

Criminality in Heroin Addicts Before, During, and After Methadone Treatment

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A study of criminal activity of heroin addicts enrolled in the methadone treatment program in Atlanta, Georgia is presented. One hundred eighteen heroin addicts with criminal records in a methadone maintenance and detoxification program were studied. Comparison of the pre-addiction and post-addiction criminal rates showed no changes for thefts or violent crimes. In comparing the year prior to treatment versus the time while in treatment, no changes in rates of arrests or convictions were found.

Introduction

The success of methadone treatment of heroin addiction may be determined by assessing reduction in heroin use, improvement in vocational status, reduction in criminality, or changes in other measures of social functioning. Criminal activity is especially important since it not only results in morbidity for the addict but also imposes substantial social and economic costs upon society.¹ In addition, criminal behavior can be quantitated objectively through use of police records.

The association between heroin addiction and crime is clear. Addict's sources of income have been ascertained in several studies from interviews with addicts; 20-50 percent is derived from selling heroin or from other activities related to the heroin distribution system,^{2,4} 3-14 percent from welfare,^{2,4} 4 percent from other legal sources,^{2,4} and the remainder from other criminal activity. However, the extent to which addiction causes criminal behavior is controversial. The complexity of this relationship is reflected in a statement by the National Commission on Marijuana and Drug Abuse: "It is difficult, if not impossible, to establish a direct relationship between crime and the use of various drugs."⁵

This study of criminal activity of heroin addicts enrolled in the methadone treatment program in Atlanta, Georgia was designed to evaluate:

- Changes in criminal activity related to the onset of addiction;
- Kinds of crimes committed by addicts;
- The effect of treatment on criminal activity;

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- Criminality in addicts who have left the treatment program, including comparisons of readdicted and non-readdicted persons.

Methods

The Georgia drug treatment program was initiated in September 1971. Outpatient methadone treatment was the modality initially used to treat heroin addicts. All persons considered in this study were treated in this way. The methadone program is not a maintenance program. Maintenance (stable dose, usually greater than 40 mg/day) or detoxification (progressively tapering dose) schedules are prescribed, depending on each patient's situation. Young patients with brief addiction histories are often placed on detoxification schedules.

The population studied comprises the 230 heroin addicts who entered methadone treatment in December 1971. One year later, 68 (30 percent) remained in treatment, 23 (10 percent) had completed methadone detoxification, and 139 (60 percent) had left without completing treatment. One hundred sixty patients were selected for intensive study, including all 68 remaining in treatment, all 23 who had completed detoxification, and a random sample of 69 of the 139 who had left treatment. This last group was selected to match in number those remaining in treatment.

Demographic information and personal histories were taken from admission records. During admission interviews patients reported the duration of heroin addiction. Although date of onset of addiction is often difficult to define or remember, we accepted the month and year reported. Criminal histories were gathered from the records of the Atlanta Police Department (APD) and the Georgia Crime Information Center (GCIC). The APD receives criminal records from the Federal Bureau of Investigation concerning violations outside the APD jurisdiction for each individual arrested by the APD. If violations outside APD jurisdiction occurred subsequent to an individual's most recent APD arrest, they would not be re-

corded in APD records. The GCIC is attempting to maintain criminal records for all individuals arrested in Georgia. This system included approximately 70 percent of Georgia counties at the time of our study.

Crimes were classified according to when they occurred in an addict's career. If date of onset of addiction was known, crimes were classified as occurring between age 17 years and the onset of addiction, and between onset of addiction and entrance into methadone treatment. Crimes were also classified as occurring either 1-2 years prior to entering treatment, 0-1 year prior to entering treatment, while in treatment, or after leaving treatment, if applicable. Patients were in treatment for a maximum of one year or for fractions of a year.

Each arrest may result in a number of charges. Charges were categorically grouped as follows:

1. Minor crimes—all misdemeanor charges except drug violations or thefts
2. Drug misdemeanors
3. Property felonies—burglary, auto theft
4. Violent felonies—murder, rape, robbery, aggravated assault
5. Drug felonies
6. Thefts—including felonies and misdemeanors), shoplifting, etc.

