Behavioural and Serological Surveillance amongst Key Populations at Risk of HIV in Selected Areas of Bangladesh, 2016

REPORT

Conducted by
Institute of Epidemiology, Disease Control and Research (IEDCR)
and
International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)

AIDS/STD Programme (ASP)
Directorate General of Health Services
Ministry of Health and Family Welfare
Govt. of the People's Republic of Bangladesh

November, 2017

National AIDS/STD Programme
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Message

The roadmap for ending the AIDS epidemic is clear. Combined with a stronger focus on HIV prevention, reaching the 90-90-90 target - by 2020, 90% of all people living with HIV know their HIV status, 90% of people with diagnosed HIV receive antiretroviral therapy (ART) and 90% of all people on HIV treatment achieve viral suppression - will enable us to lay the groundwork to end the AIDS epidemic by 2030 (SDG Target 3.3). We have been maintaining a low prevalence rate in HIV/AIDS for the last two decades. From the top of the political leadership we have firm commitment and determination to achieve ending AIDS.

With the leadership of Ministry of Health and Family Welfare (MoHFW), Directorate General of Heath services undertake various activities to comply with the global target and build an AIDS free society. For a long time there is consistent HIV intervention in Bangladesh targeting various Key at Risk Population groups of HIV (KPs). Development partners including NGO, CSO, CBOs are providing support to AIDS STD Program-ASP (Nodal body of HIV and AIDS under Bangladesh Government) to fulfill the commitment of government toward HIV.

Ongoing monitoring to measure the effect of the large-scale HIV prevention programs is part and parcel of HIV and AIDS program in Bangladesh. As part of this, from February to May 2016 as part of national HIV surveillance a cross sectional survey was conducted to assess changes in risk behaviors and prevalence of HIV and active syphilis among Female Sex Workers (FSW) in different settings (Street, Hotel, Residence and Brothel) and People Who Inject Drugs (PWID; male and female) in selected sites in Bangladesh.

I am thankful to ASP, IEDCR and icddr,b for conducting the behaviour and serological survey with two Key at risk population groups of HIV. Also, special thanks to colleagues of relevant government and development partners for their support in completion of this scientific study. Most importantly, I am grateful to the implementing organizations and individuals who responded to the consultation which is the basis of the plan. In particular, I am expressing my gratitude to the TC-NAC members who approved this survey report.

I hope and believe that this survey findings will be useful for relevant stakeholders of government and NGOs for further development of their intervention in order to make a more user friendly and outcome oriented intervention for PWID and FSW, which will ultimately contribute to achieve the SDG "ending AIDS by 2030".

Prof (Dr.) Abul Kalam Azad
Director General
Directorate of Health Services
Ministry of Health and Family Welfare
Peoples Republic of Bangladesh

Foreword

Regular and updated information is essential to assess whether Bangladesh is moving in the right direction to prevent an HIV epidemic and to model the future course of the epidemic. Moreover, without these data, it has not been possible to measure the effect of the ongoing large-scale HIV prevention programs. With this background, from February to May 2016 as part of national HIV surveillance a cross sectional survey was conducted to assess changes in risk behaviors and prevalence of HIV and active syphilis among Female Sex Workers (FSW) in different settings (Street, Hotel, Residence and Brothel) and People Who Inject Drugs (PWID; male and female) in selected sites in Bangladesh.

Evidence suggests that a risk behavior such as needle syringes sharing of PWID is efficient way to spread HIV. Along with good intervention, rigorous advocacy effort also needed from the implementing agencies to solve some structural issues, which sometimes trigger the risk behaviour of PWID. Similarly, due to living condition, FSW particularly those who are living on the street face HIV vulnerability in many ways. Their socio-economic status sometimes acts as a barrier in the negotiation with clients for practicing safe sex. These are the basic issues which are important for intervention program to keep under consideration while designing and implementing the program. I hope and believe that this study will generate evidence and provide support in this connection.

I am grateful to IEDCR and icddr,b for executing the behaviour and serological survey with these two Key at risk population groups of HIV. Also, special thanks to colleagues across government and development partners for their support in completion of this scientific study. Far more importantly, however, we are all grateful to the implementing organizations and individuals who responded to the consultation which is the basis of the plan. In particular, I am expressing my gratitude to the TC-NAC members who approved this survey report.

Hope this survey findings will help to all concerns for developing the future program for the PWID and FSW which will ultimately contribute to achieve the SDG "ending AIDS by 2030".

Dr. Md. Ehteshamul Huq Choudhury
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Line Director, TB-L & ASP
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Acknowledgements

This round of HIV serological and behavioural surveillance is the result of the collective efforts and contributions of many individuals and organisations. A large number of individuals participated in this survey by providing blood and giving their time in responding to questions and without their active participation this survey would not have been possible and they are therefore acknowledged gratefully.

The survey was led by a team of investigators. The key investigators from IEDCR were, Prof. Mahmudur Rahman, Prof. Meerjady Sabrina Flora and Dr. Mohammad Sohel Samad. Other investigators were, Dr. Tahmina Shirin and Dr. M. Salim Uzzaman. The key investigators from icddr,b were, Md. Masud Reza, Dr. Tasnim Azim and Dr. Md. Safiullah Sarker. Other investigators were, Dr. Sharful Islam Khan and Dr. AKM Masud Rana and Mr. Md. Ezazul Islam Chowdhury.

Field activities were supervised by Ms. Arfa Islam and Mr. Md. Aminul Islam. They have also compiled all field notes and assisted in interpreting results and writing report. Data were entered by Ms. Nasima Akter, Mr. Md. Shahadat Hossain, Mr. Md. Farhad Hossain, Mr. Md. Shahaj Uddin and Ms. Forida Yesmen. Data was analysed by Mr. Md. Aminul Islam and Mr. Md. Shahadat Hossain.

Blood specimens were tested at the Virology laboratory of IEDCR and icddr,b under direct supervision of Dr. Tahmina Shirin, Dr. Md. Safiullah Sarker and Ms. Mahmuda Khatun. Laboratory technologists from IEDCR included Ms. Anjuman Ara and Mr. Md. Abdul Quddus and from icddr,b they were Mr. Abu Mohammed Ramim, Mr. Md. Sajjad Hossain, Mr. Md. Deen Islam and Mr. Md. Mahamudur Rahman.

A team of programmatic, administrative, logistics and financial staff provided their support to various activities that were essential for such a survey. From icddr,b, we are thankful to Mr. SK Abdul Hamid, Mr. Md. Mustafizur Rahman, Mr. Md. Ismail Sharif, Mr. Md. Aminul Islam, Mr. Badiul Alam, Mr. Md. Ershad Jan Chowdhury, Mr. Md. Ishaque, Mr. Md. Majedul Islam and Mr. Md. Rezaul Kabir. From IEDCR, we are thankful to Mr. Md. Mutalib Hossain, Mr. Mosharrof Hossain, Mr. Md. Habibullah, Mr. Md. Abdul Hamid, Mr. Md. Shamsul Haque Mollah and Mr. Md. Nazrul Islam.

The AIDS/STD Programme (ASP), Directorate General of Health Services, Ministry of Health and Family Welfare, is responsible for HIV surveillance in Bangladesh. This round of HIV surveillance was subcontracted by IEDCR to icddr,b and is a crucial national activity that feeds into the government planning process for HIV and AIDS. The funding was provided by the Government of Bangladesh under the Health Nutrition and Population Sector Programme (HNPSP). Funding was also provided by UNICEF and we are thankful to them for their active support towards this national endeavour.

We acknowledge the role of ASP and IEDCR for overall support, coordination and monitoring of field activities. We also thank to Mr. Biman Kumar Saha, NDC, Additional Secretary and HIV Focal Point, Ministry of Health and Family Welfare; Dr. Khandaker A.T.M. Farhad Hossain, Director, National AIDS/STD Control Programme & Line Director, AIDS/STD Programme (ASP), Dr. Tarit Kumar Saha, Assistant Director & Programme Manager (In Charge), AIDS/STD Programme (ASP); Mr. Ziya Uddin, HIV and AIDS Specialist, UNICEF and Dr. Saima Khan, Officer in Charge, UNAIDS Bangladesh for field monitoring. We thank Save the Children, CARE Bangladesh and Light House Consortium for providing access to the key population groups. We also thank all Community Based Organizations (CBOs) and other NGOs who are listed in the Annexe-1 for their support in conducting the survey.We are grateful to IDH for providing their training room for BSS staff members without charge.

ACCRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ASP	AIDS/ STD Programme
BSS	Behavioural Surveillance Surveys
CBO	Community Based Organisation
DiC	Drop in Centre
EDTA	Ethylenediaminetetraacetic acid
ELISA	Enzyme Linked Immunosorbent Assay
ERC	Ethical Review Committee
FPC	Finite Population Correction
FSW	Female Sex Worker
HIV	Human Immunodeficiency Virus
HTC	HIV Testing and Counselling
IBBS	Integrated Bio-Behavioural Surveillance
IEDCR	Institute of Epidemiology, Disease Control and Research
LIA	Line Immunoassay
M&E	Monitoring and Evaluation
MOH&FW	Ministry of Health and Family Welfare
MSM	Males Who Have Sex with Males
MSW	Male Sex Worker
NGO	Non-Government Organisation
OST	Opioid Substitution Therapy
PLHIV	People Living with HIV
PoC	Point of Care
PSU	Primary Sampling Unit
PWID	People Who Inject Drugs
RPR	Rapid Plasma Reagin
RRC	Research Review Committee
SPSS	Statistical Package of Social Sciences
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TC-NAC	Technical Committee of the National AIDS Committee
TLS	Time Location Sampling
TPPA	Treponema Pallidum Particle Agglutination
TWG	Technical Working Group
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
WHO	SEARO World Health Organization Regional Office for South-East Asia

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EXECUTIVE SUMMARY

The present round of HIV serological and behavioural surveillance survey (BSS) was conducted in people who inject drugs (PWID) and female sex workers (FSWs) and the geographical areas were limited to Dhaka and Hili and all brothels of Bangladesh. It was conducted between 3rd February and 22nd May 2016 and the surveillance design was based on the 2013 updated guidelines for second generation HIV surveillance of WHO and UNAIDS. Thus, in areas with a concentrated HIV epidemic where there were >1000 individuals belonging to a key population, integrated bio-behavioural surveillance (IBBS) was conducted for the first time in Bangladesh. In other areas, with a low-level epidemic and/or low numbers of key populations, the sampling strategy remained the same as in previous rounds with either serological surveillance alone (where sampling was carried out through intervention organisations on a first come first served basis) or with a parallel BSS (where random sampling using time location sampling method was used). An exception was for brothel based FSWs in whom, although there was no previous documentation of a concentrated HIV epidemic, IBBS was carried out as the FSWs are located in designated closed spaces where interviews and blood collection can be collected simultaneously.

Through previous rounds of serological surveillance and through some specific studies it was shown that the HIV epidemic in Dhaka was not homogenous as in one of its neighbourhoods male PWID were experiencing a concentrated epidemic, while the epidemic was low in the rest of Dhaka. Therefore, when considering PWID, epidemiologically Dhaka could be divided into two neighbourhoods designated as A1 (with a concentrated epidemic) and A2 (with low level HIV). This division of Dhaka was continued for male PWID in the present round of surveillance and the sampling strategy adopted for the two neighbourhoods were different given their different HIV epidemic states (IBBS in A1 and separate serological surveillance and BSS in A2).

HIV risk behaviours were found to be riskier among male PWID between two neighbourhoods in Dhaka A1 and A2, especially with regards to injection practices. Those in A1 had injected for longer, took more injections, more shared their needles/syringes and had more injection sharing partners when partners were different individuals. When all male PWID were considered, trends over years (since 2002) showed improvement in almost all key indicators of risk. However, in 2016, 52.4% and 53.1% were still found to be sharing (whether lending or borrowing) their used needles/syringes in the last injection or in the last week respectively. Of the 197, HIV positive male PWID >60% borrowed or lent last week, >30% were married or had non-transactional sex partners or bought sex from FSWs, some had multiple sex partners and <40% used condoms consistently in last year with FSWs. Beyond individual risk factors, structural factors can also impact the HIV epidemic such as living conditions; 54.7% of HIV positive PWID in A1 lived on the streets and fewer compared to HIV negative PWID lived with families. Such chaotic lifestyles impact negatively on risk taking behaviours. Given these individual and structural risks and vulnerabilities and the networks of risk through unsterile injections and unsafe sex, further spread of HIV in this population group and beyond may be expected.

Other than in Hili and residence based FSWs in Dhaka, BSS was conducted in the other groups of FSWs which showed encouraging data with significant improvements in condom use seen over the years and also in some cases between 2016 and the last BSS conducted 10 years ago in 2006/07. Even in brothels and hotels of Dhaka where the HIV prevention services have been irregular and have declined, last time condom use with new clients and regular clients was reported by 61-79% and 72-81% respectively and consistent condom use with such clients increased in all groups of FSWs. Field notes of interviewers showed that condoms were made available through other NGOs on an ad hoc basis in brothels and through the management structure of hotels. This suggests that a degree of sustainability of a key ingredient of HIV prevention services has been obtained through the empowerment of community based organisations of FSWs and by working through the existing structure of the hotel management.

Despite these improvements in risk behaviours, it was noted that FSWs operating through hotels in Dhaka were the most vulnerable of all the FSW groups sampled in this round of surveillance. These FSWs had large numbers of clients, little knowledge about HIV and STIs, and of HIV testing and only 4.7% were tested, counselled and received their HIV test result last year.

Although the hotel management has undertaken responsibility for condom provision but the need for other services has not received due attention.

For the first time in Bangladesh, surveillance was designed to sample and analyse data from FSWs younger than 18 years of age. In the Dhaka hotels, there were approximately equal numbers of FSWs between 15-24 years and 25-49 years while in other venues fewer younger FSWs were found. Differences in risk behaviours between the two age groups varied in the different venues but nonetheless a few indicators highlighted the greater vulnerabilities of younger FSWs compared to older ones as more were found to sell sex to new clients (in brothels), had more clients (in hotels) and fewer received HIV prevention services (in brothels). Bangladesh has a HIV risk reduction strategy for most at risk adolescents which is pertinent to this group of FSWs among whom it may be considered illegal to provide condoms.

Another issue of concern is the low levels of effective HTC conducted in the last year in all population groups sampled with the lowest in hotels based FSWs (4.7%) and the highest in street based FSWs from Hili (37.8%). In PWID 26.8% had been tested, counselled and received their HIV test result in the last year. If more individuals are not tested for HIV, identification of those positive will not be possible so that treatment will be hampered allowing greater spread of HIV.

In 2016, the HIV prevalence was still found to be the highest among male PWID in A1 with 27.3% being HIV positive. This was a significant and steep rise compared to earlier years. Furthermore, HIV was not restricted to A1 but had spread to A2 where the HIV prevalence in male PWID was 8.9%. Taken together the HIV prevalence in this population group was 22% in all of Dhaka. Fortunately, active syphilis rate was low (2.6%).

For the first time a concentrated HIV epidemic among female PWID has been documented in this round of surveillance with 5% being positive among the 139 sampled. At the same time 5.8% had active syphilis which was similar to that in 2011 (5.9%) raising fears of spread to sexual partners through unsafe sex. Unfortunately, BSS was not conducted among female PWID but previous information suggests that many sell sex in exchange of money or drugs and often do not practice safe sex.

Fortunately, in Hili, which is a border town with West Bengal, India, no HIV was detected in male PWID and active syphilis was <1%.

A total of 3765 FSWs were sampled from Dhaka, Hili and all brothels of Bangladesh for serological surveillance and in each group and site the HIV prevalence was <1% and active syphilis rates were <5%. Active syphilis rates either declined or remained steady over the years.

In summary, this round of surveillance shows that HIV has indeed taken off in male PWID and is starting to spread in female PWID in Dhaka. Fortunately, HIV rates in FSWs remains low.The active syphilis rate shows a declining trend which is likely due to wide scale and easily available treatment rather than effective prevention especially among PWID. Active syphilis rate is therefore no longer a good surrogate marker for HIV risk. The risk profile of HIV positive PWID and their networks of risk is worrying as it suggests that if immediate action is not taken further spread is imminent. It is fortunate that risk behaviours in FSWs are improving but efforts to maintain these levels and expand services to those not yet covered are required.

Given these findings and the existing programmes for HIV prevention, treatment and care in Bangladesh, it is recommended that evaluation of existing programmes particularly of harm reduction programmes, be undertaken immediately. It is also important that quality of existing programmes should not be compromised and that there should be more effort in adapting programmes to ground realities. This will require programmes to be flexible, capacities to be enhanced, systems updated for more efficient delivery of services, more regular collection of strategic information and mobilisation of resources. Specifically, the harm reduction programme must be strengthened with expansion of HTC, ART and OST and novel methods need to be tried to access the more hidden individuals within key populations who do not visit public spots.

Bangladesh needs to act urgently in order to prevent further spread of HIV.

INTRODUCTION

HIV surveillance in Bangladesh has from its inception in 1998 included both behavioural and serological components and has sampled key populations known to be at risk of HIV from different areas of Bangladesh [1]. However, there has been a major interruption in the conduction of the surveillance - the behavioural surveillance survey (BSS) was last conducted in 2006-07 and although two more rounds of serological surveillance were conducted since then, the last round was carried out in 2011. An exception was among males who sex with males (MSM) male sex workers (MSWs) and transgenders or hijra where BSS and serological surveillance were carried out by icddr,b in 2013 [2]and 2015 (unpublished).

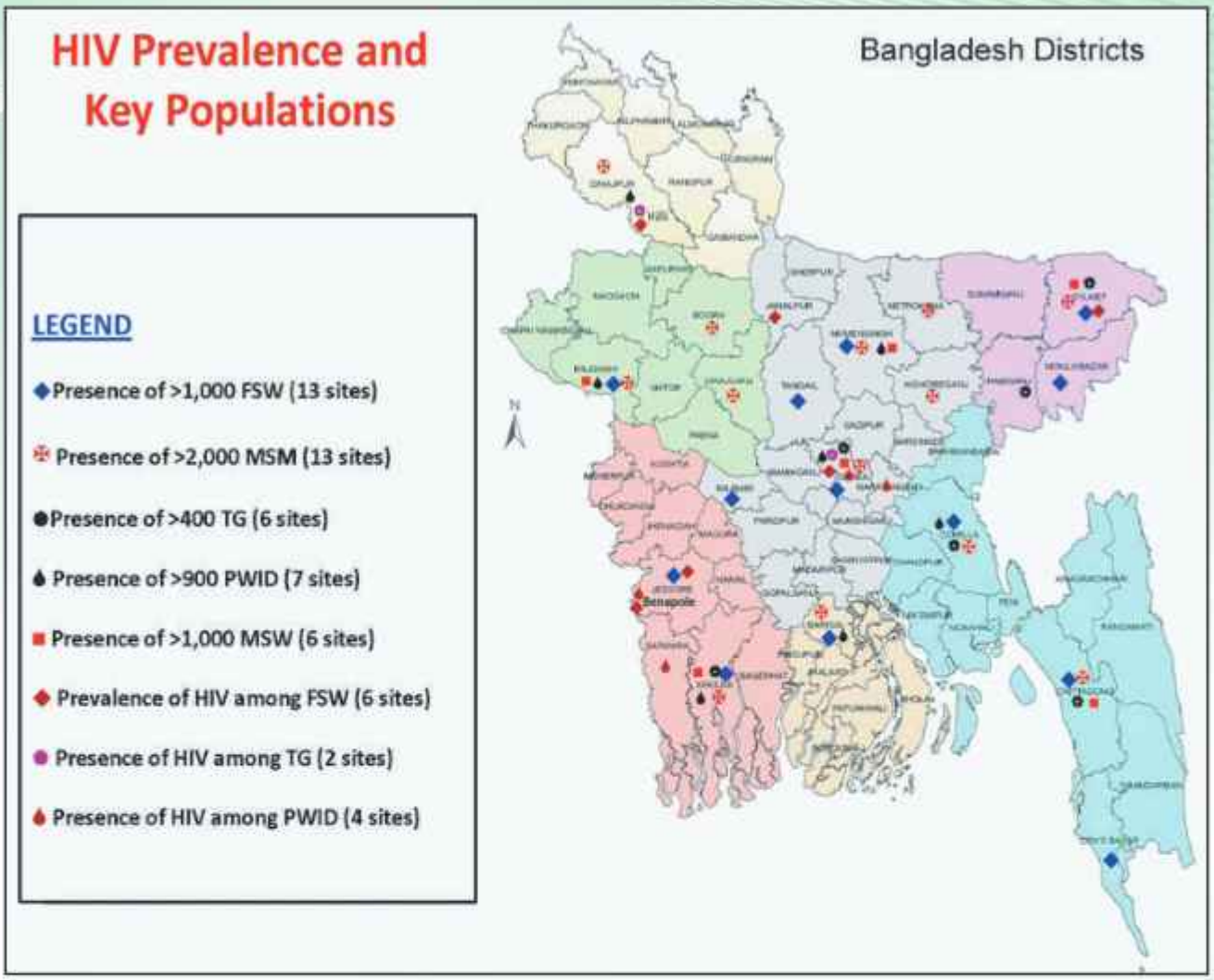
As the design of the surveillance system in Bangladesh dates back to the late 1990s, the country felt it was important to review the design in order to make it more practical and at the same time keeping it systematic by using epidemiologic criteria related to the potential of HIV spread. Hence a review of the surveillance system in Bangladesh was conducted in 2009 sponsored by WHO SEARO [3] and the recommendations of this review are in line with the newly developed WHO and UNAIDS guidelines for HIV surveillance[4].

The specific criteria recommended in the review for making decisions on the surveillance design were:

- If prevalence of HIV is >5% in a given population and geographical location, integrated bio-behavioural surveillance (IBBS) should be conducted
- If HIV prevalence is <5% and
- If estimated size of key populations is >1000, both BSS and serological surveillance should be conducted but this may be done separately and the latter may be conducted through intervention organisations
- If estimated size of key populations is between 500 and 1000, only serological surveillance should be conducted through intervention organisations
- If estimated size of key populations is <500 but they are present in geographically vulnerable areas such as border areas or drug trafficking routes, only serological surveillance through intervention organisations should be conducted

Using the above criteria, the Technical Working Group (TWG) for the National M&E and Strategic Information on HIV and AIDS, which is a subcommittee of the Technical Committee of the National AIDS Committee (TC-NAC), in its meeting on 20th May 2013 selected five key populations to be included in the surveillance - people who inject drugs (PWID), female sex workers (FSWs), MSWs, MSM and hijra. Agreement was also reached on the geographic sites for sampling and the sampling strategy to be used for each i.e. only serological surveillance, serological surveillance and BSS as separate systems or IBBS. However, it was accepted that although ideally a country should conduct surveillance in all sites that fulfil the accepted criteria, countries also need to consider the availability of resources, and the surveillance design has to accommodate that reality. As the numbers of sites identified in Bangladesh were numerous, further analysis was done to reduce the number of sites by determining the key locations where key populations were present in high enough numbers and also where HIV had been found. Three different sources were used to prepare a map showing the distribution of substantial number of key populations and the presence of HIV [1, 3, 5]. These locations are shown in Figure-1.

Figure-1: Locations where substantial numbers of key populations are living and where HIV has been detected amongst them



Given the information presented in the above map, it was clear that Dhaka was the most vulnerable city in Bangladesh. Furthermore through previous rounds of serological surveillance [1] and through specific studies [6]it was shown that the HIV epidemic in Dhaka is not homogenous as in one of its neighbourhoods PWID was experiencing a concentrated epidemic, while the epidemic was low in the rest of Dhaka. Thus, epidemiologically Dhaka could be divided into two neighbourhoods when considering PWID. In addition to Dhaka, of immediate concern were the border areas of Hili and Benapole [7] and especially Hili as HIV has been detected in FSWs in West Bengal India, adjacent to Hili (personal communication, NACO, India). In addition to these two highly vulnerable areas, FSWs in all brothels were considered to be of high priority as data from brothels were last obtained in 2006 for HIV through serological surveillance and in 2006-07 for risk behaviours from BSS. Since then there has been no information on HIV from brothels from any other source. Moreover, there was gap of several years in the provision of HIV prevention programmes in brothels. Hence a decision was made for a condensed version of surveillance to be conducted with focus on PWID, MSM, MSWs, hijra and FSWs from Dhaka and Hili as these were the two most vulnerable geographical areas as well as FSWs from all brothels of Bangladesh. However, as surveillance was conducted recently among MSM, MSWs and hijra from Dhaka and Hili the exercise was not repeated in 2016.

So far in Bangladesh, serological surveillance has documented low levels of HIV among the key populations sampled except among PWID in Dhaka especially in A1 where the prevalence was 7% while in A2 the prevalence was [1]. Bangladesh has indeed been fortunate in having been successful in maintaining a sustained low prevalence of HIV in contrast to many countries where a concentrated epidemic of HIV has been recorded among several key populations particularly among PWID. Examples of countries with high HIV prevalence in PWID include Ukraine (19.7% [8], Philippines (29%) [9], Indonesia (39.2% in 2013)[9], Myanmar (23.1% in 2014-15)[9]. In India, in the Punjab, 21.1% of PWID were HIV positive [9]. Prevalence among female sex workers tend to be lower for example Indonesia recorded 7.2% in 2013 [9] and Myanmar 14.6% in 2014-2015. In two states in India, Karnataka and Maharashtra, the HIV prevalence in female sex workers was 5.1% and 6.9% respectively[9].

The overall low prevalence of HIV in Bangladesh is partly attributed to the early intervention efforts especially among key populations[7, 10]which started in the mid-1990s; this was first initiated with female sex workers, followed by harm reduction services for PWID and then for MSM and hijra[7]. Implementing organisations provide services from static Drop in Centres (DICs) through peer outreach workers who reach the target population in their locality. The services comprise providing behaviour change communication (BCC) materials, raising awareness, distributing condoms and lubricants, managing and treating STIs and general health problems, HIV testing and counselling (HTC) and referrals for treatment if required. In addition to the above, for PWID, a major component of the harm reduction programme is the needle/syringe programme whereby outreach workers provide sterile needles/syringes to enlisted PWID. In addition, since 2010, opioid substitution therapy (OST) was introduced in a limited scale and at present only ~600 PWID are receiving these services in Dhaka. Although HTC coverage has been expanded in recent years only a small percentage of the key populations are being tested every year. For PWID modelling exercises have shown that for effective prevention of HIV it is essential to have a combination of four services - needle/syringe programme, OST, HTC and antiretroviral therapy (ART) for HIV positive PWID [11, 12]. Availability of comprehensive harm reduction services in the Ukraine has brought the HIV prevalence in Ukraine down from 41.8% to 19.7% within a decade [8].

This report presents and discusses the findings from the serological and behavioural surveillance conducted in 2016 among PWID and female sex workers in Dhaka and Hili.

METHODOLOGY

Sampling for surveillance took into consideration key populations, geographical areas and the sampling strategy.

The key populations sampled in the present round of surveillance included male and female PWID and FSWs from brothels, streets, hotels and residences. Data on MSM, MSW and hijra were available from the survey conducted by icddr,b in 2015 and these population groups were therefore not sampled again in this surveillance round but information from that survey has been provided in a separate report which is still unpublished [13]. Each key population was defined as in previous rounds of surveillance (Box 1).

Box-1: Definitions for the key populations

Key populations	Serological surveillance	Behavioural surveillance
Males who inject drugs: Dhaka A1	Those who injected drugs within the last two months and were accessible through public injecting/shooting spots	
Males who inject drugs: Dhaka A2	Those who were primarily injectors and had injected in the last 12 months	Those who injected drugs within the last two months and were accessible through public injecting/shooting spots
Males who inject drugs: Hili	Those who were primarily injectors and had injected in the last 12 months	
Females who inject drugs	Those who regularly used illicit drugs and had injected drugs twice or more in the last six months	
Brothel based FSWs	Those who were contracted by clients in a brothel setting, with the sex act generally taking place in brothels in the last one month	
Street based FSWs	Those who were selling sex on the street during the last one month	Those who were contracted by clients on the street, with the sex act taking place in a public space or other venues in the last one month
Hotel based FSWs	Those who were selling sex in hotels during the last one month	Those who were contracted by clients in a hotel setting, with the sex act taking place in hotels in the last one month
Residence based FSWs	Those who identified themselves as sex workers and sold sex in residences in the last one month	

The geographical areas for sampling the different key populations was selected based on their numbers, presence of HIV amongst them and prevalence of high risk behaviours as discussed earlier.

As a geographical unit, Dhaka so far has been treated differently in serological surveillance for sampling male PWID. As it was recognised through a research cohort study that male PWID in one neighbourhood of Dhaka designated as A1 was experiencing a concentrated epidemic [6] while in the rest of Dhaka (A2) the epidemic was low, the city was divided into two - A1 and A2, since round 6 (2004-05) and the sampling strategy used for the two areas was also different.

The selection of the sampling strategy for each key population was based on criteria outlined in the review and as agreed by the TWG on 20th May 2013. An exception was brothel based FSWs where IBBS was conducted instead of separate serological surveillance and BSS. This was because FSWs in brothels are localised within a clearly defined area where they live and work so that sampling separately for two types of surveillance at the same time could lead to higher refusal rates. Another consideration that was taken was the ages of FSWs as it is well recognised that age influences risk taking behaviours and vulnerabilities and this is particularly true for FSWs. The majority of FSWs sampled in BSS in 2006-07 were <24 years of age [7]. And there were significant differences in active syphilis rates between younger (<24 years) versus older (25-49 years) street based FSWs; older street based FSWs were almost twice as likely to have syphilis (OR 1.8, $p<0.01$) than the younger group [7]. For this reason, in this surveillance round, FSWs were segregated into two age groups; 15-24 years and 25-49 years.

The list of key populations, geographical locations and type of surveillance is provided in Table-1.

Sampling methodology

The sampling methodology used for each is outlined below:

People Who Inject Drugs -

As discussed above for sampling male PWID, Dhaka was divided into two - A1 and A2. A similar approach was taken in previous rounds of surveillance. However, the methodology that was used in the two areas was different as explained below:

1. In A1 - IBBS was conducted as the prevalence of HIV exceeded 5%. The sampling methodology was Time Location Sampling (TLS)
2. In A2, BSS and HIV surveillance was conducted separately - BSS followed the TLS method and HIV surveillance was conducted through Drop in Centres (DICs) as in previous rounds of surveillance.

For female PWID in Dhaka and male PWID in Hili, only serological surveillance was conducted through the DICs of NGOs on a first come first serve basis.

Female Sex Workers -

For FSWs in streets and hotels, BSS and serological surveillance was conducted separately; for BSS, TLS was used and serological surveillance was conducted through NGO DICs providing HIV prevention services to FSWs. For residence based FSWs in Dhaka, only serological surveillance through DICs of NGOs was done. In the case of brothel based FSWs, systematic proportionate random sampling was used and IBBS was conducted in this group of FSWs.

Table-1: Key populations, geographical locations and type of surveillance

Geographical area	Key Populations	Sampling strategy		
		BSS	Serological surveillance	IBBS
Dhaka City	Male PWID, A1*			✓
	Male PWID, A2*	✓	✓	
	Female PWID		✓	
	FSWs –Street based§	✓	✓	
	FSWs -Residence based§		✓	
	FSWs - Hotel based§	✓	✓	
Hili	FSWs - Street based§	✓	✓	
	Male PWID		✓	
National	FSWs – Brothel based			✓

*Dhaka was split in two areas, A1 and A2 for sampling male PWID

§All FSWs were segregated by age into 15-24 years and 25-49 years

Three sampling methodologies were used and these are described in detail here:

a) Time location sampling (TLS):

This is a two stage probability sampling technique [14]. In the first stage a mapping exercise was conducted to identify and to make a sampling frame using 'spots' or Primary Sampling Units (PSUs) where the members of the particular key populations were available in a particular time frame. The timing of the spots was determined by visiting at different times. After data entry and cleaning of mapping data, a modified version of sampling frame of spots was prepared according to the definition of spots in each population group. The total number of respondents in all spots obtained through mapping were then counted and compared with the target sample size. If the total number of respondents counted during mapping was less than or approximately equal to the target sample size, a take all approach was adopted for conducting conduct risk behavioural interviews. Such a take all approach was employed among FSWs in the hotels in Dhaka, streets in Hili and PWID in Dhaka A2. Otherwise, a fixed number of respondents from each spot was interviewed. For this the number of spots required to achieve the desired sample size was calculated based on a fixed number of respondents interviewed from each spot. A systematic random sampling technique was then adopted to choose the spots to achieve the sample size that constituted the first stage of sampling. In the second stage of sampling, as soon as the interviewer found a respondent and the respondent met the sampling criterion, s/he conducted the first interview. The remaining interviews were conducted adopting a systematic random sampling. This technique was employed to interview FSWs in the streets in Dhaka and PWID in Dhaka A1. The definitions of the PSUs are shown in Table-2.

Table-2: Definition of the spot/PSU from where individuals in each key population group were sampled

Key Populations	Definition of a spot/PSU
PWID	A specific location where at least 3 PWID were found to be injecting drugs in a specific time frame
Street FSWs	A specific location where at least 3 FSWs were found in a specific time frame
Hotel FSWs	A residential hotel where at least 5 FSWs were found in a specific time frame who sell sex at the hotel
Brothel FSWs	A specific room used in a brothel for selling sex

Mapping was conducted at specific time frames when it was known that those individuals were likely be present at those spots at those times. To determine the most ideal time frame discussions were held with programme staff including peers and other key personnel to understand when spots were most likely activated. Accordingly, spots were visited at those times and spots for male PWID were visited twice a day, morning and afternoon in a day. The survey team collected mapping information with the help of local guides, key informants and peers of the population groups and the information was recorded in a prescribed format. Mapping data was collected for FSWs for 15-24 and 25-49 years' age groups. In addition, the members of the assessment team also applied their own judgment to explore new spots. Efforts were taken to cover the entire Dhaka and Hili metropolitan areas and to identify all spots irrespective of coverage by HIV prevention programmes.

In the case of IBBS for male PWID in Dhaka A1, a referral slip was developed for blood collection. After completion of the interview on risk behaviours, the respondent was accompanied by the study staff to the nearest DIC for blood drawing using the referral slip.

b) Systematic proportionate random sampling:

This was used previously for BSS among brothel based FSWs [15]. As a PSU for brothels was a room with active FSWs, the total number of used rooms in each brothel was counted and the number of active FSWs in each room was also counted for 15-24 and 25-49 years' age groups. In addition, information on the number of house owners in each brothel was collected. From this mapping a list of all active FSWs in all brothels was obtained. Finally, the target sample size was proportionately distributed in each brothel according to the number of active FSWs for each age group. From each brothel, rooms were selected systematically to interview the required number of FSWs in each age group. Both interview and blood collection was done from the same FSW. The interview was conducted at the room of the respondent and after that the respondent was taken to a nearby house in the brothel where the blood drawing team members were stationed to collect blood.

There are 11 brothels in Bangladesh and all were mapped (Table-3). However, mapping data for seven brothels were extracted from a size estimation exercise of Key Populations at risk of HIV including FSWs in brothels that was conducted by the ASP in 2015 [16]. For the remaining four brothels icddr,b conducted mapping prior to interview.

Table-3: List of brothels mapped

Name of brothels	Name of districts	Mapping was conducted by
Rothkhola	Faridpur	icddr,b
C & B Ghat	Faridpur	icddr,b
Chorpara	Patuakhali	icddr,b
Rani Bazar	Jamalpur	icddr,b
Banishanta	Khulna	ASP
Kormokar Potti	Bagerhat	ASP
Marowari Mondir	Jessore	ASP
Babu Bazar	Jessore	ASP
Ganginarpar	Mymenshingh	ASP
Kandapara	Tangail	ASP
Daulatdia	Rajbari	ASP

c) Serological surveillance through NGOs

Sampling through NGO DICs on a first come first serve basis was used for serological surveillance where DIC staff of NGOs providing services to key populations inform their beneficiaries through their outreach workers of the ongoing surveillance and encourage them to visit the DICs for blood collection. The calculated sample size was proportionately distributed in each DIC based on the listed numbers of beneficiaries available in each DIC. Participants were selected on a first come first serve basis till the required sample size was achieved. There were several steps involved in the process and these are described below:

i) Field preparation and activities

Key populations were accessed through DICs of NGOs providing HIV prevention services to those populations. For organizing sample collection at the DICs, meetings were held at the DICs with DIC staff as well as outreach workers to orient them about the activities related to the surveillance. Following this the outreach workers contacted individuals in the field and encouraged them to attend the DICs for providing blood. In each city, the target sample size for each population group was proportionately distributed according to age groups 15-24 and 25-49 years among the DICs and the numbers according to each age group that were covered by all the DICs were used to estimate the proportionate sample sizes for each DIC. Blood samples were collected on a first come first serve basis.

During sampling, phlebotomists from the survey team collected blood, separated serum from blood, labelled tubes, stored and transported specimens to the Virology laboratory of IEDCR. The team also completed short demographic questionnaires as was done in previous rounds of serological surveillance [1]. After blood collection, all study participants were informed about the available HIV testing and counselling (HTC) services at the DICs and were encouraged to avail those services. Duplications were avoided by asking questions before blood drawing by the phlebotomists. The questions asked included whether blood was drawn before, and if yes, why, where, how long ago, how the blood was drawn and how much blood was drawn, and whether they received any compensation after providing blood, if yes, what did they received.

ii) Laboratory methods

Similar to all rounds of serological surveillance, each blood sample was split into two: one unlinked sample for HIV and the other sample was linked to the individual to enable provision of treatment for syphilis.

❑ Blood collection, separation, storage, labelling and transport

Blood was collected by venepuncture into sterile, plain test tubes. 0.5 ml of whole blood was transferred to an eppendorf tube containing EDTA. From the remaining volume of blood, serum was separated by centrifugation. Whole blood and serum samples were transported to the laboratory by maintaining a cold chain where they were stored at -20oC.

❑ HIV testing

Samples were initially tested by a commercial enzyme linked immunosorbent assay (ELISA) kit (Murex HIV Ag/Ab Combination, DiaSorin S.p.A. Dartford, UK) and positive results were confirmed by a Line Immunoassay (LIA) (INNO-LIA HIV I/II Score, FUJIREBIO Europe N.V, Gent, Belgium). An indeterminate result by LIA was considered as negative.

❑ Testing for syphilis

Syphilis was tested by the Rapid Plasma Reagin (RPR) test (RPR-nosticon TM II, BioMerieux SA, France) and Treponema Pallidum Particle Agglutination (TPPA) test (Serodia, TPPA, FUJIREBIO INC., Japan). Tests were done for active syphilis only. Samples positive for TPPA with an RPR titre of>8 was considered to reflect active syphilis. TPPA test was carried out only when RPR was positive.

Testing was done as soon as possible and the results were delivered to the DICs for treatment purposes; treatment was provided free of cost.

Risk behaviour questionnaires for behavioural surveillance

For each of the key populations, interviews were conducted using semi-structured questionnaires which was similar to the last round of BSS conducted in 2006-07 [15]. The questionnaires included information on socio-demographic characteristics and marriage, drug history, partner and sexual history, sexual and drug risk-behaviour experiences, mobility, knowledge on male condoms, knowledge of and healthcare seeking for Sexually Transmitted Infection (STIs), knowledge of HIV/AIDS, knowledge on confidential HIV testing, violence, HIV risk assessment and involvement with NGO activities. All questionnaires were translated to Bangla and interviewers were trained thoroughly. Questionnaires were pretested for each of the groups in some field sites outside of the survey area and on the basis of findings questionnaires were slightly fine-tuned to strengthen the quality of data and data collection.

During interview, one team member from each data collection team recorded data on the number of persons available at the spots, duplicates, refusals and those who left at all data collection sites while the other team members conducted the interviews. This information was needed in order to be able to calculate sampling weights [14]. Before the interview, utmost care was taken to avoid duplications in the field. Interviewers started this process by asking the respondents questions on whether they had spoken to anyone from GoB/icddr,b to provide information on HIV, if yes, for how long and on what topic the discussion was held, and whether they received any compensation for the interview.

Quality control and monitoring

Testing for HIV was conducted at icddr,b and IEDCR and testing for syphilis was conducted at IEDCR. Quality control for HIV was done by the Virology laboratory of icddr,b which was under an external quality control scheme. In addition, internal quality control was also conducted once during the surveillance period.

The serological surveillance team comprised of laboratory and field staff. Priority was given to those who had experience in conducting serological survey; mobilizing fields, ensuring availability of equipment at the DICs to draw/store/transport blood, supervise field activities, blood testing, etc.

The behavioural surveillance field teams comprised of interviewers and field research officers for each survey area for each KP. Prior experience of the interviewers in conducting HIV risk behavioural or any other quantitative interviews was considered as an advantage in selecting the interviewers and supervisors.

To ensure the quality of information, all collected data were checked and verified at the field level both by the interviewers and field research officers. The members of the data collection teams adopted a strategy of checking each other's data while at the field. Before data entry, the research supervisors regularly reviewed some completed questionnaires to identify inconsistencies in data collection and provided feedback to the team members as and when required. To monitor field data collection, senior team members from icddr,b visited spots regularly during mapping and data collection in each city. In addition, personnel from the Ministry of Health and Family Welfare (MOH&FW), ASP, UNAIDS, UNICEF and IEDCR visited spots during interview and blood sample collection.

Sample size calculation

Separate indicators and methods were used to calculate sample size for serological surveillance, BSS and IBBS. The indicators used for sample size calculation are shown in Table-4.

Table-4: Indicators used for sample size calculation

Population groups	Indicators	Sources of data
Serological survey: PWID and FSWs	HIV prevalence	Serological survey Round-9, 2011
BSS: FSWs* (street, hotel and brothel): Dhaka, Hili and national	Last time condom use with new and regular clients in the last week	BSS 2006-07
IBBS: PWID* (male): A1	• Did not share needles/syringes last time in last 2 months/last week • Prevalence of HIV	• BSS 200607 • Point of care HIV testing with oral fluid among injecting drug users in old Dhaka city, 2015, icddr,b, (unpublished)
BSS: PWID* (male): A2	Did not share needles/syringes last time in last 2 months/last week	BSS 2006-07

*Sample sizes were calculated for each of the indicators and the maximum was selected

The formulae used to calculate the sample sizes are shown below:

Serological surveillance

In order to calculate the sample size the following standard formula-1 [17] was used.

$$n_1 = \frac{z^2_{1-\frac{\alpha}{2}}}{d^2} pq \quad \text{..... (1)}$$

In the above equation:

n_1=Calculated sample size

p= Estimated percentage points of the prevalence of HIV for all age groups in the previous HIV serological surveillance round-9 conducted in 2011 [1]. To calculate sample size for age groups ≤24 and 25-49 for female sex workers, the estimated prevalence of HIV was extracted from the data set for each of the age groups.

q= 1-p

$Z_{1-\alpha/2}$=The Z-score corresponding to the desired level of significance=1.96 (at the 95% confidence interval)

d=Desired level of precision

The sample size thus calculated was inflated by 1% to adjust for refusals. Thereafter the calculated sample size was further adjusted for the finite population correction (FPC) according to the following formula-2 [18]:

$$n_2 = \frac{n_1}{1+\frac{n_1}{N}} \quad \text{..... (2)}$$

In the above equation:

n_2=Calculated sample size after adjusting for refusals and FPC

N=Population size for each of the risk groups (Number being covered by the NGOs, June, 2012)

Behavioural surveillance survey (BSS)

The sample size was calculated using a standard formula-3 [19] that was used in the previous rounds of BSS as follows:

$$n = D\frac{\left\{z_{1-\alpha}\sqrt{2\bar{p}(1-\bar{p})} + z_{1-\beta}\sqrt{p_1(1-p_1)+p_2(1-p_2)}\right\}^2}{(p_2-p_1)^2} \quad \text{..... (3)}$$

In the above formula:

D=Design effect

p_1= Estimated proportion of risk behaviour at the time of previous survey conducted in 2006-2007 for all age groups. To calculate sample size for age groups ≤24 and 25-49 for female sex workers, the estimated prevalence of risk behaviours was extracted from the data set for each of the age groups.

p_2= The target proportion at some future date, so that (p2-p1) is the magnitude of change that we want to be able to detect

p (bar)=$(p_1+p_2)/2$

$Z_{1-\alpha}$=The Z-score corresponding to desired level of significance=1.645

$Z_{1-\beta}$= The Z-score corresponding to desired level of power=0.83

The sample sizes were calculated in order to detect 9.5-20% changes (1-way change detectable) in the risk behaviour over time for PWID and FSWs and for MSM, MSW and hijra 7.5-12.5% changes with desired design effect, inflation rates of the indicators (percent of the population that is eligible to be considered for the indicators), 95% confidence level and 80% power. For street FSW in Hili, as BSS has never been conducted before, the sample size calculation was done by using the formulae 1 and 2 described above and the prevalence of the risk behaviours of FSWs from streets of Dhaka, Chittagong and Khulna from BSS 2006-07 was used. Thereafter, the maximum sample size was taken.

In order to calculate sample size in the IBBS for male PWID in Dhaka A1 and IBBS for FSWs in brothels, formulae 1 and 3 was used.

Using the above-mentioned formulae and prevalence estimates of HIV and the risk behaviours the calculated sample sizes in each of the population groups for age groups 15-24 and 25-49 years (particularly for FSWs) and overall calculation of sample sizes in the serological, behavioural and IBBS is shown in Table-5. Total sample sizes were 4157, 4289 and 2364 for BSS, serological surveillance and IBBS respectively.

Table-5: Sample size calculation

Geographical Areas	Key Populations	Sample size		
		BSS	Serological survey	IBBS
Dhaka	Male PWID, A1			701*
	Male PWID, A2	424	290	
	Female PWID		139	
	Street based FSWs	436 (15-24: 205; 25-49: 231)‡	1113 (15-24: 356; 25-49: 757)‡	
	Residence based FSWs		496 (15-24: 182; 25-49: 314)‡	
	Hotel based FSWs	340 (15-24: 258; 25-49: 82)‡	631 (15-24: 314; 25-49: 317)‡	
Hili	Street based FSW	192 (15-24: 42; 25-49: 150)‡	196 (15-24: 48; 25-49: 148)‡	
	Male PWID		117	
National	Brothels FSW			1663* (15-24: 493; 25-49: 1170)‡
	TOTAL	1392	2982	2364
*Includes refusals/drop out during interview, for PWID 15% and for FSW in brothels 3% was assumed ‡Numbers in the brackets refer to sample size according to age groups				

Data analysis

Serological surveillance

The socio-demographic data were entered twice using Epi Info for Windows (Version 3.5.1) and laboratory data were entered using Statistical Package for Social Sciences (SPSS, Version 20). Data analysis was carried out using SPSS and Epi-Info. To compare continuous non-parametric data between any two sites or groups the Median test and to compare categorical data, Chi-square statistics was used. For comparison of data on HIV and active syphilis over time chi-square for trend was used by Epi-Info.

Behavioural surveillance

For each population group, data was entered twice using Epi-Info for Windows (Version . .1); range and consistency checks were incorporated in the data entry screens and then converted to Excel for further cleaning by filtering to check consistency of information throughout the questionnaire. Clustering of observations was incorporated in the calculation of confidence interval and sampling weights 1 were incorporated in the estimation of proportions/means/medians/inter quartile range to adjust for any bias that might have occurred as a result of the sampling design. Data was analysed using Stata (Version 11.2). CIs was used in comparing risk behaviours between two groups or sites or over time.

Ethical assurance for protection of human rights

The proposal was approved by Research Review Committee (RRC) and Ethical Review Committee (ERC) of icddr,b. For participants aged 1 years, consent was obtained while for those 1 years, assent was taken.

For blood drawing and testing, written consent was taken and for behavioural interviews verbal consent was taken for those who were 1 years. For those who were 1 to 1 rs (for FSWs), written assent was taken from local gatekeepers/guides/peers whose help was sought to identify participants.

Serum samples were divided into two - one for HIV and the other for syphilis. Tubes containing whole blood and serum for HIV were unlinked and labelled only with the code for DIC and random ID generated from the laboratory. However, an effort was taken to refer all respondents to HTC services that were provided through NGOs. The tube containing serum for syphilis testing was linked and had all details of the study participant - name, ID in the mother list, age, DIC name and date of collection. This allowed results and treatment to be provided to the study participants. Treatment was provided free of cost to those who needed it through the intervention programme. In the IBBS, the result of syphilis and HIV was linked to the questionnaire by a unique ID.

All files were kept in locked cabinets in the icddr,b Global Fund Project Office in Dhaka till analysis was complete and report published. The cabinets were only accessible to the investigators of the study. All computers containing data were password protected.

All interviews were conducted in a private space where the participant was comfortable.

Collaborative arrangements

This surveillance was subcontracted by IEDCR to icddr,b and is a crucial national activity that feeds into the government planning process for HIV and AIDS. The surveillance activities were jointly conducted by icddr,b and IEDCR with staff from both organisations designated for this activity.

RESULTS

FINDINGS FROM RISK BEHAVIOURAL SURVEILLANCE

People who inject drugs

The results from the BSS from the male PWID are presented in the following three sections; A. Findings from the 2016 risk behavioural surveillance, B. Changes in some key risk behaviours over the rounds of surveillance C. Profile of HIV positive male PWID and key differences between HIV positive and negative male PWID.

A. Findings from the 2016 risk behavioural surveillance

Males who inject drugs (N=963) were sampled from two neighbourhoods in Dhaka, A1 (N=721) and A2 (N=242) between 23rdApril and 22nd May, 2016 (Table-6). In the following sections, analysis of data from PWID in A1 and A2 are presented. In addition, data from A1 and A2 have been combined to represent PWID from all of Dhaka.

Table-6: PWID interviewed from different sites

Key population groups	Sample size achieved	Start date of interview	End date of interview
Dhaka A1	721	26 -Apr -16	22 -May -16
Dhaka A2	242	23 -Apr -16	12 -May -16
Total samples achieved	**963**		

Socio-demographic characteristics (Table-7)

The average age of all male PWID was more than 35 years and the overall education level was very low (around 3 years) with no differences between PWID from A1 and A2. Compared to those from A2 more PWID from A1 were living alone (19% and 41% respectively, $p<0.05$) and more were also living on the streets (14.5% and 41% respectively, $p<0.05$). Living with their families was more commonly reported by PWID from A2 compared to those from A1 ($p<0.05$).

The mean monthly income was similar for PWID from the two neighbourhoods and in both areas the main source of income was from driving rickshaws and very few were supported by their families. However, there were some differences in some of the sources of income; in A1 compared to A2 more PWID earned through antisocial activities (13.9% versus 7.9%, $p<0.05$) while in A2 more worked as drivers of motor vehicles ($p<0.05$).

Selling blood in the last year was reported by 17 (16 in A1 and 1 in A2)male PWID.

