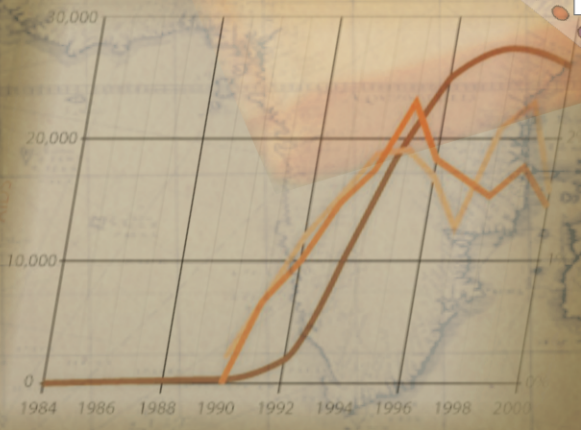
HIV SECOND GENERATION SURVEILLANCE IN PAKISTAN

NATIONAL REPORT
ROUND IV
2011



NATIONAL AIDS CONTROL PROGRAM
BALOCHISTAN AIDS CONTROL PROGRAM
KHYBERPAKHTUNKHWA AIDS CONTROL PROGRAM
PUNJAB AIDS CONTROL PROGRAM
SINDH AIDS CONTROL PROGRAM
CANADA PAKISTAN HIV/AIDS SURVEILLANCE PROJECT

This publication can be obtained from the National AIDS Control Program. Requests for permission to reproduce or translate this report whether for sale or for non-commercial distribution should also be addressed to the address below, or by fax or e-mail.

National AIDS Control Program
AIDS Block, National Institute of Health
Chak Shahzad, Park Road
Islamabad, 45500. Pakistan.
Telephone: (++92) 51 9255367-8
Fax: (++92) 51 9255214

Table of Content

Abbreviations and Acronyms

AFIP	Armed Forces Institute of Pathology
AIDS	Acquired Immune Deficiency Syndrome
BBSWs	Brothel Based Sex Workers
CIDA	Canadian International Development Agency
CPBSWs	Cell Phone Based Sex Workers
DBS	Dried blood Specimen
DDU	Dadu
DGK	Dera Ghazi Khan
EIA	Enzyme Immunoassay
FBD	Faisalabad
FSWs	Female Sex Workers
GIS	Geographical Information System
GUJ	Gujrat
HSWs	Hijra Sex Workers
HRA	High Risk Activities
HIV	Human Immunodeficiency Virus
HYD	Hyderabad
HBSWs	Home Based Sex Workers
HRP	Haripur
HASP	HIV/AIDS Surveillance Project
IDUs	Injecting Drug Users
IBBS	Integrated Behavioral and Biological Surveillance
KPK	Khyber PukhtunKhwa
KKSWs	Kothikhana Based Sex Workers
KHI	Karachi
LHR	Lahore
LRK	Larkana
MLT	Multan
MSWs	Male Sex Workers
MPK	Mirpurkhas
NACP	National AIDS Control Program
NGOs	Non Governmental Organizations
NRL	National Referral Laboratory
NWB	Nawabshah
NWOs	Network Operators
PACPs	Provincial AIDS Control Programs
PDCU	Provincial Data Coordinating Unit
PKP	Pakpattan
PSH	Peshawar
QTA	Quetta
RWP	Rawalpindi
RYK	Rahim Yar Khan
SGS	Second Generation Surveillance
SGD	Sargodha
SKR	Sukkur
SKMTH	Shaukat Khunam Memorial Trust Hospital
STIs	Sexual Transmitted Infections
SBSWs	Street Based Sex Workers
TRB	Turbat
UN	United Nations

Contributions

National AIDS Control Program

Dr. Sajid Ahmad, National Program Manager
Mr. Malik Naeem Akhtar, BCC Coordinator

Provincial AIDS Control Programme

Dr. Nasir Khan, Provincial Programme Manager: Balochistan
Dr. Sher Muhammad, Provincial Programme Manager: Khyber Pukhtunkhwa
Dr. Salman Shahid, Provincial Programme Manager: Punjab
Dr. Abdul Jabbar Shaikh, Provincial Programme Manager: Sindh

Management Team - HIV/AIDS Surveillance Project

Michelle Munro, Project Director HASP: Agriteam Canada Consulting Ltd., Canada
Dr. Simon Azariah, Country Director HASP
Dr. M. S. Mohiuddin, Management Coordinator

Technical Team - HIV/AIDS Surveillance Project

Dr. Faran Emmanuel, Senior Technical Advisor & Principal Investigator
Dr. Tahira Reza, Epidemiologist & Data Coordination Manager
Dr. Chaker Riaz Baloch, Surveillance Coordinator, Balochistan
Dr. Kiran Zulfiqar, Senior Research Assistant & Provincial Coordinator Mapping and IBBS: Punjab
Dr Suleman otho, Provincial Surveillance Support Officer: Sindh

Data Management Team - HIV/AIDS Surveillance Project

Mr. Shahzad Arian, Database Manager
Mr. Muhammad Imran, GI Coordinator
Mr. Zohaib, Database Administrator: Islamabad
Mr. Muhammad Adnan, Database Administrator: Sindh
Mr. Alam Zaib Khan Barrech, Database Administrator: Balochistan
Mr. Atif Irfan, Database Administrator: Punjab
Mr. Muhammad Younis, Data Supervisor: Khyberpakhtunkhwa
Ms. Rashida Parveen, Data management Assistant
Mr. Amjad Ali Abbasi, Data management Assistant

Field Implementation – Partner NGOs

Al-Punjab AIDS Consortium (PAC), Punjab
Bridge Consultants, Sindh
Inventure Private Ltd., Punjab
OOM Network, Balochistan
Phoenix Foundation for Research & Development (PFRD) , Punjab
SAHARA for Life Trust, Punjab
Society for Human Assistance &Development (SHAD), Balochistan
Women Education Development (WED), Khyberpakhtunkhwa