Thefts are classified as felonies or misdemeanors, depending on the amount of money involved. Since this information was difficult to ascertain from the arrest records, all thefts were grouped in category 6. These thefts are separated from *burglary*, which requires breaking into a building, and *robbery*, which requires direct confrontation of the person being robbed. Rates of arrests, convictions, and the specific charge groupings were tabulated as number of events per hundred man years.

In addition to searching the recorded criminal and demographic sources of information, we attempted to interview persons who had left the treatment program. Three former addicts on methadone treatment were recruited to help locate and interview former patients. Part of the interview included assessment of drug use. Patients were considered readdicted after leaving treatment if they had used heroin daily for a one-week period and admitted to being "strung out."

Statistical methods included Chi-square, Fisher's exact test, Student's t-test, and analysis of variance. Two-tailed tests were employed to compensate for clustering bias introduced by using a stratified sampling technique. Criminal rates were compared by using a variation of the binomial distribution testing the likelihood that a given rate for a given length of time in a group of given size would occur by chance.^{9a} Findings were considered significant if p values were < 0.05.

Results

The 160 addicts studied had a mean age of 23.9 years and a mean duration of addiction prior to entering treatment of 12.9 months. Sixty five percent were male, with 59 percent black and 41 percent white. Persons leaving treatment or completing detoxification had been out of treatment for a

mean of 8.6 months, as of December 1972. Criminal records were found for 118 of the 160, as of December 1972. Only those with criminal records were included in this analysis. This included those with no arrests prior to treatment but with arrests during or after treatment. Significantly more addicts remaining in treatment (84 percent) had criminal records than did addicts leaving treatment (67 percent, $p < 0.05$)* or completing detoxification (61 percent, $p < 0.05$)*. Date of onset of addiction was recorded for 101 of the addicts. Whenever possible, we have analyzed data on all 118 patients with criminal records so as to avoid any bias associated with excluding 17 patients for whom date of onset of addiction was not known.

TABLE 1—Pre-Addiction and Post-Addiction Criminality
(rate/100 man years)

Charges	Age 17 yrs. to Onset Addition	Onset Addiction to Entering Treatment
Minor crimes	31*	19
Drug misdemeanor	1	2
Property felony	9	10
Violent felony	3	4
Drug felony	15*	33
Theft (felony & misdemeanor)	9	6
Arrests	55	42
Convictions	28	20

n = 101

* Difference significant, $p < 0.001$ (binomial distribution)

The association of addiction and crime may be explored by comparing criminality before and after onset of addiction, between successive time periods prior to entering treatment, and between persons readdicted and not readdicted to heroin after leaving treatment. Comparison of pre-addiction versus post-addiction, pre-treatment criminality is shown in Table 1. Minor crimes are significantly less frequent ($p < 0.001$)** and drug felonies are significantly more frequent ($p < 0.001$) after onset of addiction. No other differences are significant.

TABLE 2—Criminality before and during Treatment
(rate/100 man years)

Charges	1-2 years prior to treatment	0-1 year prior to treatment	While in treatment
Minor crimes	28*	44	44
Drug misdemeanor	0*	7	5
Property felony	14*	24	25
Violent felony	3	3	2
Drug felony	18**	77	77
Theft (felony & misdemeanor)	8	14	25
Arrests	39**	108	119
Convictions	27*	43	51

n = 118

* Difference significant, $p < 0.05$ (binomial distribution)

** Difference significant, $p < 0.001$ (binomial distribution)

Criminal rates in the 1-to 2-year period prior to entering treatment and in the year prior to entering treatment are shown in Table 2. Comparison of these figures shows significant increases in the immediate pre-treatment year for minor crimes ($p < 0.03$), drug misdemeanors ($p < 0.02$),

* Chi square, 2 x 2 contingency format

** Binomial distribution. Unless otherwise indicated, this is the technique applied to all determinations of statistical significance in the Results section.

property felonies ($p < 0.05$), drug felonies ($p < 0.001$), arrests ($p < 0.001$), and convictions ($p < 0.03$). There is no significant increase in violent crimes or in thefts.

