

# Opioid use in prison population and its relationship to crime: A review

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## *Abstract*

*Drug use remains endemic among the incarcerated populations. There are especially strong links between between opioid use and crime. Several models have been proposed to explain the complex nature of this relationship. Various factors e.g. street culture and socio-demographic profile may modify the relationship between opioid use and crime. The article will provide an overview of substance use problems in prison setting and review the link between crime and drug use, with a focus on opioids.*

**Keywords:** *Opioid use, Crime, Prison population*

## **Introduction**

Drug use is overrepresented in prisons and remains endemic among incarcerated populations.<sup>1</sup> It has been estimated that around three-quarters of people in prison had alcohol or other drug-related problems, and more than one-third may be opioid dependent.<sup>2</sup> Further, there are strong links between opioid abuse or dependence, and criminal behavior.<sup>2</sup> Some level of drug use may often continue in prison and the prisoners may then go on to share drug injecting equipment and have unprotected sex, both inside prison and back in the community<sup>3,4</sup> thus posing a threat to public health. Substance abuse may be present either prior to prison entry, develop or get exacerbated in prison and persist after release from prison. Substance use problems are considered in prison settings separately because of their magnitude, severity and implications on society.<sup>5</sup>

The present paper will provide an overview of substance use problems in prison setting and review the link between crime and drug use, with a focus on opioids.

## **Method**

A literature review was undertaken using several electronic databases (PubMed, Cochrane Database of systemic reviews and Specific journals related to drug and crime) using the following key words: drug use or opioids use or substance use or heroin use or injectable drug use and Crime or criminal activity or criminal record or prisoner or property offender or acquisitive crime or theft or heroin crime relationship or linkage The articles were included in the review if the title and abstract indicated that they addressed drug or opioids use and crime or prison.

## Epidemiology

Worldwide, at any given time, there are approximately 10 million prison inmates, with an annual turnover of 30 million.<sup>6</sup> Substance use problem is very prevalent in prison due to imprisonment of drug users for crimes they commit—often to support their addiction—which contributes to prisoners' high prevalence of drug dependence.<sup>7</sup> Thus, after release, millions of prisoners return to social networks in the general community, thereby, increasing the magnitude of drug problem in community leading to increase in crime for sustaining drug use habit. It becomes a vicious cycle of drug and crime. There is abundant literature on drug use in prison settings from several countries across the world. However, such data is often complex and difficult to interpret. The situation in developing countries is very different where there is hardly any published literature on drug use in prison settings.<sup>5</sup>

A large number of studies from around the world report high levels of injection drug use in prisoners,<sup>8,9</sup> including female prisoners.<sup>10,11</sup> In a Russian study, 10% prisoners reported injecting drugs while in prison, 14% of whom stated that their first injection occurred within a penal institution.<sup>12</sup> A significant proportion of people who use drugs injected drugs while in prison, with 50% or more of people who use drugs from several countries reporting injection while in prison.<sup>9,13-16</sup>

Opioid dependence/abuse represents a significant problem among the criminal justice population internationally.<sup>17</sup> Urinalysis of arrested felons in major cities nationally showed that the percentage of males and females, respectively, who tested positive for opiates ranged from 12% - 25% and 13% - 23% in 2003.<sup>18</sup>

### Europe

In the European Union, 22% to 86% of prison

populations reported ever having used an illicit drug. In this region, 16-54% of inmates used drugs in prisons and 5-36% used them regularly.<sup>19</sup> Several studies in Europe also suggest that between 3 to 26% of drug users report their first use of drugs while in prison.<sup>5</sup> In Europe, the prevalence of drug dependence among prisoners varies from country to country; a systematic review of the literature of 13 studies of 7563 prisoners found the prevalence of drug abuse and dependence range from 10% to 48% for male prisoners and 30% to 60% for female prisoners at the point of incarceration.<sup>20</sup> In France, 30% of prison inmates are heroin-addicted<sup>21</sup>; in Germany, 13% of prison inmates are injecting drug (primarily heroin) users.<sup>22</sup> Drug-using prisoners may be continuing a habit acquired before incarceration or may acquire the habit in prison. In Europe, 16% to 60% of prisoners who injected outside prison continued to inject while incarcerated, whereas 7% to 24% of prisoners who injected said they started in prison. In another study, one-fifth of prisoners injected drugs for the first time in prison.<sup>23</sup>