Table-7: Socio-demographic characteristics

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Age (in years)				
Mean (95% CI)	38.9 (38.0-39.8)	36.9 (35.3-38.4)	NS	38.4 (37.6-39.2)
Median (IQR)	38.0 (32.0-45.0)	35.0 (29.0-45.0)		37.0 (32.0-45.0)
Ever attended school, % (95% CI)	57.4 (53.6-61.1)	64.9 (58.8-70.5)	NS	59.3 (56.1-62.4)
Years of schooling (in years)				
Mean (95% CI)	2.7 (2.5-3.0)	3.3 (2.8-3.9)	NS	2.9 (2.7-3.1)
Median (IQR)	2.0 (0.0-5.0)	3.0 (0.0-5.0)		2.0 (0.0-5.0)
Years of schooling (in years) (Denominator is who ever attended school)				
Mean (95% CI)	4.8 (4.5-5.0)	5.2 (4.6-5.8)	NS	4.9 (4.6-5.1)
Median (IQR)	4 (2-7)	5 (3-7)		5 (3-7)
Duration of stay in this city, % (95% CI)				
Whole life	84.8 (81.9-87.4)	82.2 (76.1-87.0)	NS	84.2 (81.5-86.6)
<10 years	2.6 (1.7-4.0)	2.9 (1.4-6.1)	NS	2.7 (1.8-3.9)
>10 years	12.6 (10.4-15.1)	14.9 (10.3-21.0)	NS	13.1 (11.0-15.6)
Currently living with most of the times, % (95% CI)				
Alone	41.0 (36.1-46.0)	19.0 (13.6-25.9)	<0.05	35.4 (31.7-39.4)
Relatives/Family members	49.0 (43.4-54.6)	75.2 (64.7-83.4)	<0.05	55.6 (51.0-60.1)
Friends (non PWID)	1.1 (0.6-1.9)	0.8 (0.2-3.0)	NS	1.0 (0.6-1.7)
PWID friends	9.0 (6.3-12.7)	5.0 (2.3-10.5)	NS	8.0 (5.8-10.9)
Currently living place most of the times, % (95% CI)				
On the street	41.0 (33.5-48.9)	14.5 (7.7-25.6)	<0.05	34.3 (28.7-40.4)
Fixed address	59.0 (51.1-66.5)	85.5 (74.4-92.3)	<0.05	65.7 (59.6-71.3)
Income (in taka) in the last month	N=720	N=242		N=962
Mean (95% CI)	13364.6 (12818.8-13910.5)	14254.6 (13422.4-15086.7)	NS	13588.6 (13119.9-14057.3)
Median (IQR)	12000.0 (9000.0-15000.0)	1300.0 (10000.0-16000.0)		12000.0 (9000.0-15000.0)
Source of income in the last 6 months, % (95% CI)				
Rickshaw pullers	18.5 (13.2-25.4)	29.8 (23.9-36.3)	NS	21.4 (17.2-26.2)
Hawker	1.1 (0.6-2.1)	0	-	0.9 (0.5-1.6)
Service	15.0 (12.2-18.3)	9.1 (5.7-14.2)	NS	13.5 (11.1-16.4)
Tokai (rag pickers)	16.0 (11.6-21.8)	7.9 (4.4-13.6)	NS	14.0 (10.6-18.2)
Business	15.6 (12.2-19.9)	21.9 (17.1-27.6)	NS	17.2 (14.1-20.8)
Family	2.4 (1.4-4.1)	2.1 (1.0-4.4)	NS	2.3 (1.4-3.7)
Driver of motor vehicles	3.2 (1.8-5.7)	13.2 (9.8-17.7)	<0.05	5.8 (4.2-7.8)
Day labourer	13.7 (11.3-16.6)	7.9 (5.4-11.3)	NS	12.2 (10.1-14.7)
Others	14.3 (11.2-18.1)	8.3 (5.6-12.1)	NS	12.8 (10.4-15.5)
Sold blood for money in the last 12 months, % (95% CI)	2.4 (1.4-4.0)	0.4 (0.1-3.0)	NS	1.9 (1.1-3.1)

IQR refers to Inter Quartile Range
NS refers to not significant
'-' refers to comparison was not possible

Marital status (Table-8)

The average age at first sex for all male PWID in Dhaka was 17.2 years and there was no difference between PWID in A1 and A2. Fewer PWID in A1 were married and amongst those who were married fewer lived with their spouses compared to those in A2 ($p<0.05$ for both). Having current regular sex partners was not common either among unmarried or married PWID. PWID from A2 were more likely to report having sex in the last month than those from A1 ($p<0.05$).

Table-8: Marital status and sex partners

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Age at first sex (in years)	N=719	N=240		N=959
Mean (95% CI)	17.2 (16.9-17.5)	17.4 (17.1-17.6)	NS	17.2 (17.0-17.5)
Median (IQR)	17.0 (15.0-19.0)	17.0 (15.0-19.0)		17.0 (15.0-19.0)
Current marital status, % (95% CI)				
Married	42.3 (37.3-47.5)	59.5 (51.3-67.2)	<0.05	46.6 (42.8-50.5)
Unmarried*	57.7 (52.5-62.7)	40.5 (32.8-48.7)	<0.05	53.4 (49.5-57.2)
Currently living with spouse (Denominator is those were currently married), % (95% CI)	N=305 88.4 (83.9-91.7)	N=144 97.2 (93.3-98.9)	<0.05	N=449 91.2 (87.7-93.8)
Time since last sex (Denominator is who ever had sex)	N=720	N=240		N=960
Mean (95% CI)	15.8 (13.5-18.1)	9.5 (5.7-13.3)	<0.05	14.2 (12.1-16.3)
Median (IQR)	2.0 (0.0-13.0)	0.0 (0.0-4.0)		0.0 (0.0-12.0)

IQR refers to Inter Quartile Range
NS refers to not significant
'-' refers to comparison was not possible
*Divorced/widowed/separated were combined with unmarried

History of drug use (Table-9 and Figure-2)

The duration of taking any kind of drugs was similar for PWID from the two neighbourhoods as was the age of starting the use of drugs. For injecting drugs, PWID in A1 had on average injected drugs for longer compared to those in A2 (9.5 and 7.7 years respectively, $p<0.05$) but the age of starting to inject was similar and on average for all male PWID this was 29.4 years.

Almost all PWID had injected in the last month and the vast majority had injected the day before. All had injected buprenorphine and many had injected a cocktail of different pharmaceutical drugs consisting of buprenorphine, antihistamines and sometimes diazepam. The number of injections taken by PWID whether the day before or in the last week was higher in A1 compared to A2 ($p<0.05$ for both). Similarly, the frequency of injecting drugs was also higher in A1 than in A2 ($p<0.05$) (Figure-2).

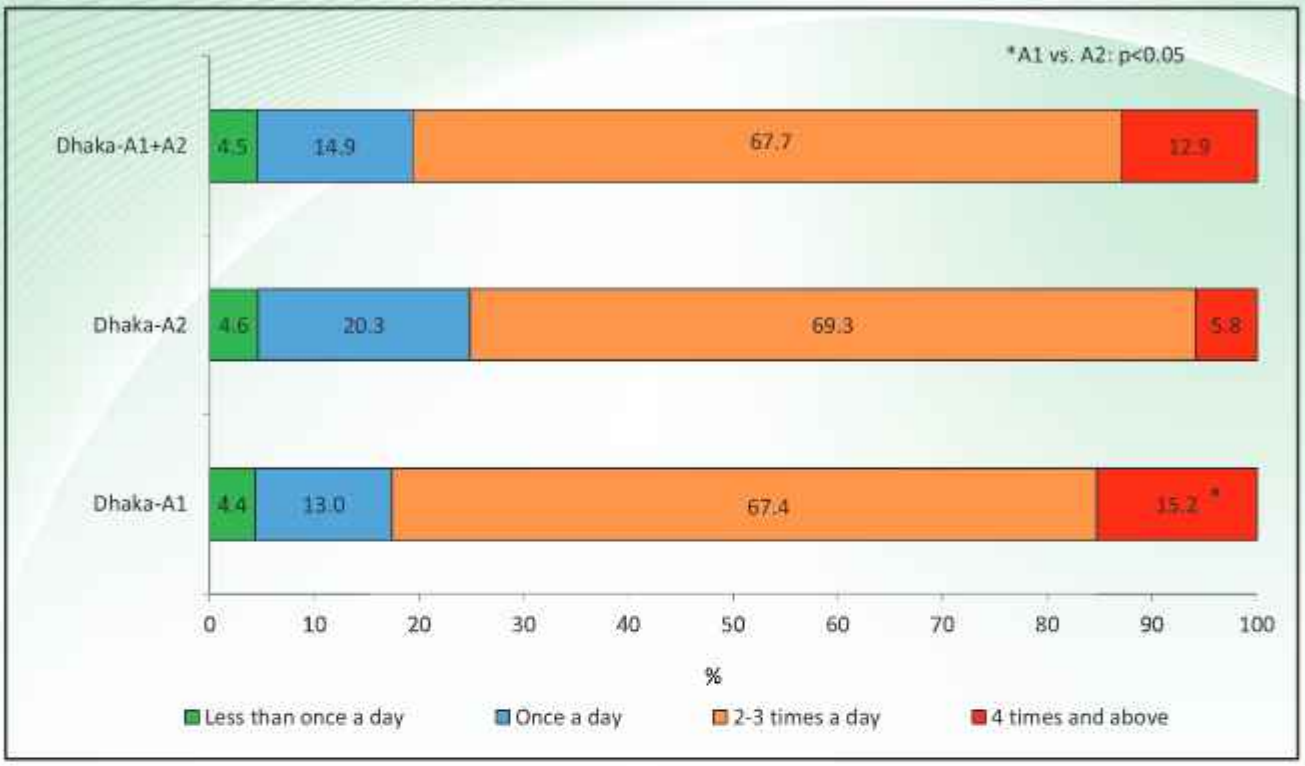
Approximately 20% complained of having an abscess in the last year and the percentages were similar in the two neighbourhoods.

Table-9: History of drug use

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Duration of taking any kind of drugs (in years)				
Mean (95% CI)	18.3 (17.4-19.1)	16.6 (15.4-17.8)	NS	17.8 (17.1-18.5)
Median (IQR)	17.0 (13.0-23.0)	15.5 (11.0-20.0)		17.0 (12.0-22.0)
Duration of injecting drugs (in years)				
Mean (95% CI)	9.5 (8.9-10.1)	7.7 (6.8-8.5)	<0.05	9.0 (8.6-9.5)
Median (IQR)	8.0 (6.0-12.0)	6.0 (4.0-10.0)		8.0 (5.0-12.0)
Age of starting any kind of drugs (except alcohol) (in years)				
Mean (95% CI)	20.7 (20.2-21.1)	20.3 (19.3-21.3)	NS	20.6 (20.1-21.0)
Median (IQR)	20.0 (16.0-25.0)	20.0 (16.0-23.0)		20.0 (16.0-25.0)
Age of starting to inject drugs (in years)				
Mean (95% CI)	29.4 (28.7-30.1)	29.2 (27.6-30.8)	NS	29.4 (28.7-30.0)
Median (IQR)	28.0 (24.0-34.0)	27.0 (23.0-35.0)	NS	28.0 (24.0-34.0)
Injected in the last month, % (95% CI)	99.9 (99.1-100.0)	99.6 (97.6-99.9)	NS	99.8 (99.2-99.9)
Types of drugs injected *(Denominator is who injected drugs in the last month), % (95% CI)	N=720	N=241		N=961
Buprenorphine (Tidijesic)	100.0	100.0	-	100.0
Pethidine	0.1 (0.0-0.8)	0	-	0.1 (0.0-0.6)
Heroin	0.2 (0.0-0.9)	0	-	0.2 (0.0-0.6)
Cocktail of drugs	29.7 (24.3-35.7)	19.5 (14.5-25.7)	NS	27.1 (23.2-31.5)
Injected yesterday, % (95% CI)	93.6 (90.2-95.8)	90.5 (83.8-94.6)	NS	92.8 (89.9-94.9)
Number of injections taken yesterday (Denominator is who injected yesterday)	N=677	N=219		N=896
Mean (95% CI)	2.7 (2.6-2.8)	2.3 (2.2-2.5)	<0.05	2.6 (2.5-2.7)
Median (IQR)	3.0 (2.0-3.0)	2.0 (2.0-3.0)		2.0 (2.0-3.0)
Number of injections taken in the last week (Denominator is who injected in the last week)	N=712	N=235		N=947
Mean (95% CI)	17.0 (16.2-17.7)	14.2 (13.0-15.5)	<0.05	16.3 (15.6-16.9)
Median (IQR)	16.0 (13.0-21.0)	14.0 (10.0-18.0)		15.0 (12.0-21.0)
Had abscess in the last one year, % (95% CI)	22.2 (18.4-26.4)	16.5 (12.4-21.7)	NS	20.7 (17.8-24.0)

R refers to Inter Quartile Range
NS refers to not significant
'-' refers to comparison was not possible

Figure-2: Frequency of injecting drugs in the last month (amongst those who injected drugs in the last month)



Injection and drug sharing behaviour (Table-10 and Figures 3-4)

More PWID in A1 compared to those in A2 borrowed used needles/syringes during last injection in the last two months but percentages were similar for lending. However, when comparing overall sharing, whether lending or borrowing during last injection in the last two months, more PWID shared in A1 compared to A2 (57.9% and 36% respectively, $p<0.05$). In the last week both borrowing and lending of used needles/syringes was more frequently reported by PWID in A1 versus A2 ($p<0.05$ for both). There was a significant difference in the frequency of borrowing and lending in the last week with more PWID in A1 saying that they either borrowed or lent some of the times compared to those in A2 ($p<0.05$ for both) (Figures-3 and 4) while in A2 never borrowing or lending was more frequently reported ($p<0.05$) (Figures-6 and 7). Consequently, sharing of all injections in the last week was more common in A1 than in A2 ($p<0.05$) (Table-10).

In both A1 and A2, the size of the sharing network was just over one and over half of PWID (51.6%) said they shared with the same people in the last week. Amongst those who shared with different persons in the last week, the number of sharing partners was higher in A1 than in A2 (5.4 and 3.8 respectively, $p<0.05$).

Using the help of professional injectors to inject drugs was not common.

In both neighbourhoods amongst PWID who borrowed needles/syringes in the last two months, over a quarter (26.2%) cleaned their needles/syringes and the most common method of cleaning was by blowing.

Overall, in both neighbourhoods, 38.4% of PWID shared injection paraphernalia (other than needles/syringes) in the last two months of whom almost all shared the drug ampoule.

Table-10: Sharing of drugs and injection paraphernalia

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Borrowed used needle/syringe last time in last two months, % (95% CI)	26.9 (23.8-30.3)	13.6 (9.9-18.5)	<0.05	23.6 (20.9-26.4)
Lent used needle/syringe last time in last two months, % (95% CI)	38.5 (32.7-44.7)	26.0 (19.7-33.6)	NS	35.4 (30.3-40.8)
Borrowed or lent used needle/syringe last time in last two months, % (95% CI)	57.9 (52.2-63.4)	36.0 (27.6-45.2)	<0.05	52.4 (46.9-57.8)
Injected drugs using sterile injecting equipment last time in the last one month (Denominator is who injected in the last one month), % (95% CI)	N=720 42.2 (36.7-47.9)	N=241 63.9 (54.6-72.3)	<0.05	N=961 47.6 (42.2-53.1)
Borrowed used needle/syringe during last week, % (95% CI)	46.4 (40.3-52.5)	26.9 (18.7-36.9)	<0.05	41.5 (35.8-47.3)
Lent used needle/syringe during last week, % (95% CI)	55.4 (49.6-61.0)	33.5 (24.8-43.4)	<0.05	49.9 (44.3-55.5)
Borrowed/lent needles/syringes during last week, % (95% CI)	59.1 (53.6-64.4)	35.1 (26.7-44.6)	<0.05	53.1 (47.6-58.5)
All injections shared in the last week (among those who injected and shared in the last week), % (95% CI)	N=412 29.7 (25.1-34.8)	N=85 10.6 (5.4-19.7)	<0.05	N=497 26.5 (21.8-31.9)
Size of sharing (when borrowed) network last time in the last two months (Denominator is who borrowed last time in last two months) Mean (95% CI) Median (IQR)	N=190 1.1 (1.0-1.3) 1.0 (1.0-1.0)	N=33 1.1 (1.0-1.2) 1.0 (1.0-1.0)	NS	N=223 1.1 (1.0-1.2) 1.0 (1.0-1.0)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Size of sharing (when lent) network last time in the last two months (Denominator is who lent last time in last two months)	N=266	N=62		N=328
Mean (95% CI)	1.0 (1.0-1.1)	1.1 (1.0-1.1)	NS	1.1 (1.0-1.1)
Median (IQR)	1.0 (1.0-1.0)	1.0 (1.0-1.0)		1.0 (1.0-1.0)
Size of sharing (when borrowed/lent) network last time in the last two months (Denominator is who borrow/lent last time in last two months)	N=405	N=87		N=492
Mean (95% CI)	1.2 (1.1-1.3)	1.2 (1.1-1.3)	NS	1.2 (1.1-1.3)
Median (IQR)	1.0 (1.0-1.0)	1.0 (1.0-1.0)		1.0 (1.0-1.0)
Shared with the same persons in the last week (Denominator is who shared in the last week), % (95% CI)	N=402 50.5 (43.7-57.4)	N=85 56.5 (44.8-67.5)	NS	N=487 51.6 (45.4-57.7)
Size of sharing network when shared with	N=200	N=37		N=237
different persons in the last week (Denominator is who shared with different persons in the last week)				
Mean (95% CI)	5.4 (4.9-5.8)	3.8 (3.1-4.5)	<0.05	5.1 (4.7-5.5)
Median (IQR)	4.0 (3.0-7.0)	3.0 (2.0-4.0)		4.0 (3.0-6.0)
Injected with help of professional injectors last time in last two months, % (95% CI)	3.9 (2.5-6.2)	0.4 (0.1-2.5)	NS	3.1 (1.9-4.9)
Frequency of taking injections by professional injectors in the last week (Denominator is who injected in the last week), % (95% CI)	N=712	N=235		N=947
Always	1.2 (0.6-2.5)	0	-	0.9 (0.5-1.9)
Sometimes	6.1 (4.5-8.2)	1.7 (0.5-5.4)	NS	5.0 (3.7-6.7)
Never	92.7 (90.2-94.6)	98.3 (94.6-99.5)	NS	94.1 (92.1-95.6)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Cleaned needle/syringe when borrowed last time in last two months (Denominator is who borrowed needle/syringe last time in the last two months), % (95% CI)	N=167 25.1 (17.9-33.9)	N=31 32.3 (19.0-49.2)	NS	N=198 26.2 (19.6-34.0)
Method of cleaning* (Denominator is who borrowed and cleaned needle/syringe last time in last two months), % (95% CI)	N=39	N=10		N=49
Water	18.4 (8.9-34.2)	20.0 (3.5-62.9)	NS	18.7 (9.6-33.2)
Clothes	17.0 (6.4-37.7)	10.0 (1.0-55.9)	-	15.7 (6.5-33.2)
Leaves	8.9 (1.4-40.6)	0	-	7.2 (1.1-35.8)
Blowing	68.2 (48.0-83.3)	80.0 (37.1-96.5)	NS	70.4 (52.7-83.5)
Others	12.1 (4.1-30.6)	10.0 (1.0-55.9)	NS	11.7 (4.4-27.5)
Shared injection paraphernalia while injecting during last two months, % (95% CI)	38.3 (31.6-45.5)	38.8 (32.4-45.7)	NS	38.4 (33.1-44.0)
Type of injection paraphernalia shared* (Denominator is who shared injection paraphernalia during last two months)	N=267	N=94		N=361
Same ampule				
Same water to clean needles/syringes	99.4 (95.4-99.9) 0.6 (0.1-4.6)	98.9 (92.0-99.9) 1.1 (0.1-8.0)	NS NS	99.3 (96.8-99.8) 0.7 (0.2-3.2)

*Multiple responses

Figure-3: Frequency of borrowing needles/syringes in the last week (amongst those who injected in the last week)

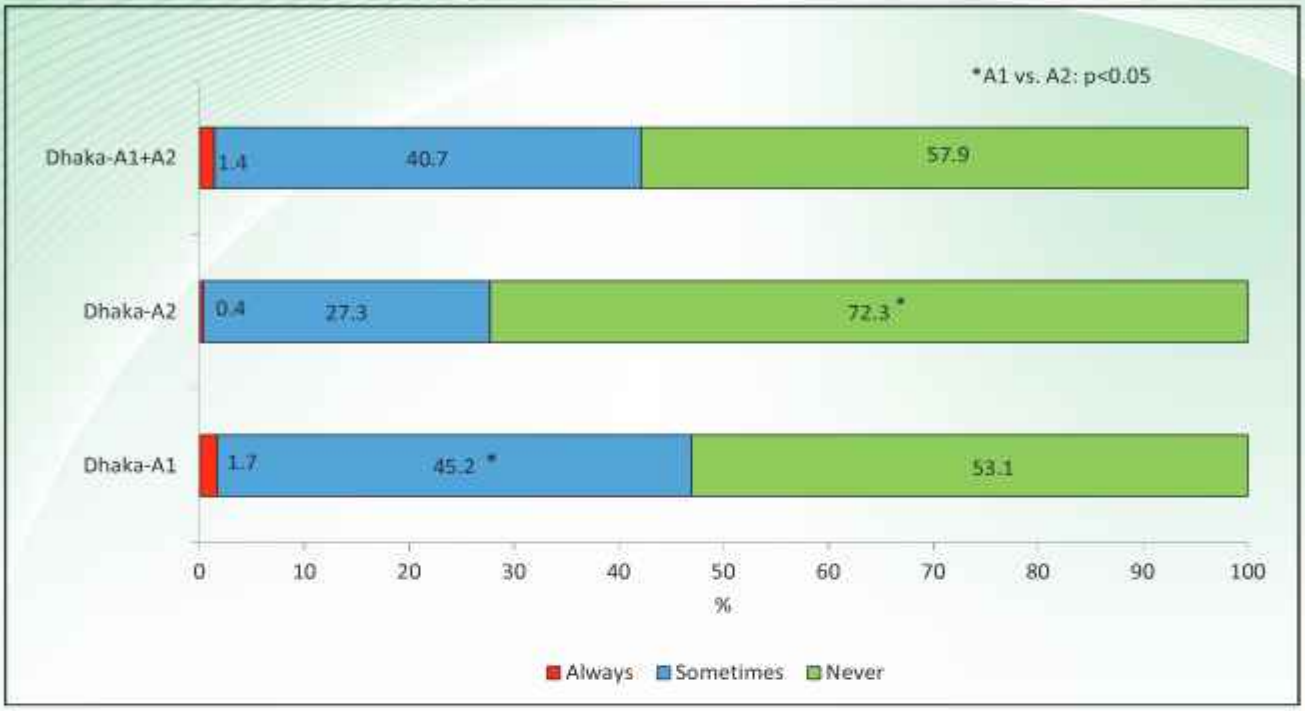
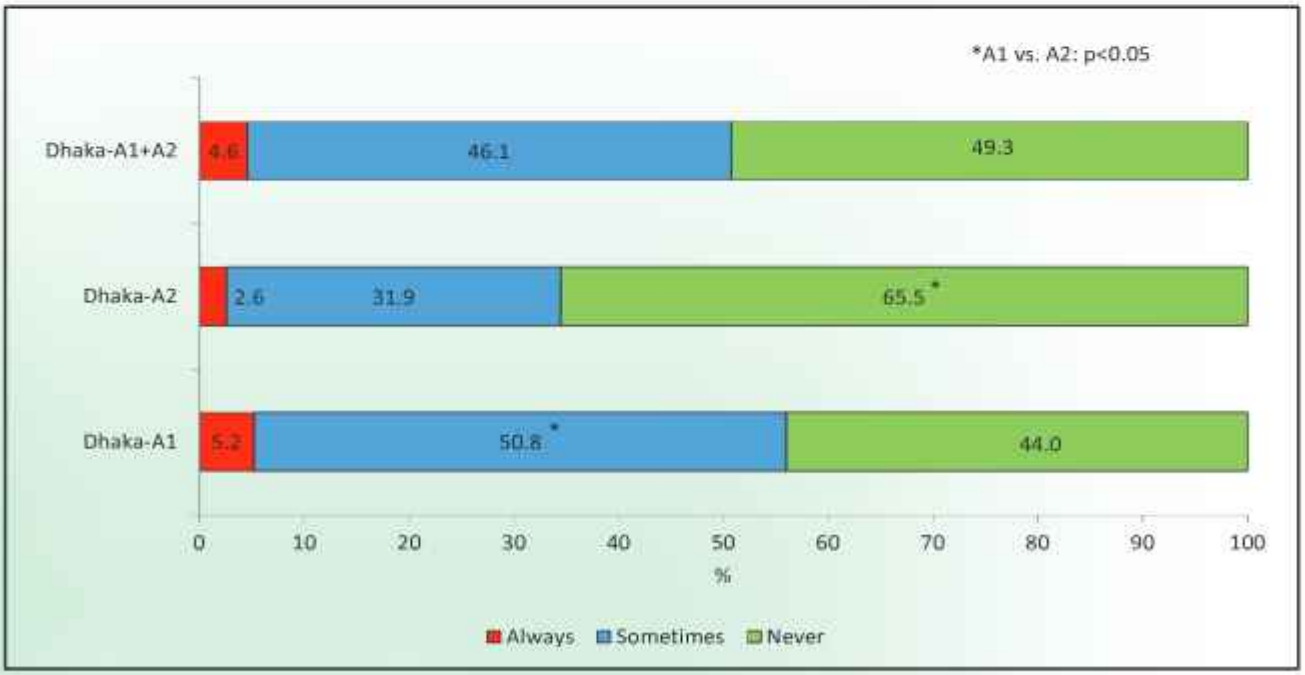


Figure-4: Frequency of lending needles/syringes in the last week (amongst those who injected in the last week)



Availability of clean needles/syringes (Table-11)

All PWID from both neighbourhoods knew where new needles/syringes were available (Table-17) and the vast majority mentioned pharmacies as a source (Table-11). In addition, more PWID in A1 than in A2 said that NGOs, whether directly from the DICs or through outreach workers, were the source of new needles/syringes ($p<0.05$).More PWID in A2 received their needles/syringes from drug sellers than those in A1 ($p<0.05$).

Table-11: Knowledge regarding availability of clean needles/syringes

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comp arison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Sources of new needle/syringe* (Denominator is who knew where new needles/syringes were available), % (95% CI)				
Pharmacy	97.4 (95.8-98.4)	97.9 (95.2-99.1)	NS	97.6 (96.2-98.4)
DIC/NGO workers	96.7 (95.1-97.8)	91.3 (85.8-94.8)	<0.05	95.3 (93.4-96.7)
Friends	6.2 (4.3-8.8)	1.7 (0.6-4.3)	NS	5.1 (3.6-7.1)
Drug partners	3.2 (2.2-4.7)	6.2 (3.7-10.2)	NS	4.0 (2.9-5.4)
Drug sellers	1.0 (0.4-2.5)	6.6 (3.8-11.3)	<0.05	2.4 (1.4-4.1)
Knew where to obtain (either through buying or free distribution) sterile needles/syringes tonight, % (95% CI)	99.4 (98.5-99.8)	98.8 (95.9-99.6)	NS	99.3 (98.5-99.7)

* Multiple responses

Mobility and injection of drugs while traveling (Table-12)

A small percentage of PWID (14.6%) travelled to and injected in another district in the last year and very few travelled abroad (N=7) all of whom went to different cities in India. Of the seven, six injected while abroad.

Table-12: Mobility and injection of drugs while traveling

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comp arison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Injected drugs in another district in the last year, % (95% CI)	16.0 (13.0-19.4)	10.3 (7.3-14.3)	NS	14.6 (12.3-17.1)
Travelled abroad in the last year, % (95% CI)	0.6 (0.3-1.5)	0.8 (0.2-3.5)	NS	0.7 (0.3-1.4)

Sexual behaviour with female partners (Table-13 and Figures- 5 to 8)

Female sex partners of PWID included those with whom they had non-transactional sex i.e. where no exchange of money or gifts for sex, and from whom they bought sex, i.e. FSWs.

In the last year, more PWID from A2 had non-transactional sex with female partners than those from A1 (65.7% and 47.6%, respectively, p<0.05). However, there was no difference in the percentages of PWID from the two neighbourhoods who bought sex from FSWs and overall, from both A1 and A2, 31.2% PWID reported buying sex from females. In the last year, PWID had multiple female sex partners and the mean numbers of partners were similar in the two neighbourhoods (1.1 and 5 for non-transactional female partners and FSWs respectively).

Condom use in last sex in the last year for non-transactional sex with female partners and with FSWs was reported by 23.5% and 55% of PWID respectively, and this was similar in the two neighbourhoods. However, for frequency of use, both in the last year and last month, more PWID in A2 compared to A1 reported using condoms some of the times during non-transactional sex with females (p<0.05) (Figures-5 and 6). There was no difference in frequency of condom use with FSWs between PWID in the two neighbourhoods (Figures-7 and 8). Among those who had sex in the last month and injected drugs, only 28.7% used condom in last vaginal/anal sex act.

Most PWID who bought sex last year did so from street based FSWs (65.8%).

Table-13: Sexual behaviour with female partners

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Had non-transactional vaginal/anal sex with females (including spouse) in the last one year, % (95% CI)	47.6 (43.3-51.8)	65.7 (58.4-72.3)	<0.05	52.1 (48.4-55.8)
Number of non-transactional vaginal/anal female sex partners in the last one year (Denominator is who had non-transactional sex with females in the last one year)	N=342	N=159		N=501
Mean (95% CI)	1.2 (1.1-1.2)	1.1 (1.0-1.2)	NS	1.1 (1.1-1.2)
Median (IQR)	1.0 (1.0-1.0)	1.0 (1.0-1.0)		1.0 (1.0-1.0)
Used condom in the last non-transactional vaginal/anal sex act with females in the last one year (Denominator is who had non-transactional vaginal/anal sex with females in the last one year), % (95% CI)	N=342 25.1 (19.9-31.0)	N=158 20.3 (14.1-28.3)	NS	N=500 23.5 (19.3-28.3)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comp arison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Number of non-transactional vaginal/anal sex acts with females in the last month (Denominator is who had non-transactional sex with females in the last month)	N=235	N=135		N=370
Mean (95% CI)	5.0 (4.3-5.8)	5.7 (4.9-6.4)	NS	5.3 (4.7-5.8)
Median (IQR)	3.0 (2.0-7.0)	5.0 (3.0-7.0)		4.0 (2.0-7.0)
Had vaginal/anal sex with FSWs in the last one year, % (95% CI)	33.1 (29.5-36.9)	25.6 (19.8-32.4)	NS	31.2 (28.1-34.5)
Number of FSWs from whom vaginal/anal sex was bought in the last one year (Denominator is who had sex with FSWs in the last one year)	N=238	N=62		N=300
Mean (95% CI)	5.0 (4.0-6.0)	5.2 (3.5-7.0)	NS	5.0 (4.1-5.9)
Median (IQR)	3.0 (1.0-6.0)	3.0 (2.0-6.0)		3.0 (1.0-6.0)
Number of FSWs from whom vaginal/anal sex was bought in the last month (Denominator is who had sex with FSWs in the last month)	N=133	N=33		N=166
Mean (95% CI)	1.7 (1.5-2.0)	1.8 (1.4-2.3)	NS	1.7 (1.6-1.9)
Median (IQR)	1.0 (1.0-2.0)	2.0 (1.0-2.0)		1.0 (1.0-2.0)
Number of vaginal/anal sex acts with FSWs in the last month (Denominator is who had sex with FSWs in the last month)	N=133	N=33		N=166
Mean (95% CI)	2.1 (1.8-2.4)	2.4 (1.7-3.1)	NS	2.2 (1.9-2.4)
Median (IQR)	2.0 (1.0-2.0)	2.0 (1.0-3.0)		2.0 (1.0-2.0)
Used condom in the last vaginal/anal sex act with FSWs in the last one year (Denominator is who had vaginal/anal sex with FSWs in the last one year), % (95% CI)	N=238 51.7 (44.4-58.8)	N=62 67.7 (57.1-76.8)	NS	N=300 55.0 (48.6-61.2)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Categorisation of last FSW (Denominator is who had sex with FSWs in the last one year), % (95% CI)	N=238	N=62		N=300
Street FSW	67.8 (59.3—75.2)	58.1 (43.3-71.5)	NS	65.8 (58.5-72.4)
Hotel FSW	16.6 (10.6-25.2)	27.4 (17.4-40.3)	NS	18.8 (13.5-25.6)
Residence FSW	14.7 (10.4-20.5)	14.5 (7.0-27.7)	NS	14.7 (10.7-19.8)
Brothel FSW	0.9 (0.2-3.6)	0	-	0.7 (0.2-2.8)
Ever used condom during vaginal/anal sex (Denominator is who ever had sex), % (95% CI)	N=720 80.5 (77.4-83.2)	N=240 86.3 (80.8-90.3)	NS	N=960 81.9 (79.4-84.2)
Used condom last time during last anal/vaginal sex act (Denominator is who injected in the last month and had sex), % (95% CI)	N=337 30.1 (26.0-34.7)	N=156 25.6 (19.3 (33.2)	NS	N=493 28.7 (25.1-32.6)

IQR refers to Inter Quartile Range
NS refers to not significant
'-' refers to comparison was not possible

Figure-5: Frequency of condom use in vaginal/anal non-transactional sex acts in the last year (amongst those who had vaginal/anal sex with non-transactional female sex partners in the last year)

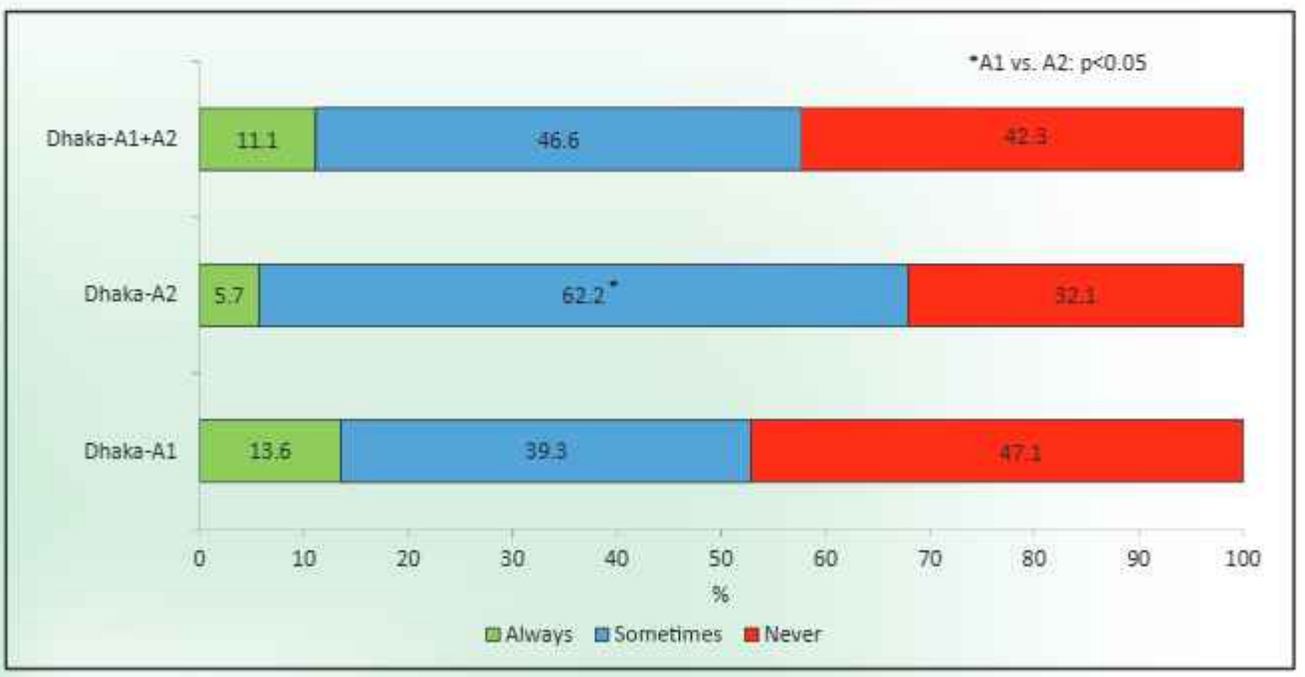


Figure-6: Frequency of condom use in vaginal/anal non-transactional sex acts in the last month (amongst those who had vaginal/anal sex with non-transactional female sex partners in the last month)

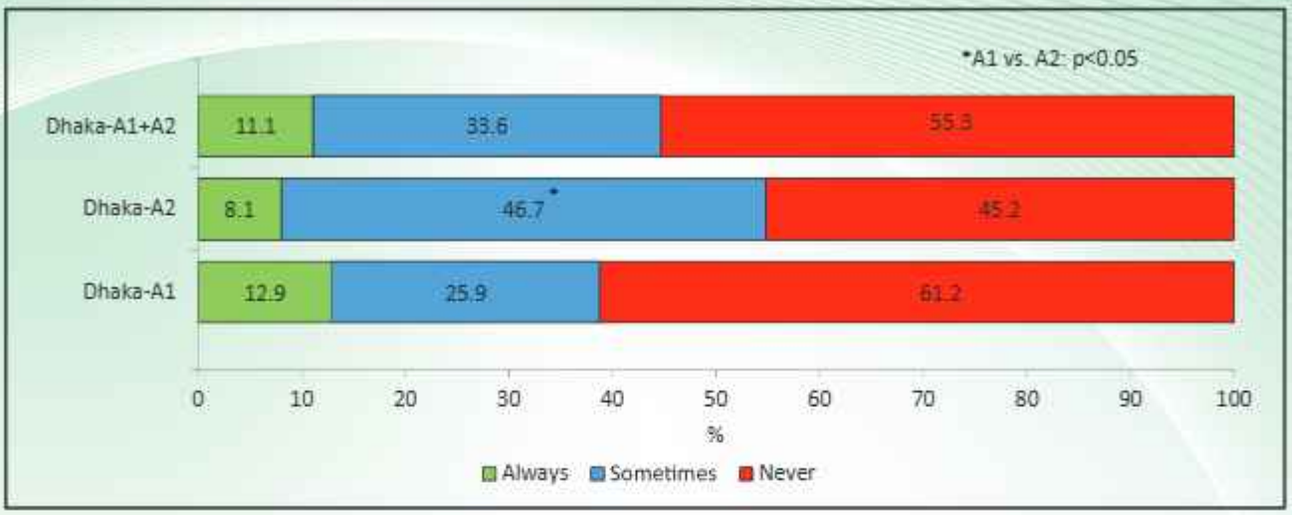


Figure-7: Frequency of condom use in vaginal/anal sex with transactional female sex partners in the last year (amongst those who had vaginal/anal sex with transactional female sex partners in the last year)

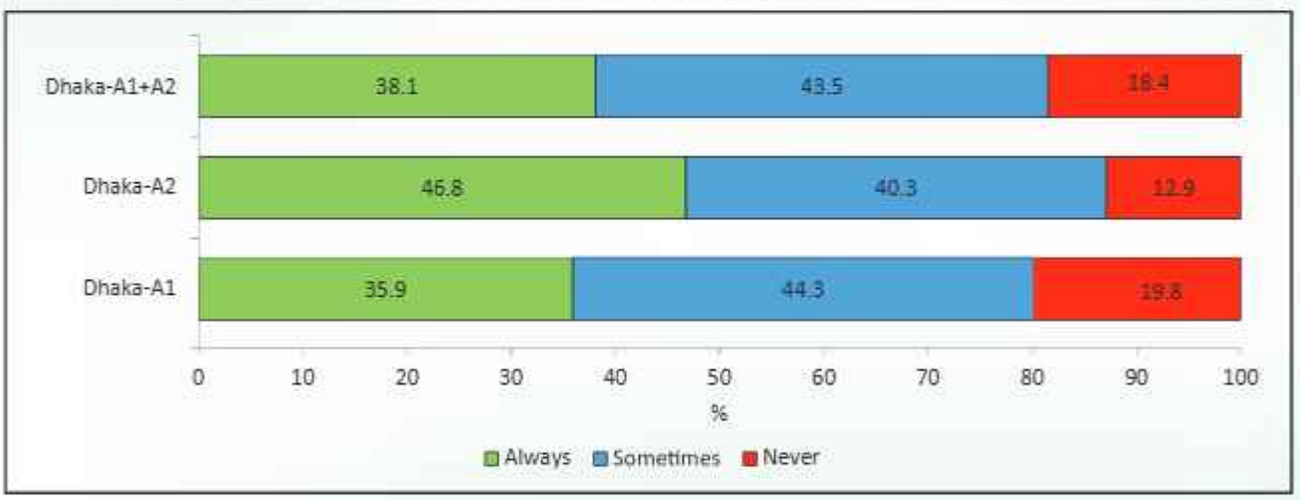
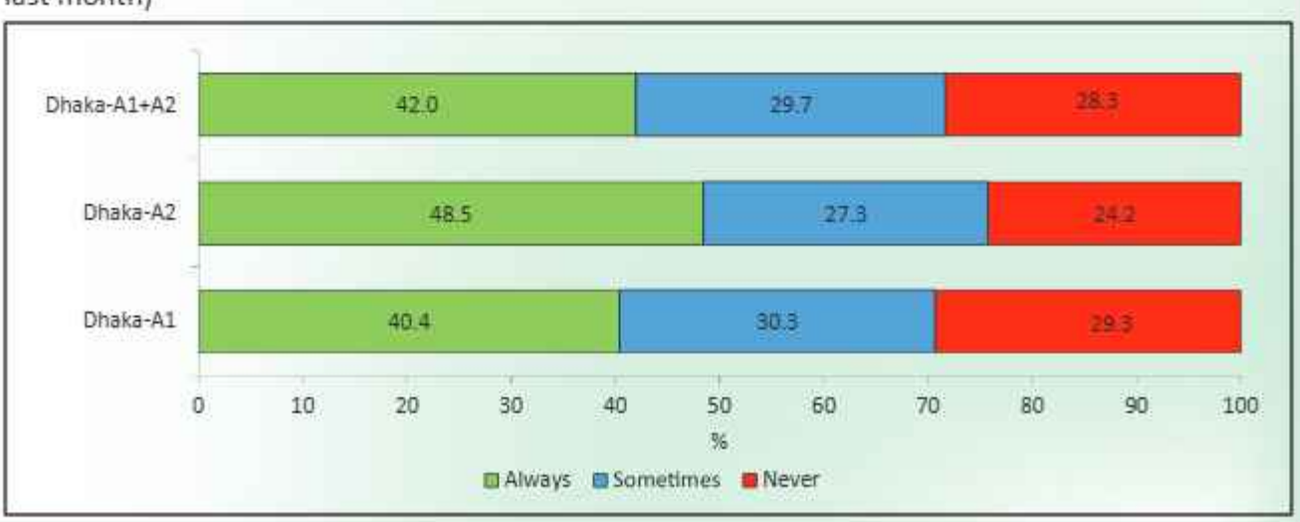


Figure-8: Frequency of condom use in vaginal/anal sex with transactional female sex partners in the last month (amongst those who had vaginal/anal sex with transactional female sex partners in the last month)



Transactional sex with males/hijra (Table-14)

Only 26 PWID said they had transactional anal sex with either males or hijra in the last year and although most of them (n=23) were in A1, the difference between A1 and A2 was not significant. Among these, multiple sex partners were reported with an average of 2.3 in both areas combined. Under half (41.2%) used a condom in last anal sex with 36.6% saying they never used condoms in the last year.

Table-14: Transactional sex with males/hijra

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Had transactional anal sex with male/hijra in last one year, % (95% CI)	3.3 (2.1-5.1)	1.2 (0.4-3.9)	NS	2.8 (1.8-4.2)
Number of male/hijra sex partners with whom they had transactional anal sex in the last one year (Denominator is who had transactional anal sex with male/hijra sex partners in the last one year)	N=23	N=3		N=26
Mean (95% CI)	2.2 (1.3-3.2)	3.0	NS	2.3 (1.5-3.1)
Median (IQR)	2.0 (1.0-2.0)	3.0 (3.0-3.0)		2.0 (1.0-3.0)
Had transactional anal sex with male/hijra in last month, % (95% CI)	1.2 (0.5-2.5)	0.4 (0.1-3.0)	NS	1.0 (0.5-2.0)
Number of male/hijra sex partners in the last month with whom they had transactional anal sex (Denominator is who had transactional anal sex with male/hijra sex partners in the last month)	N=7	N=1		N=8
Mean (95% CI)	1.4 (1.0-1.9)	Only 1 person	-	1.4 (1.0-1.8)
Median (IQR)	1.0 (1.0-2.0)			1.0 (1.0-2.0)
Number of transactional anal sex acts with male/hijra sex partners in the last month (Denominator is who had transactional anal sex with male/hijra sex partners in the last month)	N=7	N=1		N=8

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Mean (95% CI) Median (IQR)	2.2 2.0 (1.0-4.0)	1.0 1.0 (1.0-1.0)	-	2.1 1.0 (1.0-4.0)
Used condom in the last transactional anal sex act with male/hijra sex partners in the last one year (Denominator is who had transactional anal sex with male/hijra sex partners in the last one year), % (95% CI)	N=22 44.2 (22.5-68.4)	N=3 33.3 (2.2-91.9)	NS	N=25 42.9 (22.5-66.1)
Frequency of condom use in transactional anal sex with male/hijra sex partners in the last one year (Denominator is who had transactional anal sex with male/hijra sex partners in the last one year), % (95% CI)	N=22	N=3		N=25
Always	35.6 (17.9-58.3)	33.3 (2.2-91.9)	NS	35.3 (18.2-57.2)
Sometimes	31.8 (13.2-58.8)	0	-	28.1 (11.7-53.4)
Never	32.7 (15.4-56.4)	66.7 (8.1-97.8)	NS	36.6 (18.9-58.9)

I R refers to Inter uartile Range

NS refers to not significant

'-' refers to comparison was not possible

Selling sex and having group sex in the last year

Only 1 PWID said they had sold sex in exchange of money or drugs in the last yar of whom one sold to a male, 12 to females and one sold sex to both female and hijra Of thes PWID who sold sex only 2 used a condom in last sex Group sex was also uncommon and reported by eight PWID

Access to condoms (Table-15)

More PWID in A2 said they had easy access to condoms compared to those from A1 p 0 0 Amongst PWID who had sex in the last month and used condoms, the main sources of those condoms were pharmacies and NGOs providing harm reduction services 7 2 and 7 respectively and this was similar for the two neighbourhoods Breaking of condoms while having sex in the last month was reported by no one

Table-15: Access to condoms

Indicators	Dhaka A1 N=721 unless otherwise stated %(95 % CI)	Dhaka A2 N=242 unless otherwise stated %(95 % CI)	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated %(95 % CI)
Had easy access to condoms in the last month	76.9 (73.0-80.4)	83.5 (77.2-88.3)	NS	78.6 (75.5-81.4)
Had easy access to condoms in the last month (among those who had sex in the last month)	N=176	N=90		N=266
Yes	91.5 (87.0-94.6)	94.4 (87.4-97.7)	NS	92.6 (89.1-95.0)
No	8.5 (5.4-13.0)	5.6 (2.3-12.6)	NS	7.4 (5.0-10.9)
Reasons for not having easy access to condoms in the last month* (Denominator is who reported not having easy access to condoms in the last month)	N=17	N=5		N=22
DIC is far away	10.2 (1.2-51.4)	20.0 (1.8-77.4)	NS	12.7 (2.7-43.5)
DIC/Depot is closed	45.0 (22.5-69.7)	0	-	33.3 (17.3-54.5)
Didn't get outreach worker when needed	78.4 (50.6-92.7)	20.0 (1.8-77.4)	NS	63.3 (42.4-80.1)
Shop/Pharmacy is far away	5.1 (0.6-33.4)	20.0 (1.8-77.4)	NS	9.0 (1.8-34.1)
Shop/Pharmacy is closed	23.7 (8.6-50.7)	80.0 (22.6-98.2)	NS	38.3 (21.6-58.3)
Feel ashamed to buy	22.6 (7.6-51.0)	0	-	16.8 (5.9-39.4)
Not willing to carry	24.3 (8.3-53.4)	20.0 (1.8-77.4)	NS	23.2 (8.8-48.7)
Sources of condoms in the last month* (Denominator who had sex in last month and used condom)	N=176	N=90		N=266
Shop	34.6 (27.5-42.4)	77.8 (65.6-86.5)	<0.05	49.6 (42.7-56.4)
Pharmacy	96.3 (93.1-98.0)	98.9 (92.3-99.8)	NS	97.2 (94.8-98.5)
Harm reduction NGOs	90.7 (83.7-94.9)	87.8 (79.9-92.8)	NS	89.7 (84.7-93.2)
Bar/guest house/hotel	3.2 (1.3-7.5)	0	_	2.1 (0.8-5.2)
Friends	0.9 (0.2-3.6)	0	_	0.6 (0.1-2.3)
FSW	4.0 (1.2-12.1)	2.2 (0.5-9.0)	NS	3.4 (1.3-8.5)

*Multiple responses

Knowledge of STIs, self-reported STIs and care-seeking behaviour (Table-16)

Having no knowledge of STI symptoms was reported by 13.3% of PWID. In the last year, only 32 PWID said they suffered from at least one STI symptom of which 28 were in A1 and four in A2. On average, they waited 9.5 days before seeking treatment. The measures taken to avoid STIs were varied and more from A1 compared to A2 said they washed their genitals while more from A2 compared to A1 said they had sex with a trusted partner ($p<0.05$ for both).

Table-16: Knowledge of STIs, self-reported STIs and care-seeking behaviour

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Knowledge about STI symptoms*, % (95%CI)				
No knowledge on STI symptoms	12.2 (9.1-16.3)	16.5 (12.4-21.7)	NS	13.3 (10.7-16.4)
Discharge from penis	54.4 (49.0-59.6)	36.8 (30.8-43.1)	<0.05	49.9 (45.7-54.2)
Burning pain on urination	60.9 (55.7-65.8)	36.8 (28.6-45.8)	<0.05	54.8 (50.4-59.1)
Genital ulcer/sore	67.5 (62.8-71.9)	64.9 (58.6-70.7)	NS	66.9 (63.1-70.5)
Swellings in groin area	2.9 (1.9-4.3)	0.4 (0.1-3.1)	NS	2.3 (1.5-3.3)
Anal discharge	2.7 (1.3-5.3)	0.4 (0.1-2.9)	NS	2.1 (1.0-4.3)
Anal ulcer/sore	7.7 (5.8-10.3)	9.5 (6.2-14.3)	NS	8.2 (6.4-10.3)
Genital itching	0.7 (0.3-1.9)	0.4 (0.1-3.1)	NS	0.6 (0.3-1.6)
Had urethral discharge in the last year, % (95%CI)	2.0 (1.1-3.4)	0.8 (0.2-3.5)	NS	1.7 (1.0-2.8)
Had anal discharge in the last year	0	0	-	0
Had genital ulcer/sore in the last year, % (95%CI)	2.0 (1.1-3.3)	1.2 (0.4-3.7)	NS	1.8 (1.1-2.8)
Had at least one STI symptom (urethral discharge or anal discharge or genital ulcer/sore) in the last year, % (95%CI)	3.5 (2.2-5.7)	1.7 (0.6-4.3)	NS	3.1 (2.0-4.6)
The first choice for seeking care for the last STI symptom in the last year (Denominator is who reported STI symptoms in the last year), % (95%CI)	N=28	N=4		N=32
Qualified practitioner[⊖]	30.5 (14.8-52.5)	75.0 (16.2-97.9)	NS	36.5 (20.7-55.9)
Unqualified practitioner[¶]	44.6 (25.1-66.0)	25.0 (2.1-83.8)	NS	42.0 (24.0-62.3)
No treatment	24.9 (11.0-47.1)	0	-	21.5 (9.7-41.1)
Number of days waited days before seeking treatment for last STI episode in the last year (Denominator is who sought STI treatment in last year)	N=20	N=4		N=24
Mean (95% CI)	9.6 (6.1-13.1)	9.3 (0.0-21.6)	NS	9.5 (5.9-13.2)
Median (IQR)	7.0 (4.0-15.0)	3.5 (3.0-15.5)		5.0 (4.0-15.0)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Amount of expenditure (in taka) for the last STI treatment in the last year (Denominator is who reported STI symptoms in the last year and sought treatment)	N=20	N=4		N=24
Mean (95% CI)	558.8 (0.0-1134.0)	675.0 (22.2-1327.8)	NS	578.9 (90.6-1067.3)
Median (IQR)	100.0 (0.0-200.0)	600.0 (250.0-1100.0)		100.0 (0.0-700.0)
Measures taken to avoid STIs*, % (95%CI)				
Nothing	11.8 (9.4-14.9)	19.0 (11.6-29.6)	NS	13.6 (10.6-17.3)
Wash genital organs with water/soap/Dettol/urine	26.9 (22.9-31.2)	1.7 (0.6-4.3)	<0.05	20.5 (17.3-24.2)
Always use condoms	16.1 (12.5-20.5)	9.1 (5.2-15.5)	NS	14.4 (11.3-18.0)
Sometimes use condoms	29.3 (25.7-33.2)	18.6 (13.0-25.9)	NS	26.6 (23.1-30.4)
Have sex with trusted partner	25.4 (21.9-29.1)	50.4 (43.0-57.8)	<0.05	31.7 (28.4-35.1)
Avoid sex with FSW	18.8 (14.5-24.1)	7.4 (4.2-12.9)	<0.05	16.0 (12.5-20.2)
Have sex with clean partner	12.2 (9.5-15.6)	7.0 (4.4-10.9)	NS	10.9 (8.8-13.4)
Have less sex	5.5 (3.8-8.1)	3.7 (1.8-7.4)	NS	5.1 (3.6-7.1)
Take medicines	0.1 (0.0-0.8)	0.4 (0.1-2.4)	NS	0.2 (0.0-0.7)
Do not have sex	10.4 (7.8-13.8)	4.1 (2.4-7.1)	<0.05	8.8 (6.6-11.6)

[Φ]Formal medicine refers to hospital, private clinic, private doctor and NGO clinic

[¶]Non-formal medicine refers to drug seller, canvasser/traditional healer, advice/treatment from friends and self-medication

*Multiple responses

IQR refers to Inter Quartile Range

Knowledge of HIV and its modes of prevention and transmission and availability of key services (Table-17)

All PWID had heard of HIV and AIDS but only 29.2% had comprehensive knowledge about its modes of transmission with no differences between PWID in A1 and A2. However, several differences were observed between PWID in A1 and A2 regarding measures taken to avoid HIV. More in A1 than in A2 said that they washed their genitals and sometimes used condoms ($p<0.05$ for both) while more in A2 than in A1 said that they did not share needles/syringes or had sex only with trusted partners ($p<0.05$ for both).