TABLE 3—Comparison of Interviewed vs. Non-Interviewed Patients

	Interviewed	Non-Interviewed
Age (mean yrs.)	22.8	24.6
% Black	63	56
% Male	61	75
% Completed high school	36	42
% With some high school	39	37
Duration addiction (mos.)	14.1	9.9
n	102	58

Fifty percent of 111 persons who had left the treatment program were located and interviewed. Because of the possible bias in only getting post-treatment drug use histories from patients that we were able to locate, comparisons were made of patients who could and could not be interviewed (Table 3). None of these differences were significant.† In addition, rates of criminal activity among those interviewed and those not interviewed did not differ in the 2 years prior to entering treatment nor during treatment. Thus, based on all available data, there were no discernible differences between these two groups. Criminal records were available on 14 persons readmitted to heroin at some time after leaving treatment and on 20 persons not readmitted. Criminality in these persons is shown in Table 4. During the year prior to entering treatment, those persons destined to leave treatment and become readmitted had higher rates of minor crimes ($p < 0.03$) and arrests ($p < 0.05$) than those not readmitted. None of the rates were significantly different while these individuals were in treatment. After leaving treatment, readmitted persons had significantly higher rates of minor crime charges ($p = 0.02$), property felony charges ($p < 0.001$), arrests ($p = 0.006$), and convictions ($p < 0.02$).

TABLE 4—Criminality in Persons Readmitted and Not Readmitted to Heroin after Leaving Treatment (rate/100 man years)

Charges	0-1 year prior to entering treatment		While in treatment		After leaving treatment	
	Re-addedicted	Not Re-addedicted	Re-addedicted	Not Re-addedicted	Re-addedicted	Not Re-addedicted
Minor crimes	100*	40	86	86	209*	93
Drug misdemeanor	14	0	0	0	0	0
Property felony	21	55	57	99	179***	34
Violent felony	0	10	0	0	20	0
Drug felony	150	95	0	66	50	51
Theft (felony & misdemeanor)	21	30	0	11	50	9
Arrests	179*	105	143	166	288**	127
Convictions	79	75	86	86	219*	93

n = 34

- * Difference significant, $p < 0.05$ (binomial distribution)
- ** Difference significant, $p < 0.01$ (binomial distribution)
- *** Difference significant, $p < 0.001$ (binomial distribution)

The year immediately preceding entrance into treatment is probably the best reflection of the kinds of crime committed by addicts (Figure 1). Fifty percent of the criminal charges are for drug law violations. The least frequent group of charges is

†Fisher's exact test, Chi square and one way analysis of variance, were used in these analyses.

for violent crimes (2 percent). Property crimes (property felonies + theft) account for 22 percent of the charges. Seventy six percent of charges are for victimless crimes or misdemeanors.

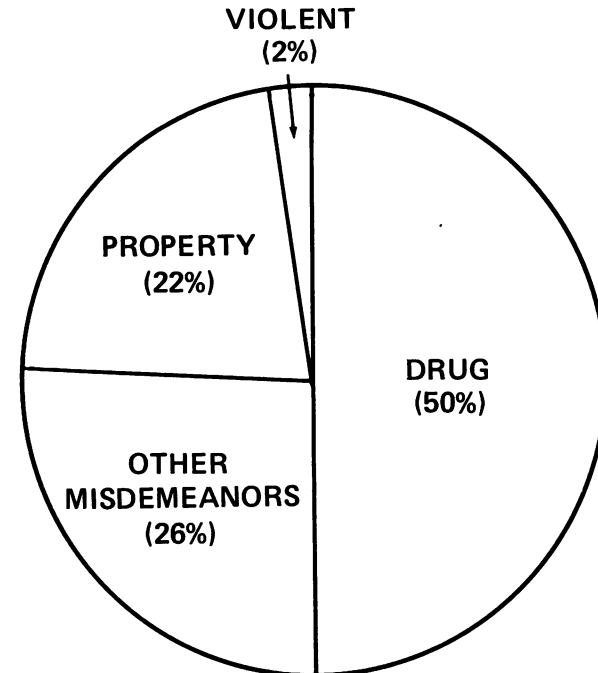


FIGURE 1—Kinds of Criminal Charges in the Year Prior to Entering Treatment

The effect of treatment on criminality can be analyzed by comparing the year prior to entering treatment with the time while in treatment in Table 2. No changes are apparent and the slight increase in arrests and convictions while in treatment is not statistically significant.

