



PRIMARY RESEARCH

# Female injecting drug users in Nepal Pokhara valley 2017

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## Abstract

Injecting drug users are the challenging segments of the population to control sexually transmitted infections. This is the first survey conducted among female injecting drug users in Pokhara Valley. To determine the prevalence of Human Immune Virus (HIV), Syphilis, Hepatitis B, and Hepatitis C infection among female injecting drug users. This study aims to evaluate the prevalence of HIV, Syphilis, Hepatitis B and Hepatitis C and also identify the sexual behavior and associated risk of HIV/AIDs infection among FIDUs in Pokhara Valley. This was a cross-sectional survey conducted among 155 female injecting drug users. The females of 16 years and above who had been injecting drugs for at least three months preceding the survey were defined as female injecting drug users and enrolled in the survey. The survey was carried out during March-April 2017. The network sampling method was applied to recruit the participants. A structured questionnaire was used to collect behavioral data related to background information and sexual and injecting behaviors. Blood samples were collected to test HIV, Syphilis, Hepatitis B, and Hepatitis C. The rapid test kits recommended by National Center for AIDS and STD Control were used to test the diseases above. The ethical approval for the study was obtained from the Ethical Review Board of Nepal Health Research Council. The prevalence of HIV among FIDUs was 1.9 percent (95% CI = 0.5, 5.9), syphilis was 3.9 percent (95% CI = 1.5, 8.6), Hepatitis B and Hepatitis C were 2.6 percent (95% CI = 0.8, 6.9) and 1.3 percent (95% CI = 0.2, 5.1) respectively. About two out of three female injecting drug users were identified with HIV during the survey, and the remaining were previously diagnosed. The new positives were linked with the National program for treatment, care, and support. Among them, three respondents have HIV; one was identified before the survey, and two were newly recognized HIV. This survey provides an insight into the estimated prevalence of HIV, Syphilis, HBV, and HCV infection among FIDUs and explores their injecting and risky sexual behaviors. A large proportion of FIDUs is at risk of HIV as they have used needles that were already used, shared syringe with the usual sexual partner, and shared needle during the last injection. Harm reduction programs, including the risk of needle sharing behavior and advocacy on practicing safer injecting behaviors, should be launched.

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## I. INTRODUCTION

Although there is still limited understanding of the relative burden of HIV in women, they have been reported to be at high risk for HIV infection in nearly every setting [1, 2, 3]. Furthermore, the prevalence of HIV, Syphilis, Hepatitis B

(HBV) and Hepatitis C (HCV) infections [4, 5, 6]. Sex work are defined as “the exchange of sex for money” and most of the sex workers are the women who sell sex through establishments such as bars, brothels, or saunas, or in more public spaces such as parks, streets, or festivals [1]. 3 Most

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of the women sell sex for purchasing drugs [7, 8, 9]. This is revealed that FIDUs who are among the hidden affected populations, are more prone to HIV due to their risky injecting behaviors, unprotected sex and sex selling practices, and are more stigmatized than the male injecting drug users.<sup>3</sup> This is found that FIDUs are increasingly vulnerable to HIV due to the position of female in Nepalese society, and the prevention and care services are male-centric, and females have limited access to these services [9].

In Nepal, HIV epidemic has been labeled as “concentrated epidemic” as there is the high prevalence of HIV infection among Key Affected Populations (KAP) [10]. The KAPs are at higher risk of HIV in Nepal are People Who Inject Drugs (PWID), Female Sex Workers (FSW), Men who have Sex with Men (MSM) and Transgender (TG), and seasonal Male Labor Migrants (MLM). The HIV prevalence among these KAP was very high: 6.0%, 4.0%, 2.0% and 1.3%, among PWID, MSM and transgender, FSW and MLM, respectively.<sup>7</sup> Around 10.0% of HIV infections worldwide are attributable to injecting drug use and in Nepal, HIV epidemics are challenging seriously among PWID [11, 12]. Hence, this study had attempted to evaluate the prevalence of HIV, Syphilis, Hepatitis B and Hepatitis C and also identified the sexual behavior and associated risk of HIV/AIDs infection among FIDUs in Pokhara Valley.

## II. METHODOLOGY

This was a descriptive cross-sectional quantitative survey carried out during March-April 2017 in Pokhara, Nepal. For this survey, FIDUs are defined as “female aged 16 years or above who had been injecting drugs for at least three months prior to the date of the survey” along the Pokhara Valley.