### USA

In the United States, the number of people incarcerated annually for drug-related offences in the past 20 years has grown from 40,000 to 450,000, leading to prison populations with high rates of drug use.<sup>24</sup> A lifetime history of incarceration is common among intravenous drug users (IDUs); 56% to 90% of IDUs have been imprisoned previously.<sup>25</sup> A 12-city World Health Organization study of HIV risk behavior among people who inject drugs found that between 60% and 90% of respondents reported a history of imprisonment since commencing drug injection<sup>26</sup> and in the United States, approximately 80% of people who use drugs have a history of imprisonment.<sup>27</sup>

## Asia

Baseline vulnerability survey in prisons conducted in three south Asian countries found that 86% from Sri Lanka, 63% from India and 72% from Nepal have ever had drugs in prisons. The age at first drug use in Sri Lanka and India is reported to be below 18 years. About 40% of the respondents in Sri Lanka and 29% in India were using drugs for more than 10 years. Noteworthy is the fact that 3% inmates from Sri Lanka, 29% inmates from India and 4% from Nepal have switched to injecting mode after coming to prisons. In India and Sri Lanka, most of the inmates used heroin and cannabis and in Nepal, the drug of choice was heroin.<sup>6</sup>

## Indian context

Focused thematic study of drug abuse among prison population<sup>28</sup> conducted on 6800 individuals admitted to an NGO treatment centre (Association for Scientific Research on the Addictions) (AASRA) in Tihar Jail, Delhi found that most drug users undergoing treatment in AASRA were arrested under accusation of theft, about 17% were arrested under the NDPS Act and mostly under section 27 (Small Quantities). Between 75% and 82% of the entire prison population were heroin users. A minority varying between 2 and 3 % were abusing other opiates like opium and synthetic opiates. About 40% were using more than one substance and the most commonly reported secondary and tertiary drugs of abuse were alcohol and cannabis. A study in Bangalore prison<sup>5</sup> found that 13% of prisoners self-reported ever use of any other drug apart from alcohol and tobacco. Lifetime prevalence of opioids was 0.6% and injecting use 0.2%. Self-reported prevalence of drug abuse was greater among the under trial prisoners compared to convict prisoners. As part of the prison study, a random urine drug screening was carried out on 721 resident prisoners in an anonymous manner,

of which 3% tested positive for opioids.

## Risky behaviors in prison

Imprisonment favors high-risk behavior regarding drugs because of concentrated at-risk populations and risk-conducive conditions such as overcrowding and violence. The consequences of drug use in prison include drug-related deaths, suicide attempts and self harm. Drug use tends to be more dangerous inside than outside prisons because of the scarcity of drugs and sterile injecting equipment.<sup>7,29,30</sup> In a study of 492 IDUs, 70.5% reported sharing needles while in prison compared with 45.7% who shared needles in the month before imprisonment. Heroin use among offenders has serious health and social consequences. Offenders also have a high risk of death from opioid overdose within two weeks of release from incarceration.<sup>31,32</sup>

## Prevalence of crime in opiate user prisoner/arrestee

Inciardi et al<sup>33</sup> found that 239 active male heroin users committed approximately 80,664 offences during a twelve-month period. Ball et al<sup>34</sup> interviewed 243 Baltimore opiate addicts arrested or identified between 1952 and 1971 had found that two-thirds of their subjects had between 100 and 365 crime-days (24-hour periods during which one or more crimes were committed) per year for all their 'years at risk' (i.e. the years when an individual was not incarcerated). Johnson et al<sup>35</sup> carried out a longitudinal study over an eight-week period with 201 street opiate users in East Harlem. The researchers found that almost all their subjects derived most of their income from crime and committed crimes on between one and five days each week and nature and seriousness of the drug users' criminality was related to the level of drug Consumption: Mott's study<sup>36</sup> of residential burglary amongst notified addicts in

London and Merseyside has found that the presence of a relatively large number of young male opiate users in a local population almost certainly increases the number of residential burglaries in the area.