Further assessment of the influence of treatment can be gained by comparing criminal activity after leaving treatment with that while in treatment for the 61 patients who left treatment or completed detoxification (Table 5). The only significant change is the increase in minor crimes after leaving treatment ($p > 0.004$). The differences in arrests and convictions after treatment fail to reach statistical significance.

TABLE 5—Criminality in Persons Leaving Treatment (rate/100 man years)

Charges	While in treatment	After leaving treatment
Minor crimes	41*	104
Drug misdemeanor	4	0
Property felony	62	61
Violent felony	4	5
Drug felony	62	63
Theft (felony & misdemeanor)	25	23
Arrests	78	103
Convictions	124	154

n = 61

- * Difference significant, $p < 0.01$ (binomial distribution)

Our data may be projected to estimate the percentage of total Atlanta arrests in which the person arrested is an addict. The major sources for error in this calculation are (1) inaccuracy of the estimate of the size of the Atlanta addict population and (2) the assumption that the findings in addicts who have entered treatment can be extrapolated to addicts who have not entered treatment. For these reasons, the following discussion should be considered a *rough approximation* of the extent to which crimes are committed by addicts. At the time of our study, the Atlanta addict population was estimated to number approximately 5,000, based on Medical Examiner's records, treatment admissions, and the "indicator-dilution technique."⁶ In our study population of 160 addicts, we found 118 (73.75 percent) with criminal records. In our estimated population of 5,000 addicts, assuming a similar rate among addicts not entering treatment, we would expect $5,000 \times 0.7375 = 3,687.5$ persons with criminal records. Using our rates for the year prior to entering treatment (December 1970-December 1971), one can calculate the number of arrests expected for these 3,687.5 persons in that year.

Estimated Addicts with Criminal Records	Arrest Rate	Estimated Arrests Dec. 1970- Dec. 1971
3,687.5 addicts	$\times 0.0339$ violent crime arrests/yr/addict	= 125
3,687.5 addicts	$\times 0.3814$ property & theft arrests/yr/addict	= 1,406.4

During the year 1971, the APD arrested 4,050 persons for violent crimes and 6,021 persons for crimes we have classified as property or theft. Using these figures, we calculated the percentage of total arrests attributable to addicts.

$\frac{125 \text{ estimated arrests for violent crime by addicts}}{4,050 \text{ arrests for violent crime, 1971}}$	= 3.1% of all arrests for violent crime
$\frac{1,406.4 \text{ estimated arrests for property crime \& theft by addicts}}{6,021 \text{ arrests for property crime \& theft, 1971}}$	= 23.4% of all property crimes & thefts

Discussion

Before interpreting our data, it should be noted that charges and arrests do not denote a judicial decision of guilt. However, since many crimes do not result in conviction, we have used charges and arrests as a measure of criminal activity.

We have attempted to explore the association between addiction and crime in three ways.

First, comparison of pre-addiction and post-addiction, pre-treatment criminality showed a reduction in charges for minor crimes and an increase in charges for drug felonies concurrent with addiction. Drug charges may be regarded as more of an occupational hazard than a shift toward criminal involvement.

Second, comparison of criminality in the 1-2 years prior to treatment versus the year prior to treatment showed increases in many charges as well as in arrests and convictions during the immediate pretreatment period. This phenomenon has been noted previously.^{7, 8, 9} It may represent an increased tempo of addiction and criminal activity which culminates in the addict's seeking treatment. However, part of the ex-

planation may also be that many arrested addicts enter treatment in an attempt to gain favorable judicial disposition of their cases. In this context, it should be pointed out that there was no significant pre-trial referral from the courts to treatment in Atlanta at this time.

Third, comparison of readdicted versus non-readdicted persons after treatment did show those readdicted as having higher rates of minor crime charges, property felony charges, arrests, and convictions. The significance of this association is damped by the finding that the readdicted persons also had higher rates of minor crime charges and arrests prior to treatment. Thus, their increased criminality after leaving treatment and becoming readdicted may be partially due to a greater criminal tendency inherent in this group.

