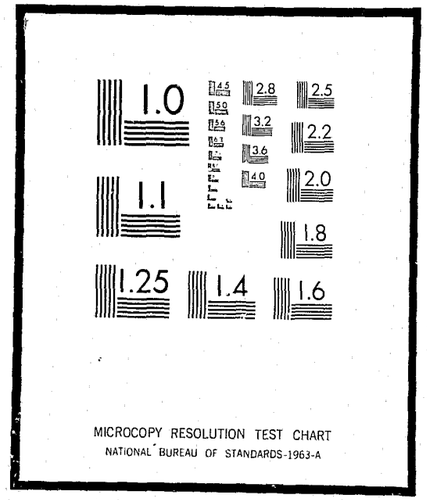

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GOVERNOR'S COUNCIL ON DRUG AND ALCOHOL ABUSE

CRIME AND ADDICTION

An Empirical Analysis of the Literature

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CRIME AND ADDICTION:

AN EMPIRICAL ANALYSIS OF THE LITERATURE,

1920 – 1973

by

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Since the turn of the century, a good deal of sensationalism has surrounded the use of drugs, particularly opiates. At various periods of time, the mass media have depicted the lifestyle of the addict as degenerate, glamorous, lonely or exotic. However, one of the constant themes running throughout both the journalistic and the academic study of drug dependency is its connection to crime. With the passage in 1914 of the basic federal control law known as The Harrison Act, unauthorized sale, possession or purchase of narcotic drugs become a criminal offense. Therefore, any user of narcotics for other than medical reasons became by definition a criminal. Because of the strict control that the Harrison Act and subsequent related acts imposed on the importation of narcotic drugs, they became increasingly scarce, thereby inflating the cost. It was shortly after this time that attention became focused on the alleged relationship between crime and addiction. The image of the "dope fiend" who was driven to commit any type of crime so that he could purchase the drug in order to stave off the horrors of withdrawal developed into a fixed part of our culture. With growing crime rates, the issue rapidly became a political football. In fact, recently Senator Edmund S. Muskie (1972) estimated than more than half of all urban crime is drug related.

However, the relationship between crime and drug dependency is infinitely more complex than simply the image of the dope fiend frantically committing heinous acts in order to support his habit. It is the purpose of the present paper to explore and, hopefully, elucidate the nature of this relationship.

We have chosen to organize our study by viewing the problems in terms of the criminal history of the addict. The three major areas of exploration are: 1) the temporal sequence of criminal involvement; 2) the extent and types of crime committed while addicted; and 3) the impact of treatment on criminal behavior. A much debated issue concerns the criminal history of the addict prior to his habit. Is he a confused but innocent adolescent who became hooked by a vicious addict-pusher needing to sell drugs in order to feed his addiction? Or is he a hardened criminal who delved into drugs as an expression of a generally deviant lifestyle? While there is a plethora of research addressed to this issue, the debate has never been satisfactorily resolved. The second question has to do with the types of crime committed by the addict. Are they purely acquisitive property crimes, acts of senseless violence, or a combination? Lastly, and more recently, a good deal of controversy has revolved around the effect of treatment on crime. Has treatment had any impact on either the extent or nature of crimes committed by addicts? If so, what modalities have had the greatest success?

During the 1960's and 1970's there has been a public outcry against the increase in urban crime, and much of this increase has been attributed to drugs. Social policy in the drug area has consequently been directed toward decreasing urban crime. Federal funds have been funneled into those programs which government officials feel will have the greatest impact on crime. Unfortunately, some of the policy decisions have been based either on erroneous assumptions or poorly conceived research. While conclusive statements are probably not possible at the present time, it is the purpose of this paper to present conclusions based on the weight of the evidence, and as a by-product, to facilitate further research by providing a review of the literature on the relationship betweeen crime and addiction.

Before presenting the data, several qualifications to and limitations of the paper should be mentioned. First, there is some confusion in the literature as to the meaning of the terms "drug addicted" and "drug dependent." The two terms used here are interchangeable and in accordance with the World Health organization's guidelines of 1961: "(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 dose; (3) A psychic (psychological) and sometimes physical dependence on the effects of the drug." When a given study conceptualizes dependency in a markedly different way, it will be noted. In addition, the paper deals primarily with opiate addiction, usually to heroin, because even though recent attention has been focused increasingly on amphetamines, barbiturates and marijuana, there is still too little data to be able to arrive at meaningful conclusions (Tinklenberg, 1973). A second

limitation of the paper is that little mention is made of the physician and nurse addict. However, since this group does not generally resort to crime in order to support a habit, we believe the exclusion is in order. Thirdly, no attempt is made to review the large body of literature concerning psychogenic explanations of addiction. These aspects of the problem are beyond the scope of the present endeavor.

I. THE TEMPORAL RELATIONSHIP BETWEEN CRIME AND ADDICTION

Chronologically, the first issue in the study of the life history of the addict is whether he exhibited criminal behavior prior to drug use or only afterward. Researchers through the years have taken firm stands in both camps. For instance, Garb and Crim (1966) state that, ". . . it should be kept in mind that they became criminals because of the addiction; they did not become addicts because they were criminals." (p. 44) The position is stated even more succinctly by Paul Tappan (1960): ". . .the addict of lower socioeconomic class is a criminal primarily because illicit narcotics are costly and because he can secure his daily requirements only by committing crimes that will pay for them." (pp.65-66). A diametrically opposing view is stated by Isador Chein (1966) when he concludes that "drug use is part of the versatility of the delinquent subculture." (p. 18). Others share this position (Blum, 1967; Blum, 1969; Glaser, 1972). Thus the hypotheses, stated as conclusions, continue to appear in scientific writings.

Since the two viewpoints could be argued interminably, let us refer directly to the data. In an exhaustive review of the literature from 1928 to 1951, Meyer (1952) concludes that criminal behavior is a direct result of addiction rather than a continuation of a prior lifestyle. However, some crucial changes over time in the addicted population which will be dealt with below make this position somewhat outdated. For that reason, early studies are not applicable to the present, but for historical interest, the landmark studies of the twenties and thirties are summarized.*

EARLY STUDIES

In his well known study of 1925, Kolb found that among two hundred and twenty-five opiate addicts, the majority had been arrested at least once for the crime of disorderly conduct. In all of these cases, this arrest had occurred prior to addiction. He, therefore, concludes that addiction is just one phase of a generally unstable, degenerate life history. However, in a later study of addicts who became dependent on morphine as a result of medication for an illness, he found virtually no crime prior to addiction (Kolb, 1928). We mention this first because this is illustrative of the need to be aware of the existence of various populations of addicts when one is attempting to discern the crime/addiction relationship. This need will be emphasized throughout the paper.

Continuing into the thirties, in his classic study of a group of addicts at the Federal Hospital in Lexington, Pescor (1938) found that three quarters of a sample of over one thousand male patients had no record prior to addiction, and those who did were primarily for misdemeanors. However, a majority had criminal records after addiction. This finding was replicated in Dai's study (1970) of twenty-five hundred addicts in Chicago in the 1930's. While the evidence is mixed, it would be reasonable to conclude that the addicts tended not to have criminal records prior to addiction.

*A brief note on the research methodology of the studies reviewed in the present paper would be beneficial. In order to measure criminal behavior, the studies have relied on police and FBI arrest statistics, court conviction statistics, program records, and self-reports. Most commonly, a combination of official arrest records and self-reports was used. Certainly, criticisms of arrest data, both as under- and over-estimators of actual crime, could be raised. Arrest records have a strong possibility of under-estimating because of the large number of crimes that are never either detected or reported by police. There is a chance of over-estimating the actual amount of crime in that arrest is by no means proof of an illegal activity. In fact, it has been pointed out that only a small percentage of the arrests of addicts known to the police result in convictions owing to the proclivity of police to harass addicts. However, for the purposes of the present paper, we may assume that these two biases balance out one another. As for the validity of self-reports, two studies went to great lengths to compare the addict's report of criminal activity both before and during addiction. In one case (Stimson and Ogborne, 1970) there was over 80 percent agreement between the interview data and case record, and in the other case (Ball, 1967), 54 percent of the verbal reports coincidel with FBI records, and 26 percent admitted to arrests that were not recorded in the FBI statistics. Therefore, under the right circumstances (interviewer's familiarity with addict subculture and slums, extensive field experience, and absence of police function), the researcher can expect a high degree of validity in self-reports of criminal behavior.

THE 1950's

Beginning in 1950 and continuing until the present, there has been a marked change in this trend. For instance, Anslinger and Tompkins (1953) present extensive testimony from law enforcement officers across the country which supports the position that crime precedes addiction. Likewise, Abrams found that among almost three hundred incarcerated addicts, largely black, those who became addicted prior to 1952 had for the most part not been arrested prior to the addiction; for those addicted in 1952 or after, the relationship was reversed. The well-known work done by Isador Chein in the middle 1950's of narcotics use among adolescent males in New York supports Abrams' findings. He estimated that three-quarters of the heroin users that he found via court and hospital records had been delinquent prior to drug use (Chein and Rosenfeld, 1957). In fact, he states that virtually all of the thirty-five hundred cases of drug users that were studied over a seven year period were more similar to non-drug using delinquents than to non-using non-delinquents in terms of a variety of social attitudinal variables, and that this is true even of the drug users with no prior criminal record. Even if his subjects were not overtly delinquent, the addicts were at least on the periphery of delinquent groups with regard to activities, associations and interests (in other words, lifestyle). Therefore, addiction does not foster criminality, but rather delinquents are attracted to drug use and then become even more deeply involved in the criminal subculture in order to support their habit (Chein, et al, 1964). The findings of Abrams and Chein are supported by Vaillant's twelve year follow-up study of New York addicts admitted to Lexington in 1952. In contrast to these two studies, Vaillant's sample did not consist primarily of blacks, but was composed of fifty white males, fifty black males, and thirty Latin American males. He found that fifty-six percent of his sample had criminal records prior to addiction. Blacks had a significantly higher proportion of crime prior to addiction than whites, sixty-six percent and forty-six percent, respectively. It is interesting to note that, contrary to the bulk of the research on the medical addict, 75 percent of those who had become addicted in this way had been delinquent before drug use (Vaillant, 1966; O'Connor, et al, 1971).

THE 1960's

Since 1960, there has been an incredible proliferation of research dealing with the issue of the existence of crime prior to heroin addiction. Although space does not permit even a cursory examination of all of these studies, an attempt is made to discuss those most commonly referred to in the literature, with brief references to the others.

John O'Donnell's research provides ample and well collected data on the question of crime prior to heroin dependence. In his study of 212 male addicts at Lexington in the early 1960's, he found that 63 percent had no arrests prior to addiction, and only 15 percent had served a prison sentence. Although these findings seem to contradict the research cited above, further analysis, in fact, supports it. O'Donnell (1969) found, similar to Abrams, that year of addiction was a crucial variable. The Lexington data indicate that among those subjects who became addicted before 1920, 95 percent had no arrests prior to heroin dependence. For each decade before 1950, first arrest followed drug addiction for the majority of subjects; however, in the case of those addicted after 1950, the majority (53 percent) had been arrested prior to addiction. In addition, there was an inverse relationship between age at addiction and crime prior to addiction: the younger the age at addiction (except for the under-twenty age group), the greater the proportion of subjects arrested before addiction.

