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A Post-1975 Literature Review: A Survey and  
Analysis of the Extant Drug/Crime Literature

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I. INTRODUCTION

Most of the literature on the drugs/crime issue has been summarized in reviews or edited works published prior to 1975. However, a great deal of research has been conducted and reported since that time which has not been reviewed or synthesized. The purpose of this paper then is to focus on and briefly summarize the post-1975 literature on the drugs/crime issue. The summary provided here is intended to serve as a special supplement to a major literature review recently completed by the Research Triangle Institute (Gandossy, et al., 1979). Much of the literature mentioned and the issues addressed here are discussed in more detail in that document. This summary also serves to cover the state-of-the-art since the completion of the 1976 NIDA Drug Crime Panel Report (The National Institute on Drug Abuse and Research Triangle Institute, 1976a, b). In that sense it is also meant to update and supplement that report.

Many of the literature reviews on the drug/crime issue have been conducted prior to 1975 (see for example, Blum, 1967; 1969; Chambers, 1974a, 1974b; Greenberg and Adler, 1974; Inciardi, 1974; Kavalier et al., 1968, Meyer, 1952, National Commission on Marihuana and Drug Abuse, 1973a, b; O'Donnell, 1966; and Tinklenberg, 1973). In the last several years, however, there have been a number of works that have summarized various aspects of the drugs/crime literature. These have included edited works (DuPont, Goldstein, and O'Donnell, 1979; Kandel, 1978; Proceedings of the International Seminar on Sociocultural Factors in Nonmedical Drug Use, 1975; Rittenhouse, 1976; and Weppner, 1977); several reviews of specific issues within the drugs/crime area such as the annotated bibliography on drugs and minorities (Austin et al., 1977), reviews on amphetamines and crime (Greenberg, 1976), heroin and crime (Kozel and DuPont, 1976), drug enforcement strategies (Williams et al., 1978) and several discussions of drugs/crime issues in the more popular literature (Silberman, 1978; Wilson, 1975); and several reviews have briefly covered a wide range of issues in the drugs/crime area (Austin

and Lettieri, 1976; Lukoff, 1976; McGlothlin, 1979; Shellow, 1976; and Weissman, 1979).

The purpose of this document is to briefly describe the post-1975 literature on drugs and crime around five broad categories outlined in the earlier literature review (Gandossy et al., 1979). The five categories are:

1. Methodological issues: These are issues concerned with the definitions of drug use and criminal behavior, problems in measuring these phenomena, and the difficulties in drawing representative samples.
2. Patterns of drug use and criminal behavior: Demographic characteristics of addicts, the type and extent of drug use, and criminal behavior patterns are described and provide the basis for typological development.
3. Life cycle characteristics: How are drug use and crime patterns distributed over individual careers? Specific questions such as the sequencing of drug use and crime, age of onset, and maturing out are addressed and contribute to our understanding of the relationships between drug use and crime.
4. Economic issues: Issues addressed here have to do with price, purity, supply, demand, the nature of income-generating activities of drug users, and the effects of supply reduction strategies on drug consumption and associated criminal behaviors.
5. Treatment effects: Is there a net nondrug criminal activity reduction that results from drug treatment programs? A review of selected evaluations of treatment programs is provided and an attempt is made to identify types of programs that appear to be most successful.

In addition to these five categories, two other categories emerge from the literature that will give the reader an idea of the range of work being conducted in the drugs/crime area. The two new categories are:

Literature reviews and edited works: these have already been described in the preceding paragraphs.

Other: this is a catch-all category but includes literature discussing various social policies designed to combat drug abuse; comparisons

between U.S. drug policy and Great Britain; and the effectiveness of various drug laws (i.e., New York State Drug Law).

This breakdown, of course, is somewhat arbitrary for few of these works fall exclusively into one category. There is considerable overlap of these categories within one piece of research. For example, numerous research efforts are focused on the types of crime in which drug addicts engage. This can, depending upon how the research is conducted, be perceived as a patterns question, an economic question or, in some cases, a life cycles question. These breakdowns are designed so the reader can more clearly see the types of research conducted in the last several years. In addition, it should be pointed out that much of the literature cited here is not necessarily new. Much of this work which was begun and even published prior to 1975 is reappearing. In addition, the results of other prior work is appearing in the literature for the first time. Much of this lag in the reporting of research findings can be accounted for by publishing backlogs, new analyses being conducted on old data, or the reporting of studies that were begun prior to 1975 may have recently been completed.

A. Breakdown of the Post-1975 Literature

Based on our more extensive review of the English-language literature on drugs and crime we uncovered 162 research documents (see bibliography of post-1975 literature) that have appeared since 1975 (not including the National Institute on Drug Abuse and Research Triangle Institute's Drug Use and Crime Report of the Panel on Drug Use and Criminal Behavior, 1976b). The breakdown of this literature by the categories described above is as follows:

<u>Method- ological Issues</u>	<u>Patterns of Drug Use and Crime</u>	<u>Life Cycle Issues</u>	<u>Economic Issues</u>	<u>Drug Treat- ment Issues</u>	<u>Literature Reviews or Edited Works</u>	<u>Other</u>	<u>Total</u>
16	64	4	17	25	16	20	162

As can be seen, most of this literature falls within the category of Patterns of Drug Use and Crime and the fewest pieces of research address questions having to do with Life Cycles. This is largely a function of the different sets of research requirements needed to address these issues. Often, all that is needed to address certain questions having to do with patterns of drug use and crime is a survey of drug users regarding their criminal behavior or a survey of criminals regarding their drug use. To address life cycle issues requires a longer data collection period to conduct either longitudinal studies or in-depth interviews. These data are necessary to understand the addict or criminal career. Because of the time and resources needed to conduct this type of research adequately, few research efforts have been conducted that focus on life cycle questions.

A great deal of this research could be classified as "more of the same." In other words, this work has contributed few significant insights to the state of our knowledge as it existed up until 1975 on the drugs/crime issue. Several pieces of research in the life cycles and nearly all the research in the economics area, however, have made significant advances in our understanding of drug/crime issues. For example, life cycles and economics areas are relatively new areas of research in the drugs/crime area and a large percentage of this research has been conducted since 1975. In the other areas, most of the literature has not incrementally contributed to the state of our knowledge and could be classified as "more of the same."

What follows is a brief review of the most significant post-1975 literature within the five categories outlined above. It is beyond the scope of this paper to address the policy-related issues in the "other" category and it would be superfluous to summarize other literature reviews, therefore, only the five major categories identified above will be addressed here.

## II. METHODOLOGICAL ISSUES

Most of the literature concerned with methodological issues has focused on either reliability and validity of self-reports (Amsel et al., 1976; Bonito et al., 1976; Hubbard et al., 1976; Maddux and Desmond, 1975; and Single et al., 1975); problems with official (DeFleur, 1975 and Frank et al., 1976) and quasi-official data (i.e., urinalysis) (Richardson et al., 1978a, b); or the difficulties encountered when employing various research methods such as ethnography (James, 1977 and Soloway and Walters, 1977), survey research (Rittenhouse, 1978), and longitudinal research (Kandel, 1978 and Nurco and Farrell, 1975). Another methodological study conducted by Ellis and Stephens (1976-1977) points out the problems encountered when short intervals are used in assessing treatment client arrests. Arrest rates are unusually high for the year prior to treatment and therefore create problems in interpreting the effects of treatment intervention.

### 1. Self-reported Data

Much of the drug/crime research has relied on self-report measures as a single data source or in combination with one or more other data sources. Several methods have been employed by researchers to determine the reliability and validity of self-report measures. These methods can be summarized under three categories as suggested by Hubbard, Eckerman, and Rachal (1976): (1) examination of internal validity or reliability, (2) the assessment of construct validity, and (3) the determination of the empirical validity of self-reported measures. Within these categories, researchers have employed a variety of unique research techniques in an attempt to establish levels of validity and reliability.

The first category, internal validity, has been used synonymously with reliability in most of the literature. As stated, reliability or internal validity is concerned with the consistency of observations over time. Techniques used by researchers to measure internal validity have generally included examination of one or more of the following: response rates, consistency of subject responses both over time and within the same instrument utilizing parallel forms of the same question, and

evidence of respondent candidness (Hubbard, Eckerman, and Rachal, 1976). Methods employed by researchers to insure reliability include: use of highly trained interviewers, intraquestionnaire safeguards, and interview-reinterview procedures (Amsel, et al., 1976).

The second category, construct validity, is the correlation of self-reports with other variables known to be associated with drug use. These procedures avoid the intrusion by researchers into sensitive areas of subjects' lives (Hubbard, Eckerman, and Rachal, 1976). Construct validation procedures have included measuring the relationship between self-reported use and self-reported use of friends (Single, Kandel, and Johnson, 1975), comparison of the proportion of self-reported drug use with estimates of respondent use or comparisons of the proportion of self-reported use from other studies (Hubbard, Eckerman, and Rachal, 1976).

The third category of validity, empirical validity, is a check on the accuracy of self-reports with data from other sources. This is the most common method employed by researchers in checking the accuracy of an addict's responses. Intuitively, many suspect addict self-disclosure on items of deviancy simply because of the illegality of their acts. There are indications that criminals, given the opportunity, will attribute their deviant acts to either drugs or alcohol as an excuse for their behavior. In addition, the veracity of addict or criminal responses may not only be affected by deliberate concealment but also errors in recall (Bonito, et al., 1976) The extent in which these factors affect addict responses must be validated against other data sources.