Table-17: Knowledge of HIV and its modes of prevention and transmissionand availability of key services

Indicators	Dhaka A1 N=721 unless otherwise stated %(95 % CI)	Dhaka A2 N=242 unless otherwise stated %(95 % CI)	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated %(95 % CI)
Ever heard about HIV/AIDS	100.0	100.0	-	100.0
Mentioned condom use (correctly and consistently in any type of sex) as a mode of prevention	99.0 (98.0-99.5)	97.5 (95.3-98.7)	NS	98.6 (97.7-99.1)
Mentioned avoiding anal sex as a mode of prevention	78.8 (75.5-81.7)	77.7 (68.1-85.0)	NS	78.5 (75.2-81.5)
Mentioned HIV can be transmitted by mosquito bites	48.8 (44.2-53.5)	55.8 (47.9-63.4)	NS	50.6 (46.5-54.6)
Mentioned HIV can be transmitted by sharing food with an HIV infected person	34.1 (29.3-39.2)	51.2 (43.4-59.0)	<0.05	38.4 (33.9-43.2)
Mentioned not sharing needles/syringes as a mode of prevention	99.2 (98.1-99.6)	98.8 (96.6-99.6)	NS	99.1 (98.2-99.5)
Mentioned avoiding multiple sex partners as a mode of prevention	88.7 (85.3-91.4)	93.0 (89.8-95.2)	NS	89.8 (87.3-91.8)
Mentioned one can tell by looking at someone whether he/she is infected with HIV	15.5 (12.4-19.2)	25.2 (19.0-32.6)	NS	17.9 (14.7-21.8)
Had comprehensive knowledge of HIV[§]	31.5 (27.1-36.4)	22.3 (17.7-27.7)	NS	29.2 (25.3-33.4)
Measures taken to avoid HIV* (Denominator is who have heard about HIV)				
Do nothing	7.5 (5.6-9.9)	14.0 (8.9-21.5)	NS	9.2 (7.0-11.9)
Do not share needles/syringes	36.9 (31.6-42.5)	59.1 (50.1-67.5)	<0.05	42.5 (37.1-48.0)
Wash genital organs with water/soap/Dettol/urine	16.3 (13.5-19.4)	0.8 (0.2-3.4)	<0.05	12.4 (10.1-15.1)
Always use condoms	12.5 (10.0-15.6)	9.1 (5.2-15.5)	NS	11.7 (9.5-14.3)
Sometimes use condoms	25.7 (22.0-29.9)	15.3 (10.5-21.7)	<0.05	23.1 (19.7-26.9)
Have sex with trusted/ clean partner	33.2 (27.9-39.0)	48.8 (40.8-56.8)	<0.05	37.1 (32.5-42.0)
Have less sex	8.3 (6.4-10.8)	4.5 (2.5-8.0)	NS	7.4 (5.7-9.4)
Others	6.0 (4.4-8.1)	0.8 (0.2-2.9)	<0.05	4.7 (3.5-6.3)

Indicators	Dhaka A1 N=721 unless otherwise stated %(95 % CI)	Dhaka A2 N=242 unless otherwise stated %(95 % CI)	Comp arison p-value	Dhaka A1+A2 N=963 unless otherwise stated %(95 % CI)
Knew where new needles/syringes are available	100.0	100.0	NS	100.0
Knew where HIV can be tested confidentially	82.6 (77.4-86.7)	86.0 (79.0-90.9)	NS	83.4 (79.1-87.0)

[§]Computed by correct answers to five questions:

1) Can people reduce their risk of HIV by using a condom correctly and consistently in any type of sex
2) Can people reduce their risk of HIV by avoiding sex with multiple partners
3) Can a person get HIV through mosquito bites
4) Can a person get HIV by sharing a meal with someone who is HIV infected and
5) Can you tell by looking at someone whether s/he is infected with HIV

*Multiple responses

Confidential HIV testing (Table-18)

Many PWID from both A1 and A2 (83.4%) knew where to get an HIV test where confidentiality would be maintained (Table-17) and 75.5% had been tested for HIV at some point in their lives (Table-18). Of the 76 PWID who had never been tested for HIV, the most common reason cited was that they believed either that they were not infected or that the test was not required (69.3%). More PWID in A2 were also worried about stigma from NGO staff than those in A1 ($p<0.05$).

Of those who were tested for HIV, most were tested through the NGOs providing harm reduction services and more in A1 than in A2 had received their test result (89.8% and 70.5% respectively, $p<0.05$). In the last year, only 26.8% had been tested for HIV and had received their result and this was similar for PWID in the two neighbourhoods.

Table-18: Confidential HIV testing

Indicators	Dhaka A1 N=721 unless otherwise stated %(95 % CI)	Dhaka A2 N=242 unless otherwise stated %(95 % CI)	Comp arison p-value	Dhaka A1+A2 N=963 unless otherwise stated %(95 % CI)
Ever tested for HIV	73.9 (67.9-79.1)	80.2 (72.5-86.1)	NS	75.5 (70.4-79.9)
Reasons for never testing for HIV* (Denominator is who knew about confidential HIV testing and never tested for HIV)	N=62	N=14		N=76
Fear or concern of stigma by NGO staff	4.0 (1.1-13.3)	14.3 (2.1-56.7)	<0.05	5.9 (1.8-17.2)
Fear or concern of stigma by neighbours	10.8 (5.7-19.4)	28.6 (5.9-71.9)	NS	14.1 (7.2-25.7)

Indicators	Dhaka A1 N=721 unless otherwise stated %(95 % CI)	Dhaka A2 N=242 unless otherwise stated %(95 % CI)	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated %(95 % CI)
Violence/fear of police harassment or arrest or experienced violence	0	7.1 (1.1-34.0)	-	1.3 (0.2-9.1)
Believed not infected with HIV/did not require	70.4 (59.8-79.2)	64.3 (27.7-89.4)	NS	69.3 (57.9-78.7)
Others	16.0 (9.1-26.6)	7.1 (0.9-38.3)	NS	14.4 (8.5-23.3)
Avoidance of HIV services because of stigma and discrimination[5]	1.3 (0.7-2.2)	1.7 (0.3-8.0)	NS	1.4 (0.7-2.5)
Name of HIV testing facility (Denominator is who had ever tested for HIV)	N=535	N=194		N=729
Government hospital	0.9 (0.4-2.0)	3.6 (0.8-14.4)	NS	1.7 (0.7-4.1)
Harm reduction NGOs	93.5 (90.6-95.6)	95.9 (85.8-98.9)	NS	94.1 (91.3-96.1)
HTC centres in other NGOs	5.5 (3.5-8.6)	0.5 (0.1-3.7)	NS	4.2 (2.6-6.7)
Motivation for testing HIV (Denominator is who had ever tested for HIV)	N=535	N=194		N=729
Self-motivated	10.8 (8.3-13.8)	15.5 (10.0-23.1)	NS	12.0 (9.6-14.9)
Someone advised	89.1 (86.0-91.5)	84.0 (76.5-89.5)	NS	87.7 (84.8-90.1)
Needed the test for other reason	0.2 (0-1.2)	0.5 (0.1-3.0)	NS	0.3 (0.1-1.0)
Who inspired testing for HIV (Denominator is who had ever tested for HIV & someone advised)	N=474	N=163		N=637
NGO worker	97.9 (96.0-98.9)	97.5 (92.9-99.2)	NS	97.8 (96.2-98.8)
Friend (Non-PWID)	1.0 (0.4-2.7)	1.2 (0.3-5.3)	NS	1.1 (0.5-2.4)
Friend (PWID)	0.4 (0.1-1.6)	1.2 (0.3-5.2)	NS	0.6 (0.2-1.6)
Family member	0.7 (0.3-1.8)	0	-	0.5 (0.2-1.4)
Received HIV testing result (Denominator is who had ever tested for HIV)	N=535	N=193		N=728
	89.8 (85.7-92.8)	70.5 (61.8-77.9)	<0.05	84.6 (80.4-88.1)
Time since the most recent HIV test (Denominator is who had ever tested for HIV)	N=535	N=194		N=729
Within one year	40.7 (36.1-45.6)	52.6 (44.0-61.0)	NS	43.9 (39.4-48.5)
More than one year	59.3 (54.4-63.9)	47.4 (39.0-56.0)	NS	56.1 (51.5-60.6)
Received HIV testing and counselling in the last year and knew the result[Φ]	28.0 (23.2-33.3)	23.1 (17.0-30.6)	NS	26.8 (22.9-31.1)

*Multiple responses

[§]Who answered yes to one of the following in response to:

Why did you not seek HIV testing/prevention/treatment services?

1. Fear of or concern about stigma by staff or neighbours

2. Fear of or concern about or experienced violence

3. Fear of or concern about or experienced police harassment or arrest

[Φ] Computed by who replied "yes" to both questions:

1. Have you been tested for HIV in the last 12 months?

2. If yes, I don't want to know the results, but did you receive the results of that test?

Self-perception of risk of HIV and reasons for those perceptions (Table-19 and Figure-9)

More PWID in A1 than in A2 perceived themselves to be at high risk of HIV (12% and 3.7% respectively, p<0.05) (Figure-9). However, the vast majority (71%) considered themselves to be at little or no risk of HIV and this perception was more prevalent among PWID in A2 than in A1 (83.5% and 66.9% respectively, p<0.05). More PWID in A1 were not able to assess their own risk of HIV (10.6%) compared to those in A2 (2.5%, p<0.05) (Figure-9).

The most common reason for considering themselves to be at high risk of HIV cited by PWID from both areas was that they shared used needles/syringes (84%). There were differences in the reasons provided by PWID in A1 and A2 as to why they considered themselves to be at little or no risk of HIV. More PWID in A1 than in A2 said they were at low risk because they shared needles/syringes only some of the times (p<0.05). More PWID in A2 than A1 felt safe because they never shared needles/syringes, had sex only with a trusted partner, kept themselves neat and clean, had less sex or washed their genitals after sex (p<0.05 for all).

Figure-9: Assessing own risk of HIV

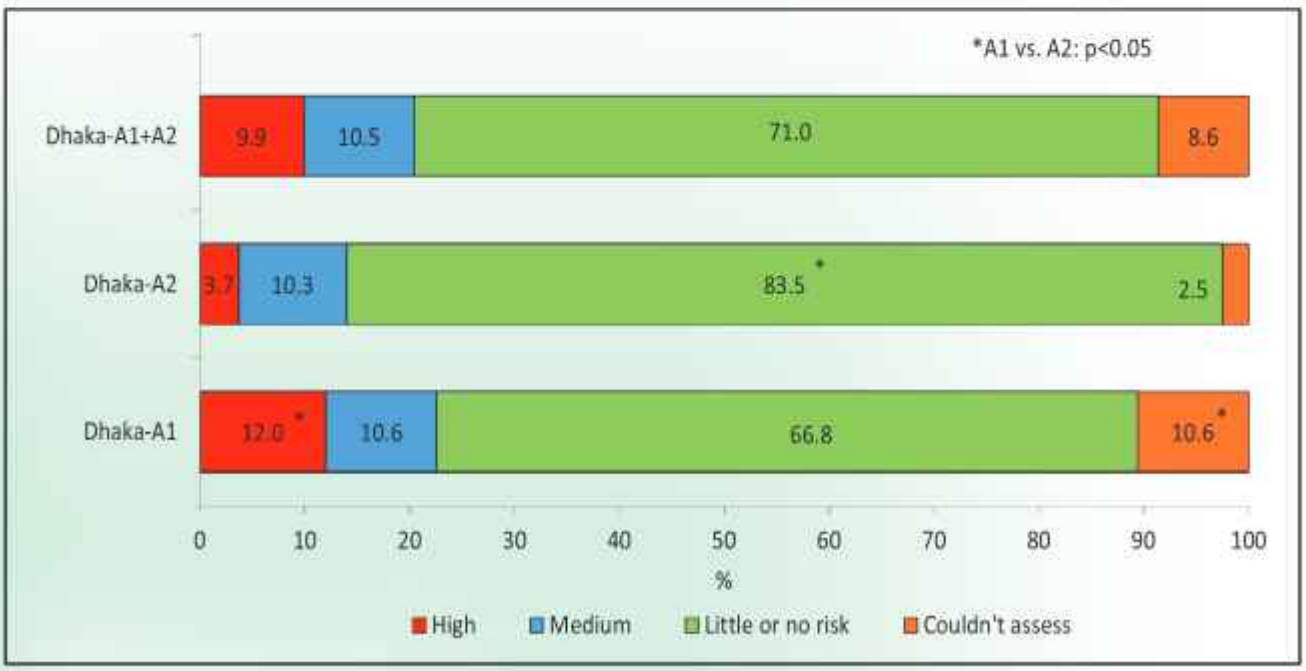


Table-19: Reasons for HIV risk perceptions

Indicators	Dhaka A1 N=721 unless otherwise stated %(95 % CI)	Dhaka A2 N=242 unless otherwise stated %(95 % CI)	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated %(95 % CI)
Reasons for assessing themselves to be at high or medium risk (Denominator is who assessed themselves to be at high or medium risk)*	N=159	N=34		N=193
Risky behaviour	30.6 (22.9-39.5)	35.3 (25.2-46.9)	NS	31.4 (24.6-39.1)
Frequent vaginal/anal sex	3.5 (1.8-6.9)	14.7 (6.7-29.2)	<0.05	5.4 (3.3-9.0)
Do not use condom	11.3 (6.9-17.9)	2.9 (0.5-15.5)	NS	9.8 (6.2-15.2)
Irregular use of condoms	42.1 (33.7-51.0)	14.7 (5.4-34.4)	NS	37.3 (29.5-45.9)
Share needles/syringes	83.7 (74.8-89.9)	85.3 (70.2-93.5)	NS	84.0 (76.5-89.4)
Reasons for assessing themselves to be at little or no risk (Denominator is who assessed themselves to be at little or no risk)*	N=501	N=202		N=703
Always use condoms	14.2 (11.2-17.9)	10.9 (6.4-18.0)	NS	13.2 (10.5-16.4)
Have clean/healthy sex partners	1.7 (0.9-3.0)	3.7 (1.9-7.1)	NS	2.2 (1.4-3.4)
Never share needles/syringes	47.7 (41.3-54.1)	71.3 (62.6-78.7)	<0.05	54.7 (48.5-60.7)
Sometimes share needles/ syringes	38.1 (33.4-43.1)	9.9 (5.5-17.3)	<0.05	29.8 (25.2-34.8)
Irregular use of condom	11.7 (9.1-15.0)	6.9 (4.2-11.3)	NS	10.3 (8.2-12.9)
Have sex with trusted partner	36.9 (32.6-41.4)	52.0 (45.3-58.6)	<0.05	41.4 (37.5-45.4)
Be neat and clean	28.3 (24.4-32.6)	5.0 (2.9-8.4)	<0.05	21.4 (17.9-25.4)

*Multiple responses

Efforts at quitting injection of drugs (Table-20)

Most PWID (80.1%) had tried to quit injecting drugs some time in their lives with multiple attempts. Attempts at quitting were most frequently through detoxification clinics. However, many tried abstention by themselves and this was more common in A2 than in A1 (55.6% and 39%, respectively, p<0.05).

Table-20: Efforts at quitting injection of drugs

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Ever tried to quit injecting drugs, % (95% CI)	82.2 (78.6-85.4)	73.6 (67.4-78.9)	NS	80.1 (77.0-82.8)
Number of attempts made at quitting injecting drugs (Denominator is who ever attempted to quit injecting drugs)	N=593	N=178		N=771
Mean (95% CI)	2.6 (2.5-2.8)	3.4 (3.0-3.8)	<0.05	2.8 (2.6-3.0)
Median (IQR)	2.0 (1.0-3.0)	3.0 (2.0-4.0)		2.0 (2.0-3.0)
Method used for quitting injecting drugs* (Denominator is who ever attempted to quit injecting drugs), % (95% CI)	N=593	N=178		N=771
Detoxification clinic	64.5 (59.0-69.6)	60.7 (54.8-66.3)	NS	63.6 (59.2-67.8)
Hospital¶	0.2 (0-1.3)	0	-	0.1 (0-1.0)
Private clinic	0	0.6 (0.1-3.6)	-	0.1 (0-0.9)
Went to village home	12.4 (9.0-16.7)	12.9 (8.3-19.5)	NS	12.5 (9.6-16.1)
Went for Tablig Jamat	1.5 (0.8-2.6)	1.7 (0.4-6.8)	NS	1.5 (0.8-2.7)
Self-motivated abstention	39.0 (34.4-43.8)	55.6 (48.0-63.0)	<0.05	42.9 (38.9-46.9)
Sent to jail	1.9 (1.1-3.4)	0.6 (0.1-3.6)	NS	1.6 (0.9-2.8)
Others	0.5 (0.2-1.6)	1.7 (0.5-5.3)	NS	0.8 (0.4-1.8)

IQR refers to Inter Quartile Range

NS refers to not significant

'-' refers to comparison was not possible

*Multiple responses

¶Mental Hospital in Pabna

Violence against PWID (Table-21)

More PWID in A1 than in A2 said they were beaten in the last year for drug misuse (29.4% and 19.8% respectively, p<0.05). Most commonly they were beaten by officials in uniform and by local people. In the last year, 20% said they had been jailed and most commonly for taking drugs.

Table-21: Violence against PWID

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Reported being beaten in the last year due to drug dependence, % (95% CI)	29.4 (25.7-33.2)	19.8 (15.3-25.3)	<0.05	27.0 (24.0-30.2)
Number of times beaten in the last year	N=210	N=48		N=258
Mean (95% CI)	3.0 (2.4-3.6)	2.2 (1.4-3.1)	NS	2.9 (2.4-3.4)
Median (IQR)	2.0 (1.0-3.0)	2.0 (1.0-2.0)		2.0 (1.0-3.0)
Beating was perpetuated by* (Denominator is who reported being beaten in the last year), % (95% CI)	N=210	N=48		N=258
Men in uniform/official from narcotics control	53.9 (48.6-59.0)	50.0 (37.9-62.1)	NS	53.2 (48.2-58.0)
Hoodlums	21.3 (16.0-27.6)	14.6 (6.1-31.0)	NS	20.0 (15.3-25.8)
Local people	54.9 (45.9-63.6)	41.7 (27.3-57.6)	NS	52.4 (44.9-59.9)
Drug peddlers	0.5 (0.1-3.1)	0	-	0.4 (0.1-2.6)
Family members/Relatives	16.0 (12.3-20.5)	18.7 (8.9-35.2)	NS	16.5 (12.8-21.0)
Reported being jailed in the last year, % (95% CI)	21.4 (17.1-26.4)	15.7 (11.6-20.9)	NS	20.0 (16.6-23.8)
Reasons for being jailed in the last year (Denominator is who had been to jail in the last year), % (95% CI)	N=155	N=38		N=193
For taking drugs	93.2 (86.2-96.8)	97.4 (84.7-99.6)	NS	94.0 (88.3-97.0)
For stealing	3.9 (1.2-11.8)	2.6 (0.4-15.3)	NS	3.6 (1.3-9.8)

IQR refers to Inter Quartile Range
NS refers to not significant
'-' refers to comparison was not possible

Exposure to HIV/AIDS prevention programmes (Table-22)

Participating in any HIV/AIDS prevention programme ever in their lifetime was reported by more PWID in A2 than in A1 (93.8% and 79.4% respectively, $p<0.05$) but there were no differences in the percentages participating in the last year, last three months or last month. Amongst all those who participated in these programmes in the last month, almost all received sterile needles/syringes from harm reduction NGOs and few, from A1 only (3.2%), received Opioid Substitution Therapy (OST). More PWID from A1 than A2 participated in educational programmes, received treatment for STIs and general health complaints ($p<0.05$ for all) in the last month and the last year. In the last three months,more PWID in A1 received a combination of prevention services than those in A2 ($p<0.05$).

Table-22: Exposure to HIV/AIDS prevention programmes

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Ever participated in HIV/AIDS prevention programmes, % (95% CI)	79.4 (72.3-85.1)	93.8 (89.4-96.4)	<0.05	83.0 (77.8-87.2)
Duration of involvement with HIV/AIDS prevention programmes (Denominator is who had ever participated in any HIV/AIDS intervention programmes), (in months) % (95% CI)	N=570	N=227		N=797
Mean (95% CI)	83.2 (76.4-89.9)	70.8 (63.8-77.7)	NS	79.6 (74.5-84.8)
Median (IQR)	72.0 (48.0-120.0)	60.0 (36.0-96.0)		72.0 (42.0-120.0)
Time since last participation in HIV/AIDS prevention programmes (Denominator is who had ever participated in any HIV/AIDS prevention programmes) (in months)	N=570	N=227		N=797
Mean (95% CI)	0.6 (0.2-1.0)	2.5 (1.2-3.7)	<0.05	1.1 (0.6-1.6)
Median (IQR)	0 (0-0)	0 (0-0)		0 (0-0)
Participated in any HIV/AIDS prevention programme in the last year, % (95% CI)	78.4 (71.1-84.3)	87.2 (81.3-91.4)	NS	80.6 (75.2-85.1)
Participated in any HIV/AIDS prevention programme in the last three months, % (95% CI)	76.3 (68.7-82.6)	81.8 (73.8-87.8)	NS	77.7 (71.8-82.6)
Participated in any HIV/AIDS prevention programme in the last month, % (95% CI)	73.0 (65.3-79.5)	77.7 (69.1-84.4)	NS	74.2 (68.2-79.4)
Sources of receiving HIV/AIDS prevention programmes last time (Denominator is who had ever participated in any HIV/AIDS intervention programmes), % (95% CI)	N=570	N=227		N=797
Harm reduction NGOs	100.0	100.0	-	100.0

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Number of times participated in the prevention programmes in the last month (Denominator is who had participated in the HIV/AIDS prevention programmes in the last month)	N=526	N=186		N=712
Mean (95% CI)	14.2 (13.4-15.1)	7.5 (5.9-9.1)	<0.05	12.5 (11.5-13.5)
Median (IQR)	15.0 (7.0-20.0)	4.0 (2.0-12.0)		12.0 (5.0-20.0)
Reported being involved with different types of prevention programmes in the last month* (Denominator is who participated in any prevention programmes in the last month), % (95% CI)	N=526	N=188		N=714
Needles/ syringes programme	100.0	97.9 (94.7-99.2)	-	99.4 (98.5-99.8)
OST	2.7 (1.5-5.1)	0	-	2.0 (1.1-3.8)
Educational programme	57.7 (52.7-62.5)	42.0 (33.7-50.8)	<0.05	53.5 (49.2-57.9)
Received condom	48.9 (40.3-57.6)	52.7 (43.4-61.7)	NS	49.9 (43.0-56.7)
Received lubricant	0.2 (0.0-1.3)	0.5 (0.1-4.0)	NS	0.3 (0.1-1.1)
Treatment received for STIs	8.4 (5.0-13.8)	0.5 (0.1-4.0)	<0.05	6.3 (3.9-10.2)
Received general health services	38.2 (31.4-45.6)	20.2 (14.5-27.5)	<0.05	33.5 (28.3-39.1)
Attended DIC for rest and recreation	29.4 (23.3-36.4)	4.2 (2.1-8.2)	<0.05	33.6 (28.1-39.6)
Availed HTC	57.7 (50.2-65.0)	59.0 (50.1-67.5)	NS	58.1 (52.0-63.9)
Detoxification	0.3 (0.1-1.3)	0	-	0.2 (0.1-1.0)
Reported being involved with different types of prevention programmes in the last year* (Denominator is who participated in any prevention programmes in the last year), % (95% CI)	N=564	N=211		N=775
Needles/ syringes programme	99.9 (99.0-100.0)	97.6 (94.3-99.0)	NS	99.3 (98.1-99.7)
OST	3.2 (1.9-5.6)	0	-	2.4 (1.4-4.1)
Educational programme	58.4 (53.7-63.1)	40.8 (32.9-49.1)	<0.05	53.6 (49.5-57.7)
Received condom	48.2 (40.3-56.1)	53.6 (44.4-62.4)	NS	49.6 (43.3-55.9)
Received lubricant	0.2 (0.0-1.2)	0.5 (0.1-3.5)	NS	0.2 (0.1-1.0)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Treatment received for STIs	8.4 (5.1-13.7)	0.5 (0.1-3.5)	<0.05	6.3 (3.9-9.9)
Received general health services	36.3 (30.2-43.0)	20.4 (15.0-27.1)	<0.05	32.0 (27.3-37.1)
Attended DIC for rest and recreation	39.2 (32.6-46.2)	16.1 (11.0-23.1)	<0.05	32.9 (27.8-38.4)
Availed HTC	56.5 (49.6-63.1)	58.3 (50.1-66.1)	NS	57.0 (51.4-62.3)
Detoxification	0.3 (0.1-1.2)	0	-	0.2 (0.1-0.9)
Received a combination of prevention programmes in the last three months[‡], % (95% CI)	30.8 (27.2-34.8)	18.6 (12.9-26.0)	<0.05	27.8 (24.5-31.3)
Reached with HIV prevention programme[θ], % (95% CI)	34.9 (28.7-41.7)	42.1 (34.7-50.0)	NS	36.7 (31.7-42.1)
Participated in needles/syringes programme in the last year, % (95% CI)	78.3 (70.9-84.2)	85.1 (79.1-89.6)	NS	80.0 (74.5-84.5)
Participated in needles/syringes programme in the last three months, % (95% CI)	76.2 (68.6-82.5)	79.8 (71.8-85.9)	NS	77.1 (71.2-82.1)
Ever involved with OST, % (95% CI)	2.6 (1.6-4.5)	0	-	2.0 (1.2-3.4)
Duration of involvement with OST (Denominator is who were involved with OST)	N=19	N=0		N=19
Mean (95% CI)	29.1 (12.7-45.6)	-	-	29.1 (12.7-45.6)
Median (IQR)	24.0 (12.0-60.0)			24.0 (12.0-60.0)
Benefited from prevention programmes in the last year (Denominator is who participated in HIV/AIDS prevention programmes in the last year), % (95% CI)	N=564	N=211		N=775
Helped in changing risk behaviour	52.6 (46.7-58.4)	62.1 (52.0-71.2)	NS	55.2 (49.9-60.3)
Received useful information but did not change behaviour	37.2 (30.8-44.1)	34.1 (25.7-43.7)	NS	36.4 (31.0-42.1)

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Learnt about HIV/AIDS/STD/safe sex and correct use of condom	55.9 (48.9-62.8)	18.0 (11.9-26.3)	<0.05	45.6 (40.9-50.5)
Information was hard to understand	0.5 (0.2-1.4)	0.5 (0.1-3.4)	NS	0.5 (0.2-1.3)

‡Who received at least two services in the last three months: condom/lubricant/counselling on condom use and safe sex/STI services from NGOs

⊖ Who replied to "yes" to all three questions:

1. Do you know where you can go if you wish to receive an HIV test?
2. In the last twelve months, have you been given condoms? (e.g. through an outreach service, drop-in centre or sexual health clinic)
3. In the last twelve months, have you been given sterile needles and syringes (e.g. by an outreach worker, a peer educator or from a needle exchange programme)?

*Multiple responses

IQR refers to Inter Quartile Range

Venue for meeting friends (Table-23)

Most PWID met their friends in public spaces such as cruising spots, tea stalls and on the streets. Cruising spot was more commonly stated by PWDI in A1 compared to A2 while tea stalls were more common for those in A2 than in A1 (p<0.05 for both).

Table-23: Venue for meeting friends

Indicators	Dhaka A1 N=721 unless otherwise stated	Dhaka A2 N=242 unless otherwise stated	Comparison p-value	Dhaka A1+A2 N=963 unless otherwise stated
Venue for meeting friends*, % (95% CI)				
Cruising spot	88.8 (84.7-91.8)	75.2 (63.4-84.1)	<0.05	85.4 (81.2-88.7)
At home	7.6 (5.3-10.6)	16.1 (10.9-23.3)	<0.05	9.7 (7.4-12.7)
Club/party	0.6 (0.3-1.6)	0.4 (0.1-3.0)	NS	0.6 (0.3-1.3)
Tea stall	43.0 (37.5-48.7)	81.4 (71.9-88.2)	<0.05	52.6 (48.7-56.5)
On the street	83.0 (78.9-86.4)	87.6 (81.9-91.7)	NS	84.1 (80.9-86.9)
Bazar/Market	10.2 (7.0-14.5)	16.5 (10.9-24.3)	NS	11.8 (8.9-15.4)
Hotel/boarding	0	0.8 (0.2-3.5)	-	0.2 (0.1-0.9)
Working place	5.6 (3.7-8.3)	5.8 (3.4-9.6)	NS	5.6 (4.1-7.8)
DIC	1.0 (0.5-1.9)	0	-	1.0 (0.5-1.9)

B. Changes in some key risk behaviours over the rounds of surveillance

To represent PWID from all of Dhaka, data from A1 and A2 have been combined to enable comparison of key risk behaviours over the rounds of BSS. However, the data thus obtained is not strictly comparable to other rounds of BSS as in earlier years Dhaka was treated as a single entity for BSS whereas in 2016 not only were A1 and A2 sampled separately, the strategies used were different with BSS employed in A2 and IBSS in A1 although TLS was used in both areas. Nonetheless, significant changes in some key parameters were observed over the rounds of BSS among PWID in Dhaka which are presented in this section.

Sharing of used needles/syringes during the last injection in the last two months and in the last week (Figures-10 and 11)

Significant decline over the rounds was observed in the percentages of PWID who borrowed, lent or shared (borrowing or lending), their used needles/syringes during the last injection in the last two months (Figure-10) or in the last week (Figure-11) ($p<0.05$ for all). Between 2006/07 and 2016 fewer PWID reported either lending or borrowing needles/syringes ($p<0.05$ for both) during their last injection (Figure-10). However, with regards to sharing in the last week, no difference was observed between 2006/07 and 2016 (Figure-11).

Figure-10: Sharing of used needles/syringes during the last injection in the last two months over the rounds

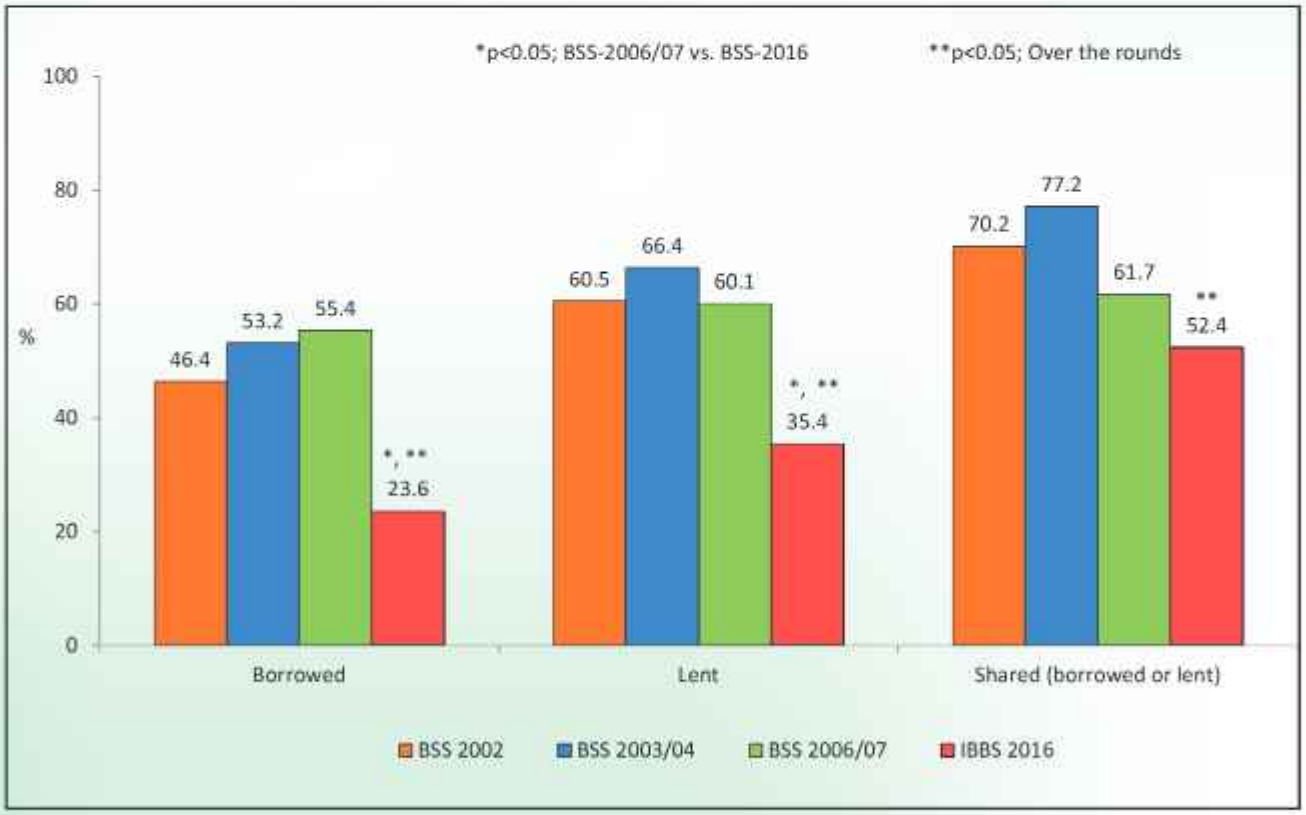
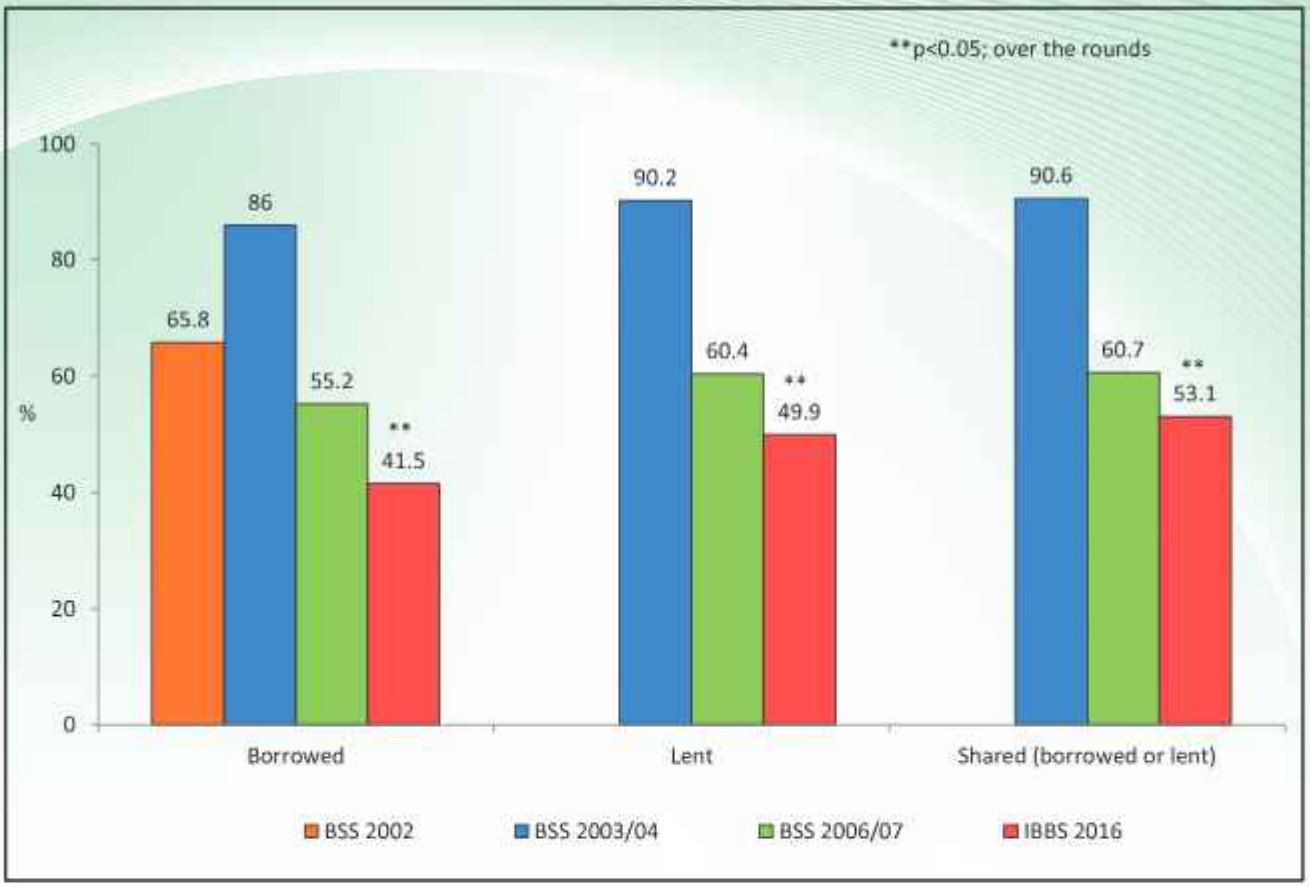


Figure-11: Sharing of used needles/syringes in the last week over the rounds



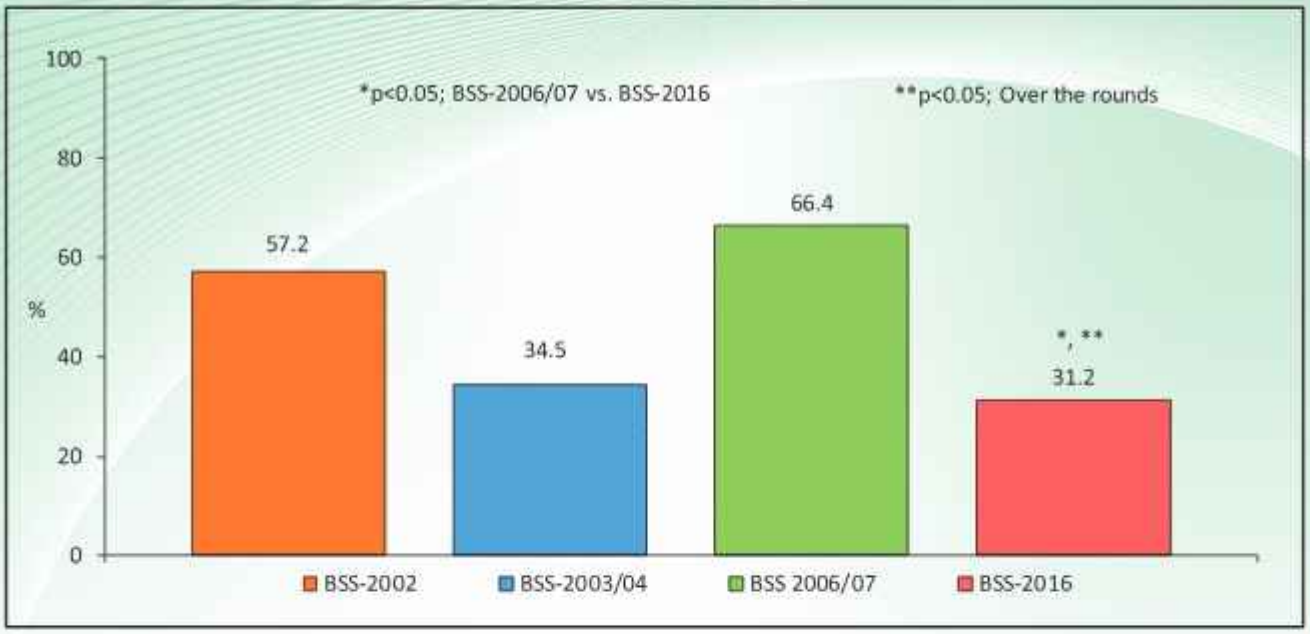
Sharing injection paraphernalia other than needles/syringes in the last two months

Data on paraphernalia sharing (other than needles/syringes) was gathered only from 2006/07 so that comparison is restricted between two rounds and this showed a significant decline in the percentages of PWID reporting sharing other injection paraphernalia (69.5% and 38.4% in 2006/07 and 2016 respectively, $p<0.05$).

Buying sex from FSWs in the last year (Figure-12).

Fewer PWID bought sex from FSWs in the last year over the rounds as well as between 2006/07 and 2016 ($p<0.05$ for both).

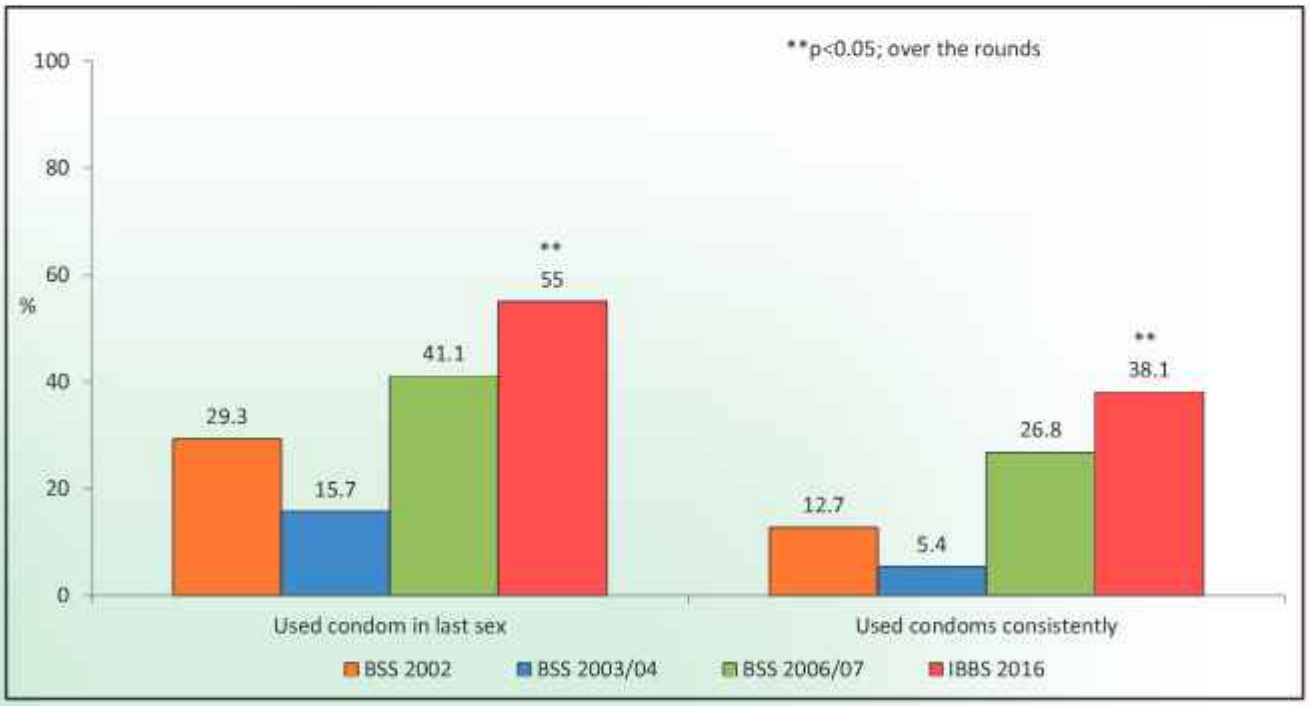
Figure-12: Bought sex from FSWs in the last year over the rounds



Using condoms during last sex and consistently in the last year (Figure-13)

There was a significant rise in the percentages of PWID who reported using condoms in last sex and consistently in the last year over the BSS rounds (p<0.05 for both).

Figure-13: Using condoms during last sex and consistently in the last year over the rounds



Exposure to any HIV/AIDS prevention programmes or being tested for HIV and knowing the result in the last year (Figures-14 and 15)

In the last year, more PWID participated in any aspect of the harm reduction programme for HIV over the rounds ($p<0.05$) (Figure-14). Also, the percentages who were tested for HIV and knew their result in the last year increased over the rounds as well as between 2006/07 and 2016 ($p<0.05$ for both) (Figure-15).

Figure-14: Exposure to any HIV/AIDS prevention programmes in the last year over the rounds

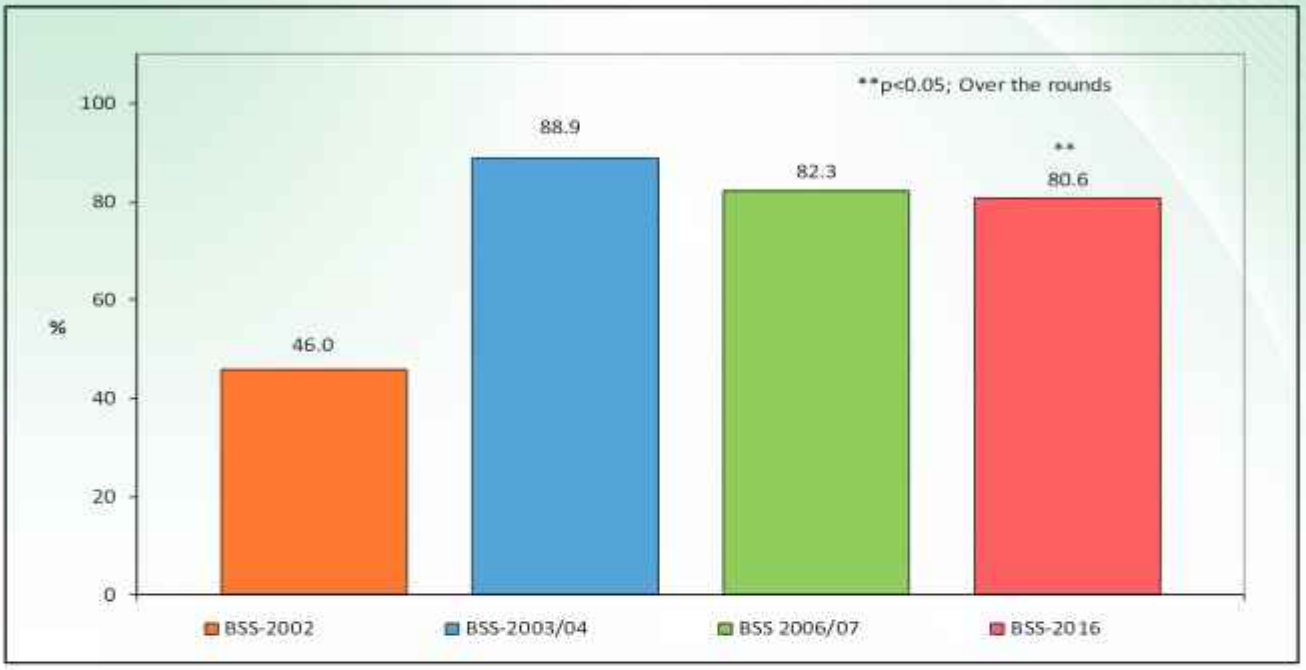
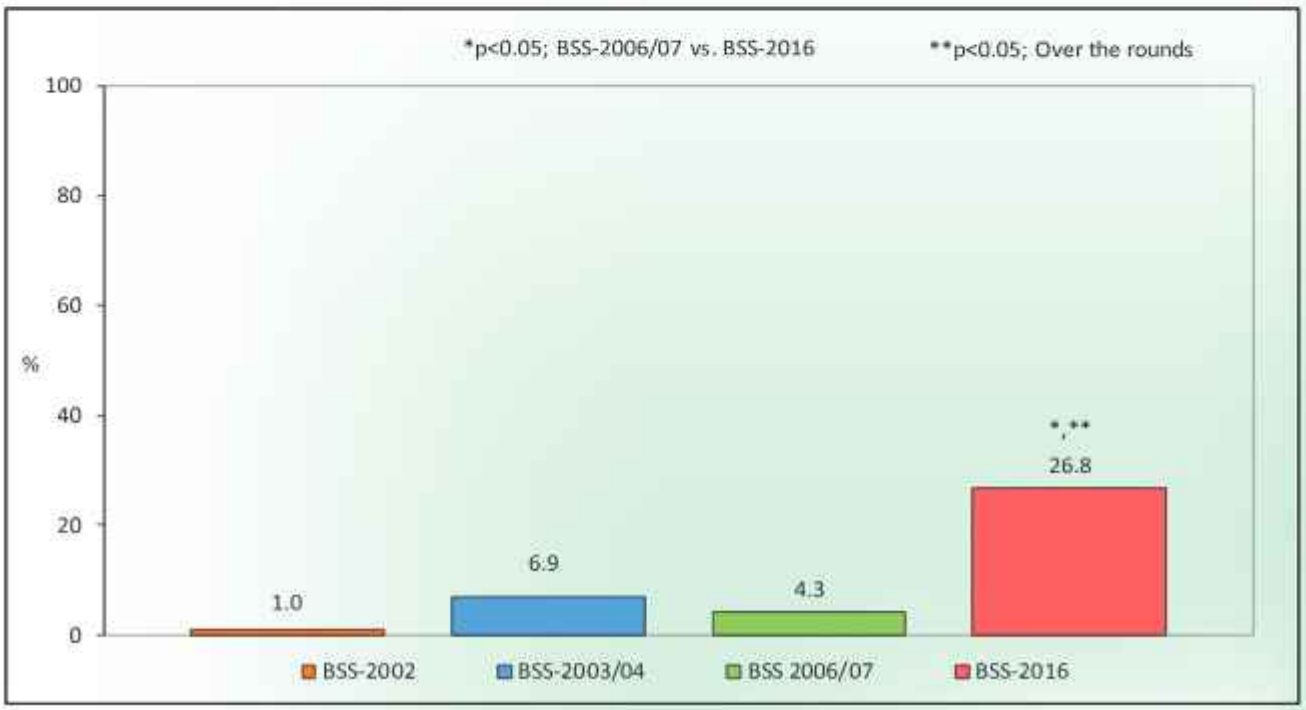


Figure-15: Being tested for HIV and knowing the result in the last year over the rounds



FEMALE SEX WORKERS

A total of 2658 FSWs were interviewed in the BSS from streets and hotels in Dhaka and Hili and from 11 brothels in nine districts of Bangladesh between 13th March and 21st April 2016. The details of sampling are shown in Table-24.

Table-24: Female sex workers interviewed from different sites

Geographical area	FSW categories based on venues	Sample size achieved	Start date of interview	End date of interview
National	Brothel	1670	19-Mar-16	8-May-16
Dhaka	Street	448	13-Mar-16	9-Apr-16
Hili	Street	196	16-Apr-16	21-Apr-16
Dhaka	Hotel	344	13-Mar-16	21-Apr-16
	Total	**2658**		

The results from the BSS from the different groups of FSWs are presented in the following three sections; A. Findings from the 2016 risk behavioural surveillance, B. Changes in some key risk behaviours over the rounds of surveillance C. Differences between two age groups, 15-24 and 25-49 years.

A. Findings from the 2016 risk behavioural surveillance

Socio-demographic characteristics (Table-25)

Socio-demographic characteristics are described in Table-25. The mean age of FSWs from all sites was >25 years. FSWs from hotels had the most years of schooling and the lowest duration of selling sex. More street based FSWs in Hili reported permanently living in the respective city than those in Dhaka ($p<0.05$). On an average, a street based FSW in Dhaka and Hili worked 4-5 days in a week while hotel based FSWs worked less (2.8 days) in a week but earned more than FSWs in other settings ($p<0.05$ for all comparisons).

Many street based FSWs, especially in Hili, also sold sex in residences in the last year.

