

A Retrospective Study of Young People Seeking Treatment for Injection Drug Usage at a Tertiary Care Center of North India

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Abstract

Background and Objectives: Injection drug usage is a major public health issue. The study is aimed to find the clinical profile and trends of injection drug usage in young people who attended de-addiction services at a tertiary care center in North India. **Methods:** This retrospective record review analyzed data from consecutive young-aged people attending de-addiction services at a tertiary care hospital in North India between 2015 and 2019. The sociodemographic data and clinical and injection-related characteristics were discerned from the data. **Results:** Out of 135 patients included in the analysis, 132 (97.8%) were male. There was a 13-fold rise in treatment seeking over the past 5 years (2015: 7 vs. 2019: 98). One hundred and thirty-two (97.8%) were male. High Risk behavior was present such as sharing of needles in 31 (22.9%), paraphernalia sharing in 24 (17.8%), 6 (4.4%) reported ever-having HIV screening, 6 (4.4%) reported having HIV positive status. Thirty-two (23.7%) reported having previous treatment for drug abuse and 13 (9.6%) reported previously being hospitalized for drug abuse. Heroin usage has been present in 96 (71.1%) followed by pentazocine usage in 19 (14.1%). **Conclusion:** Our findings revealed that treatment-seeking young age population (the WHO defined age group 15–24 years) from the defined geographical location has been showing an increasing trend in injecting drug user usage along with greater injection and sexual risk behaviors associated with it. This can be used to design the public health strategy to educate regarding avoiding injection drug-related practices.

Keywords: High-risk behaviors, HIV, injection drug usage, retrospective study, sharing needles

INTRODUCTION

The use of drugs by injecting is a major public health issue due to the increased risk of transmission of infections such as HIV and hepatitis C and B.^[1,2] Findings from the National Survey on Extent and Pattern of Substance Use in India, which was commissioned and supported by the Ministry of Social Justice and Empowerment, indicate that there are an estimated 8.5 lakh people who inject drugs in India. Other than the union territories of Andaman and Nicobar and Lakshadweep, injecting drug use has been recorded in all the states of the country, with majority in three northern states of Uttar Pradesh, Punjab, and Delhi.^[3]

Nearly half (46%) of those who inject drugs report predominantly injecting heroin, although the same proportion (46%) report using injectable pharmaceutical opioids such as buprenorphine. Only a small fraction recorded injecting sedatives, amphetamines, or ketamine. A large proportion of other risky injecting practices reported, for example, about

half reported reusing their needles and syringes, and about one-fourth reported sharing their needles and syringes with their peers.^[3]

In countries where injection drug use is a growing problem, continuing HIV transmission is likely to be concentrated in young people who are new to substance use and are therefore difficult to participate in harm reduction efforts.^[4-6] In India, the prevalence of HIV among injecting drug users (IDUs) at the national level is 9.9%.^[1,7] The susceptibility of IDUs to

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HIV infection is due to the sharing of contaminated injecting supplies, unprotected sexual intercourse, and multiple sexual partners.^[8,9]

The initiation of IDU typically occurs in adulthood after 20 years of age, with a steady progression from licit, gateway drugs in early adolescence to illegal substances later during the cycle.^[10,11] Majority of the IDUs are male and about 20 years of age.^[3]

Studies conducted worldwide and in India have shown that, relative to older adults, young people are substantially more likely to share needles, have multiple sexual partners, participate in unprotected sexual intercourse, have the lowest HIV testing, and have lower involvement in harm reduction programs.^[11-14]

Demand for care to be accessed by individuals for their drug use remains a significant barrier to recovery services. There is a substantial delay in pursuing treatment services because patients are selective with the health-care provider and sometimes switch from one to another.^[15] A study conducted among children using injection drugs in India found that only 17.9% sought help to quit, 33.6% found that they had a problem but can quit on their own, and the rest did not find having any problems at all.^[16]

Studying this activity of IDUs is crucial because it offers information on the possible risk of infection spreading to the general population.^[17-19] Limited data have been available in this regard in the young age group from the northern region of India who came to receive treatment with regard to the use of injection drugs. In this context, the current research was conducted to evaluate the profile of young people seeking treatment for injection drug use in the northern Indian tertiary care setting using a retrospective chart-based analysis.

METHODS

Study setting

The state drug dependence treatment center (SDDTC) is a part of tertiary care hospital in Rohtak (Haryana), North India, which caters to patients from all over Haryana as well as neighboring states including Delhi, Punjab, Uttar Pradesh, and Rajasthan due to its geographical position. Patients usually visit on their own or are referred from elsewhere.

