Effect of buprenorphine on the crime index in opioid dependence

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Abstract

Introduction: Illicit opioid abuse is one of the leading problems in world and it has been increasing year after year. Opioid addiction is directly linked with lot of crime and violence worldwide.

Methodology: The current observational study was conducted in one of the private deaddiction center in Punjab. Total 168 patients were recruited in the study and assessed with Opioid Treatment Index (OTI)[22] at baseline, one month, 3rd months and 6th Months.

Results: At the baseline, total 65 patients with opioid dependence, who had score more than one and with treatment patients with crime index, had decreased to 21 till end of six months.

Conclusion: Buprenorphine showed decrease in crime during the treatment of opioid dependence.

Introduction: Illicit opioid use is an international problem. To mention a few, it is associated with high rates of hepatitis C and HIV infection, overdose and criminality[1]. Globally, it is estimated that there are 13 million injecting drug users, including 9.2 million who use heroin, according to the World Health Organization[2]. For Southeast Asian countries, such as India and Bangladesh the "problematic" opioid use prevalence rate was 0.15%[3]. The picture is grim if the world statistics on the drugs scenario is taken into account. With a turnover of around $500 billions, it is the third largest business in the world, next to petroleum and arms trade.

About 190 million people all over the world consume one drug or the other[4]. Drug addiction causes immense human distress and the illegal production and distribution of drugs have spawned crime and violence worldwide. Today, there is no part of the world that is free from the curse of drug trafficking and drug addiction. Millions of drug addicts, all over the world, are leading miserable lives, between life and death. India too is caught in this vicious circle of drug abuse, and the numbers of drug addicts are increasing day by day. According to a UN report[5], One million heroin addicts are registered in India, and unofficially there are as many as five million.

Results of many empirical studies on the relationship between opioid addiction and crime conducted since the late 1970s have been remarkably consistent with regard to three major points: (a) opioid addicts commit a great deal of crime by any absolute standard; (b) generally, the greater the frequency of opioid use, the greater the frequency of crime tends to be[6] and (c) there is considerable individual diversity regarding the criminality of opioid addicts[7, 8, 9]. With respect to individual diversity, among drug-involved offenders, the earlier the age of onset of criminal activity, the greater the variety, frequency, and severity of crime they commit[10, 11, 12]. Unlike most opioid-dependent individuals, whose crime rates decline substantially during periods of nonaddiction to opioid, other heroin-dependent persons, particularly those with early onsets of criminal activity that precedes their initiation to opioid addiction, tend to be involved in frequent, serious crime regardless of addiction status[13, 14, 15]

However, the vast majority of studies on the opioid–crime relationship are not recent. Many were conducted in the 1980s and 1990s, with a few conducted in the early 2000s.

Because of this observation and because there is evidence that the current cohort of newly released prisoners, including those with preincarceration opioid addiction, face considerably more challenges to successful reentry than in previous years[16, 17], there is a need for data on the differential crime-related characteristics of these offenders. The present cohort of returning inmates are significantly more likely to be unemployed with little or no education and/or job skills compared with previous cohorts[17]. A disproportionately high number of inmates released to the community return to poor urban areas in which legitimate opportunities for work, education, and stable housing are diminishing and where opioid and other drug use, criminal activities, drug trafficking, and the influence of gangs proliferate [17, 18]. All of these circumstances prompt new questions about public safety, specifically a concern with regard to the characteristics of newly released inmates likely to pose the greatest risk to society.

In addition to the lack of current data on the frequency, variety, and severity of criminal activity committed by opioid-dependent individuals, there is a similar lack of information on estimates of illegal income obtained by such individuals. Such data are especially important in view of the above circumstances. In particular, given scarce prison capacity, law enforcement interventions regarding illicit drug distribution would be more effective if the individuals who caused the greatest harm to society, in terms of illegal income and the capacity and willingness to use violence, were targeted[19]. However, there is little systematic knowledge of such information, prompting the urgency of additional study to obtain such data. It has long been known that the main crime committed by male and female opioid-dependent individuals has been drug sales[20], but recent studies on the amount of income obtained by

such individuals and their distinguishing characteristics are lacking.

However, similar to the lack of data on the extent of crime committed by opioid-dependent offenders, most studies on the variables associated with the above crime dimensions are not recent, prompting the need for updated information.

Methodology and Design

It was an observational study which was conducted at licensed deaddiction centers in Punajb and study was conducted in Out Patient Department (OPD) of the center. Study was done from January 2016 to December 2017. The patients who visited the center with opioid dependence were taken into the study after the written consent. Total 168 patients with opioid dependence were enrolled in the study. For the study purpose, patients between age of 18 years to 65 years of either gender, diagnoses with symptomatic opioid dependent as per ICD-10 criteria[21], who ready to give consent for the interview or willing to participate in the study were included in the study. Patients who had any serious medical conditions like acute respiratory failure, acute hepatic disease, delirium tremens, current dependence on alcohol, female users who were pregnant or breastfeeding, patients who had known hypersensitivity to buprenorphine or who had presence of major psychiatric illness or physical illness due to which subjects were unable to cooperate for interview, were excluded from the study. In the center, patients were treated by respective deaddiction specialist and assessor had no involvement in the treatment. After prescribing treatment for opioid dependence, patient's prescription was assessed by assessor to assess the pattern of medication prescribed. After taking the written consent, patients were assessed with Opioid Treatment Index (OTI)[22] at baseline, one month, 3rd months and 6th Month. The four criterion variables were used from OTI which included a) property crime b) dealing c)Fraud d) Crimes involving violence in last 30 days.