Table-25: Socio-demographic characteristics

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Age (in years)				
Mean (95% CI)	26.9 (26.0-27.8)	26.5 (25.6-27.4)	28.6 (27.9-29.2)	25.1 (23.6-26.5)
Median (IQR)	26.0 (22.0-30.0)	26.0 (21.0-30.0)	28.0 (26.0-32.0)	24.0 (20.0-28.0)
Ever attended school, % (95% CI)	51.0 (47.0-55.1)	60.4 (52.5-67.8)	57.7 (51.0-64.0)	79.1 (71.4-85.1)
Schooling (in years)				
Mean (95% CI)	2.4 (2.2-2.7)	2.9 (2.4-3.3)	2.5 (2.1-2.9)	4.9 (4.2-5.5)
Median (IQR)	1.0 (0.0-5.0)	3.0 (0.0-5.0)	2.0 (0.0-4.5)	5.0 (2.0-8.0)
Years of schooling (in years) (Denominator is who ever attended school)				
Mean (95% CI)	4.8 (4.6-5.0)	4.7 (4.4-5.0)	4.4 (4.0-4.8)	6.2 (5.8-6.5)
Median (IQR)	5 (3-7)	5 (3-6)	4 (3-5)	6 (5-8)
Duration of stay in this city, % (95% CI)				
Whole life	13.4 (10.2-17.3)	34.3 (28.2-41.0)	89.3 (81.0-94.2)	17.2 (13.7-21.3)
≤ 10 years	68.7 (62.1-74.7)	40.9 (35.1-47.0)	7.7 (3.5-15.8)	61.6 (53.8-68.9)
>10 years	17.9 (14.3-22.2)	24.8 (19.8-30.6)	3.1 (1.2-7.7)	21.2 (16.9-26.3)
Duration of ever selling sex (in years)				
Mean (95% CI)	8.3 (7.3-9.3)	7.1 (6.3-7.9)	6.6 (6.1-7.0)	3.8 (3.1-4.5)
Median (IQR)	7.0 (3.0-12.0)	6.0 (3.0-10.0)	6.0 (4.0-8.0)	3.0 (1.0-5.0)
Duration of selling sex in this city (in years)				
Mean (95% CI)	7.1 (6.1-8.2)	6.9 (6.2-7.7)	6.5 (6.0-7.0)	3.6 (2.9-4.4)
Median (IQR)	5.0 (2.0-10.0)	6.0 (3.0-10.0)	6.0 (4.0-8.0)	3.0 (1.0-5.0)
Had sex in other settings (brothels/street/hotel) in this city in the last year, % (95% CI)	0.8 (0.2-2.8)	31.5 (23.5-40.8)	76.0 (67.7-82.8)	14.2 (11.3-17.8)
If yes, where*, % (95% CI)	N=13	N=151	N=149	N=49
Hotel	61.5 (33.3-83.7)	34.4 (24.7-45.6)	12.8 (6.8-22.8)	0
Residence	53.8 (10.8-91.8)	90.3 (83.5-94.5)	93.3 (86.0-96.9)	95.9 (78.7-99.3)
Brothel	0	0.5 (0.1-3.5)	0	0
Street	0	0	0	2.0 (0.3-11.3)
Club	0	0	0	2.0 (0.3-11.3)
Number of days engaged in selling sex in the last week (Denominator is who sold sex in the last week)	N=1609	N=436	N=193	N=331
Mean (95% CI)	5.1 (4.8-5.5)	4.9 (4.6-5.1)	4.3 (3.9-4.6)	2.8 (2.3-3.2)
Median (IQR)	6.0 (4.0-7.0)	5.0 (4.0-6.0)	4.0 (3.0-5.0)	2.0 (2.0-4.0)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Income (in taka) in the last month				
Mean (95% CI)	18,397.0 (16,716.0-20,078.0)	14,470.5 (13,424.9-15,516.1)	13,642.9 (11,987.5-15,298.2)	23,280.1 (20,755.0-25,805.2)
Median (IQR)	15,000.0 (12,000.0-20,000.0)	13,000.0 (10,000.0-16,000.0)	12,000.0 (10,000.0-15,000.0)	20,000.0 (14,000.0-30,000.0)
Source of income in the last month, % (95% CI)				
Sex work	96.0 (93.8-97.5)	95.6 (92.5-97.4)	61.2 (51.7-70.0)	97.1 (94.4-98.5)
Family	0.1 (0.0-0.3)	0	0	0.6 (0.1-4.0)
Service	0.3 (0.1-0.9)	3.1 (1.6-5.9)	1.0 (0.3-3.9)	1.7 (0.8-3.9)
Business	2.6 (1.6-4.1)	0	7.1 (3.9-12.8)	0.6 (0.1-2.3)
House maid	0.2 (0.1-0.8)	1.3 (0.6-3.0)	0	0
Antisocial activities	0	0	30.6 (22.3-40.4)	0
Lover	0.3 (0.1-0.7)	0	0	0
Dance	0.4 (0.1-1.7)	0	0	0

*Multiple responses

M refers to median and IQR refers to Inter Quartile Range

Marital status and sex partners (Table-26)

More FSWs in brothels were unmarried than FSWs in other settings ($p<0.05$). In all settings, most of those who were married lived with their spouses. Age at first sexual intercourse was approximately 15 years in all settings.

Table-26: Marital status and sex partners

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Current marital status, % (95% CI)				
Married	9.6 (7.2-12.6)	38.1 (32.7-43.7)	41.8 (34.3-49.8)	46.2 (41.6-51.0)
Unmarried*	90.4 (87.4-92.8)	61.9 (56.3-67.3)	58.2 (50.2-65.7)	53.8 (49.0-58.4)
Currently living with spouse (Denominator is those who were currently married), % (95% CI)	N=160 91.9 (84.5-95.9)	N=164 80.3 (71.9-86.7)	N=82 96.3 (88.5-98.9)	N=159 96.2 (94.0-97.7)
Had living children, % (95% CI)	45.9 (40.1-51.7)	64.3 (58.9-69.4)	80.6 (75.7-84.8)	59.0 (51.7-65.9)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
If yes, number of living children	N=766	N=291	N=158	N=203
Mean (95% CI)	1.4 (1.3-1.4)	1.7 (1.6-1.8)	1.8 (1.6-1.9)	1.5 (1.3-1.7)
Median (IQR)	1.0 (1.0-2.0)	2.0 (1.0-2.0)	2.0 (1.0-2.0)	1.0 (1.0-2.0)
Age of the youngest child (Denominator is those who had children)	N=766	N=291	N=158	N=203
Mean (95% CI)	7.0 (6.6-7.4)	6.3 (5.4-7.1)	6.1 (5.7-6.5)	7.0 (5.9-8.0)
Median (IQR)	6.0 (4.0-9.0)	6.0 (3.0-8.0)	5.0 (4.0-7.0)	6.0 (3.0-10.0)
Age at first sex (in years)				
Mean (95% CI)	15.0 (14.8-15.2)	14.7 (14.4-14.9)	15.1 (14.8-15.4)	15.1 (14.7-15.4)
Median (IQR)	15.0 (13.0-16.0)	15.0 (14.0-16.0)	15.0 (14.0-16.0)	15.0 (14.0-16.0)

M refers to median and IQR refers to Inter Quartile Range

*Divorced/widowed/separated were combined with unmarried

Sexual history with new and regular clients (Table-27)

More than 95% of the FSWs sold sex to new/regular clients in the last week. Anal sex with new/regular clients was rare and reported by <5% of FSWs. Oral sex with new and regular clients was significantly lower among brothel based FSWs than FSWs in other settings ($p<0.05$ for all comparisons) and in most cases ended before ejaculation.

Among those who sold sex (vaginal/anal/oral) to new/regular clients in the last week, the average number of clients was the highest among hotel based FSWs in Dhaka than FSWs in other settings ($p<0.05$ for all comparisons). Consequently, selling sex to >20 new/regular clients in the last week was more commonly reported by hotel based FSWs than FSWs in other settings ($p<0.05$ for all comparisons). Similarly, hotel based FSWs also reported the highest number of sex acts with new clients in the last week compared to other FSWs ($p<0.05$ for all comparisons).

Table-27: Sexual history with new and regular clients

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Sold sex to new/regular clients in the last week, % (95% CI)	96.3 (93.9-97.8)	97.7 (95.7-98.8)	98.5 (95.3-99.5)	96.2 (90.1-98.6)
Sold sex to new clients in the last week, % (95% CI)	80.5 (76.9-83.6)	94.0 (90.5-96.3)	86.7 (75.8-93.2)	91.6 (84.6-95.6)
Sold sex to regular clients in the last week, % (95% CI)	91.9 (88.4-94.3)	85.0 (80.0-89.0)	84.2 (78.0-88.9)	67.4 (57.0-76.4)
Had anal sex with new clients in the last week, % (95% CI)	0.2 (0.1-0.8)	1.3 (0.6-2.8)	1.0 (0.1-7.7)	0.9 (0.2-3.8)

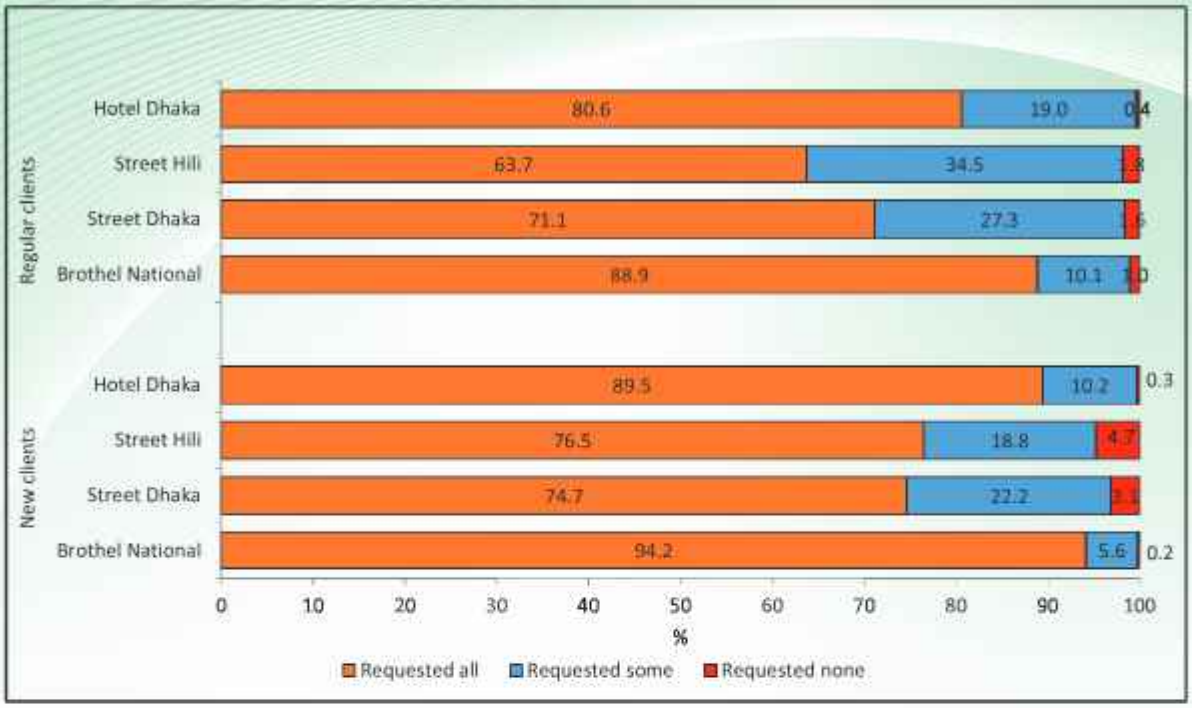
Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Had anal sex with regular clients in the last week, % (95% CI)	0.4 (0.1-1.6)	1.8 (0.9-3.3)	0	2.3 (0.8-6.2)
Had oral sex with new clients in the last week, % (95% CI)	0.9 (0.2-3.7)	18.9 (14.3-24.5)	8.7 (4.6-15.7)	19.5 (11.2-31.7)
Had oral sex with regular clients in the last week, % (95% CI)	1.6 (0.5-5.1)	19.0 (14.0-25.3)	9.7 (5.1-17.5)	16.9 (7.5-33.5)
Type of oral sex with new clients in the last week (Denominator is who had oral sex with new clients in the last week), % (95% CI)	N=15	N=94	N=17	N=67
Till ejaculation	13.3 (2.2-51.6)	16.4 (10.0-25.8)	0	3.0 (0.9-9.6)
Before ejaculation	93.3 (69.8-98.8)	89.1 (80.2-94.3)	100.0	97.0 (90.4-99.1)
Type of oral sex with regular clients in the last week (Denominator is who had oral sex with regular clients in the last week), % (95% CI)	N=26	N=100	N=19	N=58
Till ejaculation	19.2 (4.0-57.6)	8.8 (4.5-16.4)	0	0
Before ejaculation	84.6 (47.7-97.1)	92.5 (85.4-96.3)	100.0	100.0
Number of new/regular clients (vaginal/anal/oral) in the last week (Denominator is who had new/regular clients in the last week)	N=1609	N=436	N=193	N=331
Mean (95% CI)	13.3 (11.3-15.2)	16.0 (14.0-18.0)	8.8 (7.8-9.9)	30.0 (27.0-33.0)
Median (IQR)	10.0 (7.0-16.0)	14.0 (8.0-21.0)	8.0 (5.0-12.0)	23.0 (9.0-40.0)
Sold sex (vaginal/anal/oral) to >20 new/regular clients in the last week (Denominator is who had new/regular clients in the last week), % (95% CI)	N=1609 15.8 (11.4-21.7)	N=436 26.2 (20.3-33.2)	N=193 1.6 (0.5-5.1)	N=331 52.0 (42.5-61.3)
Number of new clients with whom the respondent had vaginal/anal/oral sex in the last week (Denominator is who sold sex to new clients in the last week)	N=1344	N=421	N=170	N=315
Mean (95% CI)	7.3 (6.1-8.5)	10.0 (8.9-11.1)	5.8 (4.9-6.7)	24.2 (21.6-26.7)
Median (IQR)	5.0 (3.0-9.0)	8.0 (4.0-15.0)	5.0 (3.0-8.0)	15.0 (5.0-35.0)
Number of new clients with whom the respondent had vaginal sex in the last week (Denominator is who had new clients in the last week)	N=1344	N=421	N=170	N=315
Mean (95% CI)	7.3 (6.1-8.5)	9.9 (8.9-11.0)	5.7 (4.9-6.6)	24.2 (21.6-26.7)
Median (IQR)	5.0 (3.0-9.0)	8.0 (4.0-15.0)	5.0 (3.0-8.0)	15.0 (5.0-35.0)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Number of regular clients who had vaginal/anal/oral sex with the respondent in the last week (Denominator is who had sex with regular clients in the last week)	N=1534	N=390	N=165	N=232
Mean (95% CI)	7.5 (6.2-8.9)	7.3 (5.8-8.8)	4.4 (3.7-5.0)	10.0 (8.5-11.5)
Median (IQR)	6.0 (4.0-10.0)	5.0 (3.0-10.0)	4.0 (3.0-5.0)	6.0 (3.0-12.0)
Number of regular clients who had vaginal sex with the respondent in the last week (Denominator is who had vaginal sex with regular clients)	N=1534	N=390	N=165	N=232
Mean (95% CI)	7.5 (6.2-8.9)	7.2 (5.8-8.7)	4.4 (3.7-5.0)	10.0 (8.5-11.5)
Median (IQR)	6.0 (4.0-10.0)	5.0 (3.0-10.0)	4.0 (3.0-5.0)	6.0 (3.0-12.0)
Number of vaginal sex acts with new clients in the last week (Denominator is who had new clients in the last week)	N=1344	N=421	N=170	N=315
Mean (95% CI)	7.9 (6.6-9.1)	10.3 (9.3-11.3)	6.2 (5.3-7.1)	25.9 (23.2-28.6)
Median (IQR)	5.0 (3.0-10.0)	9.0 (5.0-15.0)	5.0 (3.0-9.0)	16.0 (5.0-36.0)
Number of vaginal sex acts with regular clients in the last week (Denominator is who had regular clients in the last week and had vaginal sex)	N=1534	N=390	N=165	N=232
Mean (95% CI)	8.7 (7.3-10.2)	8.4 (6.9-9.9)	5.7 (4.7-6.6)	11.5 (9.6-13.4)
Median (IQR)	7.0 (4.0-10.0)	6.0 (3.0-10.0)	4.0 (3.0-7.0)	7.0 (3.0-14.0)

Requested clients to use condoms in the last week (Figure-16)

Most FSWs requested all their clients (new and regular) to use condoms in the last week. However, street FSWs from both cities often requested only some of their clients and not all.

Figure-16: Requested clients to use condoms in the last week (amongst those who had sex with new/regular clients in the last week)



Condom use in the last sex act (Table-28)

Among those who had sex in the last one year, condom use with new and regular clients in the last sex act was reported by the vast majority of FSWs from all sites (70-81% and 58-72% with new and regular clients, respectively). Condom breakage in the last month was not uncommon and was reported by 20-33% of the FSWs.

Table-28: Used condom in the last sex act

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
New/Regular clients				
Used condom in the last sex act with new/regular clients in the last one year (Denominator is who sold sex to new/regular clients in the last year)	N=1670 80.0 (73.2-85.4)	N=448 76.4 (70.3-81.6)	N=196 71.4 (64.1-77.8)	N=344 81.7 (79.3-83.9)
Ever used condom during vaginal/anal sex (with either new or regular clients)	99.9 (99.8-100.0)	98.9 (96.5-99.7)	99.5 (96.1-99.9)	100.0

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
New clients				
Used condom in the last vaginal sex act with new client in the last week (Denominator is who had vaginal sex with new clients in the last week)	N=1344 79.2 (72.8-84.4)	N=421 72.1 (65.1-78.2)	N=170 70.6 (63.2-77.0)	N=315 81.0 (77.6-83.9)
Regular clients				
Used condom in the last vaginal sex act with regular clients in the last week (Denominator is who had vaginal sex with regular clients in the last week)	N=1533 61.9 (51.5-71.3)	N=390 62.5 (55.0-69.4)	N=165 58.8 (49.3-67.7)	N=232 72.4 (68.3-76.2)
Had a condom break in the last month (Denominator is who had sex and used condom in the last month)	N=1667 31.0 (23.1-40.2)	N=441 20.9 (16.3-26.5)	N=192 30.2 (23.5-37.9)	N=342 33.3 (29.0-38.0)

Frequency of using condoms (Table-29 and Figure-17)

Consistent condom use with new and regular clients in the last week ranged from 32.4-42.5% and 15.8-37.5% respectively and in most cases condoms were used some of the times. For oral sex condom use was infrequent.

Figure-17: Frequency of condom use during vaginal/anal sex with new/regular clients in the last week (amongst those who had sex with new/regular clients in the last week)

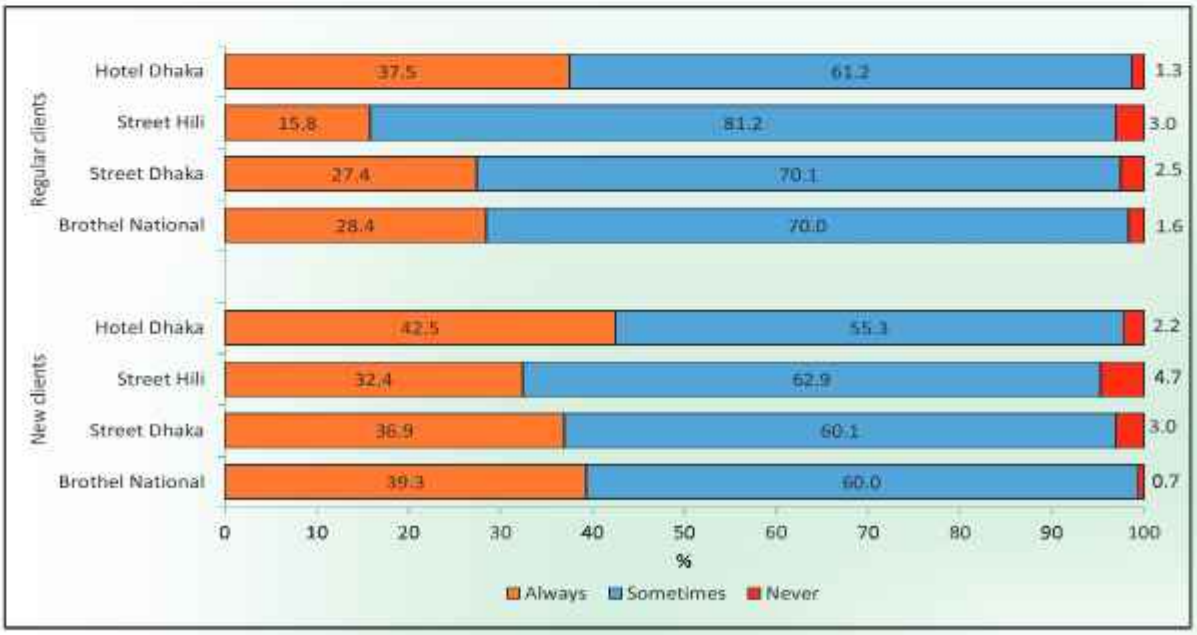


Table-29: Frequency of condom use

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
New clients				
Frequency of condom use in oral sex with new clients in the last week till ejaculation (Denominator is who had oral sex with new clients in the last week till ejaculation)	N=2	N=17	N=0	N=2
Always	100.0	12.5 (2.5-44.1)	-	0
Sometimes	0	14.8 (4.2-40.8)	-	100.0
Never	0	72.8 (44.8-89.8)	-	0
Frequency of condom use in oral sex with new clients in the last week before ejaculation (Denominator is who had oral sex with new clients in the last week before ejaculation)	N=14	N=83	N=17	N=65
Always	14.3 (3.0-47.5)	10.9 (5.0-22.1)	17.6 (4.0-52.5)	29.2 (10.2-60.1)
Sometimes	28.6 (16.3-45.1)	50.5 (35.4-65.4)	58.8 (22.1-87.8)	55.4 (34.1-74.9)
Never	57.1 (37.2-75.0)	38.7 (24.5-55.1)	23.5 (5.6-61.7)	15.4 (7.1-30.1)
Regular clients				
Frequency of condom use in oral sex with regular clients in the last week till ejaculation (Denominator is who had oral sex with regular clients in the last week till ejaculation)	N=5	N=10	N=0	N=0
Always	60.0 (2.1-99.0)	8.8 (0.7-56.6)	-	-
Sometimes	20.0 (0.0-100.0)	0	-	-
Never	20.0 (0.0-100.0)	91.2 (43.4-99.3)	-	-
Frequency of condom use in oral sex with regular clients in the last week before ejaculation (Denominator is who had oral sex with regular clients in the last week before ejaculation)	N=22	N=91	N=19	N=58
Always	9.1 (0.5-66.0)	6.1 (2.6-13.7)	21.1 (4.4-60.6)	19.0 (3.3-61.6)
Sometimes	22.7 (4.8-63.2)	25.0 (16.1-36.7)	5.3 (0.6-34.7)	51.7 (22.9-79.5)
Never	68.2 (32.8-90.4)	68.9 (57.1-78.6)	73.7 (38.9-92.5)	29.3 (19.9-40.9)

Money earned from new/regular clients (Table-30)

Average income from new/regular clients in the last week ranged from 200-500 Takas and most of the earnings was given to family members. However, 38.2% of brothel based FSWs reported that they gave their earnings to their mashi (madam of the brothel).

Table-30: Money earned from new/regular clients

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Average income from the last new client in the last week (Denominator is who had new clients in the last week)	N=1668			N=342
Mean (95% CI)	331.4 (290.4-372.3)	402.5 (326-5-478.4)	276.7 (228.1-325.4)	243.2 (205.5-281.0)
Median (IQR)	300.0 (200.0-300.0)	250.0 (150.0-500.0)	200.0 (150.0-375.0)	150.0 (100.0-250.0)
Average income from the last regular client in the last week (Denominator is who had regular clients in the last week)	N=1669			N=339
Mean (95%CI)	356.3 (322.9-389.6)	398.4 (310.6-486.1)	303.1 (254.9-351.2)	457.6 (291.9-623.2)
Median(IQR)	300.0 (200.0-400.0)	250.0 (150.0-500.0)	250.0 (145.0-475.0)	200.0 (100.0-500.0)
Gave money to others earned from new/regular clients in the last week (Denominator is who had new/regular clients in the last week), % (95% CI)	N=1609 29.6 (22.4-37.9)	N=436 41.0 (35.2-47.1)	N=193 43.5 (36.5-50.8)	N=331 24.8 (19.5-31.0)
Amount of money given to others earned from new/regular clients in the last week (Denominator is who had new/regular clients in the last week and gave money to others)	N=474	N=182	N=84	N=82
Mean (95% CI)	2940.9 (2351.9-3530.0)	2495.7 (1915.2-3076.2)	1330.4 (1036.7-1624.0)	3827.0 (1950.4-5703.6)
Median (IQR)	2000.0 (1400.0-4000.0)	2000.0 (1000.0-3000.0)	1000.0 (500.0-2000.0)	2850.0 (1500.0-5000.0)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
To whom the money was given* (Denominator is who had new/regular clients in the last week and gave money to others), % (95% CI)	N=476	N=182	N=84	N=82
Pimp	1.5 (0.5-3.9)	4.6 (2.4-8.6)	15.5 (6.3-33.4)	0
Hoodlum	0	11.0 (5.1-22.1)	9.5 (3.9-21.5)	0
Men in uniform	0.8 (0.1-4.7)	5.6 (1.9-15.1)	14.3 (6.1-30.0)	1.2 (0.2-6.7)
Family member	59.7 (32.1-82.2)	80.8 (70.2-88.2)	54.8 (41.9-67.0)	95.1 (86.4-98.4)
Mashi	38.2 (14.4-69.6)	0.9 (0.2-3.7)	4.8 (1.8-12.3)	0
Others	1.9 (1.1-3.4)	2.8 (1.2-6.3)	8.3 (3.8-17.2)	8.5 (1.9-31.1)

Sexual history with non-transactional sex partners in the last month (Table-31)

More street based FSWs in Hili than FSWs in other settings reported having non-transactional sex partners in the last month ($p<0.05$ for all comparisons). On an average FSWs had one non-transactional sex partner in the last month. The number of sex acts reported in the last month with non-transactional sex partners was highest for hotel based FSWs compared to FSWs in other settings ($p<0.05$ for all comparisons). Condom use in the last sex act was very low (7-18%) as was consistent use of condoms. Oral sex with non-transactional sex partners was uncommon and condom use in oral sex was rare.

Table-31: Sex with non-transactional sex partners in the last month

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Had vaginal/anal sex with non-transactional sex partners (including spouse) in the last month, % (95% CI)	40.2 (33.2-47.6)	60.2 (52.5-67.5)	76.5 (69.9-82.1)	57.3 (50.3-64.0)
Number of non-transactional sex partners in the last month (Denominator is who had non-transactional sex partners in the last month)	N=671	N=283	N=150	N=197
Mean (95% CI)	1.0 (1.0-1.0)	1.2 (1.1-1.2)	1.2 (1.1-1.3)	1.1 (1.0-1.2)
Median (IQR)	1.0 (1.0-1.0)	1.0 (1.0-1.0)	1.0 (1.0-1.0)	1.0 (1.0-1.0)
Number of non-transactional vaginal/anal sex acts in the last month (Denominator is who had non-transactional sex partners in the last month)	N=671	N=283	N=150	N=197
Mean (95% CI)	5.4 (4.2-6.6)	7.7 (6.8-8.5)	7.0 (6.4-7.6)	10.9 (10.0-11.9)
Median (IQR)	4.0 (3.0-7.0)	6.0 (4.0-10.0)	6.0 (5.0-9.0)	10.0 (4.0-15.0)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Used condom in the last non-transactional vaginal/anal sex act with in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=671 18.0 (13.5-23.6)	N=283 16.6 (10.4-25.5)	N=150 7.3 (3.7-14.1)	N=197 16.2 (11.7-22.1)
Frequency of condom use in vaginal/anal sex with non-transactional sex partners in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=671	N=283	N=150	N=197
Always	11.8 (6.4-20.6)	15.8 (9.7-24.8)	6.7 (3.1-13.7)	7.1 (4.9-10.1)
Sometimes	24.9 (18.2-33.1)	22.1 (16.4-29.1)	38.7 (30.6-47.4)	32.5 (20.4-47.4)
Never	63.3 (59.9-66.7)	62.1 (53.8-69.7)	54.7 (44.8-64.2)	60.4 (47.4-72.1)
Had oral sex with non-transactional sex partners in the last month, % (95% CI)	1.0 (0.5-2.1)	15.3 (10.5-21.6)	10.7 (6.0-18.5)	11.6 (8.2-16.2)
Type of oral sex with non-transactional sex partners in the last month (Denominator is who had oral sex with non-transactional partners in the last month), % (95% CI)	N=17	N=74	N=21	N=40
Till ejaculation	17.6 (2.5-64.5)	0	0	5.0 (1.7-13.6)
Before ejaculation	82.4 (35.5-97.5)	100.0	100.0	95.0 (86.4-98.3)

M refers to median and IQR refers to Inter Quartile Range

History of group sex (Table-32)

Group sex in the last month was reported by very few FSWs and among those who did have group sex, the number of sex partners in the group, besides the respondent ranged between 2-3. The vast majority said that at least one sex partner used a condom during group sex.

Table- 2 Group sex

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Had group sex in the last month, (CI)	1.0 (0. - .)	. (2. - .)	0. (0.1- .0)	.7 (. -1 .)
Number of sex partners in the last group sex (Denominator is who had group sex in the last month)	N 17	N 2		N 0
Mean (CI)	2. (1. - .7)	2. (2.1-2.7)	Only 1 person had sex with 2 partners	2. (2. - .)
Median (IQR)	2.0 (2.0- .0)	2.0 (2.0- .0)		.0 (2.0- .0)
Used condom during last group sex (Denominator is who had group sex in the last month), (CI)	N 17	N 22		N 0
No one	17. (. - .0)	17.7 (. - .0)	Only 1 sex partner used condom	. (1.2- .7)
At least one	2. (.0- .2)	2. (7.0- .2)		.7 (1. - .)

M refers to median and IQR refers to Inter Quartile Range

Access to condoms (Table-33)

Only male condoms are distributed in the HIV prevention programme; female condoms are not available in Bangladesh. Among those FSWs who had sex in the last month, more than 0 said they had easy access to condoms and the lowest percentage of FSWs with easy access was street based FSWs in Dhaka (p 0.0 for all comparisons). The reasons mentioned by street based FSWs for not having easy access were varied with most saying that DIC was closed (.), condoms were too costly (.1) or that they were ashamed to buy (.).

Regarding sources of condoms in the last month, in Hili the vast majority of street FSWs obtained their condoms from the NGO HIV prevention programme. For others, the common sources were shops (of brothel FSWs) and pharmacies (.1 of street based FSWs of Dhaka). In Dhaka hotels, however, most FSWs (.2) were provided free condoms by the hotel managers (.2). A considerable number of brothel based FSWs also received condoms from within the brothels by landlord/mashi/other FSWs/hawkers.

Table-33: Access to condoms

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Had easy access to condoms in the last month	97.7 (96.2-98.6)	83.8 (78.3-88.1)	98.5 (93.2-99.7)	99.4 (96.9-99.9)
Had easy access to condoms in the last month (among those who used condom in the last month)	N=1667	N=441	N=192	N=342
Yes	97.7 (96.2-98.6)	84.9 (79.5-89.1)	100.0	99.4 (96.9-99.9)
No	2.3 (1.4-3.8)	15.1 (10.9-20.5)	0	0.6 (0.1-3.1)
Reasons for not having easy access to condoms in the last month* (Denominator is who reported not having easy access to condoms in the last month)	N=38	N=69	N=0	N=2
DIC is far away	0	11.4 (5.0-24.1)	-	50.0 (0.0-100.0)
DIC/Depot is closed	60.5 (37.4-79.8)	47.0 (32.1-62.4)	-	0
No outreach worker when needed	26.3 (7.7-60.6)	24.3 (11.6-44.0)	-	50.0 (0.0-100.0)
Too costly	55.3 (31.3-77.0)	39.1 (24.4-56.1)	-	0
Shop/Pharmacy is far away	10.5 (4.0-24.8)	28.8 (18.2-42.2)	-	50.0 (0.0-100.0)
Shop/Pharmacy is closed	21.1 (5.7-54.2)	27.2 (15.7-43.0)	-	0
Feel ashamed to buy	0	38.6 (24.0-55.6)	-	50.0 (0.0-100.0)
Do not know where to buy	0	3.5 (0.9-13.2)	-	0
Not willing to carry	0	6.3 (2.1-17.5)	-	0
Sources of condom in the last month* (Denominator who had sex in last month and used condom)	N=1667	N=441	N=192	N=342
Shop	63.0 (51.7-73.1)	22.9 (16.8-30.3)	12.5 (7.0-21.3)	4.1 (2.0-8.4)
Pharmacy	10.4 (3.6-26.6)	55.1 (47.7-62.3)	8.9 (4.5-16.7)	8.2 (4.5-14.5)
NGOs providing HIV prevention services	22.9 (13.9-35.3)	53.5 (44.4-62.4)	99.5 (95.9-99.9)	2.6 (1.0-6.9)
Bar/guest house/hotel	0	5.1 (2.3-10.8)	0	89.2 (80.2-94.4)
Friends	1.7 (0.7-4.3)	8.0 (5.3-11.8)	7.3 (4.0-13.0)	0.9 (0.2-3.7)
Pimp	3.1 (0.8-11.2)	0.8 (0.3-2.3)	1.6 (0.2-11.3)	8.8 (2.0-31.1)
Sex partner	6.3 (2.6-14.3)	51.7 (43.0-60.3)	59.9 (47.2-71.4)	7.9 (6.0-10.3)
Had previous condom	5.9 (2.4-13.6)	0	0	0
Others	6.1 (4.3-8.6)	0	0	0

*Multiple responses

Knowledge of STIs, self-reported STIs and care-seeking behaviour (Table-34)

Most FSWs knew about some of the symptoms of STIs and close to 30% complained of at least one STI symptom in the last year. As the first recourse to treatment, FSWs from all sites except from hotels consulted qualified practitioners.

Table-34: Knowledge of STIs, self-reported STIs and care-seeking behaviour

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Knowledge about STI symptoms*, % (95% CI)				
No knowledge about STI symptoms	2.3 (1.6-3.3)	3.7 (2.1-6.5)	3.6 (1.2-10.5)	15.7 (8.2-27.9)
Pain during intercourse	28.4 (19.3-39.7)	35.9 (29.5-42.9)	35.2 (24.4-47.8)	27.9 (16.5-43.1)
Itching in vagina	82.0 (79.4-84.3)	79.3 (74.0-83.8)	59.2 (50.6-67.3)	76.5 (67.7-83.4)
Swelling in groin area	9.3 (7.6-11.5)	1.0 (0.3-2.7)	0	3.8 (2.5-5.6)
Vaginal discharge	37.1 (28.3-46.9)	41.6 (36.3-47.0)	40.3 (30.9-50.5)	37.8 (24.1-53.7)
Smelly discharge	29.2 (20.6-39.7)	51.1 (43.4-58.7)	52.0 (42.1-61.8)	25.3 (13.5-42.4)
Genital ulcers/sores	55.6 (52.1-59.1)	57.2 (49.5-64.7)	65.8 (51.1-78.0)	40.1 (28.5-53.0)
Lower abdominal pain	32.2 (27.4-37.3)	47.1 (40.4-53.9)	35.2 (27.0-44.4)	23.8 (14.9-35.9)
Skin rash	19.6 (15.9-24.0)	13.5 (9.5-18.8)	16.3 (9.8-26.0)	12.5 (6.0-24.1)
Had pain during intercourse or smelly discharge in the last year, % (95% CI)	18.7 (13.1-25.9)	14.4 (10.8-18.9)	13.3 (9.1-19.0)	19.5 (15.0-24.9)
Had lower abdominal pain except pain due to menstruation or indigestion in the last year, % (95% CI)	14.7 (9.9-21.1)	13.4 (9.7-18.2)	13.3 (8.8-19.6)	18.0 (14.1-22.8)
Had genital warts/ulcer/sore in the last year, % (95% CI)	4.4 (2.8-6.7)	8.9 (6.0-13.1)	7.7 (5.1-11.4)	7.8 (5.8-10.5)
Had at least one STI symptom[‡] (pain during intercourse or smelly discharge or lower abdominal pain or genital warts/ulcer/sore in the last year), % (95% CI)	28.6 (21.4-36.9)	27.8 (22.5-33.8)	29.6 (22.8-37.4)	29.4 (23.8-35.6)
The first choice for seeking care for the last STI symptom in the last year (Denominator is who reported STI symptoms in last year), % (95% CI)	N=477	N=129	N=58	N=101
Qualified practitioner[¤]	59.3 (54.7-63.8)	64.1 (52.8-74.0)	81.0 (68.1-89.5)	42.6 (37.0-48.4)
Unqualified practitioner[¶]	33.5 (28.8-38.7)	23.7 (14.9-35.5)	15.5 (8.0-28.0)	42.6 (29.6-56.7)
No treatment	7.1 (5.2-9.8)	12.2 (7.2-20.1)	3.4 (0.8-13.1)	14.9 (7.4-27.5)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Waiting days for the last STI treatment in the last year (Denominator is who sought STI treatment in last year)	N=443	N=116	N=56	N=85
Mean (95% CI)	4.7 (3.7-5.7)	4.3 (3.4-5.3)	4.7 (3.2-6.2)	6.0 (4.0-8.0)
Median (IQR)	3.0 (2.0-5.0)	3.0 (2.0-5.0)	3.0 (2.0-5.0)	3.0 (2.0-7.0)
Amount of expenditure (in Taka) for the last STI treatment in the last year (Denominator is who reported STI symptoms in the last year and sought treatment)	N=438	N=116	N=56	N=79
Mean (95% CI)	604.5 (464.4-744.5)	157.9 (92.0-223.7)	56.9 (4.4-109.4)	744 .9 (206.4-1283.4)
Median (IQR)	200.0 (0.0-600.0)	0.0 (0.0-150.0)	0.0 (0.0-0.0)	200.0 (20.0-1000.0)

Had any one of the following

- Pain during intercourse or smelly discharge
- Lower abdominal pain except pain due to menstruation or indigestion
- Genital warts/ulcer/sore

⊖ Qualified practitioner refers to hospital, private clinic, private doctor, NGO clinic and homeopathy

¶ Un-qualified practitioner refers to drug seller, canvasser/traditional healer, advice/treatment from friends and self-medication

Multiple responses

Knowledge of HIV and its modes of prevention and transmission and availability of key services (Table-35)

Knowledge of HIV was universal in all settings. However, misconceptions about the transmission of HIV especially that HIV can be transmitted by mosquito bites and sharing food with an HIV infected person was reported by some FSWs; this was more common among brothel and hotel based FSWs than street based FSWs in Dhaka and Hili (p 0.0 for all comparisons). Comprehensive knowledge of HIV was reported by 1 .7- 0. of FSWs and was lower among hotel based FSWs compared to FSWs in the streets of Dhaka and Hili (p 0.0 for both comparisons).

Table-35: Knowledge of HIV and its modes of prevention and transmissionand availability of key services

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Ever heard about HIV/AIDS	99.0 (98.0-99.6)	99.7 (98.7-99.9)	100.0	100.0
Mentioned condom use (correctly and consistently in any type of sex) as a mode of prevention	94.7 (90.2-97.2)	92.9 (88.1-95.8)	96.9 (93.5-98.6)	95.6 (90.9-98.0)
Mentioned avoiding anal sex as a mode of prevention	63.4 (56.3-70.0)	55.2 (50.2-60.0)	57.7 (47.0-67.6)	48.8 (44.7-53.0)
Mentioned avoiding multiple sex partners as a mode of prevention	66.8 (58.2-74.3)	63.4 (58.6-67.8)	68.4 (61.8-74.3)	70.1 (62.3-76.8)
Mentioned HIV can be transmitted by mosquito bites	40.6 (36.9-44.5)	20.7 (16.0-26.3)	23.5 (16.5-32.2)	48.5 (39.1-58.1)
Mentioned HIV can be transmitted by sharing food with an HIV infected person	32.4 (27.7-37.5)	13.4 (10.0-17.7)	17.9 (11.7-26.2)	40.7 (34.0-47.8)
Mentioned not sharing needles/syringes as a mode of prevention	90.4 (88.9-91.7)	87.3 (81.8-91.3)	88.3 (82.1-92.5)	83.7 (79.5-87.2)
Mentioned one can tell by looking at someone whether he/she is infected with HIV	12.4 (10.9-14.0)	8.6 (6.2-11.8)	9.2 (6.1-13.7)	14.5 (10.0-20.6)
Had comprehensive knowledge of HIV[§]	23.8 (20.4-27.5)	38.4 (32.8-44.3)	40.8 (32.8-49.4)	15.7 (11.6-20.8)
Knew where HIV can be tested confidentially	72.2 (64.8-78.6)	82.0 (75.4-87.2)	98.0 (94.7-99.2)	40.7 (32.1-49.8)

[§]Computed by correct answers to five questions:

1) Can people reduce their risk of HIV by using a condom correctly and consistently in any type of sex
2) Can people reduce their risk of HIV by avoiding sex with multiple partners
3) Can a person get HIV through mosquito bites
4) Can a person get HIV by sharing a meal with someone who is HIV infected
5) Can you tell by looking at someone whether s/he is infected with HIV

Confidential HIV testing(Table-36)

More than 85% of the FSWs in all settings believed that they were not infected with HIV. Only 40.7% of hotel based FSWs in Dhaka knew where to get a confidential HIV test which was significantly lower than FSWs in other settings ($p<0.05$ for all comparisons) and as a consequence the percentage of FSWs who were ever tested for HIV was also the lowest amongst hotel based FSWs when compared to FSWs from other settings ($p<0.05$ for all comparisons). In the last year, only 4.7% hotel based FSWs underwent HIV testing and counselling and knew their results and this was the lowest compared to FSWs in other settings ($p<0.05$ for all comparisons).

Among those who knew where to get a confidential HIV test but never got tested, the main reasons were that they did not feel that it was required followed by fear of stigma by neighbours. Most of the HIV testing was done by the NGOs and the main people who advised testing were NGO staff.

Table-36: Confidential HIV testing

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Ever tested for HIV	59.4 (50.2-68.0)	74.1 (66.8-80.3)	90.3 (85.7-93.5)	36.9 (28.3-46.5)
Reasons for never testing for HIV* (Denominator is who knew about confidential HIV testing and never tested for HIV)	N=205	N=34	N=15	N=13
Fear or concern of stigma by NGO staff	2.4 (0.9-6.2)	6.8 (1.4-26.6)	13.3 (2.6-47.1)	0
Fear or concern of stigma by neighbours	36.1 (31.1-41.5)	20.9 (7.1-47.5)	46.7 (18.6-77.0)	0
Violence/fear or concern of police arrest/experienced violence	2.0 (0.7-5.1)	2.9 (0.3-20.9)	0	0
Did not feel required	56.1 (48.7-63.2)	40.8 (21.3-63.8)	40.0 (15.4-70.9)	92.3 (31.3-99.7)
Afraid to give blood	8.3 (5.3-12.7)	35.9 (20.2-55.2)	6.7 (0.7-43.3)	0
Others	0	0	6.7 (0.7-43.3)	15.4 (3.2-50.0)
Avoidance of HIV services because of stigma and discrimination[§]	4.7 (3.3-6.5)	2.1 (0.8-5.5)	4.6 (2.3-8.9)	0
Name of HIV testing facility (Denominator is who had ever tested for HIV)	N=992	N=339	N=177	N=127
Government hospital	0.5 (0.1-2.4)	0	0	0.8 (0.1-6.6)
HIV prevention NGOs	44.6 (8.0-88.1)	90.2 (82.7-94.7)	100.0	28.3 (13.6-49.8)
HTC centres in other NGOs	54.9 (11.9-91.7)	9.8 (5.3-17.3)	0	70.9 (48.5-86.3)
Motivation for testing HIV (Denominator is who had ever	N=992	N=339	N=177	N=127

Who inspired testing for HIV (Denominator is who had ever tested for HIV & someone advised)	N=802	N=259	N=166	N=107
Sex worker	0	4.9 (2.5-9.3)	0	0
Mashi	5.4 (1.3-19.2)	0.4 (0.1-2.7)	0	0
Hotel staff	0	0	0	10.3 (5.6-18.1)
NGO worker	92.9 (77.4-98.0)	94.8 (89.8-97.4)	100.0	86.9 (76.7-93.0)
Doctor	0.1 (0.0-1.4)	0	0	0.9 (0.1-7.5)
Relatives	0.6 (0.2-2.0)	0	0	0
Friend	0.4 (0.1-1.8)	0	0	1.9 (0.4-8.3)
Neighbour	0.4 (0.0-4.1)	0	0	0
Lover	0.1 (0.0-1.3)	0	0	0
Landlord	0.1 (0.0-0.5)	0	0	0
Received HIV testing result (Denominator is who had ever tested for HIV)	N=992 87.7 (82.3-91.6)	N=339 90.5 (84.8-94.2)	N=177 46.3 (37.9-54.9)	N=127 83.5 (72.6-90.6)
Time since the most recent HIV test (Denominator is who had ever tested for HIV)	N=992	N=339	N=177	N=127
Within one year	59.4 (45.9-71.6)	54.8 (46.7-62.7)	95.5 (91.3-97.7)	20.5 (12.0-32.7)
More than one year	40.6 (28.4-54.1)	45.2 (37.3-53.3)	4.5 (2.3-8.7)	79.5 (67.3-88.0)
Received HIV testing and counselling in the last year and knew the result[ϕ]	31.9 (22.5-42.9)	34.0 (28.1-40.3)	37.8 (30.0-46.1)	4.7 (2.7-7.8)

*Multiple responses

[§]Who answered yes to one of the following in response to:

Why did you not seek HIV testing/prevention/treatment services?

1. Fear of or concern about stigma by staff or neighbours

2. Fear of or concern about or experienced violence

3. Fear of or concern about or experienced police harassment or arrest

[ϕ] Computed by who replied "yes" to both questions:

1. Have you been tested for HIV in the last 12 months?

2. If yes, I don't want to know the results, but did you receive the results of that test?

Self-perception of risk of HIV and reasons for those perceptions (Figure-18 and Table-37)

Approximately, 61.2-74.6% of FSWs perceived themselves to be at little or no risk of HIV (Figure-19) of whom 54.5-73.3% perceived that this was because they sometimes used condoms. A vast majority mentioned washing genital organs after having sex and being neat and clean as reasons for being at little or no risk of HIV.

Figure-18: Assessing own risk of HIV

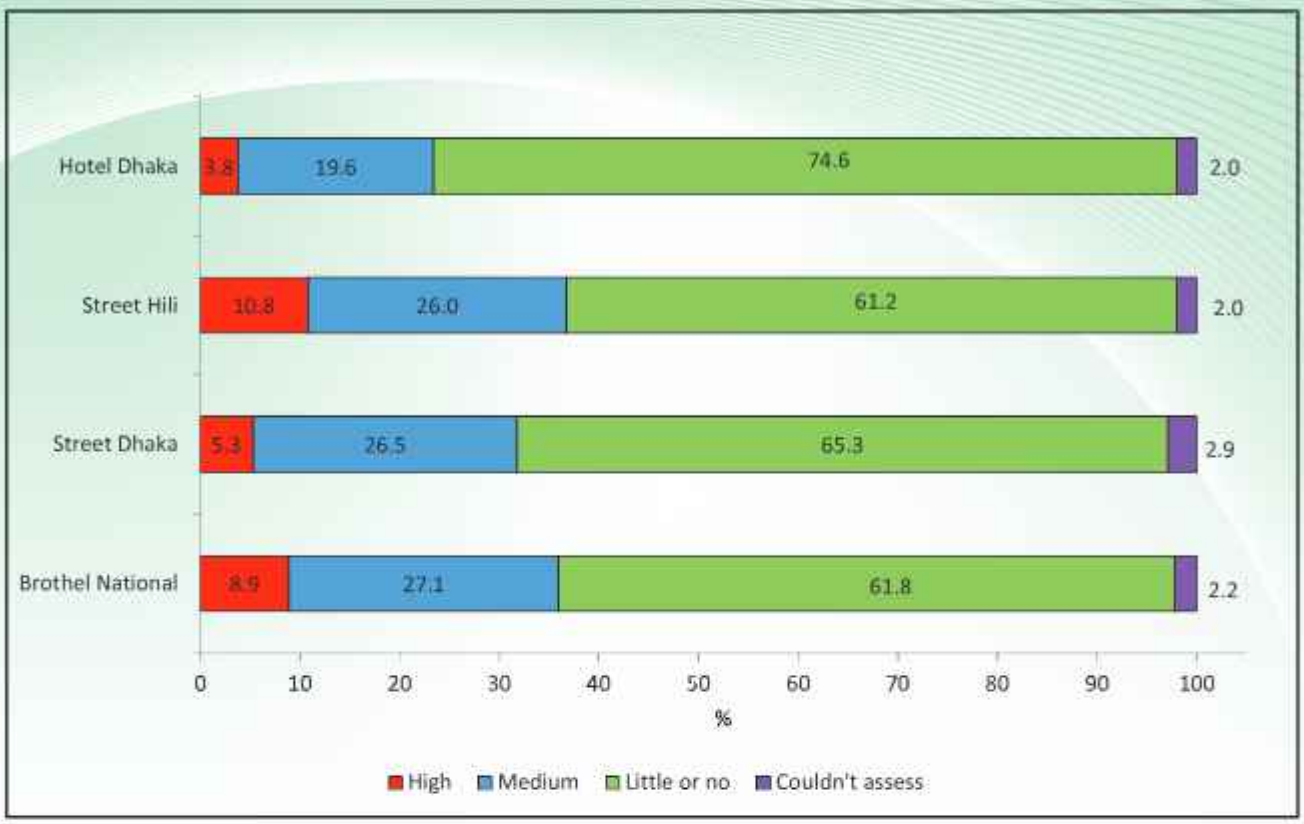


Table-37: Reasons for HIV risk perceptions

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Reasons for assessing themselves to be at high or medium risk (Denominator is who assessed themselves to be at high or medium risk)*	N=602	N=152	N=72	N=80
Risky profession	55.1 (47.6-62.5)	30.6 (20.9-42.4)	2.8 (0.6-12.3)	33.8 (22.0-47.9)
Frequent vaginal sex	42.4 (33.8-51.4)	59.6 (49.4-69.2)	81.9 (70.3-89.7)	22.5 (8.1-48.8)
Sometime use of condom	95.7 (93.0-97.4)	91.0 (75.4-97.1)	90.3 (77.9-96.1)	88.8 (80.6-93.7)
Never use condom	0.2 (0.0-0.7)	0	1.4 (0.2-10.8)	0
Share needles/syringes	0.2 (0.0-1.9)	0	0	0
Condom broken	0	0	0	1.3 (0.2-6.0)
Didn't test for HIV in the last 2 years	0.3 (0.1-1.6)	0	0	0
Reasons for assessing themselves to be at little or no risk (Denominator is who assessed themselves to be at little or no risk)*	N=1032	N=280	N=120	N=255

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Always use condoms	13.3 (8.3-20.6)	20.7 (14.6-28.6)	15.8 (9.7-24.8)	21.6 (16.7-27.4)
Sometime use condoms	69.3 (58.1-78.6)	65.6 (56.7-73.5)	73.3 (60.7-83.1)	54.5 (50.2-58.8)
Sex with trusted partner	3.3 (1.4-7.7)	0.6 (0.1-2.5)	0.8 (0.1-6.4)	4.7 (1.0-18.8)
Be neat and clean	69.4 (50.9-83.2)	60.9 (51.8-69.2)	75.8 (66.1-83.5)	71.8 (56.4-83.3)
Have less sex	8.0 (5.9-10.9)	23.1 (17.3-30.1)	20.8 (11.4-35.1)	12.9 (8.3-19.7)
Wash genitals after sex	74.5 (66.2-81.4)	68.4 (60.2-75.7)	80.8 (66.2-90.1)	62.7 (46.0-76.9)
Clean/healthy partner	24.6 (16.7-34.7)	32.7 (26.9-39.1)	25.0 (16.5-36.0)	26.3 (8.2-58.6)
Others	1.6 (0.5-4.9)	0.5 (0.1-1.8)	0	3.9 (2.0-7.6)

*Multiple responses

Measures taken to avoid STIs and HIV (Table-38)

In all settings, the most common method used for avoiding STIs was washing genital organs after having sex followed by sometimes using condoms. A similar scenario was observed for avoiding HIV.

Table-38: Measures taken to avoid STIs and HIV

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Measures taken to avoid STIs*				
Do nothing	0.5 (0.3-1.0)	2.1 (1.0-4.5)	0.5 (0.1-4.0)	1.7 (0.7-4.1)
Wash genital organs with water/soap/Dettol/urine	89.7 (88.1-91.1)	65.0 (57.3-71.9)	89.3 (82.1-93.8)	81.1 (73.6-86.9)
Always use condoms	8.7 (5.4-13.7)	15.4 (10.7-21.6)	11.7 (7.0-19.0)	17.4 (12.8-23.3)
Sometimes use condoms	88.0 (83.0-91.6)	76.0 (69.3-81.5)	83.7 (74.3-90.1)	65.4 (59.9-70.5)
Sex with healthy partner	2.4 (0.7-7.7)	8.9 (5.4-14.2)	9.7 (5.5-16.4)	2.9 (1.0-8.0)
Sex with clean partner	21.3 (14.8-29.5)	25.8 (20.2-32.4)	17.3 (11.4-25.5)	20.1 (6.4-47.9)
Take medicines	2.9 (1.0-8.6)	1.0 (0.4-2.7)	1.5 (0.3-6.8)	0
Do blood test	0.2 (0.0-0.9)	0	0	0
Be neat and clean	3.1 (1.6-6.0)	0	0	0
Measures taken to avoid HIV* (Denominator is who have heard about HIV)	N=1654	N=446	N=196	N=344
Do nothing	0.5 (0.3-0.9)	1.4 (0.5-3.8)	0.5 (0.1-4.0)	1.5 (0.6-3.3)
Wash genital organs with water/soap/Dettol/urine	89.8 (88.1-91.2)	65.1 (57.2-72.2)	89.8 (83.5-93.9)	79.1 (72.1-84.7)
Always use condom	8.8 (5.5-13.7)	15.6 (10.9-21.8)	11.7 (7.0-19.0)	17.4 (12.8-23.3)
Sometimes use condom	82.3 (75.1-87.8)	76.7 (70.0-82.3)	83.2 (73.5-89.8)	68.3 (62.6-73.6)
Take Medicine	1.0 (0.2-4.8)	0.3 (0.0-2.1)	1.0 (0.2-4.3)	1.7 (0.8-3.6)
Sex with healthy partner	4.5 (1.9-10.4)	9.1 (5.5-14.6)	12.8 (7.3-21.3)	5.2 (1.8-14.5)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Sex with clean partner	22.6 (16.3-30.6)	26.7 (20.7-33.7)	19.9 (12.6-30.0)	20.9 (6.1-51.8)

*Multiple responses

Violence against FSWs (Table-39)

Being raped, beaten or both in the last year was least commonly reported by brothel based FSWs (15.1%) compared to FSWs from other settings ($p<0.05$ for all comparisons). The perpetrators of violence varied between settings but common ones were lovers in brothels; hoodlums in streets of Dhaka, men in uniform in streets of Hili and family members and hoodlums in hotels of Dhaka. Amongst family members, husbands were the most common perpetrators. A very few reported having been jailed in the last year.