Study design

Retrospective chart analysis of data was obtained through the “Drug Abuse Monitoring System (DAMS)” database. The data were obtained for all new consecutive treatment seekers reporting to the facility.

Study sample

Young age individuals, aged 10-24 years (as per definition of young age according to WHO) who visited the center in view of treatment for Injection Drug Abuse, were taken for the study. Their injection drug usage history and related variables were recorded by a consultant psychiatrist.

Study period

This study was conducted over a period of 5 years, ranging from January 2015 to December 2019.

Statistical analysis

Information of the related sociodemographic and psychological comorbidities was compiled. Descriptive statistics were applied using Microsoft Excel and IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.

RESULTS

Out of total sample of 8284 patients who visited SDDTC, PGIMS, Rohtak, from January 2015 to December 2019, a total of 135 individuals from the age group up to 24 years (young age) were included in the study who came for injection drug use treatment. Table 1 shows the year-wise distribution of number of cases along with age characteristics for the sample. Overall, there has been an absolute percentage increase in total number of cases, except in 2016, where there was a fall to 2 from baseline figure of 7 in 2015. Over the 5-year period, the absolute increase in treatment-seeking young population has increased by 14-fold (2015: 7 vs. 2019: 98). The mean age of the sample has decreased by around 2 years over the 5-year period.

Table 2 shows the year-wise distribution for the sociodemographic characteristics for the sample.

Table 3 shows the year-wise distribution for the injectable drug usage characteristics of the sample. Roughly, one in fifth reported the usage of sharing of needles (22.9%) and paraphernalia sharing in 17.8%. Roughly, one in twenty-two (4.4%) reported ever-having symptoms of sexually transmitted infection. About one in ten (9.6%) reported having sex with sex worker. One in fifteen (6.7%) reported ever-having jaundice. About one in fifteen (6.7%) reported ever-having HIV screening, and of those screened, 66.7% reported having HIV-positive status.

Roughly, one-fourth (23.7%) reported having previous treatment for drug abuse and about one-tenth (9.6%) reported previously being hospitalized for drug abuse.

Table 4 shows the year-wise distribution for the coexisting substance usage (ever use) for the sample. Overall, regarding the current usage of other psychoactive substances, cannabis usage (2015: 14.3% vs. 2019: 39.8%) and sedative/hypnotic usage (2015: nil vs. 2019: 7.1%) have shown a rise in usage over 5 years. Concurrent alcohol usage rates have been almost similar over the years, roughly one in four individuals, except for 2016, where half reported concurrent usage. Tobacco usage has shown a variable trend over the years.

DISCUSSION

The sample comprised young population up to the age of 24 years who came for treatment seeking in view of injection drug usage. It is important to study this age group who

Table 1: Year-wise distribution showing age characteristics

	2015 (n=7)	2016 (n=2)	2017 (n=8)	2018 (n=20)	2019 (n=98)	Total sample
Mean age (years) (SD)	22 (± 1)	24 (0)	22.13 (± 2.59)	21.25 (± 1.94)	20.35 (± 2.33)	20.73 (± 2.32)
Minimum age (years)	21	24	18	17	17	17

SD: Standard deviation

Table 2: Year-wise distribution for the sociodemographic characteristics for the sample