Network Sampling method was used in this survey to recruit the 155 FIDUs which was the required sample size. This sampling method ensures unbiased approximations when the same-targeted population units are eligible to linked to multiple selection units [13]. Two operators were selected from the networks who were involved to recruit the FIDUs. The networks provided the list of FIDUs. The survey participants were also denoted to invite their eligible friends from their circle.

A modified questionnaire was utilized that were used in similar type of previous survey in Kathmandu valley, Nepal. Survey tools finalization workshop was organized with the experts working on similar types of surveys. Behavioral data and biological data were collected onto tablets and directly loaded into a master database using a wireless internet connection in the field. The software was developed by

Tablet-based App Design named Pathway. Separate tablets were provided to each of the interviewer and lab technician for entering data.

Field survey team was recruited from the pool of researchers of School of Planning, Monitoring, Evaluation and Research (SPMER), Kalanki, Kathmandu, having similar experiences and university degree in the relevant discipline. Similarly, experienced lab technicians were hired for the testing of blood samples and registered doctor were recruited for the symptomatic identification of STIs and their syndromic management.

A six-day intensive training program was organized to make data enumerators and researcher knowledgeable in FIDUs and their population characteristics, questionnaires and ways of administering them, methods of approaching the FIDUs, research ethics, research protocol, counseling, rapport-building techniques and sharing of experiences of similar surveys conducted previously. A significant time was assigned to the lab technicians for being trained on HIV, syphilis, Hepatitis B and Hepatitis C testing and understanding sample selection techniques for External Quality Assurance System (EQAS).

Pretesting of the tools was conducted in Drop-in-Centre (DIC) of Sitapaila, Ramkot, Kathmandu. Altogether, four FIDUs were interviewed using tablet-based questionnaires. The questionnaires were checked for flow, skip checks and language modification and minor grammatical changes were made after the pretesting.

Clinic was established in a hotel at Pokhara valley with one welcome room, three interview rooms, one counseling room, one Sexually Transmitted Infections (STIs) clinician room, one laboratory room and one waiting room. The flow chart for the survey procedure was developed and displayed in all necessary rooms. Interviews were done using the structured questionnaire in the tablets in the interview room. After completion of the interviewing and blood drawing, the participants were sent to the STI clinician room where necessary syndromic treatment of STIs was performed [14].

The registered clinician examined the FIDUs for any signs and symptoms of STI and other general health problems after completion of the interview, pre-test counseling and lab test. The syndromic management of such symptoms and problems were done providing some essential medicines according to the guideline. The Clinicians made appropriate referrals of the identified cases that required additional treatment to concerned health institutions.

The behavioral and biological data collected through the tablets were uploaded by an authorized person and were

saved in password-protected computers. The inconsistencies identified in the data collection procedures were noted on a daily basis and finally were rechecked and verified in consultation with survey consultant, application and data management team and other experts. These data were further transferred to the Excel sheets and coded. Then, the data were exported to the SPSS-20 version for the final data analysis. Descriptive statistics such as percentage, mean, median, standard deviation were computed. The survey protocol was approved by Ethical Review Board (ERB) of Nepal Health Research Council (NHRC). The FIDUs were informed that their participation was voluntary and were free to refuse to answer any question or to withdraw from the interview at any stage. They were also informed that such withdrawal would not affect the services they receive, and

all the findings were kept confidentially.

### III. RESULTS

Four-fifth of the FIDUs (80.0%) were youths aged below 25 years. Almost 19.0% of them were 25 to 34 years of age and remaining < 2.0% were of 35 to 39 years age group. About 95.0% of of the FIUDs were literate. Among them, just about one percent receive informal education, 48.6% accomplished lower secondary education and 50.0% attained secondary education. Nearly three fourth (57.0%) of FIDUs belonged to Janjati followed by a quarter (25.0%) of Dalit and 17.0% belonging to Brahmin. Over three-fifth (62.0%) of FIDU were never married while more than a third of them (35.0%) were married. Slightly above half (53.0%) of FIDUs were currently living in a rented room and over two fifths (44.0%) were living in their own home (Table 1).

TABLE 1  
SOCIO-DEMOGRAPHIC DISTRIBUTIONS

Discription	Frequency	Percentage
Age group		
< 20 years	86	55.5
20 to 24 years	38	24.5
25 to 29 years	16	10.3
30 to 34 years	13	8.4
35 and more years	2	1.3
Total	155	100.0
Level of education		
Illiterate	7	4.5
Literate	148	95.5
Total	155	100.0
Level of education		
Lower secondary	72	48.6
Secondary	74	50.0
Informal education	2	1.4
Total	148	100.0
Cast/Ethnicity		
Brahman	26	16.8
Dalit	39	25.2
Janjati	89	57.4
Muslim	1	0.6
Total	155	100.0
Current marital status		
Never married	97	62.6
Married	55	35.5

TABLE 1  
CONTINUE...