Table-39: Violence against FSWs

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Beaten or raped in the last year	15.1 (12.6-17.9)	44.9 (37.7-52.3)	42.3 (32.9-52.4)	30.5 (22.9-39.4)
Beaten in the last year	14.3 (12.2-16.5)	41.6 (34.7-48.9)	38.3 (29.0-48.5)	27.6 (20.7-35.8)
Beating was perpetuated by* (Denominator who reported being beaten in the last year)	N=238	N=190	N=75	N=95
Men in uniform	3.4 (1.7-6.5)	52.6 (42.4-62.6)	70.7 (57.7-80.9)	1.1 (0.2-4.6)
Hoodlums	2.9 (1.4-6.3)	56.3 (46.3-65.8)	22.7 (13.3-35.9)	2.1 (0.1-23.8)
New clients	5.0 (1.7-13.8)	2.9 (1.1-7.6)	2.7 (0.6-11.1)	2.1 (0.5-8.2)
Regular clients	9.2 (5.0-16.4)	2.7 (1.2-6.3)	4.0 (1.3-11.9)	3.2 (0.9-11.0)
Local people	3.8 (1.9-7.4)	15.5 (10.7-22.1)	6.7 (2.1-19.2)	1.1 (0.2-4.6)
Family members/Relatives	9.7 (6.4-14.4)	22.0 (16.3-29.0)	28.0 (17.9-40.9)	76.8 (65.6-85.2)
Mashi	21.8 (11.7-37.0)	0.4 (0.0-2.6)	1.3 (0.2-10.0)	0
Lover	42.4 (25.8-60.9)	3.8 (1.8-8.0)	0	11.6 (7.8-16.9)
Others	6.3 (3.5-11.2)	6.8 (2.2-18.8)	2.7 (0.6-10.5)	5.3 (1.5-16.5)
Type of relatives beating was perpetuated by (Denominator is who reported beaten by relatives), Number	N=23	N=40	N=21	N=73
Sister in law/brother in law	-	-	-	2
Husband	19	34	18	61
Parents	4	6	-	7
Sibling	-	-	3	1

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Cousin	-	-	-	2
Raped in the last year	3.2 (2.3-4.3)	14.7 (11.0-19.5)	15.3 (9.9-23.0)	7.0 (4.8-10.0)
Rape was perpetuated by* (Denominator who reported being raped in the last year)	N=53	N=70	N=30	N=24
Men in uniform	1.9 (0.2-16.2)	27.0 (17.7-38.9)	66.7 (49.1-80.6)	16.7 (7.3-33.7)
Hoodlums	18.9 (5.8-46.6)	85.6 (74.2-92.5)	43.3 (26.2-62.3)	25.0 (8.6-54.0)
New clients	15.1 (6.4-31.6)	2.5 (0.6-10.2)	0	12.5 (3.9-33.6)
Regular clients	22.6 (11.9-38.9)	0	10.0 (3.3-26.8)	8.3 (1.9-29.6)
Local people	15.1 (8.0-26.8)	17.7 (9.2-31.3)	6.7 (1.4-26.9)	16.7 (8.9-29.0)
Family members/Relatives	1.9 (0.4-8.7)	0	0	20.8 (8.2-43.6)
Lover	37.7 (15.7-66.4)	0	0	4.2 (0.5-27.0)
Pimp/Manager	1.9 (0.2-16.9)	2.0 (0.5-8.2)	3.3 (0.4-24.1)	16.7 (5.0-43.0)
Were jailed in the last year	1.6 (1.2-2.3)	8.2 (4.8-13.9)	3.1 (1.3-7.2)	14.2 (9.8-20.2)
Reasons for being jailed in the last year (Denominator is who had been to jail in the last year)	N=27	N=29	N=6	N=49
For selling sex	51.9 (32.2-70.9)	87.2 (51.0-97.8)	66.7 (9.9-97.3)	93.9 (87.9-97.0)
Antisocial activities	3.7 (0.3-31.9)	9.5 (1.0-51.3)	33.3 (2.7-90.1)	0
For taking methamphetamine	18.5 (8.6-35.4)	3.3 (0.3-25.2)	0	0
Section 54 (Suspicious behaviour)	7.4 (2.1-22.9)	0	0	2.0 (0.1-24.7)
Others	18.5 (9.2-33.7)	0	0	4.1 (1.4-11.0)

*Multiple responses

Mobility and selling sex while travelling (Table-40)

A substantial percentage of FSWs travelled within the country as well as abroad in the last year. Of the street and hotel FSWs who travelled within the country 35.1%-64.3% sold sex while travelling. Amongst them, condom use in the last sex act was reported by more than 60%. Travelling abroad was most common in street based FSWs from Hili compared to FSWs in other settings ($p<0.05$ for all comparisons). Among those who travelled outside the country, 77.5% of the FSWs in Hili sold sex of whom 58% used condom in the last sex act. India was the most common destination and all FSWs who went abroad in Hili travelled to India in the last year whilst hotel based FSWs also travelled to other countries in the Middle East, South and South East Asia.

Table-40: Mobility and selling sex while travelling

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Travelled within the country				
Visited another city in the last year	24.9 (20.6-29.7)	37.6 (31.8-43.8)	35.7 (27.8-44.5)	41.7 (33.9-49.9)
Sold sex while visiting another city in the last year (Denominator is who visited another city in the last year)	N=416 7.5 (2.9-18.0)	N=174 35.1 (26.2-45.2)	N=70 60.0 (43.3-74.7)	N=143 64.3 (47.0-78.6)
Used condom in the last sex act while selling sex in another city in the last year (Denominator is who visited another city and sold sex in the last year)	N=31 64.5 (42.2-81.9)	N=60 62.3 (46.8-75.6)	N=42 78.6 (55.6-91.5)	N=92 83.7 (71.1-91.5)
Had non-commercial sex while visiting another city in the last year (Denominator is who visited another city in the last year)	N=416 3.4 (1.3-8.4)	N=174 11.3 (6.7-18.5)	N=70 0	N=143 9.1 (3.8-20.1)
Used condom in the last non-commercial sex act while visiting another city in the last year (Denominator is who visited another city and had non-commercial sex in the last year)	N=14 28.6 (7.8-65.5)	N=23 3.5 (0.4-25.4)	N=0 -	N=13 38.5 (5.4-87.2)
Travelled abroad				
Travelled abroad in the last year	0.7 (0.3-1.6)	0.2 (0.0-1.4)	45.4 (34.1-57.2)	3.5 (2.2-5.5)
Had non-commercial sex while abroad in the last year (Denominator is who travelled abroad in the last year)	N=11 9.1 (1.1-47.0)	N=1 0	N=89 12.4 (6.1-23.3)	N=12 8.3 (0.2-83.7)
Used condom in the last non-commercial sex act while abroad in the last year (Denominator is who travelled abroad and had non-commercial sex in the last year)	Only 1 person	N=0	N=11 9.1 (0.7-57.1)	N=1 0
Sold sex while abroad in the last year (Denominator is who travelled abroad in the last year)	N=11 36.4 (12.5-69.6)	N=0	N=89 77.5 (67.4-85.2)	N=12 58.3 (28.2-83.3)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Used condom in the last sex act while selling sex abroad in the last year (Denominator is who travelled abroad and sold sex in the last year)	N=4 75.0 (0.4-100.0)	N=0	N=69 58.0 (43.5-71.2)	N=7 85.7 (6.2-99.8)

Exposure to HIV/AIDS prevention programmes (Table-41)

Other than hotel based FSWs, the vast majority of FSWs from other sites said they had at some time participated in an HIV/AIDS prevention programme. The difference in percentages between hotel FSWs participating in these programmes ever in their lifetime or in the last year (45.9% and 10.8% respectively) with FSWs from other settings was significant ($p<0.05$ for all comparisons). In the last three months, participation was also low among brothel based FSWs (15.1%). Of those who participated in HIV/AIDS prevention programmes in the last year, most had received condoms, many had attended educational programmes and received general health services; a large percentage of hotel FSWs said they had received treatment for STIs. Most FSWs in all settings said that the HIV/AIDS prevention programme had helped them to learn about HIV/AIDS/STD/safe sex and the correct use of condoms.

Table-41: Exposure to HIV/AIDS prevention programmes

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Ever participated in HIV/AIDS prevention programmes, % (95% CI)	90.4 (86.5-93.3)	84.5 (78.5-89.1)	99.0 (95.8-99.8)	45.9 (35.8-56.4)
Duration of involvement with HIV/AIDS prevention programmes (Denominator is who had ever participated in any HIV/AIDS intervention programmes)	N=1509	N=385	N=194	N=157
Mean (95% CI)	77.8 (65.5-90.1)	53.6 (47.4-59.9)	39.7 (35.1-44.2)	35.7 (30.7-40.6)
Median (IQR)	60.0 (36.0-120.0)	48.0 (36.0-60.0)	36.0 (24.0-60.0)	28.0 (24.0-48.0)
Time since last participation in HIV/AIDS prevention programmes (Denominator is who had ever participated in any HIV/AIDS intervention programmes)	N=1509	N=385	N=194	N=158
Mean (95% CI)	5.4 (4.3-6.4)	4.6 (3.2-5.9)	0.03 (0.0-0.08)	20.4 (16.5-24.3)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Median (IQR)	6.0 (4.0-6.0)	0.0 (0.0-7.0)	0.0 (0.0-0.0)	18.0 (12.0-25.0)
Participated in any HIV/AIDS prevention programmes in the last year, % (95% CI)	85.7 (80.4-89.8)	71.6 (64.2-78.0)	99.0 (95.8-99.8)	10.8 (5.8-19.1)
Participated in any HIV/AIDS prevention programmes in the last three months, % (95% CI)	15.1 (4.9-38.4)	53.9 (45.5-62.0)	99.0 (95.8-99.8)	5.5 (2.7-11.1)
Participated in any HIV/AIDS prevention programmes in the last month, % (95% CI)	12.4 (3.6-34.8)	48.6 (40.2-57.2)	97.4 (91.7-99.2)	4.4 (1.9-9.5)
Number of times participated in the prevention programmes in the last month (Denominator is who had participated in the HIV/AIDS prevention programmes in the last month)	N=207	N=222	N=191	N=14
Mean (95% CI)	1.5 (1.2-1.8)	2.5 (2.1-2.8)	2.5 (2.2-2.8)	3.1 (1.0-5.3)
Median (IQR)	1.0 (1.0-2.0)	2.0 (1.0-4.0)	2.0 (2.0-3.0)	1.5 (1.0-4.0)
Reported being involved with different types of prevention programmes in the last month* (Denominator is who participated in any prevention programmes in the last month), % (95% CI)	N=207	N=222	N=191	N=15
Needles/ Syringes programme	0	0	0	0
Educational programme	72.9 (65.0-79.7)	90.4 (84.4-94.2)	85.3 (77.0-91.0)	60.0 (24.8-87.2)
Received condoms	88.9 (76.8-95.1)	98.3 (94.4-99.5)	100.0	86.7 (62.1-96.3)
Received lubricants	25.1 (10.2-49.8)	28.1 (21.0-36.4)	11.0 (5.3-21.4)	33.3 (15.8-57.1)
Treatment received for STIs	38.2 (26.3-51.6)	41.4 (32.7-50.6)	34.6 (26.2-44.0)	66.7 (35.4-87.9)
Received general health treatment	56.5 (43.9-68.3)	56.7 (47.3-65.6)	48.7 (39.8-57.7)	40.0 (17.2-68.2)
Attended DIC for rest and recreation	7.2 (3.4-14.8)	67.7 (58.5-75.8)	57.6 (46.7-67.8)	33.3 (10.7-67.5)
Received HTC	49.8 (34.0-65.5)	87.1 (80.3-91.8)	90.1 (84.4-93.8)	46.7 (26.9-67.6)
Reported being involved with different types of prevention programmes in the last year* (Denominator is who participated in any prevention programmes in the last year), % (95% CI)	N=1432	N=330	N=194	N=37
Needles/ Syringes programme	0	0	0	0
Educational programme	69.2 (61.1-76.3)	86.1 (80.3-90.4)	85.1 (76.4-90.9)	73.0 (47.4-89.0)
Received condoms	97.3 (91.6-99.2)	97.8 (94.7-99.1)	99.5 (96.1-99.9)	86.5 (71.4-94.3)

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated	Dhaka N=448 unless otherwise stated	Hili N=196 unless otherwise stated	Dhaka N=344 unless otherwise stated
Received lubricants	49.6 (35.4-63.8)	27.5 (21.6-34.2)	11.3 (5.4-22.3)	54.1 (38.5-68.8)
Treatment received for STIs	33.7 (25.0-43.7)	37.0 (29.4-45.2)	34.0 (25.6-43.6)	43.2 (29.0-58.7)
Received general health treatment	61.7 (56.2-66.9)	57.4 (48.9-65.6)	48.5 (39.9-57.1)	32.4 (17.7-51.7)
Attended DIC for rest and recreation	4.3 (1.5-11.3)	64.3 (56.2-71.6)	58.2 (47.6-68.2)	27.0 (15.0-43.7)
Received HTC	30.5 (19.9-43.7)	81.5 (75.0-86.6)	90.2 (84.6-93.9)	45.9 (31.8-60.8)
Vocational training	0.1 (0.0-0.9)	0	0	0
Received a combination of HIV/AIDS prevention programmes in the last three months‡, % (95% CI)	4.3 (1.3-13.1)	28.5 (22.2-35.9)	39.8 (30.8-49.6)	1.7 (0.9-3.4)
Reached with HIV/AIDS prevention programmes in the last year§, % (95% CI)	64.7 (56.6-72.1)	67.4 (59.8-74.2)	96.9 (90.8-99.0)	7.8 (4.2-14.1)
Benefited from HIV/AIDS prevention programmes in the last year* (Denominator is who participated in any HIV/AIDS prevention programmes in the last year), % (95% CI)	N=1510 52.1 (33.3-70.3)	N=385 50.1 (41.2-58.9)	N=194 43.8 (34.2-53.9)	N=158 35.4 (26.9-45.0)
Helped in changing risk behaviour	28.1 (13.6-49.4)	30.7 (23.3-39.2)	32.5 (24.9-41.1)	31.6 (25.8-38.1)
Received useful information but did not change behaviour	88.6 (82.8-92.7)	90.2 (84.4-94.1)	90.7 (83.5-95.0)	89.9 (84.3-93.6)
Learnt about HIV/AIDS/STD/safe sex and correct use of condom	1.3 (0.5-3.4)	0.8 (0.3-2.7)	0	1.3 (0.4-3.9)
Information was hard to understand	0.4 (0.1-1.1)	0	0	1.3 (0.3-5.3)
Information was not relevant to their needs	0	0	0	0.6 (0.1-4.5)
Got a place to rest				

*Multiple responses

IQR refers to Inter Quartile Range

‡Who received at least two services in the last three months: condom/lubricant/counselling on condom use and safe sex/STI services from NGOs

§Who replied 'yes' to both question:

1. Do you know where you can go if you wish to receive an HIV test?
2. In the last twelve months, have you been given condoms? (e.g., through an outreach service, drop-in centre or sexual health clinic)

Venues and usual means of contacting clients (Table-42)

Cruising spots were reported as the most common place for contacting clients. Besides cruising spots, cell phone was the second most common means to contact clients. No one reported using the internet (email or social media) as a means to contact clients.

Table-42: Venues and usual means of contacting clients

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Venues and usual means of contacting clients*				
Cruising spot	0	93.8 (87.8-97.0)	94.4 (87.8-97.5)	0
Brothel/Hotel	99.8 (99.2-99.9)	0	0	96.8 (94.7-98.1)
By cell phone	56.1 (46.6-65.2)	82.8 (76.0-87.9)	98.0 (90.1-99.6)	33.4 (21.7-47.7)
By land phone	0.4 (0.2-0.8)	0	0	0.3 (0.0-2.6)
Internet (Social media, Email)	0	0	0	0
Through friends	4.3 (1.2-14.8)	10.3 (6.7-15.4)	18.4 (12.2-26.8)	1.7 (0.5-5.8)
Pimp (Dalal)	1.7 (0.7-4.5)	8.9 (5.8-13.4)	18.4 (11.1-28.8)	12.2 (5.3-25.8)
Club/party	0.1 (0.0-0.6)	0.9 (0.3-2.9)	0	1.2 (0.3-5.0)
Tea stall	0	39.3 (32.8-46.2)	27.0 (18.6-37.6)	0
On the street	0	6.2 (3.0-12.2)	5.6 (2.5-12.2)	0
Bazar/Market	0.2 (0.1-0.5)	6.1 (3.5-10.4)	4.1 (1.6-10.2)	0.9 (0.5-1.4)
Working place	0	0.9 (0.3-2.6)	1.5 (0.5-4.9)	0.6 (0.1-2.5)
At home	0	24.5 (18.5-31.6)	40.3 (29.3-52.4)	0.9 (0.3-2.2)

*Multiple responses

Using illicit drugs by FSWs, by their clients and sex partners (Figure-19 and Table-43)

More street based FSWs in Hili compared to FSWs in other settings took illicit drugs (other than alcohol and cannabis) in the last year ($p<0.05$ for all comparisons). Of those who had taken illicit drugs in the last year, most in Hili took codeine containing cough syrup while most FSWs in other settings commonly used methamphetamine. However, 59.1% of FSWs in Hili also took methamphetamine. FSWs had not injected drugs in the last year other than one from a brothel who had also shared her needles/syringes. However, several of their clients did inject drugs and a few of their non-transactional sex partners.

Figure-19: Illicit drugs used by FSWs, by their clients and sex partners

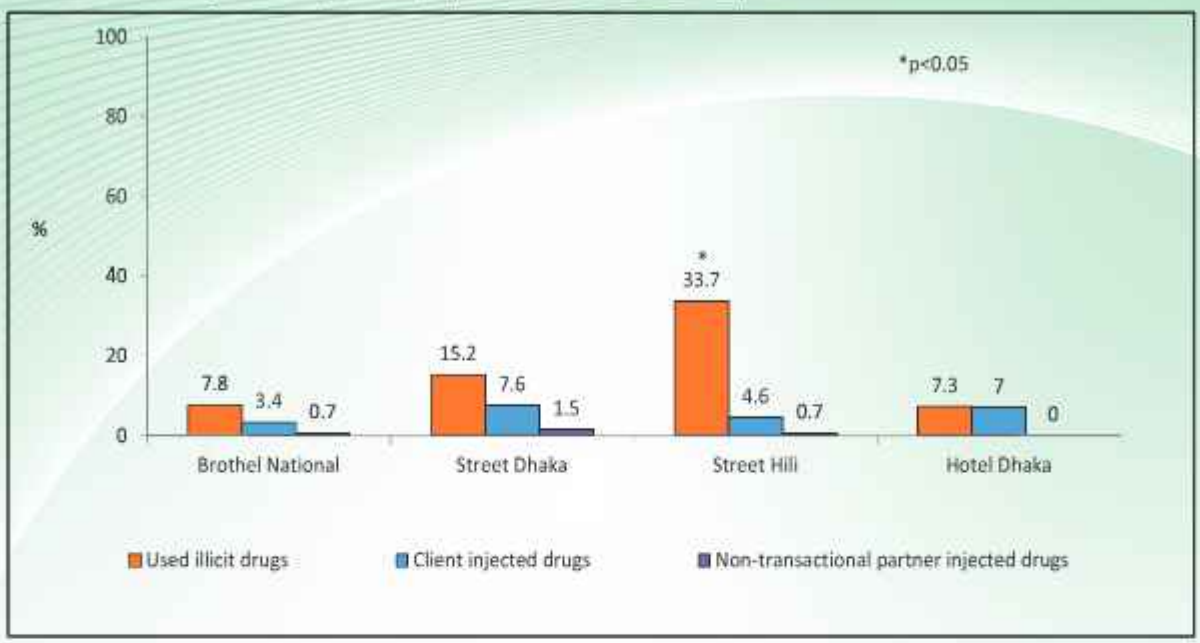


Table-43: Type of illicit drugs consumed by FSWs in the last year

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Type of drugs taken in the last year* (Denominator is who had taken drugs in the last year)	N=131	N=71	N=66	N=25
Codeine containing cough syrup (Phensidyl)	33.6 (24.4-44.2)	10.1 (4.8-20.1)	78.8 (66.5-87.4)	16.0 (6.6-34.0)
Heroin	7.6 (4.3-13.1)	2.6 (0.6-9.8)	1.5 (0.2-10.0)	4.0 (0.4-32.5)
Buprenorphine/Pethedine	0.8 (0.1-9.0)	0	0	0
Methamphetamine (Yaba)	85.5 (76.9-91.3)	89.7 (77.6-95.7)	59.1 (40.9-75.1)	92.0 (66.4-98.5)

*Multiple responses

History of selling blood

Selling blood in the last year was reported by a very few FSWs. Only 0.2% (95% CI: 0-0.9) of the FSWs in brothels, 0.5% (95% CI: 0.1-3.9) in the streets of Hili and 1.2% (95% CI: 0.4-3.2) FSWs in the hotels in Dhaka sold blood in the last year.

Profile of clients and sex partners of non-transactional partners'(Table-44)

Businessmen were commonly cited as clients by the FSWs. Drivers of motor vehicles were also common customers. More than half of the FSWs in brothels said that their non-transactional sex partners had a spouse or other sex partners and this was more than for FSWs in other settings ($p<0.05$ for all comparisons).

Table-44: Profile of clients and sex partners of non-transactional partners

Indicators	Brothel	Street		Hotel
	National N=1670 unless otherwise stated % (95% CI)	Dhaka N=448 unless otherwise stated % (95% CI)	Hili N=196 unless otherwise stated % (95% CI)	Dhaka N=344 unless otherwise stated % (95% CI)
Commonly reported occupation of clients (new and regular)				
Do not know	4.4 (2.9-6.7)	1.3 (0.4-3.8)	2.0 (0.6-6.9)	4.7 (2.2-9.6)
Student	12.5 (7.7-19.6)	6.3 (3.8-10.2)	0.5 (0.1-4.0)	3.5 (1.4-8.6)
Rickshaw puller	8.0 (6.6-9.5)	18.9 (14.1-24.9)	16.3 (11.1-23.3)	2.0 (0.7-5.8)
Men in uniform	1.1 (0.6-2.0)	0	1.0 (0.3-4.1)	0.9 (0.3-2.8)
Service holder	12.0 (10.1-14.3)	28.6 (23.7-34.0)	13.8 (7.1-24.9)	24.7 (17.6-33.6)
Businessmen	34.3 (28.3-40.8)	18.4 (13.8-24.1)	25.0 (17.8-34.0)	60.5 (51.7-68.6)
Day labourer	6.5 (4.3-9.7)	7.2 (4.2-12.0)	14.8 (8.8-23.9)	0.6 (0.1-4.0)
Unemployed	0.2 (0.1-0.5)	0.1 (0.0-1.1)	0	0.3 (0.1-1.3)
Motor driver	20.2 (10.4-35.6)	19.3 (14.2-25.5)	26.5 (19.6-34.8)	2.9 (1.0-8.1)
Farmer	0.6 (0.3-1.4)	0	0	0
Doctor	0.1 (0.0-0.7)	0	0	0
Steamer staff	0.2 (0.0-3.0)	0	0	0
Non-transactional sex partners of FSWs who said they had spouse/other sex partner (Denominator is FSWs who had non- transactional sex partners in the last month)	N=671 51.4 (46.5-56.3)	N=283 27.0 (21.4-33.5)	N=150 31.3 (23.1-41.0)	N=185 23.8 (18.0-30.8)

B. Changes in some key risk behaviours over the rounds of surveillance

Changes in some selected risk behaviours have been analysed over four BSS rounds from 2002-2016 for FSWs in Dhaka and brothels. As FSWs in Hili were included for the first time in 2016 comparisons with earlier years is not been possible.

Se with new and regular clients in the last week (Figures- 0 and 1)

In brothels, the percentage of FSWs who sold sex in the last week to new or regular clients did not change over the years however, compared to 2006/07 there was a significant decline in 2016 ($p<0.05$ for both comparisons). In the streets and hotels in Dhaka, there was significant decline in the percentages of FSWs selling sex to new or regular clients over the years ($p<0.05$ for all comparisons).

Figure-20: Had sex with new clients in the last week over the rounds

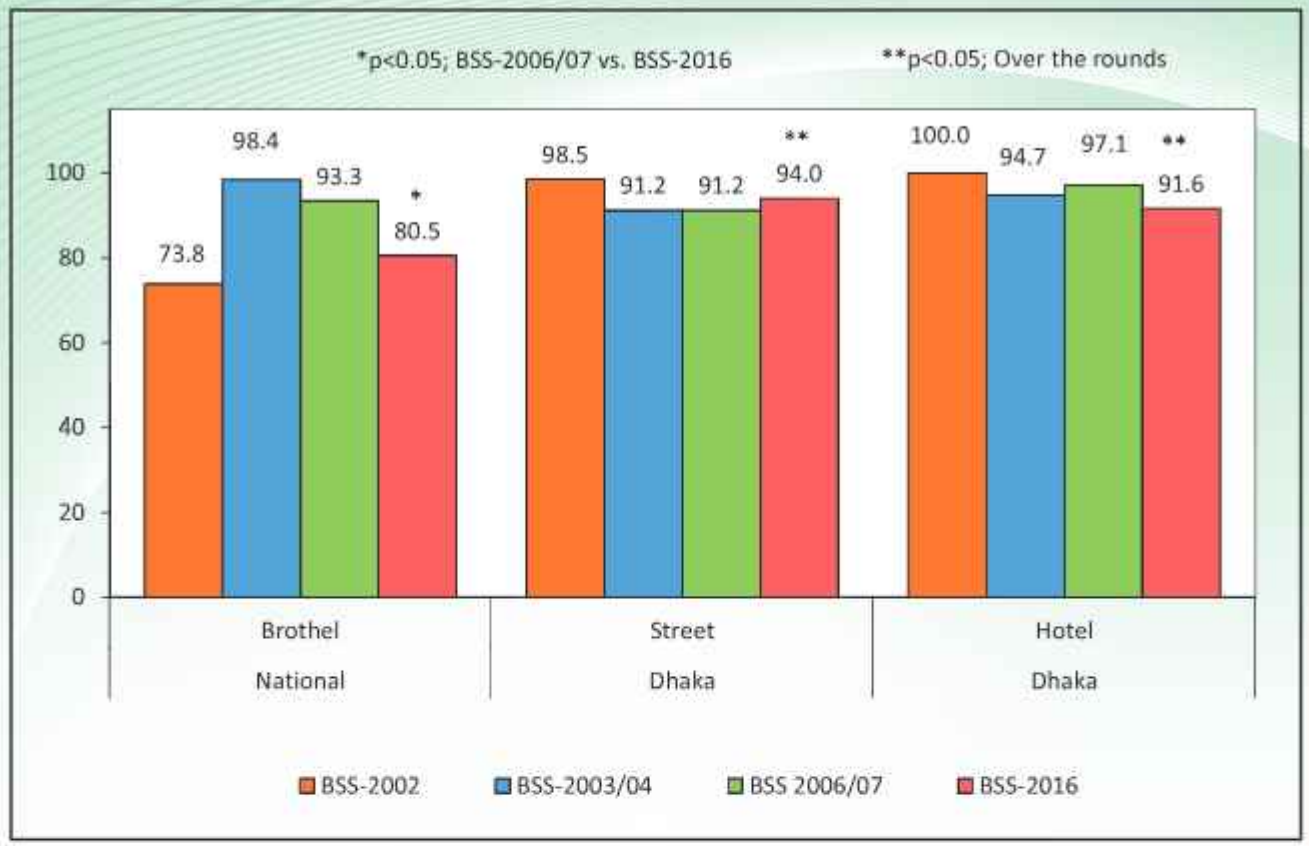
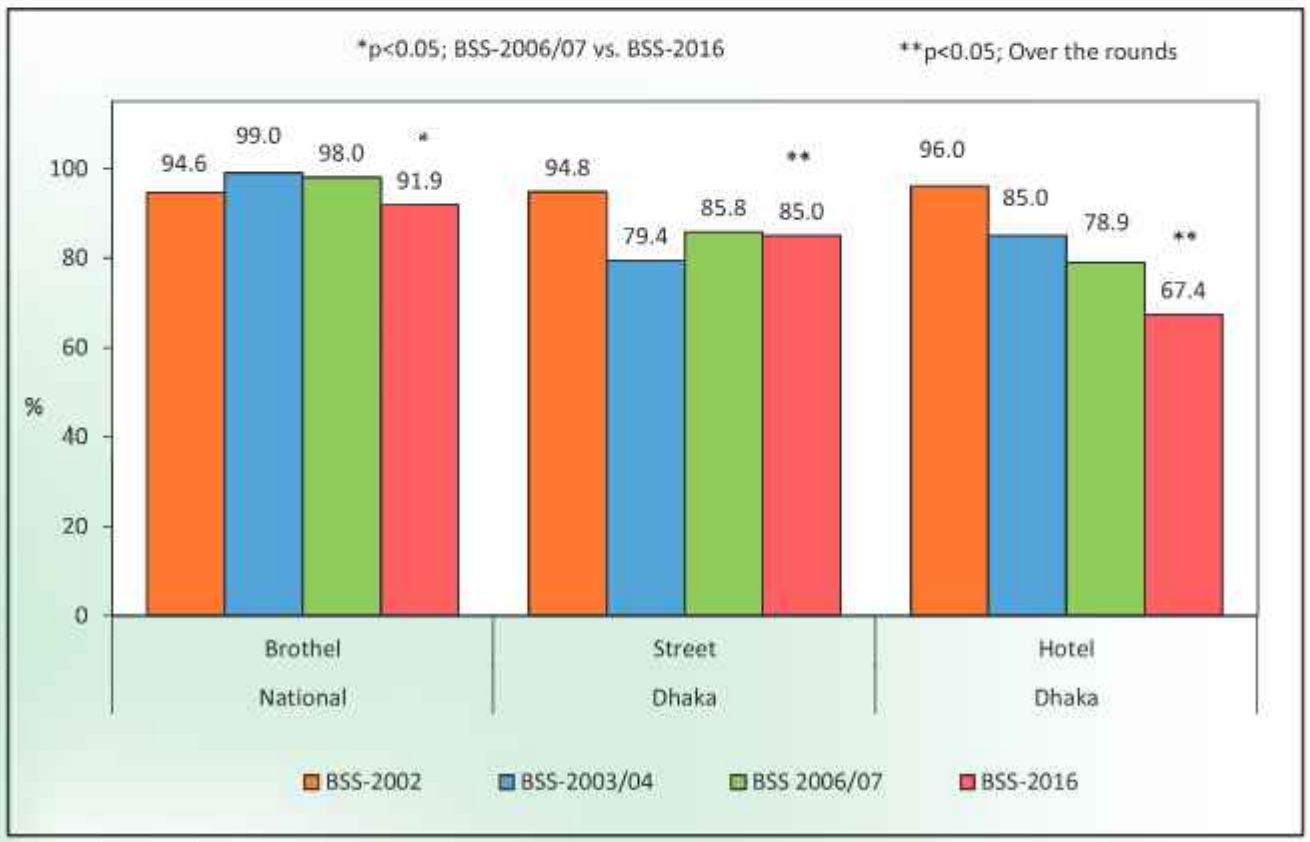


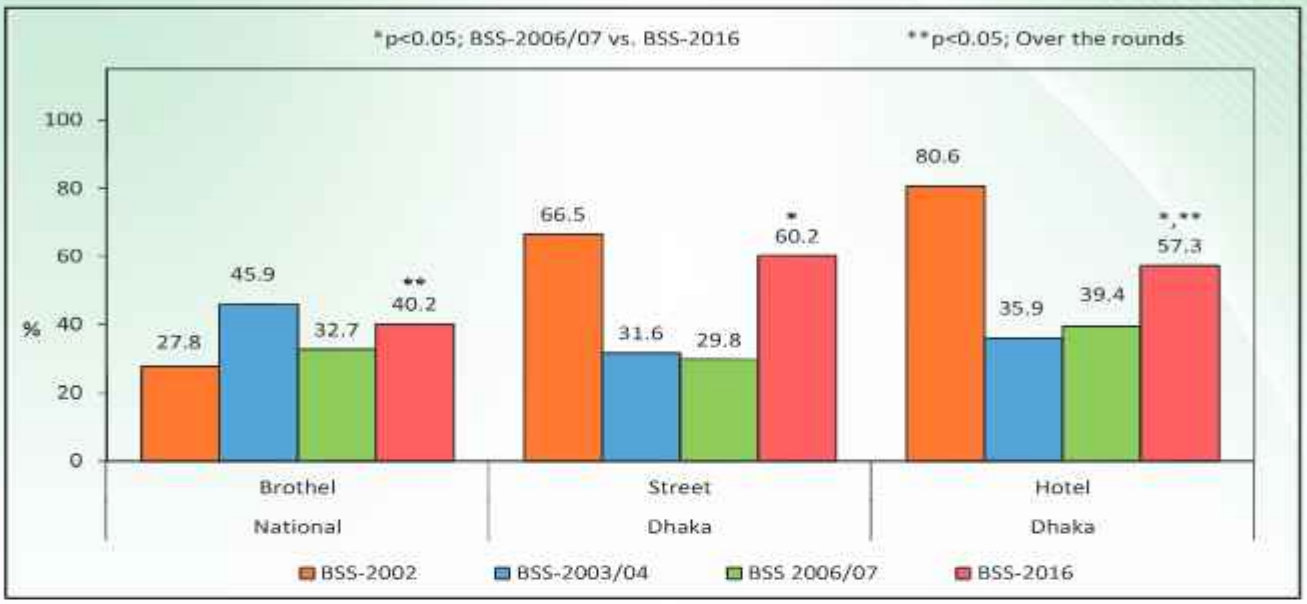
Figure-21: Had sex with regular clients in the last week over the rounds



Had sex with non-transactional sex partners in the last month (Figure-22)

Over the rounds, more FSWs had non-transactional sex partners in brothels while fewer FSWs in hotels of Dhaka reported this ($p<0.05$ for all comparisons). Compared to 2006/07, the percentages of street and hotel FSWs in Dhaka who had non-transactional sex partners increased significantly in 2016 ($p<0.05$ for both comparisons).

Figure-22: Had sex with non-transactional males in the last month over the rounds



Condom use with new and regular clients in the last sex act in the last week (Figures-23 and 24)

Over the rounds, the percentages of FSWs (from all sites) using a condom in the last sex act with new and regular clients in the last week increased significantly ($p<0.05$ for all comparisons). A significant increase for this indicator between 2006/07 and 2016 was also observed among FSWs in hotels ($p<0.05$ for both new and regular clients).

Figure-23: Used condom during last vaginal sex with new clients in the last week over the rounds

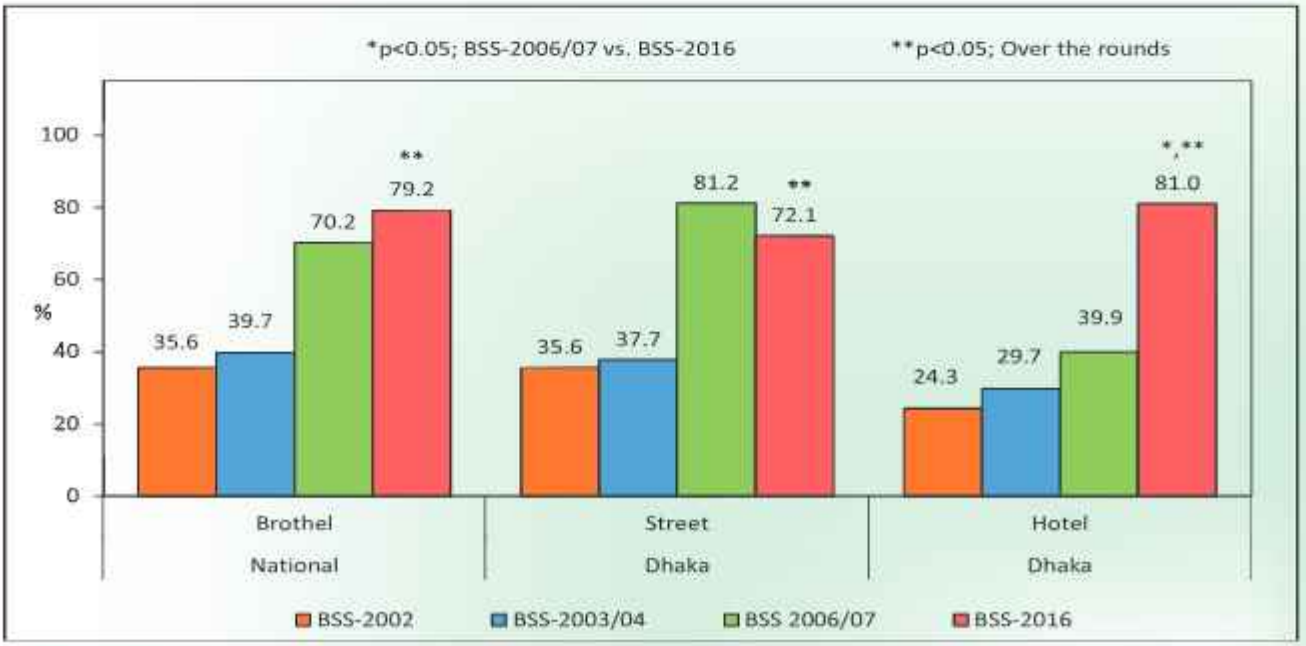
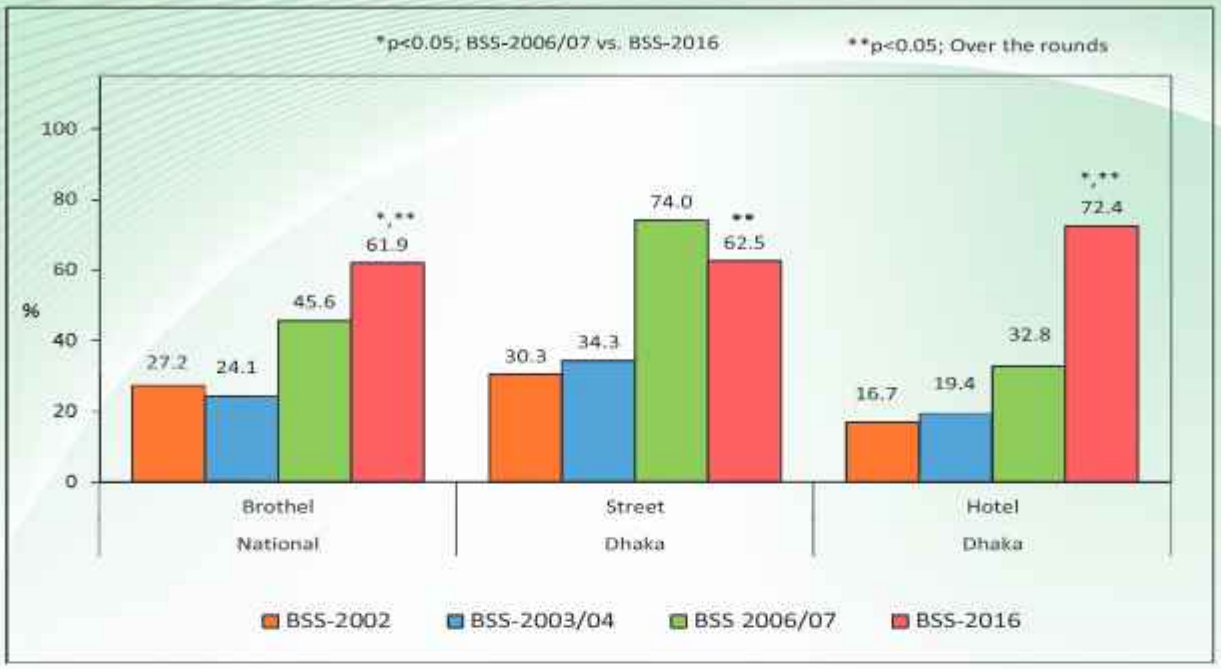


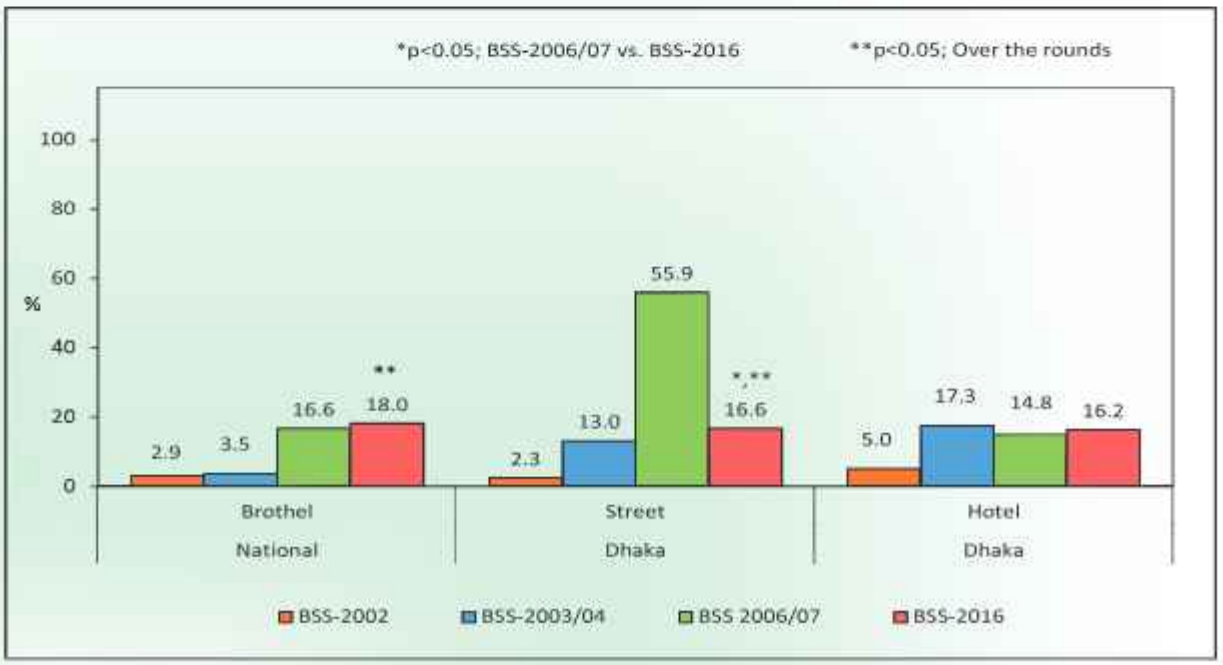
Figure-24: Used condom during last vaginal sex with regular clients in the last week over the rounds



Condom use with non-transactional sex partners in the last sex act in the last month (Figure-25)

Over the rounds, more FSWs from brothels and streets of Dhaka said they used a condom during last sex in the last month with non-transactional sex partners ($p<0.05$ for all comparisons) while no change was observed among hotel based FSWs. Compared to 2006/07, condom use with non-transactional sex partners significantly declined in 2016 among FSWs in the streets in Dhaka ($p<0.05$).

Figure-25: Used condom during last vaginal sex with non-transactional males in the last month over the rounds



Consistent condom use with new and regular clients during the last week (Figures-26 and 27)

Over the rounds, consistent use of condoms during the last week significantly increased with both new and regular clients in FSWs from all sites ($p<0.05$ for all comparisons). Significant increase between 2006/07 and 2016 was noted only among FSWs from hotels of Dhaka, with both new and regular clients ($p<0.05$ for both comparisons).

Figure-26: Used condom consistently during vaginal/anal sex with new clients in the last week over the rounds

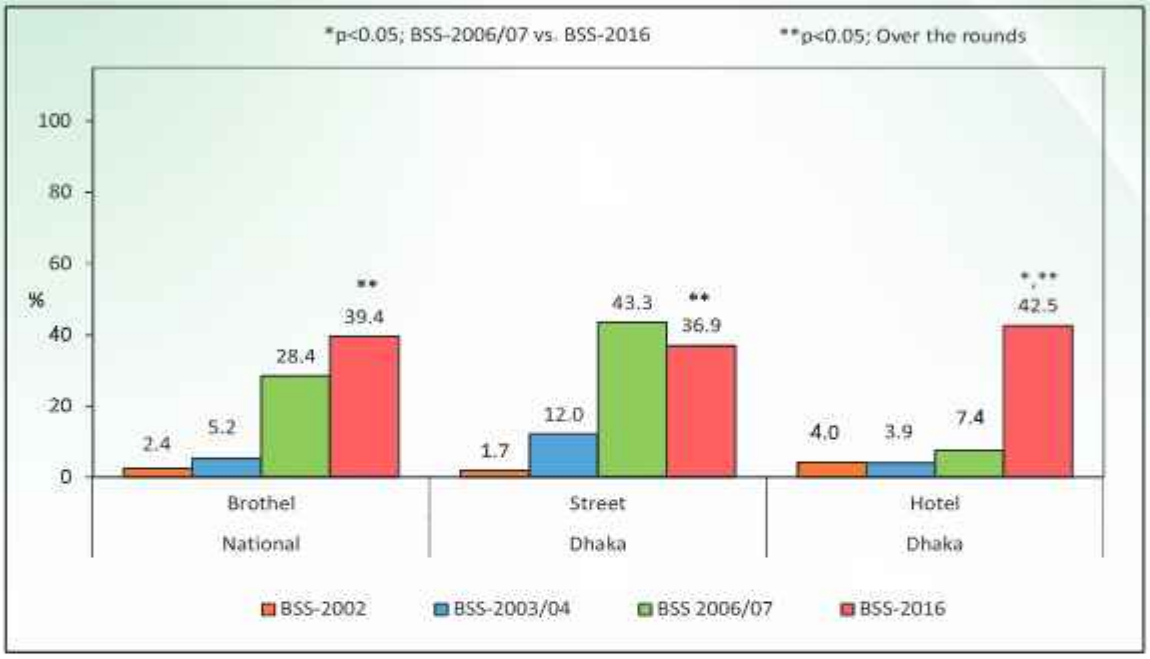
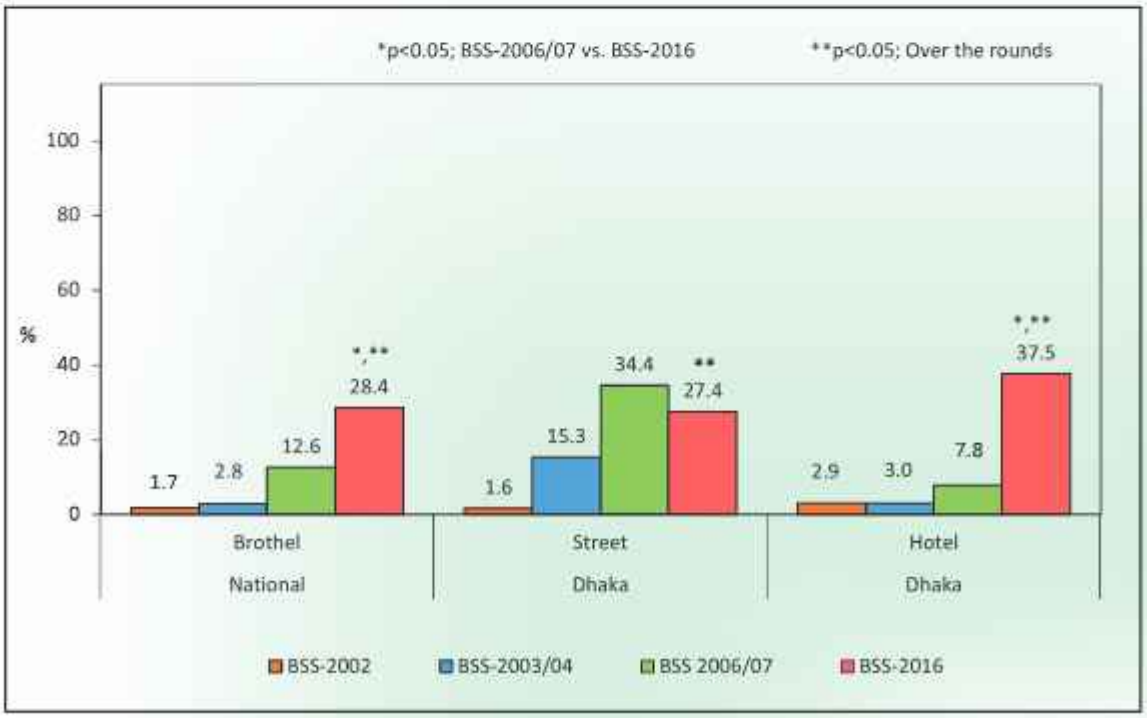


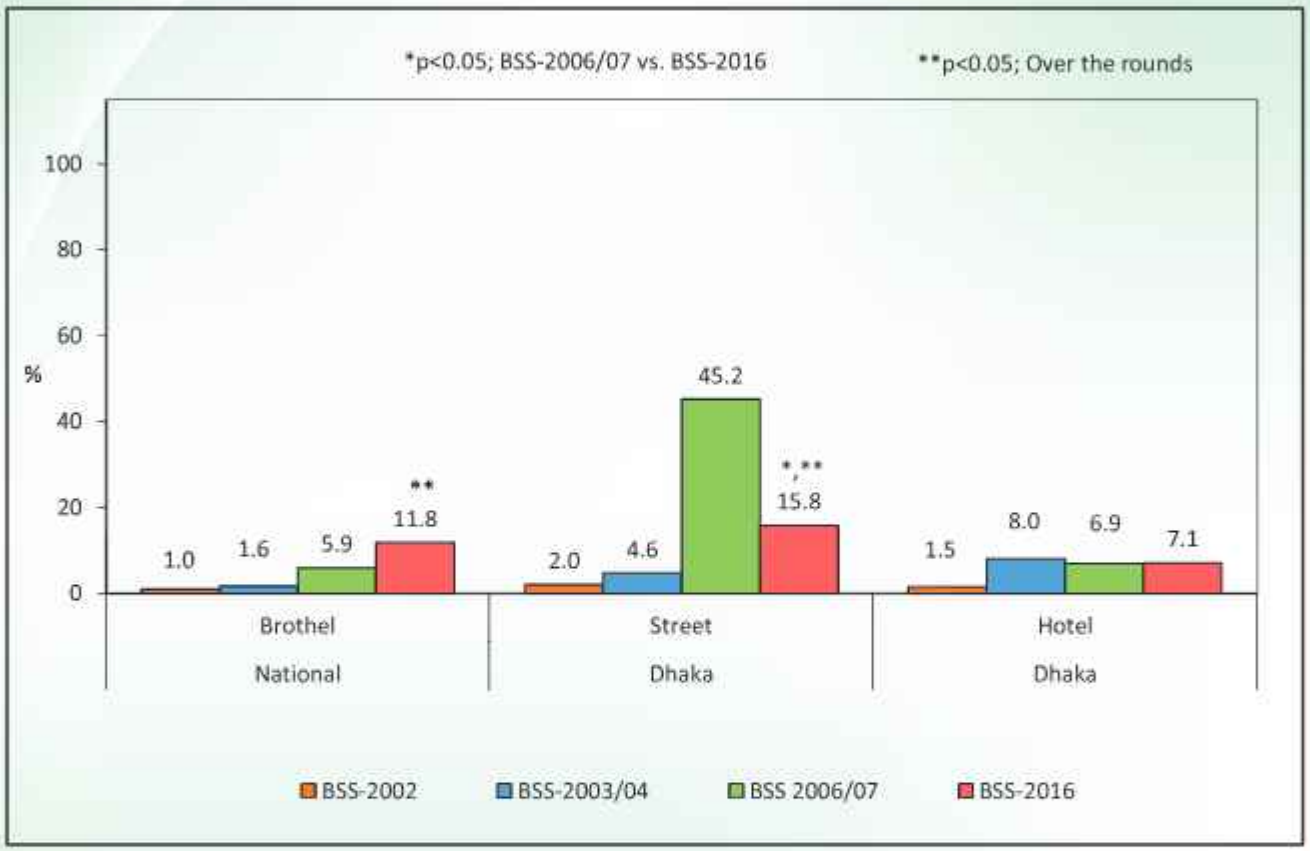
Figure-27: Used condom consistently during vaginal/anal sex with regular clients in the last week over the rounds



Consistent condom use with non-transactional sex partners during the last month (Figure-28)

Over the rounds, consistent use of condoms during the last week with non-transactional sex partners increased significantly both in brothel and street FSWs in Dhaka ($p<0.05$ for all comparisons). However, compared to 2006/07, consistent use of condoms significantly declined in 2016 among the FSWs in the streets of Dhaka ($p<0.05$).