Laboratory Team

Dr. Nadeem Ikram, National Referral Laboratory-NACP, Islamabad
Brig. Dr. Agha Babar Hussain, Armed Forces Institute of Pathology, Rawalpindi
Dr. Faisal Nasir, Shaukat Khanum Memorial Hospital, Lahore
Mr. Muhammad Asad, Shaukat Khanum Memorial Hospital, Lahore

Canadian Technical Advisers

Dr. James Blanchard, Professor & Director: Centre for Global Public Health, Faculty of Medicine, University of Manitoba Canada
Dr. Chris Archibald, Sentinel Surveillance & Quality Assurance Specialist: Director Surveillance & Risk Assessment Division
Dr. Paul Sandstrom, HIV Laboratory Research Specialist: Director National HIV& Retro-virology Division
Dr Alix Adrien, Behavioral Surveillance Specialist & Director, Pro-Action

Acknowledgements

The Canada-Pakistan HIV/AIDS Surveillance Project (HASP) would first and foremost like to thank the study participants. HASP would also like to acknowledge the efforts of all the field workers and NGOs who worked very closely with the HASP team on each of its sites very conscientiously and diligently.

The National Referral Laboratory (NRL), Shaukat Khanum Memorial Trust Laboratory (SKMT) and Armed Forces Institute of Pathology (AFIP) provided excellent diagnostic testing of DBS samples. We would like to thank Dr Nadeem Ikram of the NRL for his leadership in testing, overall quality assurance of DBS testing and in cataloguing all specimens as well as Brig. Doctor Agha Babar from AFIP and Dr. Faisal Nasir from SKMT for their supervision of DBS testing in their facilities.

National AIDS Program Manager, Dr Sajid Ahmad's leadership role and interest in Round 4 was a source of great strength to HASP. We would also like to acknowledge the facilitation and support provided by Mr Naeem Malik, from the National AIDS Control program, throughout the entire planning and implementation phase of this study. Dr Salman Shahid, Program Director, PACP Punjab, Dr Abdul Jabbar Sheikh, Program Manager and his Deputy, Dr Qamar Abbas, PACP Sindh, Dr Sher Mohammed, Program Manager PACP Khyber Pukhtun khwa (KPK) , and Dr Nasir Khan, Program Manager PACP Balochistan were all instrumental to Round four's success. The provincial programs and their managers supported and enabled HASP holding the training workshops at each site in their respective provinces in hosting and supporting the Provincial Data Coordination Units (PDCUs) and monitoring field activities.

We would also like to acknowledge the contributions of our consortia partners, University of Manitoba represented by Dr. James Blanchard, Pro-Action represented by Dr. Alix Adrien, and the Public Health Agency of Canada represented by Chris Archibald and Dr. Paul Sand strom.

Dr Simon Azariah, the Country Director, led all aspects of this and all HASP activities over the past eighteen months. Ms Michelle Munro, the Canadian Project Director kept the HASP team motivated and encouraged throughout Round four. Dr. Gayatri Jayaraman, Research Associate, University of Manitoba, co-authored this report.

We would like to acknowledge the effort put in by the HASP team to help complete this round and particularly mention Dr. Tahira Reza who provided the analytic support for this report. This was a particularly demanding round that mapped 20 sites and conducted IBBS in 17, doubling the previous round's reach.

Dr. Faran Emmanuel
Senior Technical Advisor and Principal Investigator

Foreword

It is a matter of privilege for me to present "HIV Second Generation Surveillance in Pakistan – National Report Round IV-2011". HIV/AIDS Surveillance Project (HASP) supported the establishment of a Second Generation Surveillance (SGS) system for HIV infection within the National AIDS Control Programme's (NACP's) capacity building and programme management component. Since its initiation, HASP with its NACP and PACP partners, has conducted one pilot and four successful surveillance rounds among identified key populations at risk, i.e., Injecting Drug Users (IDUs), Male Sex Workers (MSWs), Hijra Sex Workers (HSWs), and Female Sex Workers (FSWs).

This report provides national biological and behavioural information of key populations at risk that was gathered in Round 4 of SGS, conducted in 2011. Since the previous rounds identified emerging HIV epidemics among high risk groups, the focus of Round 4 was to ascertain the spread of HIV among these groups and to understand any changes in behaviours that increase or decrease the risk of HIV infection. Based on observations from the "Rapid Situation Assessments" conducted previously in Pakistan, high risk activities are not limited to large urban centres. The number of cities included in Round 4 Integrated Behavioural and Biological Surveillance (IBBS) were therefore doubled from 9 cities in Round 3 to 17 cities. It is anticipated that this report will provide further insight into the status of the epidemic in these key populations along with the transmission dynamics that will serve as foundational information for planning, improving and implementing prevention and care services.

In Pakistan, the trend of HIV epidemic has shifted from a low-prevalence state to concentrated state among the key populations at risk which is derived from the fact that HIV prevalence in some of the high risk groups has been found to be more than 5% and existing behavior patterns signify it to be a high risk situation.

This report is the result of unfaltering dedication, hard work and commitment of a large number of people, organizations and institutions. I would like to acknowledge the efforts and devotion of the Agriteam Canada and HASP team in making this Round a reality. I would also like to acknowledge the contributions of the representatives of NACP, PACPs, Research Institutes, NGOs, UN system and laboratory representatives. And last but not the least I would like to thank all the respondents who participated in this survey. I deeply appreciate the guidance and support provided by the Canadian Project Director, Ms. Michelle Munro and all the technical members of the Agriteam. I hope for the continuation of same support and more sustainable partnerships in future.

