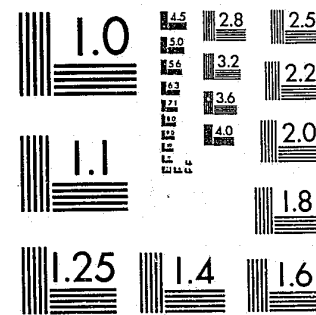


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THE DAY-TO-DAY CRIMINALITY OF HEROIN ADDICTS
IN BALTIMORE - A STUDY IN THE CONTINUITY OF OFFENSE RATES

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Ball, Shaffer & Nurco

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THE DAY-TO-DAY CRIMINALITY OF HEROIN ADDICTS
IN BALTIMORE - A STUDY IN THE CONTINUITY OF OFFENSE RATES

I. INTRODUCTION

. The Criminality of Heroin Addicts

It has now been established that heroin addiction in the contemporary United States is associated with exceedingly high crime rates.¹ Indeed, recent studies² have reported that heroin addicts are frequently involved in criminal behavior on a daily basis and that, consequently, they commit hundreds or thousands of offenses per individual during their addiction careers. Furthermore, it is becoming apparent that the scope and magnitude of the crime problem associated with opiate addiction is not only due to the frequency with which addicts commit "victimless" crimes and lesser offenses, but that many of their offenses are serious and destructive. Thus, Chaiken and Chaiken found³ in their study of incarcerated criminals in three states that violent predators (i.e. serious and frequent offenders) had "characteristic histories of drug use." Although heroin was not the only drug associated with high rates of serious offenses, they reported that most violent predators "began using several types of 'hard' drugs, and using them heavily, as juveniles. Indeed, their use of drugs and their criminal careers usually began at about the same time." (1982a, p. 16) It may be said, then, that heroin addiction is clearly entwined in

1. O'Donnell, 1966; Chambers, 1974; Ball et al., 1975; McGlothlin et al., 1978; Klepak, 1978; Inciardi, 1979; Gandossy et al., 1980; Barton, 1980a, 1980b; Clayton and Voss, 1981.

2. Ball et al., 1982; Chaiken and Chaiken, 1982a.

3. Chaiken and Chaiken, 1982b.

our national crime problem, and that this association is most evident when either persistent offenders or persistent drug abusers are studied.

But further questions about the association of crime and addiction remain to be answered. One of the most crucial of these involves the continuity of crime among heroin addicts. What are the long-term consequences of this crime-drug relationship? Do active addicts become more, or less, enmeshed in criminal behavior over their adult years? Do the types of crimes they commit change? Or do they reach a high crime plateau which remains stable? What is the effect of successive abstinence periods upon criminality? These and related questions need to be answered if the current significance of the crime-addiction association are to be understood. In this endeavor, it is useful (if not indispensable) to compute specific rates of criminal behavior within this offender population.

. The Significance of Determining Crime Rates

As contending criminological theories are further developed and advanced for consideration, it will be necessary to articulate these formulations with current offense rates and patterns of criminal behavior if the extent of their empirical validation is to be determined.⁴ In this endeavor, it will be useful to differentiate between crime rates in the general population and crime rates among various groups of offenders. Both of these types of analyses are efficacious. From the first, information

4. Robert K. Merton emphasized this point in his classic 1938 paper, "Social Structure and Anomie."

about environmental factors which may affect criminality can be obtained and high risk segments of the population identified for further study.⁵ From the second type of analysis, detailed information about the scope, frequency and duration of criminal behavior in a designated population can be obtained.⁶ Such information about the extent and continuity of crime within particular offender groups is significant as it provides a means of studying crime as an everyday occurrence - as an illicit career - rather than as an occasional and infrequent event. In studying offenders, high risk groups can be traced over a time period to ascertain whether their high rate of criminal behavior is continuous, stable and presumably unaffected by environmental factors, or whether it is associated with definite factors. In selecting offenders for study, it is advantageous to obtain a clearly identifiable group which is representative of a larger population. In the present paper, a high risk group of opiate addicts is selected for study because they are representative of the known addict population of Baltimore.

In considering the long-term criminal behavior of heroin addicts, various fundamental questions arise: To what extent are the high crime rates found among heroin addicts a continuous phenomenon? That is, are their offense rates similar from year to year? Do these rates increase or decrease over the years? To what extent do the patterns of criminal behavior change? Do they commit different types of offenses over the years?

5. Chein et al., 1964.

6. O'Donnell, 1969.

Research Objectives - Two Questions

In order to provide a focus for investigating the long-term relationship of crime and heroin addiction, two research questions were formulated to facilitate analysis: (1) To ascertain the specific types of offenses that addicts engage in over the years and to determine the extent to which these specific rates are continuous. That is, do the specific offense rates increase or decrease from year to year, or are they stable? (2) To ascertain the patterns of the various crime rates and to determine the extent to which these patterns or configurations are stable over the years.

The first research question focuses upon the continuity of specific offense rates within the addict population. In the second research question, attention is directed toward the stability of crime patterns over the years within this same population of heroin addicts. In both instances, analysis is based upon the extent to which change occurs as determined by variations in specific rates and patterns of offenses over the years from onset of addiction to time of interview. Fundamentally, then, crime is viewed as an ongoing behavioral process which can be related to maturation by computing rates of offenses per year, rather than being viewed as unique or occasional behavior which are not susceptible to analysis by rates.

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II. RESEARCH PLAN

. Selection of the Baltimore Sample

A representative sample of 354 Baltimore addicts was selected for study. These 354 males were a random sample selected from a population of over 7,500 known opiate users arrested (or identified) by the Baltimore Police Department between 1952 and 1976. The sample was unselected for criminality, but stratified by race and year of first police contact in order to control for these variables. Thus, ten white and ten black males were selected for each year (except in 1956 when there were only nine white males identified by the police department).