Figure-28: Used condom consistently during vaginal/anal sex with non-transactional males in the last month over the rounds



Illicit drug use by the FSWs and their clients (Figures-29 and 30)

Over the rounds, fewer FSWs in brothels and hotels in Dhaka reported using illicit drugs in the last year ($p<0.05$ for both comparisons) and among FSWs from streets of Dhaka fewer reported this in 2016 compared to 2006/07 ($p<0.05$) (Figure-30). Among new/regular clients of the FSWs significant decline in injecting drugs was observed over the rounds only in the hotels of Dhaka ($p<0.05$) (Figure-31).

Figure-29: FSWs who used illicit drugs (except alcohol and cannabis) in the last year over the rounds

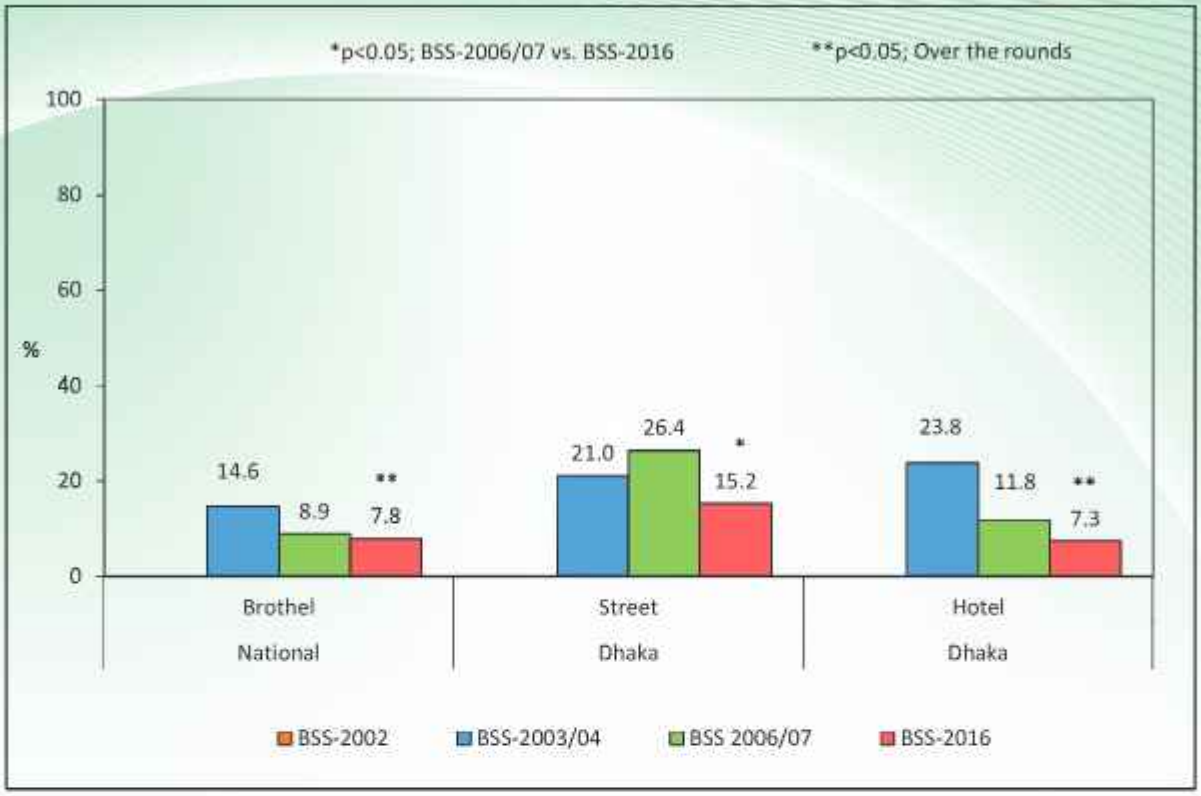
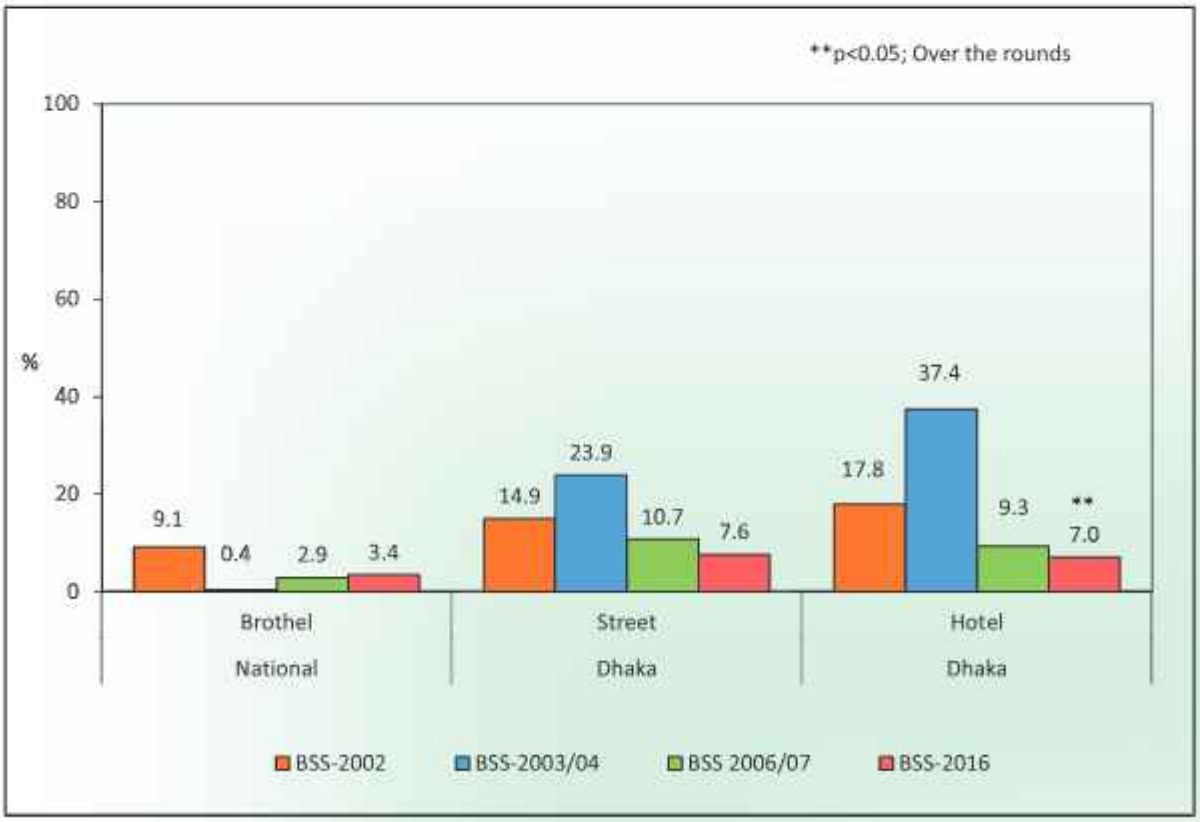


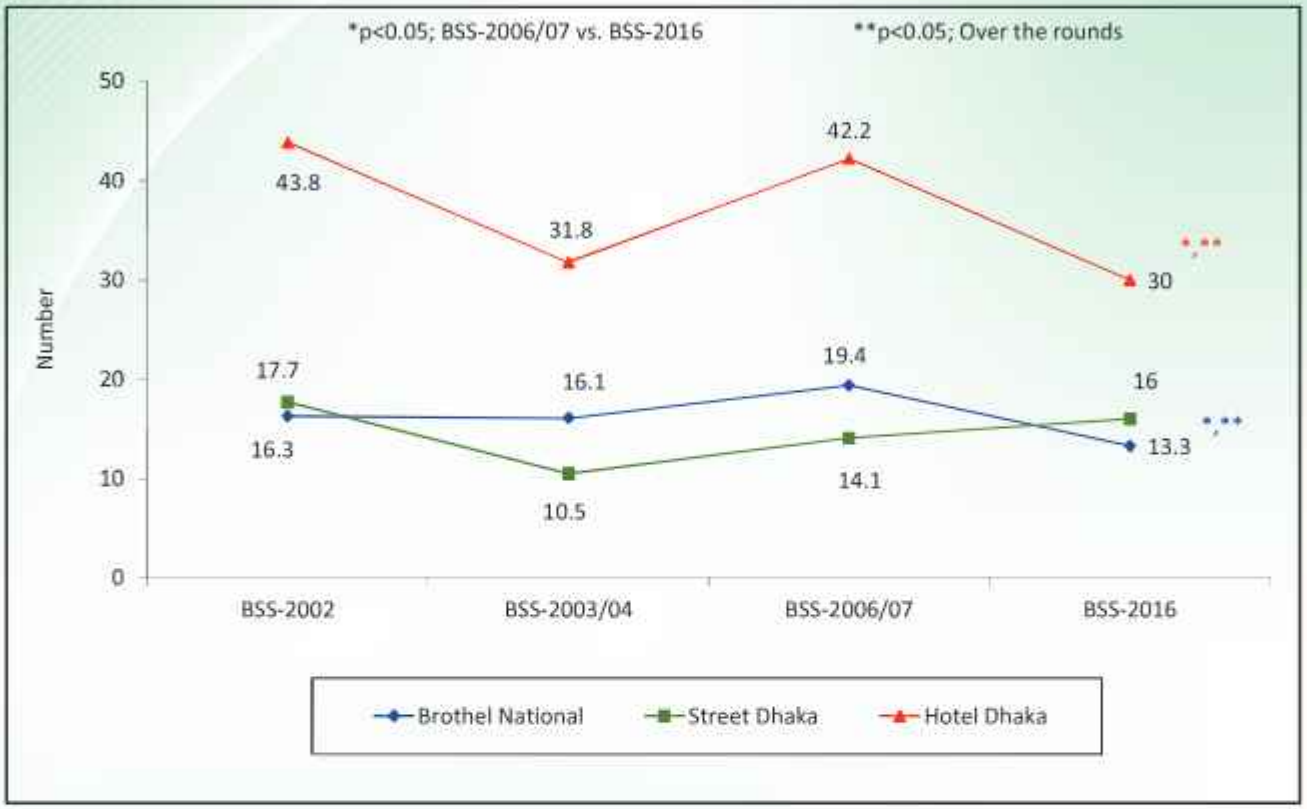
Figure-30: New/regular clients of FSWs who injected drugs over the rounds



Number of clients in the last week (Figure-31)

Over the rounds, the mean number of clients of brothel and hotel FSWs in Dhaka (new and regular combined) declined significantly($p<0.05$ for all comparisons). Similarly, between 2006/07 and 2016, a decline was observed both in brothels and hotels ($p<0.05$ for both comparisons). There were no changes in the number of clients of street FSWs in Dhaka.

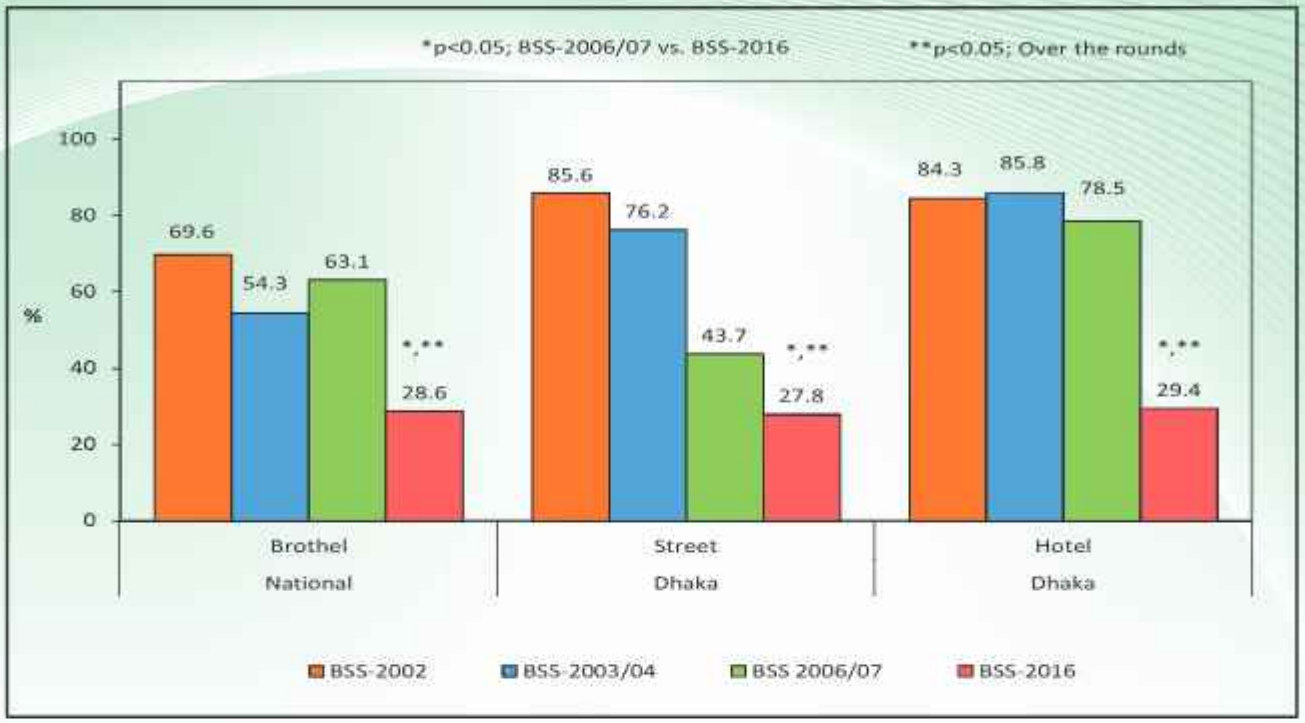
Figure-31: Mean number of clients (new and regular) in the last week over the rounds



Self-reported symptoms of STIs (Figure-32)

Both over the rounds and in 2016 compared to 2006/07, the percentages of FSWs (from all sites) complaining of any symptoms of STIs in the last year declined significantly ($p<0.05$ for all comparisons).

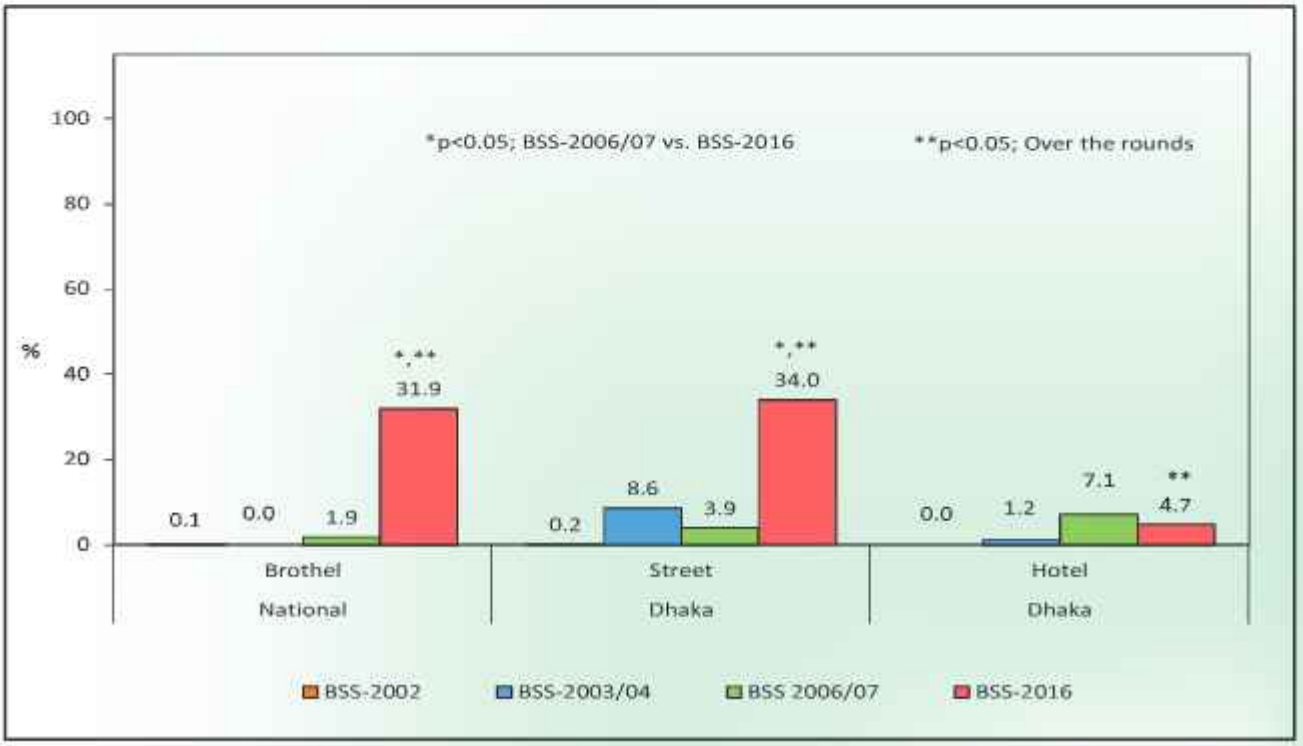
Figure-32: Complained at least one STI symptom in the last year over the rounds



HIV testing in the last year (Figure-33)

Uptake of HIV testing with receipt of result in the last year increasedsignificantly over the rounds among all FSWs ($p<0.05$ for all comparisons) and also between 2006/07 and 2016 among brothel and street based FSWs ($p<0.05$ for both).

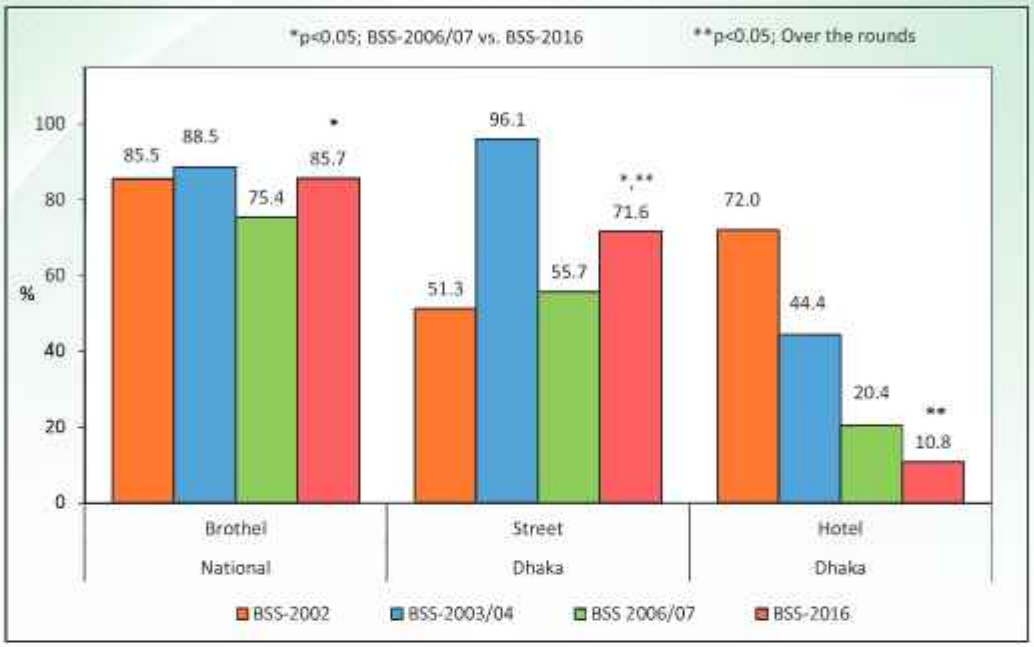
Figure-33: Being tested for HIV and knew the result in the last year over the rounds



Exposure to any HIV/AIDS prevention programmes in the last year (Figure-34)

Participation in any aspect of the HIV prevention programme in the last year by FSWs in brothels increased significantly in 2016 compared to 2006/07 ($p<0.05$) but no change was observed over the rounds. In the streets of Dhaka, participation in such programmes increased both over the rounds and in 2016 compared to 2006/07 ($p<0.05$ both comparisons). In contrast, for FSWs in the hotels of Dhaka a significant decline in participation was observed over the years ($p<0.05$).

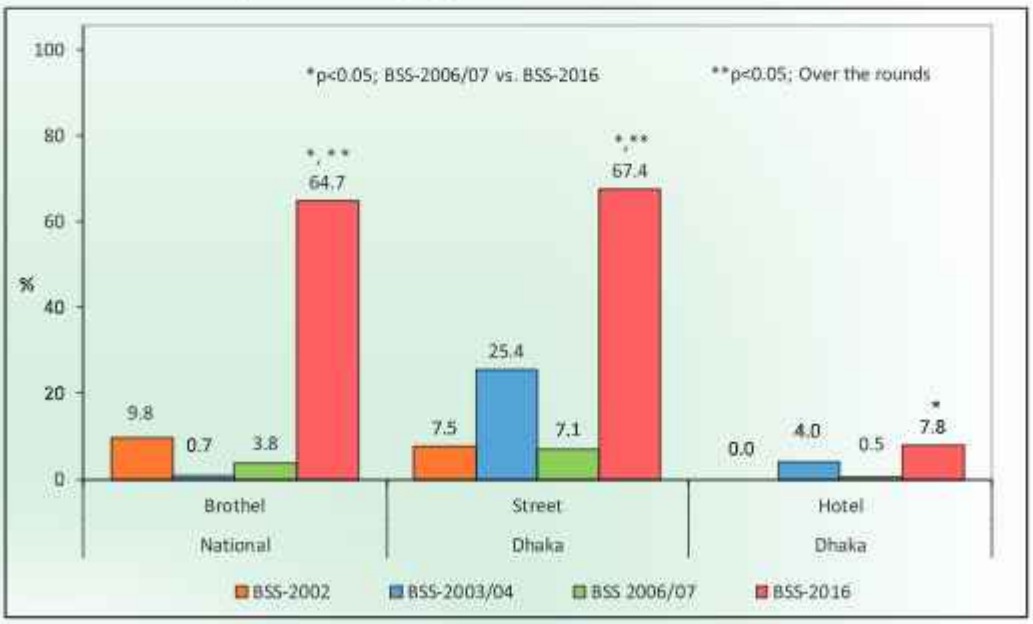
Figure-34: Exposure to any HIV/AIDS prevention programmes in the last year over the rounds



FSWs who knew where to get an HIV test and received condoms in last one year (Figure-35)

In all groups of FSWs the percentage who were reached with HIV prevention programmes (who knew where to get an HIV test and received condoms in last one year) significantly increased in 2016 compared to 2006/07 ($p<0.05$ for all comparisons). However, over the rounds a significant increase was observed only among FSWs in brothels and in the streets of Dhaka ($p<0.05$ for all comparisons).

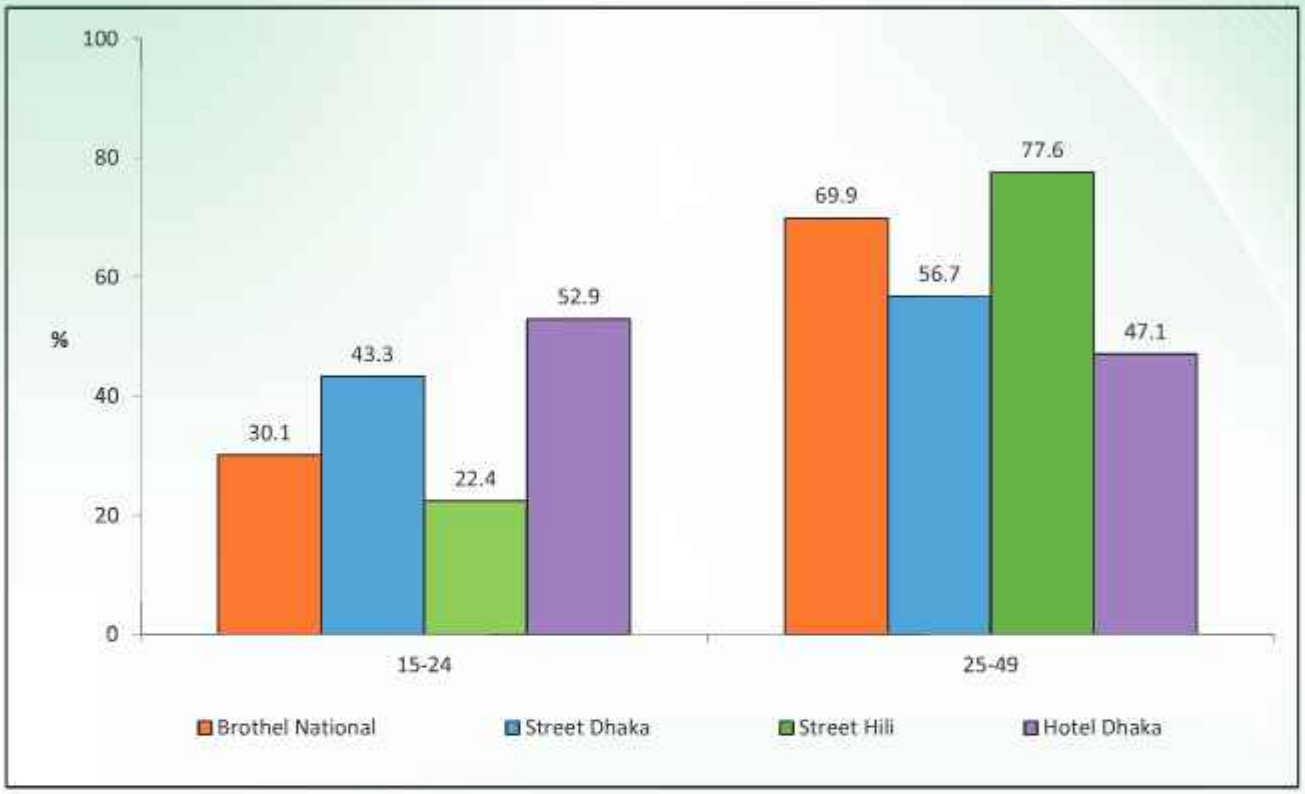
Figure-35: Reached with HIV prevention programmes over the rounds



C. Comparison of some key behavioural risk factors in different age groups of FSWs (Figure-36 and Tables-45-48)

Two age groups were considered for further analysis among FSWS - younger (15-24 years) and older (25-49 Years) and the percentages of FSWs in each of these two age groups from all sites is shown in Figure-40. Other than in FSWs from hotels in Dhaka, most FSWs were >24 years old. In hotels in Dhaka the percentages of FSWs in the two age groups were similar.

Figure-36: Distribution of age in FSWs



The data from each age group of FSWs from brothels, streets of Dhaka and Hili, and hotels of Dhaka are shown in Tables 45-48, respectively.

In summary, there were some differences between younger and older FSWs. As expected, moreyounger FSWs sold sex for less than five years irrespective of whether they were from brothels, streets or hotels ($p<0.05$ in all comparisons).

In brothels, compared to older FSWs more younger FSWs sold sex to new clients in the last week and fewer were reached by HIV prevention programmes ($p<0.05$ for both).

In the streets of Dhaka, the mean age of experiencing first sex was significantly lower for younger than older FSWs (14.2 years versus 15 years in younger versus older FSWs, $p<0.05$).

In the hotels of Dhaka, compared to older FSWs more younger FSWs reported using condoms in the last sex act with new or regular clients ($p<0.05$). At the same time, in the last week, among those FSWs who had clients in the last week younger FSWs had more clients than older ones ($p<0.05$).

Table-45: Brothel based FSWs

Indicators	Brothel		
	15-24 N=503, unless otherwise stated	25-49 N=1167, unless otherwise stated	Comparison p-value
Duration of ever selling sex			
Mean (95% CI)	4.0 (3.5-4.4)	10.2 (8.8-11.6)	<0.05
Median (IQR)	4.0 (2.0-6.0)	10.0 (5.0-15.0)	
Age at first sex (in years)			
Mean (95% CI)	14.9 (14.7-15.1)	15.1 (14.8-15.3)	NS
Median (IQR)	15.0 (13.0-16.0)	15.0 (13.0-16.0)	
Used condom in the last sex act with new/regular clients in the last one year (Denominator is who sold sex to new/regular clients in the last year), % (95% CI)	81.5 (77.9-84.7)	79.3 (70.0-86.3)	NS
Sold sex to new clients in the last week, % (95% CI)	89.9 (87.0-92.1)	76.4 (70.9-81.2)	<0.05
Used condom in the last vaginal sex act with new client in the last week (Denominator is who had vaginal sex with new clients in the last week), % (95% CI)	N=452 79.9 (75.8-83.4)	N=892 78.8 (69.4-85.9)	NS
Frequency of condom use in vaginal/anal sex with new clients in the last week (Denominator is who had vaginal/anal sex with new clients in the last week), % (95% CI)	N=452	N=892	
Always	40.7 (32.5-49.4)	38.7 (25.4-53.9)	NS
Sometimes	58.4 (48.8-67.4)	60.8 (45.8-74.0)	NS
Never	0.9 (0.2-4.3)	0.6 (0.3-1.1)	NS
Sold sex to regular clients in the last week, % (95% CI)	93.8 (90.8-95.9)	91.0 (86.9-93.9)	NS
Used condom in the last vaginal sex act with regular clients in the last week (Denominator is who had vaginal sex with regular clients in the last week) % (95% CI)	N=471 61.8 (51.9-70.8)	N=1062 62.0 (51.2-71.6)	NS
Frequency of condom use in vaginal/anal sex with regular clients in the last week (Denominator is who had vaginal/anal sex with regular clients in the last week), % (95% CI)	N=472	N=1062	
Always	30.3 (19.1-44.4)	27.5 (16.1-42.9)	NS
Sometimes	68.6 (54.7-79.9)	70.7 (55.0-82.7)	NS
Never	1.1 (0.6-1.7)	1.8 (1.2-2.7)	NS
Number of new/regular clients (vaginal/anal/oral) in the last week (Denominator is who had new/regular clients in the last week)	N=494	N=1115	
Mean (95% CI)	15.2 (12.5-18.0)	12.4 (10.6-14.1)	NS

Indicators	Brothel		
	15-24 N=503, unless otherwise stated	25-49 N=1167, unless otherwise stated	Comparison p-value
Median (IQR)	11.5 (8.0-18.0)	10.0 (6.0-15.0)	
Sold sex (vaginal/anal/oral) to >20 new/regular clients in the last week (Denominator is who had new/regular clients in the last week), % (95% CI)	N=494 21.7 (15.3-29.8)	N=1115 13.3 (9.3-18.7)	NS
Had group sex in the last month, % (95% CI)	1.6 (0.5-5.3)	0.8 (0.2-3.7)	NS
Had vaginal/anal sex with non-transactional sex partners in the last month, % (95% CI)	38.2 (33.7-42.9)	41.0 (31.7-51.1)	NS
Used condom in the last non-transactional vaginal/anal sex act with in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=192 20.8 (12.8-32.1)	N=479 16.9 (13.8-20.6)	NS
Frequency of condom use in vaginal/anal sex with non-transactional sex partners in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=192	N=479	
Always	14.1 (6.6-27.4)	10.9 (6.2-18.2)	NS
Sometimes	26.6 (18.6-36.5)	24.2 (16.6-33.9)	NS
Never	59.4 (52.3-66.1)	64.9 (60.2-69.4)	NS
Had easy access to condoms in the last month (among those who used condom in the last month), % (95% CI)	N=503	N=1164	
Yes	97.0 (95.4-98.1)	98.0 (96.0-99.0)	NS
No	3.0 (1.9-4.6)	2.0 (1.0-4.0)	NS
Had at least one STI symptom[‡] (pain during intercourse or smelly discharge or lower abdominal pain or genital warts/ulcer/sore in the last year), % (95% CI)	31.4 (21.8-42.9)	27.3 (21.2-34.5)	NS
The first choice for seeking care for the last STI symptom in the last year (Denominator is who reported STI symptoms in last year), % (95% CI)	N=158	N=319	
Qualified practitioner[⊖]	58.9 (52.5-64.9)	59.6 (53.6-65.3)	NS
Un-qualified practitioner[¶]	34.2 (28.7-40.1)	33.2 (26.8-40.4)	NS
No treatment	7.0 (4.1-11.5)	7.2 (4.9-10.5)	NS
Had comprehensive knowledge of HIV[§], % (95% CI)	20.9 (16.1-26.6)	25.0 (22.0-28.3)	NS
Received HIV testing and counselling in the last year and knew the result[Φ], % (95% CI)	22.9 (14.3-34.4)	35.7 (26.6-46.0)	NS
Beaten in the last year, % (95% CI)	16.7 (11.4-23.8)	13.2 (11.2-15.5)	NS
Raped in the last year, % (95% CI)	3.4 (1.4-7.7)	3.1 (2.6-3.7)	NS

Indicators	Brothel		
	15-24 N=503, unless otherwise stated	25-49 N=1167, unless otherwise stated	Comparison p-value
Jailed in the last year, % (95% CI)	2.4 (1.2-4.8)	1.3 (0.9-1.8)	NS
Assessing own risk of HIV, % (95% CI)			
High risk	7.8 (4.3-13.7)	9.4 (6.7-13.0)	NS
Medium risk	26.8 (23.1-30.9)	27.2 (24.6-30.1)	NS
Little risk/No risk	63.0 (56.2-69.3)	61.3 (56.0-66.3)	NS
Not able to assess own risk	2.4 (1.3-4.3)	2.1 (1.4-2.9)	NS
Participated in any HIV/AIDS prevention programmes in the last year, % (95% CI)	79.9 (75.5-83.7)	88.3 (82.4-92.4)	NS
Participated in any HIV/AIDS prevention programmes in the last three months, % (95% CI)	11.9 (3.4-34.3)	16.5 (5.4-40.5)	NS
Attended DIC in the last year (Denominator is who participated in any prevention programmes in the last year), % (95% CI)	N=402 3.7 (1.4-9.7)	N=1030 4.5 (1.6-12.1)	NS
Received coverage with combination of prevention programmes in the last three months[ǂ], % (95% CI)	2.8 (0.6-11.2)	5.0 (1.6-14.6)	NS
Reached with HIV prevention programmes[ǂ], % (95% CI)	46.7 (40.4-53.1)	72.5 (65.1-78.8)	<0.05
Took illicit drugs (except alcohol and cannabis) in the last year, % (95% CI)	8.0 (6.1-10.3)	7.8 (6.0-10.0)	NS

IQR refers to Inter Quartile Range

[⊖] Qualified practitioner refers to hospital, private clinic, private doctor, NGO clinic and homeopathy

[¶] Un-qualified practitioner refers to drug seller, canvasser/traditional healer, advice/treatment from friends and self-medication

[§] Computed by correct answers to five questions:
1) Can people reduce their risk of HIV by using a condom correctly and consistently in any type of sex
2) Can people reduce their risk of HIV by avoiding sex with multiple partners
3) Can a person get HIV through mosquito bites
4) Can a person get HIV by sharing a meal with someone who is HIV infected and
5) Can you tell by looking at someone whether s/he is infected with HIV

[ǂ] Who received at least two services in the last three months: condom/lubricant/counselling on condom use and safe sex/STI services from NGOs

[Φ] Computedby who replied "yes" to both questions:
1. Have you been tested for HIV in the last 12 months?
2. If yes, I don't want to know the results, but did you receive the results of that test?

[ǂ] Who replied 'yes' to both question:
1. Do you know where you can go if you wish to receive an HIV test?
2. In the last twelve months, have you been given condoms?
(E.g. through an outreach service, drop-in centre or sexual health clinic)

Table-46: Street based FSWs in Dhaka

Indicators	Street-Dhaka		
	15-24 N=185, unless otherwise stated	25-49 N=263, unless otherwise stated	Comparison p-value
Duration of ever selling sex			
Mean (95% CI)	4.0 (3.5-4.5)	9.5 (8.6-10.4)	<0.05
Median (IQR)	4.0 (2.0-5.0)	9.0 (6.0-12.0)	
Age at first sex (in years)			
Mean (95% CI)	14.2 (13.9-14.4)	15.0 (14.7-15.4)	<0.05
Median (IQR)	14.0 (13.0-15.0)	15.0 (14.0-16.0)	
Used condom in the last sex act with new/regular clients in the last one year (Denominator is who sold sex to new/regular clients in the last year), % (95% CI)	80.7 (71.8-87.3)	73.1 (64.6-80.2)	NS
Sold sex to new clients in the last week, % (95% CI)	92.2 (86.4-95.7)	95.4 (91.2-97.6)	NS
Used condom in the last vaginal sex act with new client in the last week (Denominator is who had vaginal sex with new clients in the last week), % (95% CI)	N=171 69.5 (60.3-77.4)	N=250 74.0 (65.1-81.3)	NS
Frequency of condom use in vaginal/anal sex with new clients in the last week (Denominator is who had vaginal/anal sex with new clients in the last week), % (95% CI)	N=171	N=250	
Always	32.6 (25.0-41.4)	40.1 (31.5-49.3)	NS
Sometimes	65.5 (57.2-72.9)	56.2 (47.5-64.5)	NS
Never	1.9 (0.4-8.1)	3.8 (1.7-8.2)	NS
Sold sex to regular clients in the last week, % (95% CI)	81.2 (72.4-87.7)	87.9 (81.1-92.5)	NS
Used condom in the last vaginal sex act with regular clients in the last week (Denominator is who had vaginal sex with regular clients in the last week) % (95% CI)	N=156 70.1 (60.7-78.1)	N=234 57.1 (47.0-66.6)	NS
Frequency of condom use in vaginal/anal sex with regular clients in the last week (Denominator is who had vaginal/anal sex with regular clients in the last week), % (95% CI)	N=156	N=234	
Always	25.7 (18.1-35.2)	28.5 (20.7-37.9)	NS
Sometimes	73.9 (64.5-81.5)	67.6 (58.6-75.4)	NS
Never	0.4 (0.1-3.0)	3.9 (2.0-7.4)	NS
Number of new/regular clients (vaginal/anal/oral) in the last week (Denominator is who had new/regular clients in the last week)	N=179	N=257	
Mean (95% CI)	15.4 (12.6-18.3)	16.4 (14.3-18.5)	NS

Indicators	Street-Dhaka		
	15-24 N=185, unless otherwise stated	25-49 N=263, unless otherwise stated	Comparison p-value
Median (IQR)	13.0 (7.0-20.0)	15.0 (9.0-22.0)	
Sold sex (vaginal/anal/oral) to >20 new/regular clients in the last week (Denominator is who had new/regular clients in the last week), % (95% CI)	N=179 23.6 (17.2-31.6)	N=257 28.2 (20.7-37.1)	NS
Had group sex in the last month, % (95% CI)	2.7 (1.3-5.7)	4.9 (2.7-8.7)	NS
Had vaginal/anal sex with non-transactional sex partners in the last month, % (95% CI)	61.3 (52.1-69.8)	59.5 (49.7-68.5)	NS
Used condom in the last non-transactional vaginal/anal sex act with in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=118 17.0 (11.3-24.8)	N=165 16.3 (8.6-28.9)	NS
Frequency of condom use in vaginal/anal sex with non-transactional sex partners in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=118	N=165	
Always	15.9 (10.3-23.8)	15.8 (8.1-28.5)	NS
Sometimes	26.4 (17.2-38.3)	18.6 (13.3-25.5)	NS
Never	57.7 (46.6-68.0)	65.6 (56.0-74.0)	NS
Had easy access to condoms in the last month (among those who used condom in the last month), % (95% CI)	N=184	N=257	
Yes	87.2 (80.4-91.8)	83.2 (75.4-88.9)	NS
No	12.8 (8.2-19.6)	16.8 (11.1-24.6)	NS
Had at least one STI symptom[‡] (pain during intercourse or smelly discharge or lower abdominal pain or genital warts/ulcer/sore in the last year), % (95% CI)	29.5 (22.6-37.6)	26.5 (20.4-33.6)	NS
The first choice for seeking care for the last STI symptom in the last year (Denominator is who reported STI symptoms in last year), % (95% CI)	N=58	N=71	
Qualified practitioner[⊖]	51.6 (35.0-67.7)	74.8 (60.8-85.0)	NS
Un-qualified practitioner[¶]	28.4 (16.9-43.6)	19.7 (10.1-34.7)	NS
No treatment	20.1 (10.3-35.4)	5.6 (1.8-16.1)	NS
Had comprehensive knowledge of HIV[§], % (95% CI)	34.9 (26.7-44.1)	41.1 (35.1-47.4)	NS
Received HIV testing and counselling in the last year and knew the result[Φ], % (95% CI)	31.6 (24.2-40.1)	35.7 (27.5-45.0)	NS

Indicators	Street-Dhaka		
	15-24 N=185, unless otherwise stated	25-49 N=263, unless otherwise stated	Comparison p-value
Beaten in the last year, % (95% CI)	44.7 (35.8-53.9)	39.3 (31.7-47.5)	NS
Raped in the last year, % (95% CI)	15.6 (10.0-23.5)	14.1 (9.3-20.8)	NS
Jailed in the last year, % (95% CI)	7.5 (3.7-14.8)	8.8 (4.3-16.8)	NS
Assessing own risk of HIV, % (95% CI)			
High risk	3.7 (1.3-9.9)	6.5 (2.6-15.3)	NS
Medium risk	25.4 (17.9-34.6)	27.3 (21.3-34.3)	NS
Little risk/No risk	68.6 (59.1-76.7)	62.8 (55.2-69.8)	NS
Not able to assess own risk	2.3 (0.9-5.6)	3.4 (1.7-6.5)	NS
Participated in any HIV/AIDS prevention programmes in the last year, % (95% CI)	65.3 (55.6-74.0)	76.4 (67.0-83.8)	NS
Participated in any HIV/AIDS prevention programmes in the last three months, % (95% CI)	47.5 (36.0-59.3)	58.7 (49.0-67.8)	NS
Attended DIC in the last year (Denominator is who participated in any prevention programmes in the last year), % (95% CI)	N=129 62.0 (49.3-73.3)	N=201 65.7 (55.5-74.7)	NS
Received coverage with combination of prevention programmes in the last three months[‡], % (95% CI)	22.7 (16.1-31.0)	33.0 (24.5-42.8)	NS
Reached with HIV prevention programmes[ᵀ], % (95% CI)	58.6 (48.5-67.9)	74.2 (64.2-82.1)	NS
Took illicit drugs (except alcohol and cannabis) in the last year, % (95% CI)	19.8 (12.5-29.9)	11.7 (8.0-17.0)	NS

IQR refers to Inter Quartile Range

[⊖] Qualified practitioner refers to hospital, private clinic, private doctor, NGO clinic and homeopathy

[¶] Un-qualified practitioner refers to drug seller, canvasser/traditional healer, advice/treatment from friends and self-medication

[§]Computed by correct answers to five questions:

1) Can people reduce their risk of HIV by using a condom correctly and consistently in any type of sex
2) Can people reduce their risk of HIV by avoiding sex with multiple partners
3) Can a person get HIV through mosquito bites
4) Can a person get HIV by sharing a meal with someone who is HIV infected and
5) Can you tell by looking at someone whether s/he is infected with HIV

[‡]Who received at least two services in the last three months: condom/lubricant/counselling on condom use and safe sex/STI services from NGOs

[Φ]Computedby who replied "yes" to both questions:

1. Have you been tested for HIV in the last 12 months?
2. If yes, I don't want to know the results, but did you receive the results of that test?

[ᵀ]Who replied 'yes' to both question:

1. Do you know where you can go if you wish to receive an HIV test?
2. In the last twelve months, have you been given condoms? (E.g. through an outreach service, drop-in centre or sexual health clinic)

Table-47: Street based FSWs in Hili

Indicators	Street-Hili		
	15-24 N=44, unless otherwise stated	25-49 N=152, unless otherwise stated	Comparison p-value
Duration of ever selling sex			
Mean (95% CI)	3.5 (3.1-3.9)	7.5 (6.9-8.0)	<0.05
Median (IQR)	3.0 (2.0-4.0)	7.0 (5.0-10.0)	
Age at first sex (in years)			
Mean (95% CI)	14.7 (14.2-15.2)	15.2 (14.9-15.5)	NS
Median (IQR)	14.5 (13.5-16.0)	15.0 (14.0-16.0)	
Used condom in the last sex act with new/regular clients in the last one year (Denominator is who sold sex to new/regular clients in the last year), % (95% CI)	75.0 (57.4-87.0)	70.4 (63.3-76.6)	NS
Sold sex to new clients in the last week, % (95% CI)	81.8 (65.6-91.4)	88.2 (75.5-94.7)	NS
Used condom in the last vaginal sex act with new client in the last week (Denominator is who had vaginal sex with new clients in the last week), % (95% CI)	N=36 75.0 (54.3-88.3)	N=134 69.4 (62.5-75.6)	NS
Frequency of condom use in vaginal/anal sex with new clients in the last week (Denominator is who had vaginal/anal sex with new clients in the last week), % (95% CI)	N=36	N=134	
Always	36.1 (20.7-55.0)	31.3 (23.4-40.5)	NS
Sometimes	58.3 (40.2-74.5)	64.2 (55.4-72.1)	NS
Never	5.6 (1.2-22.2)	4.5 (1.8-10.8)	NS
Sold sex to regular clients in the last week, % (95% CI)	79.5 (65.6-88.8)	85.5 (78.8-90.4)	NS
Used condom in the last vaginal sex act with regular clients in the last week (Denominator is who had vaginal sex with regular clients in the last week) % (95% CI)	N=35 60.0 (42.5-75.3)	N=130 58.5 (48.7-67.6)	NS
Frequency of condom use in vaginal/anal sex with regular clients in the last week (Denominator is who had vaginal/anal sex with regular clients in the last week), % (95% CI)	N=35	N=130	
Always	14.3 (5.5-32.1)	16.2 (10.3-24.4)	NS
Sometimes	80.0 (62.2-90.7)	81.5 (73.2-87.7)	NS
Never	5.7 (1.2-22.8)	2.3 (0.7-7.5)	NS
Number of new/regular clients (vaginal/anal/oral) in the last week (Denominator is who had new/regular clients in the last week)	N=43	N=150	
Mean (95% CI)			

Indicators	Street-Hill		
	15-24 N=44, unless otherwise stated	25-49 N=152, unless otherwise stated	Comparison p-value
Median (IQR)	8.7 (6.9-10.5) 8.0 (5.0-11.0)	8.8 (7.8-9.9) 8.0 (6.0-12.0)	NS
Sold sex (vaginal/anal/oral) to >20 new/regular clients in the last week (Denominator is who had new/regular clients in the last week), % (95% CI)	N=43 2.3 (0.3-17.1)	N=150 1.3 (0.3-5.7)	NS
Had group sex in the last month, % (95% CI)	0	0.7 (0.1-5.0)	-
Had vaginal/anal sex with non-transactional sex partners in the last month, % (95% CI)	90.9 (79.1-96.4)	72.4 (64.4-79.1)	NS
Used condom in the last non-transactional vaginal/anal sex act with in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=40 10.0 (3.7-24.1)	N=110 6.4 (2.8-13.6)	NS
Frequency of condom use in vaginal/anal sex with non-transactional sex partners in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=40	N=110	
Always	10.0 (3.7-24.1)	5.5 (2.2-13.0)	NS
Sometimes	25.0 (10.6-48.5)	43.6 (34.6-53.1)	NS
Never	65.0 (44.1-81.4)	50.9 (40.5-61.2)	NS
Had easy access to condoms in the last month (among those who used condom in the last month), % (95% CI)	N=43	N=149	
Yes	100.0	100.0	-
No	0	0	-
Had at least one STI symptom[‡] (pain during intercourse or smelly discharge or lower abdominal pain or genital warts/ulcer/sore in the last year), % (95% CI)	40.9 (30.0-52.8)	26.3 (19.0-35.2)	NS
The first choice for seeking care for the last STI symptom in the last year (Denominator is who reported STI symptoms in last year), % (95% CI)	N=18	N=40	
Qualified practitioner[⊖]	94.4 (68.3-99.3)	75.0 (58.7-86.3)	NS
Un-qualified practitioner[¶]	5.6 (0.7-31.7)	20.0 (10.2-35.6)	NS
No treatment	0	5.0 (1.2-18.1)	-
Had comprehensive knowledge of HIV[§], % (95% CI)	47.7 (34.3-61.5)	38.8 (29.1-49.5)	NS
Received HIV testing and counselling in the last year and knew the result[Φ], % (95% CI)	27.3 (15.7-43.1)	40.8 (32.4-49.8)	NS

Indicators	Street-Hill		
	15-24 N=44, unless otherwise stated	25-49 N=152, unless otherwise stated	Comparison p-value
Beaten in the last year, % (95% CI)	50.0 (33.1-66.9)	34.9 (25.3-45.8)	NS
Raped in the last year, % (95% CI)	27.3 (16.4-41.7)	11.8 (6.7-20.1)	NS
Jailed in the last year, % (95% CI)	4.5 (1.1-16.5)	2.6 (1.0-6.6)	NS
Assessing own risk of HIV, % (95% CI)			
High risk	18.2 (8.9-33.4)	8.6 (4.6-15.5)	NS
Medium risk	27.3 (16.0-42.5)	25.7 (19.2-33.4)	NS
Little risk/No risk	54.5 (37.4-70.7)	63.2 (54.4-71.1)	NS
Not able to assess own risk	0	2.6 (0.8-8.6)	-
Participated in any HIV/AIDS prevention programmes in the last year, % (95% CI)	97.7 (84.6-99.7)	99.3 (94.9-99.9)	NS
Participated in any HIV/AIDS prevention programmes in the last three months, % (95% CI)	97.7 (84.6-99.7)	99.3 (94.9-99.9)	NS
Attended DIC in the last year (Denominator is who participated in any prevention programmes in the last year), % (95% CI)	N=43 55.8 (38.6-71.7)	N=151 58.9 (47.8-69.2)	NS
Received coverage with combination of prevention programmes in the last three months‡, % (95% CI)	43.2 (30.7-56.6)	38.8 (28.5-50.3)	NS
Reached with HIV prevention programmes₸, % (95% CI)	95.5 (71.9-99.4)	97.4 (93.1-99.0)	NS
Took illicit drugs (except alcohol and cannabis) in the last year, % (95% CI)	34.1 (19.4-52.7)	33.6 (24.2-44.3)	NS

IQR refers to Inter Quartile Range

⊖ Qualified practitioner refers to hospital, private clinic, private doctor, NGO clinic and homeopathy

¶ Un-qualified practitioner refers to drug seller, canvasser/traditional healer, advice/treatment from friends and self-medication

§ Computed by correct answers to five questions:

1) Can people reduce their risk of HIV by using a condom correctly and consistently in any type of sex
2) Can people reduce their risk of HIV by avoiding sex with multiple partners
3) Can a person get HIV through mosquito bites
4) Can a person get HIV by sharing a meal with someone who is HIV infected and
5) Can you tell by looking at someone whether s/he is infected with HIV

‡ Who received at least two services in the last three months: condom/lubricant/counselling on condom use and safe sex/STI services from NGOs

Φ Computedby who replied "yes" to both questions:

1. Have you been tested for HIV in the last 12 months?
2. If yes, I don't want to know the results, but did you receive the results of that test?