Dr. Sajid Ahmad
National Programme Manager
National AIDS Control Programme

Executive Summary

This report provides mapping, and biological and behavioural information related to HIV infection among four key populations: Injecting Drug Users (IDU), Male Sex Workers (MSWs), Hijra Sex Workers (HSWs), and Female Sex Workers (FSWs). The data presented here were collected during round 4 of the Integrated Biological and Behavioural Surveillance conducted between June – September 2011. The first phase of this project involved mapping each key population across 20 cities in Pakistan. The cities included DG Khan, Faisalabad, Gujrat, Lahore, Multan, Pakpattan, Rahim Yar Khan, Rawalpindi, and Sargodha in Punjab; Dadu, Hyderabad, Karachi, Larkana, Mirpurkhas, Nawabshah, and Sukkur in Sind; Haripur and Peshawar in KPK; and Quetta and Turbat in Balochistan. The results from these mapping activities are presented in a separate report*. The mapping data provided sampling frames, and diverse sampling techniques were used to draw representative samples of the key populations from selected cities for this round of the IBBS. Behavioral data were gathered from these population samples using a structured questionnaire covering socio-demographic information and risk behaviour indicators identified from the literature on HIV. Informed consent was obtained prior to conducting interviews. Biological data were gathered using the capillary "Dried Blood Specimen" (DBS) methodology, chosen for its ease of collection, storage, shipping, and serological accuracy. The interviewers were trained in DBS collection and infection control processes. Appropriate infection control measures were followed during the procedure. A debriefing session was held with the participants on completion of the questionnaire and drawing of a biological sample, to answer participant queries. Information on HIV prevention and available services including voluntary counselling and testing (VCT) and specified service delivery packages for the study participants was also provided.

Injecting Drug Use:

Despite various preventive efforts, infection rates among IDUs have steadily increased from 10.8% in 2005 to 37.8% (95%CI: 37.3%, 38.3%) in 2011. Not only has the overall prevalence increased, but the number of sites with relatively advanced epidemics has also expanded. With the exception of Pakpattan, all 17 cities where the survey was conducted showed prevalence rates of over 5% among IDUs. In cities like Faisalabad, DG Khan, and Gujrat, HIV prevalence was close to 50% among the surveyed population. Also of concern is that on average, the majority of IDUs start injecting in their mid-twenties (25.6 years) and have been injecting for about five years. The frequency of injecting was also high with almost three-quarters of IDUs surveyed (71.5%) reported injecting between two to three times a day in the past month and 21.1% reported injecting more than three times a day. Approximately 90.5% of IDU reported injecting in public spaces and 80.9% reported injecting with friends/family; about and exceptionally high proportion (70.3%) reported that they had sought help in injecting by "professional injectors/street doctors" during the past month. Poly-drug use was the norm with Avil being the drug of choice in most cities except for Rahim Yar Khan, DG Khan, Sargodha, Larkana, and Turbat where heroin was the drug of choice. Safe injection practices are uncommon and trends in injecting with a used needle are not encouraging. Overall, only 38.6% of IDUs report always using a new needle and syringe for injection in the past month.

However, responses varied significantly across cities (range = 66.8% in Pakpattan, 8.9% in Rawalpindi). Of note, using someone's syringe did not necessary translate to passing on a used syringe. Sexually interactions between IDU and other key populations varied by city but overall, 4.8% and 9.4% of IDUs reported having sex with M/HSWs and FSWs, respectively, in the past six months. Reported condom use was low (16.3%) during the last anal sex with MSW or HSW and only slightly higher (28.4%) during last sex with a FSW. In the latter case, condom use has remained relatively unchanged when compared to results from previous rounds of the IBBS. Although more than two-thirds (86.7%) of IDU had heard of HIV and/or AID Sand knew it could be sexually transmitted; in all the cities except Karachi, Larkana, and Dadu, only

* Mapping of key population at higher risk of HIV January 2012

approximately one-half of the respondents knew that condoms can protect against HIV transmission. In contrast 79.3% were aware that using clean needles/syringes could prevent HIV transmission. Sixty-four percent believed that they were at a risk of acquiring HIV but only 32.8% knew of a place where they could be tested for HIV, while 25.1% had been tested for HIV in the past. Only 44% of IDUs had ever heard of HIV prevention programs in their city, but among those using the services, 74.6% were frequent users mostly accessing HIV prevention services to obtain new syringes.

Male Sex Workers:

The overall HIV prevalence among MSWs remains low at 3.1% (95%CI: 2.8,3.4)and concentrated in Karachi (5.9%, 95% CI: 3.9, 8.9) followed by Larkana (3.1%, 95% CI: 1.7, 5.4). No MSW tested positive for HIV in Haripur, Peshawar, and Sargodha and the prevalence in the remaining cities was between 0.3% and 2.2%. While these results may be encouraging, of concern is the almost 3-fold increase in the HIV prevalence among MSWs since 2008. This finding, coupled with the IDU and sexual networks with IDU and HSWs in certain cities suggest that MSWs remain at risk for HIV transmission. MSWs tended to be young; 42.1%were between 13 and 19 years of age. Education levels were low (approximately 40.2% had received no formal education) and more than 80% of MSWs lived at home with their families. However, nearly 11.6% of the MSWs had traveled to other cities within the past year, 3% had travelled internationally and of the latter, 79.2% had travelled for sex work. Approximately one half (57.6%) of MSWs solicited clients by roaming around in public places and a large proportion (30.4%) used cell phones to access clients. On average, MSWs entertained 2 clients per day or an average of 40.4 ± 32 clients per month. The mean number of clients per month increased with age. Consistent condom was generally low and varied geographically. Overall, only 13% reported regular condom use with commercial sex partners; the proportion was lower (10.9%) with non-commercial sex partners. Younger MSWs less likely to use condoms when compared to older MSWs. Not surprisingly, consistent condom use increased as education level increased. Sexual networks with other key populations varied geographically but overall, 4.9% of MSWs reported paying other MSWs for anal sex. Bisexual behaviour was reported by approximately 39.5% of MSWs. Approximately 76.9% of MSWs had heard of HIV and/or AIDS but while knowledge of sexual transmission and condom as prevention methods was high in this group, only 27.3% knew that the use of clean needles/syringes could prevent HIV transmission. Only 22% of MSWs interviewed had ever been tested for HIV and approximately one-half (55%) felt they were at risk for acquiring HIV infection. HIV prevention service awareness and utilisation was low with only 12.7% of MSWs being aware of such programs in their city and over one-half (57.8%) using the services less than once a month.