Variable	2015, n (%)	2016, n (%)	2017, n (%)	2018, n (%)	2019, n (%)	Total, n (%)
Sex						
Male	7 (100)	2 (100)	7 (87.5)	18 (90)	98 (100)	132 (97.8)
Female	-	-	1 (12.5)	2 (10)	-	3 (2.2)
Marital status						
Never married	5 (71.4)	1 (50)	5 (62.5)	17 (85)	88 (89.8)	116 (85.9)
Married	2 (28.6)	1 (50)	3 (37.5)	3 (15)	10 (10.2)	19 (14.1)
Divorced/separated	-	-	-	-	-	-
Widow/widower	-	-	-	-	-	-
Separated due to drug abuse	-	-	-	-	-	-
Education						
Illiterate	1 (14.3)	-	-	-	1 (1.0)	2 (1.5)
Literate (read, write)	-	-	-	1 (5)	1 (1.0)	2 (1.5)
Primary (up to 5 th)	-	-	-	-	7 (7.1)	7 (5.2)
Middle (up to 8 th)	2 (28.6)	-	4 (50)	5 (25)	16 (16.3)	27 (20)
Up to 10 th and 12 th	3 (42.9)	1 (50)	3 (37.5)	7 (35)	51 (52.0)	65 (48.2)
Graduation	1 (14.3)	1 (50)	1 (12.5)	4 (20)	20 (20.4)	27 (20)
PG/Tech/Prof	-	-	-	3 (15)	2 (2.0)	5 (3.7)
Employment status						
Never employed	-	-	1 (12.5)	5 (25)	20 (20.4)	26 (19.3)
Presently unemployed	3 (42.9)	1 (50)	2 (25)	6 (35)	34 (34.7)	46 (34.1)
Full time employed	-	-	1 (12.5)	2 (10)	3 (3.1)	6 (4.4)
Part time employed	1 (14.3)	-	0	3 (15)	6 (6.1)	10 (7.4)
Self employed	3 (42.9)	-	2 (25)	3 (15)	8 (8.2)	16 (11.9)
Student	-	1 (50)	1 (12.5)	1 (5)	26 (26.5)	29 (21.5)
Housewife/girl	-	-	1 (12.5)	-	-	1 (0.74)
Any other	-	-	-	-	1 (1.0)	1 (0.74)
Living arrangement						
Joint family	5 (71.4)	2 (100)	3 (37.5)	12 (60)	35 (35.7)	57 (42.2)
Nuclear family	1 (14.3)	-	5 (62.5)	7 (35)	60 (61.2)	73 (54.1)
Alone	-	-	-	1 (5)	1 (1.0)	2 (1.5)
With friends	-	-	-	-	0	0
Any other	1 (14.3)	-	-	-	2 (2.0)	3 (2.2)

are currently engaged in injection drug usage practices for various reasons. IDU is one of the main reasons behind the HIV epidemic and other blood-borne infections notably hepatitis B and C, linking it intricately to preventive aspects for HIV from a public health perspective. The IDU population is not usually considered to be a widespread or significant phenomenon in younger age groups, consequently leading to underrepresentation in drug abuse and HIV surveillance programs. Even this emerging adult group engaged in IDU can lead to increased future adversities such as family discord, academic failure, unemployment status, raised discrimination and stigma from society, and rise in criminality behaviors. The region of the western part of Delhi-NCR and adjoining cities, towns, and rural areas is facing great menace for the opioid

usage, especially increasing injection drug usage practices and risky behaviors associated. The treatment-seeking pattern data for this age group are not much available and further research is desired to effectively control the alarming situation. Hence, information on factors associated with treatment-seeking IDU in young age population would help in promoting awareness and strengthen the harm reduction strategies, provide effective educational and occupational rehabilitation, and further reduce the stigma by engaging them in opioid substitution therapy (OST) services. The study was a retrospective chart review-based study, and data were collected using the DAMS database over the 5-year period from 2015 to 2019.

Over the 5 years, there has been a gradual rise in the population of analyzed treatment seekers, except for a decrease in 2016.

Table 3: Year-wise distribution for the injectable drug usage characteristics of the sample

	2015 (n=7), n (%)	2016 (n=2), n (%)	2017 (n=8), n (%)	2018 (n=20), n (%)	2019 (n=98), n (%)	Total, n (%)
Sharing of needle	2 (28.6)	-	2 (25)	8 (40)	19 (19.4)	31 (22.9)
Paraphernalia	2 (28.6)	-	2 (25)	7 (35)	13 (13.3)	24 (17.8)
Ever had symptom of sexually transmitted infections	-	-	3 (37.5)	1 (5)	2 (2.0)	6 (4.4)
Ever had sex with sex worker	-	-	1 (12.5)	2 (10)	10 (10.2)	13 (9.6)
Ever had jaundice	2 (28.6)	-	-	2 (10)	5 (5.1)	9 (6.7)
Ever had HIV screening	2 (28.6)	-	-	2 (10)	5 (5.1)	9 (6.7)
HIV positive status	2 (28.6)	-	-	1 (5)	3 (3.1)	6 (4.4)
Previous treatment for drug abuse	2 (28.6)	-	3 (37.5)	5 (25)	24 (24.5)	32 (23.7)
Ever hospitalization for treatment of drug abuse	1 (14.3)	-	2 (25)	1 (5)	9 (9.2)	13 (9.6)

Table 4: Year-wise distribution for the coexisting substance usage (ever use) for the sample

