think that investigation and treatment may be justified before this. Amenorrhoea is a source of great anxiety to women and this is increased if a pregnancy is desired. The need to exclude serious disease, assess future fertility prospects, and reassure the patient indicates that six months is an appropriate interval, since not more than 1-2% will have amenorrhoea after discontinuing the pill at this time. The investigation need not be unduly extensive but should include an x-ray examination of the pituitary fossa, gonadotrophin measurements unless there is a satisfactory response to clomiphene, and any other tests indicated by the history or examination findings in individual patients.

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Female Narcotic Addicts: A Follow-up Study of Criminal and Addiction Careers

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Summary

A sample of 66 female narcotic addicts first examined in prison in 1967-8 was followed-up four years later. At the end of the period of follow-up 36% were off narcotics, 32% were still addicted, and 15% had died. Altogether 62% committed further offences. Drug offences and offences against property were almost equally frequent and accounted for over two-thirds of all convictions. There was no evidence of a link between prostitution and narcotic addiction. A significant association was found between continued delinquency and continued addiction during the period of follow-up. Addiction career and criminal career coincided in over three-quarters of the subjects, who tended either to continue manifesting both forms of deviant behaviour (46%) or to relinquish both (30%). The findings are in keeping with the view that narcotic addiction and crime are not causally related but may be parallel effects of common underlying factors leading to social deviance.

Introduction

The relation between narcotic addiction and crime is controversial and there has been much argument about its nature. One of the reasons for this controversy is the wide variation in the crime rates of narcotic addicts in different countries. Even within one country relatively rapid changes may occur in the social patterns of drug abuse,¹ with a consequent change in the relation to crime. In Britain there is much evidence that during the past decade delinquency has become a prominent characteristic of young narcotic addicts,²⁻³. A similar trend has occurred in the United States, where addicts are recruited more and more from persons with a criminal record.⁴ Vaillant⁵⁻⁶ noted

some of the similarities in the long-term careers of narcotic addicts and recidivist criminals, including the rate at which they give up delinquent activity. Long-term follow-up studies of delinquent addicts are of special interest when attempting to elucidate the natural history of crime and addiction and the relation between their criminal and addiction careers. The present study describes a four-to-five year follow-up of 66 female narcotic addicts first examined in Holloway Prison during the 18-month period January 1967 to June 1968.

Subjects and Methods

The sample comprised all women (whether on remand or serving a sentence) who were found on admission to be physically dependent on narcotics. Their social characteristics, history of drug abuse, and patterns of delinquency were described in the original study.⁷ A baseline follow-up was carried out in September 1968, three months after the collection of the sample. In September 1972 data were again obtained from the Drugs Branch of the Home Office on the addiction status of the subjects, deaths that had occurred, and admissions notified by hospitals. Data on continued delinquency were obtained from criminal records. The register of deaths at Somerset House was searched for the names of 31 subjects who at the end of the follow-up period were no longer on the Home Office index; no additional deaths were discovered through this source. Continued personal contact during the period of follow-up was possible with 31 subjects who were readmitted to Holloway. The mean length of follow-up from the time of entry into the cohort was four years 11 months, with a range of four years three months to five years nine months.

Results

ADDICTION CAREERS

The status of the subjects was assessed in September of each year during the period of follow-up (tables I and II). Several subjects were not at risk of being addicted owing to death, emigration, or institutional care (table I).

At the time of the baseline follow-up in 1968, 18 subjects

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were still in institutions as a result of the sentences incurred during the period of the original study; 10 were in Borstal, three were in prison, and five were in a hospital or rehabilitation centre. The number in institutions in subsequent years rapidly declined. Two subjects emigrated. Ten subjects (15%) died—two of septicaemia, seven of drug overdosage, and one through hanging herself.

Though at the first contact all subjects were dependent on pharmacologically pure heroin, in subsequent years many used methadone, "Chinese" heroin, or a combination of all three (in addition to non-narcotic drugs).

The proportion of subjects known to the Home Office as being dependent on narcotics (heroin or methadone) remained between 50% and 60% of those at risk, and only in the final year of follow-up was there any notable decline (table II). At the end of the period of follow-up (September 1972) all 21 subjects still on narcotics were attending drug dependence clinics (table III), 18 of them in London. Twenty-four subjects had not been notified to the Home Office during the four years 1969-72, and it can be reasonably concluded that they were no longer addicted. Three subjects were withdrawn from drugs as inpatients in hospitals during 1972 and a further three were not notified in 1972 but were still regarded as suspected narcotic users. In view of the short period since last notification these six subjects may have been at special risk of relapse and were therefore classified as uncertain. Thus of the 51 subjects at risk of addiction in 1972 41% were still addicted, 47% were off narcotics, and in 12% the addiction status was uncertain.

