



## Status of drug addiction among HIV infected people: A cross-sectional prospective study in Jammu

Authors

**Dr Suharshi Gupta<sup>1\*</sup>, Dr Shashi Sudan Sharma<sup>2</sup>**

<sup>1</sup>Department of Microbiology, Government Medical College Jammu, J&K, India

<sup>2</sup>Head, Department of Microbiology, Government Medical College Jammu, J&K, India

\*Corresponding Author

**Dr Suharshi Gupta**

MD Micro-Biology, Department of Microbiology, Government Medical College Jammu, Jammu and Kashmir, India: 180001

### Abstract

**Background:** India has an estimated 2.2 million people living with HIV and an estimated 1.1 million people who inject drugs. Young people are known to be the key drivers of the HIV epidemic, accounting for more than a third of new HIV infections globally. The study was designed to compare substance use and psychosocial risk behaviors, and HIV incidence among Injection drug use (IDU) or People Who Use Drugs (PWUD).

**Method:** This cross-sectional prospective study was conducted for one year in the Department of Microbiology, GMC Jammu, among willing, informed and reported HIV patients, of either gender, at least 18 years old. The Respondent Driven Sampling (RDS) method was used to recruit study participants, with a total of 94 seeds selected for the entire survey.

**Results:** Mean age of participants was  $26.46 \pm 5.73$  years, with 84.04% residing in urban communities. 43.62% had attained only primary education. Incidence of HIV/AIDS was 74.46% among 15-34 years old. More than 90% of cases were aware of their HIV status. Out of the diagnosed cases of HIV, 47.87% were found to be of substance use. Methamphetamine (Yama or ice) was the most commonly used drug.

**Conclusions:** History of using injecting drugs was associated with higher likelihood of being diagnosed with HIV, possibly due to the risk of sharing contaminated needles. Stratification of risk based on socio-economic profiles and drug injection history can enhance programs to identify unidentified people living with HIV.

**Keywords:** Drug Abuse, HIV Risk, Adolescents, Children, Substance Use, Injection Drug Use (IDU), People Who Use Drugs (PWUD).

### Introduction

The onset of Injection drug use (IDU) typically occurs in adulthood after 20 years of age, with a gradual progression from licit, gateway drugs in early adolescence to illicit substances later on in course.<sup>(1,2)</sup>

An estimated number of 177,000 adults in India are injection drug users (IDUs), defined as those with ever use of injecting drugs in their lifetime.<sup>(3)</sup> India has an estimated 2.2 million people living with HIV and an estimated 1.1 million people who inject drugs IDU<sup>(4)</sup>. Historically, injection drug

use has been a major driver of the HIV epidemic in the Northeastern states given their close proximity to the “Golden Triangle” region of heroin production (Myanmar, Laos, Thailand, Cambodia and Vietnam)<sup>(5,6)</sup>. In Cambodia, people who use drugs (PWUD), particularly people who inject drugs (IDU), are considered an important group for HIV prevention and harm reduction programs. National Household Survey also suggested that about 0.1% of the male population (aged 12–60 years) reported ever injecting any illicit drug.<sup>(7)</sup>

Most IDUs were aged around 20 years of age and had used another substance prior to starting to inject. Buprenorphine, propoxyphene, and heroin are the most commonly injected drugs.<sup>(8)</sup> Injection of illicit drugs clearly increases the risk of HIV and viral hepatitis infections, but, focusing on wider substance abuse is important for two reasons: first, the use of illicit drugs, particularly stimulants, has been shown to increase risk of HIV, regardless of injection<sup>(9)</sup> & secondly, the use of illicit drugs such as cannabis, amphetamines, cocaine, or heroin frequently occurs alongside the consumption of other substances such as alcohol and tobacco<sup>(10,11)</sup>, which have their own impacts on health and health behaviors.

Globally, the number of people who inject drugs has been estimated to be nearly 12.7 million, which corresponds to a prevalence of 0.27% (0.19%–0.48%) among those aged 15–64 years.<sup>(12)</sup> Recent international studies found that the injecting drug use may vary from <1% of adolescents in Australia to as high as 2.5% in the US male adolescents.<sup>(13,14)</sup> In countries where injection drug use is a growing phenomenon, ongoing transmission of HIV is likely concentrated in young people who newly initiate drug use and are often difficult to engage in harm reduction efforts (15,16). This burden of disease is exacerbated by the intersection between the use of illicit drugs, poor mental health, and suicides<sup>(17,18)</sup>.

