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Multiplicity of HIV Related Risk Behaviour among Injecting Drug Users in South Asian Countries Evidence from Nepal, Bangladesh, and India

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Abstract

Background: Interface of drug abuse, needle sharing and high-risk-sex are potential menace multiplying HIV risk. This paper analyses covariates of multiplicity of risk behaviour among injecting drug users (IDUs) in the selected countries of South Asia.

Methods: Findings are based on data from 1393 male IDUs from Nepal (2010-11), 1290 from Bangladesh (2015-16) and 1977 from India (2010). Bivariate and multivariate analysis was carried out to understand the covariates of multiplicity of risk behaviours among Injecting drug users in Bangladesh, Nepal and India of south Asian countries.

Results: The mean duration of involvement in injecting drug use are 4.5 to 8.7 years across the countries with the mean age at first injecting drug use is higher among older age groups and married IDUs. Needle sharing is relatively prevalent especially among younger and illiterate IDUs. Further, it is reported that multi partner behaviour is more prevalent among those IDUs who involved in needle sharing practices. Condom use with commercial partners is almost four-fifth across the countries, whereas with regular partner its approximately 40% except Bangladesh. Coexistence of needle sharing and unprotected sex enhances (sexually transmitted infections (STI) prevalence as 7% in Nepal, 32% in Bangladesh and 5% in India.

Conclusion: Working towards risk reduction for IDUs must deal with the multiplicity of risk. Interventions should deal with covariates of risk, addressing youth, substance abuse and risky sexual behaviour interface.

Keywords: IDUs; Covariates; HIV Risk; Needle Sharing; Condom; South Asia

List of abbreviations: HIV: Human Immunodeficiency Virus; AIDS: Acquired Immune Deficiency Syndrome; IDUs: Injecting Drug Users; PWID: People Who Injecting Drugs; UNAIDS: United Nations Programme on HIV/AIDS; WHO: World Health Organization; SEAR: South-East Asia Region; UNODC: United Nations office on Drugs and Crime; UNESCO: United Nations Economics and Social council; USAID: United States Agency for International Development

Background

Injecting drug use continues to drive the expansion of the HIV epidemic in many countries around the world. In 2013, UNODC estimates that there are 14.0 million (range: 11.2 million to 22.0 million) people who inject drugs worldwide, and of these, 1.6 million (range: 1.2 million to 3.9 million) are living with HIV, representing a global prevalence of HIV of 11.5% among people who inject drugs [1]. Injecting drug use also remains a severe public health concern in a number of countries in East and South-East Asia, with the region accounting for 27 per cent of the global total. South Asia has the lowest level of injecting drug use (0.03%), mostly as a result of the low prevalence reported in India [1]. According to World Health Organization (WHO) definition of South-East Asia Region (SEAR), there are an estimated 3.8 million PWID primarily located in countries that experience a high or medium burden of illicit drug injecting (WHO Office for SEAR covers 11 countries: Bangladesh, Bhutan, DPR Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste). Among them, many involved in high-risk behaviour such as the sharing of non-sterile injecting equipment, and this has contributed towards the overall HIV epidemic in several countries of the region. Since the 1990s the majority of countries in the South-East Asia Region have experienced a significant injecting drug use problem, accompanied by explosive rates of HIV at some sites. Over time the national response has increasingly been to implement various harm reduction interventions to reduce the HIV prevalence and address the health needs of people who inject drugs [2].

People take drugs, both legal and illegal, for a variety of reasons that will differ from person to person and from drug to drug. Individuals may enjoy the sense of detachment or euphoria that drugs create, their relaxing or energy-inducing properties, the heightened alertness or sensitivity they produce, and their medicinal qualities. Peer pressure or habit may be other reasons, and if they are chemically dependent, addicts will feel they cannot operate without them. These reasons will depend on an individual's own background and socioeconomic circumstances. Drugs can be taken in a variety of ways including drinking, smoking, snorting and rubbing, but it is the injection of drugs that creates the biggest risk of HIV transmission [3].

Drug use in Asian countries continues to increase, and new and ever more hazardous and harmful drug use patterns are continuing to emerge. Many uses multiple substances, inject in preference to smoking, 'chasing' or snorting, share needles, syringes, drug paraphernalia, drug solutions, preparations indiscriminately, use alcohol and other psychoactive drugs excessively [4-5]. The UNDP estimates that the most frequent change in drug consumption patterns is the move from the smoking of opium to the injecting of heroin and other drugs as a result of law enforcement [6]. Further, many factors specific to individual IDUs and countries may influence or cause needle sharing. For many users, sterile syringes are not readily available, and drug paraphernalia laws in some countries make it an offence to distribute or possess syringes for non-medical purposes [7].