The majority of the other studies carried out in the 1960's present a similar conclusion -- that criminal behavior as measured by arrest records, court convictions, or self-reports generally occurs prior to heroin dependency. The studies are remarkable for their similarity of findings in view of the enormous variation in sample size, ethnic composition, nationality, and quality (Ball, et al, 1966; Bewley, 1966; Chambers, et al, 1968; Chambers and Moffett, 1969; James, 1969; Jones, 1972; Levy, 1972; Maurer and Vogel, 1967; Morgan, 1965; Noble, 1970; d'Orban, 1970; Plair and Jackson, 1970; President's Commission on Law Enforcement and Administration of Justice, 1967;

Robins and Murphy, 1967; Smith, et al, 1966; Stanton, 1969; Stimson and Ogborne, 1970; Voss and Stephens, 1973; Winick, 1965 and 1967). In a study (Chambers, et al, 1970) of the total population of Mexican-Americans, both male and female, admitted to Lexington in 1961 and 1967 (N = 102 and 1969, respectively), it was found that 61.5 percent had been arrested prior to opiate use. Another Lexington study (Voss and Stephens, 1973) using a much larger sample found that of 990 patients at Lexington who admitted to illegal activity, only 20 percent had been arrested prior to drug use. However, when the use of alcohol is not included as a drug, the proportion increases to 44 percent. When marijuana and alcohol are both excluded, it increases to 53 percent; and when all drugs but opiates and cocaine are excluded, the majority (57 percent) had been arrested prior to drug use. This seems to indicate that a variety of deviant behaviors, including "soft drug" use, precedes first arrest, but heroin use does not occur until after first contact with the criminal justice system (although this contact does not necessarily indicate the actual commission of a crime). Likewise, Chambers and Moffett (1969) found that the majority of heroin addicts had arrests prior to addiction, but only 10 percent of non-heroin opiate addicts (usually morphine) and non-opiate addicts (mostly sedatives) had such backgrounds. This relationship was sustained in two studies of heroin addicts in Great Britain (Bewley, 1966; James, 1969). The former investigated a sample of one hundred consecutive male patients discharged from a mental hospital in London. Bewley states that most of them had a history of both juvenile delinquency and adult convictions prior to addiction, but unfortunately he does not support this statement with data. James' study of fifty addicts in a London prison found that twenty-two of the addicts had a history of juvenile court convictions and sixteen of adult convictions, both of which were prior to drugs. Unfortunately, the unsystematic selection of the sample weakens the argument. A third study of British heroin addicts (d'Orban, 1970), gives further evidence to the hypothesis that addiction usually precedes crime. This study is unique in that it deals exclusively with women. It was found that of the total number of addicts (N = 66) admitted in 1967 and 1968 to Holloway Prison for women, 60 percent had a history of court appearances and 65 percent had at one time been under supervision on an after-care basis from reform school or borstal. This contrasts with the studies previously mentioned by Chambers and O'Donnell, both of which indicated that only a small minority of females had arrests prior to addiction.

Before providing contrasting evidence of studies done in the 1960's, there are several investigations which deal with drugs other than heroin but may shed further light on the temporal relationship between crime and addiction. In a study done by Scott and Willcox in the mid-1960's of amphetamine use among juveniles admitted to London remand homes, it was found that nearly one out of five, from a total of over six hundred delinquents, showed positive results of urine tests for amphetamines and that of those who has used the drug, the majority had used it after the onset of delinquency. On this basis, they conclude that amphetamine use in the mid-sixties was an expression of a generally delinquent lifestyle. In a replication study done five years later by Scott and Buckell (1971) of a similar sample in London remand homes, it was found that the use of amphetamines among delinquents, according to urinalysis, had sharply declined to approximately one out of twenty. The authors thereby conclude that the fad of amphetamine use among delinquents had passed. This suggests – but far from conclusively – that amphetamine use, and perhaps drug use in general, is not the causal factor in producting delinquency but rather is simply another expression of criminal behavior which can pass in and out of fashion. Finally, two Israeli studies of hashish, the major drug of abuse in that country, indicate that drug use follows criminality in temporal order (Drapkin and Landow, 1966; Friedman and Pier, 1970). Both studies one a systematic analysis of police records and the other a collection of unsystematically gather interviews conclude that hashish use begins as a result of socialization into a criminal subculture.

Of the nearly twenty empirical studies done in the 1960's on the temporal issue, sixteen conclude that criminal behavior precedes addiction. Of the four dissenting studies, all contain methodological problems which tend to discount this results. In a follow-up study (DeFleur, et al, 1969) of fifty-three male addicts from Puerto Rico who were discharged from Lexington between 1935 and 1962, only 30 percent had been arrested prior to addiction. After addiction, all were arrested at least once. It also notes that of the total of one hundred and seventy-five arrests

following addiction, 95 percent occurred during periods of active addiction and only 5 percent during abstinence, so that it would seem that crime is a consequence of addiction. However, the study period includes addicts relased from Lexington in the 1930's and 1940's. As was indicated above, this group appears to be markedly less criminally involved both before and after addiction than later groups. If year of addiction had been controlled, the results might have been much different.

In a study (Bean, 1971) of one hundred consecutive drug offenders found guilty in London in 1968, only thirty-nine had been convicted of an offense prior to drug taking. However, only 67 percent of the sample had ever used heroin and of these, one-quarter never used it daily. Thus, only about half were likely to have been addicted to heroin. This study shows that a group of poly-drug users, ranging from heroin to cannabis to LSD, tended not to have criminal records prior to drug use. Unfortunately, due to lack of controls for type of drugs abused, these data add little to the argument presented here.

The third study (Brill and Lieberman, 1969) involved an experimental group of one hundred and eighty probationers. This is the total population of people put on probation out of six thousand narcotic convictions in New York between 1964 and 1966. Through official records and interviews, they found that only 30 percent had been arrested prior to heroin. However, it would seem that when only 3 percent of a convicted population are put on probation, this group is probably not representative of the universe of heroin users in New York. The decision of the judge to place a convict on probation at the time of this study was based on the evaluation of a probation officer, who would probably take into account such variables as length of addiction, arrests prior to this conviction, stability of the home situation, seriousness of the crime, and employment history. Presumably, convicts with the most favorable circumstances would be recommended for probation. Hence, it is likely that this group is not representative of the majority of addicts and would, therefore, have a typical prior arrest records.

In the fourth study (Schur, 1968), questionnaires were sent to people involved in narcotic treatment in England. Of eleven respondents, representing three hundred and seventy-nine opiate addicts, none reported any criminal involvement prior to addiction, and only about half earned a police record during addiction. On this basis, Schur concludes that addiction is directly responsible for crime among addicts. However, the demographic characteristics of the patients do not seem to be representative of contemporary American addicts, in that almost all were over thirty and half were physicians or nurses. It is the opinion of most researchers in the field that this older, professional group accounts for only a small minority of the universe of addicts. Hence, inferences based on such a sample are fallacious.

In sum, the weight of the evidence collected in the 1960's, although not conclusive, strongly suggests that crime precedes addiction and that heroin use is an expression of general criminal involvement. This relationship may also hold true for other drugs, but both the paucity of research and the central interests of the present paper advise against forming conclusions about this issue. While a small number of studies done in that decade found that the majority of subjects did not have criminal records, further analysis of those investigations suggest that (a) selected samples drawn to study the question at issue did not have representativeness (Brill-Lieberman and Schur); and (b) controls for significant variables were not included (Bean and DeFleur). Therefore, the data contrary to the weight of the evidence do not, in fact, present a viable alternative argument.

THE 1970's

The recently published second report of the National Commission on Marijuana and Drug Abuse (1973) states that

"While there are no data directly comparing the criminal proclivities of opiate users with those of the general population (see the Robins and Murphy study for criminality and heroin use among a general population of black urban males), the evidence indicates that a disproportionate number of heroin-dependent persons have had long histories of deviance which began prior to their use of and their official identification as users of heroin." (p.163)

Although only three studies were found for the present decade, they support the Commission's statement. In the first (Cuskey, et al, 1973), a sample of one hundred and three consecutive male patient admissions to three programs in Philadelphia was selected — an out-patient methadone maintenance program and two residential therapeutic communities. Using self-reports only, it was found that 52 percent had their first arrest prior to heroin use. There was a significant difference by race: 40 percent of the blacks versus 18 percent of the whites had been arrested for assault and battery or armed robbery prior to heroin; 25 percent of the blacks versus 39 percent of the whites were arrested for theft or burglary prior to drugs. After addiction, there were no differences in type of crime by race. In addition, Cuskey, et al, isolated two types of drug users representing distinct populations. One had the following characteristics: white, member of a juvenile gang, few arrests before heroin use, early first use of heroin. The other was characteristically black and although not a gang member, had more arrests prior to heroin use, and was comparatively older at first use of heroin. It is pointed out that both groups showed serious criminal deviance prior to addiction, but in a sharply differing pattern.

In another recent study (Rosenthal, 1973), a high degree of continuity between pre- and post-addiction crime was found. A sample of two hundred and sixteen respondents was selected from fourteen drug treatment programs in the Philadelphia area. Unfortunately, patients from residential therapeutic communities were over-represented, while methadone programs were under-represented. The former comprised 67 percent of the sample compared to 8 percent for all Philadelphia programs; the latter contributed only 10 percent of the sample, compared to 40 percent of all addicts in treatment in Philadelphia. This could have introduced serious bias into the study, the exact nature of which can presently only be surmised. At any rate, the majority of the sample who had committed robbery, burglary, prostitution or shop-lifting during addiction had committed the same crime prior to addiction. Similar to the Cuskey study, Rosenthal found that robbery prior to addiction was associated with being black, while burglary tended to be committed by whites.

In a study (Gordon, 1973) of sixty consecutive male patients admitted to a London drug clinic in 1970, it was found that 48 percent had been convicted of a crime prior to drug use. Fortunately, Gordon controlled for heroin use and non-heroin use, and found that heroin users were not more likely to commit crimes prior to drug use than non-heroin users; the extent and pattern of crime was similar for both groups. The most salient problem is that heroin users were defined as those who had used heroin as infrequently as once per week in the month preceding the interview. It is doubtful as to whether this usage could be defined as addiction, and as a consequence, the results may not apply to daily users of heroin. In addition, Gordon finds that his entire sample of both pre-drug and post-drug offenders probably had a criminal orientation as evidenced by an equal amount of truancy, childhood theft, and sibling crime. He concludes that "these young patients came from a delinquent population with a potential for antisocial activity which attracted them towards a drug habit." This is particularly interesting in view of the fact that his sample was comprised not only of opiate users, but also a large proportion of amphetamine and barbiturate users.

CONCLUSIONS – THE TEMPORAL SEQUENCE ISSUE

Now that the literature of the past fifty years on the issue of temporal sequence has been reviewed, it seems in order to question why there has been this apparent change in trend between the 1930's and 1970's. As is mentioned above, both O'Donnell and Abrams found that those

addicted prior to 1952 were predominatly non-criminal before the onset of addiction, and for those addicted in 1952 or after, the relationship was reversed.