Hijra Sex Workers:

With an overall HIV prevalence of 7.2% (95%CI: 6.8%, 7.5%), the HIV epidemic appears to be more established in HSWs than among MSWs and FSWs, though much of this is influenced by very high prevalence among HSWs in Larkana (15%, 95% CI: 11.6, 19.1) and Karachi(12.3%, 95% CI: 9.3, 16.1). A little over one-third (34.7%) of HSWs were between 25-29 years old, almost one-half were illiterate (42.4%), and 70.6% lived in Deras. Approximately one-quarter (22,7%) of HSWs had migrated from other cities with Rawalpindi, followed by Karachi, Quetta, and Peshawar were the most commonly reported destination points. Public places (38%) and/or cell phones (44.4%) were most commonly used to solicit clients; only 10.7% of HSWs rely on gurus for clients, reflecting the decreasing dependency of HSWs on their guru for sexual partnering. On an average, HSWs entertained two clients per day or approximately 40 clients per month but the volume of paying clients varied substantially across cities, ranging from a mean of 20 clients per month in Rawalpindi, to 90 clients per month in Multan. Reported consistent use of condoms was low, with only 23.6% of HSWs reporting that they always used a condom with paid clients in the past month; the proportion was even lower with respect to regular condom use with regular non-paying partners, at

18.1%. Consistent condom use varied considerably across cities. Overall, 10.3 % of HSWs reported to have had sex with IDU in the past six months, whereas 3.4 % HSWs reported that they had been injecting drugs in the same time period (range = 17.2% in Quetta, 8.7% in Larkana). More than one-half (55.1 %) of HSWs reported using alcohol and/or drugs during sexual intercourse in the past six months. A high proportion (90.9%) had knowledge of HIV and/or AIDS and its prevention. However, only 54.6% knew that abstinence from sex could prevent HIV transmission and only 20.6% were aware that using clean needles was important in preventing HIV transmission. Only 32.6% of HSWs had ever been tested for HIV; 35.8% of HSWs knew where to go to access HIV testing, and a little over one-half (55.6%) reported feeling at risk for HIV infection. Approximately 31.6% of HSWs were aware of HIV prevention programs in their city but among these individuals, 7.8% said they never utilized these services.

Female Sex Workers:

When compared to the other key populations, FSWs had the lowest prevalence of HIV infection. In 2011, a total of 27 FSWs tested HIV-positive, for an overall weighted prevalence of 0.8% (95% confidence interval, 0.4, 0.9). However it is noteworthy that there was only 1 positive HIV case among all FSWs tested in 12 cities during the previous round of IBBS in 2008. Furthermore, in certain cities (Lahore, Multan, Quetta, and Sukkur) the fairly extensive FSW/IDU sexual network suggests a potential for the spread of HIV from IDUs to the FSW population. In this round of data collection, Larkana and Karachi reported the highest prevalence of HIV among FSWs (1.9% each) followed by Haripur (0.9%), Sukkur (0.8%), Lahore (0.5%), DG Khan (0.5%), Sargodha (0.3%), and Multan (0.3%). No HIV cases were reported in the remaining cities. The majority of the FSWs (57.4%) surveyed worked out of homes and “Kothikhana”, followed by public places. However, city-specific variations were observed. Across all cities the average age of FSWs was 26.9 years, with little variation by FSW typology. Younger FSWs, however, were more likely to work in Kothikhanas. Overall, FSWs have been working as a sex worker for an average of 5.3 years, beginning on average 21.9 years of age. FSWs who work in brothels initiated sex work at a younger age (mean 19.2 years), and had worked for longer (mean 9.7 years) than other types of sex workers. The majority (85.4%) of FSWs had children with 18.5% reporting at least five children and 50.6% were illiterate, with illiteracy being more common among FSWs in brothels (63.9%). Only 23.5% of all FSWs had a source of income other than sex work, with FSWs who solicit clients through cell phones being most likely to have other sources of income (26.9%). Of note, the median monthly income decreased with age. Overall, 17.7% of FSWs reported having travelled to other cities in the past one year with Lahore followed by Karachi, Islamabad, and Rawalpindi being most commonly cited as in-migration cities; 4% of FSWs had travelled abroad. FSWs had an average of three clients a day (SD = 2.3 clients) or a 50 + 37.2 monthly average. While there was not much variation by typology and geography, in general, younger FSWs had a higher client volume than older FSWs. Condom use by FSWs with their clients was generally very low with only 33.2% of FSWs reporting that they always used a condom with their non-commercial clients in the past month, and 20.6% reporting consistent condom use with non-commercial clients. Brothel-based FSWs reported substantially more condom use than the other types of sex workers. Most FSWs (94.3%) who had heard about HIV and/or AIDS knew that HIV can be transmitted by sexual intercourse, but less than one-third (32.6%) knew that HIV can be transmitted through injuries by sharp instruments or needles/syringes and only 13.4% knew about mother to child transmission of HIV. Only 15.7% of FSWs had ever been tested for HIV and 22.5% knew where HIV testing services were offered. Only 18.9% of HSWs were aware of HIV prevention programs (SDPs) in their city; awareness of SDPs was relatively high among brothel-based FSWs at 88.2%.