United Nations AIDS report also states that young people are the key drivers of the HIV epidemic

<sup>(19)</sup>, accounting for more than a third of new HIV infections globally, and yet the global HIV response largely neglect addressing young people from most-at-risk populations.<sup>(20)</sup> IDU is becoming the main driving forces behind the human immunodeficiency virus (HIV) epidemic, linking it intricately to preventive aspects for HIV from a public health perspective. The national HIV prevalence for IDUs is 7.14%.<sup>(3)</sup>

A Study conducted by Dhawan et al has highlighted the profile and pattern of children and adolescents using IDU across many parts of India, dispelling the myth that IDU is largely an adult phenomenon in India.<sup>(8)</sup> Large bio- behavioral surveys, sampling approximately 20,000 IDU, across cities in India have identified those aged 30 years and under as comprising at least half of the surveyed population<sup>(21)</sup>. It has been described that there is a high HIV burden in a large cross-sectional study of IDU across 15 Indian cities<sup>(22)</sup>. Very few studies have been conducted to show that PWUD in India have an increased risk of health problems, especially HIV. More data related to the populations under various demographic set ups are needed to inform HIV prevention and other public health interventions.

16th round of HIV burden estimations released by National AIDS Control Organisation (NACO) mentioned indicators, which are of great importance to J&K in terms of health, diagnosis and treatment of diseases especially HIV/AIDS, which are relevant to the Indian Government's 2030 goal of ending the AIDS epidemic. The erstwhile state of J&K has recorded the lowest percentage of such cases at 0.6 percent. The highest HIV prevalence in India among adults was recorded in the Northeast states of India including Mizoram (2.37 percent), Nagaland (1.44 percent) and Manipur (1.15 percent). Nationally, new HIV infections declined by 48% between 2010 and 2020. New HIV infections were less than 50% in 17 States and UTs, while it actually increased in three States and UTs. In terms of PLHIV cases (in Lakh), J&K has recorded 0.06 percent of such cases which is clearly the ninth lowest in India.

The highest rate was recorded in Maharashtra (3.90 percent) while the lowest was recorded in Sikkim (0.004 percent). Besides the national report, J&K AIDS Control Society (JKACS) has also released the data for 2021 and as per the given figures, total number of people living with HIV/AIDS (PLHIV) ever registered with JKACS (found positive after testing at ICTCs) as of October 2021 was recorded at 6671 while as the total number of people alive on ART treatment as of October 2021 was recorded at 2989. On the average, approximately 1000 people report at ICTC center of GMC Jammu annually and approximately 177 are enrolled annually.<sup>(23)</sup>

The objectives of the current study are therefore: (a) to compare substance use and psychosocial risk behaviors, and HIV incidence among IDU/PWUD. Through this paper, we try to report the prevalence of HIV and factors associated with HIV infection among PWUD in Jammu region of J&K, India. We also discussed some of the implications of these findings on HIV prevention policies and programs.

### Materials and Methods

This cross-sectional prospective study among the reported HIV patients of Jammu region was conducted from April 2019 to March 2020 in the Department of Microbiology, GMC Jammu. Such a study was conducted for the first time to evaluate the clinical profile of HIV/AIDS patients in this region over a period of one year. Cases were diagnosed as per the NACO, 2000 criteria. The precise number of the selected locations was determined based on the required sample size in each study site. The Respondent Driven Sampling (RDS) method was used to recruit study participants, which was implemented in various stages.

Firstly, eligible seeds who were well connected to other PWUD in each location were invited to participate in the survey with support from a non-governmental organization (NGO) working in the area. Second, each seed was given a Personal Identification Number (PIN) and enrolled as a

participant. Participants were recruited using respondent-driven sampling (RDS), a chain referral strategy<sup>(24)</sup>, partnered with NGOs that provided services to IDU and PWUD. The next round of individuals recruited and enrolled were considered wave 2, and so on. Third, each seed received three coupons and were asked to refer three additional PWUD. Each seed was expected to extend up to three to six “recruitment waves” at each site. If the initial seeds did not recruit participants, additional seeds would be selected based on the inclusion criteria. Finally, recruited individuals were provided the same opportunity as seeds to recruit other PWUD. In total, 94 seeds were selected for the entire survey.