₸ Who replied 'yes' to both question:

1. Do you know where you can go if you wish to receive an HIV test?
2. In the last twelve months, have you been given condoms?
   (E.g. through an outreach service, drop-in centre or sexual health clinic)

Table-48: Hotel based FSWs in Dhaka

Indicators	Hotel Dhaka		
	15-24 N=182, unless otherwise stated	25-49 N=162, unless otherwise stated	Comparison p-value
Duration of ever selling sex			
Mean (95% CI)	2.6 (2.3-3.0)	5.1 (4.3-5.9)	<0.05
Median (IQR)	2.0 (1.0-4.0)	5.0 (2.0-7.0)	
Age at first sex (in years)			
Mean (95% CI)	14.9 (14.6-15.1)	15.3 (14.7-15.9)	NS
Median (IQR)	15.0 (13.0-16.0)	15.0 (14.0-16.0)	
Used condom in the last sex act with new/regular clients in the last one year (Denominator is who sold sex to new/regular clients in the last year), % (95% CI)	85.7 (81.8-88.9)	77.2 (72.5-81.2)	<0.05
Sold sex to new clients in the last week, % (95% CI)	91.2 (79.6-96.5)	92.0 (86.0-95.5)	NS
Used condom in the last vaginal sex act with new client in the last week (Denominator is who had vaginal sex with new clients in the last week), % (95% CI)	N=166 84.9 (78.2-89.9)	N=149 76.5 (71.8-80.6)	NS
Frequency of condom use in vaginal/anal sex with new clients in the last week (Denominator is who had vaginal/anal sex with new clients in the last week), % (95% CI)	N=166	N=149	
Always	47.0 (41.9-52.2)	37.6 (30.6-45.2)	NS
Sometimes	51.8 (46.3-57.3)	59.1 (49.6-67.9)	NS
Never	1.2 (0.4-3.2)	3.4 (1.2-9.3)	NS
Sold sex to regular clients in the last week, % (95% CI)	62.6 (50.9-73.0)	72.8 (62.7-81.0)	NS
Used condom in the last vaginal sex act with regular clients in the last week (Denominator is who had vaginal sex with regular clients in the last week) % (95% CI)	N=114 78.9 (70.0-85.8)	N=118 66.1 (59.0-72.5)	NS
Frequency of condom use in vaginal/anal sex with regular clients in the last week (Denominator is who had vaginal/anal sex with regular clients in the last week), % (95% CI)	N=114	N=118	
Always	40.4 (34.4-46.6)	34.7 (26.2-44.4)	NS
Sometimes	58.8 (53.3-64.0)	63.6 (53.8-72.3)	NS
Never	0.9 (0.2-3.5)	1.7 (0.7-3.9)	NS
Number of new/regular clients (vaginal/anal/oral) in the last week (Denominator is who had new/regular clients in the last week)	N=172	N=159	

Indicators	Hotel Dhaka		
	15-24 N=182, unless otherwise stated	25-49 N=162, unless otherwise stated	Comparison p-value
Mean (95% CI) Median (IQR)	35.9 (31.9-39.8) 26.0 (12.5-48.0)	23.6 (17.1-30.2) 17.0 (6.0-32.0)	<0.05
Sold sex (vaginal/anal/oral) to >20 new/regular clients in the last week (Denominator is who had new/regular clients in the last week), % (95% CI)	N=172 57.6 (51.3-63.6)	N=159 45.9 (31.8-60.7)	NS
Had group sex in the last month, % (95% CI)	9.9 (4.2-21.7)	7.4 (2.3-21.3)	NS
Had vaginal/anal sex with non-transactional sex partners in the last month, % (95% CI)	61.5 (52.4-69.9)	52.5 (44.6-60.3)	NS
Used condom in the last non-transactional vaginal/anal sex act with in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=112 16.1 (9.8-25.3)	N=85 16.5 (8.0-30.8)	NS
Frequency of condom use in vaginal/anal sex with non-transactional sex partners in the last month (Denominator is who had non-transactional sex partners in the last month), % (95% CI)	N=112	N=85	
Always	7.1 (4.6-11.0)	7.1 (3.0-15.5)	NS
Sometimes	34.8 (26.6-44.0)	29.4 (12.2-55.6)	NS
Never	58.0 (50.8-65.0)	63.5 (40.5-81.7)	NS
Had easy access to condoms in the last month (among those who used condom in the last month), % (95% CI)	N=182	N=160	
Yes No	100.0 0	98.8 (93.7-99.8) 1.3 (0.2-6.3)	- -
Had at least one STI symptom[‡] (pain during intercourse or smelly discharge or lower abdominal pain or genital warts/ulcer/sore in the last year), % (95% CI)	28.6 (21.3-37.2)	30.2 (21.5-40.8)	NS
The first choice for seeking care for the last STI symptom in the last year (Denominator is who reported STI symptoms in last year), % (95% CI)	N=52	N=49	
Qualified practitioner[⊖]	42.3 (35.4-49.6)	42.9 (31.2-55.4)	NS
Un-qualified practitioner[¶]	46.2 (37.9-54.7)	38.8 (20.4-61.0)	NS
No treatment	11.5 (6.5-19.6)	18.4 (7.7-37.6)	NS
Had comprehensive knowledge of HIV[$], % (95% CI)	12.6 (8.2-19.0)	19.1 (15.0-24.1)	NS
Received HIV testing and counselling in the last year and knew the result[Φ], %	4.4 (1.9-9.6)	4.9 (2.7-8.9)	NS

Indicators	Hotel Dhaka		
	15-24 N=182, unless otherwise stated	25-49 N=162, unless otherwise stated	Comparison p-value
(95% CI)			
Beaten in the last year, % (95% CI)	32.4 (25.3-40.5)	22.2 (13.8-33.7)	NS
Raped in the last year, % (95% CI)	9.9 (6.6-14.5)	3.7 (1.9-7.2)	NS
Jailed in the last year, % (95% CI)	17.0 (11.7-24.2)	11.1 (7.0-17.2)	NS
Assessing own risk of HIV, % (95% CI)	N=181	N=161	
High risk	2.2 (0.6-7.8)	5.6 (3.3-9.3)	NS
Medium risk	16.0 (12.1-21.0)	23.6 (15.8-33.8)	NS
Little risk/No risk	78.5 (69.4-85.4)	70.2 (60.3-78.5)	NS
Not able to assess own risk	3.3 (1.3-8.3)	0.6 (0.1-4.2)	NS
Participated in any HIV/AIDS prevention programmes in the last year, % (95% CI)	6.6 (3.6-11.9)	15.4 (7.8-28.3)	NS
Participated in any HIV/AIDS prevention programmes in the last three months, % (95% CI)	2.2 (0.7-6.7)	9.3 (4.7-17.4)	NS
Attended DIC in the last year (Denominator is who participated in any prevention programmes in the last year), % (95% CI)	N=12 16.7 (5.5-40.8)	N=25 32.0 (13.8-58.1)	NS
Received coverage with combination of prevention programmes in the last three months‡, % (95% CI)	1.1 (0.4-3.2)	2.5 (1.3-4.6)	<0.05
Reached with HIV prevention programmes₸, % (95% CI)	3.8 (1.8-8.1)	12.3 (6.2-23.2)	NS
Took illicit drugs (except alcohol and cannabis) in the last year, % (95% CI)	7.1 (4.9-10.2)	7.4 (4.9-11.0)	NS

IQR refers to Inter Quartile Range

⊖ Qualified practitioner refers to hospital, private clinic, private doctor, NGO clinic and homeopathy

¶ Un-qualified practitioner refers to drug seller, canvasser/traditional healer, advice/treatment from friends and self-medication

§ Computed by correct answers to five questions:

1) Can people reduce their risk of HIV by using a condom correctly and consistently in any type of sex
2) Can people reduce their risk of HIV by avoiding sex with multiple partners
3) Can a person get HIV through mosquito bites
4) Can a person get HIV by sharing a meal with someone who is HIV infected and
5) Can you tell by looking at someone whether s/he is infected with HIV

‡ Who received at least two services in the last three months: condom/lubricant/counselling on condom use and safe sex/STI services from NGOs

* Computed by who replied "yes" to both questions:

1. Have you been tested for HIV in the last 12 months?
2. If yes, I don't want to know the results, but did you receive the results of that test?

₸ Who replied 'yes' to both question:

1. Do you know where you can go if you wish to receive an HIV test?
2. In the last twelve months, have you been given condoms?
   (E.g. through an outreach service, drop-in centre or sexual health clinic)

FINDINGS FROM SEROLOGICAL SURVEILLANCE

A total of 5,033 blood samples were collected between 3rd February and 22nd May 2016. The numbers of samples collected and dates of collection from each group at each site is shown in Table-49.

Table-49: Population groups sampled with sample size achieved and dates of sampling

Geographical area	Target key population groups	Sample size achieved	Start date of sample collection	End date of sample collection
Dhaka	Male PWID in Dhaka A1	721	26-Apr-16	22-May-16
	Male PWID in Dhaka A2	291	16-Apr-16	26-Apr-16
	Female PWID in Dhaka and Narayanganj	139	21-Mar-16	19-Apr-16
	Street FSW	1141	03-Feb-16	14-Mar-16
	Hotel FSW	256	03-Feb-16	06-Mar-16
	Residence FSW	501	03-Feb-16	03-Mar-16
National	Brothel FSW	1670	19-Mar-16	08-May-16
Hili	Street FSW	197	19-Mar-16	26-Mar-16
	Male PWID	117	19-Mar-16	23-Mar-16
	Total samples achieved	**5033**		

Results from the serological surveillance for all sampled groups are reported in two sections - PWID and FSWs.

PEOPLE WHO INJECT DRUGS

Socio-demographic characteristics (Table-50)

The socio-demographic characteristics of PWID from Dhaka and Hili are described in Table-50. In general, PWID were older than 30 years and very few females ever attended school. Most had injected drugs for several years but duration of injecting drugs and involvement with HIV prevention programme was also lower in female than male PWID ($p<0.05$ for all).

Table-50: Socio-demographic characteristics of PWID (male and female)

Geographical Areas (Number sampled)	Age in years Median (IQR)*	Ever attended school n (%)	Education (years) (Among those who ever attended school) Median (IQR)	Duration as Injector (months) Median (IQR)	Duration in needle/syringe programme (months) Median (IQR)
PWID (male):					
Dhaka -A1 (721)	38.0 (32.0-45.0)	411 (57.4)	4.0 (2.0-7.0)	96.0 (72.0-144.0)	72.0 (48.0-120.0)
Dhaka-A2 (291)	36.0 (32.0-43.0)	166 (57.0)	6.0 (3.8-9.0)	95.7 (59.8-143.6)	47.9 (23.9-83.8)
Hili (117)	35.0 (30.0-43.0)	60 (51.3)	8.0 (5.3-9.8)	71.8 (44.9-119.7)	59.8 (35.9-83.8)
PWID (female):					
Dhaka and Narayanganj (139)	30.0 (25.0-35.0)	27 (19.4)	5.0 (3.0-8.0)	53.9 (29.9-95.7)	35.9 (12.0-59.8)

*IQR refers to inter quartile range

Information on travelling to India in Hili (Table-51)

According to previous data it is known that people residing in border areas frequently travel to neighbouring countries for various reasons [20]. Therefore, in the border areas of Hili (a small town in the western part of Bangladesh), questions related to mobility and injection taking behaviour were asked which are shown in Table-51. Approximately, two-thirds (66.7%) of male PWID had travelled to India in the last one year prior to the surveillance. Of those who visited India, 67.9% visited West Bengal and 43.6% (N=34) injected drugs while abroad of whom only three shared needles/syringes.

Table-51: Cross border mobility to India in the last year of PWID in Hili

Variables	N=117, unless otherwise stated n (%)
Travelled to India in the last year	78 (66.7)
Injected drugs while abroad in the last year (Among those who had crossed the border in the last year)	N=78 34 (43.6)
Shared needles/syringes (Among those who had crossed the border in the last year and injected drugs)	N=34 3 (8.8)

Prevalence of HIV and active syphilis

Prevalence of HIV among the different groups of PWID is shown in Table-52. The prevalence of HIV among male PWID in Dhaka A1 was 27.3%, in Dhaka A2 was 8.9% and in female PWID in all of Dhaka was 5%. The prevalence of active syphilis was below 5% in male PWID in both areas in Dhaka however, 5.8% of female PWID were infected with active syphilis.

Table-52: Prevalence of HIV and active syphilis among PWID (male and female) in 2016

Age group (years)	Total tested	Prevalence of HIV n (%)	Prevalence of active syphilis n (%)
PWID Dhaka A1	721	197 (27.3)	19 (2.6)
PWID Dhaka A2	291	26 (8.9)	7 (2.4)
PWID (Female)	139	7 (5.0)	8 (5.8)
PWID Hili	117	0 (0)	1 (0.9)

There has been a significant rise in HIV prevalence among male PWID in Dhaka A1 since the last data collected in 2015 where 9.9% of male PWID were HIV positive (unpublished, 9.9% in 2015 to 27.3% in 2016, $p<0.001$) (Figure-37). This 2015 study was conducted in Dhaka A1 to assess the acceptability of point of care (PoC) HIV testing using oral fluid among male PWID who were randomly selected using TLS and the HIV prevalence was representative of those PWID in A1 who were visible in public injecting spots similar to the PWID sampled during this round of surveillance. HIV prevalence among male PWID in A2, has also risen significantly from 1.2% in 2011 to 8.9% in 2016 ($p<0.001$) (Figure-38). In addition, among female PWID, the prevalence has risen significantly over the years from 0% in 2004 to 5% in 2016 ($p<0.05$) and also from 1.2% in 2011 to 5% in 2016 ($p<0.05$) (Figure-39). In Hili, male PWID were sampled only for two rounds in 2011 and 2016 and no HIV was found (Figure-40).The prevalence of HIV among all PWID in all sites over the rounds of surveillance is shown in Annexe-2.

Over the years from 2004-2016, no significant change was observed in the prevalence of active syphilis in male PWID in Dhaka A1(Figures-37-38). However, a rising trend in the prevalence was observed in male PWID from A2 from 1.5% in 2004 to 2.4% in 2016 ($p<0.05$) (Figure-38) but the prevalence has always been below 5%. In Dhaka and Narayanganj, the prevalence of active syphilis among female PWID has been similar over the years (Figure-39).In Hili, the prevalence of active syphilis among male PWID did not change between 2011 and 2016 (Figure-40). The prevalence of active syphilis among all PWID in all sites over the rounds of surveillance is shown in Annexe-3.

Figure-37: Prevalence of HIV and active syphilis among male PWID in Dhaka A1 over the rounds

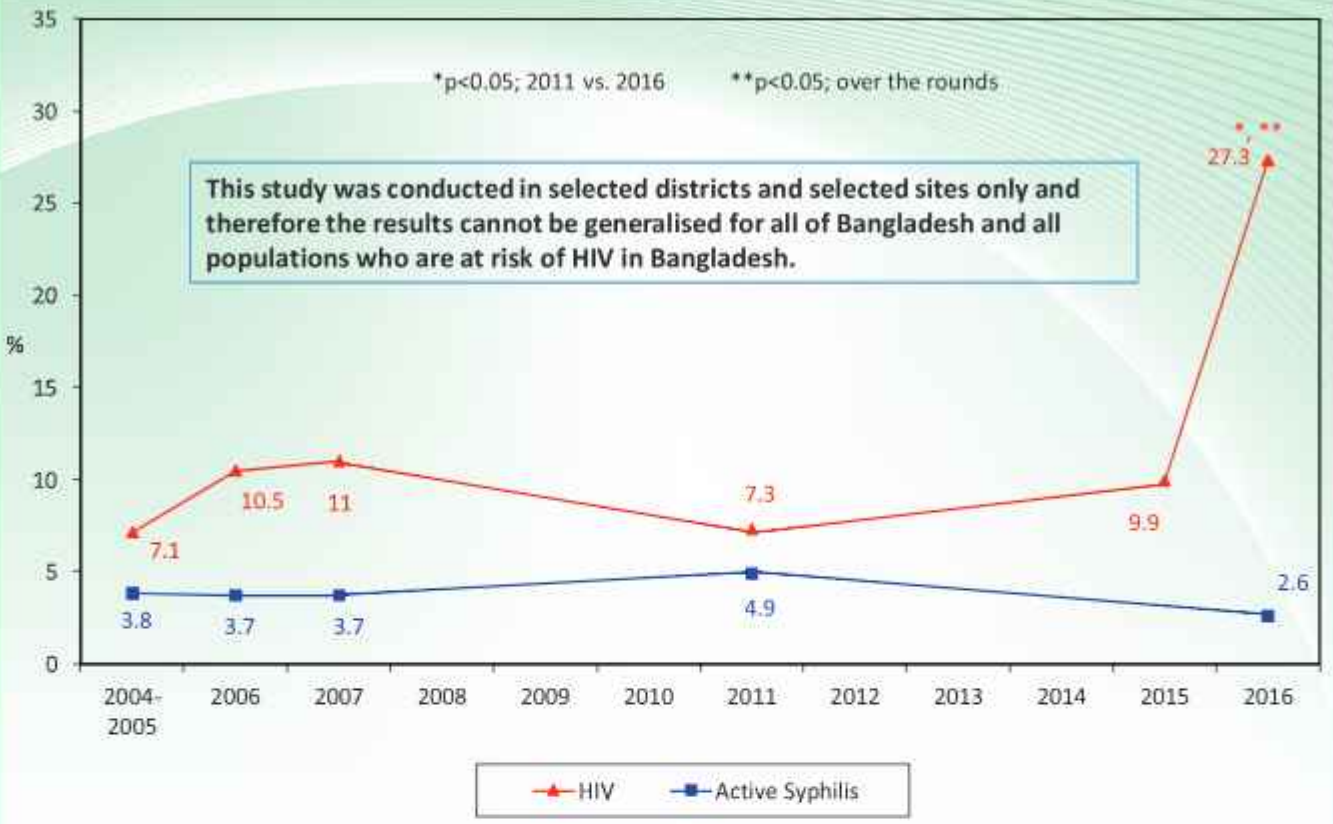


Figure-38: Prevalence of HIV and active syphilis among male PWID in Dhaka A2 over the rounds

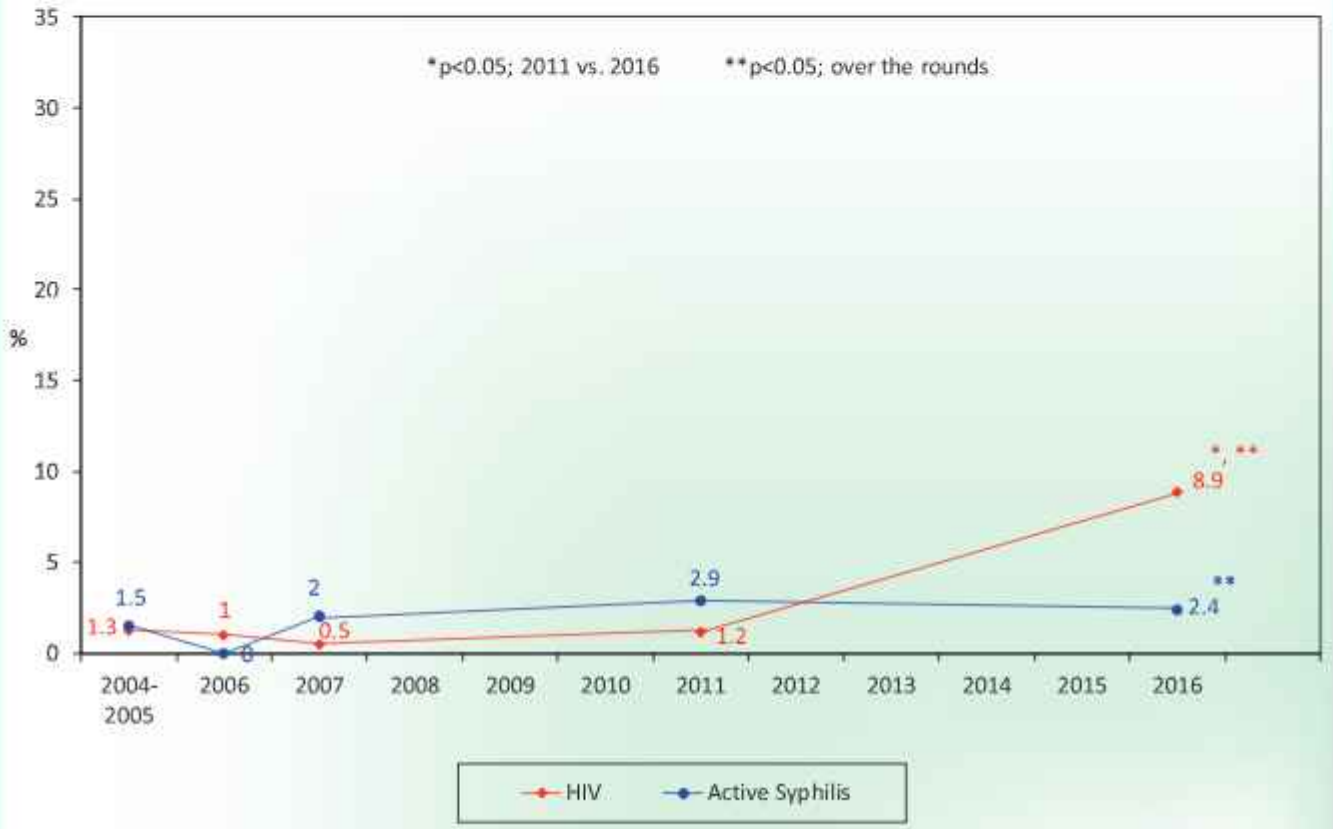


Figure-39: Prevalence of HIV and active syphilis among female PWID over the rounds

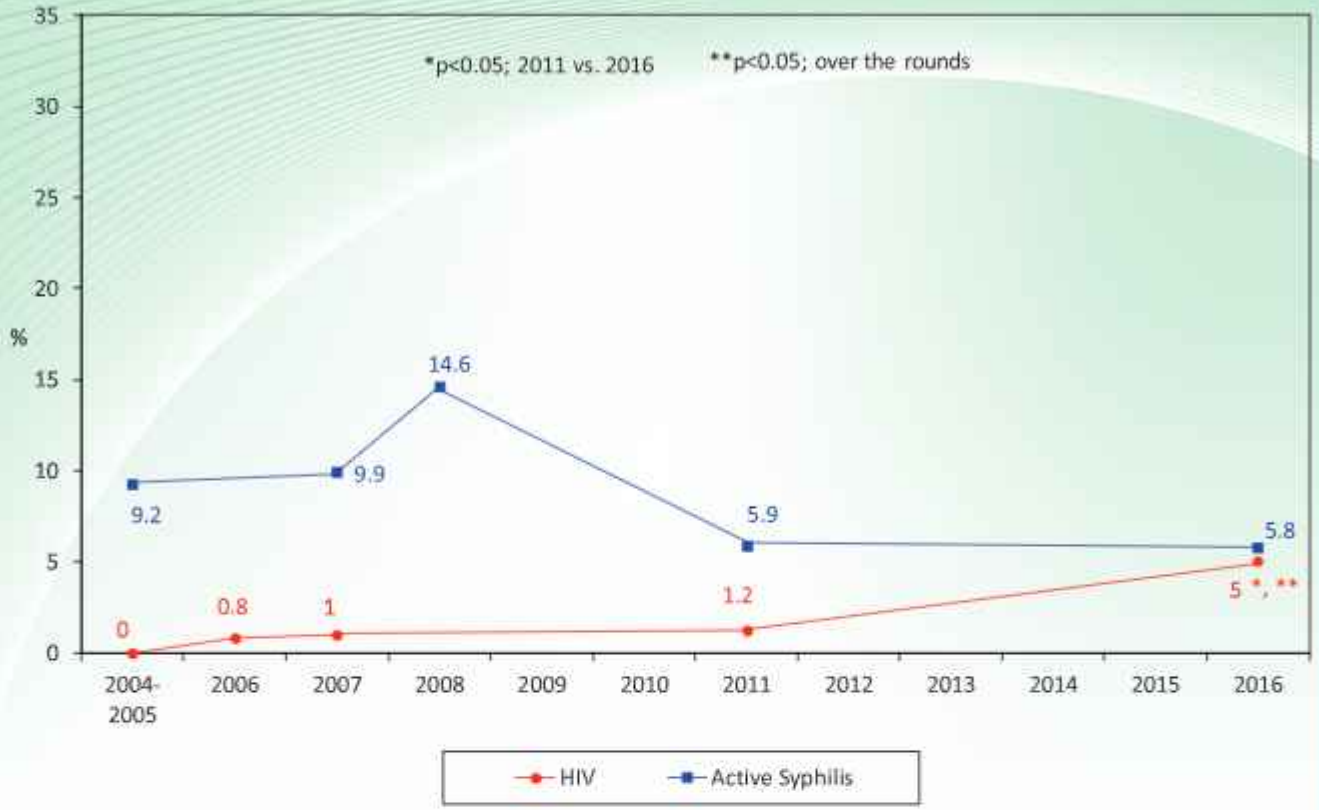
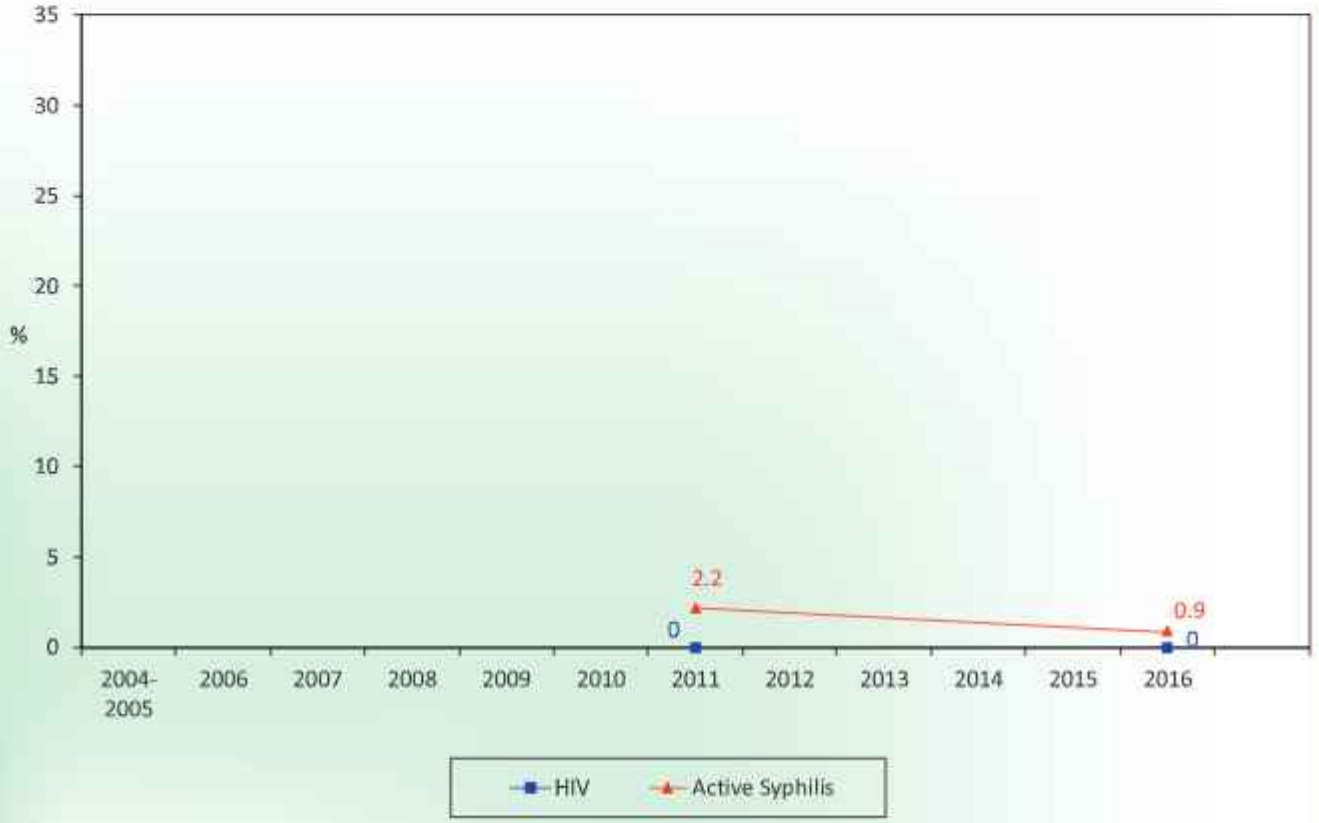


Figure-40: Prevalence of HIV and active syphilis in Hili among male PWID over the rounds



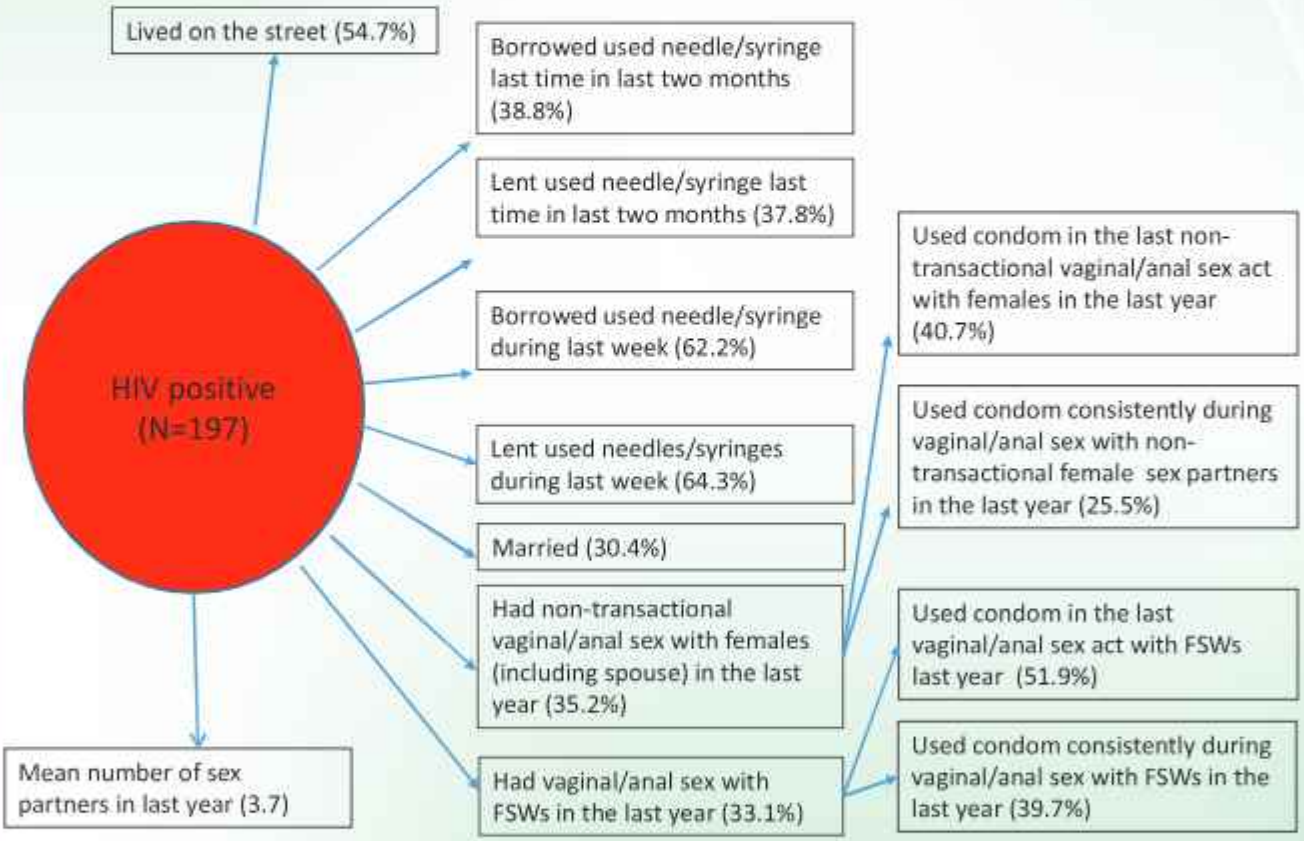
Some key characteristics of HIV positive PWID and differences with HIV negative PWID (Figure-41 and Table-53)

Of the total 721 PWID sampled in A1, 197 (27.3%) were found to be HIV positive (see findings from serological surveillance, Table-52, page-121). Some key characteristics of HIV positive PWID are shown in Figure-41.

More than half (54.7%) lived on the streets. Borrowing or lending of used needles/syringes in the last injection episode in the last two months was reported by more than two thirds of the HIV positive PWID and more than 60% reported this in the last week.

Some HIV positive PWID were married and had non-transactional sex partners in the last year and several bought sex from FSWs and overall had multiple sex partners (mean 3.7). Condom use with non-transactional female sex partners in the last sex and consistently over one year was reported by 40.7% and 25.5%, respectively. With FSWs, 51.9% used a condom in the last sex act while 39.7% used condoms consistently in the last year.

Figure-41: Profile of HIV positive PWID in Dhaka A1-networks of risk



Key differences between HIV positive and negative PWID are shown in Table-53. HIV positive PWID were similar in age to those who were negative. More HIV negative PWID lived with their families or relatives and had a fixed address such as a residence or work place where they lived whereas more HIV positive PWID lived on the streets ($p<0.05$ for both).

For sharing of needles/syringes; more PWID borrowed used needles/syringes during the last injection in the last two months and in the last week than HIV negative PWID ($p<0.05$ for both). Although there was no difference between HIV positive and negative PWID in terms of lending used needles/syringes, in the last week more than 60% HIV positive PWID lent to others.

Fewer HIV positive than HIV negative PWID were married (p<0.05). Concomitantly more HIV negative PWID reported having non-transactional sex with female partners in the last year than HIV positive PWID (p<0.05) but the latter more frequently reported using condoms all the time in such acts compared to the former (p<0.05).

Table-53: Key differences between HIV positive and negative PWID

Indicators	Dhaka-A1		Comparison p-value
	Positive N=197 unless otherwise stated	Negative N=524 unless otherwise stated	
Age (in years), % (95% CI)			
Mean (95% CI)	39.1 (37.4-40.8)	38.8 (37.7-40.0)	NS
Median (IQR)	37.0 (32.0-45.0)	38.0 (33.0-45.0)	
Currently living with most of the times, % (95% CI)			
Alone	49.2 (41.5-56.9)	37.6 (31.7-44.0)	NS
Relatives/Family members	38.1 (29.9-47.0)	53.4 (47.2-59.5)	<0.05
Friends (non PWID)	1.3 (0.4-3.6)	1.0 (0.4-2.2)	NS
PWID friends	11.4 (6.7-18.9)	8.0 (5.6-11.4)	NS
Currently living place most of the times, % (95% CI)			
On the street	54.7 (43.8-65.2)	35.4 (28.0-43.6)	<0.05
Fixed address	45.3 (34.8-56.2)	64.6 (56.4-72.0)	<0.05
Borrowed used needle/syringe last time in last two months, % (95% CI)	38.8 (32.2-45.7)	22.1 (18.2-26.6)	<0.05
Lent used needle/syringe last time in last two months, % (95% CI)	37.8 (30.7-45.5)	38.8 (31.2-46.9)	NS
Borrowed/lent used needle/syringe last time in last two months, % (95% CI)	67.3 (57.7-75.7)	54.1 (46.3-61.7)	NS
Borrowed used needle/syringe during last week, % (95% CI)	62.2 (53.1-70.6)	40.0 (32.3-48.2)	<0.05
Lent used needle/syringe during last week, % (95% CI)	64.3 (53.8-73.6)	51.8 (44.2-59.3)	NS
Borrowed/lent used needles/syringes during last week, % (95% CI)	68.4 (58.3-77.1)	55.4 (48.1-62.4)	NS
Duration of taking injecting drugs (in years)			
Mean (95% CI)	9.9 (9.2-10.6)	9.3 (8.6-10.1)	NS
Median (IQR)	10.0 (7.0-12.0)	8.0 (5.0-12.0)	
Current marital status, % (95% CI)			
Married	30.4 (23.8-37.9)	47.1 (40.9-53.4)	<0.05
Unmarried/Divorced/Widower/Separated	69.6 (62.1-76.2)	52.9 (46.6-59.1)	<0.05
Had non-transactional vaginal/anal sex with females (including spouse) in the last one year, % (95% CI)	35.2 (28.5-42.5)	52.6 (46.6-58.5)	<0.05
Used condom in the last non-transactional vaginal/anal sex act with females (including in the last one year (Denominator is who had non-transactional vaginal/anal sex with females in the last one year), % (95% CI)	N=72 40.7 (24.9-58.6)	N=270 20.8 (16.3-26.3)	

Indicators	Dhaka-A1		Compari
Frequency of condom use in vaginal/anal sex with non- transactional female sex partners in the last one year (Denominator is who had vaginal/anal sex with non-transactional female sex partners in the last one year), % (95% CI)	N=72	N=270	
Always	25.5 (11.7-47.1)	10.4 (7.3-14.7)	NS
Sometimes	41.4 (28.6-55.5)	38.7 (33.0-44.8)	NS
Never	33.1 (22.2-46.2)	50.9 (43.3-58.4)	NS
Frequency of condom use in vaginal/anal sex with non-commercial female sex partners in the last month (Denominator is who had vaginal/anal sex with non-transactional female sex partners in the last month), % (95% CI)	N=44	N=191	
Always	24.6 (15.6-36.7)	10.3 (6.9-15.1)	<0.05
Sometimes	30.9 (16.6-50.1)	24.8 (19.2-31.4)	NS
Never	44.5 (29.6-60.4)	64.9 (56.8-72.3)	NS
Had vaginal/anal sex with FSWs in the last one year, % (95% CI)	33.1 (25.3-42.1)	33.1 (28.8-37.7)	NS
Used condom in the last vaginal/anal sex act with FSWs in the last one year (Denominator is who had vaginal/anal sex with FSWs in the last one year), % (95% CI)	N=66 51.9 (39.0-64.5)	N=172 51.6 (43.5-59.6)	NS
Frequency of condom use in vaginal/anal sex with transactional female sex partners in the last one year (Denominator is who had vaginal/anal sex with transactional female sex partners in the last one year), % (95% CI)	N=66	N=172	
Always	39.7 (28.7-51.9)	34.3 (27.5-41.9)	NS
Sometimes	46.0 (32.8-59.7)	43.7 (37.0-50.6)	NS
Never	14.3 (8.0-24.4)	22.0 (16.3-29.0)	NS

Female sex workers

Socio-demographic characteristics (Table-54)

The socio-demographic characteristics of FSWs from the streets, hotels and residences in Dhaka and streets in Hili is shown in Table-54. Street based FSWs of Hili were the oldest and more never attended school compared to street and hotel FSWs in Dhaka ($p<0.05$ for all comparisons). Duration of sex work was lower among residence based FSWs in Dhaka than street FSWs in Dhaka and Hili ($p<0.05$ for both).

Table-54: Socio-demographic characteristics of female sex workers

Geographical Areas (Number sampled)	Age in years Median (IQR)*	Ever attended school n (%)	Education (years) (Among those who attended school) Median (IQR)	Duration of selling sex(months) Median (IQR)	Duration as sex worker at the same site (months) Median (IQR)
Street based female sex workers:					
Dhaka (1141)	27.0 (23.0-32.0)	327 (28.7)	5.0 (3.0-7.0)	59.8 (29.9-101.7)	59.8 (28.9-95.7)
Hili (197)	30.0 (28.0-35.0)	40 (20.3)	6.5 (5.0-8.0)	53.9 (35.9-83.8)	53.9 (33.9-83.8)
Hotel based female sex workers:					
Dhaka (256)	26.0 (23.0-30.0)	157 (61.3)	6.0 (4.0-8.0)	47.9 (23.9-71.8)	47.9 (23.9-71.8)
Residence based female sex workers:					
Dhaka (501)	26.0 (23.0-31.0)	244 (48.7)	7.0 (4.0-9.0)	37.9 (23.9-71.8)	37.9 (23.9-69.8)
Brothel based female sex workers:					
National (1670)	26.0 (22.0-30.0)	852 (51.0)	5.0 (3.0-7.0)	84.0 (36.0-144.0)	60.0 (24.0-120.0)

*IQR refers to inter quartile range

Travelling to India from Hili (Table-55)

Questions were asked to FSWs in Hili on whether they travelled to India in the last one year and also whether they had sold sex while staying in India and used condom in the last sex act (Table-55). The data showed that 53.8% of the respondents had travelled to India in the last one year prior to the survey. Of those who travelled abroad, 84% sold sex and only half of those FSWs used condoms in the last sex act while abroad.

Table-55: Cross border mobility to India in the last year of street based female sex workers in Hili

Variables	N=197, unless otherwise stated n (%)
Travelled to India in the last year	106 (53.8)
Sold sex while abroad in the last year (Among those who had crossed the border in the last year)	N=106 89 (84.0)
Used condom during last episode of selling sex while abroad in the last year (Denominator is who sold sex while abroad in the last year)	N=89 47 (52.8)

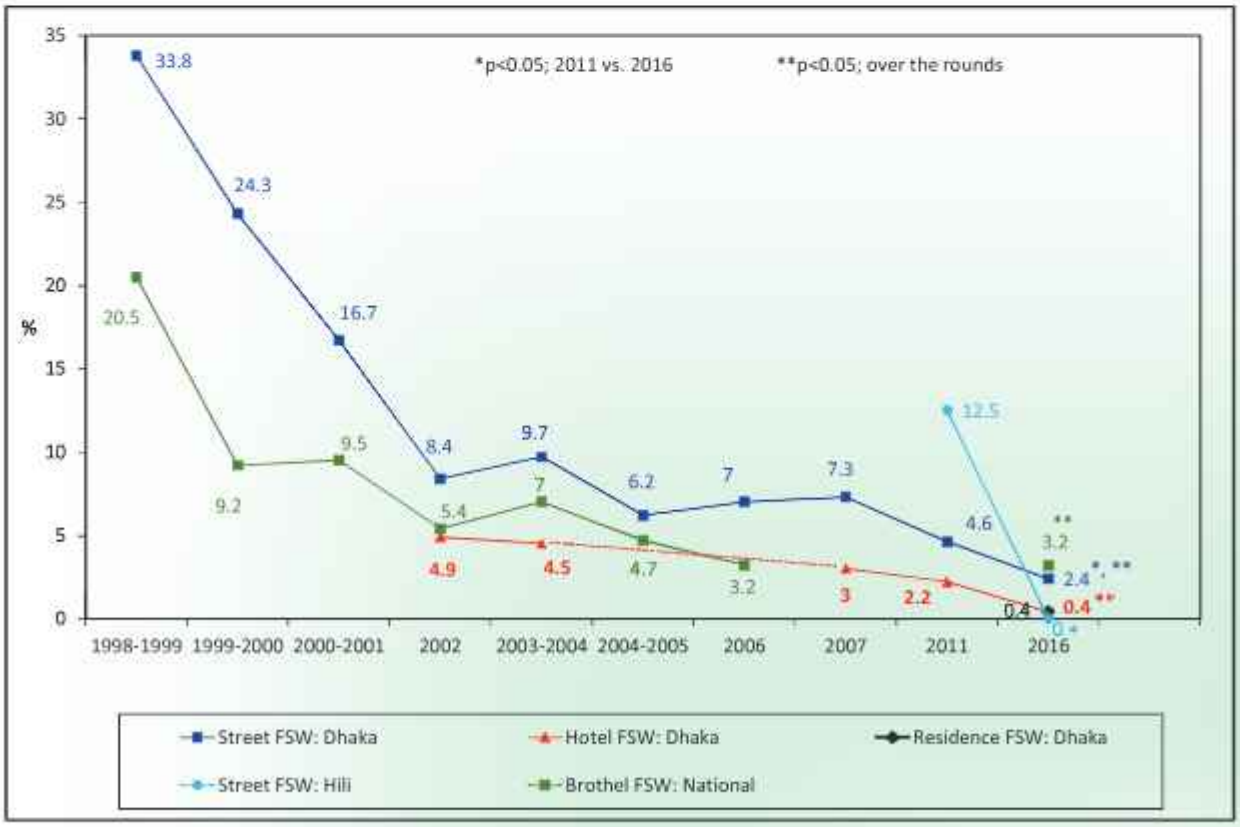
Prevalence of HIV and active syphilis (Table-56)

Prevalence of HIV and active syphilis among all FSWs sampled is shown in Table-56. From 1998-2016, the prevalence of HIV among FSWs has remained less than 1%. Active syphilis was <5% in FSWs from all sites in 2016 and a significant decline over the years was observed among street and hotel based FSWs in Dhaka and brothel based FSWs (p<0.001 for all) (Figure-42). In Hili, the prevalence of active syphilis declined significantly among street based FSWs from 12.5% in 2011 to 0% in 2016 (p<0.001) (Figure-42).

Table-56: Prevalence of HIV and active syphilis among FSWs in 2016

Geographical Location (Number sampled)	Prevalence of HIV n (%)	Prevalence of active syphilis n (%)
Street based female sex workers:		
Dhaka (1141)	4 (0.4)	27 (2.4)
Hili (197)	1 (0.5)	0
Hotel based female sex workers:		
Dhaka (256)	1 (0.4)	1 (0.4)
Residence based female sex workers:		
Dhaka (501)	0	2 (0.4)
Brothel based female sex workers:		
National (1670)	1 (0.1)	53 (3.2)

Figure-42: Prevalence of active syphilis among FSWs over the rounds



The prevalence of HIV and active syphilis among all FSWs in all sites over the rounds of surveillance is shown in Annexes-2 and 3.

The prevalence of HIV and active syphilis among FSWs in the age groups of 15-24 and 25-49 years sampled in 2016 is provided in Table-57.In total, seven FSWs were HIV positive and only one was in the younger age group. The prevalence of HIV among 15-24 and 25-49 years was similar (0.1% and 0.2% respectively). For active syphilis, 83 FSWs were found to be positive of whom 25 (2.1%) were in the age group of 15-24 years and 58 (2.2%) were in the 25-49 years of age group.

Table-57: Prevalence of HIV and active syphilis by age group among FSWs in 2016

Age group (years)	Total tested	Prevalence of HIV n (%)	Prevalence of active syphilis n (%)
Street based female sex workers: Dhaka			
15-24	383	1 (0.3)	12 (3.1)
25-49	758	3 (0.4)	15 (2.0)
Hotel based female sex workers: Dhaka			
15-24	78	0	1 (1.3)
25-49	178	1 (0.6)	0
Residence based female sex workers: Dhaka			
15-24	187	0	1 (0.5)
25-49	314	0	1 (0.3)
Street based female sex workers: Hili			
15-24	27	0	0
25-49	170	1 (0.6)	0
Brothel based female sex workers: National			
15-24	503	0	11 (2.2)
25-49	1167	1 (0.1)	42 (3.6)

SUMMARY OF FINDINGS AND DISCUSSION

HIV surveillance was last conducted in Bangladesh five years ago in 2011 [1] and BSS 10 years ago in 2006/07 [15]. In these 5-10 years several changes in service availability for HIV prevention has occurred in the geographical areas sampled in the present round, i.e. in Dhaka and Hili and in the brothels of Bangladesh. For PWID in Dhaka, needle/syringe programmes have remained active covering approximately 75% of the estimated number of PWID in Dhaka and females who use drugs have been brought under the purview of the harm reduction services although the numbers are not large. However, despite the coverage remaining the same, changes were made in the design of the needle/syringe programme from December 2015 asfunding from the Global Fund and HPNSDP declined (discussed in more detail later). OST was initiated in 2010 and has slowly been expanded to cover only 750 PWID mostly in the A1 neighbourhood of Dhaka. Services for street based and hotel based FSWs have also continued however the coverage has decreased gradually due to funding constraints including the closure of services supported by fhi360 with USAID funds since July, 2014 [21]. Services in brothels have been irregular depending on fund availability. HTC has been expanded among the key populations and Antiretroviral Therapy (ART) made available but data from the present surveillance show that only 26.8% of PWID and 4.7-37.8% of FSWs received HTC in the last year and according to the national estimates 15.4% of the estimated numbers of people living with HIV (PLHIV) are presently on ART (personal communication, ASP).

Although surveillance was not conducted during this time other surveys and studies have been carried out in these population groups and along with programme data have provided some insights into what may be happening in some of these groups in some geographical areas. Thus a size estimation of key populations was recently completed where a few risk behaviour data were collected [16], research studies were conducted on estimating STI prevalence in FSWs [22], MSM, MSW, hijra and females using drugs in Dhaka who were attending DICs (unpublished) and assessing the feasibility of the application of point of care (PoC) testing for HIV using oral fluid among PWID in A1 (unpublished). These studies have a bearing on the findings in the present round of surveillance and will be discussed in this section.

The key findings in this round of surveillance from PWID and FSWs are highlighted in Boxes 2 and 3 respectively.

Box-2. Highlights from the findings on PWID in Dhaka

HIV Prevalence:

HIV has risen significantly in male PWID since 2011 and over the years in A1 (27.3%) and A2 (8.9%), as well as A1 and A2 combined (22%). In female PWID it has also risen significantly (5%).

Active syphilis prevalence:

This is below 5% in male PWID. In female PWID this has remained similar to 2011 at 5.8%.

Significant differences in risk behaviours between male PWID in A1 vs. A2:

Injections:

- A1 PWID injected for longer duration
- A1 PWID took more injections yesterday
- More A1 PWID shared last week
- A1 PWID had more injection sharing partners when partners were different individuals

Sex:

- Fewer A1 PWID had non-transactional sex with females in the last year
- With these partners fewer A1 PWID used condoms some of the times both in the last year and last month

Trends over time in A1+A2 Dhaka:

Improved in all parameters.

Significant differences in risk behaviours between male HIV positive and negative PWID in A1:

- Fewer HIV positivelived with families
- More HIV positivelived on the streets
- More HIV positiveborrowed used needles/syringes last time in the last two months and last week
- Fewer HIV positivewere married
- Fewer HIV positivehad non-transactional sex partners in the last year
- More HIV positiveused condoms always with such partners in the last month

Networks of risk of HIV positive PWID:

- >60% borrowed or lent last week
- >30% married, had non-transactional sex partners, bought sex from FSWs in the last year
- <40% used condoms consistently in last year with FSWs

Box-3. Highlights from the findings on FSWs

HIV prevalence:

HIV has remained below 1% in all groups of FSWs.

Active syphilis prevalence:

Active syphilis rates are below 5% in all groups of FSWs and have either declined or remained steady over the years.

Risk behaviours and trends over the years

- Hotel FSWs were the most educated, had the lowest duration in sex work, worked fewer days in the week but earned more
- Fewer FSWs from hotels knew about STI symptoms, had comprehensive HIV knowledge, knew where to get tested for HIV and had been tested in the last year
- More hotel FSWs had >20 clients a week but mean number of clients declined among FSWs in brothels and hotels
- ~60-80% of all FSWs used condoms in last sex with clients and this increased over the rounds
- Condom use declined with non-transactional partners among FSWs in Dhaka streets
- Coverage by any HIV prevention services increased in FSWs in brothels and streets of Dhaka but declined in FSWs in hotels
- Several FSWs from Hili streets travelled abroad last year some of whom sold sex while abroad of whom just over half used a condom in last sex
- More Hili FSWs took illicit drugs in the last year but overall use of illicit drugs by FSWs declined over the years

Significant differences between the age groups; 15-24 and 25-49 years:

In all sites:

- more younger FSWs sold sex for <5 years

In brothels:

- more younger FSWs sold sex to new clients in the last week
- fewer younger FSWs were reached by HIV prevention programmes

In the streets of Dhaka:

- the mean age of experiencing first sex was significantly lower for younger FSWs

In the hotels of Dhaka:

- more younger FSWs used condoms in last sex with new or regular clients
- younger FSWs had more clients in the last week

The present round of surveillance has revealed a significant rise in HIV prevalence among male PWID in Dhaka, in both neighbourhoods as well as in female PWID. This rise was predicted many years ago [23] as rapid rises in HIV prevalence have been noted in many countries where there is absent or inadequate coverage with harm reduction services [24-27]. The harm reduction programme in Bangladesh was initiated in Dhaka in the late 1990s. Since then many changes have taken place with the expansion of the needle/syringe programme both within Dhaka and across the country with funds from the World Bank/GoB/International Development Agency (IDA) followed by the Global Fund. The funding available till November 2015 declined significantly from the Global Fund and HPNSDP. This resulted in an over 50% decrease in the unit cost for interventions among PWID since 2015 (Programme data, personal communication from Save the Children). The key events in the needle/syringe programme are shown schematically in Figure-43.

Figure- 3 History of the needle syringe programme in Bangladesh - landmark events

NSP started in Dhaka	Scaling up of NSP with funds from the WB/GoB/IDA	Scaled up NSP continued with Global Fund and HPNSDP	Changes in NSP delivery with 50% reduction in unit cost due to reduced funding from the Global Fund and HPNSDP

NSP needle syringe programme; IDA International Development Agency; WB World Bank

When an epidemic was not observed in Dhaka for more than 1 years after the initiation of the harm reduction programme in 1 it was credited to the effective needle syringe programme which was cited as one of the best in the region 7, 2 . However, when the fund declined in December 201 , the programme was continued such that the number of PWID covered remained the same but alterations were made in what services were provided and how they were provided. These changes are summarised in Table- . Compared to earlier years, in 2016 each outreach worker covered twice as many PWID and the distance that outreach workers were travelling to reach PWID was greater. Furthermore, previously, in old Dhaka (A1) each PWID was provided 3-syringes with needles every day but since 2016 one syringe with 3- needles are being provided.