People who inject drugs are the most marginalised and invisible people in all societies. Many governments find it politically unpalatable to provide adequate HIV and health services for people who inject drugs, who are a socially stigmatised and criminalised population. Since they are readily ignored and left behind by politicians and policy makers, often their only support comes from each other through formal and informal peer networks. When people are socially marginalised, they are less likely to approach health authorities for their sexual and reproductive health, as well as other health services [8].

Injection drug use continues to be a fundamental mode of transmission of HIV infection, especially in Asia, Eastern Europe, and South America, where effective needle-exchange programs and access to antiretroviral therapy for injection drug users (IDUs) are often limited [9-10]. Still, sexual intercourse remains the primary mode of HIV transmission worldwide. IDUs may transmit HIV not only by needle-sharing but also by unprotected sexual intercourse. Likewise, they may expose themselves to HIV through high-risk sexual behaviour. In this context, IDUs may exchange sex for drugs or money to support their drug use [11]. Sexual transmission may be potentiated through the disinhibiting effects of psychoactive drugs, sex trade involvement, and increased risk of sexually transmitted infections, all of which are established cofactors of HIV transmission [12]. Although injecting drug users constitute a risk group in themselves, there is also an overlap between drug addiction and those involved in sex work. Individuals who fall into both categories are therefore particularly vulnerable to HIV and are perhaps doubly stigmatised.

South Asia, comprising Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka, is wedged between the world's two largest areas of illicit opium production, the Golden Crescent and the Golden Triangle. Within the sub region itself, illicit opium and cannabis cultivation, heroin and hashish production, trafficking and diversions of precursor chemicals and drugs take place. Traditional abuse of opium and cannabis is shifting to the more dangerous heroin and injecting drug use, with the associated spread of HIV infection [13]. Heroin from Afghanistan and Pakistan enters India from the north-west and from Myanmar through Bangladesh and the north-eastern states of India. Heroin seizures in India amounted to 850 kilograms in 2001. Opium, heroin, cannabis, hashish, psychotropic substances such as methaqualone and pharmaceutical preparations like codeine-based cough syrups and buprenorphine are trafficked across the India-Bangladesh and India-Nepal common land borders and through sea lanes between India, Sri Lanka and Maldives [13].

In a report of Harm Reduction International 2012, shows that young injecting drug users are more probable to share equipment with their injectors than the older ones and less likely to access needle/syringes services. Those young people sharing injecting drug equipment can transmit blood borne viruses including HIV and Hepatitis C Virus. In South Asia, high-risk behaviours drive much of the epidemic: injecting drug use and unprotected commercial sex, plus anal sex among subsets of the population [14]. The sexual partners of those engaging in these behaviours also have an elevated risk of acquiring and transmitting HIV. In Asia, high-risk behaviours drive much of the epidemic: injecting drug use and unprotected commercial sex, plus anal sex among subsets of the population. The sexual partners of those engaging in these behaviours also have an elevated risk of acquiring and transmitting HIV [15].

According to a report of 'AIDS in South Asia: Understanding and Responding to a Heterogeneous Epidemic' more than 5.5 million people are infected with HIV in South Asia, with the epidemic increasingly driven by the region's flourishing sex industry and injecting drug use. Since the first set of AIDS cases appeared in the region during the early 1980s, and by the end of the decade, national health authorities of most countries had received reports of AIDS cases. Despite similar times of HIV introduction, the epidemics in the various countries have played out in remarkably different ways. Indeed, this divergence has occurred even within individual countries [15]. Injecting drug use is a common path for transmission, spread further by sexual transmission from intravenous drug users to non-drug-abusing populations. HIV prevalence among drug addicts in the south Asian countries indicates a differential epidemic: reported HIV prevalence is as high as 80 per cent among injecting users in the north-eastern states of India, which together have well over 100,000 injecting drug users. However, a rapid escalation of HIV infection has

occurred within the past year, with certain locations in the region moving from zero to above 50 per cent HIV prevalence among injecting drug users in particular sites in the south Asian countries. Among the primary health consequences of injecting drug use are the transmission of hepatitis B and C, HIV and other blood-borne diseases. Understanding of the link between drug use and HIV/AIDS is still weak in most countries of the South Asian countries [8].