### Inclusion Criteria

All participants were at least 18 years old, providing informed consent, and self-reported drug injection in the previous two years. All participants met the criteria defining IDU and PWUD, and willingly participated in the study through written informed consent. Participants completed a survey that included socio-demographic, substance use characteristics, sexual and injection risk behaviors, psycho-social risks and use of harm reduction services. Participants provided a blood sample for HIV testing following completion of the survey and were provided pre-and post- test counseling. HIV was diagnosed on site using three rapid tests, with western blot confirmation in cases where rapid tests were indeterminate<sup>(22)</sup>.

In HIV-positive participants, absolute CD4 + cell count and HIV RNA level were quantified and recent HIV infection was characterized according to a multi-assay algorithm<sup>(22)</sup> that has been validated for HIV subtype C, the predominant subtype in India<sup>(25)</sup>.

To examine the influence of age on recent HIV risk behaviors, we chose three behaviors as outcomes of interest: (i) Recent needle sharing, defined as either receiving or passing a needle in the prior six months; (ii) recent multiple sexual partners, defined as having two or more sexual partners in the prior six months; and (iii) recent

unprotected sex.

Using an estimated HIV prevalence of 3.5%, a margin error of 1.5%, a confidence interval of 95%, a response rate of 90%, and a design effect of 1.5, we derived a minimum sample size of 1390 for this study. The calculated sample size was further stratified by study sites, and roughly 15% of the estimated PWUD in each site were recruited.

This study was duly approved by the Institutional Ethical Committee. Privacy and confidentiality of the participants were protected by conducting the data collection in a private room and removing all personal identifiers from the study documents. Other collected information included HIV testing history, STI symptoms, and care seeking behaviors as well as the use of other substances (tobacco and alcohol) in the past 3 months.

MS Excel 2010 software was used to analyze the

study data. Chi-square test (or Fisher's exact test for an expected cell value of  $\leq 5$ ) was used for categorical variables, and Student's t-test or Mann-Whitney U test for continuous variables.  $P < 0.05$  was considered as significant.

### Results

This study included 94 HIV patients, with the mean age of  $26.46 \pm 5.73$  years. Majority (84.04%) of the participants were residing in urban communities, and males (62.77%). A significant number of patients (43.62%) had attained only primary education. A high incidence of HIV/AIDS was found in the age group of 15-34 years (74.46%). More than half (55.32%) of patients had never married and did not have live partners. All the females affected (35) had HIV positive partner. (Table 1)

**Table 1** Socio-demographic characteristics of HIV-patients (n=94)

Socio-demographic characteristics	n (%)	P-value*
Living in an urban community	79 (84.04)	< 0.001
Female gender	35 (37.23)	0.662
Male gender	59 (62.77)	
Having HIV positive partner		
Females	35 (100.00)	< 0.001
Males	37 (62.71)	
Age group		
15-24	31 (32.98)	< 0.001
25-34	39 (41.48)	
35-44	12 (12.77)	
> 44	12 (12.77)	
Current marital status		
Never- married/ unmarried	52 (55.32)	0.003
Married	26 (27.66)	
Widowed/divorced/separated	16 (17.02)	
Level of formal education attained		
Primary School only	41 (43.62)	< 0.001
Secondary school	26 (27.66)	
High school or higher	27 (28.72)	

P<0.001 was considered as significant.

More than 90% of cases were aware of their HIV status and 100% of them were currently on ART. Out of the diagnosed cases of HIV patients, 65 (47.87%) were found to be of substance use. Median time since the participants started using drugs was 12 months. The majority (69.23%)

reported "smoking" as the method of their first drug use and continue to be the characteristic status of drug use among 32.31% of patients with substance use. Methamphetamine (Yama or ice) was the most commonly used drug. (Table 2)