The analysis of bridge populations due to injecting and sexual networks indicate the overall potential for epidemic expansion within cities, and provide guidance about the importance of program scaling up across cities. In particular, considering the rising HIV prevalence among IDUs, low condom usage and risky

injecting practises, there is the risk of spill-over into networks of sex workers and their clients.

In conclusion, this survey reinforces previous findings that there are substantial and widespread networks of key populations within Pakistan who are at a significantly higher risk of acquiring HIV. The epidemic is expanding in the IDU population. MSWs, HSWs and FSWs are also getting infected. Prevention among these populations remains a key challenge for Pakistan's efforts to curtail the HIV epidemic. Widespread and intensive efforts are required to bring about broad changes in injecting and sexual behaviours of IDUs. In addition, a need for rapid implementation of effective programs to reduce sexual transmission in the male and hijra sex work networks to curtail further expansion of the HIV epidemics in these groups is important. Since HIV may not have, as yet, reached female sex work networks to a large extent, there still remains a window of opportunity to further protect FSWs and their partners by scaling up prevention programs. To do this effectively, it is important that this information is used to inform the planning and delivery of prevention programs, and that those implementing these programs are provided with the support needed to use this information effectively.

1 INTRODUCTION

In Pakistan, the estimated prevalence of HIV among the general population is less than 0.1%. However, [1] surveillance results clearly indicate that the epidemic has become established among certain key populations, thus shifting Pakistan from an initially 'low prevalence - high risk' category to a concentrated epidemic. Despite various preventive efforts, the infection rates among injecting drug users (IDUs) steadily increased from 10.8% in 2005 to nearly 21% in 2008. Trends are suggestive that HIV is beginning to become established in other key populations as well. Substantially high HIV prevalence has been reported among hijra sex workers (HSWs) in several [4] cities including Larkana (27%) in 2006/7[3]. During the same time period, the prevalence rate among male sex workers (MSWs) remained unchanged at approximately 0.9%[3] and HIV prevalence among female sex workers (FSWs) at a low level (0.02%). However, [5] behavioural data suggest that the potential for the epidemic to spread among these two groups is high given evidence of sexual networking between FSWs, MSWs, and IDUs[5], early initiation of sexual activities among adolescent males, and the relatively high proportion of HSWs and MSWs who report injecting drugs[2].Bridging populations including clients of sex workers, estimated to be about 5 million people, have not been researched at national level but a study in Punjab found 15% prevalence in spouses/female partners of IDUs. Transmission of HIV to their wives is enhanced by 80% engaging in unprotected sex.

Organized and focused prevention efforts are required to minimize HIV transmission and curtail the epidemic. Monitoring the trends in HIV prevalence and risk behaviours among key populations is also paramount to inform the designof HIV prevention activities.

First generation or routine surveillance systems collect and monitor data for disease trends and/or outbreaks so that health personnel can protect a country's health. These systems largely rely on the passive collection and analysis of data from cases of disease diagnosed by the health care system, usually based on analysis of a biological sample (e.g. blood). In contrast, Second Generation Surveillance (SGS) systems include[3] the active collection of both biological and behavioural data. An effective SGS system: 1) contributes to understanding the dynamics of HIV in the country context (e.g., who is at risk for or vulnerable to HIV infection); 2) provides basic information for focusing and designing interventions proposed within a national strategic plan such as levels and trends in HIV infection; and 3) provides information for decision makers to help them understand the impact of prevention activities in different populations leading to informed policies and program development.

Launched in 2004, the HIV/AIDS Surveillance Project[6] (HASP) supported the establishment of an SGS system for HIV infection under the National AIDS Control Program's (NACP's) capacity building and program management component. The project is implemented by a consortium consisting of Agriteam Canada Consulting Ltd, University of Manitoba and Pro Action: Partners for Community Health, Inc. Additional technical advice is provided by the Public Health Agency of Canada. The Pakistani partners consist of the NACP, and Provincial AIDS Control Programs (PACPs) in Punjab, Sindh, Khyber Pukhtun khwa (KPK), and Balochistan, the former Ministry of Health, the National Institutes of Health, and contracted non-governmental and research

organizations as well as laboratories. HASP has been instrumental in establishing key aspects of a national HIV surveillance system in Pakistan.

The project conducts a comprehensive assessment of the size and locations of Key populations at a highrisk of HIV, followed by ananalysis of the key socio-demographic characteristics, behaviours and HIV prevalence (called Integrated Behavioural and Biological Surveillance or IBBS).

Since its initiation, HASP, with its NACP and PACP partners, has conducted one pilot and four successful surveillance rounds among identified key populations, i.e., IDUs, MSWs, HSWs, and FSWs. During this effort, HASP has built the HIV surveillance capacity of more than nine hundred individuals from National and Provincial AIDS Control Programs, non-governmental organizations, research institutions and laboratories.

This report provides national biological and behavioural information of key populations that was gathered in Round 4 of SGS, conducted in 2011. Since the previous rounds identified emerging HIV epidemics among IDUs, MSWs, HSWs, and FSWs, the focus for Round 4 was to monitor trends in these groups. Based on observations from the "Rapid Situation Assessments" that high risk activities are not limited to large urban centres, the number of cities included in round 4 IBBS almost doubled from nine in Round 3 to 17 cities. It is anticipated that this report will provide further insight into the status of the epidemic in key subpopulations and the transmission dynamics, and that will serve as key information for planning, improving and implementing prevention and care services.

