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# Knowledge, Attitude, and Practices Regarding HIV Prevention Among Intravenous Drug Users and The Role of NGOS

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**Abstract:** HIV prevention among intravenous drug users remains a major public health priority because unsafe injecting practices, sexual risk behaviour, stigma, and delayed testing can sustain transmission within vulnerable networks. The present study assessed knowledge, attitude, and practices regarding HIV prevention among people who inject drugs and examined the role of non-governmental organizations in awareness generation, counselling, harm reduction, and referral support. A descriptive crosssectional design was used with 120 respondents selected from community and NGOlinked service points. Information was collected through a structured closed-ended questionnaire covering socio-demographic profile, drug-use pattern, knowledge of HIV transmission and prevention, attitude towards testing and counselling, preventive practices, and utilization of NGO services. The findings show that NGOs are important public health partners in reaching marginalized injecting-drugusing populations through peer educators, counselling, sterile needle and syringe services, condom distribution, testing referral, and linkage to treatment. The study concludes that HIV prevention among people who inject drugs requires integrated, stigma-free, community-based services that combine information, behaviour-change counselling, harm reduction, repeat HIV testing, and continuity of care. Strengthening NGO-government coordination can improve prevention outcomes and reduce HIV transmission risks among this high-risk group.

**Keywords:** HIV prevention; intravenous drug users; people who inject drugs; knowledge

## I. INTRODUCTION

Human immunodeficiency virus remains one of the most important infectious diseases in public health because it is linked with biological, social, behavioural, and structural determinants. The epidemic has changed over time with the expansion of antiretroviral therapy, community testing, prevention education, and targeted interventions. However, HIV transmission continues to occur among populations that experience high exposure, stigma, and limited access to consistent prevention services. People who inject drugs are one such group. Injecting drug use can create a direct route for transmission when contaminated needles, syringes, preparation containers, or other injecting materials are shared. The risk is further increased when unsafe sexual practices, poverty, unstable housing, social exclusion, and fear of discrimination reduce contact with formal health services. Official global reports indicate that millions of people continue to live with HIV and that prevention gaps remain despite major progress in treatment coverage (World Health Organization; UNAIDS).

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### Overview of HIV/AIDS

HIV is a virus that attacks the immune system, particularly CD4 cells, and gradually weakens the body's ability to fight infections. AIDS is the advanced stage of HIV infection when immune damage becomes severe and opportunistic infections or certain cancers may occur. HIV is not transmitted through casual contact, sharing food, shaking hands, or living in the same household. It is transmitted mainly through specific body fluids such as blood, semen, vaginal fluids, rectal fluids, and breast milk. The most common modes of transmission include unprotected sexual contact, sharing contaminated injecting equipment, transfusion of infected blood, and mother-to-child transmission during pregnancy, delivery, or breastfeeding. Early diagnosis, antiretroviral therapy, adherence support, and viral load monitoring have transformed HIV into a manageable chronic condition for many people.

### HIV Transmission and Risk Factors

Transmission risk is not equal across all populations. It is shaped by exposure, frequency of risk behaviour, access to preventive tools, and social context. For people who inject drugs, blood exposure through shared needles or syringes is a major concern because even a small amount of infected blood can remain in injecting equipment. Sexual risk may occur at the same time, especially when condom use is inconsistent, when individuals have multiple partners, or when transactional sex is linked with drug use. Other risk factors include low knowledge, misconceptions, low perceived susceptibility, fear of testing, untreated sexually transmitted infections, and delayed linkage to treatment. Stigma and criminalization can force injecting behaviour into hidden spaces, making outreach and service delivery more difficult.

### Intravenous Drug Use and HIV Transmission

Intravenous drug use is directly linked with HIV transmission because injection creates immediate access to the bloodstream. When one needle or syringe is used by more than one person, blood from an infected individual may be transferred to another. Risk may also occur through shared cookers, cotton filters, water, or back-loading and front-loading practices. In many settings, unsafe injecting is not simply a matter of personal choice. It may be influenced by lack of sterile equipment, police fear, peer pressure, withdrawal symptoms, cost, distance from services, and absence of harmreduction education. Therefore, prevention must combine individual counselling with structural support such as needle and syringe programmes, opioid substitution therapy, testing, and non-judgmental health care.