Part of the reason for this change may be found by examining differences in some of the samples between early and recent studies. In a well designed investigation (W. G. Smith, et al, 1966), a random sample of one hundred addicts admitted to Lexington in 1965 was compared to Pescor's 1936 sample. It was found that the recent sample had fewer whites and almost four times as many blacks as the early study, over twice as many people under twenty-nine, and many more people from urban areas. In addition, the mean age at first arrest was 28.2 in 1936 compared to 17.1 in 1965 (mean age at first drug use in 1965 was 20 years). Significantly more people in 1936 (31 percent) than in 1965 (17 percent) became addicted to opiates through a physician's prescription for the relief of pain. Thus, Smith, et al, characterized the typical addict in Pescor's sample as white, from the rural South, and in his middle twenties at addiction. Generally, he became medically addicted to morphine and had a non-criminal history. In contrast, the typical addict in the mix-sixties was black, urban, young, non-medically addicted to heroin, and had a long history of delinquency and crime prior to drugs. This contrast between early and recent samples of officially recorded opiate addicts was found in several studies (Chambers and Moffett, 1969; Dai, 1970; Meyer, 1952; Pescor, 1938; Winick, 1965, 1967; Ball, et al, 1966; Blum, 1969; Chambers and Moffett, 1969; Finestone, 1957; Scher, 1966; Blum, 1967; Winick, 1965, 1967.)

Many viable hypotheses have been offered for this shift in populations (Abrams, et al, 1968; Lindesmith, 1965; Preble and Casey, 1969). Abrams, for instance, states that prior to 1951, addiction, at least in urban areas, was limited mainly to an artistic bohemian subculture of blacks, Italians, Irish and Jews. At this time, largely because heroin was comparatively inexpensive, criminal behavior was not required to support the habit. However, in the early 1950's the federal government enacted a series of stringent drug laws that were strongly enforced. The Boggs Act, passed in 1951, was a modification of the Uniform Narcotic Drug Act which made first drug convictions carry a mandatory minimum sentence of two years and omitted suspension of sentence or probation on second offenses (Musto, 1973). This resulted, states Abrams, in price increases, quality decreases and, subsequently, crime. The effect of this increase in both cost and enforcement was to sharply increase the number of addicts, particularly black addicts, being sent to prison. The researcher (Abrams, et al, 1968) describes the process of subcultural transmission that seems to have ensued:

"In the jails and prisons, they have transmitted the mystique of 'coolness' and romance attached to the unique experience of the addict. In the free and closed communities, they have served to foster addiction among those who were originally only criminal offenders." (p.2147-8).

It is suggested that once the group of formerly non-drug criminals were release from prison and returned to their previous neighborhoods, the use of drugs, particularly heroin, was incorporated into what was once simply a criminal reaction to living conditions in an urban ghetto.

Although the two hypotheses are not mutually exclusive, others explain the phenomenon of the change in population in terms of relative deprivation. For years, the high incidence of a variety of deviant behaviors which was concentrated in the slums had been attributed to the marginal position that poor people, particularly second generation northern blacks, occupay in our society (Chein and Rosenfeld, 1957; Chein, et al, 1964; Dai, 1970; Faris and Dunham, 1939; Johnson, et al, 1972; Nurco, 1972; Schur, 1965). Crime, delinquency, mental illness, alcoholism and chronic unemployment were said to be an expression of the frustrations that ensue when slum dwellers, especially blacks, lacked legitimate means to attain societal goals (Merton, 1957). After World War II, when street heroin seems to have become more available in the ghetto, addiction was added to the list of deviant behaviors committed by these marginal men. As Preble states,

"The career of a heroin user serves a dual purpose for the slum inhabitant; it enables him to escape, not from purposeful activity, but from the monotony of an existence severely limited by social constraints, and at the same time it provides a way for him to gain revenge on society for the injustices and deprivation he has experienced." (p.22)

In sum, it appears that the typical addict at present is not simply a confused, misguided but non-criminal adolescent who gets hooked on drugs by the neighborhood pusher or a middle-aged person who has become addicted through medical channels, but rather an individual who has been immersed in a criminal subculture and is introduced to narcotics as a result of his socialization into this subculture.

Finally, the temporal sequence discussion leads us to ask whether criminals are more likely to become addicts than non-criminals? The only study that deals directly with this issue is the work of Robins and Murphy (1967). In their study of a general population of black males who attended public schools in St. Louis between 1930 and 1934 and who lived in the city between 1959 and 1964, they found the incidence of drug use to be high among both delinquents and non-delinquents. However, whey they excluded respondents who began drug use prior to delinquency, they found that delinquents were much more likely to start using drugs than non-delinquents, and once started, were much more likely to become addicted to heroin (36 percent vs. 9 percent). While the studies concluding that crime precedes addiction obviously imply that criminals are more likely to become addicts than non-criminals and that, in fact, participation in the criminal subculture may make it easier to obtain illicit narcotics, certainly more than one study is required in order to draw valid conclusions.

Before leaving this topic, some additional remarks on research methodology are in order. The research on the issue of the temporal relationship between crime and addiction is reminiscent of the fable of the three blind men who touched an elephant in order to figure out what it was. According to the part they touched, one thought it was a snake, one thought it was a tree trunk, and one thought it was a wall. In the same way, according to the sample, some studies conclude that addicts are innocent, misguided adolescents, some decide they are middle-aged people who obtained excessive descriptions for pain killers, and others -- the majority -- conclude that addicts use drugs as an expression of general criminal deviance. Obviously, what is needed is a study of the whole elephant.

A recent British study (Stimson, 1973) provides insight into this problem. Based on interview data collected from a random sample of seventy-six male heroin addicts at London Clinics, the investigation delineated a typology of addicts. The most common type in his sample were the stable addicts. They are characterized by full or part-time employment, little criminal activity, low involvement with other addicts, non-use of black market heroin, and generally conventional behavior and appearance. At the opposite pole are the junkies, the least common group. They are defined by chronic unemployment, extensive criminality, usually theft, high involvement with other addicts, primary use of black market heroin, and generally deviant behavior. Between the extremes are two groups, loners and two worlders. The former are unemployed but do not rely on criminal activities for support. Rather, they are supported by welfare, relatives, and friends. They have little contact with other addicts, use large quantities of both legal heroin and black market non-opiates, and are basically isolated from the drug scene and conventional world alike. In contrast, the two-worlders seem to participate successfully in both scenes. They tend to be employed but also have extensive criminality; to have contact with other addicts; to rely primarily on black market heroin but at the same time, to maintain a conventional appearance.

Stimson posits that the stable addict is more prevalent in Great Britain and the junkie in the United States owing largely to the differences in the sociolegal context of addiction in the two countries. An intriguing point that he makes, however, is that even in Britain, where heroin is legally obtainable, a deviant subculture still develops around its distribution, even though a substantial number of addicts do not actively participate in it. The empirical problem is one of delineating a

typology of addicts according to several critical variables, and then evaluating on the basis of the data the relative frequency of each type. The inference from Stimson's study is that, like the blind men and the elephant, researchers and treatment people must realize what part they are touching before labelling the phenomenon.

It is almost impossible to deal adequately with causality in a retrospective study using a sample comprised of offenders, as virtually all studies have done. In order to gain any real insight into the nature of causality, it is necessary at the very least to study a general population, as in the Robins and Murphy paper, in order to trace the criminal history of addicts and non-addicts, and the drug use history of criminals and non-criminals. While the Robins and Murphy study is certainly a step in the right direction, prospective studies are necessary to grapple adequately with the problem of causality.

II - CRIMINAL BEHAVIOR OF ADDICTS

Focusing attention on the extent and types of crimes committed while addicted may help to discern the relationship between crime and addiction. Several questions are pertinent to this issue: 1) What proportion of addicts engage in criminal acts other than violation of narcotic laws? 2) For those addicts with a pre-addiction criminal background, does addiction result in an increase in crime? 3) What types of crime are most closely associated with addiction?

Before approaching these questions, it would be advantageous to mention the economics of addiction. Although the cost of black market heroin varies tremendously from time to time and from city to city, it is possible to make crude estimates. Preble and Casey, in their excellent discussion of the history of heroin use in New York, state that prior to 1951, most addicts could maintain their habits on about two dollars a day. During the next decade, there was a gradual increase in cost, as heroin use spread among youths in urban slums. However, a critical heroin shortage in 1961 had a profound and permanent impact on both the distribution system and addiction. Prices were drastically driven up and quality declined. Even after the panic subsided, the precedent was set for this type of market because of the obvious advantages to the dealers. The result, according to Preble and Casey (1969), is that instead of a typical habit costing two dollars a day, it required about twenty dollars a day to maintain a habit in New York in the early sixties. Other estimates of average costs per day in the late 1960's and early 1970's range from a minimum of fifteen dollars daily to more than two hundred dollars (Lerner, et al, 1971; Patch, et al, 1972; President's Commission on Law Enforcement and Administration of Justice, 1967; Richman; Rogers, 1971; Stimmel, 1972; Stimmel, 1972; Vera Institute, 1971). Various estimates of the amount that addicts must steal in order to support their habits range between two and five dollars worth of goods in order to make one dollar, with the usual rate of return about three dollars (Richman; Rogers, 1971). Therefore, in order to raise enough money to buy thirty dollars worth of heroin daily, ninety dollars worth of goods must be stolen, or thirty-two thousand dollars worth of goods annually. However, this is <u>not</u> to say that every addict steals to this order of magnitude, because it cannot be assumed that they are all supported completely or even partly by theft which they themselves perform. This brings us to our first question.

PROPORTION OF ADDICTS ENGAGED IN NON-NARCOTIC VIOLATIONS

Virtually every study that contains information on criminal behavior during addiction reports an extensive amount of such activity. This, in combination with the social characteristics of most officially know heroin addicts (young, non-white, poor, urban) leads both researchers and government administrators to assume that crime is a necessary corollary to addiction. However, since the aforementioned studies typically select their samples from arrest records or treatment programs, it is not possible to evaluate whether they are representative of the total population of addicts. In fact, since, by definition, those with arrest records have been accused of a crime and since most addicts turn to treatment centers during crisis periods (e.g., confrontation of the law), there is a high probability that bias exists. Another unfortunate characteristic of many studies is

that they fail to differentiate between arrests and convictions for narcotic law violations and non-drug crimes. Since all addicts are, by definition, violators of the narcotics laws, arrest and conviction on this charge does not necessarily imply any further criminality.

The issue of the involvement of addicts in non-narcotic offenses is well-documented in an investigation which provides unique insight into the organization of a community organized around the distribution of heroin (Hughes, et al, 1971). The authors believe that the majority of addicts in their city were organized into "copping communities", all having a similar structure. This ethnographic approach resulted in the delineation of seven roles -- big dealers, street dealers, part-time dealers, touts, bag followers, hustlers, and workers. The largest group, comprising 38 percent of the population of one hundred and twenty-five, are the hustlers, who support their habits solely through non-distribution illegal activities, generally theft. They were found to be the most psycho-socially disturbed,and to have the highest criminal orientation. It can be hypothesized that it is this type of addict who is most often reflected in arrest data. The next largest group, the workers, comprised 28 percent of the community. They maintain at least part-time employment and have the lowest criminal orientation. However, they, along with part-time dealers, also engage in criminal activities (other than sales) to support their habit. Approximately one-fifth of the addicts engage in neither legitimate employment nor in theft to support their habits, but rather live off of the distribution system itself. These individuals may deal fulltime, arrange connections between dealers and consumers (touts), or attach themselves to dealers (bag-followers). Thus, about 40 percent are engaged in illicit activities on a full-time basis, with another 40 percent (part-time dealers and workers) involved intermittently.