Dosage: The patients were put on buprenorphine in an individualized flexible dosing schedule. The psychiatrist made dose changes based on reported continued opioid use,withdrawal symptoms and craving. The buprenorphine dosagerange(2-10 mg/day) were required for maintenance of opioid dependence.

Statistical Analysis

The investigators at centre were responsible for local coordination and data collection. All data received were checked for completeness. All analyses were undertaken using the SPSS for windows statistical package (SPSS version 21.0). Sociodemographic profile like age, sex, education, income, marital status and employment status were described and assessed with chi square for categorical variable. The four domain scores denoted the users' perception of crime index. In each domain which scaled in positive direction *i.e.* higher scores denoted a higher crime index. The standard deviation (SD), the measure of dispersion around the mean was also calculated.All statistical tests were two-tailed. Correlational analysis was done using Spearman's rho.

Results: The comparison of sociodemographic profile of patients in Punjab was shown in table 1. The patients were similar in sociodemographic profile in all the groups and there was no significant difference between all these three groups (table 1).

Table 1: Sociodemographic profile of patients

S.N.	Variables	(N=168)
1	Age	39.69±8.359
2	Sex (Male)	168 (100%)
3	Education	
	Illiterate	19 (11.31%)
	Metric	72 (42.86%)
	Intermediate	40 (23.81%)
	Graduate	37 (22.02%)
4	Income (Per Month)	
	Less than Rs 3500	52 (30.95%)
	Rs 3500 to 7000	44 (26.19%)
	More than Rs 7000	72 (42.86%)
5	Employment status	
	Employed	147 (87.5%)
	Unemployed	21 (12.5%)
6	Marital Status	
	Married	127 (75.60%)
	Unmarried	10 (5.95%)
	Divorced or Separated	31 (18.45%)

Table 2 has showed the crime index component of OTI at baseline, one month, third month and sixth month in Punjab. It shows the decrease in number of patients on crime index i.e number of patients with scores more than 1, but the results are non-significant. At the baseline, total 65 patients with opioid dependence, who have score more than one and with treatment patients with crime index, have decreased to 21 till end of six month. Similar trend have been seen in all the different groups as seen in figure 5.

Table 2: Variable on Opiate Treatment Index (Crime Index) at baseline, One month, Third month, Sixth month in Punjab

Variables	Baseline	One month	Third month	Six month
Total (N=168)	65 (38.69%)	46 (27.38%)	30 (17.86%)	21 (12.5%)
Heroin abuser	56 (86.15%)	42 (91.30%)	28 (93.34%)	19 (90.48%)
Opium/Doda abuse	02 (3.08%)	01 (2.17%)	01 (3.33%)	01 (4.76%)
Capsule Proxyvon abuser	07 (10.77%)	03 (06.53%)	01 (3.33%)	01 (4.76%)

**p value <0.001, *p value <0.05

Discussion: The present study was carried out to observe the effect of burprenorphine on crime index in patients of opioid dependence in Punjab. The study was conducted in one de-addiction OPD run by a private organization in Punjab. During the study, all the prescriptions were observed to assess the kind of OTI given to patients. After taking the consent, Patients were assessed at the baseline, one month, third month and sixth month with Opioid Treatment Index (OTI) mainly for crime index. Total 168 patients were taken into the study who completed 6 months of follow up.

On the crime index of OTl assessed in involvement of drug induced criminal activity like fraud, crime involving violence, property crime and drug peddling. Most of the criminal activity was seen in patients with heroin abuse as compared to bhukki or capsule proxyvon. Similar finding was seen in one of the studies done in Baltimore metropolitan area, where 354 heroin abusers were assessed with OTI crime index and high level of criminality, around 255 composite crime days per year, were seen[23]. Most of the heroin abusers were in criminal activity and this could be due to legal and financial implication with the heroin abuse. In our study, patients after prescribing the buprenorphine, were showed decrease in involvement in crime activity. This result is in favour of one of the longitudinal studies where reduction in crime was seen after opioid maintenance therapy[24], but this finding is against one study, in which no significant impact was seen on criminal charges on maintaining patients on office based burpenorphine[25]. The decrease in crime index in current study could be due to decrease in craving and withdrawal symptoms with buprenorphine.Buprenorphine is a partial agonist with high affinity to the opioid receptor but weaker opioid effects[26], and it has a plateau of effect at increased doses and a lower risk of overdose. In the current study, we did not assess the improve with increase in the dose of buprenorphine.

Strengths and limitations of study: Though the present study was conducted using sound methodology and strict inclusion criteria, there are certain limitations, which can be considered while interpreting the results. As this was the observational study, so observer bias cannot be ruled out.Dosage of buprenorphine did not be assessed, so improvement on basis of dosage could not be assessed.Number of patients with capsule proxyvon dependence was very less, so selection bias cannot be ruled out.

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