Ninety-eight percent of this cohort sample were located and ninety-two percent of those alive and not in mental institutions were interviewed. There were 195 blacks and 159 whites in the present sample of 354. Race and cohort differences within part of this sample have previously been analyzed.⁷

Part of this sample has previously been studied with regard to their lifetime criminality and their differential criminality by addiction status.⁸ Thus, it was found that 243 of these males had on the average committed more than 2,000 offenses per individual over an 11 year period and that, together, they were responsible for committing more than 500,000 crimes (i.e., 473,738 crime-days). Further, it was found that their criminality was markedly higher when they were addicted than when

7. Nurco and DuPont, 1977.

8. Ball et al., 1982.

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they were not. When addicted they committed crimes during 248 days per year; when not addicted they committed crimes during 41 days per year. Consequently, there was a sixfold increase in their criminality during their addiction periods. Although these studies have demonstrated that addicts in Baltimore are responsible for an inordinate amount of crime and further, that the extent of their criminality is closely related to their addiction, it remains to be determined whether this extensive criminality is continuous and stable.

. Interview Procedure

Each of the 354 addicts were interviewed between July 1973 and January 1978 by specially trained interviewers who were familiar with the Baltimore addict subculture. Both the project staff's knowledge of the local addict street culture (i.e., its history; ecological, racial and economic structure; major career patterns of criminality; current relationship with police; and availability of specific drugs) and the interviewers' interest in the daily problems and aspirations of the subjects were important requisites to obtaining comprehensive information in the interviews. The interview lasted some three hours and the questions were focused upon six topics: drug use, criminal behavior, work, living arrangements, drug selling, and sources of income.

The interview schedule consisted of six parts: (1) Lifetime prevalence of drug use by specific drugs of abuse (6 pages,

completion time about 30 minutes); (2) History of opiate use by addicted and abstinent periods during risk years (3 pages, 30 minutes to complete); (3) Preadiction criminality and circumstances of onset of opiate use (7 pages; 30 minutes); (4) Circumstances of first regular use of opiates (i.e., daily use for a month or longer), and drug history during each subsequent addiction period. This part included information on criminality for each period of regular opiate use or abstinence (10 minutes for each period; 3 pages each); (5) Marital history, parental background, juvenile delinquency, military service, treatment history, incarceration history, criminal history (16 pages; 60 minutes to complete); (6) Interviewer's ratings of the subject's attitude, appearance and overt responsiveness (1 page; 5 minutes).

Since a major focus of the lengthy interview was to obtain detailed chronological data pertaining to addiction status from onset of regular opiate use to time of interview, each subject was asked to describe in detail his various addiction, abstinence and incarceration periods. For the entire sample, there were 1,279 addiction periods and 619 non-addiction periods (there also were incarceration periods, which are not included in this analysis).

Each subject was asked about his daily and weekly use of specific drugs during each addiction period (dosage, multiple

use, times used per day or week). In this manner, each subject's years, months and days at risk were classified as addicted to or abstinent from opiates. In a similar way, each subject was asked to recount his legal and illegal sources of income during each time period. With respect to criminality, this involved an enumeration of specific offenses committed on a daily, weekly, or monthly basis during each addiction or abstinent period (number and type of offenses committed per day and week). In this manner, data pertaining to the types of crimes committed and the number of crime-days amassed for each subject were recorded.

The validity of the interview data obtained from these 243 addicts has been the subject of a separate study.⁹ In comparing addicts' self-reports with official records, it was found that the subjects were more accurate and more candid than police files and juvenile delinquency files on some items, but that they often miscalculated the exact year of such formal items as year of first arrest (booking) or year of first conviction. With respect to these latter items, it was noted that they often underestimated or overestimated the date of occurrence by a single year. The authors of the validity study concluded that there was no evidence of conscious distortion on the part of these addicts; there was no indication of a tendency to either cover-up (or deny) their criminal behavior, or conversely, to exaggerate their criminality. The findings of this study substantiate the conclusions of prior research

9. Bonito, Nurco and Shaffer, 1976.

concerning the validity of interview data obtained from opiate addicts -- namely, that valid data can be obtained if specifically trained interviewers who are familiar with the local addict subculture are employed and adequate safeguards exist concerning the confidentiality of the information provided.¹⁰ In addition to the lengthy face-to-face interviews conducted with each of the 243 addicts, comprehensive arrest, penal, hospital and other institutional data was obtained with respect to the addicts' lifetime experiences.

The Seven Crime-Day Measures Employed

In order to investigate the extent of criminal behavior by these addicts more accurately and comprehensively, a new expanded set of crime-day measures was derived. These new measures were developed from earlier research which employed a unidimensional crime-day conceptualization.¹¹ The new measures include five types of crime-days (i.e., theft, violence, dealing, con games and other offenses) as well as several collateral measures of criminality. These seven crime-day measures (as well as related terms) have been defined as follows:

Definition of Terms:

Crime-Day Theft, (CD-1). A theft crime-day is defined as a 24-hour period during which a given individual engages in stealing property one or more times.

Crime-Day Violence, (CD-2). A violence crime-day is defined as a 24-hour period during which a given

10. Johnston, Nurco and Robins, 1977.

11. Ball et al., 1981.

individual engages in one or more violent offenses.

Crime-Day Dealing, (CD-3). A dealing crime-day is defined as a 24-hour period during which a given individual engages in one or more drug sale offenses. (in this study, drug use and possession are not included as crimes.)

Crime-Day Con Games, (CD-4). A confidence crime-day is a 24-hour period during which a given individual engages in one or more confidence game offenses or forgery of checks.

Crime-Day Other, (CD-5). A crime-day other (or miscellaneous) is a 24-hour period during which an individual engages in one or more offenses which are not included in CD-1, CD-2, CD-3 or CD-4. These include illegal gambling, pimping, fencing and other offenses.

Composite Crime-Day, (CCD). A composite crime-day is defined as a 24-hour period during which one or more crimes is committed by a given individual. A composite crime-day incorporates CD-1 through CD-5; it subsumes one or more of the five designated types of crime-days. Each day of the year, then, is a composite crime-day or a non-crime day.

Multiple Crime-Day, (MCD). A multiple crime-day is a 24-hour period during which a given individual commits more than one type of designated crime. A multiple crime day, then, includes at least two designated crime-days (i.e., a combination of CD-1 and CD-3; CD-1, CD-3 and CD-5, etc.).

At Risk. At risk refers to the time (days, years) between onset of opiate addiction and interview that an individual was "on the street," (or not incarcerated). Risk time is further classified as either addicted or non-addicted.

Average Crime-Days Per Year at Risk. This measure is the mean number of crime-days per year amassed for a given individual or group. The possible range is from 0 to 365.

It is relevant to note that it was the original crime-day measure which incorporated all types of offenses with a crime-day.