Amsel et al., (1976) conducted a study on a sample of applicants for treatment under the Narcotic Addict Rehabilitation Act (N.A.R.A.). A check was made to determine the extent to which there were falsifications or omissions in information in the application process. For 78 percent of the respondents, their self-reported criminal history matched UCR data. For 74 percent of the respondents, self-reports of drug use and urinalysis results matched. Despite problems with incomplete urinalysis and the UCR data the authors concluded the addict self-reports were both reliable and valid.



In addition to these problems with self-reports, Maddux and Desmond report "certain features of the interview itself seem to affect reliability of information. These include the place of the interview, the legal status of the subject, the feelings of the subject about giving information to the interviewer, the skill of the interviewer, and the procedure" (Maddux and Desmond, 1975:93).

## 2. Official or Quasi-official Data

DeFleur (1975) analyzed drug arrest data in Chicago and found these data are systematically biased over time reflecting the changes in police policies regarding narcotic law enforcement at different points in time. This finding is consistent with other researchers findings regarding the reliability and validity of official statistics (see Gandossy et al., 1979:10-12).

Richardson et al., (1978a, b) utilized more quasi-official data to determine the presence of drugs in individual subjects (as did Amsel et al., 1976) and test the feasibility of drug surveillance systems in four sites. Problems of entree to sites, authority and approval of the system are discussed as well as problems concerned with the logistics of such a system--the gathering, the labeling, transporting, and analyzing of urine specimens.

## 3. Different Research Approaches

A researcher's choice of one research method over another is usually a function of time, money, and the researchers own perception of what constitutes the most valid and reliable approach. Drug/crime researchers have employed a wide variety of approaches to answer key questions on this issue. Recently, several works have been completed that provide insight into the use of two types of research methodologies and one type of design: survey research (Rittenhouse, 1978), ethnography (Weppner, 1977), and longitudinal designs (Kandel, 1978). Each will be discussed briefly below.

a. Survey Research. The use of survey research methods have assisted in determining the extent of drug use rates in both general and special populations. Survey data more accurately reflect, for general populations, the true incidence and prevalence of drug use and are more representative than are data based on relatively small, biased numbers

of drug users that come to the attention of authorities. In fact, research has shown that institutionalized drug users are systematically different from non-institutionalized users (Rittenhouse, 1978). Concern about the drug problem in the 1960's led to a proliferation of drug use surveys that have contributed to our knowledge of drug use patterns and characteristics of drug users. Rittenhouse (1978) cites studies showing virtually no drug use surveys of the general population prior to 1965 whereas one source lists 98 of these surveys conducted between 1971 and 1973. However, unfortunately, most of these are not general population surveys and their generalizability is highly limited.

We not only have more surveys but surveys are more extensive as well. Surveys attempt to determine more information on a greater number of psychoactive drugs, patterns of drug use including frequency, intensity, and drug substitutes, drug use histories, and, more recently, the consequences of use (Rittenhouse, 1978). Despite the contributions national and special population surveys have made to state of knowledge on drug use patterns, their usefulness in drug/crime research is minimal at best due in large part to the low incidence of drug use (specifically the opiates) in the general population.

The incidence of drug use and criminal behavior in surveys of normal populations is relatively low and their usefulness, outside of describing drug use trends and characteristics of users, for drug/crime research has been limited. The national survey by O'Donnell et al., (1976) of young males (20 to 30 years old) found that close abuse of illicit drugs is low. Other surveys have had similar results (Abelson, Fishburne, and Cisin, 1977).

The Rittenhouse (1978) volume serves as a useful handbook for those interested in conducting survey research on drug use. Examples are given of key questions and data necessary to address certain drug issues.

b. Ethnographic Approaches. Ethnography is a research approach that falls within the rubric of qualitative studies. Ethnography in drug/crime research, is the direct observation of addict behavior in a natural setting. It is the belief of some researchers in the drug/crime area that conventional research techniques such as survey research and secondary data analysis have been unable to provide answers

to many of the complex questions surrounding the issue of drug use and criminal behavior. Furthermore, it is believed qualitative methods, particularly ethnography, provides an enlightening alternative or at least, a supplement to the more traditional quantitative methods (Weppner, 1977).

In 1976 the National Institute for Drug Abuse (NIDA) sponsored a two-day workshop for the purpose of examining how ethnographic methods might be utilized in drug/crime research. An outgrowth of this two-day workshop was an edited work by Robert S. Weppner entitled Street Ethnography (1977). Several pieces in this volume describe the problems ethnographers encounter in the field and the need for further ethnographic research (see James, 1977 and Weppner, 1977). Other works describe ethical considerations in field work (Soloway and Walters, 1977). In addition several studies are described such as Preble and Miller's (1977) study of addicts making use of methadone, cheap wine, and welfare maintain their high but minimize their time "hustling." James (1977) compared addicted and nonaddicted prostitutes in Seattle using qualitative methods including intensive interviewing and observation methods. In another study employing qualitative methods, Feldman (1977) provided a social history of a community of Italian-Americans that showed progression from the use of one drug to another is a complex interaction between the availability of the drug and the status a particular drug has within the social structure. The status of the drug is determined by the legal proscription to the drug and the public response to its use.

c. Longitudinal Design. The ideal strategy (barring considerations of budget, time, staffing, and other such resources) for answering the basic causal and developmental questions about the relationships between criminal behavior and drug use is through a longitudinal (prospective) research design. The longitudinal design, while a superior approach for ferreting out information on developmental issues and temporal sequencing of behavioral patterns, is difficult to execute properly and is highly expensive. Typical problems encountered in such a design lie with maintaining the sample intact over time. Various forms of attrition may jeopardize the representativeness of the sample (for example, those that drop out may share special characteristics of interest to the research). Following a cohort or panel for a period of 10 years, for

example, may also serve to sensitize the respondents to certain issues (such as drug use and criminal behavior) which in turn may result in altered behavior (that is, the respondents might have behaved differently had they not been included in the study -- the sensitizing impact of social research has never been adequately measured but some believe it can have significant effects on respondents or study participants). These and many other problems with longitudinal designs have been discussed in greater detail in the edited work by Kandel (1978).

Johnston et al. (1978) report a recent prospective longitudinal study, which unlike past studies, approaches the ideal for addressing the temporal sequencing patterns which are critical for understanding drug/crime relationships. Unfortunately, the study is limited by a low percentage of respondents who experimented with narcotic drugs. Johnston et al. conducted a nationwide longitudinal study of a panel of young men in high school. The final cross-time sample of 1,260 young men were interviewed at five points in time, the first being the beginning of 10th grade and the remaining four interviews being conducted over a period of eight years. Based on these data, the authors concluded about the relationships between delinquency and drug use: "By tracing the delinquency rates of the eventual drug-user groups back in time, we were able to show that the preponderance of the delinquency differences among the nonusers and various eventual drug-user groups existed before drug usage even began and thus could hardly be attributed to drug use" Johnston et al., 1978:155).

The expense and difficulties in carrying out a prospective longitudinal study has led several researchers to seek alternative approaches. Nurco (1979) and Nurco and DuPont (1977) used a retrospective longitudinal design with a communitywide population of addicts in an attempt to determine changes in criminality and drug use over the course of their lives. Similarly, McGlothlin et al., (1978) interviewed 690 male admissions to the California Civil Addict Program employing a retrospective longitudinal design to determine whether crime covaries with drug use. The authors concluded, "with few exceptions, the percent of time involved in criminal behavior, the number of property crimes reported, and the total income from crime decreases in a consistent manner as a function of decreasing narcotic use" (McGlothlin et al., 1978:305). In addition to these studies, Petersilia et al., (1978) used a similar design in a study of 49 criminal careers of habitual felons.

### III. PATTERNS OF DRUG USE AND CRIMINAL BEHAVIOR

In an effort to understand the etiology and process of addiction researchers have attempted to describe the demographic characteristics and the cultural milieu of addicts. By fully understanding who addicts are and where they are likely to come from, it is believed we can prevent future addictions by targeting preventive programs at high risk populations. Our knowledge of addicts to date stems from information gained from those addicts admitted to treatment programs or among prison populations. How do we know how close these populations resemble the total nationwide addict population? The answer is we simply do not know. Not only is it impossible to estimate the number of addicts that go undetected, let alone determine their characteristics, but the medical and criminal justice data systems, from which our knowledge of addiction depends, have not systematically collected data on addicts that come under their scrutiny. Consequently, our knowledge of drug addicts, although improving in recent years, is dependent upon numerous fragmentary sources.

Early studies found addicts come from poor socioeconomic backgrounds, with little education, and an unhealthy environment in which they developed. Several recent studies have supported these findings. Nurco and Farrell (1975) identified addicts through the Maryland Narcotics Register who were indigent. Indigence was defined as persons receiving medical assistance or public assistance (past and present) or residing in public housing or low income area. Nurco and Farrell found 82 to 85 percent of the narcotic addicts in Baltimore were indigent. Stephens and McBride (1976) interviewed 50 black addicts at Lexington Hospital and found most came from neighborhoods that would be characterized as black slums. However, Platt et al., (1976) comparing addict and nonaddict youthful offenders admitted to a youth center in New Jersey, found heroin addicts to be older, better educated, have achieved more as a result of their education, and have a higher intelligence level than nonaddicts in the same offender population. No comparisons were made with nonaddict, non-offender groups.