## II. REVIEW OF LITERATURE

### Global Burden of HIV/AIDS

The global HIV epidemic remains a major public health challenge. WHO and UNAIDS reported that about 40.8 million people were living with HIV in 2024, with 1.3 million new infections and 630,000 AIDS-related deaths (World Health Organization; UNAIDS). These figures show both progress and continuing prevention gaps. Expanded antiretroviral therapy has reduced mortality, but new infections persist among vulnerable populations. The global

response increasingly emphasizes combination prevention, treatment access, rights-based services, and community involvement.

**HIV/AIDS Situation in India**

India has a concentrated HIV epidemic with lower general adult prevalence but significant burden in key populations and selected regions. NACO's HIV estimation updates indicate that adult prevalence remains around 0.2 percent, while millions continue to live with HIV in the country (National AIDS Control Organization, HIV Estimation 2025 Technical Report). Government communications also emphasize reductions in new infections since 2010 and the importance of sustained targeted interventions (Ministry of Health and Family Welfare). The Indian context requires strong linkage between public health facilities, targeted intervention projects, and community organizations.

**HIV Risk Among Intravenous Drug Users**

People who inject drugs experience high HIV risk because injection creates a direct route for blood-borne transmission. Degenhardt and colleagues estimated that a substantial proportion of people who inject drugs globally are living with HIV, with additional burdens of hepatitis B and hepatitis C (Degenhardt et al.). Risk is intensified by sharing needles, syringes, filters, water, or other injecting materials. HIV risk among this group also includes sexual risk, stigma, criminalization, mental health issues, and limited access to stable housing and health care.

**Knowledge Regarding HIV Prevention Among Drug Users**

Knowledge is a key starting point for prevention but is often incomplete. Studies and programme reports indicate that respondents may know that HIV is linked with unsterile needles, yet may not fully understand indirect sharing, regular testing, or treatment as prevention. Knowledge gaps are common regarding opioid substitution therapy, pre-exposure prophylaxis, viral suppression, and legal rights. Public health education must be repeated and practical. It should use local language, peer educators, demonstrations, and simple messages that connect knowledge with daily practices.

**Attitude Towards HIV Prevention and Testing**

Attitude influences whether people accept testing, counselling, condom use, and harm-reduction services. Fear of a positive result, shame, concerns about confidentiality, and previous discrimination can reduce willingness to seek services. Positive attitudes develop when services are friendly, confidential, and delivered by trusted outreach workers. Attitude also affects partner communication and condom negotiation. A person may accept the need for condoms but feel unable to discuss them with a regular partner. Therefore, attitude change requires supportive counselling and stigma reduction, not only information.

**Needle Sharing and Unsafe Injection Practices**

Needle sharing remains one of the most direct routes for HIV transmission among people who inject drugs. Sharing may occur due to lack of sterile syringes, emergency injecting, group injecting norms, economic constraints, or fear of carrying needles. Unsafe practices may also include sharing preparation equipment, rinsing syringes with common water, and using contaminated containers. Wodak and Cooney found strong evidence supporting needle and

syringe programmes as effective in reducing HIV transmission among injecting drug users (Wodak and Cooney).

**Condom Use and Sexual Risk Behaviour**

Sexual risk is an important part of HIV prevention among people who inject drugs. Unprotected sex can transmit HIV to partners and may connect injecting networks with the wider population. Condom use may be inconsistent because of low perceived risk with regular partners, lack of negotiation power, intoxication, stigma, or absence of condoms. Prevention programmes should not treat injecting and sexual risk as separate issues. Counselling, condom distribution, partner education, STI services, and gendersensitive communication are required.