Injecting drug users are not only at the risk of acquiring and transmitting HIV through the sharing of needle syringe equipment but also through high-risk sexual behaviours, including but not limited to unprotected sex and engaging in sexual acts under the influence of drugs or exchange for drugs. Injecting drug users in south Asian countries went through multifactorial vulnerabilities and amplified the risk. Interfacing risks of substance abuse, needle sharing, high-risk-sex, including multiple-partner and unprotected sex under the influence of injecting drugs use are the major threats. It is against this background that we attempt to study the covariates of the multiplicity of risk behaviour among IDUs in Bangladesh, Nepal and India of south Asian countries.

Materials and Methods

Study Population

The data for this study were obtained from three different countries: Nepal, Bangladesh and India of South Asian Countries. The Nepal and Bangladesh's data were collected through a behavioral survey conducted among Injecting drug users (IDUs) interviewed as a part of the mapping and size estimation of the Most at risk population (MARP) exercise carried out in Bangladesh and Nepal adopting a comprehensive protocol developed after various rounds of respective national consultation. For India, Integrated behavioral and biological survey (IBBA) second round of data has been used. IBBA collect the information on important indicators such as types of sexual partners, condom use patterns with these sexual partners, knowledge, awareness and prevalence of HIV and STIs among the high-risk groups including female sex workers and their Clients, men who have sex with men, injecting drug users, and long distance truck drivers. IBBA second round was done in 2009-2010 by the Indian Council of Medical Research, National AIDS Research Institute, in partnership with Family Health International and was implemented in close collaboration with National AIDS Control Organization (NACO) and State AIDS Control Societies (SACS). The IBBA is funded by the Bill and Melinda Gates Foundation (BMGF) and was conducted in Avahan project states.

Data

This study is based on information collected from male IDUs, 1393 from Nepal, 1290 from Bangladesh and 1977 from India. Modified Time-location cluster sampling method was used to collect the information from IDUs from different districts of Nepal in 2010-2011 and Bangladesh in 2015-2016. For India, respondent driven sampling method was used to collect the information in 2010. The study collected information from IDUs those who are 18 years or above and has injected drugs for non-medical reasons at least once in the last six months in the selected countries of south-Asia.

Ethical Consideration

Along with each behavioural survey, informed consent was taken highlighting privacy, confidentiality and harm reduction. It was implemented in an extremely conducive environment as each survey team composition had member from the community. However, looking at hesitance in putting signature by respondents, study protocol has a provision of getting verbal informed consent and signature by the interviewer on the consent form. The data were collected and the information was computerized using CSPro software and analysed using Statistical Package for Social Scientist (SPSS).

Statistical Analysis

Descriptive, bivariate and multivariate analysis was used to understand the covariates of multiplicity of risk behaviors among Injecting drug users in Bangladesh, Nepal and India of south Asian countries. Dependent variable for the study are age at first injecting drug use, duration of involvement in injecting drug use practices, needle sharing behaviour with another partner in the last 30 days, multiple sexual partner in last 30 days in Nepal and one year in India, safe sexual practices such as condom use with commercial and regular female partner in last sex and sexually transmitted infections in the past 12 months. Socio-demographic characteristics such as current age, educational attainment, marital status and migratory status of Injecting drug users are independent variable for the study. Bivariate analysis was carried out to find the prevalence of risky sexual behaviour needle sharing behaviour and safe sexual practices among different socio-demographic characteristics of IDUs. Mean age at first injecting drug use and mean duration of involvement in injecting drug was estimated to understand the dynamic of injecting drug use behaviour in South Asian countries. Binary logistic regression was used to determine the factor associated with needle sharing practices with another partners, multiple sexual behaviour such as sexual intercourse with two or more than two partners in the past 12 months and sexually transmitted infections (STI) in the past 12 months (combination of urethral discharge, anal discharge and genital ulcer/sore)among injecting drug users.

All the statistical analysis was performed using 20.0th version of SPSS software to fulfill the objectives of the study.

Results

Socio-demographic Characteristics of Injecting Drug Users

The socio-demographic profile of injecting drug users in south Asian countries that enables to understand the behavioural aspects more clearly, especially when dealing with the high risk and sensitive population. It is reported that most of the IDUs belong to 20 years and above in all three countries of South Asia. The educational qualification of the injecting drug users in South Asian countries shows a very anomalous trend. It is reported that fifty-one percent of Bangladeshi IDUs attended only five years of education. Whereas in Nepal, it seems to have higher education elevated the IDU behaviour as two-fifths of the IDUs have 10 or more years of schooling. In India, 45% of IDUs reported 6 to 10 years of education, and 30% said 10 or more years of schooling. The finding reveals that majority of IDUs in India are educated. The marital Status shows that approximately three fifths of IDUs were unmarried in Nepal and India while in Bangladesh two third IDUs were married (Table 1).