Obviously, whatever the temporal relationship might be, these data indicate a strong relationship between criminality and drug abuse. However, it should be stressed that there is no claim of a causal link. It may well be that many of these acquisitive crimes would be committed for reasons other than the support of a drug habit. Several other studies suggest that it is fallacious to attempt to calculate the amount of theft attributable to addicts by simply taking the number of heroin addicts, multiplying this by the average daily habit cost, and multiplying this by the fencing rate (usually one dollar for every three dollars worth of stolen goods) (Little, 1967; Singer, 1971; Winick, 1964). Such gargantuan figures are often widely publicized by politicians, journalists, and researchers. In the future, such estimates will have to be modified by the realization that not all addicts are directly engaged in crimes. Obviously, there is a pressing need for the gathering of more naturalistic data before any conclusions can be drawn.

DOES THE PATTERN OF CRIMINALITY CHANGE AFTER ADDICTION?

Kolb, in the mid-twenties, concluded that neither a heroin epidemic nor the total elimination of opiate addiction would make an appreciable impact on the overall amount of crime. The only effect of heroin was, he felt, to make the addict less of a murderer and more of a thief. As will be indicated in this section, there is a greater deal of validity to this statement, even though it was made nearly five decades ago. The same assertion was made by Chein (1964) in his study of juvenile addicts in the nearly 1950's. Similar to Kolb, he found that the increases in property crimes were offset by decreases in violent crimes, and that the absolute increase in crime during the heroin epidemic between 1949 and 1952 was accounted for by misdemeanors.

Several other studies indicate that crime increases after addiction. In a well designed and executed investigation, O'Donnell (1969) demonstrated that the number of crimes committed by his sample was higher after addiction than would be expected in the age group that he was studying. Most of his subjects had not committed crimes prior to addiction. The mean age at addiction was 31.3. He then asked the question: "What is the probability that men will reach the age of thirty-one with no arrest, and then acquire a record?" He found a distinct increase in crime after the age of thirty, the approximate age of onset of addiction. This is in direct contast to the data found in the Uniform Crime Report of 1962, indicating that age of first arrest, particularly for property crimes, is less than twenty. With increasing age, there is a decreasing probability of first arrest. According to

O'Donnell, it is, therefore, reasonable to assume that addiction was a significant variable in effecting the amount of criminal behavior. These results are particularly meaningful since his sample was largely non-criminal before addiction, had been addicted twenty-five years ago or more, and was comparatively old; in other words, the group of addicts that one would least expect to be criminally involved if drugs were not present.

However, it must be kept in mind that O'Donnell's sample was drawn from a population of addicts that bears little resemblance to the typical addict of today. As was indicated earlier, 90 percent of the sample became addicted prior to 1950, the period of transition in the population of addicts. For example, one reason that his sample may have shown a sharp increase in criminal behavior following addiction is that the age of addiction was typically close to thirty years. Because, as O'Donnell pointed out, there is an inverse relationship between crime and age, this increase was very likely attributable to addiction. However, since the 1950's the age of addiction seems to have declined to the early twenties or late teens. In that this is also the age of greatest risk of criminality, it is difficult to separate the age effects from the addiction effects (Winick, 1964). Unfunately, we are unaware of any research that attempts to control for the confounting effects of age.

In a recent study of a sample more typical of contemporary addicts (i.e., greater number of blacks, mean age of onset of addiction at twenty, criminal histories prior to addiction), Cuskey (1973) found that out of one hundred and three addicts, the mean number of arrests per subject before and after addiction was 4.8 and 7.6, respectively; the mean number of convictions was 2.4 before and 3.1 after. Interestingly, there was a difference by race; prior to addiction, the mean number of arrests per year was .27 per addict for whites and .54 for blacks. After addiction, it was 1.44 for whites and .82 for blacks. The author suggests that blacks are more likely to have contact with legal authorities fairly early in life than whites, and as a result are more adept at avoiding arrest after addiction.

One recent study referred to above (Rosenthal, 1973) concludes that there is no absolute increase in crime after addiction, with respect either to frequency or seriousness. It states that there is a high degree of continuity in criminal pattern before and after addiction. This is particularly true for robbery, prostitution, and shoplifting. In fact, a history of robbery prior to addiction is the single best predictor of robbery after addiction. Therefore, the onset of addiction is not a significant explanatory variable for that crime. Only burglary was found to be associated with drug-seeking behavior. The nature of this relationship is explored in more detail in the next section. At any rate, Rosenthal concludes that for the most part, criminality after addiction is a continuation of a longterm criminal life-style.

Several other studies lend further support to the conclusion that the onset of addiction results in an absolute increase in the quantity of crimes committed (Jacoby, et al, 1973; Joint Committee of the ABA and the AMA, 1961; Plair and Jackson, 1970; Winick, 1967; Voss and Stephens, 1973). Thus, the evidence seems to vacilate back and forth on this question. Unfortunately, there is no attempt to control for several crucial variables in studies on either stide of the issue so that inferences regarding the casual relationship are impossible to make at this time. For example, the age at onset of addiction appears to be the late teens or early twenties. This is also a high risk age for criminal activity. Since most addicts seem to have been criminally deviant prior to addiction, it is probable that, although the type of crime may change, criminal activity would occur at about the same rate regardless of the presence of addiction. Secondly, many studies simply compare the frequency and seriousness of crime among addicted and non-addicted offenders. Because it is often the case that addicts commit more crimes than non-addicts, they conclude that addiction is a causal variable. It is clear that without controlling for pre-addiction crime, this remains an hypothesis. Ideally, a comparison should be made of crime among addicts without a criminal background, addicts with a criminal background, and non-addict offenders.

Given the present state of research, there is no reason to believe that addiction is the crucial variable which accounts for increases in the criminality of those already involved in crimes, if this

increase in fact exists. Thus, no definite conclusions on this issue can as yet be drawn based on the available evidence. A number of studies indicate that crime increases after addiction, but the increase might have occurred in any case. The question of causality is still very much open.

WHAT TYPES OF CRIME ARE MOST CLOSELY ASSOCIATED WITH ADDICTION?

Senator Edmund Muskie (1972), in the recent statement referred to above, was probably reflecting popular opinion when he posited that more than half of all urban crime is directly drug-related. This statement presumes that the addict is driven to commit all manner of crimes in order to stave off the horrors of withdrawal. However, leaving aside the sensational, irresponsible, often politically motivated attempts to attribute all manner of heinous crimes to addicts, much of the scholarly literature concludes that violent crimes are rarely committed by individuals while addicted because of the calming effects of the opiates (Chein, et. al., 1964; Dai, 1970; Finestone, 1957; Joint Committees of the ABA and AMA, 1961; Maurer and Vogel, 1967). Police and FBI records from the 1950's and 1960's support this position. For instance, in a widely referenced report published by the New York City police department in 1966, while 27 percent of all arrests were for felonious assault and 21 percent for burglary, among all addict arrests only 5 percent were for felonious assault while 41 percent were for burglary (Stimmel, 1972). These findings have been replicated in the official arrest records of several large cities (Amsel, et al, 1971; Blum, 1969; Chambers and Moffett, 1969; O'Connor, et al, 1971; O'Donnell, 1969; President's Commission on Law Enforcement, 1967).

A limited number of studies contradict these results. Gordon (1973) found that the incidence of violent crimes, as measured by convictions among heroin users, rose from 13.3 percent of a sample of thirty before use to 53.2 percent after use; there was no change in the incidence of larceny. For another ten in the sample who had never used heroin, there was no change in either person or property crimes. In addition to the fact that the sample size was too small to arrive at any significant conclusions, Gordon defined heroin users as those who had used the drug as infrequently as once a week in the month preceding the interview. This limited usage, coupled with the poor quality of black market "street" heroin (Cushman, 1973; Primm and Bath, 1973; Weisman, et al, 1973), leaves some doubt as to the existence of a truly dependent heroin addict. Given the fact that 100 percent of the sample had used amphetamines (over one-quarter on a daily basis), it is more than likely that a large proportion of the "heroin" sample was actually more habituated to amphetamines than to heroin; and, as is noted below, violence among amphetamine users seems to be much more common than among heroin addicts.

A second study, also done in the early 1970's found a substantial amount of violent criminality among heroin abusers (Patch, et al, 1972). In a sample of 829 cases selected from the Boston City Drug Program, it was found that almost half had been charged with violent crimes, most commonly assault and battery. Patch attributes the ten-fold increase in index crimes in Boston since 1951 to the involvement of addicts in violent crimes.

Despite these contradictory reports, the weight of the evidence suggests that the probability of violent behavior is not substantially increased by heroin abuse. Even though a number of major studies suggest that in the last few years, crimes against the person are escalating, this had been attributed to violence which occurs during a property offense rather than to aggressive behavior alone. This is well documented by a recent publication which is one of the most comprehensive and well-designed investigations in the literature (Eckerman, 1971). The scope of this study includes both differential frequencies and types of crimes committed by past and current drug users and non-drug users, and a trend analysis of differences in criminal behavior according to year of first drug use. Eckerman conducted interviews, took urine samples and checked drug registers for a sample of 1889 arrestees (excluding those arrested on drug charges only, and those released on bail) from six metropolitan areas throughout the country. Approximately half of the total sample were identified as current drug users from urine samples and interviews. He found that robbery emerged as the major crime committed by all types of drug abusers. When robbery was categorized as a crime

against the person, 30 percent of all drug users committed crimes against the person compared to 31.4 percent of the non-drug users, and 47.3 percent of the drug users committed properly crimes as compared to 43 percent of the non-drug users. But when robbery was categorized as a property crime, the differences between person and property crimes among users and non-users becomes much more apparent: 11 percent of the drug users committed crimes against the person compared to 17 percent of the non-users, while 66.3 percent of the drug users committed property crimes compared to 57.1 percent of the non-drug users. This points up the importance of being aware of the way in which person-property crimes, such as robbery, are classified in studies. A second major finding is that when controls were added for type of drug abused, burglary emerged as the major crime of heroin users.

In sum, the investigator found that drug users were less likely than non-drug users to be arrested for crime against the person. However, there is an exception to this finding. Amphetamine users were more likely than any other group – including non-drug users – to be arrested for criminal homicide and forcible rape. Because only thirty out of the entire sample were identified as amphetamine users it is difficult to make inferences, but further research is certainly warranted. Eckerman concludes that drug users, especially heroin addicts, are willing to commit crimes of violence, but only those that will result in a money return, such as robbery, as opposed to crimes whose primary motivation is not pecuniary, such as forcible rape, aggravated assault, and homicide.

This last finding was replicated in the Rosenthal (1973) study. Out of four crimes investigated, he found that burglary was the only one in which heroin addiction was a significant explanatory variable. However, this was the case primarily with white respondents. Pre-drug burglary was correlated with being white. After addiction, the frequency of this crime increased. However, whites also tended to have comparatively short heroin histories and to move into multi-drug abuse. Therefore, the increase in burglary among whites at least partially overlapped the termination of single drug dependency. In contrast, blacks had a more extensive and serious criminal history prior to drugs, but tended to engage in less serious crimes, such as prostitution and shoplifting after addiction. The report concludes that while pre-drug crime, heroin addicts tend to commit only those crimes in the low risk/high return category.