The expansion of the original crime-day measure (which incorporated all types of offenses within a single crime-day) to include five separate types of crime-days was undertaken in order to obtain more specific measures of offenses. In order to accomplish this task, it was necessary to recode the interview data according to these more specific criteria. This proved to be feasible after coding problems were resolved and additional collateral measures were derived. In this latter regard, it was deemed necessary to designate a crime-day measure which would reproduce the original crime-day concept (i.e., a composite crime-day) and also to identify multiple crime-days and similar measures.

III. RESEARCH FINDINGS: CAREER PREVALENCE OF FIVE TYPES OF CRIMINALITY

The prevalence of the five types of criminality among the 354 Baltimore addicts during their nine year risk period is depicted in Table 1. The most frequent type of crime committed was theft of property which accounted for 37.9 percent of the total crime-days, or 293,308 of 774,777 crime-days. Next in frequency was drug sales, which accounted for 26.5 percent of the crime-days (or 205,692 crime-days). Third in frequency were other offenses, which accounted for 25.6 percent of the total crime-days (or 198,579 crime-days). These three types of crime-days (CD-1, CD-3 and CD-5) accounted for 90 percent of the overall crimes committed by the male addicts.

The remaining two types of crime-days, con games and violent offenses, accounted for, respectively, 7.9 percent and 2.1 percent of the crimes committed. The total number of confidence crime-days was 60,882, and the number of violence crime-days was 16,316.

The total number of crime-days committed by the 354 addicts during the nine years that they were on the street after the onset of their addiction was 774,777. This prevalence of crime meant that the average addict committed over two thousand offenses. The mean number of crime-days was 2,119. The mean number of crime-days of each type committed per individual was: crime-days theft, 828.6; crime-days violence, 46.1; crime-days dealing, 581.1; crime-days confidence, 172.0; crime-days other offenses, 561.0.

It should be noted that the total crime-days figure (774,777) somewhat overestimates the percent of the risk period that the addicts were engaged in crime as some days were multiple crime days. This figure is, however, an accurate enumeration of the number of crime-days amassed. This issue will be more fully considered below.

IV. CONTINUITY OF CRIME-DAY RATES DURING ADDICTION AND OFF PERIODS

The Number of Addiction and Non-addiction Periods

In order to ascertain the influence of addiction status

upon criminality, the successive periods of continuous opiate use and the successive periods of non-addiction were separately tabulated for the sample (Table 2). It was found that the 354 males had from one to fourteen addiction periods and from zero to eight off periods. The mean number of addiction periods was 3.6; the mean number of non-addiction, or off, periods was 1.7. These findings showed that while most of the addicts had alternate periods of addiction to and abstinence from opiates while at risk, there was considerable variation among the sample in this regard, so that further analysis is indicated.

Before turning to the detailed analysis of criminality by addiction and non-addiction periods, it is pertinent to note that the greater portion of the risk years were addiction years. (The years at risk or "on the street," does not include periods of incarceration.) Thus, 60.0 percent of the total time between the onset of addiction and time of interview was addicted time and only 40.0 percent was non-addicted time. This overall percentage difference is reflected both in the greater number of addiction periods and the lesser number of subjects who had off periods.

Criminality During the First Addiction Period

An outstanding feature of the first addiction period was that it revealed exceedingly high crime rates. Thus, the 354 male addicts amassed 273,049 crime-days during the two years of this first addiction period. This total figures was distributed

among the five types of crime-days as follows: The total number of theft crime-days during the first addiction period for these 354 addicts was 98,629. The total number of violence crime-days was 6,643. The total number of dealing crime-days was 66,702. The total number of confidence game crime-days was 21,435. The total number of other type crime-days was 79,640. Taken together, then, these addicts committed over 273,049 crimes during this first addiction period of some two years duration.

The mean number of crimes committed by these 354 males during this first addiction period provides another delineation of their high rate of criminality. Thus, their mean number of theft crime-days was 279, their mean violence crime-days was 19, their mean dealing crime-days was 188, their mean confidence crime-days was 61, and their mean other crime-days was 225.

During this first addiction period, the 354 addicts were engaged in crime 70 percent of the time. That is, 69.8 percent of their days at risk were crime-days (Table 4). From the beginning of their addiction, theft of property was the principal type of crime committed by these males. Thus, they were engaged in theft 34.2 percent of the days of this first addiction period. But drug sales and other crimes were also notably high; they were involved in drug sales 23.1 percent of the time and engaged in other crimes (CD-5) 27.6 percent of the time. Although confidence games and violent crime were less frequent than the three dominant crime types, these were not insignificant. Thus,

the 354 addicts spent 7.4 percent of their time engaged in con games and 2.3 percent in violent crime.

Criminality During the First Off Period

During the first off period there was a notable decrease in criminality from the prior addiction period. This decrease is evident in the reduction of the total crime-days from 273,049 to 68,999. This is a 75 percent decrease. Both periods were comparable in length; mean days of the first addiction period were 815 while the first off period was 887 days.

The decrease in criminality during the first off period is also reflected in the lesser amount of time that the addicts (or post addicts) were engaged in crime. Thus, the 319 males spent 9.2 percent of this period engaged in theft, 8.2 percent in other offenses, 6.3 percent in selling drugs and less than one percent of the time in violent offenses and con games (Table 4). Taken together, they were involved in crime 22 percent of this first off period. This contrasts with their involvement in crime during 70 percent of their first addiction period. This constitutes a two-thirds decrease (67.8 percent) in the amount of time spent engaged in crime.

Continuity of Crime Rates During Successive Addiction Periods

In Table 5, the continuity of crime during successive addiction periods is shown. The percent of time in each of

the five types of crime-days is tabulated for all 14 periods. The last column records the percent of days in each period that the addicts were engaged in crime of any type; this is the percent of each period that were composite crime-days.

A major finding about the continuity of criminality during the addiction periods is that it is relatively stable in frequency. This stability is evident in the lack of variation of the five crime-day measures as well as in the composite crime-day findings. Thus, with regard to each of the five crime-day measures, the percent of time engaged in crime in successive periods usually does not differ from that of the first period by as much as ten percent. With regard to the overall amount of time in each addiction period that the male addicts were involved in crime, this too is quite stable; in only two periods (7 and 10) does the amount of time involved in crime differ from the initial figure of 70 percent by more than five percent. That is, there are only minor variations from this initial high rate of criminality in most of the succeeding periods.