Background Characteristics		Nepal	Bangladesh	India
Age	Below 20	16.3	11.2	8.0
	20-29	59.1	38.4	50.4
	30 and above	24.6	50.4	41.6
Education	Illiterate	7.8	18.0	17.4
	Up to 5 years	14.4	51.0	7.4
	6 to 10 years	37.6	27.1	45.3
	10 and above	40.1	3.9	29.9
Marital status	Married	40.8	67.1	42.5
	Unmarried	59.2	32.9	57.5
Migration Status	Migrants	25.6	NA	40.6
	Non-migrants	74.4	NA	59.4
Total		1393	1290	1977

NA= Not Available

Table 1: Demographic profile of IDUs by background characteristics, South Asian Countries

Drug Use Profile of Injecting Drug Users

Along with the demographic profile of Injecting drug users in South Asian countries, an attempt was made to do a profiling of their injecting drug use behaviour. Literature shows that drug use has become one of the major accelerants of the HIV epidemic in the Asian region. The drug use profile is included the initiation of injecting drug use behaviour and duration of involvement in injecting practices in Table 2. It is apparently reported that IDUs from Nepal, Bangladesh and India show a late entry into the injecting practice with the range of mean age of 22 to 24 years but the same time they also have a longer association with the intravenous drug use. The average duration of involvement in injecting drug use is 4.5 to 8.7 years among IDUs in all three countries. It is observed that the mean duration of involvement in injecting practices and the mean age at first started injecting drug use is higher among older age groups and married IDUs in all the three countries of South Asia. The mean duration of involvement in injecting drug use is higher among illiterate IDUs of Nepal and Bangladesh whereas mean duration of involvement in injecting drug use in India is higher among IDUs those have 10 and above years of educational attainment. It was also reported that mean age at first injecting drugs and mean duration of involvement in injecting drug among migrants IDUs are higher than the non-migrants IDUs in Nepal and India.

Background Characteristics		Nepal		Bangladesh		India	
		Mean age at first injecting drug use	Mean duration of involvement in injecting drug use (years)	Mean age at first injecting drug use	Mean duration of involvement in injecting drug use (years)	Mean age at first injecting drug use	Mean duration of involvement in injecting drug use
Age	Below 20	17.1	1.8	15.9	2.9	17.1	1.9
	20-29	20.8	3.9	19.0	5.6	21.3	3.8
	30 and above	27.1	7.7	25.8	12.3	27.7	7.6
Education	Illiterate	26.5	5.2	21.5	10.2	25.4	4.8
	Up to 5 years	22.1	5.0	21.9	8.6	24.2	5.5
	6 to 10 years	21.2	4.6	22.3	7.7	23.2	5.0
	10 and above	21.3	4.0	25.2	9.6	22.8	5.7
Marital status	Married	24.6	5.7	23.9	10.4	26.0	6.7

	Unmarried	19.8	3.7	18.3	5.2	21.8	4.2
Migration Status	Migrants	21.8	4.7	NA	NA	24.0	6.0
	Non-migrants	21.6	4.4	NA	NA	23.3	5.1
Mean		21.8	4.5	22.1	8.7	23.6	5.2

NA= Not Available

Table 2: Mean age at first injecting drug abuse and mean duration of involvement in injecting drug use by background characteristics, South Asian Countries

Needle/Syringe Sharing Behaviour among Injecting Drug Users

It is evident from Table 3 that the needle sharing which is a significant covariate of risk among Injecting drug users were practised by 16%, 36% and 31% in Nepal, Bangladesh and India respectively. In Nepal and India, educational attainment significantly affecting the needle sharing behaviour of IDUs. As the years of education is increases, the reported proportion of IDUs significantly exchange of the needle is decreases in Nepal (2010-11) and India (2009-10). Adjusted odds ratio also depicts that as well as years of educational attainment is increasing, IDUs are less likely to engage in needle sharing behaviour in Nepal and India. In Bangladesh, approximately 40% of IDUs sharing the needles those having 6 to 10 years of education whereas, in India 40% of illiterate IDUs sharing the needle/syringes with their partner. The proportion is higher among younger IDUs below 20 years in South Asian countries. Among the married IDUs, the situation of needle sharing in Nepal is different from Bangladesh and India. In Bangladesh and India, the proportion of unmarried IDUs (50% & 33%) was more sharing the needle/syringes than the percentage of IDUs in Nepal (Table 3). Adjusted effect of needle sharing behaviour with different background characteristics significantly show that 20-29 age group of IDUs in Nepal and India are less likely to sharing needle/syringes as compared to younger age group. Education and their migratory status significantly associated with needle sharing behaviour in Nepal like educated and non-migrants IDUS are less likely to share needles.