Co-existing substance usage (ever use)	2015 (n=7), n (%)	2016 (n=2), n (%)	2017 (n=8), n (%)	2018 (n=20), n (%)	2019 (n=98), n (%)	Total, n (%)
Alcohol	2 (28.6)	1 (50)	2 (25)	5 (25)	26 (26.5)	36 (26.7)
Cannabinoid	1 (14.3)	1 (50)	4 (50)	9 (45)	39 (39.8)	54 (40)
Tobacco	0	2 (100)	5 (62.5)	14 (70)	83 (84.7)	104 (77)
Sedative/hypnotic	0	0	0	0	7 (7.1)	7 (5.2)
Cocaine	0	0	0	1 (5)	3 (3.1)	4 (2.9)

There was a major increase in the sample population in 2019 with a 14-fold increase in the number of cases as compared to 2015. This rise could be attributed to strengthening of opioid substitution treatment services at the index center and raised awareness regarding the de-addiction services in the institute with the help of local media and previous treatment seekers.

The majority of the young IDUs were male and showed a similar trend over 5 years. A total of three females (2.2%) reported IDU usage. There could possibly be attributed to lesser reporting by females due to differing sociocultural background as compared to western and developed countries. Females prefer to take injections at home and do not undergo treatment due to social stigma.^[20] Differing motivating factors may underlie differing patterns of treatment seeking among females as compared to males.^[21] A recent systematic review reveals a similar trend in South Asia for women who inject drugs.^[2,4]

The mean age of the total sample was 20.73 years, which is similar to a previously conducted study by Ganapathi *et al.*^[4] Overall, there has been a decrease in minimum age of presentation for treatment seeking over 5 years (2015: 21 vs. 2019: 17 years). This could be attributed to increasing awareness to treatment seeking early in psychoactive substance usage.

Similar to the previous study by Ganapathi *et al.*, majority of the cases were never married (our study 85.9% vs. previous findings 81.6%), and the rest were married (our study 14.1% vs. previous findings 18.4%).^[4] Those married were above the age of 21 years, which is the legal age of marriage in India.

Our study revealed a preponderance of literate population (98.5%) similar to findings of the previous study by Sharma

et al.^[1] The majority of the individuals are taught up to enrolment of high school (48.2%). The number of individuals with illiterate educational status (2015: 14.3% vs. 2019: 1%; overall: 1.5%) and those studied up to middle school (2015: 28.6% vs. 2019: 16.3%; overall: 20%) show a decreasing trend over 5 years. There has been a small rise in the number of graduates over 5 years (2015: 14.3% vs. 2019: 20.4%; overall: 20%).

Our study had opposite findings to previous studies in occupational status. The sample showed one-fifth of sample to be students, and around half of the sample was unemployed.^[4,7] Most of the individuals were already unemployed, followed by students, and never working. There has been a marginal decrease reported in the number of unemployed. There has been a declining trend among those working, including full time, part time, and self-employed. There was an unusual pattern among the students. This could be possibly due to decreasing mean age of presentation for treatment seeking, as in the young age, the possibility of being a student is high as compared to being employed.

The distribution of current living arrangement of the sample was similar to previous studies.^[7] The number of individuals living in joint family has decreased, and the number of people living in nuclear family has risen over 5 years. This can be attributed to changing dimensions of society in modern times where individuals are now preferring to stay in nuclear families due to sense of being more independent, lesser emotional dependence as compared to joint family, and decreased argumentation with other family members.^[22]

In our study, there is mainly use of illicit and pharmaceutical opioids among the young population, as shown in Table 5. The

trend over 5 years shows the use of buprenorphine, morphine, and pentazocine, which has declined significantly, and there was a rise in the usage of heroin. Heroin use was not reported in 2015 and 2016, but the number of users grew significantly from 2017 ($n = 3$) to 2019 ($n = 88$), with absolute rise in number of cases by about 28-fold, which was an interesting finding. The pattern of injection compound used differs significantly from previous studies which report increased usage of pharmaceutical opioids like buprenorphine in majority and heroin usage in less frequency in the northern states.^[4,7] A study by Solomon *et al.* reported a similar trend of the usage of heroin by 80.1% of sample, which is almost similar to our findings.^[11] These findings suggest that similar trends of injectable compound usage have been present in North and South Indian states.