Crime Rates During Successive Off Periods

A major finding concerning criminality in the off periods is that it decreases in successive periods (Table 6). This is most evident in the sharp decrease in the overall percent of time that the addicts (or former addicts) engaged in crime from the first to the fourth off period - a decrease from 22.4 percent to 3.7 percent. This same trend is reflected in the

five crime-day measures which decrease in successive periods. Thus, during periods 2, 3 and 4, there was a decrease in crime-days in 13 of the 15 instances. Furthermore, there is evidence of a complete, or almost complete, cessation of crime after the fourth period.

V. STABILITY OF CRIME PATTERNS DURING THE RISK YEARS

Crime-Day Patterns During the Addiction Periods

It is notable that the initial pattern of criminality established during the first addiction period remains quite stable throughout successive addiction periods (Table 5). Thus, theft is the most frequent type of crime in all of the first ten periods; drug sales is second in frequency in six of these periods; and in eight of the ten periods the dominance of crime-days theft, dealing and other crime over violent crime and confidence offenses is maintained (i.e., CD-1, 3 and 5 are, in each case, more frequent than CD-2 or CD-4). It was found, then, that a quite definite pattern of criminality is maintained throughout the successive addiction periods. In this regard, attention is directed toward the first ten periods as decreasing numbers of addicts in the last four periods precludes meaningful statistical comparison.

At the same time, there were some changes in criminality during the successive addiction periods. The most notable was the increase in theft which occurred. From the fifth period

through the tenth, the sample was engaged in theft more than 45 percent of the time; in the seventh period this frequency reached 63 percent of their days at risk, and by the tenth period it was over 90 percent. Although there was a definite trend toward increasing theft, no comparable trend was evident for the other four types of crime-days. There was, however, some further indication of increasing criminality in the later addiction periods as two of these periods had exceedingly high composite crime-days (92 percent for period 7 and 100 percent for period 10), but this reflects, in large part, the increase in theft already noted.

Crime-Day Patterns During the Off Periods

It is significant that the pattern, or configuration, of the five crime-day types during the first off period was similar to that of the first addiction period even though there was a 75 percent decrease in crime in the first off period. Thus, in the first off period, theft was still the most frequent offense, other crime (CD-5) was second in occurrence, dealing was still third, confidence was fourth and violent crime was still last. The configuration of the five types of crime-days remained, then, quite stable between the first addiction and first off periods.

Nonetheless, during the first off period the influence of addiction upon crimes of violence and con games was more

marked than upon the three dominant crimes of theft, dealing and other offenses. This may be seen in the higher ratios of crime when addicted vs. crime when non-addicted for these offenses. The number of violence crime-days was 18 times higher during the first addiction period as compared with the first off period; and it was 14 times higher for confidence crime. Conversely, it was three to four times higher for the other three types of crimes.

With regard to successive off periods, it is significant that the dominant crime-day pattern which obtained for the addiction periods also obtains for the first two off periods. Thus, theft remains the most frequent crime while dealing and other crimes are more frequent than violent offenses and con games. By the third and fourth off periods, however, the configuration changes somewhat as theft is no longer the most frequent crime, although crime-days 1, 3 and 5 still retain their relative dominance. Still, the relative paucity of crime by the fourth off period and the decreasing number in the sample indicate that further trend analysis is unwarranted.

Multiple Crime-Days in the Addiction and Off Periods

The classification of crime-days into five designated types (theft, violent, dealing, con games and other offenses) was undertaken in order to provide more detailed information about the crimes committed on a given day by a given individual than was obtainable from the original crime-day measure (used

in prior research) which subsumed all such crimes in a single crime-day designation. With the five crime-day measures, more detailed analysis became feasible because specific types of crime-days were independently designated and coded for the sample subjects. In most cases, the addicts committed only one type of crime during a given day (i.e., one of the five types of crime-days), although there frequently were several offenses of this same type during given days, especially when theft or drug sales were involved. But it also happened that the individuals were involved in more than one type of crime during the same day. For example, an addict might have been involved in both theft and pimping, or robbery and drug sales. When this occurred, it was defined as a multiple crime-day, or MCD.

The number of composite crime-days (Col. A), multiple crime-days (Col. B) and total crime-days (Col. C) for each addiction period is tabulated in Table 7. The composite crime-days are those days in the period in which one or more of the five designated types of crime were committed. The multiple crime-days are those composite days which include two or more designated crime-days. The multiple crime-days are, then, overlapping days during which additional crime (as defined by two or more crime-day types) was committed. MCD provides a measure of the extent to which the addicts were simultaneously engaged in more than one type of crime. The total crime-days

figure (TCD) is a sum of the five designated crime-day measures; it should be recognized that TCD is usually greater than CCD because of multiple crime-days.

It was found that the addicts engaged in two or more types of crime simultaneously during one-third of their addiction years. Thus, there were 167,188 multiple crime-days subsumed in the 513,316 composite crime-days of the 14 addiction periods (32.6 percent of the CCD were MCD - Table 7). The variation of multiple crime-days during the first ten addiction periods was from 21 to 40 percent of the composite crime-days. The number of multiple crime-days in the first addiction period was 71,635, or 35.6 percent of the composite crime-days. In the next nine periods there was a slight downward trend in multiple crime-days, although the variation from the first period is less than 10 percent in most instances (in 6 of the 9 periods).

The addicts were notably less likely to be involved in two or more types of crime simultaneously during their off periods. Thus, there were only 7,324 multiple crime-days during the off periods (Table 8); this was 8.4 percent of the composite crime-days. This reduction in multiple types of crime is not simply a function of the decreased crime rate in the off periods as there could be an increasing tendency for the addicts to engage in two types of crime in successive periods even as the crime rate decreased (i.e., a higher percent of CCDs being MCD). Instead, there is a slight trend

toward a lesser percentage of multiple crime-days in successive off periods. In both the on and off periods, then, there is some support for the hypothesis of increasing specialization in a single type of crime as maturation occurs.

The relative decrease in multiple crime-days during the off periods is also evident in a comparison of ratios in the on and off periods. In the addiction periods, 33 percent of the composite crime-days were multiple crime-days; in the off periods, only eight percent of the composite crime days were multiple crime-days. Therefore, the composite rate was 3.9 times higher in the addiction periods, but the multiple crime rate was 15.1 times higher.