That addicts avoid those crimes of violence that show little likelihood of monetary return is documented by several other studies (Inciardi and Chambers, 1972; Kozel, 1972; Plair and Jackson, 1970; Preble and Casey, 1969; Winick, 1967). A point worth noting is that in one study (Inciardi and Chambers, 1972) of thirty eight male addicts certified to the New York State Narcotic Addiction Control Commission in 1970, the authors stated that 97 percent of the sample had committed property crimes, while only 60 percent had committed crimes against the person, as reported by interviews. However, burglary, which emerged as the dominant crime (74 percent of the sample) was classified as a property crime. This is probably the case with much of the research that conclude that addicts do not tend to commit crimes of violence. It should be recognized, however, that regardless of legal labels, burglary carries a substantial risk of violence, particularly when it involves a private residence. Since this, coupled with robbery, seems to be the crime most closely associated with addiction, it must be concluded that addicts will commit crimes involving a risk of violence, but usually only when necessary to obtain money.**

** Where the association between types of crime and drugs other than heroin will not be explored in this paper, there is some evidence that barbiturate and amphetamine users have a high incidence of crimes of violence. The reader is referred to several papers on this topic (Eckerman, et al 1971; Ellinwood, 1971; Griffith, 1969; Hekimian and Gershon, 1968; McGrath, 1968; Tinklenberg and Woodrow, 1972).

III – THE IMPACT OF TREATMENT ON CRIMINAL BEHAVIOR

Having focused in the preceding section on the crime/addiction temporal relationship and on the types of offenses committed, we turn our attention to the final stage of the criminal history of the addict – namely, does the introduction of the addict into treatment have an impact on the amount of crime committed, or simply the type, or neither? At what point in the treatment process does criminal behavior begin to decrease, if at all? Are some treatment modalities seemingly more successful than others at treating specific types of addicts? Unfortunately, the quality of most follow-up research is too poor to enable us to answer these questions adequately. However, since large amounts of money are being spent in treatment programs and, recently, much publicity, largely negative, has been focused on them, we shall attempt to glean relevant information from the small body of existing data which we have to date.

METHADONE MAINTENANCE

Perhaps the most widely publicized and best funded modality in recent years has been methadone maintenance. More heroin addicts are enrolled in this modality than any other. The use of this opiate derivative for maintenance treatment was started in 1965 at Rockefeller University in New York by Dr. Vincent Dole and Marie Nyswander, and since then approximately twenty follow-up studies of methadone patients have focused on the impact of this synthetic drug on criminality (Bazell, 1973; Cushman, 1971, 1972, 1973; Cuskey, et al, 1973; Dobbs, 1971; Dole et al, 1968, 1969; DuPont, 1972, 1973; DuPont and Greene, 1973; DuPont and Katon, 1971; Gearing, 1970, 1970, 1972; Joseph, 1972; Joseph and Dole, 1970; Langrod and Lowinson, 1972; Newman, et al, 1973; Page, 1969; Perkins and Bloch, 1970; Rosenberg, et al, 1972; Williams, 1970). Because of space limitations, only a representative portion of the entire body of data will be reviewed in the present paper. However, it should be noted that virtually all investigation lauded the effectiveness of methadone on the reduction of crime.

In a study of the effects of methadone maintenance on criminal behavior, Dole, et al (1968) reported on the dramatic decrease in crime among the total number of addicts treated at the Morris J. Bernstein Institute of the Beth Israel Medical Center in New York between 1964 and 1968 (N = 912). Prior to treatment, 91 percent of the population had been incarcerated and had received forty-five hundred convictions. In interviews, all admitted to criminal involvement. Criteria for admission into the program included at least four years of mainline heroin use, repeated failure to withdraw, no legal compulsion to participate in the program, and being between the age of twenty and forty. Since entrance into the program, 88 percent showed arrest-free records; 6.4 percent had dismissed charges; and only 5.6 percent were convicted. The investigators also found a 90 percent decrease in conviction rate after one year in the program.

In a more recent study of patients in the Dole and Nyswander methadone maintenance program in New York, Frances R. Gearing (1970) compared pre- and post-treatment arrests and convictions of both in-patient and out-patient methadone clients (N = 3485) with a sample of one hundred selected from the detoxification unit of the Bernstein Institute. The latter were detoxified and released without being placed in a methadone program. The arrest and incarceration rates prior to treatment were comparable for the methadone and detoxification groups. After treatment, the number of arrest (135) and incarcerations (63) per hundred person-years increased slightly for the detoxification group, whereas for the methadone group, by contrast, there were only 4.3 arrests and 1.0 jail sentences per hundred person-years.

Finally, in a still more recent study, Gearing (1972) compared arrest percentage for each of three experimental groups – those in methadone maintenance in 1971, voluntary drop-outs from the program, and discharges from the program for a cause – with a control group of patients who had only detoxification in 1965. Arrest data for the four groups were compared for three years prior to admission and three years after admission. All four groups had comparable arrest rates before admission. After treatment, the only groups to show a significant decrease were the current

methadone patients and the volunteer dropouts, with current patients having the lower rates. The other two groups remained about the same.

Moving from the individual to the aggregate level, DuPont and Katon (1971) traced the crime rate in Washington, D.C. before and after the inception of a methadone maintenance program in this city in 1970. Beginning in 1966, there was a sharp increase in index offenses from 13,000 to 36,000 by 1969. During the same time interval, the percentage of jail admissions who were addicts rose from 3 percent to 15 percent. DuPont further points out that at the end of 1970, following the activation of the city methadone program, there was a 5.2 percent decrease in index crime for the first time in well over a decade, with a 23 percent decrease between 1969 and 1970 alone. In view of the trends before and after 1970, the year of the inception of the methadone program, DuPont attributed the rise in crime to the heroin epidemic of the late 1960's and the subsequent decline to the effectiveness of methadone maintenance treatme..t. However, in a more recent report (DuPont and Greene, 1973), increased weight is given to the contribution of law enforcement.

Although the weight of the current evidence suggests that methadone maintenance has reduced crime, contradictory reports are also found in the literature. Only two studies were found which presented direct evidence as to the lack of efficacy of this modality.

A report (Dobbs, 1971) of an out-patient methadone clinic in Washington indicated that over three-quarters of a random sample of one hundred patients had positive urines for opiates after six months of treatment, and in addition, a majority of long-term patients were unemployed and assumed to be engaged in illicit activities. However, as was pointed out in the paper, this program may not be typical of methadone programs in general, in that it was drastically understaffed, had virtually no therapy, and was essentially a center for dispensing methadone and collecting urine samples. (Unfortunately, this may be more typical of methadone programs than Dobbs suggests. Most methadone programs that were found in a statewide survey of drug treatment facilities (Adler, et al, 1973), bore a strong resembance to the program described by Dobbs. It should not be assumed that all methadone programs are as well organized and comprehensive as Dole and Nyswander's model facility.)

Cuskey's (1973) extensive study, which is referred to above, compared criminal involvement before and after treatment in three drug treatment facilities in Philadelphia at three points in time. Two of the facilities were residential therapeutic communities and one an out-patient methadone program. The three periods of observation of the sample were between entrance and two months, between three and nine months, and more than nine months. He found that the percentage of patients arrested declined to zero by Period III in the two residential communities, and were only slightly reduced in the methadone program. This trend also held true for admitted offenses. This is particularly significant in view of the fact that the proportion arrested in the first observation period was almost twice as large in the residential therapeutic communities as in the methadone program. In addition, the mean number of arrests was greater at Period III than at Period I in the methadone program, indicating a distinct regression. An interesting point is that the samples in all three programs had comparable arrest and conviction histories both before and after addiction, so that pre-addiction criminal history is not an explanatory variable in determining outcome differences in the three groups. However, it must be remembered that certain structural differences in the three programs make comparison difficult with respect to outcome, especially criminal behavior during treatment.

OTHER MODALITIES

Because methadone, more than any other modality, has been so closely associated with the reduction of crime resulting from addiction, the present paper explores several of the relevant studies. However, so that the discussion of the effect of treatment on crime is not completely dominated by methadone, the reader is referred to a list of evaluation studies which deal centrally with the issue of crime during and after treatment (Brill and Lieberman, 1969; DeLeon, et al, 1972;

Duvall, et al, 1963; Kramer, et al, 1968; Levy, 1972; Vaillant, 1966; Valillant and Rasor, 1966). Of highly variable quality, these studies report on modalities ranging from residential therapeutic communities to imprisonment and parole to detoxification.

METHODOLOGICAL PROBLEMS IN FOLLOW-UP STUDIES

It is essential for the individual interested in research, programming, or both to realize that the generally poor quality of evaluation studies makes conclusions about the efficacy of particular modalities, and treatment in general, in reducing drug-associated crime almost impossible to reach. Regardless of the modality being investigated, several methodological problems were apparent in the studies reviewed for this report. The problems most often encountered, any one of which would be a serious threat to validity, were poor sampling, questionable methods for the measurement of criminal activity, lack of control for time in treatment, poor or unclear definition of success, and lack of control for crime prior to treatment. Due to space limitations, these threats to validity will be only briefly discussed.

In much of the research, no mention was made of sampling procedure. It may be that a number of studies failed to use recognized methods of probability or even purposive sampling; but without a presentation of the methodology, this cannot be determined, and therefore it is impossible to weigh the findings. Further, a number of studies drew samples from programs over a period of several years. Instead of controlling for length of time in treatment and then measuring the impact of treatment on crime, the entire sample was treated as a whole. It is quite obvious that time in treatment rather than simply the treatment itself is a crucial variable affecting behavior. When this is not controlled, there is no way of determining its impact. In addition, it makes comparability between studies difficult; it is hardly valid to compare a follow-up after five years in treatment with one after one year in treatment.

A third problem which affects not only follow-up studies but any study which attempts to make inferences about criminal behavior is the measurement of that behavior. The most common ways of measuring crime on the individual level are by police arrest data, court conviction records, and self-report of criminal behavior in an interview. Unfortunately, two contradictory points of view exist on the question of the validity of arrest data, particularly when dealing with addicts. On the one hand, since addicts may be especially susceptible to arrest for purposes of harassment, arrest records could present an inflated image of the actual amount of crime committed (Brill and Lieberman, 1969). On the other hand, it is also believed that only a small but unknown proportion of crimes are cleared by arrest, so that arrest data may seriously underestimate the amount of crime committed by addicts (Lukoff and Vorenberg, 1972). Owing to the deplorable inefficiency of our criminal justice system, convictions are probably also suspect as a valid measure of criminal activity. Lastly, self-reports are fraught with problems, particularly in follow-up studies. For instance, because of fear of dismissal, a patient may hesitate to admit the extent of his criminal involvement during treatment (Ball, 1967; Robins and Murphy, 1967). Even though all these measures have serious biases, in order to best approximate criminal behavior it would be advisable to utilize them in conjunction with one another. In this way, it may be possible to balance the biases, to have a validity check and, hopefully, to draw reasonable inferences about the treatment population. Unfortunately, all too many studies rely on a single measure.

A fourth problem -- and one that occurred in a distressingly large number of studies -- is that there was often no mention made of the extent of criminality prior to treatment. It is invalid to evaluate the efficacy of a treatment program if no comparisons of the relevant variables both before and after treatment are made.