Several recent studies also examined addicts for psychological disturbance. Foggitt et al., (1976) conducted a study of 74 delinquents in an English borstal. The boys were classified as either non-drug users, casual drug users, or heavy drug users. It was found that the casual drug users were the most free from psychiatric disturbances, whereas the heavy drug users were more disturbed than the non-drug users. Gossop and Kristjansson (1977) investigated the personality differences of convicted and nonconvicted male drug-dependent patients based on Eysenck's three-factor Personality Questionnaire. Those subjects convicted of non-drug related offenses scored higher on the extroversion scale than subjects not convicted of these offenses. Gossop and Roy (1977) administered a questionnaire designed to measure aggression and hostility to 40 patients in a drug clinic. The authors found convicted addicts had the highest hostility scores and those addicts who used heroin intravenously had even higher scores.

Most studies over the last several years have examined the criminal behavior of drug users rather than focusing on psychological or demographic characteristics. This research, focusing particularly on addicts, has attempted to determine whether addict crime is specialized or comprised of certain activities that can be considered patterns rather than random criminal acts. Once an individual begins to use drugs regularly, what types of crime is he likely to engage in? Are there differential crime patterns depending on the predominant drug of choice? These are the questions that will be reviewed in this section. First, several points about this research will be discussed and, again, several caveats will be reviewed.

Some researchers have attempted to determine whether there is a relationship between various types of crime and the pharmacological effect of a specific drug. Most research, however, is not quite so ambitious. Research on criminal behavior patterns usually show only an association between the use of a particular type of drug and criminal offense, for it is an extremely difficult position to defend that a specific drug compelled certain behavior.

Another point we would like to make concerns several methodological issues. First, most of the research discussed below, with the exception of the ethnographic research, utilizes populations of drug users that

have been identified by the authorities and they may not portray a representative picture of addict criminality. In fact, these addicts may be the most dysfunctional of all addicts (Rittenhouse, 1978). Secondly, most of these studies do not take polydrug use into account, thereby, making it difficult to determine whether crimes are related to an identified drug, some other, unidentified drug, or a combination of several drugs. Thirdly, many studies fail to distinguish between drug law violations and non-drug violations when analyzing addict crime. By definition, addicts are criminals. Since the possession of narcotics is a crime, and addicts must possess narcotics in order to be addicts, they are, ipso facto, criminals. Most people are not concerned with possession or even the sale of drugs, but are primarily concerned with the impact of drug addiction on crimes of robbery, burglary, larceny, assault, and other street crimes. A brief review of several recent studies of the criminal behavior of addicts follows.

A study of arrestees was conducted by Kozel and DuPont in Washington, D.C. Since 1971, the D.C. Superior Court, in cooperation with the D.C. Narcotics Treatment Administration, has maintained a urinalysis testing unit to monitor drug abuse patterns among arrestees. Kozel and DuPont (1977) analyzed urinalysis and interview data on over 44,223 consecutive admissions to the Superior Court from 1971 to 1975. Those individuals that were processed through the Testing Unit represent virtually all of the arrestees in the Capital District.\*

Urinalysis data were available for 84.5 percent (N=37,379) of the subjects analyzed. Based on the urinalysis data, the investigators found 24.4 percent or over 9,000 admissions had drug positive urines. Of these, 65.6 percent tested positive for heroin, 27.8 percent tested positive for illegal methadone, and 7 percent for legal methadone.\*\* In order to analyze the relationships between drug positives and arrests, offenses were separated into the FBI Uniform Crime Report Part I and

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\* Actually, these individuals represent 90 percent of the total lock-up admissions. Excluded from testing are those individuals charged with traffic law violations and persons over age 35 who were not charged with narcotic law violations.

\*\* Throughout this report, mention will be made of the Kozel and DuPont study. Careful readers will note that the total percentage of drug types found among these arrestees is greater than 100 percent. This figure is obtained because of the presence of multiple drugs.

Part II offense classifications. Part I offenses were further divided into violent crimes (murder, rape, aggravated assault), property crimes (robbery, burglary, and larceny/theft), and motor vehicle theft. Part II offenses were divided into crimes of acquisition, narcotics violations, and other crimes. Approximately 42 percent of the arrests for the heroin-using arrestees were income generating crimes while only 7 percent were charged with violent crimes. Compared to drug-negative admissions, drug positive (all-drugs) admissions committed fewer violent crimes. Among heroin-using arrestees, as stated, only 7 percent were charged with violent offenses compared to 17 percent of the nonusers charged with violent offenses. The authors are quick to point out, however, that while those that tested positive for heroin are more likely to be arrested for income-generating crimes or narcotics law violations, 9.7 percent of all homicides, 7.6 percent of aggravated assaults and 15 percent of all robberies were committed by those that tested positive for heroin. Thus, the authors conclude, "... while identified drug users do, in fact, commit violent crimes, they commit them at a significantly lower frequency than those not identified as drug users at admission to lock-up" (Kozel and DuPont, 1977:18). Indeed, this appears to be one of the most significant findings of recent research. Stephens and Ellis (1975) examined 4 cohorts of male addicts registered with the New York State Narcotics Control Commission and found property and drug offenses are crimes committed most often by addicts but person-to-person crimes are on the rise.

One of the major criticisms of this research is that most of the past drug/crime research has not involved the use of random samples or even close approximations. A great deal of the drug/crime research to date has been conducted on captive populations; those populations or samples were drawn from treatment or correctional facilities. These captive populations may represent the most dysfunctional of all drug users, those most likely to be detected by official agencies. The captive sample characteristics therefore probably do not correspond to the characteristics of the unknown population of drug users. The samples drawn from captive addict populations may be representative of addicts in specific treatment or correctional programs, but may not be characteristically similar to other undetected addicts or, for example, addicts



from different regions of the country. Samples taken from these populations make wider generalization or application of research results problematic. How well these captive populations represent the total addict population is unknown.

One major problem with using captive populations, particularly jail or prison populations, is that the probability of arrest for these subjects may be substantially different than other undetected drug users. Therefore, arrest histories of these unrepresentative subjects may significantly over or underestimate drug/crime relationships. For example, the crimes addicts are most often associated with crimes of robbery, burglary, larceny-theft, and motor vehicle theft, also have the lowest clearance rates of all index offenses (Federal Bureau of Investigation, 1977). Therefore, addicts may be disproportionately represented among prison populations due to the types of crimes they commit. Petersilia et al., (1978) in their research on the criminal careers of habitual felons report, however, that involvement with drugs or alcohol does not "decisively affect the likelihood of arrest, conviction, and incarceration" (Petersilia et al., 1978: 85). However, more research needs to be done to determine whether differential arrest probabilities exist and if so, how do they affect our understanding of drug/crime relationships.

One study conducted by Nurco and DuPont (1977) attempted to overcome the problem of representativeness, whereas, most studies neglect the problem entirely. The authors used a sample of addicts identified by police in Baltimore over a 20 year period. Although, this sample population is possibly more representative than populations taken from individual treatment programs or correctional facilities and is, in fact, called a community-wide sample, Nurco's sample is still drawn from a list of known or detected narcotics users.

A recent study conducted by Inciardi (1979), although not using representative samples, overcomes many of the problems with using captive populations. Using a sociometrically oriented model or "snowballing" technique to obtain his sample, Inciardi interviewed 356 active addicts from the "free community" in Miami. In other words, these addicts were not affiliated with any treatment center nor were they in jail. They were active addicts residing in the community. Data were gathered on

addicts drug use patterns, criminal histories, drug use support patterns, and current criminal activity. Based on these data, Inciardi found addicts were involved in substantial amounts of crime, most of which are often described as "victimless crimes" such as prostitution, drug sales, gambling, and alcohol offenses. The 239 male heroin users reported the commission of 80,644 incidents of crime averaging 337 offenses per addict, most of which were committed to support the drug habit. Despite the majority of offenses being of the minor variety, numerous crimes committed by these addicts are considered serious crimes. Self-reports by the male addicts in this sample revealed 3,500 incidents of serious crime such as robbery and assault. But these crimes, although high in absolute numbers, represent only 4.3 percent of the total crimes committed by these addicts.

Comparing the self-reported crimes of these addicts with the number of arrests actually made for crimes committed, Inciardi found the probability of arrest for these subjects to be extremely low. Considering all crime categories, Inciardi found there was one arrest for every 427 crimes committed.

Other recent studies have focused on the criminal behavior of female addicts (James, 1977, James et al., 1976, 1979, and Weissman and File, 1976). It has been noted that the rate of increase of crimes committed in the past 12 years has been twice as rapid for women as for men; and is even greater for female juveniles (James et al., 1979). In their study of 268 female offenders James et al., (1979) examined both addict support systems and nonaddict support systems. In their view there is not sufficient evidence to associate specific drug categories to specific types of crime. Instead, they maintain, "the main determinants in choice of crime for these subjects were skill and opportunity" (James et al., 1979). According to another study by James (1976) entitled "Prostitution and Addiction," there is no conclusive evidence to show that either prostitution or addiction is likely to occur first. Rather, each activity represents a separate style of life with its own subcultural norms; a woman may enter into each area for different reasons.

James states:

The addict in need of economic support will quickly turn to prostitution as the most available source of fast money.

(1976:616)

She further notes that, prostitutes especially older ones, are not likely to become addicts. They consider themselves "professionals" and look down on addicts.

