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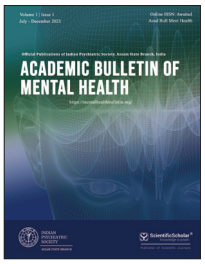

Review Article

Substance Use Disorder and Prison: Special Focus on Opioid Dependence

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ABSTRACT

Incarceration and substance use disorder (SUD) are closely related. SUDs are associated with almost all the steps of incarceration, and also with recidivism. In this narrative review, we will evaluate the existing evidence regarding the prevalence of substance use, and the efficacy of comprehensive management of SUD in prison settings. The prevalence of substance use is significantly higher in the prison population around the world. The criminalization of substance use aggravates the situation and also limits treatment access. There is a dearth of research on SUD s in low- and medium-income countries including India. Evidence suggests effective management of SUD in prison settings can improve quality of life, reduce high-risk behavior, and minimize post-discharge overdose deaths in patients with opioid dependence. Effective withdrawal management and maintenance therapy including opioid substitution treatment should be available in a prison setting. Comprehensive management of SUD in the prison population will ascertain the right of health for the prison population in particular and improve the well-being of society as a whole.

Keywords: Prison, substance use disorder, assessment, management, opioid substitution therapy.

SUBSTANCE USE DISORDER AND PRISON: SPECIAL FOCUS ON OPIOID DEPENDENCE

"It is said that no one truly knows a nation until one has been inside its jails. A nation should not be judged by how it treats its highest citizens, but its lowest ones."
- Nelson Mandela

INTRODUCTION

Incarceration and substance use are closely intertwined with each other. Substance use has been looked down upon in many cultures across the history, but this behavior has never been criminalized across the globe, like it is now. Substance use may predate the incarceration, and might also develop during or after the same. Consumption, or possession of even a small quantity of illicit substances may lead to imprisonment in many countries including India. Stress of incarceration and presence of substance-using inmates can make a perfect storm for initiation of substance use in a vulnerable person. Sometimes people resort to various illegal means to maintain their substance use that leads to recidivism. So, it is very important to identify and comprehensively address the substance-related issues in prison population. Though India has a

sizable prison population, with overcrowding in most of its prisons, but there is a dearth of published literature regarding the substance use in general and treatment-related issues in particular in prison population.

Let us discuss a few important terms that we will use often in this review.

Prison is the official institution designed for the confinement of individuals, encompassing those awaiting charges, undergoing trials, anticipating sentencing, following convictions, and/or serving sentences. Offender, an umbrella term referring to individuals who have violated the laws and regulations of the criminal justice system. On the other hand, a prisoner is commonly described as an adult or juvenile held within criminal justice and correctional facilities during crime investigations, pre-trial periods, post-conviction stages, and after sentencing. When explicitly addressing those incarcerated, the term 'prisoner' is employed.[1]

Another critical concept is "Prisonization." In his 1940 book "The Prison Community," sociologist Donald Clemmer introduced the concept of "Prisonization." Clemmer's research delved into the socialization process within prisons, where individuals assimilate the distinct culture and norms of the prison environment. The term "prisonization" was coined by Clemmer to portray how inmates acclimate to the prevailing customs, behaviors, and attitudes in prisons, often as a mechanism for coping with the hardships of confinement.[2] Prisonization is analyzed in the context of the coercive prison setting, substance abuse, instances of violence, the transitions from prison to the broader community, and related aspects.

WHAT IS THE SIGNIFICANCE OF PRISON INMATE WELL-BEING?

The realm of prisons and incarcerated individuals is undeniably intertwined with our broader community fabric. This interconnectedness is evident in their pre-incarceration community life and their eventual reintegration post-release, both of which wield influence over their social surroundings. This influence manifests directly through their personal interactions within the community and, indirectly, through their connections with family members and social circles.