TABLE I—Yearly Number of Subjects not at Risk

	1968	1969	1970	1971	1972
Died { yearly	2	0	4	2	2
Cumulative	2	2	6	8	10
Emigrated { yearly	1	0	1	0	0
Cumulative	1	1	2	2	2
In institutions (hospital, prison, or Borstal)	18	4	4	2	3
Total	21	7	12	12	15

TABLE II—Yearly Addiction Status of Subjects at Risk

	1968 (n = 45)	1969 (n = 59)	1970 (n = 54)	1971 (n = 54)	1972 (n = 51)
No. (%) on narcotics	27(60)	33(56)	27(50)	29(54)	21(41)
No. (%) off Home Office index	18(40)	26(44)	27(50)	25(46)	30(59)

TABLE III—Status of Subjects in September 1972.

	No. of Subjects
Dead	10(15%)
Emigrated	2(3%)
In institutions	3(5%)
On narcotics (registered at clinics)	21(32%)
Off narcotics (not notified for 4 years)	24(36%)
Status uncertain { Withdrawn 1972	3
{ Not notified for 1 year 3 }	6(9%)
Total	66(100%)

CRIMINAL CAREERS

Of the 63 subjects alive and still in Britain at the time of the baseline follow-up in 1968 39 (62%) committed a total of 137 further offences during the subsequent four years of follow-up. Thirty-one of these subjects (49% of the remaining sample) returned to Holloway Prison at some time during the four years either on remand or to serve a sentence.

The types of offences committed by the 39 further offenders showed little change from those committed during the original study period (table IV). Drug offences and offences against property were almost equally common, and together they accounted for over two-thirds of the total. The decrease in the propor-

tion of drug offences (from 45% to 33%) was not statistically significant ($\chi^2 = 1.59$; D.F. = 1; $P < 0.25$). During the period of follow-up there was some increase in offences of violence but this also did not reach statistical significance ($\chi^2 = 3.10$; D.F. = 1; $P < 0.1$). Though during the study period there were no convictions for soliciting and in the follow-up period four subjects were convicted of this the four subjects concerned had all had previous convictions for soliciting before their entry into the sample in 1967-8.

TABLE IV—Pattern of Offences committed in Study and Follow-up Periods

	Study Period		Follow-up Period	
	No. (%) of Offences	No. (%) of Offenders (Total Sample = 66)	No. (%) of Offences	No. (%) of Offenders (Average Sample at Risk = 55)
Drug offences	43(45)	40(61)	45(33)	27(49)
Property offences	34(35)	28(42)	48(35)	26(47)
Violence	5(5)	5(8)	14(10)	10(18)
Breach of conditional discharge or Probation	9(9)	8 12	13(9)	11(20)
Soliciting	0 0	0 0	12(9)	4(7)
Vagrancy	4(4)	4 6	3(2)	3(5)
Carried in stolen car	1(1)	1(1.5)	2(1.4)	2(4)
Total	96(100)		137(100)	

ASSOCIATION BETWEEN CRIMINAL AND ADDICTION CAREERS

To what extent did delinquent behaviour coincide with narcotic dependence during the period of follow-up? With the omission of the 10 subjects who died and the two who emigrated there were four possible types of outcome in the 54 subjects who were followed up for four years (table V).

In all, 33 subjects committed further offences and 30 remained dependent on narcotics in at least two of the four years of follow-up, but the two types of behaviour coincided in 25 subjects, 46% of the sample remaining at risk for four years. In a further 30% both delinquency and addiction had ceased. Thus in over three-quarters of the subjects addiction careers and criminal careers ran a parallel course. The association between continued delinquency and continued addiction during the period of follow-up was highly significant ($\chi^2 = 14.027$; D.F. = 1; $P < 0.001$).