Discription	Frequency	Percentage
Divorced/Permanently separated	2	1.3
Widow	1	0.6
Total	155	100.0
Current living situation		
Own home	69	44.5
Hotel	3	1.9
Rented	83	53.5
Total	155	100.0

The prevalence of HIV among FIDUs was 1.9% (95% CI = 0.5, 5.9) and prevalence of syphilis was 3.9% (95% CI = 1.5, 8.6). similarly, the prevalence of HBV and HCV was 2.6% (95% CI = 0.8, 6.9) and 1.3% (95% CI = 0.2, 5.1) respectively (Figure 1).

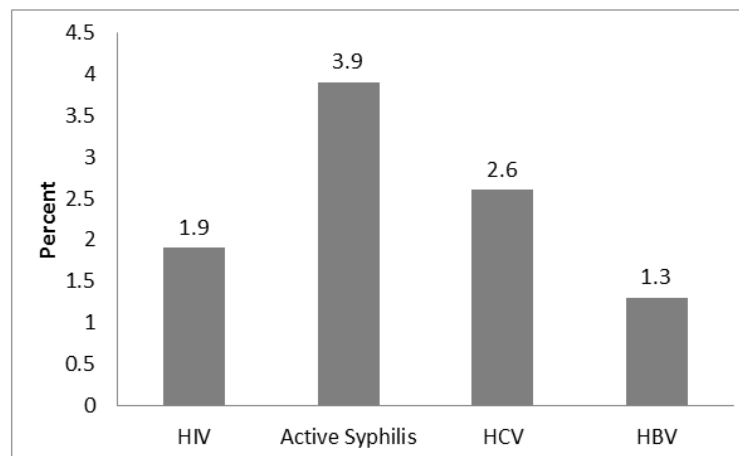


Fig. 1. Prevalence of HIV, Syphilis, Hepatitis B and Hepatitis C

It was found that two-third (66.0%) of the FIDUs had started injecting drugs when they were < 19 years of age followed by one-fifth (20.0%) by the age of 20-24 years. Slightly below three fifth (56.0%) of the FIDUs had been injecting drugs from 3 to 12 months. Almost a quarter (24.0%) of the FIDUs had been injecting drugs from 1 to 2 years. Among them, three out of four (75.0%) reported that they had injected drugs in the last month. Amid them who had injected drug in the last month were slightly

over two-third (69.0%) mentioned of not using previously used non-sterile syringe/needles in the last month. Slightly above four fifth of them (83.0%) used drugs in combination. Somewhat more than half (52%) of the FIDUs reported that in past one week they had injected 2-3 times followed by more than a quarter (28.0%) of them injecting once a week. However, 8.0% of FIDUs reported that they had not injected in the last week (Table 2).

TABLE 2  
INJECTING BEHAVIOR FEMALE

Discription	Frequency	Percentage
Age of drug initiation		
Before 15 years	3	1.9
15 to 19 years	102	65.8
20 to 24 years	31	20.0
After 25 years	19	12.3
Total	155	100.0

TABLE 2  
CONTINUE...

Discription	Frequency	Percentage
Mean age $\pm$ S.D = 19 $\pm$ 3.5 years; Median age = 18 years		
Duration of injecting drugs		
3 to 12 months	87	56.1
1 to 2 years	37	23.9
2 to 3 years	17	11.0
3 to 4 years	4	2.6
More than 4 years	10	6.5
Total 155 100.0 Mean years $\pm$ S.D = 22 $\pm$ 22 years; Median years = 12 years		
Drugs injected in the last month		
Yes	116	74.8
No	39	25.2
Total	155	100.0
Used previously used syringe/non-sterile syringe/needle in the last month		
Yes	36	31.0
No	80	69.0
Total	116	100.0
Drugs used in combination form		
Yes	128	82.6
No	26	16.8
No response	1	0.6
Total	155	100.0
Frequency of drug injected during the past one-week		
Once a week	43	27.7
2-3 times a week	80	51.6
4-6 times a week	17	11.0
2-3 times a day	2	1.3
4 or more times a day	1	0.6
Not injected in the last week	12	7.7
Total	155	100.0