[1] **UNAIDS 2010.** UNGASS Pakistan report: Progress report on the Declaration of Commitment on HIV/AIDS for the United National General Assembly special session on HIV/AID

[2] **NACP 2005.** HIV Second Generation Surveillance in Pakistan, National Round I Report.National AIDS Control Programme, Ministry of Health, Islamabad, Pakistan.

[3] **NACP 2008.** HIV Second Generation Surveillance in Pakistan, National Round III Report. National AIDS Control Programme, Ministry of Health, Islamabad, Pakistan.

[4] **In Pakistan,** the large majority of trans-gendered individuals have a social identity called Hijra, which encompasses gender identity and specific community affiliations and social and cultural identities. Hijras are biologically male but have a female gender identity. Some, but not all hijras are transsexuals.

[5] **NACP 2006-07.** HIV Second Generation Surveillance in Pakistan, National Round 2 Report. National AIDS Control Programme, Ministry of Health, Islamabad, Pakistan.

[6] **Mapping** and behavioural study of Adolescents in 7 districts of Pakistan, NACP/UNICEF, Pakistan. 2007

2 METHODOLOGY

The study was a cross-sectional behavioural and biological survey of four key populations- IDUs, FSWs, MSWs and HSWs in Sindh, Punjab, KPK, and Balochistan provinces.

2.1 Study Sites

City selection for this round was informed through a broad national consultative process involving all stakeholders including NACPs, PACPs, UN agencies and CIDA. Cities with an existing or potential for a service delivery programme (SDP) for the targeted population, noted increases in the number of HIV cases reported by the respective PACPs, anecdotal evidence of high risk activity, presence of multiple key populations, or an expressed need to have a baseline assessment of the HIV risk situation in the region were selected for this survey.

In each city, the sampling strategy was based on mapping[7] results conducted from March until July 2011. Mapping methodology is summarized in Box 1

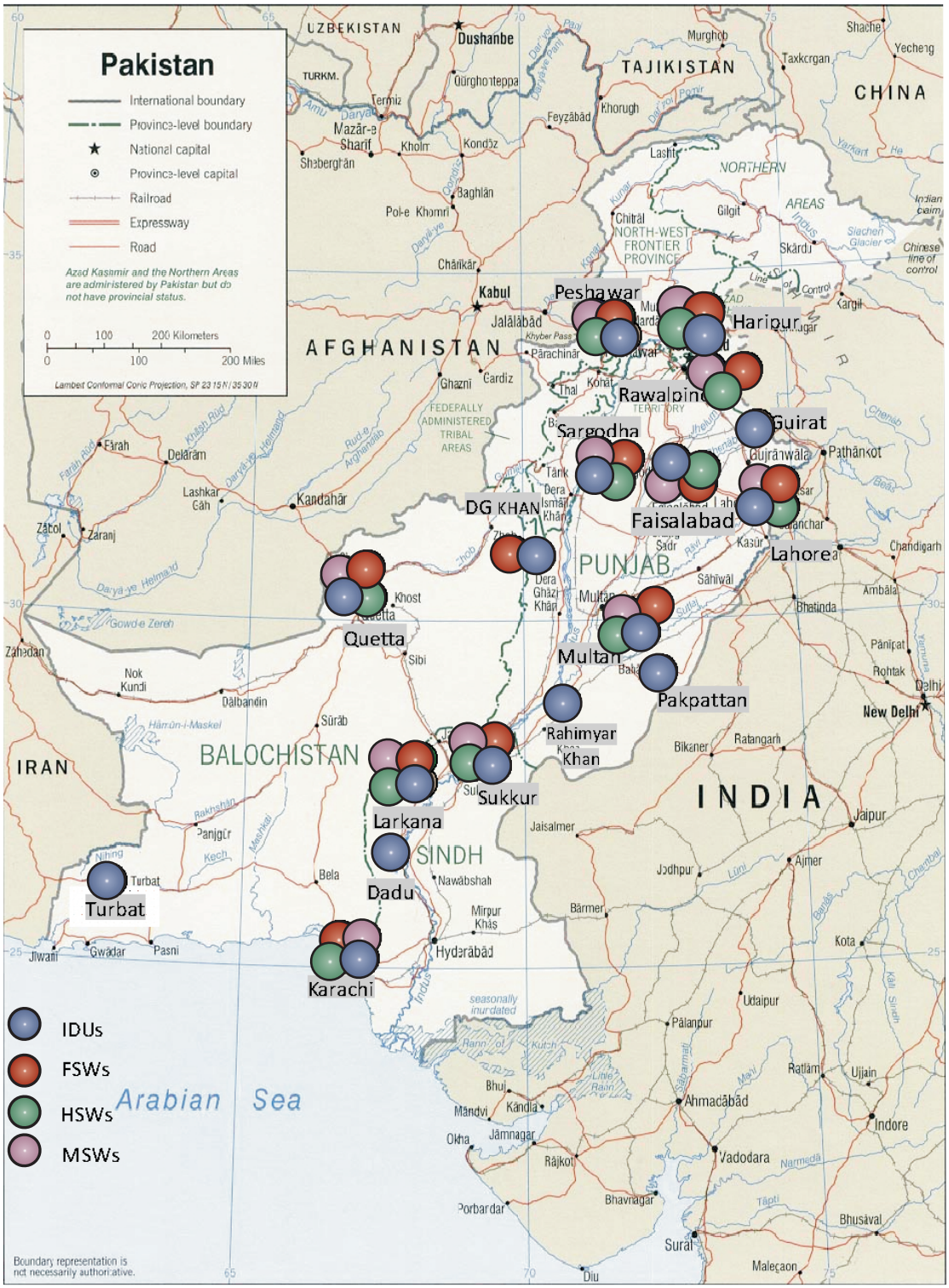
Table 2.1a: Selected sites for IBBS by Province, 2011