Background Characteristics	Nepal		Bangladesh		India	
	%	AOR(CI)	%	AOR(CI)	%	AOR(CI)
Age						
Below 20®	19.8		45.8		40.6	
20-29	14.0	0.6**(0.43-0.95)	45.2	1.3(0.89-1.99)	32.3	0.7*(0.49-1.03)
30 and above	16.3	0.7(0.41-1.14)	26.3	0.8(0.51-1.28)	28.6	0.6**(0.40-0.91)
Education						
Illiterate®	26.6		25.9		39.5	
Up to 5 years	20.4	0.7(0.40-1.23)	37.8	1.7***(1.20-2.38)	29.3	0.6**(0.39-0.98)
6 to 10 years	16.4	0.5**(0.32-0.89)	40.3	1.8***(1.21-2.55)	31.4	0.7***(0.51-0.93)
10 and above	10.7	0.3***(0.18-0.53)	22.0	0.8(0.36-1.65)	28.0	0.6***(0.43-0.82)
Marital status						
Married®	15.8		28.6		28.6	
Unmarried	15.3	1.1(0.76-1.57)	50.4	2.1***(1.55-2.85)	33.3	0.9(0.70-1.12)
Migration Status						
Migrants®	19.3		NA	NA	32.6	
Non-migrants	14.2	0.7**(0.49-0.94)	NA	NA	30.6	0.8(0.68-1.04)
Total	**15.5**		**35.7**		**31.4**	

®Reference; *p<0.10; **p<0.05; ***p<0.00, AOR= Adjusted Odds ratio; CI =Confidence intervals (95%); NA= Not Available

Table 3: Percentage of IDUs sharing needle/syringe and factor associated with needle/syringe sharing behaviour among IDUs in South Asian countries

Multipartner Sexual Behaviour among Injecting Drug Users

The results of this study report that multipartner sexual relationship is quite prevalent among IDUs with more than one-third IDUs reporting to have more than two sexual partners in the last 30 days in Nepal and Bangladesh as well as in India 83% IDUs have more than two partners in the past one year. Further, the higher proportion of younger IDUs age below 20 years, those having 10 and above years of education, Unmarried and those are sharing the needle/syringes reported multi partner behaviours in south Asian countries. This behaviour gives the impression that decreasing with increasing age and increasing with the higher years of education. In Bangladesh, only 19% of IDUs having more than two partners in last 30 days those having 10 and above years of schooling. This means that in Bangladesh, education is significantly affecting the multi partner behaviours of IDUs. The condom

use behaviour in last sex with various type of partner is also showing similar trend among Injecting drug users in Bangladesh, Nepal and India of South Asian countries. The overall condom use in last sex is 81%, 46% and 81% with the commercial partner in Nepal, Bangladesh and India respectively (Table 4).

	Nepal		Bangladesh		India	
Background Characteristics	**Multi Partner Relationship (%)**	**AOR(CI)**	**Multi Partner Relationship (%)**	**AOR(CI)**	**Multi partner relationship (%)**	**AOR(CI)**
Age						
Below 20®	47.6		61.5		88.1	
20-29	38.1	1.4(0.65-2.78)	50.4	1.2(0.69-2.09)	81.1	0.4***(0.22-0.78)
30 and above	24.5	0.9(0.45-2.21)	27.4	0.8(0.45-1.51)	83.3	0.4***(0.19-0.70)
Education						
Illiterate®	18.3		32.3		69.2	
Up to 5 years	30.8	1.5(0.67-3.45)	42.5	1.4(0.92-2.12)	76.1	1.1(0.62-1.79)
6 to 10 years	35.2	2.1*(0.98-4.30)	42.5	1.3(0.82-2.04)	86	1.9***(1.36-2.83)
10 and above	37.8	1.9(0.88-3.94)	19.4	0.5(0.18-1.20)	86.9	2.5***(1.69-3.79)
Marital status						
Married®	26.1		29.2		88.6	
Unmarried	57.4	3.4***(2.08-5.39)	66.4	3.3***(2.27-4.79)	77.3	0.415***(0.30-0.57)
Migration Status						
Migrants®	37.8		NA	NA	81.1	
Non-migrants	31.9	0.7(0.48-1.11)	NA	NA	83.6	1.1(0.80-1.40)
Needle Sharing Practice						
No®	31.3		28.8		82.9	
Yes	44.6	1.9**(1.14-3.08)	57.6	2.2***(1.66-3.00)	84.2	1.2(0.90-1.63)
Total	**33.5**	**0.19**	40.0	0.27	82.6	10.58