In the study by James et al., (1979) the statement is made, "Whichever the choice of support (drug sales or prostitution), the criminally involved female addict appears to be more successful than her male counterpart" (James et al., 1979:217). This study used the following four-fold typology: (1) Addict; (2) Addict-prostitute; (3) Prostitute; and (4) Female Offender. In regard to the importance of various activities in their illegal support systems, they found the following applies to their adult sample:

Predictably, prostitutes and addict-prostitutes depended primarily on prostitution. Nonprostitute addicts depended heavily on drug sales as their major illegal support, the next most important sources being shoplifting and larceny. Female offenders used a wide range of sources of illegal support including drug sales, shoplifting and forgery. (James et al., 1979:223)

By comparing juvenile and adult samples they conclude that a women's juvenile drug and criminal experience do not account for the type of drug use, type of support system or lifestyle engaged in. Moreover, they find, "the type of crime committed seems to be determined more by opportunity and skill than by the specific drug used" (1979:227). In addition the speed of cash return is seen as crucial, explaining the popularity of drug sales and prostitution followed by shoplifting and larceny. James et al., (1979) conclude that women, like men involved in criminal activities, use a particular support system and continue to use it whether or not drug use is involved:

Like male offenders, female offenders gravitate to those activities which are easily available, provide a satisfactory return, are within their skills and opportunities, and carry the lowest risk of arrest. Drug use becomes involved in their lifestyle and is supported by it; however, drug use does not dictate specific criminal activities beyond the obvious need for a reliable cash income.

This brings us to the issue of causality between criminal behavior and drug use. Although there is not a great deal in the literature on women's addiction which addresses this subject there does not seem to be any evidence that addiction causes an involvement in criminal behavior, beyond the need for money to purchase drugs (James et al., 1979).

In a replication of an earlier study conducted by File et al., (1974) in Philadelphia, Weissman and File (1976) interviewed 153 female offenders in Denver and 227 female offenders in Philadelphia to determine criminal behavior patterns of these women. Based on this research a four-fold typology of women offenders was developed: (1) Prostitute/Criminal; (2) Prostitute; (3) Criminal, and (4) "Bag Follower" (not arrested for either prostitution or serious crimes). The authors also concluded that prostitution was not necessarily the choice of crime by female addicts.

In regard to the criminal behavior of addicts there have been no recent studies that repute the earlier conclusion reached by Gandossy et al.:

Based on a selective review of the research on the criminal behavior patterns of addicts, using a wide variety of research methods and sample populations, it is difficult to avoid concluding that addicts engage in substantial amounts of income-generating crimes. This is true whether we are analyzing the charges against drug using arrestees, convictions of addicts in prison, arrest records of treatment populations, or the observations of street addicts. It should be clear, however, that although addicts commit fewer violent crimes than non-addict offenders, they are involved in and will commit violent offenses. Some researchers have also noted that contemporary addicts are much more likely to commit crimes of violence than addicts of previous periods (Stephens and Ellis, 1975). In addition, we must realize that burglary, a crime often committed by addicts, often involves substantial risks of violence if the addict-burglar is confronted by the victim. So, although there is some basis for the image of the stereotypic, passive, addict we should not lose sight of the fact that they will resort to violence if there is an opportunity for financial gain. (Gandossy et al., 1979:49)

We now turn to a brief review of the relationship between other drugs and crime.

Few recent studies have focused on drugs other than heroin. There have been several studies, however, that focus on amphetamines, cocaine, and marijuana. The evidence linking the use of amphetamines with criminal behavior has been contradictory largely because of the diverse populations which use the drug. Greenberg's review of the literature on amphetamine abuse and crime (1976) found two major populations of amphetamine users that may become criminally involved. One group of users has had substantial criminal involvement prior to amphetamine use. The second group

consists of mostly white, middle-class college students. The diversity in these user groups accounts for some of the discrepancies in the research findings in regard to criminality of these users. Greenberg (1976) stated that the paucity of data does not permit any definitive statements as to the types of crime amphetamine users are most likely to commit.

To date, there is a paucity of data relating cocaine use to crime. However, recent figures show more and more young people have tried cocaine than in the past and a relationship between cocaine and crime may yet be established. A recent survey in New York State found 14.5 percent of the seventh to twelfth graders surveyed experimenting with cocaine as opposed to 2.7 percent who have tried heroin (Churcher, 1978). Furthermore, reports in the popular literature have indicated increased violence among cocaine dealers and users (Schorr, 1978).

In a study of 248 male adolescents being held by the California Youth Authority, Tinklenberg et al., (1976) found marijuana users were under-represented among those with various behavioral problems. Marijuana was generally perceived as reducing aggressiveness whereas drugs such as alcohol increased or had little effect on assaultive behavior. Grupp and Bridges (1975) examined the criminal records of adult marijuana offenders in Illinois and found 54 percent had no prior record. Of those with prior records 78 percent had only "minor" records.

#### IV. LIFE CYCLES

Life cycle issues are concerned with the changes in an individual's behavior patterns over time. The age at initial drug use and the process of drug use onset, the relationship between drug use and criminality, and the process of maturing out of addiction and crime are all of concern here. The notion of career is a useful conception for analyzing criminal behavior and drug use patterns over time. The concept of career refers to the transition from one position to another within an occupational framework by an individual that works within that framework. Closely allied to the concept of career is the notion of "career contingencies." Career contingencies refers to those structured or personal factors on which "mobility from one position to another depends" (Becker, 1963:24). Clearly, since we are interested in the stages of addiction and the factors which affect an individual's movement from one stage to the next, the concept of career can be used. Within the total universe of drug users a number of different career patterns can emerge. A more detailed discussion of the complexities of the life cycle issues is provided in the more comprehensive literature discussed earlier (Gandossy et al., 1979). Here, we will only review those recent studies that describe pre- and post-addiction criminality.

Regardless of an individual's preaddiction criminality, numerous studies report addicts become increasingly involved in crime, particularly income-generating crimes, after addiction onset. While this may be so, few studies examine changes in criminality while controlling for age. For some time, criminologists have believed criminal behavior becomes more serious, specialized, and more frequent with age. Most of the research on criminal careers reports the frequency of criminal offenses increases with age up to a certain age, then levels off. No study in the drug/crime area, thus far, has been adequately designed to address this issue. Additionally, few studies examine changes in criminality in relation to changes in the amount and frequency of drug use. If drug use and crime are related, one might expect that changes in one would effect changes in the other. Furthermore, few studies distinguish crimes involving drug law violations from other offenses. We now turn to those studies that compare preaddiction criminality with postaddiction criminality.

In their review of the literature on drug use and crime between 1920 and 1974, Greenberg and Adler (1974) found an apparent change in the sequence of the relationship of drug use and criminality over the years. In the 1920's and 1930's addicts tended not to have criminal records prior to addiction. In contrast, today's addict is more likely to have a criminal record before addiction onset. Stephens and Ellis (1975) found 37 percent of addicts in their sample were arrested prior to addiction and arrests particularly for drug and property offenses increase after addiction. Inciardi (1979) in his study of 356 addicts in Miami found most subjects were criminally involved prior to first heroin use but not first alcohol use.

An important study on life cycles of addicts conducted by McGlothlin et al., (1978) revealed 80 percent of the subjects interviewed were arrested prior to addiction.\* A sample of 690 admissions of the California Addict Program was drawn from two admissions periods, 1962-64 and 1970. Using both interviews with subjects and official records, the authors reconstructed the careers of these subjects. Pre- and post-addiction periods were compared to determine differences in criminality in the two periods. "During the addiction career," state the authors, "both arrests for property crimes and self-reported criminality are much higher for periods of addiction than for periods of less-than-daily-use." A community wide study of narcotics addicts revealed black addicts committed more crimes and more serious crimes both before and after addiction (Nurco and DuPont, 1977). However, the authors revealed, "there was little, if any, involvement with serious crimes before narcotic use. After addiction, however, the involvement generally increased for both ethnic groups" (Nurco and DuPont, 1977:115).

Stephens and McBride (1976) interviewed 50 black addicts from Lexington and found 60 percent had been involved in crime before onset but 96 percent had been involved after onset. Weissman et al., (1976) interviewed 200 addicts in the Denver City Jail and found addiction had a dramatic affect on an individual's criminal behavior. Property crimes as well as assaults increased in the post onset period. The authors report those subjects in the 13-17 age group had the most dramatic post onset arrest rates.

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\* This percentage seems particularly high due to the type of sample selected. Addicts sentenced to the California Civil Addict Program usually have extensive and serious criminal records.

These studies are useful in indicating gross changes in criminality between two major periods, pre- and post-addiction. However, more information is needed to determine the variation in criminality with fluctuations in drug use. For example, to answer the question, does criminality decrease when drug use decreases? In his retrospective study of addicts in the California Civil Addict Program, McGlothlin et al., (1978) found, "with few exceptions, the percent of time involved in criminal behavior, the number of property crimes reported, and the total increase from crime decreases in a consistent manner as a function of decreasing narcotics use" (McGlothlin et al., 1978). McGlothlin aptly notes that both these behaviors may be responding to a third variable. The explanation for this decrease may not be that these two behaviors are related. "However, this possibility becomes largely academic," according to McGlothlin, "in those instances where one behavior logically requires the other. When the individual spends large amounts of money for heroin, does not deal, and has no source of legitimate income, then criminality is a necessary condition for addiction to exist" (McGlothlin et al., 1978:14).

Nurco (1976) interviewed 252 addicts known to the Baltimore City Police Department between the years of 1952 and 1971. Records and interview data were analyzed by Nurco to determine differences in criminality prior to and after addiction onset as well as periods on and off narcotics. Nurco analyzed differences between blacks and whites as well as differences in early drug users (began using narcotics before age 19) and late drug users (began using narcotics after age 19).

There was an increase in criminality for black late starters between the pre- and post-narcotics use stage but there was little change in the white addicts' criminality. The same trend appears for early starters but the unreliability of juvenile records probably underestimates criminality in younger years. For the "on" narcotics periods, Nurco found both races were more likely to be arrested for crimes, particularly property crimes, than during the "off" periods.\*

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\* These "off" periods are likely to be considerably affected by periods of incarceration in which the individual is incapable of committing crimes. At the time this paper was written, Nurco had not satisfactorily adjusted jail time to use in his computations.