Province	City	Key populations Selected	Study Period
Punjab	DG Khan (DGK)	FSW, IDU	July-Sept
	Faisalabad (FBD)	IDU, MSW. HSW, FSW	July-Sept
	Gujrat (GUJ)	IDU	July-Aug
	Lahore (LHR)	IDU, MSW, HSW, FSW	July-Sept
	Multan (MLT)	IDU, MSW, HSW, FSW	July-Sept
	Pakpattan (PKP)	IDU	July-Aug
	Rahim Yar Khan (RYK)	IDU	September
	Rawalpindi (RWP)	MSW, HSW, FSW	July-Sept
	Sargodha (SGD)	IDU, MSW, HSW, FSW	July-Sept
Sindh	Dadu (DDU)	IDU	June-July
	Karachi (KHI)	IDU, MSW, HSW, FSW	June-July
	Larkana (LRK)	IDU, MSW, HSW, FSW	June-July
	Sukkur (SKR)	IDU, MSW, HSW, FSW	June-July
Khyber Pukhtunkhwa	Haripur (HRP)	IDU, MSW, HSW, FSW	September
	Peshawar (PSH)	IDU, MSW, HSW, FSW	September
Balochistan	Quetta (QTA)	IDU, MSW, HSW, FSW	June-July
	Turbat (TRB)	IDU	June-July

[7] **Mapping** of key populations at higher risk of HIV; HIV Second Generation Surveillance in Pakistan, January 2012. National AIDS Control Program. Pakistan.

Fig 2.1a: Illustrative presentation

of the selected sites for IBBS in Pakistan, 2011



Box # 1: Mapping of cities added to the IBBS 2011

Mapping was conducted in all targeted cities to understand the risk situation; to quantify the number of settings and the size of the key populations; and to describe the various sub-types of the vulnerable group. The mapping methodology was based on a geographical approach, supplemented by network mapping of FSW and HSW networks.

The mapping approach was broadly divided into the following levels:

1. Pre-mapping exercise
2. Level one (L1)
3. Level two (L2)
4. Triangulation of results

The pre-mapping phase of the study served as a facilitation phase for the actual mapping activity and laid a foundation for field data collection. Sensitization meetings were held with key government staff and police in each target city to garner local support and participation. Detailed maps of all targeted cities were developed using the Geographical Information System (GIS), based on satellite imagery. Once this was done, the city was divided into smaller data collection units referred to as zones. Data collection formats were developed and NACP/PACP staff and master trainers within each implementing NGO organization were trained on data collection. In geographical mapping, Level One (L1) was the first step of field activity, which gathered information on the key geographic locations where high risk activity (HRA) occurred, along with the typology and estimated numbers (minimum and maximum) of the key population. While L1 focuses on gathering information on 'hotspots' and places where HRA takes place, Level Two (L2) consisted of validating information collected in L1, through visiting “hot spots”, and interviewing members of key populations present at those spots. Network mapping focused on the promoters and mediators of sex work (gurus, in case of HSWs) and mapped networks within which the target populations operate. Network operators (NWO) were thus the primary source of information and were mapped along with the number of sex workers/hijra's with whom each network operator works. NWOs were systematically identified within each zone and further contacts were traced through a process of “snowballing” whereby each key informant in the field (madam and NWO) was asked to identify others that they know. Only NWOs in the same city and currently in business were noted. Each NWO interviewed was inquired about the total number of sex workers with whom he/she works and a minimum and maximum estimate was noted down. All data were field edited and data set was entered in a MS Access database, designed for this study.

Data collected from the mapping was augmented with a GIS survey . In addition, all validated spots within each zone were marked on maps, and coordinates for these spots were acquired using Google Earth. To obtain the final figures, the estimated ranges for each site and location were rolled up for a zone and city to produce minimum and maximum estimates after adjusting for duplication. Data from network mapping was analyzed and city wide estimates were developed through combining zonal estimates and removing overlaps. GIS distribution maps and spot maps for each key population were created after obtaining spatial and attribute data for each spot, and linking them with digitalized maps of target cities.

2.2 Study Subjects

The study population comprised of the four key populations at higher risk for HIV: IDUs, MSWs, HSWs, and FSWs (Box 2).

Box # 2: Study Subjects and Case Definitions

Injecting Drug Users (IDUs)
Inclusion Criterion
A person who has injected drugs regularly, for non-therapeutic purposes in the past six months
Exclusion Criteria
- Age under 18 years (lower age limit for the age of consent for research)
- A person who appears to be, in the interviewer's judgment, incapable of understanding the information provided about the survey (e.g., due to intoxication, dope sickness, or the person is cognitively impaired etc.)
- Not willing to participate in the study/unwilling to provide informed consent.
- A person who has already participated in the survey in the current round.

Male Sex Workers (MSWs)
Inclusion Criterion
Any male above 13 years, who undertakes sexual activity with a man in return for money or benefits.

Exclusion Criteria:
- Not willing to participate in the study by providing informed consent.
- A person who has already participated in the survey in the current round.

Hijra Sex Workers (HSWs)
Inclusion Criterion
Any transvestite/transsexual above 15 years, who undertakes sexual activity with a man in return for money or benefits.
Exclusion Criteria:
- Not willing to participate in the study by providing informed consent.
- A person who has already participated in the survey in the current round.

Female Sex Workers (FSWs)
Inclusion Criterion
Any female above 15 years, who undertakes sexual activity with a man or woman in return for money or benefits irrespective of site of operation i.e., street, brothel kothi khana or home
.Exclusion Criteria:
- Not willing to participate in the study/unwilling to provide informed consent.
- A person who has already participated in the survey in the current round

[8] Considering recent studies cited in the background and references, HASP has proposed lower age limit of 13 years in the present surveillance round and has put in place strategies to ensure that consent is secured without coercion and that adolescents are referred to appropriate services.