®Reference; *p<0.10; **p<0.05; ***p<0.001; AOR= Adjusted Odds ratio; CI =Confidence intervals; NA= not available

Table 4: Percentage of IDUS having multiple sexual partners and factor associated with multi-partners sexual behaviour among IDUs by some selected characteristics, South Asian Countries

Condom Use with Different Type of Sexual partners during Last Sex

Table 5 represents the safe sexual practices among injecting drug users by socio-demographic characteristics. Overall, the proportion of IDUs condom used in last sex with the regular partner is almost half of the percentage of IDUs condom use in last sex with the commercial partner, 41% in Nepal, 23% in Bangladesh and 39% in India. It is important to highlight that condom use in last sex with the regular partner is low among young IDUs, those who are illiterate, married and engaged in needle sharing practices in Nepal. The similar pattern of condom use in last sex with the regular partner was also found for Bangladesh except for educational qualification where condom use with the regular partner is low among those IDUs who are up to 5 years and 6 to 10 years of education. In India, the overall condom use with the commercial and regular partner in last sex is low among young IDUs, those who are illiterate, married and sharing the needle/syringes.

	Nepal			Bangladesh			India		
Background Characteristics	**Condom use**		**Condom use with different type of sexual partners in the last sex**	**Condom use**		**Condom use with different type of sexual partners in the last sex**	**Condom use**		**Condom use with different type of sexual partners in the last sex**
	Commercial partner	**Regular partner**	**AOR(CI)**	**Commercial partner**	**Regular partner**	**AOR(CI)**	**Commercial partner**	**Regular partner**	**AOR(CI)**
Age									
Below 20®	71.4	39.4		35.8	20.1		70.6	60	
20-29	85.1	41.6	3.8**(1.57-9.33)	44.6	21.7	1.2(0.71-2.20)	85.7	42.7	0.9(0.57-1.45)
30 and above	70.3	40.8	5.6***(2.16-14.34)	56	24.1	1.9*(0.98-3.50)	77.3	31.2	0.8(0.48-1.33)
Education									

Illiterate®	65	30.5		34.8	28.3		71.2	21.7	
Up to 5 years	82.6	32.4	1.8(0.86-3.92)	50.7	21.5	0.9(0.64-1.48)	76.9	45.8	2.3***(1.23-4.15)
6 to 10 years	83.3	36.2	1.8*(0.91-3.54)	47.6	21.6	1.02(0.65-1.62)	83.8	36.5	1.5**(1.02-2.22)
10 and above	80.9	53.1	2.8***(1.41--5.51)	11.1	33.3	0.8 (0.35-1.87)	86.5	46.6	2.2***(1.48-3.35)
Marital status									
Married®	77.1	37		55.6	20.9		79.6	28.5	
Unmarried	83.6	65.3	6.3***(3.43-11.68)	39.5	58.5	3.7***(2.45-5.57)	81.9	54.6	3.2***(2.41-4.25)
Migration Status									
Migrants®	75.5	43.4		NA	NA	NA	86.5	36.2	
Non-migrants	82	40.3	0.9(0.57-1.33)	NA	NA	NA	78.2	41.1	00.9(0.77-1.27)
Needle sharing practice									
No®	78.6	39.9		60.7	24.6		87.1	41.8	
Yes	84.6	46.7	1.4(0.86-2.39)	36.2	19.4	0.7**(0.48-0.93)	70.1	37.9	0.7(0.53-0.89)
Total	**79.7**	**41.2**	**0.07**	46.4	23.2	.194	81.2	39	0.57

®Reference; *p<0.10; **p<0.05; ***p<0.001; AOR= Adjusted Odds ratio; CI =Confidence intervals; NA= Not Available