Nearly three-fourth (72.0%) of the FIDUs injected drugs once a day whereas over a quarter of them (28.0%) injected twice or more in a day. Just above three fourth (76.0%) of them had used a new needles/syringe given to them by a friend and 12.0% of FIDUs reused the same needles/syringe used by themselves previously. Majority (84.0%) of them did not share the syringe/needles with other people whereas 10.0% of them shared needles/syringe with two partners. Just above four fifth (81.0%) of FIDUs reported that they never used a needles/syringe that had been used by other in past one week. Over one-sixth (17.0%) of the FIDUs used the previously used needle or syringe some time. It is encouraging to note that large majority of FIDUs

(92.0%) had never used a syringe/needles that had been kept in public place. Very few (7.0%) of the FIDUs had used a needles/syringe that had been kept in public place some-time. Less than one percent of FIDUs (0.7%) used the needle/syringe kept in public place every-time. Three-fifth of FIDUs (60.0%) reported they haven't share needles/syringe with anyone in past one week. One in ten reported that they had shared needles/syringe twice in the last one week. Very few (2.0%) reported they had shared needles/syringe three times in the past one week. Almost two-third of FIDUs (65.0%) had not injected with a prefilled syringe in past week whereas just over one third (34.0%) of them had used prefilled syringe in past week (Table 3).

TABLE 3  
 SYRINGE USING BEHAVIOR OF FEMALE

Discription	Frequency	Percentage
Frequency of injected drugs yesterday		
Single	111	71.6
Two and more	44	28.4
Total	155	100.0
Way of getting syringe/needle in the last injection		
My friend/relatives gave it to me after his use	11	7.1
I picked it up from a public place which was left there by myself	1	0.6
I used a new needles/syringe given by NGO staff/Volunteer	1	0.6
I used a needle/syringe which I purchased	6	3.9
I reused my own needles/syringe	18	11.6
My friend gave new needle/syringe	118	76.1
Total	155	100.0
Number of different people in the group you used the same syringe/needle in the last time you injected		
One	6	3.9
Two	16	10.3
Three	3	1.9
Injected alone	130	83.9
Total	155	100.0
Frequency of drug injected with a needle or syringe that had previously been used by someone else during the past one-week		
Every time	1	0.6
Sometime	27	17.4
Never used	125	80.6
Not injected in the last week	2	1.3
Total	155	100.0
Times you have used syringe/needle that had been left in public place when you injected drugs in the past week		
Every time	1	0.7
Sometime	10	6.5
Never used	141	92.2
Don't know	1	.7
Total	153	100.0
Number of different injecting partners you shared needles or syringes in the past one week		
None	91	59.5
Once	10	6.5
Twice	16	10.5
Three	3	2.0
Don't know	27	17.6
No response 6 3.9 Total	153	100.0
Ever inject with a pre- filled syringe In the past-week		
Yes	52	34.0
No	99	64.7
Don't know	2	1.3
Total	153	100.0

It was found that just above one in ten (11.0%) shared needle/syringe with their regular sex partner and very few of them (3.0%) shared needle/syringe with a sex partner they

did not know. Similarly, nearly a sixth of the FIDUs (14.0%) shared syringe/needle with their friend (Table 4).

TABLE 4  
SYRINGE USING BEHAVIOR OF FEMALE INJECTING DRUG USERS

Discription	Frequency	Percentage
Syringe sharing with regular sex partner		
Yes	16	10.5
No	136	88.9
Don't know	1	0.7
Total	153	100.0
Unknown sex partner		
Yes	4	2.6
No	148	96.7
Don't know	1	0.7
Total	153	100.0
Friend		
Yes	22	14.4
No	130	85.0
Don't know	1	0.7
Total	153	100.0
Drugs seller		
No	152	99.3
Don't know	1	0.7
Total	153	100.0
Unknown person		
No	152	99.3
Don't know	1	0.7
Total	153	100.0

Over two-third (67.0%) of the FIDUs had had sexual intercourse in the last 12 months. Among the FIDUs who had sexual intercourse in last 12 months, over two-third (68.0%) had single sex partner and almost one-fourth (26.0%) of them had 2 to 4 sex partners. Almost four-fifth (79.0%) of them had single regular sex partner. Seven in ten

(70.0%) of the FIDUs had sex with single non-regular sex partner. Just above three fourth (77.0%) of the FIDU did not have sexual intercourse with men in exchange for money or drug in last 12 months. On the contrary, almost one-fourth of them (24.0%) had had sexual intercourse with men in exchange for money or drugs in last month (Table 5).