Crime Rates Per Year for the Addiction and Off Periods

The continuity and stability of crime among the 354 male addicts can be summarized by means of composite crime-days per year at risk for successive addiction and off periods (Table 9). These findings substantiate the overall stability of criminality already described.

With regard to the addiction periods, the mean number of crime-days (CCD) per year for the addicts was 255 for all 14 periods. That is, each addict committed on the average 255 crimes per year during his addiction years (as measured by composite crime-days). Significantly, a high rate occurred during the first addiction period (254.9 per year), and high

rates continued. In this latter regard, there was surprising stability in the rates during the first six addiction periods (255, 244, 259, 257, 257 and 254). Thereafter, there was more variation in the rates and some indication of an increase in crime, but a cautious interpretation of trends in later periods is indicated as the number of subjects decreases rapidly.

The multiple crime-day rates also commenced at a high rate. In the first addiction period, the addicts were involved in 91 multiple crime-days per year. That is, the average addict committed a second type of crime on 91 of the 255 composite crime-days. This high rate of multiple crimes continued in the succeeding periods, although there was a downward trend evident as eight of the next nine periods had lower MCD rates than the first addiction periods.

The non-addiction periods not only had markedly lower crime rates than the addiction periods, but these lower rates tended to decrease in successive off periods. Thus, the composite rates of 82 crimes per year for the first off period was the highest rate. After this, the rates were consistently lower through the fourth off period. Similarly, the multiple crime rate was highest during the first off period (7.3 crime-days per year) and declined thereafter.

VI. INTERPRETATION OF THE RESEARCH FINDINGS

The Inadequacy of Official Records as Indicators of Crime Within this Addict Population

In a previous analysis of the probability of arrest for 243 of the 354 addicts in the present sample (the 111 cases added were from later arrestee cohorts), it was found that less than one percent of the crimes committed resulted in arrest.¹² Thus, the 237 addicts accumulated 2,869 arrests during an eleven year risk period. But they also amassed 473,738 crime-days (i.e., probability = .0061). Not only was it found that arrests were an inadequate indication of the overall frequency of crime, but arrest data was biased both with respect to type of offense committed and the frequency of offenses. Certain offenses were more likely to result in arrest (e.g., crimes of violence), and the probability of arrest (per 100 crime-days) decreased for addicts who had high crime rates.

The present study confirms the inadequacy of arrest data with respect to describing or analyzing criminal behavior within high risk offender populations. Similar observations have been reported elsewhere. Thus, a Rand study of offenders¹³ in three states found that it was not possible to identify serious and frequent offenders from official records because "the vast majority of those who do commit all of these crimes [robbery, assault and drug sales] have not been convicted of them." In this regard, it is important to note that in both

12. Ball et al., 1982.

13. Chaiken and Chaiken, 1982b, p. 18.

the Rand study and the present analysis the offenders were arrested, but at the same time it was found that arrests were so infrequent and the official records based on these arrests so inadequate that it was not possible to identify the serious and persistent offenders from official records. This problem is discussed at some length in Varieties of Criminal Behavior, Chapter 3.

An Appraisal of the Crime-Day Measures

After some five years of experience with the crime-day formulation and its use, it seems appropriate to provide an initial appraisal of this measurement. In this regard, it is useful to differentiate the crime-day conceptualization from its implementation.

The crime-day conceptualization has proved to be most efficacious. Indeed, it has exceeded by far our original expectations. It has made it possible to readily compute annual crime rates which are not skewed by a few extreme values, as happens when individuals repeatedly commit numerous offenses per day and thereby amass thousands of offenses per year (the search for new crime measures was undertaken largely to obviate this statistical problem). The computation of crime-days per year at risk has also facilitated comprehension of the magnitude of the crime problem among heroin addicts by

according a convenient common frame of reference for understanding - times per year. Thus, when it is reported that the average Baltimore addict had 255 crime-days per year when addicted, it is readily understood that the subjects are involved in crime some five days per week.

The crime-day formulation can be viewed as an intermediate measure of criminal behavior: a measure with greater inclusiveness or comprehensiveness than arrests but less complete and thorough than an enumeration of all offenses committed every day. All three measures have applicability to criminological research and, furthermore, may supplement one another. For example, the follow-up interview data of the present study becomes more creditable when self-reports of arrests and imprisonments are confirmed by official records. Similarly, Paul Goldstein's interviews with addicts in New York City¹⁴, in which they recount their daily income producing experiences, (both work and crime) supplements an annual crime-day measurement. Consequently, it is held that the crime-day formulation can serve to facilitate comparisons among criminological studies.

14. Goldstein, 1981.

In the present project, the original crime-day formulation (i.e., a single day during which crime of any type was committed) has been expanded to include five basic types of crime-days (crime-day theft, crime-day violence, crime-day drug dealing, crime-day con games, and crime-day other offenses). This elaboration of the original crime-day concept has worked quite well in practice. It has enabled greater specificity in the description of criminality and made it possible to analyze various types of crime comprehensively. This five-fold elaboration has greatly increased the analytic power of the original crime-day concept. At the same time, and perhaps inevitably, this increased analytic power has been achieved at the cost of some loss of conceptual clarity. For we now have not only five types of crime-days, but several collateral measures which seem necessary (i.e., composite crime-days, multiple crime-days, no crime-days and total crime-days). The measurement conceptualization has become, therefore, more complex and a certain elegance of simplicity has been lost. But, as indicated, this seems inevitable inasmuch as the impetus for more accurate measurement continues.

Implementation of the Crime-Day Measures

The implementation of the crime-day measures with respect to the Baltimore interview and follow-up data has proceeded quite satisfactorily. Use of the original unidimensional crime-day measure (i.e., a single type of crime-day which subsumed all crime) not only made possible the calculation of appropriate rates, but it facilitated the coding process. Thus, it obviated enumeration of numerous offenses committed on a given day and somewhat simplified one aspect of the complex and lengthy coding of the interview data.

Elaboration of the original crime-day measure into five basic types of crime-days proved to be feasible. In large part, this was because the classification of offenses per day into five types also simplified the coding procedure as it was not necessary to enumerate and catalogue all offenses committed each day. This is not to imply that the coding procedure was easy or perfunctory, for it was not. For example, it was necessary to devise a reliable procedure for determining the frequency of composite and multiple crime-days when there were overlapping offenses on a weekly basis but the daily sequence of each was not known. The point is that there were coding complexities and ambiguities to be resolved, but that it was feasible to undertake and complete the coding satisfactorily. A logical and reliable procedure was established.