METHODOLOGICAL PROBLEMS IN METHADONE FOLLOW-UP STUDIES

While methadone has been hailed as a major advance in the treatment of heroin addiction, particularly with respect to decreasing crime, a number of serious and thoughtful criticisms have

been leveled against the validity of the follow-up studies. Most of these criticisms have revolved around two issues -- changes in law enforcement during the late 1960's and characteristics of the treatment population in methadone programs. For a detailed analysis of several other methodological problems in methadone follow-up studies, there is an excellent article by Maddux and Bowden (1972).

The National Commission on Marijuana and Drug Abuse (1973) stated that the apparent relationship between the increase in heroin use and the concomitant rise in index crimes, as suggested by DuPont, may have been at least partially spurious. The report points out that the increase in index crimes was much greater than the increase in incarcerated heroin addicts, making a substantial proportion of the increase attributable to non-addict criminals. Therefore, while some of the rise in crime is almost certainly due to the increase in heroin addiction, the variance in crime is far from completely explained by this phenomenon. It further notes that the doubling of the police force in Washington during roughly the same period as the inception of the methadone clinics may well have accounted for the reduction in crime. These data present alternative explanations to the hypothesized direct causal relationship between addiction and crime.

There is another way in which changes in law enforcement may exert a direct effect on the relationship between methadone maintenance programs and crime. Robert J. Bazell (1973) suggests, but unfortunately does not fully explore, the possibility that both federal and local law enforcement people virtually ignored the growing black market in methadone. This market began to develop around 1970, and obviously coincided with the increase in the number of both methadone programs and addicts in this modality. Bazell states that one effect of this "benign neglect" is that methadone is about one-third the price of heroin on the black market. Hence, the amount of money needed to support a methadone habit would be correspondingly lower. If it is true that at least some of the increase in serious crime is attributable to addiction, then a sudden increase in methadone addiction, which is relatively inexpensive to support, could explain a portion of the decrease in crime. Thus, it is a reasonable, but as yet unproven, hypothesis that the positive effects on crime often attributed to methadone maintenance are really the result of the benign neglect on the part of law enforcement officials of the methadone black market.

A related criticism, not dealing directly with law enforcement, concerns the fallacy of inferring causation from a statistical correlation. Many of the methadone follow-up studies referred to in the present paper are guilty of what is known an logic as the 'post hoc ergo propter hoc fallacy'. Simply because the rate of index crimes increased in the middle sixties in one area, Washington, D.C., at the same time that heroin use apparently increased in this city, and the crime rate dropped after 1969 when methadone maintenance clinics were begun, this is not a sound basis on which to infer causality. First, there is no proof that the increase in crime was totally attributable to heroin use. Secondly, there is no reason to believe that a decrease in the crime rate was in any way causally related to the cure of individual addicts via methadone. It is apparent that the association in time and place between the two variables could be accounted for by any number of external factors.

The second issue around which criticism of methadone evaluation studies has revolved is the population of addicts accepted into methadone maintenance treatment programs. It is believed that the entrance requirements are such that addicts accepted into treatment differ significantly and systematically from the general population of addicts, and that these differences insure a greater rate of success. For example, Perkins and Bloch (1970) compared two 100 percent samples from the Bernstein Clinic methadone program. They consisted of the total numbers of addicts admitted to the program from 1965 to 1968 (N -- 521) and the total number of applicants not accepted during the same time period (N -- 712). They point out that a much greater number of applicants were not accepted than were accepted. The majority were rejected for failure to meet the acceptance criteria because of multiple addiction, serious psychiatric problems, being either below twenty or above forty years of age, or having an insufficiently long period of heroin use. Perkins and Bloch then compared the two samples on a variety of variables. They found that the addicts accepted into treatment were more likely to be employed at time of application, to have only

post-addiction criminal activity, and to have attempted detoxification at least once. Thus, a picture emerges of a more highly motivated, less criminally oriented addict being treated by methadone. Perkins and Bloch argue that this selection factor may be of central importance in at least partially explaining the apparent success of methadone in reducing crime. For a further discussion of the selection factor, there are several provocative reports (Bloch and Geis, 1970; Heyman, 1972; Rosenberg, et al, 1972; Winick, 1964). Essentially, these studies conclude that certain demographic characteristics, such as being white, female, and particularly, in the late twenties or early thirties during treatment are among the best predictors of success. For example,Winick (1964) reports that similar to criminal behavior, addiction seems to decline at around thirty, regardless of age of onset. In fact, the relationship is so strong that length of addiction can be predicted according to age of onset. The older one is at onset, the shorter will be the duration, so that whether one becomes addicted in the early teens or middle twenties, there is a tendency to abstain at around the age of thirty. Therefore, if a program has a disproportionate number of patients nearing the age of thirty, a high rate of success is likely regardless of the treatment offered. Thus, outcome may have very little to do with actual treatment, but rather may be a function of the social and demographic characteristics of the addicts in the program. While this is true of all modalities, there is strong evidence that methadone programs have the most selected patients, particularly with respect to race, age, and criminal and employment history.

One final comment on methodology is in order. It is a characteristic peculiar to methadone follow-up studies that success is often measured by comparing arrests, convictions and the like before and after treatment by person-years spent either in addiction or treatment. The second report of the National Commission on Marijuana and Drug Abuse (1973) offers an excellent analysis of the way in which this is misleading. Since the argument is so succinct, it is reproduced here in its entirety. It should prove most illuminating for individuals with either research or programmatic interests.

> *"To illustrate this final point, let us assume, for a moment, that we are interested in 20 individuals in treatment program X. Of these 20, 15 had dropped out at exactly two months after entry, two more dropped out after five months in the program, one stayed for a year before leaving and one continued in treatment for three years. Multiplying the number of individuals (20) by the number of months each spent in the program and adding those figures yields the total number of man-months spent in treatment. This number, divided by 12, equals the total number of man-years in treatment.*

COMPUTATION OF TREATMENT MAN-MONTHS AND MAN-YEARS

Number of Persons	Months in Treatment	Man-Months in Treatment
15	2	30
2	5	10
2	12	24
1	36	36
		100

Note: 100 man-months divided by 12 = 8.3 man-years

> *"Dividing the man-month or man-year figure by the number of individuals who had participated in treatment yields the average (mean) number of man-months or man-years of treatment per individual. In this case, the average number of man-months of treatment per individual totals 5 (or an equivalent of .4 man-years of treatment per individual, on the average)."*
>
> *"Both the total and the average man-month or man-year figures, however, provide for varying interpretation depending upon motive and requirements. In the case above, for example, an individual's average time in treatment was calculated to be five months; yet the actual situation shows that 15 out of the 20 (75%) of these individuals dropped out of the program after two months, the latter being the modal length of stay." (pp.179-80)*

Owing to all of the limitations outlined above, it is difficult to arrive at any conclusions, or even statements based on the weight of the evidence, about such vital issues as optimal length of time in treatment, type of addict best suited for particular modalities, and specific variables in treatment that are most important in achieving desired results. The only conclusion to be drawn is that a great many more carefully controlled studies must be done before it becomes possible to make valid inferences concerning the impact of treatment on the criminal behavior of addicts. We believe it entirely possible that treatment may prove to have some effect on crime. At the present time, however, there has been no adequate research documentation of that effect, and therefore, it remains an unproved hypothesis.

One aspect central to testing the treatment hypothesis is that programs must be aware of the population – or populations – of addicts with which they deal. Perhaps most programs make the mistake of believing that their modality is appropriate for all addicts. For example, the literature suggests that the majority of addicts are criminally deviant prior to the use of drugs and that the type of criminal activity in this group changes (and perhaps somewhat increases) to meet the financial requirements of addiction. It would seem that methadone maintenance would be less successful among this group of addicts than among the minority who commit crimes only to support their addiction or who commit crimes only insofar as they violate drug laws but are not involved in other types of criminality. Addicts who were entrenched in a criminal subculture and used heroin as an expression of their criminal orientation or as a part of the socialization process into a criminal subculture may require intensive re-socialization that is usually not available in out-patient methadone programs. Drug-free residential programs would afford this type of intensive treatment to the addict (Lennard, et al, 1972). In fact, one study concludes that,

> *". . . it is entirely possible that drug abuse and crime are but two associated manifestations of an underlying lifestyle. In this event, the elimination of drug-seeking behavior, with nothing else, would have an uncertain effect on crime, (e.g., it could conceivably increase the energy and time available for the commission of certain types of crime which are unrelated to illegal drug use itself)" (Rosenthal, 1973, p.8).*

The needs of the minority of addicts who do not have a history of criminal involvement prior to drugs might be best served by methadone clinics in that the pressing requirements of heroin addiction would be removed. Here again, it is necessary for program administrators to have detailed knowledge of the characteristics of the population their program is serving. Particularly in the case of methadone maintenance programs, it would be desirable to know the opiate content of the "street" heroin sold in the program's area prior to prescribing the maintenance dosage. There is growing evidence that the substance contained in the glassine envelopes commonly sold to addicts is approximately 1-4 percent heroin, not a sufficient quantity to be physically addictive (Cushman, 1973; Primm and Bath, 1973; Weisman, et al, 1973). While a few studies have begun to isolate distinct populations (Ball, et al, 1966; Patch, et al, 1972), more research is needed to delineate fully such variables as the degree of pre-drug criminality, the extent and types of crime committed after addiction, and the pattern of drug use. This will enable researches to construct typologies to be utilized by administrators in developing rational, purposive and well-planned programs, specifically targeted upon particular sub-populations of addicts.

CONCLUSIONS

It is hoped that this critique of the literature will be helpful in guiding future research upon which policy should be based. However, it must be recognized that at this point, our knowledge of the relationship between crime and addiction is quite limited. In order to gain a firm foothold on the exact nature of this relationship, it is strongly recommended that research efforts move in the direction of studies, preferably prospective, of normal populations. This is the only way in which causality can be traced without being severely contaminated by the selection factor of samples drawn from official records, prisons, and hospitals.

SUMMARY

To summarize, some general statements based on the literature can be made concerning the relationship between crime and heroin addiction. Since the quality of the research is often questionable, and there is much data that is contradictory, these statements must perforce be based on the weight of the evidence. They are in no way to be construed as definitive. By the same token, the deficiencies in the available data will not support definitive conclusions to the contrary, though others may weigh the evidence differently.

1. The majority of current heroin addicts have substantial criminal histories prior to the first use of opiates. Hence, the argument that addiction causes previously law-abiding persons to commit crimes is untenable. (see Figure 1).

2. Based on a single retrospective study of a normal population of black males, it would seem that while engaging in criminal acts does not lead to addiction in all cases, or even in most cases, it increases the probability of addiction.

3. Among addicts who are criminals prior to addiction, there is no reason to believe that addiction is the causal factor in increasing criminality. While crime may increase, it may have increased anyway, given the fact that most contemporary addicts are at an age which is also a high risk age for crime. There is such a substantial lack of control of important variables in most studies that it is impossible to evaluate the effect of addiction on pre-existing criminal behavior.