Prison health occupies an integral and indivisible role within the landscape of public health. The act of imprisonment, while meting out a penalty for transgressions, also inflicts a considerable toll by curbing personal freedoms and isolating offenders from the outside world, thereby stripping them of the fundamental right to self-determination.[3]

In this context, it is imperative that the burden of this suffering is not exacerbated by withholding necessary medical treatment. The Nelson Mandela Rules, ratified in 2015, assert that prisoners ought to be entitled to equivalent healthcare standards as those available within the broader community.[4] To honor this principle, healthcare services within correctional facilities should be seamlessly aligned with the broader public health administration. Such integration ensures the uninterrupted provision of treatment and care, encompassing a spectrum of health needs including but not limited to HIV, tuberculosis, other infectious diseases, and drug dependency.

By recognizing and embracing the importance of prison health, we not only uphold the rights and dignity of incarcerated individuals but also acknowledge the inextricable link between their well-being and the well-being of the society at large.

CRIMINALIZATION OF SUBSTANCE USE

The 2014 amendments to the NDPS Act brought about a notable change, elevating the minimum imprisonment term from 6 months to one year for the possession of even a 'small quantity' of psychoactive substances.[5] This shift resulted in a surge in the number of undertrial prisoners, a significant portion of whom faced accusations related to the possession of modest or intermediate amounts. This alteration impacted those sentenced to imprisonment of up to six months. Consequently, the fear of punitive measures deterred substance users from seeking necessary treatment, resulting in a cascade of ramifications including increased law enforcement and judiciary expenditures, heightened societal stigma, and an overload of the prison system.

Within our judiciary, a prevailing culture of stigmatization and authoritarian attitudes persists, often coupled with a focus on compulsory treatment. The national NDPS policy is heavily skewed toward the facet of 'supply reduction.' This is evidenced by the policy's directive to sensitize and train prison staff in detecting and apprehending drug-related incidents. Moreover, there is a provision for equipping prisons with sniffer dogs to screen visitors and packages for drugs. The policy dictates the mandatory registration and rehabilitation of all addicts within correctional facilities. Additionally, every incoming inmate is to be tested for addiction, with those identified as addicts being subjected to de-addiction programs.[6]

However, the policy remains somewhat ambiguous regarding the specifics of the 'treatment' offered to Persons Who Inject Drugs (PWIDs). There is a brief mention of Opioid Substitution Therapy (OST) and harm-reduction measures, yet the overall approach leans toward a supply-oriented approach rather than a comprehensive focus on addressing the health and social needs of individuals entangled in substance misuse.[6]

WHAT ARE THE REASONS FOR ENGAGING WITH INCARCERATED INDIVIDUALS FACING SUBSTANCE USE?

Individuals within correctional facilities often grapple with substance-related challenges prior to, during, and after their period of imprisonment. The rationale for this engagement is multifaceted and revolves around the interplay between substance use and confinement.[3,7,8]

- Prevalence Across Phases: Substance use concerns persist throughout various phases of an individual's journey, spanning pre-imprisonment, imprisonment, and post-imprisonment periods.
- Understanding the Context: Gaining insights into the dynamics of substance use within the context of incarceration is crucial. This includes comprehending how substances are introduced and become problematic before imprisonment, as well as their initiation and impact during incarceration.
- Financially Driven Offenses: A significant proportion of offenses are committed to sustain the drug habits, emphasizing the need to address the link between criminal acts and substance dependency.
- Perpetuating Criminal Behavior: Substance use can serve as a catalyst for offending behavior, with some individuals resorting to substances to facilitate and justify their involvement in criminal activities.
- Coping Mechanisms: Individuals may turn to substance use as a means of dealing with the aftermath of criminal acts or to cope with the consequences of their actions.
- Criminal Involvement: Participation in illicit activities can expose individuals to drugs, forging a connection between criminal behavior and substance exposure.
- Legal Implications: The illegal nature of drug use in several countries contributes to the intersection between substance use and incarceration, making it imperative to address this issue within correctional settings.
- Engaging with incarcerated drug users not only provides insights into the complex relationship between substance use and imprisonment but also offers an opportunity to develop targeted interventions that address both the immediate concerns of the correctional environment and the broader challenges associated with substance dependency.