**Table 2:** Characteristics of substance use among HIV-positive

Drug use characteristics	Numbers (n=65) n (%)	p-value
<b>Current status of drug use:</b>		
Smoking (only)	21 (32.31)	0.166
Swallowing / drinking (only)	11 (16.92)	
IDU	33 (50.77)	
<b>Method of first illicit drug use:</b>		
Smoking	45 (69.23)	0.004*
Swallowing / drinking	20 (30.77)	
Injecting	0 (0.0)	
<b>Type of illicit drugs commonly used:</b>		
Yama / ice (methamphetamine)	28 (43.08)	0.002*
Ecstasy	8 (12.31)	
Inhalants	10 (15.38)	
Cannabis	7 (10.77)	
Buprenorphine, propoxyphene, and heroin (Injectable Drug)	12 (18.46)	

HIV: human immunodeficiency virus, IDU: Injection drug use; \*p<0.01 = significant

### Discussion

The present study highlighted the increasing burden of HIV/AIDS patients. This finding confirms that substance use is quite prevalent among HIV infected. Independent risk factors of HIV infection identified in this study included older age, lower level of education, homelessness, previous drug injection and STI symptoms. This is in contrast to other studies in China and South Africa, which did not find a relationship between HIV infection and age among methamphetamine users.<sup>(26,27)</sup> HIV prevalence trend is however declining in India since the epidemic's peak in the year 2000. As per India HIV Estimation 2019 report, among the population: 15–49 years, the estimated prevalence was 0.22%.<sup>(28)</sup> Among the most HIV troubled areas are in the North East and North–Central states of India.

Methamphetamines were particularly prominent in the profile of substances recently consumed, while ecstasy, cannabis, and other inhalants feature less in use among the participants. The study also found that apart from IDU, tobacco, alcohol, cannabis, and pharmaceutical opioids were the most common substances of abuse in order of frequency.

A study conducted in 2012-13, by National Commission of Protection for Child Rights in collaboration with the National Drug Dependence

Treatment Centre, All India Institute of Medical Sciences, New Delhi, on over 4000 children using substances across 100 sites from 27 states and 2 UTs in India, found 509 child IDU users. The street children initiated IDU earlier than out-of-school and school going children. The most powerful of the social influences for substance use at a younger age was found to be peer - influences.<sup>(8)</sup> Injection substance use also has a possible link with mental health.<sup>(29)</sup> History of having used injecting drugs was associated with higher likelihood of being diagnosed with HIV. This is possible due to the risk of sharing contaminated needles<sup>(9)</sup>. The finding that a history of drug injection increased the odds of HIV infection provides a compelling reason to reach out to people who are currently using drugs by routes other than injection, as some of them may have injected in the past, often over a year ago as was the case in our study.

The present study is in agreement with the previous studies which have also shown that both substance use and HIV infection are associated with lower levels of education<sup>(30,31)</sup>. Our study was however not in agreement to a previous study among transgender in Cambodia which had reported that older age increased the risk of HIV infection<sup>(30)</sup>.

From the perspective of prevention, it is important

to impart the basic skills to children such as resisting peer pressure and being assertive to say “no” when offered substances by peers.

As the main focus of the study was on the pattern and correlates of children/youth using substances, therefore information pertaining to some other details/factors specific to IDU behavior was not collected, including the circumstances around IDU initiation, sharing practices, and kinds of drugs injected, which can be the main limitation of the study. This was a cross-sectional study which provides a snapshot of the prevalence of HIV and related risk behaviors, and does not capture the dynamic way in which profiles and modes of drug use change in the life course. Self-reporting measures used to collect a number of correlates are likely to be affected by social desirability bias known to affect reporting of sensitive drug use and sexual behaviors. Besides, a convenient sample has been used and possibly non-representative for the entire population.

### Conclusions

The paper highlights the profile and pattern of children and adolescents using IDU across many parts of India, dispelling the myth that IDU is largely an adult phenomenon in India. Given the findings of this study and to achieve the national strategic goals of halting the HIV epidemic among PWUD, our findings suggest that stratification of risk based on socio-economic profiles and drug injection history can enhance programs to identify unidentified people living with HIV. There is a need to target harm reduction messages for IDU to younger age group children who use substances. Strategies need to be devised specifically for young IDUs to reduce the impact of injecting drug use on the HIV epidemic in India, especially as adolescents may have lesser awareness about risks and may have a lower harm perception or higher risk-taking behaviors.

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