement on the maintenance program. Further, overall means for pre to post self-concept scores indicated an increase in self-concept for the control group, the methadone group, and the methadone plus group psychotherapy group but showed a decrease in self-concept scores for group psychotherapy alone. This finding could have been a function of the fact that those engaged in group psychotherapy alone, without chemotherapy (methadone maintenance) to alleviate their physiological craving for drugs, may have been on the street hustling illegal drugs.

This study employed measures of success (i.e., behavioral adjustment indices and a psychological measure of self-concept) which
permitted the comparison of different treatment approaches. No single index was used as criterion for successful treatment, rather a combination of behavioral measures, commonly referred to in the literature, were employed so that a more comprehensive analysis of the behavior of drug addicts during treatment could be employed. As in any other study of this controversial nature, there were limitations which were considered in the light of the findings. First, as in most studies on drug addiction there was a limited number of drug addicts who were willing to participate. Second, the lack of cooperation of drug addicts due to social and legal prosecution and confidentiality was an important consideration when weighing self-reports used in the attainment of behavioral measures. This was however, somewhat controlled for by the addicts knowledge that police and employment reports were available to the examiner and that a random urianalysis was employed by the clinic for detection of illegal drugs. Third, only one type of drug addict (the heroin addict) was included in the study. This necessarily limited the applicability of the findings to those taking heroin only.

Because the present study was exploratory any conclusions drawn from the results would be of a tentative nature. Some basic modifications might allow for more meaningful comparisons of treatments in future studies. First, involvement in group therapy would have been facilitated if a former addict could have been used as a group leader. This procedure has been reported to be very effective in Synanon groups (Cherkas, 1965; Yablonsky, 1965). Second, to insure
more active participation in attendance in group therapy it would have been necessary to have more control over patients' activities in general. For example, if a half-way house had been available patients' activities could have been more closely observed and checked. Third, this investigation covered only a limited time span (three months). Results suggested that it would be particularly informative to study patients over a longer time period. Although methadone seemed to be effective in terms of patients' immediate behavioral adjustment, it is not known what the long-term effects of this drug might be. Specifically, investigation of the effects of withdrawal from methadone would provide additional information on long-term adjustments. Fourth, only one chemotherapeutic agent was used in this study. Further studies might employ other chemotherapeutic drugs such as cyclazocine to compare the effectiveness of this non-addictive treatment drug with the addictive treatment drug that was used in this study.

Obviously, there exists no simple overall solution for the treatment of drug addiction (Brill and Jaffe, 1967). It is hoped that future development of differential diagnosis of addict types will provide a suitable criteria for treatment so that the addict can be referred to the most appropriate treatment source.
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APPENDICES
APPENDIX A

QUESTIONNAIRE

Name: ___________________________________ Date of birth _____ Age _____

Occupation: ___________________________________ Race ______

Education: ____________________________ Married Single Divorced

Number of years on drugs _______ Age: when first used drugs ______

1. Can you read and write? _______________

2. Number of days employed for the past 3 months __________________

3. Number of days on drugs for the past 3 months __________________

4. Number of times arrested the past 3 months __________________

5. Total number of convictions since you have been on drugs ______
APPENDIX B

Psychometric Data, Score Sheet, and Profile Sheet of the TDMH

Norms
The standardization group from which the norms were developed was a sample of 626 people. Approximately equal numbers of both sexes, both Negro and White Ss, and representatives of all social, economic, intellectual, and educational levels were used. Ss were obtained from high school, colleges, state institutions, and other sources.

Reliability
The test-retest reliability coefficients for the Total P score is .92. Several other evidences of reliability of the scores on the TDMH are Congdon (1958) used a shortened version of the scale and obtained a reliability coefficient of .88 for Total P score. Also various types of profile analyses by Fitts demonstrated that the distinctive features of individual profiles are still present for most persons after a year or more.

Validity
The classification system used for the Row Scores and Column Scores is dependable. An item was retained in the Scale only if there was unanimous agreement by the seven clinical psychologists used as judges. Personality theory and research suggest that groups which differ on certain psychological dimensions should differ also in self-concept. Statistical analyses comparing 369 psychiatric patients with 626
non-patients was highly significant \( p < .001 \). Piety (1958) found that Total P discriminated patients from non-patients at \( p < .005 \). Other studies found differences between delinquents and non-delinquents and between the average person and a psychologically integrated person.

**Description**

The Scale consists of 100 Self descriptive items (i.e., I have a healthy body; I am a decent sort of person, etc.). The Scale is self-administering for either individuals or groups and can be used with \( Ss \) 12 years or older and having at least a sixth grade reading level. It is also applicable to the range of psychological adjustment from healthy, well-adjusted \( Ss \) to psychotic patients.
**SCORE SHEET**

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**Column Totals**

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### APPENDIX C

**MEANS AND STANDARD DEVIATIONS FOR PRE-TREATMENT VARIABLES**

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APPENDIX D

Instructions for Testing

The instructions for the questionnaire were as follows:
You will be given a sheet of paper. Please fill in the blanks.
For example, fill in your name, date of birth, etc.

The instructions for the Shipley-Hartford were as follows:
Find the word in bold print at the beginning of each line. Now find
the word in small print which means the same thing as the word in
large print. If you are not sure of the answer leave it blank.

The instructions for the TDMH Scale require no instructions beyond
those on the inside cover of the test booklet. The Ss were told,
however, that the answer sheet is arranged so that they respond to
every other item on the answer sheet. This alleviates confusion at
the beginning of testing.
VITA

Fay T. Guidroz was born on December 17, 1935, in Wynne, Arkansas. She is the eldest of two children born to Joy C. and Andrew J. Thrasher. Following graduation from Amory High School in 1953, she attended Mississippi State College for Women and received her Bachelor of Science degree from Mississippi State University, Starkville, Mississippi, in 1958. After two years of teaching, she attended McNeese State College in Lake Charles, Louisiana, and was awarded the degree of Master of Education in 1963. After one year with the Department of Public Welfare and one year with the Department of Hospitals as institutional counselor, she enrolled in the graduate school of Louisiana State University where she was awarded the degree of Master of Arts in 1968 and became a candidate for the degree of Doctor of Philosophy in 1970.
EXAMINATION AND THESIS REPORT

Candidate: Fay T. Guidroz

Major Field: Psychology

Title of Thesis: Evaluation of Four Treatment Approaches for Drug Addiction

Approved:

[Signatures]

Major Professor and Chairman
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

29 June 1970