FOSTERING PUBLIC HEALTH WITHIN AND BEYOND PRISON WALLS

Prisons serve as a platform for advancing public health by actively collaborating with both prison staff and inmates. This collaboration extends its reach into the broader community, generating a dialog on matters pertaining to public health. The intricate web of prison health challenges extends beyond the confines of the correctional facility. Given that detainees interact daily with prison personnel, who, in turn, return to their homes and social circles after work, the well-being of inmates holds implications beyond prison walls. Neglecting the health of those incarcerated could potentially lead to the transmission of health issues from prisoners to staff, ultimately reverberating through society.[9]

A considerable segment of prisoners undergo short sentences, often less than a year in duration. A notable portion of this group is prone to reoffending, ushering in a disheartening "revolving door" phenomenon. Mitigating drug use holds the key to curbing criminal activities. Drug dependency is a critical risk factor for both initial offending and recidivism. Providing robust healthcare and effective drug treatment plays a pivotal role in reducing the likelihood of re-offending. To facilitate the successful reintegration of drug-dependent offenders into society, a comprehensive approach encompassing treatment, education, aftercare, rehabilitation, and social reintegration is imperative.[3,5,7]

Harmonizing the efforts of the criminal justice, healthcare, and social systems is a fundamental necessity, warranting not just attention but active encouragement. This collaboration forms the linchpin of an effective strategy aimed at enhancing public health within prison walls, breaking the cycle of recidivism, and fostering a more resilient and cohesive society at large.

PREVALENCE OF SUBSTANCE USE WITHIN PRISON SETTINGS

Given their "secure" nature, acknowledging the official presence of substances within prisons poses a challenge. Nevertheless, psychoactive substances have established a significant foothold within these environments. The persistent demand for such substances acts as a catalyst for their procurement, often facilitated through various means of smuggling.

Worldwide, about one in three people held in prisons is estimated to have used drugs at least once while incarcerated.[10] The European Monitoring center for Drugs and Drug Addiction (EMCDDA) has estimated that between 2% and 31% of people in European prisons inject drugs. In Europe, approximately 50% of incarcerated individuals engage in substance use during their time behind bars .[11]

An insightful prison survey conducted in the United Kingdom, involving a cohort of 3142 participants, highlighted that over 60% of cannabis and heroin users continued substance consumption while incarcerated. Additionally, more than 25% of opioid users reportedly initiated their drug use while within the confines of the prison environment.[12]

A comprehensive analysis encompassing 24 studies involving 18,388 inmates across 10 different countries offers insights into gender-based distinctions in Substance Use Disorders (SUDs) within prison settings. Concerning Alcohol Use Disorder (AUD), the amalgamated prevalence estimate stood at 24%. This ranged from 16% to 51% in male prisoners and 10% to 30% in their female counterparts. In the realm of SUD, male prisoners exhibited a pooled prevalence estimate of 30%, whereas female prisoners displayed a higher prevalence of 51%.[13]

A systematic review and meta-analysis gauged severe mental illness and substance use disorder prevalence in low- and middle-income countries (LMIC) incarcerated individuals. Analyzing 23 publications covering 14,527 prisoners across 13 LMICs, the pooled 1-year prevalence rates were estimated at 3.8% for alcohol use disorders and 5.1% for drug use disorders. Alcohol use disorders were more prevalent in Southeast Asia than in the Eastern Mediterranean, while drug use disorders were higher in the Eastern Mediterranean compared to Europe. Substance use disorder rates were notably higher among inmates than the general population, with illicit drug use and alcohol use disorders six and two times higher, respectively.[14]

PREVALENCE OF SUBSTANCE USE DISORDER IN INDIAN PRISON INMATES

In India, prisons are increasingly overcrowded and pose health challenges. At the end of 2021, the total capacity of Indian prisons was 4,81,387, and the number of total inmates was 5,54,034. So, the occupancy rate was 130.2%.[15] Unfortunately, there are handful of studies that are directed to estimate the substance use problem in this population.