## V. ECONOMIC ISSUES

Ever since the passage of the Harrison Act in 1914 estimates of the societal costs resulting from drug abuse have been high. The total economic cost of drug abuse was estimated at 10.3 billion dollars for 1975. Of this total, about 3.3 billion dollars was associated with law enforcement, drug traffic control, the judicial system, corrections, and the value of addicts' time in nondrug-related crimes in order to finance their drug habits. In addition to these costs, it has been estimated that 30 percent of all property crime can be attributed to addicts financing their habits. The Uniform Crime Reports reported almost 3 billion dollars worth of property was stolen in 1975. If addiction accounts for 30 percent of that figure, addict property crimes accounted for over 900 million dollars worth of reported property crimes (Rufener et al., 1976).

Other economic studies have attributed anywhere from 1.1 billion to 6.3 billion dollars of property crimes to finance addiction each year (Gillespie, 1978). These estimates are usually arrived at by multiplying the assessed number of heroin addicts in the nation by the approximate daily cost of a heroin habit. This figure, according to some, provides an approximation of the total dollars worth of property crime (adjusted for a fencing discount) needed to support addict habits.

A strawman expressing the drug/crime relationship has received a great deal of attention: many known drug users have records of income-generating as well as drug-related crime; many criminals have also been found to have used a number of drugs; addiction is expensive; the conclusion is reached that because a great deal of crime is committed by drug abusers, a great deal of crime is attributable to the need of those drug abusers to maintain their expensive habit.

There is an overwhelming conviction that heroin addicts are responsible for much of the property crime in the U.S. Property crime committed by addicts has been estimated to be anywhere from 25 to 50 percent of all property offenses (Baridon, 1975). However, much of this research is subject to speculation and without employing proper techniques these

calculations are nothing more than guesswork. In any case, several studies have estimated the economic costs of drug abuse to be quite high (Gillespie, 1978; Rufener et al., 1976). This unilateral transfer of society's resources is perhaps the greatest single reason heroin addiction has received so much attention from law enforcement.

The objective of economic research has been to test these estimates for accuracy. Is the value of addict property crime closer to \$6 billion or \$1 billion? Are both of these too high? Would the heroin addicts commit property crime even if they weren't addicted? If so, how much? These are some of the relevant questions of this field of research.

Economic analyses of drug/crime relationships have been primarily concerned with two facets of consumer behavior: consumer demand and the supply of labor. Consumer demand focuses on the demand for drugs as part of the entire consumption possibilities. These consumption patterns for addicts are influenced and mediated by a number of factors such as cost of other necessities, the price of heroin, drug substitution patterns, law enforcement practices, and the accessibility and ease of drug purchases.

The second element of the drug/crime relationship is the supply of labor by a drug abuser, and how he uses his available time to generate income. Income constitutes the long term constraint on total consumption, saving and dissaving being possible in the short run to allow consumption to exceed income. If income can be increased, then consumption possibilities increase. When income falls, so do consumption possibilities. Sources of income include employment, crime, welfare, friends, and family. Income can be obtained from any and all of these sources at one time.

A rigorous examination of the drug/crime relationship will have to simultaneously study the demand for drugs and the supply of labor. These facets of economic behavior influence each other immediately and intimately. It is too simple to assume that the demand for drugs determine the supply of labor for crime, just as it is simplistic to assume that consumers will adjust their consumption to a steady level of income. Consumption is always influenced by income and the supply of labor (generating income) is always influenced by the demand for goods. An appropriate drug/crime synthesis would recognize these interactions (for

further discussion of the above points see Goldman, 1976b; Silverman 1976).

The purpose of this section is to explore some of those issues described above. In order to do so we have organized this section the following way. First, a review of the major elements of the demand for heroin will be discussed. This includes the price of heroin and the extent of the habit, drug substitution patterns, the probability of arrest, and the amount of time and effort devoted to procuring heroin. Second, we provide a brief discussion of the supply of labor by drug abusers. The third section will provide a review of the major econometric drug/crime studies. Finally, a brief discussion regarding social policy based on the economic concepts of supply and demand.

#### A. Demand for Heroin

The "opportunity cost" of heroin consumption is the primary determinant of the demand for drugs. The opportunity cost includes any goods and services that must be sacrificed in order to obtain and consume the drug. This includes the market "street" price of the drug, the time it takes to obtain the drug and consume it as well as an allowance for the potential of arrest, conviction and incarceration (legal sanctions imposed for possession, sale, and/or use).

Any cost, real or potential, of using drugs must be considered part of the opportunity cost. The rational consumer will weigh his consumption possibilities, the price of goods and services, and risks involved in consumption (if the good is illicit or dangerous) and make a decision about consumption. There is no reason to believe that heroin users view their demand for heroin in any other way.

##### 1. Price of Heroin

The nature of the demand for drugs is the primary reason that the drug/crime hypothesis has credibility. Drugs, opiates in particular, have addictive properties. The economic implication of addiction is that drug addicts are highly motivated to maintain a constant level of consumption of the drug, and will be responsive to increases in the price of heroin. There are, however, several factors that mediate this demand and are worthy of further review.

First of all, not all heroin abusers are addicted. Contrary to what most people may believe, many heroin users are only occasional users, referred to as "chippers." They tend to use heroin on weekends, at parties, or special occasions and are able to regulate their intake of heroin much the same way social drinkers can regulate their intake of alcohol (Silberman, 1978).

Most heroin abusers probably have episodic patterns of use. O'Donnell et al., (1976) found that for the 20-30 year old men in a nationwide survey who had ever used heroin, 32 percent had used heroin "almost everyday" at their period of highest consumption; fifty-six percent had used it less than once a month. This 32 percent advancing to "almost daily" use would not normally be considered addicted (see also Robins, 1973 and Silberman, 1978).

Research conducted by Zinberg (1979) has also focused on nonaddictive opiate use. He reports on patterns of drug use by 90 individuals with controlled patterns of opiate use. These subjects have used opiates at least 10 times a year for 2 years with no more than one "spree" (intensive, compulsive use of short duration). He found these subjects exhibited stable patterns of drug use and lifestyles. Based on this research, Zinberg concluded that there appears to be a number of drug abusers that are marginal users. These users tread a thin line between controlled and compulsive use. Other studies have reached similar conclusions.

Recent research by Abt Associates (1975) and Hunt and Chambers (1976) estimate that from 1.39 to 2 percent, respectively, of their samples have used heroin. Extrapolating these figures to obtain a national estimate of persons who ever used heroin it is estimated that 2.5 to 4 million persons have used heroin. Of these, the authors estimate only 10 percent were addicted.

Mark Moore (1977) studied the heroin market in New York City. Based on his analysis, a typology of heroin use was developed. Use of two bags of daily use constituted a "small" habit. Over six bags of heroin a day was considered a "large" habit. There is a considerable difference both quantitatively and qualitatively in these drug use patterns. Moore estimated 30 percent of the addicts had small habits, 40 percent moderate habits, and 30 percent large habits. While there

may be a number of addicts whose habits may not be affected by heroin price changes, and, in fact, if price rises too high their habits might decrease, there also appears to be a substantial number of addicts with extensive drug habits.

The consumption patterns of these addicts are likely to be more sensitive to changes in the price of heroin. Their patterns of use are more occasional or episodic. They rely on ready availability of the drug, or convenience in making the buy. Besides price, these users are likely to be responsive to other elements of the opportunity cost of heroin. Because these users have no physiological dependence on the drug, their level of use can vary widely to suit their income and convenience. If addiction does indeed indicate that an individual's use of heroin is unresponsive to heroin price changes, it may be important for policy purposes to understand the advancement to addiction from first use or first continuing use of heroin.

Inciardi (1979) in an ethnographic study of drug abusers in Miami, Florida, has collected data on the pattern of his sample's drug use. For males, on the average (median) first drug abuse precedes first heroin abuse by 3.5 years, and first heroin abuse precedes first continuous heroin use by six months. This indicates that for this sample, heroin use was relatively late in the pattern of drug abuse. There was at least a six month period between first use and continuous use, and then an undetermined period of time before addiction could be established.

This type of evidence is important to the study of the price responsiveness of the demand for heroin. Indications are that there is a large body of users who are not addicts. There are many addicts with relatively small habits and there is some finite period within which a heroin abuser can be discouraged from advancing to continuous use and from there to addiction.

## 2. Drug Substitution Patterns

A major factor affecting the demand for heroin is the availability, quality, and price of drug substitutes. Based on consumer demand theory, the better the quality and availability of heroin substitutes, and the lower the price of these substitutes, the more elastic the demand for heroin. Elasticity means that a user's consumption of

heroin is more responsive to changes in the price of heroin. If heroin prices go up beyond a users means, he is likely to decrease his consumption of the drug. There appear to be a number of substitution patterns for heroin.

Drug substitution patterns include methadone (legal and illegal), and such drugs as talwin, dilaudid, darvon, and alcohol. One of the major thrusts of public policy has been to reduce demand for heroin by providing legal substitutes. The methadone maintenance and withdrawal programs are designed to provide legal substitutes for heroin. The programs are designed to provide long-term alternatives to heroin abuse, by enrolling clients in continuing treatment programs. Ideally, methadone treatment not only substitutes for heroin abuse, it blocks the demand for it as well by reducing the "high" and the withdrawal symptoms as well (see also section VI on Treatment Effects).