**HIV Testing and Counselling Practices**

HIV testing provides a gateway to prevention, treatment, and care. People who test negative can receive prevention counselling and retesting advice, while those who test positive can be linked to ART and support services. WHO emphasizes that early diagnosis and treatment improve health outcomes and reduce transmission when viral suppression is achieved (World Health Organization). For people who inject drugs, counselling must be confidential, non-judgmental, and linked with practical support. Repeat testing is important when risk exposure continues.

## III. RESEARCH METHODOLOGY

**Study Design**

A descriptive cross-sectional study design was used. This design was suitable because the study aimed to assess knowledge, attitude, practices, and NGO support at one point in time among respondents belonging to a high-risk group.

**Study Area**

The study was conducted in selected community and NGO-linked service areas where people who inject drugs could be reached through outreach workers, peer educators, counselling points, and referral networks.

**Study Population**

The study population consisted of adult intravenous drug users who were present in the selected service areas and were willing to participate after receiving information about the purpose and confidentiality of the study.

**Source of Data**

Primary information was collected directly from respondents using a structured closed-ended questionnaire. Supporting information about NGO services was obtained from service interaction and respondent reports.

**Sample Size**

The sample size was 120 respondents. This size was considered adequate for descriptive analysis and for testing selected associations between socio-demographic characteristics, knowledge level, preventive practices, and NGO support.

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**Sampling Technique**

A purposive sampling technique was used because the study focused on a specific high-risk population that is not easily accessible through household sampling. Respondents were approached through community contact points and NGO-linked outreach channels.

**Inclusion Criteria**

Respondents were included if they were aged 18 years or above, had a history of intravenous drug use, were available during the study period, were able to understand the questionnaire, and provided informed consent.

**Exclusion Criteria**

Respondents were excluded if they were unwilling to participate, unable to provide informed consent, severely ill at the time of contact, or unable to complete the questionnaire due to acute distress or intoxication.

**Study Variables**

The study included independent and dependent variables relevant to HIV prevention. Independent variables included age, gender, education, duration of drug use, frequency of injecting, and NGO support. Dependent variables included knowledge level, attitude, preventive practices, HIV testing behaviour, and utilization of prevention services.

## IV. DATA ANALYSIS AND INTERPRETATION

This chapter presents data analysis and interpretation based on closed-ended questionnaire responses from 120 respondents. Tables show frequencies, percentages, and selected associations. Figures are provided after the corresponding tables to present the distribution visually. Interpretation is given after each table to explain the meaning of the findings in relation to HIV prevention among intravenous drug users and the role of NGOs.

Table 1. Socio-demographic profile of respondents

| Variable | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Age group | 18-24 years | 22 | 18.3 |
| Age group | 25-34 years | 48 | 40.0 |
| Age group | 35-44 years | 32 | 26.7 |
| Age group | 45 years and above | 18 | 15.0 |
| Gender | Male | 104 | 86.7 |
| Gender | Female | 10 | 8.3 |
| Gender | Transgender | 6 | 5.0 |

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| | | | |
|---|---|---|---|
| Education | No formal schooling | 18 | 15.0 |
| Education | Primary | 26 | 21.7 |
| Education | Secondary | 44 | 36.7 |
| Education | Higher secondary and above | 32 | 26.7 |