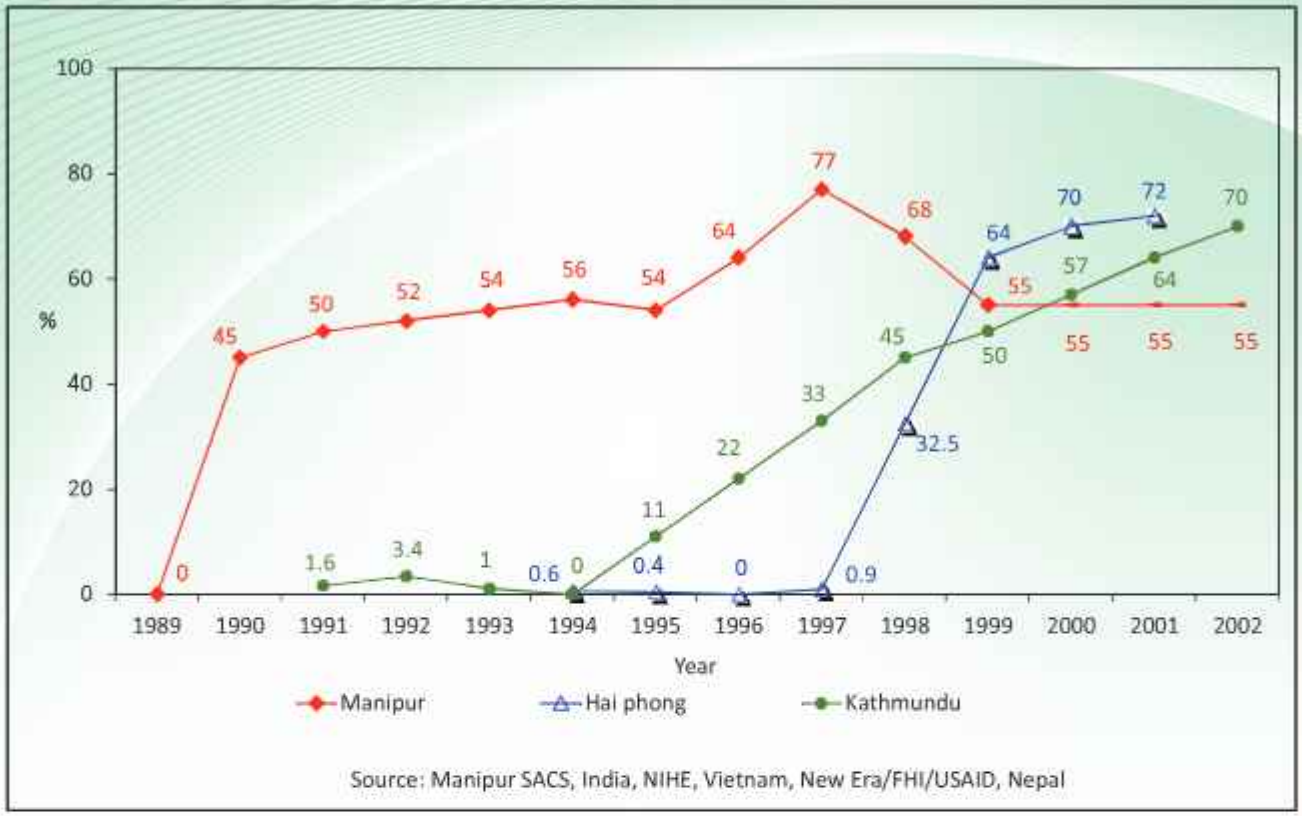
Table-58: omparison of services provided in the needle/syringe programme for PWID in the two neighbourhoods of Dhaka in the two separate phases of the lobal Fund grant

Services provided to PWID	Global Fund grant 2009-2015 (November)		Global Fund grant 2015 (December)-2017	
	Old Dhaka	New Dhaka	Old Dhaka	New Dhaka
Number of PWID under each outreach worker	35	50	70	85
Distance of drug injecting spots/ outreach from DIC	Within 1 km	1-4 km	1-3 km	1-4km
Number of needles/syringes provided to each PWID/ day	3-5 syringes with needles	1-2 syringes with needles	1 syringe with 3-5 needles	1 syringe with 1-2 needles
Number of times outreach worker provides needles/syringes per day	Twice	Once	Twice	Once

Source: Programme data, personal communication from Save the hildren

The compromises in the delivery of the needle/syringe programme has likely resulted in the continued sharing of needles/syringes which is of concern particularly in the case of HIV positive PWID. iven other country experiences which show that rapid rises in the HIV epidemic can occur if effective harm reduction programmes are not in place 24-27 . It is not surprising that the epidemic has indeed taken off. Figure-44 demonstrates rapid rises in cities such as Manipur, athmandu and Haiphong in the early years of the epidemic 2 and more recently in cities Pakistan and the Philippines (Figures-45 and 4).

Figure-44: Rapid rises in HIV prevalence among PWID in several cities in the Asia Pacific region in the late 1990s



Source: Manipur SACS, India, NIHE, Vietnam, New Era/FHI/USAID, Nepal

Figure-45: Rapid rises in HIV prevalence among PWID in several cities in Pakistan since mid-2000s

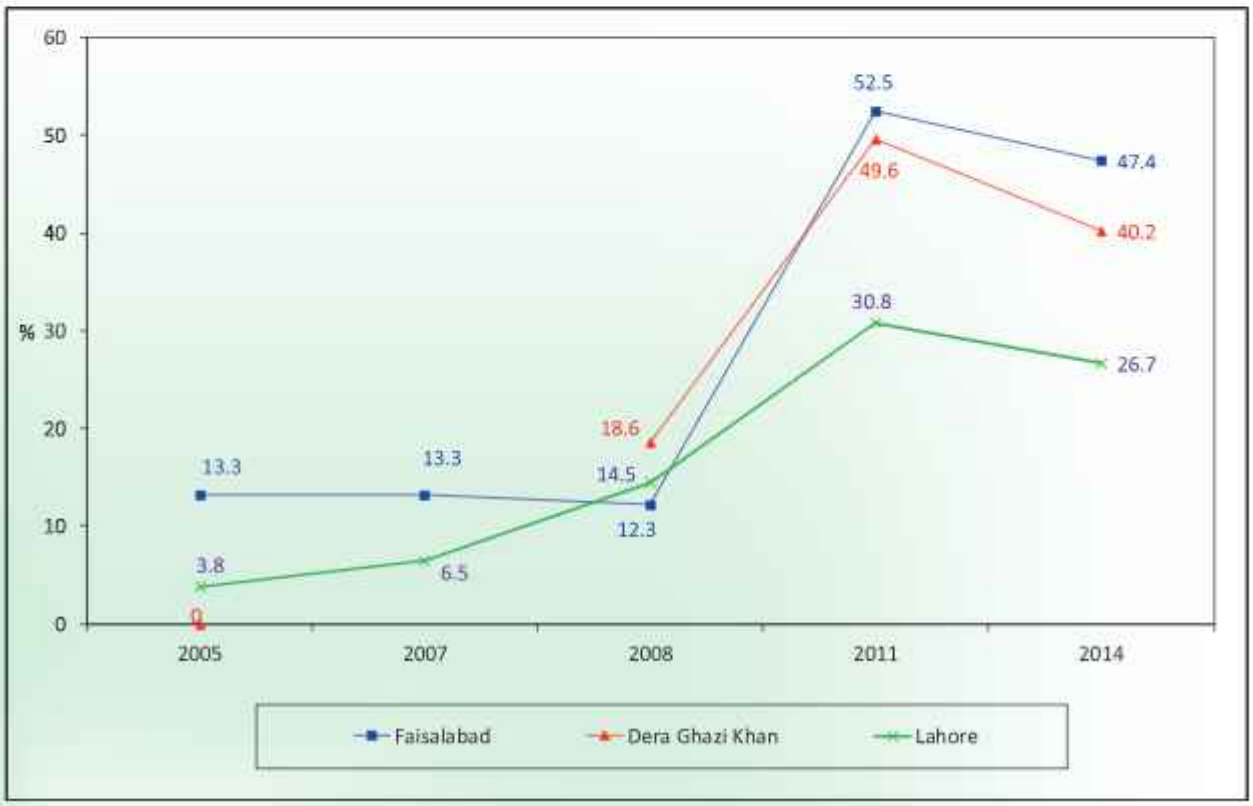
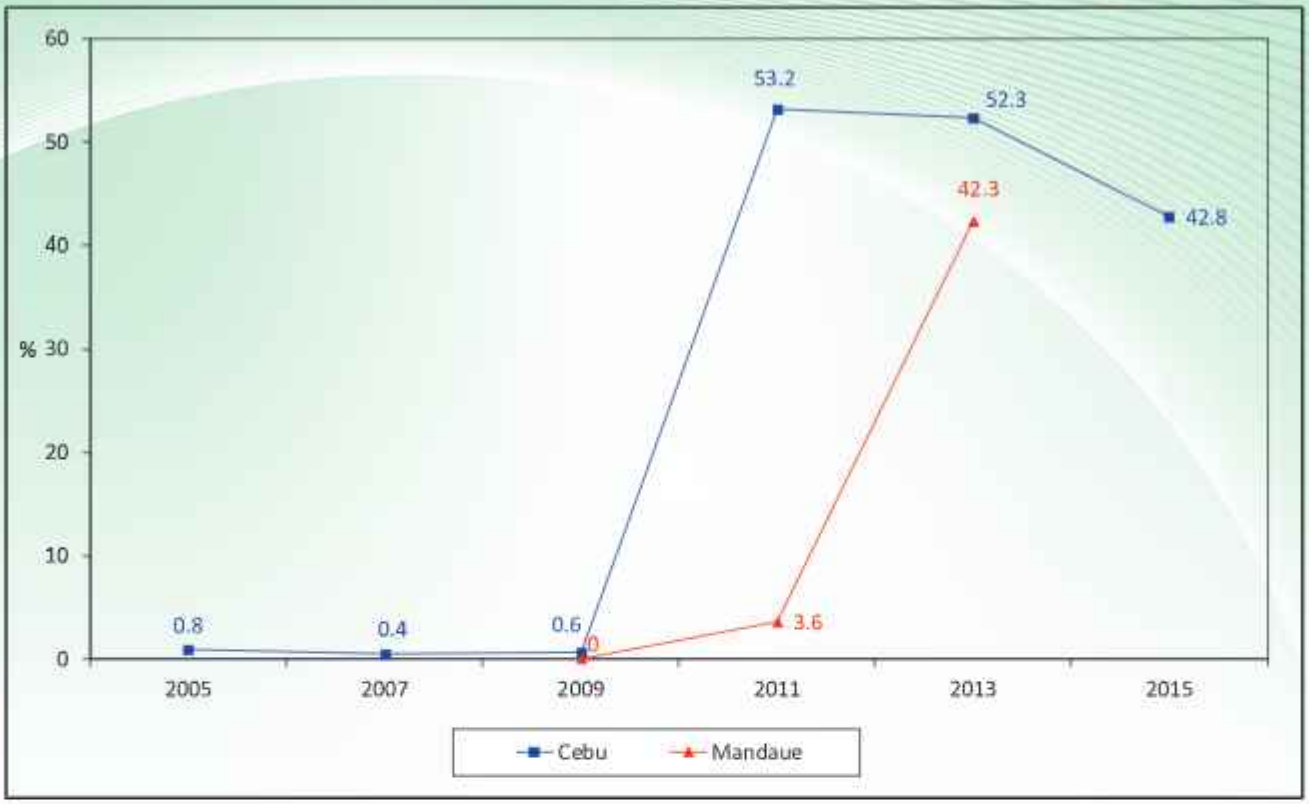


Figure-46: Rapid rises in HIV prevalence among PWID in several cities in the Philippines since mid-2000s



The current data further showed that in A1, HIV positive PWID were practicing multiple risky behaviours and the networks of risk were both through shared injections and through unsafe sex. More than half of the HIV positive PWID shared their needles/syringes and 14.2% had not participated in the needle/syringe programme in the last year. Additionally, many had multiple transactional and non-transactional sex partners, many were married and less than half used condoms consistently. This is of concern as this will allow spread of HIV not only within the injecting sharing networks of PWID but also to their sex partners including wives. A study in Manipur, India documented the transmission of HIV to non-injecting wives of male PWID [29]. In many cases, the female partner cannot change risky practices with her partner by herself, but harm reduction interventions can reach out to female partners of male PWID, as has been shown in Vietnam, to enhance condom use by the couple [30]. A study in Bangladesh confirmed the high vulnerability of such wives with their male PWID husbands and several sold sex to support their families [31]. Reaching out to wives and other female partners of male PWID is now imperative to stop the spread of HIV.

It is now well accepted that needle/syringe programmes on their own are not sufficient to maintain low level epidemics over time as modelling exercises have shown that a combination of three or four services is required which includes needle/syringe programme, OST, HTC and ART [11, 12]. Availability of OST, HTC and ART is very limited in Bangladesh so that success in containing the epidemic for this long with only the needle/syringe programme is indeed a credit to the harm reduction programme in Bangladesh [24]. However, along with the compromised needle/syringe programme, only a small percentage of PWID had undergone HTC and knew their results but among those known to be HIV positive, 31% had received ART as of October 2016 through a PLHIV NGO (personal communication from Save the Children). The limited funding available allows coverage of ~2% PWID with OST which cannot have any impact on the spread of HIV. It is well recognised that in order to control an HIV epidemic among PWID a combination of effective NSP, OST, HTC and ART is required [11, 12].

The HIV surveillance in this round has followed the revised guidelines for second generation HIV surveillance [4]. This methodology is robust as it takes into account different sources of information which are triangulated and also of the dynamic pattern of the HIV epidemic. A criticism of Bangladesh's serological surveillance system was that random sampling was not conducted rather sampling had been carried out through intervention programmes on a first come first served basis which could lead to bias. However, in the neighbourhood of A1 a take all sample of all visible PWID was adopted in the previous serological surveillance round conducted in 2011. And more recently in 2015, a study was conducted among PWID in A1 using TLS to test the acceptance of a PoC HIV testing method using oral fluid (unpublished). Thus, a random sampling method was used in 2015 which was similar to that employed in the present round of surveillance and the prevalence of HIV in male PWID in the 2015 study was found to be 9.9% which was not significantly different from previous rounds of surveillance (Figure-37). This suggested that the non-random sampling method used in earlier rounds did not have an effect on the HIV result. The testing methodologies used for HIV and active syphilis have also remained the same over the rounds of surveillance whereby all samples testing positive for HIV in the first test were confirmed by Line Immunoassay. Moreover, internal quality assurance tests were conducted to validate the tests.

That HIV does not remain confined to one key population in one neighbourhood is being played out in Dhaka as HIV is now no longer restricted to male PWID within A1 - it has spread to male PWID in A2 and to female PWID. Male PWID in A2 also practice risky behaviours so that further spread in the immediate future may be imminent in this neighbourhood as well. In addition to the individual level risks, there are environmental and structural factors that enhance these risks [11]. Many PWID especially in A1 and HIV positive PWID lived on the streets and alone. Homelessness has been shown to be associated with HIV in different parts of the world including in Bangladesh [6, 32] as the resulting chaotic lifestyle leads to adopting riskier behaviours. A1 is likely a riskier neighbourhood than A2 but as these factors have not been studied in detail it is difficult to surmise whether the structural factors within A2 will indeed lead to a slower rise in HIV among PWID in A2. Recent changes in the environment of the A2 neighbourhood has led to dislocation of PWID from traditional public injecting spots as in A2 only 57.1% of the targeted sample size for male PWID was achieved for interviews in the present BSS. According to the field notes taken by the interviewers this was because of new major construction taking place in the neighbourhood as well as drives by law enforcement that had driven the PWID underground. However, comparison of individual risk behaviours between the two neighbourhoods showed that the practice of risky behaviours was less common by the PWID in A2 than those in A1; those in A1 took more injections, more were sharing needles/syringes and the number of sharing partners was greater when the sharing group comprised of different members. Thus, it may still be possible to slow the epidemic in the A2 neighbourhood by working on the individual level risks by taking appropriate and immediate action. However, a better understanding of structural factors would help in appropriately designing services tailored to the differing needs of PWID in each of these neighbourhoods.

Female PWID are known to be highly vulnerable to HIV through multiple factors [33]. Sex work is common among them and a study in Dhaka showed that of the 130 female PWID sampled, 63% had engaged in selling sex[34]. A recent study on STIs in 177 female PWID in Dhaka showed that 7.3% had any STI diagnosed aetiologically (active syphilis or gonorrhoea or chlamydia) and 80.8% had sold sex in the last year (unpublished data). Data from different countries show that female PWID who sell sex are more likely to share needles/syringes and other injection paraphernalia, have unprotected sex with their clients as well as their intimate partners, have higher rates of STIs and they are also more likely to experience sexual and physical violence and incarceration [35]. Unfortunately, no behavioural data was collected from female PWID during this round of surveillance but given their known risks and vulnerabilities, they are a group that require special attention.

Among FSWs, active syphilis rates declined over the years. Low rates of active syphilis among FSWs have also been recorded recently in another study conducted in Dhaka [22]. The declining STI rates may be attributed to the ongoing syndromic management of STIs which is practiced in Bangladesh [36] as well as to the freely available antibiotics. Given this scenario active syphilis can no longer be used as a surrogate marker of risk for HIV.

Over the years, key risk behaviours in FSWs showed improvement in almost all parameters. Of concern are FSWs operating through hotels in Bangladesh where HIV prevention services have been considerably reduced with the closure of the fhi360 HIV prevention programme since July 2014 [21]. These FSWs had large numbers of clients, little knowledge about HIV and STIs, and of HIV testing. However, condom use did not decline in this group of FSWs and that is because condoms have been made available not only through the HIV prevention programme but also through the hotel management from whom FSWs as well as their clients purchase these condoms (information gleaned from field notes of interviewers). This suggests that a degree of sustainability of a key ingredient of HIV prevention services has been obtained by working through the existing structure of the hotel management. The factors or motivations behind achieving such a positive outcome from the programme needs to be explored further in order to understand how to make other services available to the FSWs.

Similarly, in brothels, comprehensive HIV prevention services have not been in place for some time but the community based organisations (CBOs) of FSWs within the brothels have managed to mobilise some resources through other NGOs and service providers to ensure condom availability. CBO strengthening and empowerment can play a key role in reducing HIV risk among FSWs as has been highlighted by the CBO intervention programme in the Sonagachi brothel of Kolkata [37]. The earlier comprehensive HIV prevention programmes undertaken in several brothels of Bangladesh [38] has likely mobilized the FSWs to ensure their own safety but this needs to be better understood and built upon to further strengthen services.

For the first time in Bangladesh, the surveillance system was designed to assess HIV, active syphilis and risk behaviours in FSWs younger than 18 years of age. In the Dhaka hotels and to some extent also in the streets of Dhaka, there were approximately equal numbers of younger and older FSWs. In other venues fewer younger FSWs were found. Differences in risk behaviours between the two age groups varied in the different venues but nonetheless a few indicators highlighted the greater vulnerabilities of younger FSWs compared to older one as more were found to sell sex to new clients (in brothels), had more clients (in hotels) and fewer received HIV prevention services (in brothels). Bangladesh has a HIV risk reduction strategy for most at risk adolescents [39]which is pertinent to this group of FSWs among whom it may be considered illegal to provide condoms. In Bangladesh, the MOHFW has issued an interim memo to provide HIV prevention services to some categories of most at risk adolescents and efforts are ongoing to allow such services to be made available to all young and adolescent individuals who are engaged in such high risk occupations.

The findings from this surveillance round show that HIV programming in Bangladesh has had some positive outcomes among female sex workers. However, the harm reduction programme for PWID needs to evolve to meet the new challenge of the expanding epidemic.

LIMITATIONS

Despite changes that were brought to the surveillance system in order to make it more representative several limitations still exist. These are discussed below:

1. Sampling for BSS was conducted using TLS and was restricted to people who were present in public venues; it did not take into account those members of key populations who are more hidden and do not come to such venues. Whether those individuals who do not present themselves at public venues practice riskier behaviours is not known. However, TLS has been utilised over the years to ensure comparability. In addition, the PSU for PWID has already considered a spot where at least three PWID gather; it may be interpreted that targeting a gathering without considering individuals who inject on their own may lead to a bias towards sharing networks and therefore of increased rates of sharing. It needs to be borne in mind that HIV surveillance considers those most at risk and the random sample is among those who are injecting in a group, in a public venue, whether they share their injections or not. Such a design is required to enable programmes to target the most vulnerable. The surveillance system therefore, has been designed such that the prevalence of infections and risk behaviours represents those PWID who gather in public venues, are accessible and inject in groups of at least three and are likely to be those most at risk. In order to obtain a more representative sample of all members of any key population alternate sampling designs may be considered such as respondent driven sampling [40]. However, it is well recognised that no sampling methodology is without bias.

2. Sampling for serological surveillance in areas where prevalence is low has been carried out through intervention organisations on a first come first served basis. There remains the possibility of a bias towards those who are negative as this is carried out with the help of intervention programmes. However, such an approach has been proposed in the revised guidelines of the second generation surveillance system [4] because it takes into consideration limitations of funding and the low likelihood of identifying an epidemic using a random sampling technique. This is because while selecting the key populations and geographical areas for sampling, data are triangulated from multiple sources including HIV case detection and any indicator for enhanced risk and vulnerability. So far, in Bangladesh other than PWID in Dhaka, the prevalence of HIV and the number of cases in other population groups remain low.

3. Through passive case reporting from HTC sites another population group that has raised concern is migrants returning home from work abroad. Data from HTC centres in 2012 and 2013 showed that of the HIV positive cases 35-40% were among returnee migrants (National AIDS/STD Programme, personal communication). As migrant workers on returning home are scattered all over the country developing a suitable sampling frame for surveillance has been difficult. However, recently a study was conducted in the rural area of Matlab, southeast of Dhaka city where icddr,b operates a health and demographic surveillance system. In a random sample of 297 returnee migrants the prevalence of HIV was 0.3% using an oral fluid based PoC HIV test [41].This study was conducted in a special setting and using such a system for surveillance may be difficult, and it may be more appropriate to conduct special studies employed on a larger sample size and over a wider geographical area to better understand the epidemic in this population group.

4. This study was conducted in selected districts and selected sites onlyand therefore the results cannot be generalised for all of Bangladesh and all populations who are at risk of HIV in Bangladesh.

RECOMMENDATIONS

The findings from the present surveillance need to be taken into consideration by policy makers and programme implementers so that services are designed and budgeted for appropriately. The surveillance data provided in this technical report need to be utilised so that planning for coverage of HIV prevention, care and treatment services are adequate and that the quality of services is ensured. Regular data collection is also required to understand the course of the epidemic and programming needs. For all these activities ensuring adequate resources is essential. These are required to enable Bangladesh to reach the UNAIDS 90-90-90 targets i.e., that 90% of people living with HIV know their HIV status, 90% of people who know their HIV-positive status are accessing treatment and 90% of people on treatment have suppressed viral loads [42].

CONCLUSIONS

The findings from this surveillance round show that key risk behaviours including use of sterile needle/syringes in PWID and condom use in female sex workers have improved over the years but further improvement is required. It was further found that PWID in A1 practice riskier behaviours than those in A2 and the networks of risk of HIV positive PWID are wide. This is of concern as it will allow spread of HIV. Female sex workers in general have adopted safer behaviours so that even in the absence of HIV prevention programmes condoms are used as they are made available through other sources such as in hotels where the management structure provided condoms to clients. Younger female sex workers can have riskier behaviours with more clients and less access to HIV prevention programmes than older sex workers.

The prevalence of HIV in PWID in Dhaka, both in A1 and A2, as well as in females, has risen and given the risk behaviours documented especially in HIV positive PWID, attention to further prevent spread is required.It is fortunate that HIV has remained low among female sex workers. Active syphilis rates have remained stable or declined and reported symptoms of STIs are also not high. The declining and often low active syphilis rates suggest that it may not be appropriate to use active syphilis as a surrogate marker for HIV risk.

These findings need to be used by policy makers and programme implementers to prevent further spread of HIV.

NC S

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Annexe-1: List of collaborating organisations

1. Ashakta Punarbashan Shangstha (APOSH)
2. Bandhu Social elfare Society (BS S)
3. Bangladesh omen s Health Coalition (B HC)
4. CARE Bangladesh
5. Durjoy Nari Shangha (DNS)
6. Family Planning Association of Bangladesh (FPAB)
7. Jiboner Odhikar Sangstha
8. Joy Nari Kollan Shangha
9. Light House Consortium
10. Marie Stopes Clinic Society (MSCS)
11. Mukti Mohila Samity (MMS)
12. Nari Jagoroni Shangha
13. Nari Moytre
14. Nari Mukti Samity
15. Obohalito Mohila & Shisu nnoyan Sangstha
16. Padma Nari Shangha
17. Procheshta
18. Save the Children in Bangladesh
19. Se orkers Networks of Bangladesh
20. Shokti Nari Shangha
21. Shokti Nari nnoyan Shangathan
22. Shuktara Mohila Sangstha
23. Surjer Hashi Kollyan Shangha
24. Sylhet Jubo Academy (SJA)
25. oung Power in Social Action (PSA)

Annexe-2: Prevalence of HIV over the rounds of serological surveillance

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
People who inject drugs (Male):										
Dhaka-A1	ND	ND	ND	ND	ND	7.1 (47), 664	10.5 (71), 674	11.0 (71), 646	7.3 (61), 835	27.3 (197), 721
Dhaka-A2	ND	ND	ND	ND	ND	1.3 (5), 397	1.0 (4), 398	0.5 (2), 399	1.2 (5), 408	8.9 (26), 291
Mymensingh	ND	ND	ND	ND	ND	0 (0), 395	0 (0), 301	0 (0), 260	0 (0), 375	ND
Narayanganj	ND	ND	ND	ND	0 (0), 107	0 (0), 103	1.0 (1), 105	0.8 (1), 127	1.5 (4), 261	ND
Tongi	ND	ND	ND	ND	0 (0), 122	0 (0), 178	0 (0), 160	0 (0), 68	0 (0), 149	ND
Norsingdi	ND	ND	ND	ND	ND	ND	ND	0 (0), 77	0 (0), 101	ND
Chandpur	ND	ND	ND	ND	0 (0), 86	0.6 (1), 159	1.1 (2), 178	0.6 (1), 159	0 (0), 115	ND
Teknaf	ND	ND	ND	ND	ND	0 (0), 155	0 (0), 120	0.9 (1), 108	0 (0), 96	ND
Rajshahi	ND	0 (0), 416	0 (0), 402	0 (0), 405	0 (0), 394	0 (0), 398	0 (0), 393	0 (0), 400	0 (0), 401	ND
Chapai Nawabganj	ND	ND	0 (0), 120	0 (0), 200	0 (0), 239	0 (0), 208	0 (0), 200	0 (0), 210	0 (0), 220	ND
Kanshat	ND	ND	ND	ND	0 (0), 47	0 (0), 66	0 (0), 69	0 (0), 71	0 (0), 92	ND

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Char Norendrapur	ND	ND	ND	ND	0 (0), 78	ND	ND	0 (0), 101	0 (0), 124	ND
Rangpur	ND	ND	ND	ND	ND	ND	0 (0), 187	0 (0), 164	0 (0), 103	ND
Naogaon	ND	ND	ND	ND	ND	0 (0), 120	0 (0), 193	0 (0), 270	0 (0), 382	ND
Pabna	ND	ND	ND	ND	0 (0), 85	0 (0), 57	0 (0), 69	0 (0), 116	0 (0), 101	ND
Ishwardi	ND	ND	ND	ND	0 (0), 57	2.0 (1), 49	1.8 (1), 55	1.7 (1), 60	0 (0), 57	ND
Sirajganj	ND	ND	ND	ND	ND	0 (0), 111	0 (0), 122	0 (0), 300	0 (0), 344	ND
Dinajpur	ND	ND	ND	ND	ND	ND	0 (0), 279	0 (0), 400	0 (0), 385	ND
Jessore	ND	ND	ND	ND	ND	0 (0), 100	0 (0), 132	0 (0), 202	0 (0), 190	ND
Sathkhira	ND	ND	ND	ND	ND	0 (0), 201	0 (0), 226	0 (0), 279	0.4 (1), 285	ND
Srimongol	ND	ND	ND	ND	ND	ND	ND	0 (0), 200	0 (0), 79	ND
Barisal	ND	ND	ND	ND	ND	0 (0), 202	0 (0), 234	0 (0), 275	0 (0), 404	ND
Hili	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 138	0 (0), 117
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 96	ND
Heroin Smokers (Male):										
Dhaka	ND	ND	ND	0 (0), 388	0.8 (3), 391	0.5 (2), 399	0 (0), 401	0.2 (1), 402	0 (0), 388	ND
Combined people who inject drugs and Heroin Smokers (Male):										
Jaipurhat	ND	ND	ND	ND	ND	ND	ND	0 (0), 65	0 (0), 98	ND
Khulna	ND	ND	ND	ND	ND	ND	0 (0), 387	0.3 (1), 397	0 (0), 400	ND
Mongla	ND	ND	ND	ND	ND	ND	ND	0 (0), 130	0 (0), 93	ND
Bagerhat	ND	ND	ND	ND	ND	ND	ND	0 (0), 140	0 (0), 134	ND

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Jhenaidah	ND	ND	ND	ND	ND	ND	ND	0 (0), 149	0 (0), 80	ND
Kushtia	ND	ND	ND	ND	ND	ND	ND	0 (0), 130	0 (0), 136	ND
Patuakhali	ND	ND	ND	ND	ND	ND	ND	0 (0), 100	0 (0), 105	ND
People who inject drugs (Female):										
Dhaka, Narayanganj and Tongi	ND	ND	ND	ND	ND	0 (0), 119	0.8 (1), 121	1.0 (1), 103	1.2 (3), 256	5.0 (7), 139
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	1.0 (1), 98	ND
Brothel Female Sex Workers:										
Tangail	0 (0), 392	0 (0), 402	0.5 (2), (407)	0.2 (1), 406	0.5 (2), 404	0.2 (1), 401	0.3 (1), 400	ND	ND	0.4 (1), 266
Mymensingh	ND	0 (0), 322	ND	0 (0), 152	0 (0), 159	0.7 (1), 150	0.7 (1), 150	ND	ND	0 (0), 89
Doulatdia	ND	ND	0.3 (1), (384)	0.7 (3), 402	0.5 (2), 401	0.3 (1), 397	0.2 (1), 401	ND	ND	0 (0), 745
Narayanganj	1.5 (4), 267	ND	ND	ND	ND	ND	ND	ND	ND	ND
Jamalpur	ND	ND	ND	ND	0 (0), 136	0 (0), 166	0 (0), 168	ND	ND	0 (0), 91
Faridpur[3]	ND	ND	ND	ND	0 (0), 376	0 (0), 370	0 (0), 373	ND	ND	0 (0), 221
Madaripur	ND	ND	ND	ND	0.5 (1), 205	0 (0), 190	0.5 (1), 222	ND	ND	ND
Fultola, Baniasanta, Bagerhat[4]	ND	0 (0), 351	0 (0), 335	0 (0), 241	0 (0), 293	0.4 (1), 252	0 (0), 260	ND	ND	0 (0), 100
Jessore[2]	ND	ND	0.5 (1), 187	0.5 (1), 195	0.6 (1), 171	0.6 (1), 167	0 (0), 174	ND	ND	0 (0), 88
Patuakhali	ND	ND	ND	ND	0 (0), 59	0 (0), 62	0 (0), 52	ND	ND	0 (0), 70
Street Female Sex Workers:										

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Dhaka	0 (0), 400	0.2 (1), 423	0.5 (2), 419	0.2 (1), 403	0.2 (1), 401	0.2 (1), 402	0.3 (1), 386	0.2 (1), 409	0.5 (2), 394	0.4 (4), 1141
Tangail	ND	ND	ND	0 (0), 199	ND	ND	ND	ND	ND	ND
Chittagong	ND	ND	ND	ND	0 (0), 402	0 (0), 402	0 (0), 405	0 (0), 404	0 (0), 400	ND
Khulna	ND	ND	ND	0 (0), 317	0 (0), 403	ND	ND	0.4 (1), 270	0 (0), 365	ND
Rangpur	ND	ND	ND	ND	ND	ND	ND	0.4 (1), 246	0 (0), 207	ND
Hili	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 32	0.5 (1), 197
Hotel Female Sex Workers:										
Dhaka	ND	ND	ND	0.2 (1), 405	0 (0), 400	ND	ND	0 (0), 399	0.2 (1), 401	0.4 (1), 256
Chittagong	ND	ND	ND	ND	1.5 (2), 132	0 (0), 128	0 (0), 118	0 (0), 122	0 (0), 172	ND
Sylhet	ND	ND	ND	ND	0.6 (1), 166	0.6 (1), 165	0 (0), 169	0.6 (1), 180	0.4 (1), 225	ND
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 69	ND
Combined Residence and Hotel Female Sex Workers:										
Narayanganj	ND	ND	ND	ND	ND	ND	ND	0.4 (1), 277	ND	ND
Tangail	ND	ND	ND	ND	ND	ND	ND	0 (0), 352	ND	ND
Jamalpur	ND	ND	ND	ND	ND	ND	ND	0 (0), 300	0.5 (1), 218	ND
Netrokona	ND	ND	ND	ND	ND	ND	ND	0 (0), 241	0 (0), 245	ND
Jessore	ND	ND	ND	ND	ND	ND	ND	0.5 (2), 380	0.4 (1), 236	ND
Teknaf	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 119	ND
Residence Female Sex Workers:										

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Dhaka										0 (0), 501
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	0.4 (1), 258	ND
Casual Female Sex Workers:										
Chandpur	ND	ND	ND	ND	ND	0 (0), 97	0 (0), 88	0 (0), 121	0 (0), 58	ND
Teknaf	ND	ND	ND	ND	ND	0 (0), 150	0 (0), 200	0 (0), 246	ND	ND
Hili	ND	ND	ND	ND	2.0 (2), 101	1.7 (2), 120	0.8 (1), 128	2.7 (4), 150	1.6 (2), 125	ND
Burimari	ND	ND	ND	ND	0 (0), 381	0 (0), 200	0 (0), 235	0 (0), 300	0 (0), 44	ND
Barisal	ND	ND	ND	ND	0 (0), 197	0 (0), 400	0 (0), 397	0.3 (1), 400	ND	ND
Male Sex Workers (MSW):										
Dhaka	ND	ND	0 (0), 310	0 (0), 401	0 (0), 274	0 (0), 235	0.7 (2), 284	0.3 (1), 400	0 (0), 402	0.7 (3), 412
Males Who Have Sex With Males (MSM):										
Dhaka	ND	ND	0 (0), 399	0.2 (1), 406	0 (0), 399	0 (0), 405	0.2 (1), 401	0 (0), 399	0 (0), 400	0.2 (1), 388
MSM and MSW combined[$]:										
Dhaka	0.2 (1), 401	0 (0), 388	ND	ND	ND	ND	ND	ND	ND	ND
Mymensingh	ND	ND	ND	0 (0), 400	0 (0), 400	ND	ND	ND	ND	ND
Chittagong	ND	ND	ND	0 (0), 397	0.3 (1), 398	0.4 (1), 283	ND	0.3 (1), 290	0 (0), 399	ND
Sylhet	ND	ND	ND	0 (0), 402	0.3 (1), 400	0.4 (1), 231	ND	ND	ND	ND
Hili	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 158	0 (0), 228
Hijras:										

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Dhaka	ND	ND	ND	0.8 (3), 393	ND	ND	ND	ND	ND	ND
Dhaka, Manikganj	ND	ND	ND	ND	0.2 (1), 405	0.8 (3), 381	0.6 (2), 353	0.3 (1), 392	1.0 (4), 407	0.9 (2), 233
Hili	ND	ND	ND	ND	ND	ND	ND	ND	3.2 (1), 31	4.3 (2), 46
Partners of Hijra:										
Dhaka, Manikganj	ND	ND	ND	ND	0 (0), 88	ND	ND	ND	ND	ND
Babus (Brothel):										
Tangail	ND	ND	ND	0 (0), 252	0 (0), 251	ND	ND	ND	ND	ND
Doulatdia	ND	ND	ND	0 (0), 200	0 (0), 175	ND	ND	ND	ND	ND
Jamalpur	ND	ND	ND	ND	0 (0), 56	ND	ND	ND	ND	ND
STI Patients:										
Dhaka	0.3 (1), 399	0 (0), 404	ND	ND	ND	ND	ND	ND	ND	ND
Chittagong	0.2 (1), 409	0 (0), 404	0.2 (1), 403	ND	ND	ND	ND	ND	ND	ND
Rajshahi, Rangpur[$]	0 (0), 401	0 (0), 408	0 (0), 392	ND	ND	ND	ND	ND	ND	ND
Sylhet	0 (0), 397	ND	0 (0), 389	0 (0), 106	ND	ND	ND	ND	ND	ND
Truckers:										
Dhaka	0 (0), 403	ND	0 (0), 437	0 (0), 402	ND	ND	ND	ND	ND	ND
Jessore	ND	ND	0 (0), 392	ND	ND	ND	ND	ND	ND	ND
Benapole	ND	ND	ND	ND	ND	0 (0), 398	ND	ND	ND	ND
Dockworkers:										
Chittagong	ND	ND	0 (0), 392	ND	ND	0 (0), 395	ND	ND	ND	ND
Mongla	ND	ND	0 (0), 401	ND	ND	ND	ND	ND	ND	ND

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Rickshaw pullers:										
Dhaka	ND	ND	ND	ND	0.2 (1), 401	0 (0), 401	ND	ND	ND	ND
Chittagong	ND	ND	0 (0), 400	ND	0 (0), 401	ND	ND	ND	ND	ND
Jessore	ND	ND	0 (0), 401	ND	ND	ND	ND	ND	ND	ND
Launch Workers:										
Dhaka	ND	ND	ND	0 (0), 402	ND	ND	ND	ND	ND	ND
TOTAL (all population groups)	0.4 (17), 3871	0.2 (8), 4338	0.2 (14), 7063	0.3 (27), 7877	0.3 (35), 10445	0.6 (70), 11029	0.9 (91), 10368	0.7 (95), 12786	0.7 (89), 12894	3.9 (245), 6340

[f] Dhaka represents the merged result of Dhaka-A1 and Dhaka-A2

*Data was taken from MSM, MSW and hijra surveillance, 2015, icddr,b (unpublished)

[k] CNB Ghat and Rothkhola combined

[l] Banishanta and Bagerhat combined (Fultola closed)

[r] Marwari Mondir and Babubazar combined

[s] In some sites MSM and MSW could not be differentiated and they were sampled as a single group

[p] In the first round, sampling was done only in Rajshahi, in the subsequent rounds sampling was done from Rajshahi and Rangpur and these together represents a single site

ND refers to not done

NS refers to not significant at 5% level

Annexe-3: Prevalence of active syphilis over the rounds of serological surveillance

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
People who inject drugs (Male):										
Dhaka-A1	ND	ND	ND	ND	ND	3.8 (25), 664	3.7 (25), 668	3.7 (24), 646	4.9 (41), 835	2.6 (19), 721
Dhaka-A2	ND	ND	ND	ND	ND	1.5 (6), 397	0 (0), 398	2.0 (8), 399	2.9 (12), 408	2.4 (7), 291
Mymensingh	ND	ND	ND	ND	ND	1.8 (7), 395	0.7 (2), 301	0.4 (1), 260	2.1 (8), 375	ND
Narayanganj	ND	ND	ND	ND	5.6 (6), 107	1.0 (1), 103	2.9 (3), 105	4.7 (6), 127	5.4 (14), 261	ND
Tongi	ND	ND	ND	ND	1.6 (2), 122	3.9 (7), 178	4.4 (7), 160	2.9 (2), 68	3.4 (5), 149	ND
Norsingdi	ND	ND	ND	ND	ND	ND	ND	3.9 (3), 77	7.9 (8), 101	ND
Chandpur	ND	ND	ND	ND	7.0 (6), 86	2.5 (4), 159	2.8 (5), 177	7.5 (12), 159	6.1 (7), 115	ND
Teknaf	ND	ND	ND	ND	ND	9.0 (14), 155	5.8 (7), 120	11.1 (12), 108	5.2 (5), 96	ND
Rajshahi	ND	4.1 (17), 416	1.5 (6), 402	1.7 (7), 405	1.3 (5), 394	1.0 (4), 398	1.3 (5), 393	1.8 (7), 400	2.5 (10), 401	ND
Chapai Nawabganj	ND	ND	1.7 (2), 120	2.0 (4), 200	1.7 (4), 239	0.5 (1), 208	0.5 (1), 200	1.4 (3), 210	1.8 (4), 220	ND
Kanshat	ND	ND	ND	ND	2.1 (1), 47	1.5 (1), 66	4.3 (3), 69	2.8 (2), 71	1.1 (1), 92	ND

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Char Norendrapur	ND	ND	ND	ND	1.3 (1), 78	ND	ND	1.0 (1), 101	0.8 (1), 124	ND
Rangpur	ND	ND	ND	ND	ND	ND	2.7 (5), 187	1.2 (2), 164	2.9 (3), 103	ND
Naogaon	ND	ND	ND	ND	ND	0 (0), 120	0.5 (1), 193	0.4 (1), 270	0.8 (3), 382	ND
Pabna	ND	ND	ND	ND	0 (0), 85	0 (0), 57	1.4 (1), 69	1.7 (2), 116	0 (0), 101	ND
Ishwardi	ND	ND	ND	ND	3.5 (2), 57	0 (0), 49	1.8 (1), 55	1.7 (1), 60	5.3 (3), 57	ND
Sirajganj	ND	ND	ND	ND	ND	1.8 (2), 111	0.8 (1), 122	1.0 (3), 300	1.7 (6), 344	ND
Dinajpur	ND	ND	ND	ND	ND	ND	1.1 (3), 279	1.5 (6), 400	0.5 (2), 385	ND
Jessore	ND	ND	ND	ND	ND	3.0 (3), 100	2.3 (3), 132	2.5 (5), 202	2.6 (5), 190	ND
Sathkhira	ND	ND	ND	ND	ND	1.0 (2), 201	0.9 (2), 226	1.1 (3), 279	0 (0), 285	ND
Srimongol	ND	ND	ND	ND	ND	ND	ND	1.5 (3), 200	2.5 (2), 79	ND
Barisal	ND	ND	ND	ND	ND	0 (0), 202	0 (0), 234	0.4 (1), 275	0.7 (3), 404	ND
Hili	ND	ND	ND	ND	ND	ND	ND	ND	2.2 (3), 138	0.9 (1), 117
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 96	ND
Heroin Smokers (Male):										
Dhaka	ND	ND	ND	3.4 (13), 388	2.6 (10), 391	3.0 (12), 399	3.0 (12), 401	4.2 (17), 402	3.4 (13), 388	ND
Combined people who inject drugs and Heroin Smokers (Male):										
Jaipurhat	ND	ND	ND	ND	ND	ND	ND	3.1 (2), 65	1.0 (1), 98	ND
Khulna	ND	ND	ND	ND	ND	ND	1.0 (4), 387	1.0 (4), 397	0.8 (3), 400	ND
Mongla	ND	ND	ND	ND	ND	ND	ND	1.5 (2), 130	1.1 (1), 93	ND
Bagerhat	ND	ND	ND	ND	ND	ND	ND	0 (0), 140	0 (0), 134	ND

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Jhenaidah	ND	ND	ND	ND	ND	ND	ND	0.7 (1), 149	1.3 (1), 80	ND
Kushtia	ND	ND	ND	ND	ND	ND	ND	2.3 (3), 130	1.5 (2), 136	ND
Patuakhali	ND	ND	ND	ND	ND	ND	ND	0 (0), 100	0 (0), 105	ND
People who inject drugs (Female):										
Dhaka, Narayanganj and Tongi	ND	ND	ND	ND	ND	9.2 (11), 119	9.9 (12), 121	14.6 (15), 103	5.9 (15), 256	5.8 (8), 139
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 98	ND
Brothel Female Sex Workers:										
Tangail	13.8 (54), 392	6.2 (25), 402	8.1 (33), 407	3.9 (16), 406	3.2 (13), 404	1.7 (7), 401	1.5 (6), 400	ND	ND	2.6 (7), 266
Mymensingh	ND	10.2 (33), 322	ND	9.2 (14), 152	10.7 (17), 159	10.7 (16), 150	4.7 (7), 150	ND	ND	0 (0), 89
Doulatdia	ND	ND	14.8 (57), 384	6.7 (27), 402	6.0 (24), 401	3.8 (15), 397	4.2 (17), 401	ND	ND	3.4 (25), 745
Narayanganj	28.7 (81), 282	ND	ND	ND	ND	ND	ND	ND	ND	ND
Jamalpur	ND	ND	ND	ND	11.0 (15), 136	8.4 (14), 166	6.0 (10), 168	ND	ND	4.4 (4), 91
Faridpur[¶]	ND	ND	ND	ND	8.2 (31), 376	3.8 (14), 370	2.7 (10), 373	ND	ND	6.8 (15), 221
Madaripur	ND	ND	ND	ND	12.2 (25), 205	8.4 (16), 190	6.3 (14), 222	ND	ND	ND
Fultola, Baniasanta, Bagerhat[†]	ND	11.7 (41), 351	6.0 (20), 335	5.0 (12), 241	4.8 (14), 293	2.8 (7), 252	0.4 (1), 260	ND	ND	1.0 (1), 100
Jessore[†]	ND	ND	8.0 (15), 187	3.6 (7), 195	7.6 (13), 171	4.2 (7), 167	2.9 (5), 174	ND	ND	1.1 (1), 88
Patuakhali	ND	ND	ND	ND	5.1 (3), 59	9.7 (6), 62	1.9 (1), 52	ND	ND	0 (0), 70
Street Female Sex Workers:										

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Dhaka	33.8 (135), 400	24.3 (103), 423	16.7 (70), 419	8.4 (34), 403	9.7 (39), 401	6.2 (25), 402	7.0 (27), 386	7.3 (30), 409	4.6 (18), 394	2.4 (27), 1114
Tangail	ND	ND	ND	3.0 (6), 199	ND	ND	ND	ND	ND	ND
Chittagong	ND	ND	ND	ND	11.9 (48), 402	7.5 (30), 402	10.1 (41), 405	10.9 (44), 404	10.3 (41), 400	ND
Khulna	ND	ND	ND	4.7 (15), 317	1.5 (6), 403	ND	ND	3.0 (8), 270	0.5 (2), 365	ND
Rangpur	ND	ND	ND	ND	ND	ND	ND	9.8 (24), 246	3.9 (8), 207	ND
Hili	ND	ND	ND	ND	ND	ND	ND	ND	12.5 (4), 32	0 (0), 197
Hotel Female Sex Workers:										
Dhaka	ND	ND	ND	4.9 (20), 405	4.5 (18), 400	ND	ND	3.0 (12), 399	2.2 (9), 401	0.4 (1), 256
Chittagong	ND	ND	ND	ND	5.3 (7), 132	1.6 (2), 128	4.2 (5), 118	4.9 (6), 122	4.7 (8), 172	ND
Sylhet	ND	ND	ND	ND	5.4 (9), 166	6.1 (10), 165	8.3 (14), 169	8.3 (15), 180	9.3 (21), 225	ND
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	0 (0), 69	ND
Combined Residence and Hotel Female Sex Workers:										
Narayanganj	ND	ND	ND	ND	ND	ND	ND	3.6 (10), 277	ND	ND
Tangail	ND	ND	ND	ND	ND	ND	ND	1.4 (5), 352	ND	ND
Jamalpur	ND	ND	ND	ND	ND	ND	ND	2.3 (7), 300	3.2 (7), 218	ND
Netrokona	ND	ND	ND	ND	ND	ND	ND	1.7 (4), 241	1.2 (3), 245	ND
Jessore	ND	ND	ND	ND	ND	ND	ND	1.8 (7), 380	0.8 (2), 236	ND
Teknaf	ND	ND	ND	ND	ND	ND	ND	ND	1.7 (2), 119	ND
Residence Female Sex Workers:										

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Dhaka										0.4 (2), 501
Benapole	ND	ND	ND	ND	ND	ND	ND	ND	1.2 (3), 258	ND
Casual Female Sex Workers:										
Chandpur	ND	ND	ND	ND	ND	9.3 (9), 97	5.7 (5), 88	7.4 (9), 121	0 (0), 58	ND
Teknaf	ND	ND	ND	ND	ND	10.0 (15), 150	3.5 (7), 200	4.5 (11), 246	ND	ND
Hili	ND	ND	ND	ND	6.9 (7), 101	4.2 (5), 120	4.7 (6), 128	2.7 (4), 150	4.0 (5), 125	ND
Burimari	ND	ND	ND	ND	1.0 (4), 381	0.5 (1), 200	0.9 (2), 235	1.0 (3), 300	2.3 (1), 44	ND
Barisal	ND	ND	ND	ND	5.1 (10), 197	1.5 (6), 400	1.5 (6), 397	1.8 (7), 400	ND	ND
Male Sex Workers (MSW):										
Dhaka	ND	ND	7.7 (24), 310	3.2 (13), 401	6.2 (17), 274	3.8 (9), 235	4.9 (14), 284	3.0 (12), 400	4.2 (17), 402	1.2 (5), 412
Males Who Have Sex With Males (MSM):										
Dhaka	ND	ND	1.8 (7), 399	0.7 (3), 406	1.5 (6), 399	2.0 (8), 405	0.2 (1), 401	1.0 (4), 399	1.5 (6), 400	1.5 (6), 388
MSM and MSW combined[$]:										
Dhaka	7.0 (28), 401	6.7 (26), 388	ND	ND	ND	ND	ND	ND	ND	ND
Mymensingh	ND	ND	ND	2.3 (9), 400	2.5 (10), 400	ND	ND	ND	ND	ND
Chittagong	ND	ND	ND	4.3 (17), 397	2.8 (11), 398	4.9 (14), 283	ND	4.1 (12), 290	4.5 (18), 399	ND
Sylhet	ND	ND	ND	3.0 (12), 402	3.3 (13), 400	5.6 (13), 231	ND	ND	ND	ND
Hili	ND	ND	ND	ND	ND	ND	ND	ND	3.2 (5), 158	0 (0), 228
Hijras:										

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Dhaka	ND	ND	ND	10.4 (41), 393	ND	ND	ND	ND	ND	ND
Dhaka, Manikganj	ND	ND	ND	ND	10.4 (42), 405	5.2 (20), 381	6.5 (23), 353	7.7 (30), 392	6.1 (25), 407	2.1 (5), 233
Hili	ND	ND	ND	ND	ND	ND	ND	ND	3.2 (1), 31	0 (0), 46
Partners of Hijra:										
Dhaka, Manikganj	ND	ND	ND	ND	2.3 (2), 88	ND	ND	ND	ND	
Babus (Brothel):										
Tangail	ND	ND	ND	1.6 (4), 252	2.0 (5), 251	ND	ND	ND	ND	
Doulatdia	ND	ND	ND	6.0 (12), 200	6.3 (11), 175	ND	ND	ND	ND	
Jamalpur	ND	ND	ND	ND	5.4 (3), 56	ND	ND	ND	ND	
STI Patients:										
Dhaka	11.0 (44), 399	5.2 (21), 404	ND	ND	ND	ND	ND	ND	ND	
Chittagong	7.6 (31), 409	4.2 (17), 404	2.2 (9), 403	ND	ND	ND	ND	ND	ND	
Rajshahi, Rangpur[@]	2.2 (9), 401	1.7 (7), 408	1.5 (6), 392	ND	ND	ND	ND	ND	ND	
Sylhet	8.1 (32), 397	ND	5.1 (20), 389	0.9 (1), 106	ND	ND	ND	ND	ND	
Truckers:										
Dhaka	2.0 (8), 403	ND	2.1 (9), 437	1.1 (4), 402	ND	ND	ND	ND	ND	
Jessore	ND	ND	1.8 (7), 392	ND	ND	ND	ND	ND	ND	
Benapole	ND	ND	ND	ND	ND	0 (0), 398	ND	ND	ND	
Dockworkers:										
Chittagong	ND	ND	2.8 (11), 392	ND	ND	1.8 (7), 395	ND	ND	ND	
Mongla	ND	ND	1.0 (4), 401	ND	ND	ND	ND	ND	ND	

Study populations, Geographical location	1998-1999	1999-2000	2000-2001	2002	2003-2004	2004-2005	2006	2007	2011	2016*
	Round I % (n), N	Round II % (n), N	Round III % (n), N	Round IV % (n), N	Round V % (n), N	Round VI % (n), N	Round VII % (n), N	Round VIII % (n), N	Round IX % (n), N	Round X % (n), N
Rickshaw pullers:										
Dhaka	ND	ND	ND	ND	0.2 (1), 401	0 (0), 401	ND	ND	ND	
Chittagong	ND	ND	1.0 (4), 400	ND	1.2 (5), 401	ND	ND	ND	ND	
Jessore	ND	ND	1.0 (4), 401	ND	ND	ND	ND	ND	ND	
Launch Workers:										
Dhaka	ND	ND	ND	1.5 (6), 402	ND	ND	ND	ND	ND	
TOTAL (all population groups)	11.3 (440), 3886	8.0 (347), 4338	4.6 (322), 7063	3.9 (311), 7877	4.5 (471), 10445	3.4 (376), 11029	3.1 (325), 10361	3.3 (416), 12786	3.0 (388), 12894	2.1 (134), 6340

[†]Dhaka represents the merged result of Dhaka-A1 and Dhaka-A2
*Data was taken from MSM, MSW and hijra surveillance, 2015, icddr,b (unpublished)
[¶]CNB Ghat and Rothkhola combined
[‡]Banishanta and Bagerhat combined (Fultola closed)
[†]Marwari Mondir and Babubazar combined
[§]In some sites MSM and MSW could not be differentiated and they were sampled as a single group
[Φ]In the first round, sampling was done only in Rajshahi, in the subsequent rounds sampling was done from Rajshahi and Rangpur and these together represents a single site
ND refers to not done
NS refers to not significant at 5% level

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