Dobinson and Ward (1985)<sup>37</sup> found that almost 90% of 225 imprisoned drug users gave crime as their main source of income, and the majority tended to have committed regular crime either after or simultaneously with their first (68%) or regular (57%) use of heroin. Similarly, a study carried out by Parker and Newcombe (1987)<sup>38</sup> looked at the potential relationship community's heroin 'epidemic' and an unprecedented increase in 'acquisitive' crime. Preliminary results from the Drug Use Monitoring in Australia project indicate that 55% of suspects charged with property offences tested positive to opiates.<sup>39</sup>

### **Types of crime**

All forms of crime were classified into two categories, acquisitive and non-acquisitive. 'Acquisitive' crime refers to all types of crime capable of generating income, including theft, dealing, handling, and fraud. 'Non-acquisitive' offences are those that bring no financial reward to the offender, such as assaults, joy riding, and criminal damage.<sup>40</sup>

### **Heroin Use and Acquisitive Crime**

Acquisitive property crime has significant social and economic costs. A recent estimate suggests that between two and three billion dollars worth of property is stolen from homes, shops, cars, factories and warehouses in Australia each year.<sup>41</sup> Most of property finds its way onto the stolen property market in various ways.<sup>42</sup> Heroin users were one of the main offenders for these crimes.<sup>43</sup>

Research in Europe, North America and Australia suggests that many dependent heroin

users are actively engaged in the theft and resale of stolen property.<sup>35,37,44-48</sup> Similarly, studies of property offenders indicate that many are heroin users who steal in order to finance their habits. In an interview study of imprisoned burglars in New South Wales, Stevenson et al<sup>49</sup> found that four-fifths of their subjects spent some or all of the proceeds of their crimes on illicit drugs: two-thirds of adults and one-quarter of juveniles were heroin users. In England and Wales, it has been estimated that, in the early 1990s, dependent heroin users raised between 58 and 864 million pounds sterling per annum from acquisitive property crime.<sup>47</sup> An Australian study reported that heroin users raise at least \$312 million per annum from property crime.

Study conducted by Maher et al, 2002<sup>50</sup> found that heroin users interviewed in 1996-97 (n=202) in South West Sydney are actively involved in acquisitive property crime: 70% of respondents were active property offenders. Participants generated a total of \$110,218 or an average of \$534 each from acquisitive property crime during the week prior to interview. Acquisitive crime committed by heroin users in New South Wales (NSW) at that time was estimated to cost the equivalent of \$AUS 0.54 to 1.64 billion per annum (around £0.2 to 0.55 billion).

Simpson (2003)<sup>51</sup> similarly reported that burglary and shoplifting were often committed for money to buy cannabis; theft from family members was typically associated with raising funds for heroin use. Burglary dwelling was connected to use of heroin.<sup>53</sup>

### **Opioid and crime are linked- How and why?**

Bennett & Holloway<sup>52</sup> conducted a study involving 41 prisoners regarding link between drug use and crime. It was found that the most common drug types reported as being involved in a drug-crime connection were heroin

(mentioned 110 times), followed by tranquillizers, alcohol and crack. The most common offences reported were drug dealing (mentioned 92 times), followed by handling, assault and shoplifting. Looking at specific drugs (excluding alcohol) and specific crimes shows that the three most common drug – crime connections were heroin and drug dealing, heroin and burglary non-dwelling (theft from non residential area), and heroin and handling.

Goldstein proposed a tripartite conceptual framework that divided explanations of the connection into three models: economic-compulsive, psychopharmacological and systemic.<sup>53</sup> Economic-compulsive crime was committed as a means of generating money to support drug use. Psychopharmacological crime occurred when the use of drugs resulted in change or impairment in cognitive functioning. Systemic crime was associated with crime that occurred as part of the system of drug distribution and use.

A similar study by another group of authors suggested evidence of an association between heroin use and acquisitive crime.<sup>54-57</sup> This association is sometimes argued to be financial, with proponents arguing that users undertake crime in order to finance their drug habit, and sometimes social, with the argument that crime is a feature of the networks within which drug use occurs. Some research has suggested that the relationship may reflect a combination of both of these factors.<sup>56,58</sup>

If we are looking at the chronology of the impact of heroin use on criminal careers. There are two groups of people: the first and larger group consists of those with a criminal record prior to heroin use but whose acquisitive offending accelerated after becoming users; the second group is made of those with no criminal record prior to heroin use but who become heavily involved in acquisitive offending after

taking up heroin. There are some methodological problems because of relying on conviction records, it is impossible to tell whether the second group is actually different from the first—but, it offers an important hypothesis about the heroin–crime–deprivation relationship in the early 1980s. Whether in group one or group two, according to Parker and Newcomb,<sup>38</sup> the basic reason for heroin users either starting or accelerating their acquisitive offending is in order to pay for their expensive heroin habit, which they are otherwise unable to sustain in the absence of any significant legitimate income.<sup>40</sup> This has been termed the ‘economic necessity’ model.<sup>59</sup>