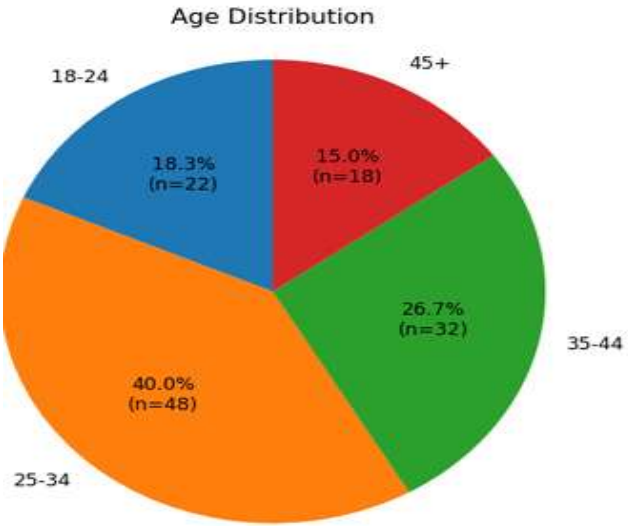


Figure 1. Distribution of respondents by age group

Interpretation: The socio-demographic profile indicates that most respondents were in the economically active age groups, particularly 25-34 years. This age concentration is important because young adults often experience higher mobility, social exposure, and risk-taking patterns. Male respondents formed the major proportion, while female and transgender participants were fewer but important for understanding diversity within high-risk groups. Education varied widely, and a notable share had primary or no formal schooling. This pattern suggests that HIV prevention messages must be simple, repeated, and delivered through interpersonal communication rather than only written materials. The profile also shows the need for inclusive programmes that consider gender, literacy, livelihood vulnerability, and social marginalization while planning NGO-led outreach.

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Table 2. Drug use profile of respondents

| Variable | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Duration of injecting drug use | Less than 1 year | 14 | 11.7 |
| Duration of injecting drug use | 1-3 years | 38 | 31.7 |
| Duration of injecting drug use | 4-6 years | 42 | 35.0 |
| Duration of injecting drug use | More than 6 years | 26 | 21.7 |
| Frequency of injecting | Daily | 62 | 51.7 |
| Frequency of injecting | Several times per week | 34 | 28.3 |
| Frequency of injecting | Once or twice per week | 16 | 13.3 |
| Frequency of injecting | Occasional | 8 | 6.7 |

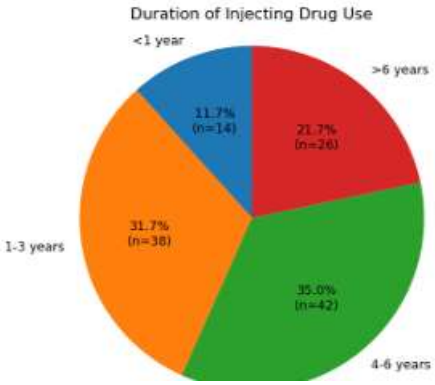


Figure 2. Distribution of respondents by duration of injecting drug use

Interpretation: The drug use profile shows that a majority of respondents had a history of injecting drug use for more than one year, and daily injecting was reported by more than half of the participants. Longer duration and frequent injecting can increase cumulative exposure to unsafe injection practices, especially when sterile equipment is not consistently available. Respondents with 4-6 years of injecting experience formed the largest duration category, showing that many participants were already familiar with drug-use networks and peer practices. This pattern has implications for NGO services because regular contact, peer educators, harm-reduction counselling, and linkage to opioid substitution therapy are particularly useful for those who inject frequently and remain exposed to repeated risk.

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## V. RESULTS

### Major Findings Related to Socio-demographic Profile

The socio-demographic findings showed that the majority of respondents were young and middle-aged adults. The age group of 25-34 years formed the largest category, followed by 35-44 years. This indicates that HIV prevention among people who inject drugs should focus on economically active age groups that may have high mobility and social exposure. Male respondents constituted the major proportion, but female and transgender respondents were also included, indicating the need for inclusive prevention services. Education levels varied, and many respondents had limited formal education. This result is important because low literacy can affect understanding of HIV prevention messages and service information. IEC material and counselling should therefore be simple, visual, and repeated.

### Major Findings Related to Drug Use Pattern

The drug-use profile revealed that many respondents had been injecting drugs for more than one year, and daily injecting was common. Frequent injecting increases opportunities for unsafe practices when sterile equipment is unavailable. Respondents with longer duration of drug use may be more deeply connected to peer networks where sharing norms can develop. The finding highlights the need for regular outreach and easy access to sterile injecting equipment. It also supports the need for opioid substitution therapy referral because reducing injecting frequency can reduce HIV risk. NGO contact is particularly useful for respondents who inject daily because they require repeated counselling and supplies.