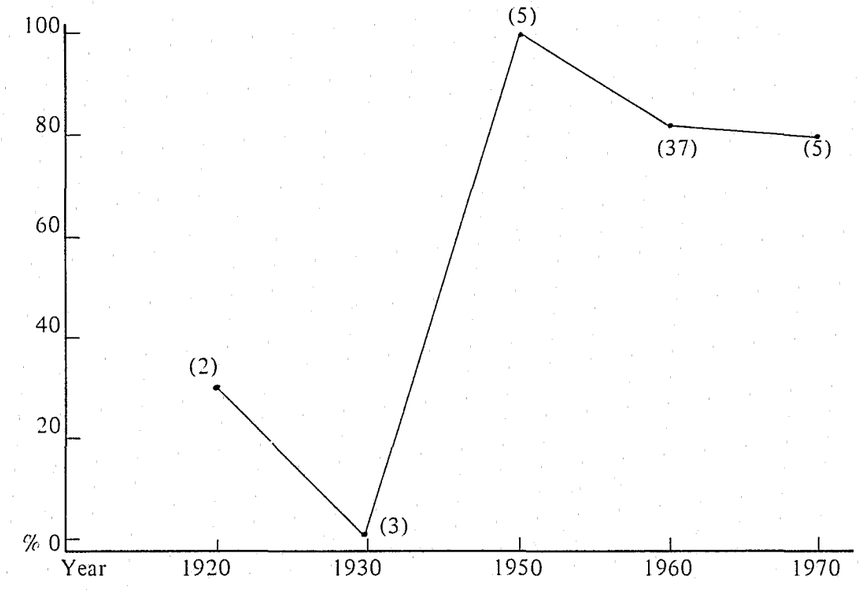
4. Contrary to early studies, the most recent evidence suggests that addicts commit primarily those crimes that yield a financial return, regardless of whether they are violent or not.

5. In terms of the addicts who enter treatment, the quality of evaluation studies is, in general, so poor that conclusive statements concerning the impact of treatment on criminal behavior are almost impossible to make at the present time.

FIGURE 1

STUDIES SHOWING CRIME PRIOR TO ADDICTION

(As Percentage of Total Studies, By Year)



1. The studies presented in this table are only those that deal with the temporal sequence of crime and addiction, and do not represent the total number of studies covered in this paper.

2. Although publication may have occurred at a later date, the studies are categorized according to period of data collection.

3. In some cases, the decision to place a study in the crime-before-addiction category was made on the basis of the majority of cases in the study. In no way is it implied that all cases in a study follow one particular patter.

4. The studies are categorized according to the study investigators' conclusions, regardless of the methodological problems that place some of the results in doubt.

5. Thirty-seven of the fifty-two studies presented here are empirical; the other fifteen are reviews of the literature.

6. 1940 has been omitted since very little research in drug abuse was conducted during the war years.

BIBLIOGRAPHY

Abrams, Arnold, et al, "Psychosocial Aspects of Addiction, "American Journal of Public Health, 58:2142-2155, 1968.

Adler, Freda, et al, "The Treatment of Drug Abuse in Pennsylvania," Commonwealth of Pennsylvania, 1973.

Amsel, Zili, et al, "The Use of the Narcotics Register for the Follow-Up of a Cohort of Adolescent Patients," International Journal of the Addictions, 6 (2): 225-39, June 1971.

Anslinger, H. J. and Tompkins, William F., The Traffic in Narcotics, New York, Funk and Wagnalls, 1953.

Ball, John C., "The Reliability and Validity of Inteview Data Obtained from 59 Narcotic Drug Addicts," American Journal of Sociology, 72 (6): 650-54, May 1967.

Ball, John C., et al, "Selected Social Characteristics of Consecutive Admissions to Lexington in 1965," Criminologica, 4:13-16, August 1966.

Bazell, Robert J., "Drug Abuse: Methadone Becomes the Solution and the Problem," Science, 179:772-75, February 23, 1973.

Bean, Philip, "Social Aspects of Drug Abuse: A Study of London Drug Offenders," Journal of Criminal Law, Criminology and Police Science, 62 (1):80-86, March 1971.

Bewley, Thomas H. and Ben-Arie, Oved, "Study of 100 Consecutive In-Patients," British Medical Journal, pp.727-30, March 23, 1968.

Bloch, Herbert I. and Gilbert Geis, Man, Crime and Society, 2nd ed., New York, Random House, 1970.

Blum, Richard H., "Drugs, Crime, and Behavior," Annals of the American Academy of Political and Special Sciences, 374: 135-46, Nov. 1967.

Blum, Richard H., "Drugs and Violence," in Mulvihill, Donald J. and Tumin, Melvin M., eds. Crimes of Violence, 13: 1461-1523, Washington D.C., U.S. Government Printing Office, December 1969.

Blum, Richard H., "Mind-Altering Drugs and Dangerous Behavior: Narcotics," in President's Commission on Law Enforcement and Administration of Justice, Task Force Report: Narcotics and Drug Abuse, Appendix A-2, pp. 40-63, Washington, D.C., U.S. Government Printing Office, 1967.

Brill, Leon and Lieberman, Louis, Authority and Addiction, Boston, Little, Brown and Co., 1969.

Chambers, Carl D., et al, "Demographic Factors Associated with Negro Opiate Addiction," International Journal of the Addictions, 3: 329-43, Fall 1968.

Chambers, Carl D., et al, "Demographic Factors in Opiate Addiction Among Mexican-American," Public Health Reports, 85:523-31, June 1970.

Chambers, Carl D. and Moffett, Arthur D., "Drug Addiction in the Commonwealth of Kentucky," (unpublished manuscript), 1969.

Chein, Isador, "The Chronic Addict – and Why He Turned to Drugs," Rehabilitation Record, pp. 16-18, May-June 1966.

Chein, Isador and Eva Rosenfeld, "Juvenile Narcotics Use, "Journal of Law and Contemporary Problems, 22: 52-68, 1957.

Chein, Isador, et al, The Road to H, New York, Basic Books, 1964.

Cushman, Paul Jr. "Evaluation of a Methadone Maintenance Treatment Program," Hospitals, 47:67-69, June 1, 1973.

Cushman, Paul Jr., "Methadone Maintenance Treatment of Narcotic Addiction," New York State Journal of Medicine, pp. 1752-55, July 1, 1972.

Cushman, Paul Jr., "Methadone Maintenance in Hard-Core Criminal Addicts," New York State Journal of Medicine, 71: 1768-74, July 15, 1971.

Cushman, Paul Jr., "Street Heroin in Washington, D.C." New England Journal of Medicine, 289 (21): 1151, November 22, 1973.

Cuskey, Walter R., et al, "An Inquiry Into the Nature of Changes in Behavior Among Drug Users in Treatment," in National Commission on Marijuana and Drug Abuse, Drug Use in America, Appendix, Vol. IV: Treatment and Rehabilitation, pp. 198-357, Washington, D.C., U.S. Government Printing Office, 1973.

Dai, Bingham, Opium Addiction in Chicago, Montclair, N. J., Patterson-Smith, Pub., 1970.

DeFleur, Lois B., "The Long-Term Social Correlates of Opiate Addiction," Social Problems, 17: 225-34, Fall, 1969.

DeLeon, George, et al, "Phoenix House: Criminal Activity of Dropouts," Journal of the American Medical Association, 222 (6): 686-89, November 6, 1972.

Dobbs, William H., "Methadone Treatment of Heroin Addicts," Journal of the American Medical Association, 218 (10): 1536-41, December 6, 1971.

Dole, Vincent P., et al, "Methadone Treatment of Randomly Selected Criminal Addicts," New England Journal of Medicine, 280 (25): 1372-75, June 19, 1969.

Dole, Vincent P., et al, "Successful Treatment of 750 Criminal Addicts," Journal of the American Medical Association, 206 (12:2708-11, Dec. 16, 1968.

Drapkin, Israel and Landau, Simha F., "Drug Offenders in Israel: A Survey," British Journal of Criminology, 6: 376-90, 1966.

DuPont, Robert L. "Coming to Grips With an Urban Heroin Addiction Epidemic," Journal of the American Medical Association, 223 (1):46-48, January 1, 1973.

DuPont, Robert L. and Katon, Richard N., "Development of a Heroin Addiction Treatment Program: Effect on Urban Crime," Journal of the American Medical Association, 216 (8): 1320-24, May 24, 1971.

DuPont, Robert L. and Greene, Mark H., "The Dynamics of a Heroin Addiction Epidemic," Science, 181: 761-22, August 24, 1973.

DuPont, Robert L., "Heroin Addiction Treatment and Crime Reduction," American Journal of Psychiatry, 128 (7): 90-94, January 1972.

Duvall, Henrietta, J., "Follow-Up Study of Narcotic Drug Addicts Five Years After Hospitalization," Public Health Report, 78 (3): 185-93, March 1963.

Eckerman, William C., et al, Drug Usage and Arrest Charges, Washington D.C., U.S. Department of Justice, BNDD – Office of Scientific Support (Drug Control Division), 1971.

Eldridge, William B., Narcotics and the Law, 2nd Ed., Chicago, University of Chicago Press, 1967.

Ellinwood, Everett H., "Assault and Homicide Associated With Amphetamine Abuse," American Journal of Psychiatry, 127: 1170-75, March 1971.

Faris, Robert E.I. and Dunham, H. Warren, Mental Disorders in Urban Areas, Chicago, University of Chicago Press, 1939.

Finestone, Harold, "Narcotics and Criminality," Journal of Law and Contemporary Problems, 22: 69-85, 1957.

Friedman, Irat and Peer, Ilana, "Drug Addiction Among Pimps and Prostitutes in Israel," in Shoham, S., Ed., Israel Studies in Criminology, I. Tel Aviv, Goneh Press, pp. 141-75, 1970.

Garb, S. and Crim, B., Pharmacology and Patient Care, New York, Springer, 1966.

Gearing, Frances R., "Evaluation of Methadone Maintenance Treatment Program," International Journal of the Addictions, 5 (3): 517-43, September 1970.

Gearing, Frances R., "A Road Back from Heroin Addiction," Proceedings of 4th National Conference on Methadone Treatment, National Association for Prevention of Addiction to Narcotics, Washington D. C., U.S. Government Printing Office, 1972, pp. 157-58.

Gearing, Frances R., "Successes and Failures in Methadone Maintenance Treatment of Heroin Addiction in New York City," Proceedings of 3rd National Conference on Methadone Treatment, National Association for the Prevention of Addiction to Narcotics, Washington D.C., U.S. Government Printing Office, 1970, pp.2-16.

Glaser, Frederick B., "Drug Addiction and Crime: Is Methadone Maintenance Preferable to Withdrawal?" International Journal of Offender Therapy and Comparative Criminology, 16: 18-24, 1972.

Gordon, Alistair M., "Patterns of Delinquency in Drug Addiction." British Journal of Psychiatry, 122:205-10, 1973.

Griffith, John, "A Study of Illicit Amphetamine Drug Traffic in Oklahoma City," American Journal of Psychiatry, 123 (5): 560-69, November 1969.

Hekimian, Leon J. and Gershon, Samuel, "Characteristics of Drug Abusers Admitted to a Psychiatric Hospital," Journal of the American Medical Association, 205 (3): 75-80, July 15, 1968.

Heyman, Florence, "Methadone Maintenance as Law and Order," Society, 9 (8): 15-25, June 1972.

Hughes, Patrick H., et al, "The Social Structure of a Heroin Copping Community," American Journal of Psychiatry, 128 (5): 43-50, November 1971.

Inciardi, James A. and Chambers, Carl D., "Unreported Criminal Involvement of Narcotic Addicts," Journal of Drug Issues, 2:57-64, Spring, 1972.