Table 5: Percentage of IDUs using condom with different type of female sexual partners in last sex and determinants of condom use in last sex by some selected characteristics, South Asian Countries

Sexually Transmitted Infections among IDUs

Overall, prevalence of STI is 7%, 28% and 5% among IDUs in Nepal, Bangladesh and India respectively. Table 6 depicts that STI prevalence is increasing with the increasing age in Nepal and India. STI prevalence is high among 20-29 Years of IDUs in Bangladesh. It was also reported that a reverse trend is seen with education where with increasing years of schooling, STI prevalence seems to be decreasing in Nepal, Bangladesh and India of South Asian Countries. The prevalence of STI is high among IDUs those involved in needle sharing practice, multi-partner relationship. It was found that those IDUs were sharing the needle/syringes with others, are more probable to have STI. Multivariate binary logistics regression also show that IDUs having the multi-partner relationship are significantly more likely to have STI (AOR=2.2; 1.20-4.15 in Nepal, AOR=2.7; 1.97-3.73 in Bangladesh) than their counterparts. It is surprising to note that STI prevalence is high (12%) among those who reported condom use in last sex with the commercial and regular partner in Nepal while STI prevalence is high among IDUs those not using the condom use with the commercial and regular partner in Bangladesh (40%).

Background Characteristics	Nepal (%)	AOR(CI)	Bangladesh (%)	AOR(CI)	India (%)	AOR(CI)
Age						
Below 20®	2.2		32.6		3.2	
20-29	6.4	1.8(0.36-8.63)	40.1	1.1(0.63-2.00)	4.1	1.4(0.45-4.14)
30 and above	10.2	2.1(0.41-10.99)	25.7	1.03(0.55-1.95)	6.1	1.95(0.61-6.19)
Education						
Illiterate®	11.0		20.6		6.7	
Up to 5 years	11.4	1.4(0.50-3.94)	29.0	0.6***(0.37-0.87)	11.6	3.3***(1.35-8.20)
6 to 10 years	4.4	0.5(0.17-1.33)	39.1	0.9(0.63-1.56)	4.0	0.6(0.27-1.37)
10 and above	6.3	1.2(0.45-3.09)	28.0	0.9(0.37-2.07)	3.4	0.7(0.28-1.53)
Marital status						
Married®	10.4		26.9		6.1	
Unmarried	4.1	0.4*(0.15-1.08)	42.4	2.2***(1.48-3.39)	4.1	0.9(0.84-1.68)
Migration Status						
Migrants®	9.1		NA	NA	3.7	
Non-migrants	5.9	0.5**(0.28-0.93)	NA	NA	5.6	1.2(0.70-2.09)
Needle sharing practice						
No®	6.0		21.0		3.9	
Yes	10.2	1.6(0.80-3.34)	51.8	2.9***(2.09-3.93)	6.8	1.7*(0.99-2.89)

Multi partner relationship						
No	8.9		25.6		4.1	
Yes	13.7	2.2**(1.20-4.15)	55.3	2.7***(1.97-3.73)	5.5	#
Condom use with different types of female partner						
No®	9.7		39.6		5.0	
Yes	12.3	1.3(0.71-2.42)	30.7	0.5***(0.31-0.65)	5.2	0.9(0.51-1.52)
Don't know	1.2		15.3		4.2	
Total	**6.7**	**0.08**	27.6	0.3	4.9	0.03

® Reference; *p<0.10; **p<0.05; ***p<0.001; AOR= Adjusted Odds ratio; CI =Confidence intervals (95%); NA= not available #= cell frequency is too small

Table 6: Prevalence and determinants of any STI symptom in last 12 months among IDUs by some selected characteristics, South Asian countries

Discussion and Conclusions

In South Asian countries, HIV spreads most rapidly among injecting drug users (IDUs) when injecting equipment is shared between many people, a widespread practice in many countries. In places with a drug culture where IDUs gather at one location to inject, the sharing of one needle between three to even 50 participants can be common. It is not the drug use or even the actual injecting of the drug that causes HIV infection; it is the sharing of contaminated injecting equipment that transmits the virus [16]. Since South Asia is situated in the neighbourhood of one of the major opium-cultivating regions in the world, this has increased the availability and use of illicitly produce opiates in South Asia. Injecting drugs use to add to the problem as the sharing of drug tanking equipment, particularly infected needles, is an extremely effective of transmitting HIV to the general population.