TABLE V—Relation of Narcotic Dependence to Delinquency in Follow-up Period

	No. (%)
Group 1, delinquent and addicted	25(46)
Group 2, neither delinquent nor addicted	16(30)
Group 3, delinquent only	8(15)
Group 4, addicted only	5(9)
Total	54 100

Discussion

A high proportion (62%) of subjects committed further offences during the period of follow-up. Drug offences and offences against property (mostly petty larceny) were almost equal in frequency and between them accounted for over two-thirds of the total. Though there was some increase in offences of violence this trend did not reach statistical significance and is in contrast to the findings of Gordon³ and Noble *et al.*⁸ In the present study, however, the comparison was between offence patterns over a period of time when the subjects were already addicted and not between pre- and post-addiction offences or between the offences of a sample of narcotic addicts and non-addict controls. The follow-up confirmed the finding of the original study, that prostitution in British addicts is not causally related to narcotic dependence.⁷ None of the subjects who were not previously involved in prostitution began soliciting during the period of follow-up.

Generalizations about the link between crime and addiction may be true only in the limited context of a particular society and at a particular point in its history. Their association will depend also on the characteristics of the sample selected for study. A significant association between addiction and crime in a sample of women from a penal institution is not unexpected; being charged with an offence and remanded in custody was itself a condition of entry into the cohort. The association of narcotic dependence with delinquency in these women, however, was not a temporary one relating to a single incident of arrest but extended over a prolonged period of follow-up. Furthermore, the association held good in both a positive and a negative direction. Addiction career and criminal career coincided in over three-quarters of the subjects, who tended either to continue to manifest both forms of deviant behaviour (46%) or to relinquish both (30%). The findings are in keeping with the hypothesis that maturation from delinquency and narcotic addiction tends to be a parallel process; continuation in one form of deviancy without the other occurred in less than a quarter of the sample. In a follow-up study of narcotic addicts discharged from Lexington, O'Donnell⁸ found a similar parallel association between narcotic addiction and criminal career subsequent to discharge.

Whether narcotic dependence or delinquency occurred first had no significant influence on the outcome. A study of variables related to outcome¹⁰ showed that, though 40% of the subjects had no history of delinquency before narcotic dependence, in their subsequent career this originally non-delinquent group was as likely to be involved in crime and in narcotic use as those in whom delinquency preceded addiction. The only significant prognostic factor was the duration and extent of involvement in delinquency (as measured by the number of previous convictions) rather than the occurrence of an offence before or after addiction.

What inferences can be drawn from the findings of this study with regard to the relation of narcotic addiction to crime? The view that narcotic addiction itself causes crime is not supported by the findings. Some 60% of the subjects were convicted of offences before addiction, and 78% of first convictions were for non-drug offences.⁷ During the follow-up period continued narcotic use may in itself have led to a high risk of continued offending, as most of the subjects obtained drugs from illicit sources in addition to their legally prescribed drugs; however, only five subjects in group 1 and one in group 3 committed subsequent offences related solely to drug use.

The findings suggest that the criminality of these narcotic addicts was not explicable merely by their need to obtain drugs illegally. The alternative view that drug dependence is simply an extension of delinquent behaviour is also difficult to sustain, since in many cases drug dependence occurs without a prior history of delinquency and only a small minority of delinquents become dependent on drugs. Though the present sample was drawn from women in prison 40% of them had no history of

convictions before addiction. A third hypothesis is that addiction and crime are parallel effects of common underlying personality and environmental factors which lead to socially deviant behaviour. Recent studies of adolescent drug takers in Britain have tentatively suggested a parallel relationship of this kind between drug use and delinquency rather than a direct causal relationship. Cockett¹¹ reported a correlation between length of delinquency and length of drug use in young male offenders, indicating a tendency for early onset of the one to be associated with early onset of the other. Noble *et al.*⁸ followed up adolescent girls discharged from a remand home and found a significant association between subsequent narcotic use and subsequent delinquency. In spite of this association there was no clear evidence of a causal relationship; both drug use and delinquency appeared to reflect "the difficulty these girls had in conforming to the requirements of society."¹²

The close association between criminal and addiction careers found in the present study is in keeping with the view that crime and addiction are parallel phenomena and are not in a direct causal relationship. Both criminality and narcotic addiction may be an expression of similar underlying personality traits leading to social deviance. The severity of personality disorder and chance environmental factors such as the availability of drugs and association with other drug users or with other delinquents may determine whether such deviant personality traits gain expression in delinquent behaviour or in drug dependence or simultaneously in both.

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