Bennett & Holloway<sup>52</sup> found that the vast majority of narratives (89%) described drug-crime connections in which drug use caused crime, while the remainder (11%) gave connections whereby crime caused drug use. The most common mechanisms mentioned were economic (56%) followed by pharmacological explanations (37%) and lifestyle (7%) as follows:

(1) *Economic mechanisms*

*In Drug-use-causing-crime connections:* Obtaining money for drugs is one of three economic connections between drug use and crime in which the need for drugs motivated the commission of the crime. This connection have several sub-categories like the money for drugs is obtained directly by stealing cash through robbery or other offences that produced instant funds, stolen goods are sold for cash and the proceeds are used to buy drugs, stolen goods were exchanged directly for drugs and obtaining drugs directly by involvement in drug dealing.<sup>52</sup>

*In Crime-causing-drug-use connections:* Obtaining drugs directly’ occurred when users obtained drugs directly by stealing them rather than by paying for them like robberies of drug dealers<sup>52</sup> and some offenders celebrate a successful crime by spending the proceeds on

pleasure pursuits including drugs also known as chemical recreation.<sup>60</sup>

(2) *Pharmacological mechanisms*

*In Drug-use-causing-crime connections:* Aggression, Courage to offend and Judgment impairment is a common pharmacological link between drug use and crime.<sup>52</sup>

*In Crime-causing-drug-use connections:* The pharmacological effects of a drug provide 'Courage to offend' was sometimes actively sought by taking drugs prior to an offence as a means of providing the confidence to commit it.<sup>52</sup>

(3) *Lifestyle mechanisms*

*In Drug-use-causing-crime connection:* 'Criminal contacts' and 'Retaliation' are the explanations that linked to drug-user lifestyles.<sup>52</sup>

*In Crime-causing-drug-use connections:* Drug dealing provided surplus drugs that are consumed by the dealer for personal use.<sup>52</sup>

**Link of opioid use and crime is shaped by street culture**

Research on drug user and offender cultures (especially research on street culture) has identified several features relevant to the drug-crime connection. Wright et al<sup>61</sup> and Bennett et al<sup>52</sup> has noted one relevant feature of this culture is the desire for hedonism. Who described the pursuit of sensory stimulation and disdain for conventional living as a characteristic of many street criminals. The drive for hedonism was also expressed among by respondents in various ways, including living an affluent lifestyle. Drug use was also regarded as a hedonistic pursuit in itself and was used by some as a means of celebrating a successful crime.

Another feature has been described as a desperate and immediate need for drugs or cash. This feature of street criminals was described

by Brookman et al<sup>62</sup> and Bennett et al,<sup>52</sup> who noted the often pressing need for 'fast cash.' Offenders regularly appeared to experience large and urgent problems like drug withdrawal symptoms due to non availability of drug that required some kind of immediate solution.

A third feature that the apparent disregard for the consequences of their actions. Shover and Honacker<sup>63</sup> reported that street criminals tended to reject long-term planning in favor of thinking about the moment. Wright et al<sup>60</sup> also noted the tendency of street robbers to live life for the moment without regard for consequences. Similar findings were described by Bennett and Holloway<sup>52</sup>

Wright et al<sup>64</sup> and Bennett et al<sup>52</sup> explained the drug- crime connection is their attitude to money. Offenders tend not to save money for the future or to plan their budgets. Showing a casual disregard for money and purchasing conspicuous, but non-essential, items is part of the offender street culture. It was explained how carefree spending can create an impression of affluence, which generates status on the street like interest in fast cars and expensive items.

Bennett and Holloway<sup>52</sup> described that respondents have limited approach to decision making. The main problem that drug users have to solve is to obtain a regular supply of drugs. In many of the cases described, the method of solving this problem (committing highly visible crime) is extremely risky, dangerous and, in some senses (if they are caught and imprisoned), unproductive.

**Relationship between opioid use, socio-demographic profile and crime**

Heroin epidemic in Britain in 1980s has shown that new heroin users significantly increased due to availability of cheap brown heroin and the socio-demographic profile of the new heroin users was significantly different too.