The risk to persons who inject drugs of needle/syringe sharing behaviour is most notable for transmission of human immunodeficiency virus (HIV) and hepatitis C virus (HCV), though other infections are also transmitted via needle/syringes sharing [17]. Unsafe Injecting practices such as drug preparation equipment in the absence of injection with a contaminated syringe, cookers or spoons and water used for cleaning syringes has frequently been documented in south Asian countries [18]. The needle sharing was relatively prevalent among injecting drug users in Bangladesh, Nepal and India of South Asian countries with the higher concentration among younger IDUs. Empirical observations illustrates Injecting Drug User whose were illiterate in India and Nepal were more commonly in behaviour to share needle in drug use. Contrary to it adjacent country Bangladesh in the same region shows that the educated individuals are susceptible to share needle in drug use. The possible explanation of such dissimilarity in the same region might be of the fact that the educated unemployed ratio in Bangladesh is much higher than in the other two countries where much of the educated persisted unwaged forced to share needle.

Injecting drug users are identified as a group at increased risk of HIV acquisition and transmission due to both the practice of injection itself and high-risk sexual behaviour [19]. Risky sexual behaviour including multi-partner, sex work and unprotected intercourse is common among IDUs [20-22]. There has been considerable debate over the extent to which these epidemics might fuel the spread of HIV in other non-injecting populations through sexual contact between injectors and non-injectors [23]. The results of this study also strengthen the existing finding of the study. It is reported that multi partner behaviour is more prevalent among those who involved in needle sharing practices. This shows the overlapping result of the multiplicity of risk behaviour of Injecting drug users. In a study of Suohu *et al*, 2012, it was established that higher proportion of IDUs practising needle sharing reported multipartner behaviour [24]. Condom use in last sex with the commercial partner among IDUs of south Asian countries was reported relatively satisfactory except for regular partner. This concludes that IDUs who engage in risky behaviours such as unsafe injecting practices are more likely to engage in unprotected sex with the regular partner. This regular partner may be their wives or girlfriend can be a serious threat to the success of any intervention or prevention Programme in south Asian countries. A study also portrays that IDUs who engaged in risky behaviours of unsafe injecting practices and unprotected sex with the casual partner are more likely to engage in unsafe sex with regular partners [25]. Overall, prevalence of STI is 6.7% in Nepal, 32% in Bangladesh and 4.9% in India of South Asian countries. These risks are also at the higher level among married, needle sharers and those who have the multi-partner sexual relationship. There is an enormous overlap of these risks among this group. The existence of many channels through which these risk behaviour effect and enhance each other and act as a promoter in the transmission of HIV is important to understand.

In South Asian countries the most efficient ways of preventing HIV transmission among IDUS might be to abstain from drug use. Though many countries have tried abstinence, these efforts have not been very successful. The increase in the numbers of people injecting drugs worldwide shows that abstinence alone is not an effective strategy to reduce the transmission of HIV and other blood borne viruses. While programmes promoting voluntary abstinence should be encouraged, the result of the study concludes that there is the specific subgroup of IDUs who involved in risky behaviours, including those in younger age groups, unmarried, needle sharing practices and who have initiated injecting drug use behaviour at very young ages. There is need to

effort to reach these young IDUs, Unmarried IDUs those who are at risk of HIV transmission through the use of peer education approaches to promote and encourage service utilisation. The complex interaction between illicit drug use and commercial sex work presents significant challenges for STD prevention and policy for Injecting drug users [26]. The finding of the study also suggests that risky sexual behaviour among injecting drug users including low condom use with the regular partner can create an environment for the sexual transmission of HIV to the general population. Considering all these overlapping risks with multiple risk covariates, all interventions need to reduce injecting risk behaviour among IDUs also contain components to reduce sexual risk behaviour. The Specific approach may incorporate activities such as, implementing educational or informative programmes that support public discussion of reducing HIV transmission, making condom and sterile syringes readily available, making voluntary and confidential HIV counselling and testing available as a strategy for behaviour change, retaining injecting drug users in drug dependence treatment services. Further, the study also suggests that there is a need to improve in the current prevention programme on HIV by identifying and reaching out to IDUs regular sexual partners. Many available programs for IDUs such as voluntary counselling and testing centres can be used to provide information and services to IDUs regular sexual partners who are not covered by any HIV prevention programme. IDUs' regular partners, who are mainly non-injecting women, may be reluctant to access these services for fear of being stigmatised. Therefore an effective strategy would be set up female friendly centres staffed entirely by women that provide a safe space for non-injecting drug women.

Conflict of Interest Statement

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