A 2003-2004 study at Central Jail, Amritsar, involving 500 convicted prisoners, found that 56.4% had a history of substance abuse/dependence before incarceration. Among them, 39.8% met criteria for alcohol abuse/dependence, and 5% were multiple substance abusers. Additionally, 11.2% were dependent on various substances.[16]

In a cross-sectional study at District Jail, Kozhikode, involving 255 prisoners, a high rate of substance abuse history (73.3%) and family history (55.3%) were reported.[17]

A 2011 survey by NIMHANS in Bengaluru Central Prison highlighted a prevalence of tobacco use at 67.3%, more than double the state's average. Alcohol use (51.5%) was nearly double the national prevalence, with 86% displaying harmful drinking patterns. Drug use (13%) was also reported. Random urine drug screening found 61.3% testing positive for drugs. Psychosis affected 2.2%, largely attributed to substance use.[18]

VULNERABILITY TO INITIATING SUBSTANCE USE WITHIN PRISON

- Individuals aged between 20 to 30 years exhibit an increased risk—more than threefold for heroin and approximately twofold for cocaine initiation—compared to their counterparts aged 16 to 20 years.
- Those who exited formal education before reaching the age of 16 are more prone to initiating cocaine and/or heroin use.
- Prisoners with a history of severe illness, injury, or psychological trauma are more inclined toward initiating cocaine or heroin use.
- Extended durations of imprisonment and a higher count of prior incarcerations heighten the likelihood of substance initiation.
- Curiously, individuals with a history of homelessness before imprisonment were notably less prone to report heroin initiation (12).

MANAGEMENT OF SUD IN PRISON SETTINGS: FOCUS ON OPIOID USE ORDER

Initiating the management of substance use disorder necessitates a thorough and all-encompassing assessment. Our discussion will encompass the overall evaluation of SUD, while delving specifically into the management of opioid use disorder, supported by evidence-based interventions.

Evaluating SUDs in Correctional Settings are given in the [Table 1].

PHARMACOLOGICAL APPROACH TO MANAGE OPIOID USE DISORDER (OUD)

Our primary focus will center on addressing opioid use disorder (OUD) treatment within prison environments. OST is acknowledged as the gold standard in OUD management. Notably, a comparison between high-dose, continuous OST (exceeding 60 mg of methadone) and low-dose, time-limited

Table 1: Evaluation of Substance Use Disorders in correctional settings.

Parameters	Result
Illicit opioid and cocaine use (5 studies)	Significant decrease in favor of OST.
Criminal activity (4 studies)	Two studies- significant difference in favor of OST.
Re-incarceration (9 studies)	F/U period variable: 4 better for OST, 5 no difference.
Mortality	Improved mortality in favor of OST.
Continuity of OST	Prospective observational studies reported better outcome in the OST group.

Table 2: Summary of results of Hedrich D *et al*. systematic review on Opioid Substitution Treatment in correction settings.

Police personnel undergo training to recognize and pinpoint:
Withdrawal symptoms
Intoxication symptoms
Upon detection, individuals are directed to medical or psychiatric facilities.
In suspected SUD cases, a comprehensive assessment is recommended:
Thorough history-taking
Physical examinations
Mental state evaluations
Laboratory tests, encompassing drug screenings, hematology, blood biochemistry, and radiological assessments
Supplementary psychological assessments when deemed necessary.