They were primarily young unemployed people living in the poorest neighborhoods and on the most impoverished housing estates. This was reason that first time in Britain, heroin use was very strongly connected with social disadvantage. Alongside this, the epidemic saw a newly forged drugs–crime connection, with many of the users becoming involved in lifestyles involving drug dealing, prostitution and, especially, acquisitive crime.<sup>38</sup> Consequently, neighborhoods affected by a heroin outbreak typically experienced a clustering together of social difficulties: high unemployment, high crime rates, heroin dealing and heroin use. This often compounded and exacerbated existing problems of poor housing and poverty.<sup>65</sup>

Pearson<sup>66</sup> identifies three levels at which these connections between heroin, crime and socio-economic deprivation exist as follows:

First, there was the operation of the local housing market. Several decades of research in environmental criminology. Bottoms et al<sup>67</sup> found that housing markets contributed significantly to the spiral of decline within particular housing estates and neighborhoods by helping to bring together those in the most desperate housing need and experiencing the most serious social difficulties. This process tends to concentrate drug users and those involved in crime with other people. This increases the local availability of heroin.

Secondly, argument of Auld and colleagues<sup>68,69</sup> faced with limited opportunities to achieve material success within the legitimate economy, many young people within these neighborhoods became involved in the semi-criminal ‘irregular’ economy. Where heroin was readily available, it became an important commodity for exchange and consumption within this ‘fringe’ economy, alongside stolen goods.

Thirdly, as well being a source of material gain, getting involved in the ‘irregular’ economy

and the heroin user lifestyle provided for some young people a solution to the socio-psychological burden of unemployment. Furthermore, without the hope of finding meaningful and rewarding activity outside the ‘irregular’ economy, the ability of users to quit and stay off heroin was significantly limited.<sup>70</sup>

## Conclusion

The magnitude of drug abuse problems in prison is enormous. The link between drug abuse and crime is complex and economic, pharmacological and lifestyle mechanisms are some of the various factors which contribute to the development of these problems. This has serious implications both at an individual level and for public health. Given the magnitude of the drug abuse problems in prison and associated serious implications, it is important to intervene and provide therapeutic interventions for drug abuse in prison and Incarceration may provide a unique window of opportunity to intervene in the cycle of drug use and crime.

## References

1. Shewan D, Stöver H, Dolan K. Injecting in prisons. In: Pates R, McBride A, Arnold K, editors. *Injecting Illicit Drugs*, Oxford, UK: Blackwell Publishing Ltd; 2005. pp 69-81.
2. WHO/UNODC/UNAIDS. Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention: Position paper. World Health Organization, United Nations Office on Drugs and Crime, UNAIDS 2004.
3. Estebanez P, Zunzunegui MV, Aguilar MD, Russell N, Cifuentes I, Hankins C. The role of prisons in the HIV epidemic among female injecting drug users. *AIDS Care* 2002; 14: 95-104.
4. UNAIDS. Report on the Global AIDS Epidemic. Geneva: UNAIDS; 2006.