None of our findings provide unreserved support for the notion that addiction causes crime. This is consistent with previous studies which have shown substantial criminal activity in heroin addicts prior to addiction. Studies of addicts over a 30-year period at The Addiction Research Center in Lexington, Kentucky have shown an increasing tendency for addicts to demonstrate pre-addiction criminality among more recent admissions.^{10, 11, 12, 13} The most recent studies showed that 47 percent of a sample of persons addicted between 1950-1959 had had arrests or convictions prior to addiction¹² and 61.5 percent of the Spanish-American addicts admitted to treatment in 1967 had been arrested prior to any opiate use.¹³ Because Lexington receives a substantial number of referrals from the criminal justice system, these studies may be biased by their chronically criminal population. However, other studies have shown that 67 percent of persons arrested for narcotic violations had criminal records prior to opiate use, whereas only 33 percent of persons arrested for non-narcotic violations had previous arrests.¹⁴ More recent study of addicts in methadone treatment in Boston showed that of the 80 percent who had probation records, average age at first charge for illegal activity was 17-18 years, whereas average age at first drug charge was 19-20 years.¹⁵ The implication of these and our findings are that "addiction and crime are not causally related but may be parallel effects of common underlying factors leading to social deviance."¹⁶

Our findings concerning the kinds of criminal charges against our addict population before treatment are similar to those of previous studies. The vast majority of non-drug crimes in our population were misdemeanors and property crimes. Violent crimes represented only 2 percent of the charges. Interviews with addicts, 2, 4, 17, 18 examination of addict police records,^{10, 12, 19, 20, 21} and comparison of kinds of arrests in addict versus non-addict groups²² have confirmed the predominance of robbery and property crimes among non-drug charges.

We find little evidence of reduction in criminal activity of addicts while in treatment. In comparing the pre-treatment year with the year of treatment, our data actually show increases in theft charges, arrests, and convictions, although these are not statistically significant. After leaving treatment, non-drug misdemeanor charges are significantly increased over in-treatment levels, but no significant changes are present for more serious charges, arrests, or convictions.

These findings contrast sharply with the results of most

previous studies. The Consumer's Union Report²³ stated that criminal rates for patients in methadone treatment were "lower than the rate (about 1 arrest every 40 years) for the United States population as a whole, including babies in arms and the aged." Dole's group of 750 addicts²⁴ showed a reduction from 52 convictions/100 man years of addiction prior to treatment to 5.8 convictions/100 man years while in treatment. Gearing's review of over 17,000 addicts²⁵ showed a reduction from 218 arrests/100 man years in the 3 years prior to treatment to 3.02 arrests/100 man years while in treatment. Other studies^{8, 9, 26} have demonstrated similar findings.

The reason for the disparity between our findings and those of others is unclear. We have included all patients, regardless of whether they remained in treatment or left. However, even if we select the group remaining in treatment, we are still unable to demonstrate reductions in criminality during treatment. The pre-treatment rates for our patients of 43 convictions/100 man years is similar to Dole's group's rates²⁴ with 52 convictions/100 man years—and the 108 arrests/100 man years is similar to Senay's group²⁶ with 84 arrests/100 man years. Thus, measures of pre-treatment criminality do not suggest that the differences in findings are attributable to differences in amount of criminality between the populations.

Our patients were placed on either methadone maintenance or methadone detoxification schedules. The previous studies have been largely of patients on methadone maintenance programs. These programs often had waiting lists for admission and required a 2-year addiction history. As a result, these populations were older and had longer addiction histories than did our patients (Table 6). However, reduction in arrests during treatment has been reported to be greater among younger patients.⁷ Thus, our failure to demonstrate reductions in criminality during treatment may result from our use of a mixed maintenance-detoxification approach rather than the prototype maintenance approach.²⁸ It is also possible that our rehabilitative, counseling, legal, and other social services fall short of those of the more successful programs. Regardless of the explanation, our findings show that admission and short-term retention in a methadone program do not guarantee criminal rehabilitation.

TABLE 6—Age and Duration of Addiction in Various Studies

Study	Mean age on admission (years)	Mean duration addiction
Dole (24)	Not stated, 27.3 in earlier study (26)	Minimum 4 years
Gearing (25)	29-33	8 years in earlier study (27)
Senay (26)	23.2-35.2 in various cohorts	First narcotic use at age 20—duration addiction probably 2-13 years in various cohorts
Atlanta, Ga.	23.9	1.08 years

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