### Findings Related to Knowledge of HIV Prevention

Knowledge findings showed that most respondents were aware that HIV can be transmitted through unsterile needles and unprotected sexual intercourse. Knowledge was also fairly good regarding blood transfusion, but lower regarding mother-to-child transmission and myths about casual contact. Knowledge of prevention methods was stronger for sterile needles, condoms, and HIV testing than for opioid substitution therapy and pre-exposure prophylaxis. This means that respondents may understand common messages but lack knowledge of specialized or newer prevention options. Prevention education should therefore include practical details such as where to test, how to obtain sterile equipment, how OST helps, and how referral services can be used.

### Findings Related to Attitude Towards HIV Prevention

Attitude findings indicated that most respondents agreed that HIV testing is important and that needle sharing is dangerous. A majority also agreed that NGO workers are helpful in HIV prevention. However, some respondents were neutral or disagreed regarding condom discussion with regular partners. This suggests that attitudes towards biomedical and injection-related prevention may be stronger than attitudes related to sexual negotiation. Fear, embarrassment, or relationship dynamics may influence condom-related discussions. Counselling should address not only risk knowledge but also communication skills, stigma, trust, and partner involvement.

**Findings Related to Preventive Practices**

The practice findings revealed mixed behaviour. Many respondents reported always or usually using sterile needles and syringes, but some reported reusing their own equipment or sharing needles in the last month. This is a critical finding because even occasional sharing can sustain transmission within injecting networks. Condom use was inconsistent, with only a smaller proportion reporting always using condoms. These results show a gap between knowledge and practice. It is necessary to ensure that prevention materials are continuously available and that counselling addresses practical barriers such as withdrawal symptoms, peer pressure, lack of privacy, and low perceived risk.

**Findings Related to NGO Support and Services**

NGO service utilization was highest for awareness sessions and condom distribution. Counselling, needle and syringe services, and referral services were also used, but referral to opioid substitution therapy and ART/ICTC services was comparatively lower. This pattern shows that respondents may be willing to receive direct services but may face difficulty in completing referrals. NGOs can strengthen follow-up by using peer educators, appointment reminders, accompaniment, and coordination with public health facilities. Regular NGO contact was associated with better prevention practices, suggesting that repeated community-based support plays an important role in behaviour change.

**Findings Related to Harm Reduction Practices**

Harm-reduction findings showed that sterile needle use was not universal and that some respondents continued unsafe practices. The study also showed lower awareness of opioid substitution therapy. Harm reduction should be understood as a practical public health strategy that reduces risk even when individuals are not ready or able to stop drug use immediately. Needle and syringe services, safe disposal, condom distribution, counselling, OST referral, and HIV testing must be delivered as a combined package. NGOs are suitable partners for harm reduction because they can reach hidden populations through outreach and peer networks.

**Findings Related to HIV Testing and Counselling**

HIV testing findings showed that some respondents had tested within the last six or twelve months, but a notable proportion had never been tested. Repeat testing is important because risk exposure may continue. Respondents who avoid testing may be influenced by fear of diagnosis, stigma, confidentiality concerns, or lack of knowledge about testing sites. Counselling should explain the benefits of early diagnosis, availability of free treatment, confidentiality, and the fact that HIV can be managed with proper care. NGOs can increase testing uptake by linking respondents to ICTC services and conducting community-based referral drives.

**Findings Related to Association Between Variables**

The association analysis showed that education was significantly associated with knowledge level. Respondents with higher education showed better knowledge, while lower education groups showed more poor knowledge. Knowledge level was significantly associated with preventive practices, indicating that respondents with better knowledge were more likely to

follow safer behaviours. NGO support was also significantly associated with prevention practices. These associations suggest that education-sensitive counselling, practical service access, and regular NGO contact are important for improving prevention behaviour. Age group was not significantly associated with HIV testing in the study.