TABLE 5  
SEXUAL BEHAVIOR OF FEMALE

Discription	Frequency	Percentage
Ever had sexual intercourse in the last 12 months		
Yes	102	65.8
No	53	34.2
Total	155	100.0
Number of sex partners		
Single	68	66.7
Two to Four	26	25.5



TABLE 5  
CONTINUE..

Discription	Frequency	Percentage
Five and more	8	7.8
Total	102	100.0
Number of regular sex partners		
Single	80	78.4
Two and more	22	21.6
Total	102	100.0
Number of non-regular sex partners		
None	14	13.7
Single	60	58.8
Two and more	28	27.5
Total	102	100.0
Had sexual intercourse with men in exchange for money or drugs in last 12 months		
Yes	24	23.5
No	78	76.5
Total	102	100.0
Number of male partners you had sex in last month by paying them money or drugs		
None in the last month	5	20.8
Single	8	33.3
Two and more	11	45.8
Total	24	100.0

#### IV. DISCUSSION

As in other studies [4] there were majority of youth  $\leq 24$  years (80.0%) and educated only up to secondary level participants. About two third of (57%) of FIDUs belonged to indigenous and (25%) of ethnic minority groups, and only below one fifth of them belonged to higher castes.

In the present study, the incidence of HIV among FIDUs was 1.9% and syphilis was 3.9%, HBV was 2.6% and HCV was 1.3%. In Contrast with this study, high incidence were found in a study done in Russia, where the prevalence of HIV was 14.0% in Moscow, 3.0% in Volgograd and 9.0% in Barnaul, and also HCV prevalence was 67.0% in Moscow, 70.0% in Volgograd and 54.0% in Barnaul, and then the prevalence syphilis was 8.0% in Moscow, 20.0% in Volgograd and 6.0% in Barnaul [15]. The prevalence of HIV was 10.7%, HCV was 34.5% and HBV infection 50.7% in a study done in Iran. Additionally, co-infection with all three viruses was seen in 6.5% of participants including HIV/HCV, HIV/HBV, and HBV/HCV co-infections in 8.7%, 7.8%, and 21.0% of

participants respectively [16]. The prevalence of HIV was 2.0%, syphilis was in 8.9%, HBV was in 5.9% and HCV was in 15.2% in a study done in Pakistan.14 Moreover, the Incidence rates of 2.3% for HIV, 11.3 for HBV and 33.3 for HCV were found in a study carried out in China [17]. A systematic review conducted by Nesson, et al in 2011 revealed that the prevalence of HCV amongst IDUs of China, Russia, and the USA were 67.0%, 72.5% and 73.4% respectively and the prevalence of HBV reports among IDUs varied within countries quite markedly for example in the USA from 3.5% to 20% and in Iran this was from 3.7% to 30.9% [11]. The prevalence of HCV among IDUs is far greater than HIV which poses a challenge to public health.

In the present study, it was found that 66.0% of the FIDUs had started injecting drugs when they were < 19 years of age and 20.0% by the age of 20-24 years specifying 86.0% of them were the youth. Among them, 75.0% reported that they had injected drugs in the last month denoting they were the current IUDs. Majority of the FIDUs (83%) used



drugs in combination and 52.0% of the FIDUs reported that in past one week they had injected 2-3 times followed by 28.0% of them injecting once a week. However, 8.0% of FIDUs reported that they had not injected in the last week.

### Interpretation

The prevalence of anti-HCV among IDUs is far greater than HIV. Viral hepatitis clearly poses a challenge to public health. Variation in the coverage and quality of existing research creates uncertainty around estimates. Better and more complete data and reporting are required to estimate the scale of the problem, to inform efforts to prevent and treat HCV and HBV among IDUs.

Common risk factors associated with HIV and HCV infection across the cities included both direct and indirect sharing of injecting equipment and injection of home-produced drugs. Among environmental risk factors, we found increased odds of anti-HIV associated with being in prison in Moscow, and some association between official registration as a drug user and anti-HIV and anti-HCV. No associations were found between sexual risk behaviours and anti-HIV in any city [15]. The prevalence of tuberculosis was 2.2% (95% CI 0.71–3.8%). Of 357 of the randomly selected prisoners (eight refused to give blood), 2.0% (95% CI 0.6–3.4) were HIV-infected; syphilis was confirmed in 8.9% (95% CI 6.0–11.8%), HBV in 5.9% (95% CI 3.5–8.3%), and HCV in 15.2% (95% CI 11.7–18 [11]). By self-report, 59.2% had used any illicit drugs, among whom 11.8% (95% CI 8.5–15.0) had injected drugs. The median length of stay in the prison had been 3.2 (range 1–72) months [18].