However, as we will see in section VI, Preble and Miller (1977) have noted several unanticipated consequences of methadone maintenance. The active lifestyle of addicts, described in an earlier study by Preble and Casey (1969), had given way to a more passive life of methadone maintenance supplemented by extensive use of alcohol, financed by welfare, panhandling or some work. Other addicts become involved in the sale of part of the methadone dosage and purchased hypnotics or tranquilizers (pills). Another pattern observed by Preble and Miller (1977) involves methadone, wine and pills, and some cocaine or heroin. These mixed patterns included over 80 percent of the drug abusers in the area studied. Small groups used only heroin (16 percent) or methadone only (4 percent).

Other researchers have also found indications that methadone is being used illegally. Stoloff, Levine, and Spruill (1975) report that as much as 30 percent of urinalysis of methadone treatment clients were methadone clean. These clients were believed to be diverting methadone to the illegal methadone street market. This study also showed about 16 percent of urinalysis of methadone clients to be heroin dirty, and 24 percent to be quinine dirty (a heroin diluent).

The extent of methadone substitution is an important question for the estimation of the elasticity of demand for heroin. The more readily available methadone is, in treatment or illegal markets, the more elastic

the demand will be for heroin, and the more responsive heroin abuser's consumption of heroin to changes in its price.

### 3. Law Enforcement Deterrence

Arrest and conviction are possible consequences of a drug/crime lifestyle. This should be considered a deterrent to crime and drug activity if the consequences are great enough. According to the literature, the probability of arrest and conviction for a drug user is quite low and the deterrent effect minimal.

Inciardi (1979) reports on the ratio of offenses to arrests for his ethnographic study of addicts in Miami, Florida. Ignoring simple drug use, drug sales were reported to result in one arrest for every 450 sales. For males, property crime lead to one arrest for every 273 offenses, forgery/counterfeiting to one arrest for every 285 offenses, and for all types of crime, one arrest for every 427 crimes.

Silverman, Spruill, and Levine (1975) estimated the clearance rate for reported property crime in Detroit to be about 12 percent from 1970 to 1973. But this misses a substantial number of unreported crimes, which may be as much as three times the number reported, thereby lowering the clearance rate to 4 to 5 percent. This is one arrest for every 20 to 25 crimes, much higher than Inciardi's reported above, but still quite low.

The low probability of arrest for property crime or for drug sales may not encourage many people to begin using drugs and/or commit crime, but it is also unlikely to discourage drug abusers from their drug use or criminal behavior. Theoretically, deterrence has a role in affecting criminal behavior, if the criminal behavior is rational enough to balance risks. That the probability of arrest for drug offenses or property crime is so low argues that the deterrence effect is presently inoperative.

Besides the probability of arrest, the severity of the expected penalty has been hypothesized to lead to reduced drug demand. A much publicized change in the New York State drug laws increased the sentences for drug related offenses in 1973. Winick (1975) examined the effect of the change in drug laws. The statistics indicate no immediately evident changes: property crimes actually increased about 3.5 percent from 1973 to 1974; college students reported no changes in consumption before and

after the law; heroin users had no additional problems in obtaining their drug of choice; and heroin pushers reported business as usual after an initial period of increased caution. Official statistics show increases in the percent of drug cases coming to trial (from 7 to 17 percent); about the same percent of convictions as before (70 percent) and generally more severe charges brought, though about the same number of drug charges, Weisman (1975) also notes that predicted effects of the stiffer drug laws did not come to pass in New York.

#### 4. Time Spent Copping Drugs

A final cost of heroin use considered here is the time involved in heroin copping and use. The more time it requires to cop (acquire) and use drugs the greater the cost to the user in terms of time taken from other activities. This may be broken down into two separate components: information about the market for heroin, and the intensity of use.

The time involved in copping is considered a significant policy avenue by Moore (1977). Moore's research of the New York City heroin market suggests to him that new users are very sensitive to the convenience of a supply of heroin. He reports that it may take an experienced user as much as 3 to 4 hours to cop daily. This is much greater for new users. New users don't have established connections to purchase heroin: they don't know of copping areas, or dealers. Lacking ready information on the availability of heroin, new users are easily discouraged from investigating the heroin market and locating new sources. The "effective" price of heroin is therefore greater for new, inexperienced users. They would need to invest some time in "market" research in order to maintain a supply of heroin.

This effect can be achieved by law enforcement officers acting to disrupt local markets. By some program of surveillance and interruption of copping areas and suspected dealers the authorities could make dealers wary of unfamiliar customers, and restrict their activities to selling to the "safe" market, possibly reducing the number of new users and eventual addicts.

In sum, there are many factors that influence and mediate an individual's demand for heroin. The price is likely to affect the consumption patterns of infrequent users. Compulsive users are likely to maintain



the size of their habit while increasing their expenditures on drugs. The resources needed for their increased expenditures are likely to come from family, friends, welfare, increased theft, or, if they deal in drugs, increased drug prices to other consumers. An individual's drug substitution patterns are also likely to effect his need for heroin. And, finally, the deterrent effect of law enforcement practices may have the potential to minimize the number of heroin users by increasing the probability of their arrest, but this effect, thus far, apparently has not been realized. We will now examine the other major facet of consumer behavior, the supply of labor.

B. Supply of Labor by Drug Abusers

Drug abusers must live within their budgets like any other "consumer". Their expenditures on drugs, essentials, and luxuries can be no greater than their income. Periods of excess consumption are possible by dis-saving, borrowing, or selling accumulated wealth, but this is not generally feasible for drug abusers, who generally have limited wealth and assets.

Income can be from many sources. It can be the result of time input into an income generating activity, or it can be obtained from an outside source. An addict's time can be put "productively" into employment, crime, drug sales, or household work. Outside sources of income include welfare, family and friends. These sources together total the value of real goods and services which can be commanded with income.

It has long been alleged that heroin use may be so intense that it interferes with a user holding a job and therefore addicts must finance their habit primarily through income-generating crimes. While addicts may engage in substantial amounts of income-generating crimes, it has not been established, convincingly, that heroin use per se interferes with employment. There is some evidence that shows addicts have substantial employment histories as well as criminal records during addiction periods.

Evidence indicating employment and the employability of addicts has been reviewed by Hubbard et al. (1977) (see also section IV on Life Cycles). The studies reviewed by Hubbard et al. showed that about 30 percent of heroin abusers seeking treatment were employed at admission. In studies of more general populations cited by Hubbard et al., up to 70 percent of those who had ever used heroin had employment. After correction for the poor age and educational characteristics of drug abusers

(unfavorable for employment) these employment rates are higher than the common wisdom would expect.

The evidence on the employment status of addicts can only be considered suggestive. Addicts can and do work. They work at full time jobs over extended periods of time while addicted (Caplovitz, 1976) as well intermittently. This should not be ignored as an important actual and potential source of addict income. Despite this evidence, however, given what is known about the educational level of addicts and indications of other forms of social pathology among addicts, we can only expect addicts to be employed in marginal jobs, if at all.

The ability of addicts to obtain funds from other sources has not been well documented. Moore (1977) describes the ethnographic work of Heather Ruth in New York City which sheds some light on this issue. Ruth found legitimate jobs only accounted for 6 percent of the income sources for her sample, welfare only 1 percent, and borrowing accounted for 6 percent. Now that we have briefly summarized these issues, we will review the few studies that have employed econometric modeling and hypothesis testing.

#### C. Econometric Drug/Crime Studies

There are three categories of economic literature on crime/drug relationships. The first can be considered theoretical and policy oriented. The drug abuse-crime field abounds with theories and policy implications, all based upon hypothesized behavior of drug abusers and criminals. The second category consists of descriptive studies, many of which have been noted throughout this review. Descriptive studies provide the socioeconomic and demographic characteristics of the population and analyze their degree of involvement with drugs and crime. The third category of studies is econometric model building and hypothesis testing efforts. This third class of research is the ultimate test of the first two and has been attempted in very few studies.

There have been very few studies related to the drug/crime problem which have used econometric models, estimating either multivariate regressions or simultaneous equations systems. The studies which have used these techniques all suffer from the same weakness: inadequate

data. Following on the heels of an early study conducted by Brown and Silverman (1974), Silverman and Spruill (1977) improved on the earlier study. They analyzed the impact of changes in the price of heroin on the crime rate in Detroit between November, 1970 and July 1973. Crime rates for income generating crime were collected for census tracts in the Detroit area and the crime rate in each tract was analyzed.

The study used multiple regression analysis in relating crime rates to a set of variables. The independent variables in the regression included the price of heroin, the average monthly temperature, a seasonal variable, a time trend, and a law enforcement variable. The specification of the regression allowed estimation of the elasticity of crime with respect to changes in the price of heroin and the price elasticity of demand for heroin. The estimation of this elasticity, disaggregation to the census tract level, and introduction of a law enforcement variable are the major improvements over the New York study. This model once again uses a price series for heroin which adjusts for the price and purity of heroin purchases by law enforcement officers in the estimation of retail heroin prices.

The authors concluded that changes in the price of heroin do affect the crime rate in Detroit. They estimate a .28 elasticity of crime with respect to changes in the price of heroin and a price elasticity of demand for heroin of .27. The authors note that this implies about 30 percent of income generating crime in Detroit was used to purchase heroin. The study indicated that improved law enforcement has some lagged effect on the crime rate. Changes in the price of heroin has effects of different strengths on the crime rates in different neighborhoods, having the largest impact on lower income neighborhoods.