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In appraising the future usefulness of crime-day measures, the principal consideration seems likely to be whether sufficiently detailed and comprehensive life history data can be obtained to enable this type of measurement. In this regard, it is important to emphasize that the lengthy and detailed interview data provided by the Baltimore subjects were obtained as part of an intensive follow-up study of these addicts in the community. The methodology of these follow-up studies of drug abuse has been under systematic development in the United States for the past twenty years. Thus, a considerable scientific literature exists pertaining to this follow-up methodology and its evaluation.¹⁵ In the present context, the point to be noted is that the interviews were part of an overall follow-up rationale and procedure which supplements the face-to-face interview data (e.g., by providing additional material from official records and other institutional and personal sources). Consequently, it is held that comparable interview data is most likely to be obtained from similar specialized follow-up studies of addicts in the community.

On the basis of our experience thus far, the principal limitation of the crime-day measures appears to be that the direct use of these measures requires the existence of an unusually detailed and comprehensive data base. It seems

15. Johnston, Nurco and Robins, 1977, Conducting Followup Research on Drug Treatment Programs.

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likely, then, that direct use of this measurement may be quite restricted. At the same time, use of the intermediate crime-day measures of criminal behavior for comparative purposes may well have broad applications. In this regard, special tabulations prepared by the Rand Corporation and other developing data sets which pertain to high crime rate offender samples indicate that it may be feasible to use the crime-day formulation to effect comparisons among numerous criminological studies.

Heroin Addiction as a Criminogenic Influence

In this study of male addicts in Baltimore, it was found that most of the 354 subjects were continually engaged in criminal behavior during their adult lives. For most of the addicts, the onset of addiction was associated with a high level of criminality which continued in successive addiction periods. Indeed, criminality during numerous periods of addiction remained remarkably consistent throughout their many years "on the street," or at risk.

The consistency of criminal behavior during successive addiction periods is evident in the continuity of crime rates. Thus, the composite crime-day rate for the first six addiction periods is remarkably stable (there is less than 5 percent variation in the CCD rate from the 254.9 rate per year of the first period). The non-addiction, or off, periods were

characterized by markedly lower crime-day rates than the addiction periods. This difference was consistent and notable. Thus, the composite crime-day rate for the 14 addiction periods (255.1) was four times higher than the comparable rate for the eight off periods (64.8). Furthermore, the CCD rate for every one of the addiction periods was higher than any obtained in the off periods (Table 9).

In considering the fact that the crime-rates in the off periods are markedly and consistently lower than the crime rates in the addiction periods, two further observations are relevant. First, it should be noted that the addiction and off periods which characterized the life history of the sample were discrete but alternating periods; that is, the first off period occurred after the first addiction period, and subsequent off periods usually occurred between addiction periods (or prison periods). The point is that both addiction and off periods were interspersed during the risk years so that consistently lower crime-rates in the off periods indicates an effect that occurs throughout the years at risk.

Secondly, it is pertinent to note that the difference in crime rates between addiction and off periods occurred within the same sample. That is, the two sets of rates have been derived from the same addicts: one set of crime-day rates for

their addiction periods and another set of crime-day rates for their off periods. Consequently, the observed differences in rates are not due to use of diverse samples.

The high rates of criminality consistently associated with the addiction periods and the markedly lower rates found in the non-addiction periods provide substantial support for a criminogenic interpretation.¹⁶ For it is evident from the research findings that criminality is markedly increased during addiction periods and consistently lowered during non-addiction periods. Furthermore, criminality in the sample commences at a high rate as addiction commences, and it continues at a high rate so long as addiction persists. Conversely, crime rates are markedly lower as soon as addiction ceases and the crime rates decrease in successive off periods. The most parsimonious explanation of these consistent changes in crime rates is that heroin addiction contributes to, or causes, an increase in crime. Without engaging in a discussion of casual analysis, it seems evident that heroin addiction is criminogenic in the same sense that cigarette smoking or air pollutants are carcinogenic -- they can, and often do, lead to increased incidence, although they are not the only causal agent.

Cohort Analysis of a Possible Maturation Effect

Although the overall research findings provide no apparent support for a maturation thesis which posits that criminality

¹⁶. See Clayton and Voss, 1981.

decreases as addiction continues over the years¹⁷, it could be that a maturation effect is present but obscured by the different cohorts in the Baltimore sample. Thus, it could be that the "hard-core" addicts who continue into the later addiction periods had even higher crime rates in the early periods, but that these early high rates are obscured by the inclusion of the more recent addicts with lower crime rates in the overall tabulations during these early addiction periods. It was decided to investigate this issue.

It was found that there was little or no support for this obscured maturation interpretation. Indeed, the cohort analysis provided further evidence of stable or increasing criminality as addiction progressed. Thus, a comparison of composite crime-day rates between the 244 addicts with five or more years at risk with those with less than five years at risk (N=110) revealed that the CCD rates for the first three periods were higher for the latter group (i.e., the more recent younger cohort) and that for both groups the rates increased. The CCD rate (percent of days engaged in crime) during the first addiction period for the longer risk group was 66.8; for the shorter risk group it was 72.6. Comparable rates for the second addiction period were 66.2 and 73.4. For the third addiction period, the comparable CCD rates were 69.8 and 85.1. Clearly, then, there is no support for a maturation hypothesis of a decreasing crime rate. Indeed, there is

17. See Gandossy et al., 1980, Part IV. "Life Cycles."

additional evidence of increasing criminality as addiction persists for both cohorts.

VII. CONCLUSION

In this follow-up study of a probability based sample of heroin addicts in Baltimore who were arrested (or identified by the police), it was found that 354 male addicts maintained a high rate of criminality over their addiction careers. Thus, they committed offenses some 255 days a year while "on the street" and this high rate of criminality continued during their years at risk. Indeed, the continuity and stability of their frequent criminal behavior during their periods of addiction was remarkable.

Five crime-day measures were employed to analyze criminality within this sample over the risk years. It was found that theft was the most common offense as it accounted for 38 percent of the total crime-days. Drug sales was second in overall frequency as it accounted for 27 percent of the crime-days. The "other crime" classification included 26 percent of the crime-days. The remainder of their crime involved violent offenses and con games which together accounted for ten percent of the total crime. This pattern, or configuration, of crime remained quite stable throughout successive addiction periods.