5. Math SB, Murthy P, Parthasarthy R, Kumar CN, Madhusudhan S. *Minds Imprisoned: Mental Health Care in Prisons*. Publication, Bangalore: National Institute of Mental Health Neuro Sciences; 2011.
6. UNODC. *Prevention of spread of HIV amongst vulnerable groups in south Asia*. Delhi: United Nations Office on Drugs and Crime; 2008.
7. European Commission. *Final report on prevention, treatment, and harm reduction services in prison, on reintegration services on release from prison and methods to monitor/analyse drug use among prisoners*. Bonn, Germany: European Commission; 2008. [[http://ec.europa.eu/health/ph\\_determinants/life\\_style/drug/documents/drug\\_frep1.pdf](http://ec.europa.eu/health/ph_determinants/life_style/drug/documents/drug_frep1.pdf)]
8. Calzavara LM, Burchell AN, Schlossberg J, Myers T, Escobar M, Wallace E et al. Prior opiate injection and incarceration history predict injection drug use among inmates. *Addiction* 2003; 98 (9): 1257-1265.
9. Thaisri H, Lerwitworapong J, Vongsheree S, Sawanpanyalert P, Chadbanchachai C, Rojanawiwat A et al. HIV infection and risk factors among Bangkok prisoners, Thailand: a prospective cohort study. *BMC Infect Dis* 2003; 3: 25.
10. DiCenso et al. *Unlocking Our Futures: A National Study on Women, Prisons, HIV, and Hepatitis C*. Toronto: Prisoners' HIV/AIDS Support Action Network; 2003.
11. Elwood Martin R, Gold F, Murphy W, Remple J, Berkowitz J, Money, D. et al. Drug use and risk of blood borne infections: A survey of female prisoners in British Columbia. *Can J Public Health* 2005; 96 (2): 97-101.
12. Frost L, and Tchertkov V. Prisoner risk taking in the Russian Federation. *AIDS Education and Prevention* 2002; 14(Suppl B): 7-23.
13. Carvell AL, and Hart GJ. Risk behaviours for HIV infection among drug users in prison. *BMJ* 1990; 300 (6736): 1383-1384.
14. Clarke JG, Stein MD, Hanna L, Sobota M, Rich JD, et al. Active and former injection drug users report of HIV risk behaviours during periods of incarceration. *Subst Abus* 2001; 22 (4) : 209-216.
15. Kang SY, Deren S, Andia J, Colon HM, Robles R, Oliver-Velez D, et al. HIV transmission behaviors in jail/prison among puerto rican drug injectors in New York and Puerto Rico. *AIDS Behav* 2005; 9: 377-386.
16. Koulirakis G, Gnardellis C, Agrafiotis D, Power KG. et al. HIV risk behaviour correlates among injecting drug users in Greek prisons. *Addiction* 2000; 95(8): 1207-1216.
17. Stephen M, Joshua DL, Jason H, Herman J, Lisa M, Carol S, Andrew R. Buprenorphine and Methadone Maintenance in Jail and Post- Release: A Randomized Clinical Trial. *Drug Alcohol Depend*. 2009 ; 99: 222-230.
18. National Institute of Justice. *Drug and Alcohol Use and Related Matters among Arrestees 2003*. Washington, DC: National Institute of Justice; 2004.
19. European Monitoring Centre on Drugs and Drug Addiction (EMCDDA). *The State of the Drugs Problem in European union and Norway*. Annual Report 2004. Luxembourg: Office for Official Publications of the European Community; 2004.
20. Fazel S, Bains P, Doll H. Substance abuse and dependence in prisoners: a systematic review. *Addiction* 2006; 101:181-191.
21. Michel L, Maguet O. Guidelines for substitution treatments in prison populations. *Encephale* 2005; 31:92-97.
22. Michels II, Stöver H, Gerlach R. Substitution

- treatment for opioid addicts in Germany. *Harm Reduction J* 2007; 4:5.
23. Allwright S, Bradley F, Long J, Barry J, Thornton L, Parry JV. Prevalence of antibodies to hepatitis B, hepatitis C, and HIV and risk factors in Irish prisoners: results of a national cross sectional survey. *BMJ* 2000; 321 : 78-82.
  24. Rich JD, Boutwell AE, Shield DC, Key RG, McKenzie M, Clarke JG, Friedmann PD. Attitudes and practices regarding the use of methadone in US state and federal prisons. *J Urban Health* 2005; 82:411-419.
  25. Jürgens R, Ball A, Verster A. Interventions to reduce HIV transmission related to injecting drug use in prison. *Lancet Infect Dis* 2009; 9:57-66.
  26. Ball A. Multi-centre Study on Drug Injecting and Risk of HIV Infection: a report prepared on behalf of the international collaborative group for the World Health Organization Programme on Substance Abuse. Geneva: World Health Organization; 1995.
  27. Dolan, K. The epidemiology of hepatitis C infection in prison populations. Sydney: National Drug and Alcohol Research Centre; 1999.
  28. Ray R. The extent, pattern and trends of drug abuse in India: National Survey. Ministry of Social Justice and Empowerment, Government of India and United Nations office on drugs and crime. New Delhi: regional office for south Asia; 2004.
  29. Shewan D, Macpherson A, Reid MM, Davies JB. Patterns of injecting and sharing in a Scottish prison. *Drug Alcohol Depend* 1995; 39:237-243.
  30. Darke S, Kaye S, Finlay-Jones R. Drug use and injection risk-taking among prison methadone maintenance patients. *Addiction* 1998; 93:1169-1175.
  31. Binswanger IA, Stern MF, Deyo RA, Heagerty PJ, Cheadle A, Elmore JG, Koepsell TD. Release from prison—a high risk of death for former inmates. *N Engl J Med* 2007; 356:157–65.
  32. Bird SM, Hutchinson SJ. Male drugs-related deaths in the fortnight after release from prison: Scotland, 1996-99. *Addiction* 2003; 98:185–90.
  33. Inciardi JA. 'Heroin Use and Street Crime', Crime and Delinquency. In: Inciardi JA editor. *The Drugs—Crime Connection*. London: Sage;1981, pp 335-46.
  34. Ball J, Rosen L, Flueck J, Nurco D. The criminality of heroin addicts: When addicted and when off opiates. In: Inciardi JA editor. *The Drugs—Crime Connection*. London: Sage;1981
  35. Johnson B, Goldstein P, Preble E. *Economic Behaviour of Street Opiate Users*. New York: Division of Substance Abuse Services and Narcotic and Drug Research; 1983.
  36. Mott J. Opioid Use and Burglary. *Brit J Addict* 1986; 81: 671-7
  37. Dobinson I, & Ward P. *Drugs and crime*. Sydney: NSW Bureau of Crime Statistics and Research; 1985.
  38. Parker H, Newcombe R. Heroin Use and Acquisitive Crime in an English Community. *Brit J Sociol* 1987; 38: 331–50.
  39. Makkai T, Fitzgerald J, Doak P. Drug use among police detainees. *Crime and Justice Bulletin*, 49. Sydney: NSW Bureau of Crime Statistics and Research; 2000.
  40. Jarvis G and Parker H. Young Heroin Users and Crime: How Do the “New Users” Finance their Habits?. *Brit J Criminol* 1989; 29: 175–85.
  41. Freiberg A. Regulating markets for stolen property. *Aust NZ J Criminol* 1997; 30: 237–258.
  42. Allen, J. Community survey of willingness to receive stolen goods. *Crime and Justice*