OST revealed lower levels of risk behavior in the former(19). It is important to note that substantial reduction in high-risk injection practices (like sharing) were observed in prison population only after 6 months of treatment.[19,20]

The effectiveness of OST in prison settings has been systematically reviewed, encompassing 21 studies comprising six randomized controlled trials (RCTs) and 15 observational studies.[21] These studies originated from Europe (four studies, with two from France and two from Spain), North America (ten studies, including seven from the USA, two from Puerto Rico, and one from Canada), Australia (five studies), and Iran (two studies).[21] A concise summary of the results is presented in the [Table 2].

There are some Biases in systematic review like, baseline disparities, notably selection bias in observational studies, bias due to attrition, social desirability bias in self-reports, and methodological heterogeneity. Also, some questions remained unanswered like, extent of post-release outcomes linked to prison OST, Effect of prison OST on reducing excess mortality post-release. Research quoted below tried to answer them.

OST in Tihar Jail: Indian Experience

The first South Asian prison OST initiative aimed to gauge the feasibility and efficacy of buprenorphine for long-term opioid dependence treatment in Tihar Jail's de-addiction center.[22] From Nov. 2008 to Mar. 2012, 220 adults with opioid dependence ≥ five years were enrolled. Initially, those expected to stay ≥ one year were included, later expanded to those wanting post-release follow-up.

As an intervention, patients in a separate ward underwent around two weeks of stabilization, then daily supervised sublingual buprenorphine. Induction began with 2 mg sublingual buprenorphine, with dose increases every three days. Mean dose was around 4.5 mg of buprenorphine. Psychosocial intervention consisted of four group sessions and four individual sessions aimed to clarify treatment goals, reduce dropout, enhance coping skills, and address risk behaviors.

Assessments at baseline and 3, 6, 9, and 12 months included drug use, dependence, retention, compliance, craving, withdrawal, side effects, high-risk behavior, health, psychology, and qualitative inputs. Results showed reduced withdrawal, craving, illicit opioid use, injection frequency, and high-risk sexual behaviors over time. Qualitative feedback from stakeholders highlighted positive impacts, including improved hygiene, calmer behavior, reduced involvement in negative activities, and increased compliance. Patients were given referral details, medication supply, and encouraged to follow up. Attrition post-release was high, with 5-17% regular follow-up. Overall, the Indian OST initiative in Tihar Jail yielded promising results, showing the potential benefits of such interventions in prison settings.[22]

Other studies supporting OST in prison settings

Ingrid A Binswanger *et al*. conducted a retrospective analysis of over 30,000 released inmates and discovered that the risk of death within the first 2 weeks of release was nearly 13 times higher compared to other state residents.[23] During incarceration, reduced substance use leads to lower physiological tolerance, increasing the risk of overdose. To address these issues, intensive case management during immediate post-release periods and improved healthcare access and continuity are urgently required. Similar findings emerged from a *Queensland prisons study*, revealing higher mortality rates within the cohort compared to age-sex-matched populations. The drug-related mortality rate was 3.4 deaths per 1000 person-years, a staggering 32 times higher than the general population.[24]

On the contrary, a retrospective data linkage study by Louisa Degenhardt *et al*. highlighted that the lowest post-release mortality was observed among those consistently retained in OST, while the highest was among those not on OST.[25] Multifactorial models showed that OST exposure within the first 4 weeks post-release reduced the hazard of death by 75%. However, the protective effect of OST receipt in prison was short-term and rapidly declined over time.

PSYCHOLOGICAL APPROACHES TO MANAGE OUD

In prison environments, peer-led interventions stand out as the most extensively explored psychological strategies. A prominent example is the Therapeutic Community,

employed immediately after detoxification. This program typically spans up to six months and involves newcomers being integrated into the community. Modified Therapeutic Communities (TCs) can be incorporated in some prisons to cater to the unique needs of offenders, while community TC programs are offering aftercare for post-prison release. Notably, offender TCs differ from other types. In these settings, inmates are required to work during incarceration while devoting 4-5 hours daily to treatment. The focus lies on fostering knowledge, skills, attitudes, honesty, self-reliance, emotion management, and accountability.[26,27]

The ultimate goals encompass creating a community resembling the external world for seamless reintegration post-release. This involves pivoting from negative behavior to empowerment via education, vocational training, and recreational activities. Additionally, integration of life skills, drug awareness, and HIV/AIDS-related aspects is essential.