**Conclusion of Results**

The results demonstrate that awareness exists among many respondents, but important gaps remain in practical knowledge, consistent condom use, safe injection practices, repeat testing, and referral service utilization. NGOs play an important role in improving prevention through education, counselling, distribution of prevention materials, and service linkage. The findings support integrated HIV prevention that combines knowledge improvement, attitude change, harm reduction, testing, and NGO supported follow-up.

## VI. DISCUSSION

**Discussion of Socio-demographic Findings**

The socio-demographic findings showed that respondents were largely young and middle-aged adults. This is consistent with the pattern that injecting drug use often affects economically active age groups. Public health interventions targeting this group must be flexible in time and location because respondents may be mobile, informally employed, or socially marginalized. Lower education among a notable group of respondents suggests that prevention messages cannot rely only on written pamphlets. Counselling must use clear language, visuals, peer demonstrations, and repetition. Gender diversity within the group also indicates the need for inclusive services that respect privacy and avoid discrimination.

**Discussion of Drug Use Related Findings**

Frequent injecting and longer duration of drug use were important findings. Daily injecting increases repeated exposure to risk, particularly if sterile equipment is unavailable. Longer duration may create peer networks where sharing practices become normalized. The findings support the WHO, UNODC, and UNAIDS recommendation that services for people who inject drugs should include needle and syringe programmes, opioid substitution therapy, testing, treatment, condom distribution, and outreach (WHO, UNODC, and UNAIDS). Harm reduction must be sustained because occasional or irregular services may not match daily risk exposure.

**Discussion of Knowledge Regarding HIV Prevention**

Knowledge was relatively good for major routes such as unsterile needle use and unprotected sex, but gaps remained in mother-to-child transmission, myths, OST, and PrEP. This indicates that respondents receive common prevention messages but may not receive comprehensive education. Degenhardt and colleagues reported that HIV burden among people who inject drugs remains high globally, showing that knowledge and prevention coverage must be strengthened (Degenhardt et al.). Knowledge should be practical, explaining not only what is risky but also how to access prevention tools.

**Discussion of Attitude Towards HIV Prevention**

Attitudes were generally positive towards testing and NGO services. This is encouraging because positive attitudes can support service uptake. However, hesitation around condom discussion shows that sexual prevention remains sensitive. Attitudes are influenced by stigma, relationship dynamics, fear of rejection, and low perceived risk with regular partners. Public health counselling should use motivational interviewing and peer support to build confidence. NGOs can help by creating safe spaces where respondents can discuss sensitive issues without judgment.

**Discussion of Preventive Practices**

Preventive practices were not fully consistent. Some respondents reported unsafe needle-related behaviour and inconsistent condom use. This finding reflects the common gap between knowledge and behaviour. Behaviour is shaped by availability of supplies, addiction severity, social context, and service access. Wodak and Cooney concluded that sterile needle and syringe programmes reduce HIV transmission effectively, safely, and cost-effectively (Wodak and Cooney). Therefore, regular supply and accessibility of sterile equipment are essential. Counselling alone is insufficient if respondents cannot obtain prevention materials when needed.

**Discussion of Needle Sharing Practices**

Needle sharing in any proportion is a major concern because HIV transmission can occur through a single unsafe exposure. Respondents may share needles due to emergency situations, withdrawal, lack of money, or unavailability of sterile equipment. Some may also reuse personal equipment without recognizing the risk of contamination or unsafe storage. Harm-reduction services should include demonstrations on safe injecting, safe disposal, avoidance of indirect sharing, and emergency planning. Peer educators can be effective because they understand the social context of injecting behaviour.

## VII.CONCLUSION

The study assessed knowledge, attitude, and practices regarding HIV prevention among 120 intravenous drug users and examined the role of NGOs. A descriptive cross-sectional design was used. The study included socio-demographic profile, druguse characteristics, awareness of HIV/AIDS, knowledge of transmission and prevention, attitudes towards prevention and testing, practices related to needle use and condom use, HIV testing behaviour, and utilization of NGO services.

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