Some 68.8% of subjects completed the last follow-up survey. A total of 14 HIV, 47 HCV and 51 HBV seroconversions were observed over the 36-month follow-up period, yielding average incidence rates of 2.3 per 100 person-years for HIV, 33.3 for HCV and 11.3 for HBV. Multivariate Poisson regression analyses showed that factors independently associated with HIV seroconversion were minority ethnicity and greater frequent sharing of needles or syringes in the past 3 months one or more times per week. Predictors of HCV seroconversion included being female, greater frequent drug use in the past 3 months seven or more times per week, and frequent sharing of needles or syringes in the past 3 months one or more times per week [17]. Nearly three-fourth (72.0%) of the FIDUs injected drugs once a day whereas over 28.0% injected twice or more in a day. Almost three fourth of them had used a new needles/syringe given to them by a friend and 12 percent of FIDUs reused the same needles/syringe used by themselves previously. Eight percent of them did not share the syringe/needles

with other people whereas 10.0% of them shared needles/syringe with two partners. It was reported that 81.0% of them never used a needles/syringe that had been used by other in past one week. Seventeen percent of the FIDUs used the previously used needle or syringe some time. It is encouraging to note that large majority of FIDUs (92.0%) had never used a syringe/needles that had been kept in public place. Three-fifth of FIDUs reported they haven't share needles/syringe with anyone in past one week. Ten percent of them had shared needles/syringe twice in the last one week. Two-third of FIDUs had not injected with a pre-filled syringe in past week whereas 34.0% of them had used pre-filled syringe in past week.

In this study, a total of 14.0% of FIDUs shared needle/syringe including 11.0% of FIUDs shared needle/syringe with their regular sex partner and 3.0% shared needle/syringe with a sex partner they did not know previously. Similarly, 14.0% of FIDUs shared syringe/needle with their friend. This is obvious that common risk factors associated with HIV and HCV infection included both direct and indirect sharing of injecting equipment [15].

In the current study, 67.0% of the FIDUs had had sexual intercourse in the last 12 months. Among the FIDUs who had sexual intercourse in last 12 months, 68.0% had single sex partner and 26.0% of them had 2 to 4 sex partners. Almost four-fifth (79%) of them had single regular sex partner. Almost one fourth (24.0%) of them had had sexual intercourse with men in exchange for money or drugs in last month. In a previous this was found that 16.3% exchanged sex, 12.6% had sex with someone they knew to be HIV infected, 7.8% had sex with someone who injected drugs, and 1.3% injected drugs [19]. In another previous study, sexual activity and substance use each reported by an average of 16.0% and among the sexually active, 65% youth reported unprotected sex [20].

### V. LIMITATIONS

This survey among FIDUs is conducted in Pokhara Valley only, hence this survey could not generalize for FIDUs of Nepal. Due to the cross-sectional survey, this survey could not examine the casual relationship between variables of interest.

### VI. IMPLICATIONS OF THE FINDINGS

The study is one of key components of second-generation HIV surveillance and had been used in many concentrated epidemic contexts. More recently, this survey had also been recommended in generalized epidemic settings. By linking biological data with behavioral data, the study is very effective

tive and helpful to understand the emerging trends of HIV and HIV-related risk behaviors among the KAP. It is also anticipated that this study will help guide policy makers and program managers in identifying useful points and areas to target and focus intervention strategies aimed at different subgroups of FSWs.

## VII. CONCLUSIONS

This survey provides an insight into the estimated prevalence of HIV, Syphilis, HBV and HCV infection among FIDUs as well as explores their injecting and risky sexual behaviors. Awareness of HIV was universal present among the FIDUs. The prevalence of Hepatitis C, Syphilis and HIV among the FIDUs was found high; so an immediate attention should be given to start various programs targeting FIDUs in the Pokhara Valley. The large proportion of FIDUs are at risk of HIV as they have used needles that were already used by their friends, shared syringe with the usual sexual partner and were also found to have shared needle during the last injection. Harm reduction programs including risk of needle sharing behaviour and advocacy on practicing safer injecting behaviours should be launched. FIDUs were found sexually active, have multiple sexual partners, involved in pre-marital sex and are more engaged in risky sexual be-

haviors. Messages on delayed sexual debut should be promoted.

## VIII. ACKNOWLEDGEMENTS

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