- Bulletin 51. Sydney: NSW Bureau of Crime Statistics and Research; 2000.
43. Sutton M. Supply by theft: Does the market for second-hand goods play a role in keeping crime figures high? *Brit J Criminol* 1995; 35: 400–416.
  44. Menes SM. (2000) Property crime and drug enforcement in Portugal. *Criminal Justice Policy Review* 2000; 11: 195–216.
  45. Parker H, Bakx K, Newcombe R. *Living with heroin*. Philadelphia: Open University Press; 1988.
  46. Hammersley R, Forsyth AJM, Lavelle TL. The Criminality of New Drug Users in Glasgow. *Brit J Addict* 1990; 85: 1583–94.
  47. Dorn N, Baker O, Seddon T. Paying for heroin: Estimating the financial cost of acquisitive crime committed by dependent heroin users in England and Wales. London: Institute for the Study of Drug Dependence; 1994.
  48. Grapendaal M, Leuw E, Nelen H. *A world of opportunities: Lifestyle and economic behavior of heroin addicts in Amsterdam*. Albany, NY: State University of New York Press; 1995
  49. Stevenson RJ, Forsythe LMV, Weatherburn, D. The stolen goods market in New South Wales, Australia. *Brit J Criminol* 1998; 41: 101–18.
  50. Maher L, Dixon D, Hall W, Lynskey M. Property crime and income generation by heroin users. *Aust NZ J Criminol* 2002; 35: 187–202.
  51. Simpson M. The Relationship between Drug Use and Crime: A puzzle inside an enigma *Int J Drug Policy* 2003; 14 : 307 – 19.
  52. Bennett T and Holloway K. The casual connection between drug misuse and crime. *Brit J Criminol* 2009; 49: 513 – 531.
  53. Goldstein, P. The Drugs/Violence Nexus: A Tripartite Conceptual Framework. *J Drug Issues* 1985; 15: 493 – 506.
  54. Gossop M, Marsden J and Stewart D. *NTORS at One Year. Changes in substance use, health and criminal behaviour One Year after intake*. London: Department of Health; 1998.
  55. Hammersley R, Forsyth A, Morrison V, Davies JB. The relationship between crime and opioid use. *Brit J Addict* 1989; 84: 1029–1043.
  56. Johnson B, Goldstein P, Preble E, Schmeidler J, Lipton D, Spunt B. et al. *Taking Care of Business: The Economics of Crime by Heroin Users*. Massachusetts: Lexington Books; 1985
  57. Macgregor S. Editorial: The Drugs-Crime Nexus. *Drugs: Education, Prevention and Policy* 2000; 7: 311-16.
  58. Klee H, Morris J. *Crime and Drug Misuse: Economic and Psychological Aspects of the Criminal Activities of Heroin and Amphetamine Injectors*. *Addiction Research* 1994; 1: 377-86.
  59. Seddon T. Drugs, Crime and Social exclusion. *Social Context and Social Theory in British Drugs–Crime Research*. *Brit J Criminol* 2006; 46: 680–703.
  60. Menard S, Mihalic S, Huizinga D. *Drugs and Crime Revisited*. *Justice Quarterly* 2001; 18: 269 – 99.
  61. Wright R, Brookman F, Bennett T H. The Foreground Dynamics of Street Robbery in Britain. *Brit J Criminol* 2006; 46 : 1 – 15.
  62. Brookman F, Mullins C, Bennett TH, Wright R. Gender, Motivation and the Accomplishment of Street Robbery in the United Kingdom. *Brit J Criminol* 2007; 47 : 861 – 84 .
  63. Shover N and Honaker D. The Socially Bounded Decision Making of Persistent property offender. *How J Crim Justice* 1992; 31 : 276 – 93 .