A study on California male inmates randomly assigned to TC treatment showcased lower re-incarceration rates (76%) compared to those with no in-prison therapy (83%) within 5 years after release.[28] In Colorado, males in a 12-month TC designed for co-occurring disorders, some of whom continued community-based TC treatment post-release, exhibited lower re-incarceration rates (9%) than those receiving mental health treatment (33%), and saw declines in substance use.[26]

Delaware's work-release program, involving a transitional TC before work release, resulted in higher abstinence and employment rates. Over 18 years, TC participants exhibited reduced new arrest rates.[29]

Apart from that Mindfulness-Based Interventions also has been studied in a Correctional Setting. A study conducted in a minimal-security North American prison on 305 inmates (63 enrolled in active group, 242 in TAU). On follow-up, significant substance use (alcohol, cocaine, marijuana, tobacco) improvement was observed in active group. But no significant difference in substance-related consequences.[30]

SUD IN PRISONS: HOW TO BRIDGE THE TREATMENT GAP?

In developed countries, many prisons offer substance use disorder (SUD) treatment, narrowing the treatment gap within these facilities. However, concerns persist regarding the quality and efficacy of such treatments.

In Low- and Middle-Income (LAMI) countries, including India, a critical shortage of trained staff compounds the issue. Criminalization of substance use contributes to an increasing number of untreated or inadequately treated individuals in prisons, often detained for prolonged periods before trial. This predicament results in unfavorable physical and psychosocial repercussions.[7]

POTENTIAL SOLUTIONS

- In 2014, the Indian Supreme Court issued a landmark directive, mandating the release of pre-trial detainees held for over half of the maximum possible sentence.
- Training prison staff in detecting signs of substance use related signs, arranging at least part-time psychiatric consultation inside the prison, may alleviate some of the distresses.
- Embracing moderate penal policies, reserving imprisonment as a last resort, and minimizing its duration, can be a just and cost-effective crime response.

WHAT ARE MEASURES FOR SUD TREATMENT IN PRISONS?[31]

- Comprehensive physical examinations and screenings for newcomers.
- Dedicated inpatient SUD treatment areas.
- Voluntary SUD treatment options.
- Swift and effective withdrawal management.
- Provision of anti-craving medications and holistic treatment of coexisting physical and psychiatric conditions.
- Consideration of OST where warranted.
- Post-withdrawal management and psychosocial interventions for recovery.
- Part-time presence of district hospital psychiatrists in prisons.
- Training for medical personnel in prompt SUD identification and management.
- Sufficient supply of essential medications for craving and withdrawal management, with controlled prescription and dispensing of addictive medications.

KEY TAKEAWAYS

- SUD is prevalent among prisoners, stemming from multifaceted biopsychosocial factors, with potential repercussions on the broader community.
- An alarming 60-80% of inmates have a history of substance use.
- OST within prisons demonstrates the capacity to curtail substance use and high-risk behaviors while enhancing treatment engagement and quality of life.
- In the Indian context, OST initiatives at the Tihar Jail complex have yielded promising outcomes.
- Effective implementation of diverse psychosocial treatments, including peer-led approaches, can be achieved within correctional settings.

- Prison walls should not separate individuals from their right to health. Providing adequate healthcare within prisons not only upholds human dignity but also safeguards the well-being of both inmates and society at large.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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There are no conflict of interest.

Use of Artificial Intelligence (AI)-Assisted Technology for manuscript preparation

The author(s) confirms that they have used Artificial Intelligence (AI)-Assisted Technology for assisting in the writing or editing of the manuscript or image creations.

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