A logical extension of the Silverman work was performed by Stoloff, Levine and Spruill (1975). Building on the earlier work, they tested more sophisticated hypotheses and used more powerful analytical techniques. The subject of this study was the crime rate in Wayne County, Michigan. Hypothesized determinants of the rate of income generating crime were the price and purity of heroin, enrollment in treatment, offense clearance rate, the rate of unemployment, average temperature, a seasonal adjustment, and a time trend.

This study tests the effect of public policy strategies on the demand for heroin and crime rates. The authors test the hypothesis that enrollment in treatment (as a measure of the reduction of demand for heroin) results in a lessening of income-generating crime by lowering the drug abuser's demand for heroin. They found that increased treatment enrollment was associated with a reduction in crime. A 10 percent increase in the former generated a 2.1 percent reduction in the latter. The second public policy variable was an offense clearance rate, which is a supply reduction variable. A significant reduction in crime was correlated with a lagged increase of offense clearances. As in the three prior studies by the Public Research Institute (Brown and Silverman, 1974; Silverman and Spruill, 1977; and Stoloff, Levine, and Spruill, 1975), the retail price of heroin, temperature, seasonal adjustment and time trend had significant impacts on the crime rate. The unemployment rate was not a significant factor in determining crime rates.

This study found, as had previous studies, that an increase in the price of heroin was related to an increase in the income generating crime rate, with an elasticity of .11; a 10 percent increase in the price of heroin was associated with a 1.1 percent increase in the crime rate. This elasticity is significantly below those found by Brown and Silverman (1974) and Silverman, Spruill and Levine (1975). The study advanced to more sophisticated simultaneous equation analysis. The authors reported that there was little support for the "reverse" crime/drug hypothesis: that increased revenues from crime lead to greater demand for heroin and to increases in the market price of heroin.

In sum, using aggregate data on the price of heroin and crime rates, the Public Research Institute has demonstrated that the crime rate increases as the price of heroin increases. Drug enforcement strategies or regulatory policies, one of the two major strategic policies (the other in treatment, discussed in section VI) are designed to reduce the availability of drugs, thereby increasing price and reducing consumption, are based on these economic concepts. A brief discussion of the enforcement philosophy follows.

#### D. Enforcement Philosophy<sup>\*</sup>

In addressing these questions, economic theory has had some role in directing research and public policy on the crime/drug relationship. This has focused primarily on the nature of the demand for heroin. Economic theory predicts that the demand for goods and services will be responsive to changes in the prices. Higher prices should lead to lower consumption and lower prices to higher consumption. Public policy has used the theory of consumer demand to design its attacks on heroin abuse. The twin approaches have been supply reduction and demand reduction. The first policy is designed to discourage heroin abuse by reducing its availability and increasing its effective price. This is meant to drive heroin consumers away from the heroin market, and reduce heroin demand. Demand reduction is meant to lower the demand for heroin by encouraging treatment or discouraging heroin use onset by education-prevention efforts.

Demand reduction strategies will be discussed in section VI on treatment effects. The purpose of this section is to briefly discuss supply reduction strategies.

The greatest percentage of dollars used to combat drug abuse has been devoted to law enforcement efforts. The basis for this effort lies in the belief that drug consumption will diminish in response to higher prices for drugs brought about by diminished supply (Williams et al., 1978). As we have noted in the preceding sections heroin consumption may be elastic for most users, therefore, their consumption of heroin could be effected by price changes. Those that maintain that heroin consumption is inelastic, which it may be for some addicts, claim supply reduction strategies may be counterproductive (Silverman et al., 1975).

Reducing the supply of drugs through law enforcement efforts increases the cost of the drug to the individual consumer. If it is true that addicts support their habits mainly through theft, then these price increases will result in greater amounts of theft. However, we have already noted in earlier sections that this relationship appears to be much more complex. In addition, Goldman (1976b) notes that curing an

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<sup>\*</sup> For a detailed review of enforcement philosophy and effectiveness see Williams et al., 1978.

individual's addiction problem may have little impact on crime because ex-addicts may continue their criminal involvement despite cessation of drugs. However, McGlothlin et al. (1978) and Nurco and DuPont (1977) suggest that addicts do not maintain levels of criminal involvement during periods of abstinence (see section IV on Life Cycles).

There does appear to be two beneficial effects of supply reduction strategies that most researchers are in agreement on: new users are discouraged from trying heroin (Goldman, 1976a; Moore, 1977; Silverman et al., 1975; and Williams et al., 1978) and higher prices for drugs create an increased demand for treatment (Goldman, 1976a; and Williams et al., 1978).

## VI. DRUG TREATMENT

Demand reduction strategies, the other major strategy reflecting U.S. social policy regarding drug abuse, are designed to reduce the number of drug users, reduce the quantity of drugs presently used by drug users, and prevent others from ever using illicit drugs. Following Congressional legislation establishing a Federal civil commitment for treatment of opiate users and support for community based voluntary treatment programs, there has been a substantial proliferation of treatment programs in the U.S. Largely a response to the increasing number of heroin users in the urban core, coinciding with a seemingly parallel increase in crime, treatment was viewed as a means to reduce substance abuse in our cities and associated criminal behaviors.

Substantial government appropriations have resulted in a wide range of program types, most of which can be summarized into five modality environments. The first type of program and the program type that has received the most attention, is methadone maintenance. Methadone maintenance programs usually operate on an outpatient basis and provide compensating medication (usually methadone) for heroin to achieve stabilization. The second type of drug treatment program falls under the rubric of therapeutic communities. Usually residential, full-time and drug free, these programs emphasize client-government and group pressures to "persuade the individual of the childishness and ineptness of his previous behavior and the inability of drugs to solve problems" (Sells, 1979: 108). The third type of treatment modality is designed primarily for nonopiate users. Outpatient drug-free programs vary considerably in treatment philosophy, ranging from demanding socialization type programs to relaxed rap sessions. The fourth treatment modality, called detoxification, is short-term drug-free. Usually lasting no more than 21 days, these programs utilize medications to relieve discomfort during the withdrawal process but, generally, offer only limited counseling (Sells, 1979). The fifth category includes those programs that operate under the auspices of departments of correction. This would include the California Civil Addict Program.

Comparisons within and between modality environments are difficult for a variety of reasons, most of which affect the interpretation and validity of evaluation findings. Not only are there structural and client differences between programs, but a number of the evaluations of these programs are fraught with serious methodological flaws that make findings suspect. A number of researchers have pointed out the methodological deficiencies in this evaluation research. Lukoff (1974), Nash (1976), Maddux and Bowden (1972), and Greenberg and Adler (1974) all point out major weaknesses in past evaluation efforts. Three deficiencies appear most often in treatment studies: proper sampling procedures, research design, and measurement problems. Treatment cohort entrants, nonenrollees, and splitters are often not systematically sampled. Pretreatment, intreatment, and posttreatment periods differ across studies making comparisons difficult. Measures are often criticized as being unreliable or invalid. Programs are often evaluated on absolute rather than comparative levels of client behavior which would allow reasonable outcome expectations for the target populations. Client preselection may make program effectiveness appear to be better than it might otherwise be. It is often difficult to ascertain program characteristics in order to assess what program effectiveness can be attributed to. Detailed descriptions of the actual structure and process of treatment, and ancillary services are usually not included in the evaluation and would permit a more complete and useful categorization of programs.

Our review of the treatment literature will be organized under three subheadings: evaluations of methadone maintenance programs, multi-modal evaluations, and correctional programs. It should be noted that most of the treatment literature reviewed for this project focused on the impact of treatment on drug use and criminal behavior not just drug use. A great deal of the research studies that fit these criteria were conducted prior to 1975. However, it is expected that the continuing work of McGlothlin with the California Civil Addict Program, Sells with the DARP data, and the Research Triangle Institutes' Treatment Outcome Perspectives Study will continue to shed new light on these issues.



A. Evaluative Research on Methadone Maintenance Programs

Methadone maintenance has become the most prevalent and, some believe, the most effective treatment modality for the treatment of drug addiction. As of the present time, over 75,000 former heroin addicts are receiving daily doses of methadone from approved methadone clinics across the U.S. (Lowinson and Millman, 1979). Believed to be a relatively benign addictive drug, methadone minimizes the discomfort involved in the withdrawal from heroin. Methadone maintenance is considered both an inducement to keep addicts in treatment as well as a stabilizing drug allowing the addict the opportunity to become re-socialized into the community. By supplying the addict with a less potent drug, it is assumed he will then be able to utilize time, previously spent securing drugs, more constructively. Additionally, the addict will no longer have to commit income-generating crimes to support his heroin habit.

A significant evaluation study on methadone maintenance is the one conducted by the Addiction Research Corporation Team (ARCT) (a joint effort by Harvard, Yale, and Columbia researchers and sponsored by the Vera Institute of Criminal Justice located in New York City) of a methadone maintenance program in Brooklyn. Kleinman and Lukoff, (1975) found a higher arrest-charge rate for clients after they entered the treatment program than in the period between addiction onset and entry into treatment. Only those clients that stayed in treatment for three years or more showed a slight reduction in arrest rates. This long-term evaluation showed the changes in criminal behavior were closely tied to the addict's age. Among those addicts that were under 30 years of age there was a decline in their criminality due to a drop in arrests for forgery, prostitution, and drug offenses; whereas, arrests for robbery, burglary and other street crimes actually increased. Some have suggested that providing methadone and freeing young addicts from the time they need to cop heroin, "apparently gave them more time and energy to commit predatory crimes" (Silberman, 1978). This carefully done study was also one of the first major evaluations to find methadone maintenance had no effect on post-treatment criminality. Although critics of this evaluation could not find much to criticize on methodological grounds, they did find fault in the program itself (Nash, 1976). For example, reports

found that the treatment philosophy of the program administrators encouraged detoxification, therefore, methadone dosage was low. In addition, the program was administratively weak, the facility was not conducive to counseling, and the rate of missed medication was extremely high. All of these factors could have contributed to the program's inability to have an impact on post-treatment criminality.