Jacoby, Joseph E., et al, "Drug Use and Criminality in a Birth Cohort," in National Commission on Marijuana and Drug Abuse, Drug Use in America, Appendix, Volume I: Patterns and Consequences of Drug Use, Washington D.C. U.S. Government Printing Office, 1973, pp. 300-345.

James, I. Pierce, "Delinquency and Heroin Addiction in Britain," British Journal of Criminology, 9:108-24, April 1969.

Johnson, Kit G., et al, "Survey of Adolescent Drug Use: II. Social and Environmental Factors," American Journal of Public Health, 62:164-66, February 1972.

Joint Committee of the ABA and the AMA on Narcotic Drugs Interim and Final Reports, Drug Addiction: Crime or Disease, Bloomington, Indiana University Press, 1961.

Jones, Robert E., "The Characteristics of Addicts Opting for a Self-Care Program," Drug Forum, 2 (1): 31-42, Fall 1972.

Joseph, Herman, "Methadone Maintenance Treatment in Probation," Proceedings of 4th National Conference on Methadone Treatment, Washington D.C., U.S. Government Printing Office, 1972, pp. 91-93

Joseph, Herman and Dole, Vincent P., "Methadone Patients on Probation and Parole," Federal Probation, 34:42-48, 1970.

Kolb, Lawrence, "Drug Addiction in Its Relation to Crime," Mental Hygiene, 9:74-89, 1925.

Kolb, Lawrence, "Drug Addiction; A Study of Some Medical Cases," Archives of Neurology and Psychiatry, 20:171-83, 1928.

Kozel, Nicholas J., et al, "Narcotics and Crime: A Study of Narcotic Involvement in an Offender Population," International Journal of the Addictions, 7 (3):443-50, Fall 1972.

Kramer, John C., "Civil Commitment for Addicts: The California Program," American Journal of Psychiatry, 125 (6):128-36, December 1968.

Langrod, John and Lowinson, Joyce H., "The Scope and Nature of Criminality in a Group of Methadone Patients," Proceedings of 4th National Conference on Methadone Treatment, Washington, D.C., U.S. Government Printing Office, 1972, pp. 95-96.

Lennard, Henry L., et al, "The Methadone Illusion," Science, 176:881-84, May 26, 1972.

Lerner, Steven E., et al, "The Cost of Heroin to the Addict and the Community," Journal of Psychedelic Drugs, 4 (1):99-103, Fall 1971.

Levy, Barry S., "Five Years After: A follow-Up of 50 Narcotic Addicts," American Journal of Psychiatry, 128 (7):868-72, January 1972.

Lindesmith, Alfred R., The Addict and the Law, "Bloomington, Indiana University Press, 1965.

Little, Arthur D., Inc., "Drug Abuse and Law Enforcement," Consultant's Paper for President's Commission on Law Enforcement and Administration of Justice, 1967.

Lukoff, Irving F. and Vorenberg, James, "Methadone Maintenance Evaluation Studies: Some Unresolved Issues on Crime and Drug Abuse," Proceedings of 4th National Conference on Methadone Treatment, Washington D.C., U.S. Government Printing Office, 1972, pp.489-92.

Maddux, James F. and Bowden, Charles L., "Critique of Success with Methadone Maintenance," American Journal of Psychiatry, 129 (4):440-46, October 1972.

Maurer, David W. and Vogel, Victor H., Narcotics and Narcotic Addiction, (3rd edition), Springfield, Illinois, Charles C. Thomas, 1967.

McGrath, John H., "A Comparative Study of Adolescent Drug Users, Assaulters and Auto Thieves," Dissertation Abstracts, Vol. 28: 4290-A, 1968.

Merton, Robert K., Social Theory and Social Structure, Glencoe, Illinois, Free Press, 1957.

Meyer, Alan S., Editor, Social and Psychological Factors in Opiate Addiction, New York, Columbia University Bureau of Applied Social Research, 1952.

Morgan, James P., "Drug Addiction: Criminal or Medical Problems," Police, 9:6-9, July/August, 1965.

Muskie, Edmund S., "Crime, Drugs, and the Nation," Journal of Drug Issues, 2:5-7, Spring 1972.

Musto, David F., The American Disease, New Haven, Yale University Press, 1973.

National Commission on Marijuana and Drug Abuse, Drug Use in America: Problems in Perspective, Washington DC, U.S. Government Printing Office, 1973.

Newman, Robert G. et al, "Arrest Histories Before and After Admission to a Methadone Maintenance Treatment Program," Contemporary Drug Problems, 2 (3):417-30, 1973.

Noble, Peter J., "Drug-Taking in Delinquent Boys," British Medical Journal, 1:102-105, January 10, 1970.

Nurco, David N., "An Ecological Analysis of Narcotic Addicts in Baltimore," International Journal of the Addictions, 7 (2): 341-53, 1972.

O'Connor, Garrett, et al, "The Economics of Narcotics Addiction: A New Interpretation of the Facts," in Committee on Problems of Drug Dependence, National Academy of Sciences of National Research Council, 1:397-424, 1971.

O'Donnell, John, Narcotics Addicts in Kentucky, PHS Publication No. 1881, U.S. Government Printing Office, Washington D.C., 1969.

d'Orban, P.T., "Heroin Dependence and Delinquency in Women – A Study of Heroin Addicts in Holloway Prison," British Journal of the Addictions, 65:67-68, 1970.

Page, Irving and Alvarez, Walter C., "Further Evidence on Methadone and Criminal Drug Addicts," Modern Medicine, 37:64-65, March 10, 1969.

Patch, Vernon D., et al, "Methadone Maintenance in Boston," Proceedings of 4th National Conference on Methadone Treatment, National Association for the Prevention of Addiction to Narcotics, Washington DC, U.S. Government Printing Office, 1972, pp. 507-510.

Perkins, Marvin E. and Bloch, Harriet I., "Survey of a Methadone Maintenance Treatment Program," American Journal of Psychiatry, 126:33-40, April 1970.

Pescor, Michael J., "A Statistical Analysis of the Clinical Records of Hospitalized Drug Addicts," Public Health Reports, Supplement No. 143, pp. 1-23, 1938.

Plair, Wendell and Jackson, Lorraine, Narcotic Use and Crime, District of Columbia Department of Corrections, Research Report No. 33, November 1970.

Preble, Edward and Casey, John J. Jr., "Taking Care of Business – The Heroin User's Life on the Street," International Journal of the Addictions, 4 (1):1-24, March 1969.

President's Commission on Law Enforcement and the Administration of Justice, The Challenge of Crime in a Free Society, Washington D.C., U.S. Government Printing Office, February 1967.

Primm, B. J. and Bath, P.E., "Pseudoheroinism," International Journal of the Addictions, 8 (2): 231-42, 1973.

Richman, David, "The Extent and Social Cost of Drug Abuse in Philadelphia," (unpublished manuscript).

Robins, Lee N. and Murphy, George E., "Drug Use in a Normal Population of Negro Men," American Journal of Public Health, 57 (9): 1580-96, 1967.

Rogers, Arthur J., "Narcotic Addiction Among Young People," in Hershey, Martin H., Drug Abuse Law Review-1971, Albany, Sage Hill, pp.588-605, 1971.

Rosenberg, Chaim M., et al, "Patterns of Drop-Outs from a Methadone Program for Narcotic Addicts," International Journal of the Addictions, 7 (3): 415-25, 1972.

Rosenthal, Seymour J., et al, Illicit Drug Use and Its Relation to Crime: A Statistical Analysis of Self-Reported Drug Use and Illegal Behavior, Philadelphia, Center for Social Policy and Community Development, Temple University, 1973.

Scher, Jordan, "Patterns and Profiles of Addiction and Drug Abuse," Archives of General Psychiatry, 15:539-51, November 1966.

Schur, Edwin M., Crimes Without Victims, Englewood Cliffs, N.J. Prentice-Hall, 1965.

Schur, Edwin M., Narcotic Addiction in Britain and America, Bloomington, Indiana University Press, 1968.

Scott, P.D. and Willcox, D.R.C., "Delinquency and the Amphetamines," British Journal of the Addictions, 61:9-27, 1965.

Scott, P.D. and Buckell, M., "Delinquency and Amphetamines," British Journal of Psychiatry, 119:179-82, 1971.

Smith, W. G., et al, "Narcotics Addicts in the Mid-1960's," Public Health Reports, 81 (5): 403-12, May 1966.

Singer, Max, "The Vitality of Mythical Numbers," Public Interest, 23:3-9, Spring 1971.

Stanton, John M., Law-Breaking and Drug Dependence, State of New York Division of Parole, Bureau of Research Statistics, 1969.

Stimmel, Barry, "The Socioeconomics of Heroin Dependency," New England Journal of Medicine, 287 (25):1275-80, December 21, 1972.

Stimson, G. V., Heroin and Behavior, New York, John Wiley, 1973.

Stimson, G. V. and Ogborne, A. C., "Survey of Addicts Prescribed Heroin at London Clinics," The Lancet, May 30, 1970, pp.1163-66.

Tappan, Paul W., Crime, Justice and Correction, New York, McGraw-Hill, 1960.

Tinklenberg, Jared, "Drugs and Crime," in National Commission on Marijuana and Drug Abuse, Drug Use in America: Problems in Perspective, Appendix, Volume 1: Patterns and Consequences of Drug Use, Washington D.C., U.S. Government Printing Office, March 1973, pp.242-299.

Tinklenberg, Jared R. and Woodrow, Kenneth M., "Drug Use Among Youthful Assaultive and Sexual Offenders," in Frazier, Shervert H., (ed.) Aggression: Proceedings of the 1972 Annual Meeting of the Association for Research in Nervous and Mental Disease, Baltimore, Williams and Wilkins Co., 1972.

Vaillant, George E., "A Twelve Year Follow-Up of New York Narcotic Addicts: I. The Relation of Treatment to Outcome," American Journal of Psychiatry, 122: 727-737, January 1966.

Vaillant, George E., "A 12-Year Follow-Up of New York Narcotic Addicts: III Some Social and Psychiatric Characteristics," Archives of General Psychiatry, 15: 599-609, December 1966.

Vaillant, George E. and Rasor, Robert W., "The Role of Compulsory Supervision in the Treatment of Addiction," Federal Probation, 30:53-59, 1966.

Vera Institute of Justice, "Heroin Research and Rehabilitation Program," (unpublished manuscript), 1971.

Voss, Harwin L. and Stephens, Richard C., "Clinical History of Narcotic Addicts," Drug Forum, 2 (2): 191-202, Winter 1973.

Weisman, Mark, et al, "Quality of Street Heroin," New England Journal of Medicine, 289 (13):698-99, September 27, 1973.

Williams, Hugh R., "Using Methadone to Treat the Heroin Addict," Canada's Mental Health, 18 (1): 4-9, January/February 1970.

Winick, Charles, "Drug Addiction and Crime," Current History, 52:349-365, June 1967.

Winick, Charles, "Epidemiology of Narcotics Use," in Wilner, David M. and Kassebaum, Gene G., Narcotics, New York, McGraw-Hill, 1965, pp.3-18.

Winick, Charles, "The Life Cycle of the Narcotic Addict and of Addiction," Bulletin on Narcotics, 16:1-11, 1964.

World Health Organization, Interdepartmental Committee on Narcotics, Report to the President of the United States, 3-4, 1961.

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