While there is no support in the research findings for a maturation hypothesis with respect to the association between

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crime and opiate addiction, there was substantial support for the thesis that drug dependence is a major contributory factor leading to criminality among heroin addicts in the United States. In this regard, the difference between crime rates in the first addiction period and the first off period was striking (a mean of 255 crime-days per year vs. 83 crime-days per year). The comparable figure for the total number of crime-days during this first addiction and first off period was 273,049 and 68,999 for each of the two year periods.

The high crime-rates of the first addiction period continued in subsequent addiction periods. Thus, the 354 males committed well over 775,000 crimes during the nine year risk period that they were free in the community and 88 percent of these were committed while they were addicted.

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TABLE 1. TOTAL CRIME-DAYS FOR THEFT, VIOLENCE, DEALING,
CONFIDENCE AND OTHER OFFENSES FOR 354 MALE ADDICTS

<u>TYPE OF CRIME-DAYS</u>	<u>NUMBER OF CRIME-DAYS</u>	<u>MEAN CRIME-DAYS PER ADDICT</u>	<u>PERCENT OF CRIME-DAYS OF EACH TYPE</u>
1. THEFT OF PROPERTY	293,308	828.6	37.9%
2. VIOLENT OFFENSES	16,316	46.1	2.1
3. DRUG SALES	205,692	581.1	26.5
4. CONFIDENCE, FORG., ETC.	60,882	172.0	7.9
5. OTHER OFFENSES	198,579	561.0	25.6
TOTAL CRIME DAYS	774,777	2,188.6	100.0

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TABLE 2. NUMBER OF ADDICTION AND NON-ADDICTION PERIODS FOR THE SAMPLE OF 354 MALES

TOTAL ADDICTION PERIODS		TOTAL OFF PERIODS	
NUMBER OF	NUMBER OF ADDICTS	NUMBER OF	NUMBER OF ADDICTS
0.	--	0.	35
1.	57	1.	152
2.	71	2.	89
3.	73	3.	46
4.	53	4.	18
5.	43	5.	8
6.	19	6.	4
7.	16	7.	1
8.	9	8.	1
9.	5		
10.	2		
11.	4		
12.	0		
13.	1		
14.	1		
TOTAL	354		354

NOTE: THERE WERE 1,279 ADDICTION PERIODS AND 619 OFF PERIODS DURING THE RISK YEARS. (RISK YEARS, OR TIME ON "THE STREET," DOES NOT INCLUDE INCARCERATION PERIODS.)

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TABLE 3. FIVE TYPES OF CRIME-DAYS IN FIRST ADDICTION
AND FIRST OFF PERIOD

TYPE OF CRIME-DAY	FIRST ADDICTION PERIOD		FIRST OFF PERIOD	
	NUMBER OF CRIME-DAYS	MEAN NUMBER (N=354)	NUMBER OF CRIME-DAYS	MEAN NUMBER (N=319)
1. THEFT	98,629	278.6	26,070	81.7
2. VIOLENCE	6,643	18.8	369	1.2
3. DEALING	66,702	188.4	17,785	55.8
4. CON GAMES	21,435	60.6	1,524	4.8
5. OTHER CRIME	79,640	225.0	23,251	72.9
TOTAL	273,049	771.3	68,999	216.3

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**TABLE 4. PERCENT OF DAYS IN FIRST ADDICTION AND FIRST OFF PERIOD THAT
ADDICTS WERE ENGAGED IN CRIME, BY TYPE OF CRIME**

TYPE OF CRIME-DAY	FIRST ADDICTION PERIOD (815 DAYS)		FIRST OFF PERIOD (887 DAYS)	
	NO. OF DAYS EACH TYPE	PERCENT OF DAYS IN EACH TYPE	NO. OF DAYS EACH TYPE	PERCENT OF DAYS IN EACH TYPE
1. THEFT	98,629	34.2%	26,070	9.2%
2. VIOLENCE	6,643	2.3	369	0.1
3. DEALING	66,702	23.1	17,785	6.3
4. CONFIDENCE	21,435	7.4	1,524	0.5
5. OTHER	79,640	27.6	23,251	8.2
TOTAL	273,049	69.8%*	68,999	22.4%*

*NOTE: THESE ARE COMPOSITE CRIME-DAYS; THE FIVE CRIME-DAY PERCENTAGES SUM TO A HIGHER
FIGURE AS THERE WERE MULTIPLE CRIME-DAYS.

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TABLE 5. PERCENT OF DAYS IN EACH ADDICTION PERIOD THAT ADDICTS ENGAGED IN CRIME, BY EACH OF FIVE TYPES OF CRIME

ADDICTION PERIOD	MEAN DAYS	NUMBER OF ADDICTS	PERCENT OF EACH PERIOD ENGAGED IN:					PERCENT OF DAYS IN CRIME *
			CD-1 THEFT	CD-2 VIOLENCE	CD-3 DEALING	CD-4 CON GAMES	CD-5 OTHER	
1.	815	354	34.2	2.3	23.1	7.4	27.6	69.8
2.	583	297	29.7	4.2	25.0	8.8	19.0	66.9
3.	470	226	35.1	0.4	29.8	8.5	21.6	70.9
4.	441	153	30.9	0.8	28.7	7.1	23.2	70.5
5.	453	100	49.9	0.3	17.7	7.4	14.4	70.5
6.	342	57	46.4	0.7	22.7	5.5	18.2	69.7
7.	393	38	63.2	0.2	32.9	2.4	15.9	92.2
8.	315	22	45.5	3.7	7.8	12.8	8.2	64.7
9.	360	13	48.8	3.8	7.1	3.7	34.5	69.8
10.	368	8	90.5	5.1	5.1	11.5	10.2	100.0
11.	385	6	37.9	5.2	7.8	67.5	42.9	88.3
12.	315	2	28.6	--	81.0	--	--	86.3
13.	720	2	--	--	27.1	11.6	--	27.1
14.	600	1	--	--	60.8	27.8	--	77.7

*THIS IS THE PERCENT OF TOTAL DAYS IN PERIOD WHICH WERE COMPOSITE CRIME-DAYS. THUS, IN THE FIRST PERIOD OF 815 DAYS, 69.8 PERCENT WERE DAYS IN WHICH ONE OR MORE TYPES OF CRIMES WERE COMMITTED; 30.2 PERCENT OF THE DAYS WERE NON-CRIME DAYS.