Recently several unanticipated consequences of methadone maintenance have become known to observers of the drug scene in several urban centers. It has already been shown in the preceding sections how addicts are capable of regulating their habits. Although the elasticity of the addict habit has been shown repeatedly, it has also been shown that the size of the habit expands and contracts usually as a result of some outside influence, whether that be the availability of heroin or an arrest, and not the decision or will power of the addict himself (Nurco, 1976). The regulation of the heroin habit has become much easier with the use of methadone. Addicts have been able to decrease their consumption of heroin while taking methadone with wine and pills which do not block the effects of heroin (Preble and Miller, 1977). Addicts in methadone programs have become quite adept at concealing the use of these other drugs and avoiding detection for violations in the program. Preble and Miller (1977) describe how addicts pay for "clean" urines to substitute for their own "dirty" urines to avoid detection for drug use. Others sell the pills or methadone they are prescribed in order to buy wine or other more potent drugs.

The principle rationale for methadone, that is, to decrease the size of the addict's heroin habit to enable him to lead a more stable and productive life has also allowed the addict more time to himself as well as supplying the addict with another drug, methadone, to maintain his high. It has been suggested above that this increased time may have freed the addict to commit more predatory crimes. Although methadone may be a viable treatment alternative in some cases, further studies, similar to the one conducted by Preble and Miller, need to be conducted to explore these unanticipated consequences.

## B. Multi-modality Evaluations

A recently completed comparative analysis of two multi-modality drug treatment programs, one in New York City, the other in Washington, D.C., found post-treatment opiate levels, employment, and arrests were all much improved over pre-treatment levels (Burt and Glynn, 1976). Burt's retrospective evaluation of the Addiction Services Agency (ASA) of New York City which included a sample of 782 admitted to methadone maintenance, outpatient therapeutic programs, and residential therapeutic communities at 14 agencies is compared with the Narcotics Treatment Administration (NTA) of Washington which included 360 subjects admitted to methadone maintenance and drug-free programs. It compared clients remaining in treatment with those enrolled in the program less than five days. Groups were compared for three points in time: two months prior to treatment, two months after treatment, and two months prior to interviews. For each program, comparisons were also made across the treatment modalities. Similar results were found for both programs although there were low response rates and significant differences between respondents and non-respondents. Treatment modality did not generally affect treatment outcome. However, in NTA, the detoxification modality showed greater increases in employment than the comparison group, whereas in ASA the therapeutic community mode showed greater improvement in employment than the comparison group.

Under the direction of Dr. Saul B. Sells, the Institute for Behavioral Research of Texas Christian University undertook the most comprehensive drug treatment evaluation ever. The evaluation program, known as the Drug Abuse Reporting Program (DARP) collected over 44,000 admission records from 52 agencies supported by the National Institute for Drug Abuse. Four treatment modalities were included in this evaluation: methadone maintenance, therapeutic communities, drug-free outpatient, and detoxification; a fifth comparison group was composed of those who enrolled but never received treatment. Followup interviews were conducted with 3,831 DARP clients in 1975 and 4,107 DARP clients in 1976. Both samples were obtained from the first DARP cohorts entering 25 DARP programs between 1969 and 1972.

In the evaluation prior to followup, methadone maintenance programs were reported to improve all outcome measures but criminal behavior was not entirely eliminated (Sells et al., 1977). Sells concluded treatment does produce beneficial results, particularly the first two months after treatment begins. Furthermore, the benefits of treatment outweigh the costs. This finding was substantiated in a recent update of the cost-benefit of treatment programs (Rufener, Rachal, and Cruze, 1976).

Followup data for the DARP program indicate changes in treatment outcome measures were maintained after treatment. When pre- and post-treatment periods were compared for all programs including the comparison group, significant decreases in opiate use were found for all groups (Simpson, et al., 1978). However, only those clients in methadone maintenance programs had significantly lower post-treatment arrest rates, but the proportions of those arrested and jailed were lower in the post-treatment period for all groups.

C. Correctional Programs

California Civil Addict Program

Begun in 1961, the program is designed for those addicts convicted of felonies or misdemeanors. The program duration for these addicts lasts seven years. Voluntary commitment lasts 2 1/2 years. All of the committed addicts are first sent to the California Rehabilitation Center for therapy, schooling, and occupational training and after seven months are transferred to outpatient status under close parole supervision. McGlothlin et al., (1977) interviewed 756 male subjects five to twelve years after admission to determine the impact of the program (see also Sells, 1979).

The results showed subjects that remained in the program improved on measures of drug use, employment, and criminality more so than a comparably matched group that were discharged from the program on a technicality shortly after admission. So, at least, during the commitment period and less so during the posttreatment period, the group remaining in the program significantly reduced their substance abuse and related criminal behavior.

## VII. SUMMARY AND CONCLUSION OF THE REVIEW OF THE POST-1975 LITERATURE

Although researchers have been prolific in their documenting of research findings on the drug/crime issue in the last several years, few studies would be considered landmarks in regard to their impact on drug abuse policy or, for that matter, the state-of-our-knowledge. Much of the research has been "more of the same." However, there have been a few innovative research approaches\* in the last few years that have addressed several of the complex questions surrounding the drug/crime issue.

As the drug field has evolved over the last 30 years or more, drug/crime research has made significant advances. Early researchers attempted to test the validity of the political rhetoric of early periods that assumed a drug/crime link. As the drug problem became more acute in the 1960's, there was a proliferation of social programs and law enforcement policies designed to combat drug abuse there was also a great proliferation of research on the subject. Several factors account for the proliferation of research. First of all, increased research funds became available to study the problem that in the public eye was already linked to crime. Secondly, the substantial proliferation of treatment programs for drug addicts, provided an identifiable and accessible population on which to conduct research.

Although much of this research is of poor quality, this work over the years has brought us closer and closer to the key issues in this area. Incrementally, researchers and policymakers alike have been able to benefit from mistakes and oversights of the "early pioneers." Methods have been improved, data collection instruments refined, and data sets developed. Most important, the complexities of the issues involved are more clearly understood. There is no longer a monolithic view guiding policy and research in this area. Drug users are not considered a homogeneous group, all following the same or similar patterns. There is after all a great deal of diversity among drug users. Some are young, some old, some engage in crime, while others do not, some use one drug

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\* A comprehensive listing of those innovative research approaches is not presented but have been reviewed in this paper.

exclusively, others use many drugs. Drug progression patterns vary considerably from user to user, as does the length of drug use periods. We now know, for example, that age is an important factor in addiction, that patterns of drug use and crime change over time (this still is not fully understood however). We know that some treatment programs are effective for some addicts, but not all. These findings have allowed researchers to begin to design research that will fill the gaps of our knowledge, (and they are still great) so we can more clearly understand these phenomena.

There appear to be several key areas that need further research. One, and probably the most important, is in the life cycles area. We know very little about the onset of drug use and crime and the temporal sequencing of these behaviors. We also know very little about drug users and their criminal behavior over time and how the use of drugs and the commission of crimes covary over time, and the factors that may account for this covariation. Nurco and DuPont (1977) and McGlothlin et al., (1978) in their retrospective studies are able to address some of these issues as is Inciardi (1979) in his study of Miami addicts. However, we are still in need of prospective research that will address the dynamics of drug use and crime-what are the factors that effect and mediate drug use and criminal behavior and how does this change over time?

Another complexity in this research that seems obvious on the surface but is not explicitly addressed in the literature and we know little about is the question of cohort effects. The particular drug(s) used in a particular period is determined by multiple factors which can be characterized by the 'temper of the times'. Feldman (1977) and others have shown that the drug of choice of drug in a community is a complex interaction between the availability of a drug and the status a particular drug has within the social structure. We do know that the drug of choice changes from time period to time period. The differential effect of these drugs on the criminal behavior of users, however, is largely unknown. This is a complex issue that is affected by not only the actual relationship between a drug and criminal behavior but also the perceived relationship by policymakers and the citizenry.

A third area that needs further exploration concerns the day by day activities of addicts. What are the sources from which addicts secure funds to purchase drugs? How much time do they actually spend securing drugs? Although much of this information can be extracted from anecdotal pieces supplied by drug addicts and also the work by Moore (1977), Preble and Casey (1969) and Preble and Miller (1977) more work needs to be done. Hopefully, the on-going research by Preble in New York City and Inciardi in Miami will shed more light on this issue.

A fourth area that needs to be addressed in future research concerns the representativeness of samples. Throughout this paper and the earlier literature review by the same authors we provided numerous cautionary statements about the use of captive populations, those populations of addicts in treatment or in prison. We have no idea whether these addicts differ from other undetected addicts and if they do, the extent to which they differ. Again, Inciardi's study with addicts in the free community should partially address this issue, but this study is being conducted on a relatively small sample in only one site. More research needs to be done before any definitive statements can be made.

These are the key areas that we have found to be lacking in the literature. Research on the relationship between drug use and crime has come a long way in the last decade and future research could well provide significant breakthroughs in our understanding of drug/crime issues. No doubt there will continue to be research that can be classified as "more of the same" but there is also likely to be a number of research efforts that build and expand on previous research and that explore new issues and areas.

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