Nearly 0.7% reported the use of mephentermine injection. Case reports have been published in India regarding the usage of mephentermine injection, and hence, the actual prevalence is not known. Most users are young adults involved in athlete or sports who might be using it for the purpose of increasing stamina.^[23,24]

All reported intravenous mode of injection usage. Sharing of needles was seen in total 22.9% of cases, similar to previous findings.^[1,4] 9.6% reported having sex with a sex worker, which is slightly higher as compared to previous studies on young IDU population (2.4%).^[4] There has been a reduction in the frequency of sharing of needles and paraphernalia usage over 5 years, with slight rise in 2018.

Overall, the sample reporting of having occurrence of one or more sexually transmitted infection symptoms was 4.4%, which is low in comparison to findings of the previous study.^[7] Those with symptoms suggestive of sexually transmitted infections and history of jaundice had reduced over 5 years. Indulgence in high-risk sexual behavior has been present in the recent years. HIV testing was reported by 6.7% of sample, and HIV-positive status was in 4.4% sample. These findings were very low in comparison to previous findings of study by Ganapathi *et al.*, done in youth population (66.7% vs. 18.2%).^[4] There has been a reduction in those who underwent screening for HIV and those who were found to have HIV-positive status. Although preventive interventions in India such as distribution of sterile needles/syringes, counseling, condom distribution, sexually-transmitted infection treatment, OST, and linkage to

de-addiction/rehabilitation services have focused on saturating HIV testing among high-risk groups like IDUs, testing uptake among IDUs remains far from universal.^[7,25] As a result, many IDUs who are HIV infected are unaware of their status and may transmit the virus to others.

Overall 23.7% of sample, i.e., about one-fourth, had previously sought treatment for drug abuse, with one-tenth of total sample being ever hospitalized for drug abuse in the past. Previous studies suggest that in young population, around 33.6% had been for syringe services program and 18.75 had gone for opioid agonist therapy, which suggest somewhat similar rates of treatment seeking by young population.^[4]

Third-fourth of total sample reported using of tobacco as coexisting substance of usage, followed by two-fifth of cases using cannabinoids, with slight increasing trend. The usage of alcohol has been showing consistent pattern of usage being in about one-third of cases. Very few reported usages of sedative-hypnotic and cocaine class of drugs. The pattern of the use of other substances of abuse needs further exploration.

The findings of the study should be interpreted in terms of strengths and limitations. The strength of the study is presenting of data of young population with injection drug usage and their sociodemographic and injection drug characteristics in year-wise trend from a tertiary care setup in location adjoining capital region of India, which is helpful in determining the trend of IDU population. There is a scarcity of research in young population with IDU from this region. The limitation includes single-center experience, retrospective chart-based study, limited clinical data being available across the records, and lack of comparison groups. The study was on treatment-seeking population and hence may not truly reflect the actual prevalence of young population with IDU usage in the community. While the time trends have been reported, the current study did not explore the possible reasons for these trends.

CONCLUSIONS

Our findings revealed that treatment-seeking young age population (the WHO defined age group 15–24 years) from the defined geographical location has been showing an increasing trend in IDU usage along with greater injection and sexual risk behaviors associated with it. The minimum

Table 5: Year-wise distribution of the type of injectable compound usage for the sample

	2015 ($n=7$), n (%)	2016 ($n=2$), n (%)	2017 ($n=8$), n (%)	2018 ($n=20$), n (%)	2019 ($n=98$), n (%)	Total ($n=135$), n (%)
Buprenorphine	-	-	4 (50)	3 (15)	3 (3.1)	11 (8.2)
Heroin	-	-	3 (37.5)	5 (25)	88 (89.8)	96 (71.1)
Mephentermine	-	-	-	-	1 (1.0)	1 (0.7)
Morphine	-	-	-	6 (30)	1 (1.0)	7 (5.2)
Pentazocine	7 (100)	2 (100)	1 (12.5)	5 (25)	4 (4.1)	19 (14.1)
Tramadol	-	-	-	1 (5)	-	1 (0.7)

age of presentation is decreasing, and there has been declining HIV screening activity. The unemployed and students reflect a greater number of individuals who can experience future adverse life events such as academic failure, family discord, and increased criminality. The study helps in giving an idea about the trend of IDU use among the young population and can be used to design the public health strategy to prevent and control the spread of these substances. Further, prospective community-based research is needed to understand the interplay of various factors in treatment-seeking behavior among young population with psychoactive substance usage to establish targets for participation in harm reduction strategies, to raise awareness regarding various blood-borne infections which can arise due to engagement of risky injection behaviors and to address barriers unique to young people with IDU.

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Conflicts of interest

There are no conflicts of interest.

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