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TABLE 6. PERCENT OF DAYS IN EACH NON-ADDICTION PERIOD THAT ADDICTS ENGAGED IN CRIME, BY EACH OF FIVE TYPES OF CRIME

OFF PERIOD	MEAN DAYS	NUMBER OF ADDICTS	PERCENT OF EACH PERIOD ENGAGED IN:					PERCENT OF DAYS IN CRIME*
			CD-1 THEFT	CD-2 VIOLENCE	CD-3 DEALING	CD-4 CON GAMES	CD-5 OTHER	
1.	887	319	9.2	0.1	6.3	0.5	8.2	22.4
2.	754	167	5.0	0.2	3.4	0.3	4.2	12.4
3.	625	78	2.0	0.0	4.4	0.7	6.3	11.9
4.	533	32	0.6	--	3.2	--	0.2	3.7
5.	639	14	15.7	0.0	1.3	--	--	15.8
6.	690	6	2.5	--	--	--	--	2.5
7.	750	2	--	--	--	--	--	0.0
8.	510	1	--	--	--	--	--	0.0

*COMPOSITE CRIME-DAYS.

NOTE: IN THE ABOVE TABLE, A DASH INDICATES NO CRIME-DAYS IN THE PERIOD FOR THE TYPE OF CRIME; 0.0 INDICATES LESS THAN 0.05 PERCENT OF CRIME.

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TABLE 6. PERCENT OF DAYS IN EACH NON-ADDICTION PERIOD THAT ADDICTS ENGAGED IN CRIME, BY EACH OF FIVE TYPES OF CRIME

OFF PERIOD	MEAN DAYS	NUMBER OF ADDICTS	PERCENT OF EACH PERIOD ENGAGED IN:					PERCENT OF DAYS IN CRIME*
			CD-1 THEFT	CD-2 VIOLENCE	CD-3 DEALING	CD-4 CON GAMES	CD-5 OTHER	
1.	887	319	9.2	0.1	6.3	0.5	8.2	22.4
2.	754	167	5.0	0.2	3.4	0.3	4.2	12.4
3.	625	78	2.0	0.0	4.4	0.7	6.3	11.9
4.	533	32	0.6	--	3.2	--	0.2	3.7
5.	639	14	15.7	0.0	1.3	--	--	15.8
6.	690	6	2.5	--	--	--	--	2.5
7.	750	2	--	--	--	--	--	0.0
8.	510	1	--	--	--	--	--	0.0

*COMPOSITE CRIME-DAYS.

NOTE: IN THE ABOVE TABLE, A DASH INDICATES NO CRIME-DAYS IN THE PERIOD FOR THE TYPE OF CRIME; 0.0 INDICATES LESS THAN 0.05 PERCENT OF CRIME.

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TABLE 7. COMPOSITE CRIME-DAYS, MULTIPLE CRIME-DAYS AND
TOTAL CRIME-DAYS FOR THE 14 ADDICTION PERIODS

ADDICTION PERIOD	-A- COMPOSITE CRIME- DAYS (CCD)	-B- MULTIPLE CRIME- DAYS (MCD)	-C- TOTAL CRIME-DAYS (TCD)	-D- PERCENT MCD (OF CCD)
1.	201,414	71,635	273,049	35.6
2.	115,711	34,388	150,099	29.7
3.	75,239	25,957	101,196	34.5
4.	47,576	13,530	61,106	28.4
5.	31,902	8,722	40,624	27.3
6.	13,563	4,649	18,212	34.3
7.	13,781	3,345	17,126	24.3
8.	4,484	922	5,406	20.6
9.	3,266	1,316	4,582	40.3
10.	2,940	659	3,599	22.4
11.	2,040	1,686	3,726	82.6
12.	544	146	690	26.8
13.	390	167	557	42.8
14.	466	66	532	14.2
TOTAL:	513,316	167,188	680,504	32.6
RATE PER YEAR: (ALL PERIODS)	255.1	83.1	338.2	

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TABLE 8. COMPOSITE CRIME-DAYS, MULTIPLE CRIME-DAYS
AND TOTAL CRIME-DAYS FOR THE 8 OFF PERIODS

OFF PERIOD	-A- COMPOSITE CRIME- DAYS (CCD)	-B- MULTIPLE CRIME- DAYS (MCD)	-C- TOTAL CRIME-DAYS (TCD)	-D- PERCENT MCD (OF CCD)
1.	63,359	5,640	68,999	8.9
2.	15,616	832	16,448	5.3
3.	5,818	710	6,528	12.2
4.	639	34	673	5.3
5.	1,414	108	1,522	7.6
6.	103	--	103	0.0
7.	--	--	--	0.0
8.	--	--	--	0.0
TOTAL: RATE PER YR. (ALL PERIODS)	86,949 64.8	7,324 5.5	94,273 70.3	8.4

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TABLE 9. COMPOSITE AND MULTIPLE CRIME-DAYS PER
YEAR AT RISK FOR ADDICTION AND OFF PERIODS

ADDICTION PERIODS		NON-ADDICTION PERIODS	
CCD PER YEAR	MCD PER YEAR	CCD PER YEAR	MCD PER YEAR
1. 254.9	90.6	1. 81.8	7.3
2. 244.0	72.5	2. 45.3	2.4
3. 258.7	89.2	3. 43.6	5.3
4. 257.5	73.2	4. 13.7	0.7
5. 257.2	70.3	5. 57.7	4.4
6. 254.3	87.2	6. 9.1	0.0
7. 336.7	81.7	7. 0.0	0.0
8. 236.2	48.6	8. 0.0	0.0
9. 254.7	102.6		
10. 365.0	81.8		
11. 322.3	266.4		
12. 315.2	84.6		
13. 98.9	42.3		
14. 283.5	40.2		
TOTAL: 255.1	83.1	64.8	5.5

NOTE: THE COMPOSITE CRIME-DAY RATE WAS 3.9 TIMES HIGHER IN THE
ADDICTION PERIODS; THE MULTIPLE CRIME-DAY RATE WAS
15.1 TIMES HIGHER.

END