64. Wright R and Decker S. Burglars on the Job: Street life and Residential Break-ins. Boston : Northeastern University Press; 1994.
65. Pearson G and Hobbs D. Middle Market Drug Distribution. Home Office Research Study No. 227. London: Home Office; 2001.
66. Pearson, G. Social Deprivation, Unemployment and Patterns of Heroin Use. In: Dorn N and South N. editors. A Land Fit for Heroin? London: Macmillan; 1987.
67. Bottoms AE, Wiles P. Environmental Criminology. In: Maguire M, Morgan R, Reiner R, editors. The Oxford Handbook of Criminology, 3rd edn, Oxford: Oxford University Press; 2002, pp746-791
68. Auld J, Dorn N, South N. Heroin Now: Bringing it All Back Home. Youth and Policy 1984; 9: 1-7.
69. Auld J, Dorn N, South N. Irregular Work, Irregular Pleasures: Heroin in the 1980s. In: Matthews R, Young J, editors. Confronting Crime, London: Sage; 1986.
70. Zinberg N. Drug, Set and Setting: The Basis for Controlled Intoxicant Use. New Haven: Yale University Press; 1984.

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Hover overClick on a tile for details. Prison Population by State 2021. The United States has the highest incarceration number in the world. This is despite the nationwide incarceration rate being at its lowest in 20 years. About 25% of the world's total prison population is in the United States, which currently holds over 2.1 million prisoners. Mass incarceration in the United States has led to several problems. Among these are overcrowded prisons, which lead to increased health risks and decreased psychological well-being. Additionally, the increasing number of prisoners puts a major strain ... Many prisoners have difficulty reestablishing relationships, finding jobs, and staying away from criminal activity after being released. The positive associations of participation in prison activities (e.g. socio-cultural activities, educational courses, sports activities, vocational training, etc.), including reduction of recidivism, improvement of wellbeing and contributions to self-worth, are increasingly recognized. However, little is known about the characteristics by which participants differ from non-participants. Longer and harsher prison sentences can mean that prisoners' personalities will be changed in ways that make their reintegration difficult, finds Christian Jarrett. A common perception is that criminals are bad guys who lack prosocial motivation. Also hopeful, and somewhat in line with the Swedish findings, two recent studies involved prisoners playing financial games that are often used to study cooperation, risk-taking and punishment (one of the games is unrelatedly called The Prisoner's Dilemma). These showed that prisoners engaged in normal or even heightened levels of cooperation. The findings have implications for debates about the reintegration of criminals into society, says. Drug use is prevalent throughout prison populations, and, despite advances in drug treatment programmes for inmates, access to and the quality of these programmes remain substantially poorer than those available for non-incarcerated drug users. Because prisoners may be at greater risk for some of the harms associated with drug use, they deserve therapeutic modalities and attitudes that are at least equal to those available for drug users outside prison. This article discusses drug use by inmates and its associated harms. In addition, this article provides a survey of studies conducted in priso... This article discusses drug use by inmates and its associated harms. Rather than spending more to house the growing prison population and to fund excessive rates of incarceration, federal and state governments should focus instead on supporting rehabilitation and reducing recidivism. According to a study by the U.S. Sentencing Commission (USSC), nearly half of all individuals released from federal prisons are rearrested within eight years of their release, and around half of those rearrested are sent back to jail. The same study found that individuals younger than 21 who are released from federal prison are rearrested at the highest rates of any age group. There is a logical argument for prison education: It is a cost-effective way to reduce crime and leads to long-term benefits across the entire U.S. population.