2.3 Sample Size

Sample sizes for each key population were calculated based on assumptions in which baseline prevalence and expected change in prevalence were varied to get a maximum sample size. Behavioural data from previous surveillance was used to determine baseline prevalence rates to inform the sample size calculations. For IDUs, use of a new syringe at last injection (48%), while for MSWs, HSWs and FSWs "condom use at last sex" were used, which was reported to be 35%, 32% and 45% respectively.

The following formula was used to determine the sample size for target groups:

$$n = D\frac{\left[\sqrt{2P(1-P)}Z_{1-\alpha} + \sqrt{P_1(1-P_1)+P_2(1-P_2)}Z_{1-\beta}\right]^2}{\Delta^2}$$

Sample sizes for each key population at risk was calculated based on assumptions in which baseline prevalence and expected change in prevalence were varied to get a maximum sample size:

P_1 = estimated prevalence at baseline (varied for different groups).
P_2 = expected prevalence in future (detect a change of 10-15%)
$P = (P_1 + P_2)/2$
$\Delta 2 = (P_2 - P_1)2$
$Z(1-\alpha)$ = 95% level of significance
$Z(1-\beta)$ = Power of the study set at 80%

Based on the calculations, varying numbers of subjects were calculated for each key population to optimise a meaningful analysis. The numbers were inflated by 10% to accommodate for non-response and data errors. Thus 365 IDU's, 375 FSW's, 360 MSW's and 356 HSW's were needed for this study.

The sample size achieved in each of target city is provided in Table 2.3a.

Table 2.3a: Sample distribution of IDUs, MSWs, HSWs and FSWs for IBBS, 2011

Province	City	IDUs	MSWs	HSWs	FSWs
Punjab	D.G. Khan	365	-	-	375
	Faisalabad	364	359	356	376
	Gujrat	208	-	-	-
	Lahore	367	360	366	375
	Multan	365	360	355	375
	Pakpattan	365	-	-	-
	Rahim Yar Khan	214	-	-	-
	Rawalpindi	-	360	355	375
	Sargodha	365	360	354	345
Sind	Dadu	194	-	-	-
	Karachi	365	360	359	377
	Larkana	365	360	355	375
	Sukkur	365	360	357	375
KPK	Haripur	65	84	266	211
	Peshawar	260	352	352	367
Balochistan	Quetta	365	359	338	345
	Turbat	365	-	-	-

2.4 Sampling strategy and Recruitment

Since a list of potential sampling units was available from the mapping preceding IBBS, we were able to recruit a representative sample of the key populations through various sampling techniques.

- IDUs and MSWs were recruited through multistage cluster sampling. The top 10 clusters in each zone were identified from the fresh mapping data, and the study subjects were recruited through a random process. In cities where the estimated number of IDUs or MSWs was smaller than the required sample size, a "take all" approach was used.

- HSWs were recruited utilizing information obtained from mapping of networks. Dera's/Gurus were selected randomly from the list available through mapping results and these contacts were utilized to recruit eligible subjects. Sampling weights were applied based on zonal estimates and 3 to 5 HSWs were randomly selected from a Dera/Guru.

- The sample of FSWs was distributed among the identified typologies (brothel based, street based, kothi khana and home based FSWs), proportionate to size. Clusters were identified by the mapping work preceding data collection, and the study subjects were recruited through a random process. **Brothel based FSWs** were selected through systematic random sampling of brothels (i.e. systematic sampling from a list of FSWs using a random start) and a "take all" approach was used if the number was less than the required sample size. **Street based FSWs** were selected through multistage cluster sampling, in a manner similar to IDUs and MSWs. **Kothikhana and home based FSWs** were recruited through a similar sampling technique used for HSWs after applying the sampling weights (based on zonal distribution). Network operators were randomly selected and 3 to 5 FSWs working with these network operators were recruited through a random process.

IBBS was conducted by separate team members, specifically hired for this purpose and facilitated by social mobilizer.[9] Once the social mobilizers identified all eligible participants at a selected spot, the recruiter randomly selected a key population member, introduced the study and sought consent for participation. The social mobilizer facilitated the process of selection, introduction of the study, and seeking of the consent. If the eligible participant refused, the next available community member was recruited and transported to the interviewing site. In case of Kothikhana-based FSWs and HSWs where the interviews were conducted at the participants place, recruitment was done by the interviewer him/herself.

2.5 Data Collection Instrument

Data were collected by trained interviewers using structured questionnaires. The questionnaires were designed in English and subsequently translated into Urdu; the Urdu versions were used to collect the required data. Questionnaires included questions on socio-demographic and personal characteristics, as well as a core set of risk behaviour indicators to monitor the

[9] **Social Mobilizers are members of key populations who facilited field worker**

behavioural patterns of key populations.

For the following principal variables data were collected:

- Socio-demographic variables: age, gender, education, living arrangements, family information, income, migration status, employment, professional background and travel history both with in Pakistan & aboard
- Profession related variable: number of clients, charges, types of services offered, etc.
- Injecting risk behaviour and practices: Types of drugs used and their routes of administration, length of drug use and injecting careers, drug use in group, sharing of equipment and needles, frequency of drug use/injecting, etc.
- Sexual risk behaviours: Age of initial sexual intercourse, number of sexual partners, regular and causal partners, condom use, anal intercourse, etc.
- Knowledge and information about HIV and other STIs: Knowledge about HIV and/or AIDS, routes of transmission, methods to prevent transmission, perception of self-risk, etc.
- Others: Donation of blood, health seeking behaviour, availability and utilization of health services, etc.

2.6 Training on IBBS Data Collection

The field teams participated in a three day workshop facilitated by Master Trainers, which focused on providing information and points of clarification to the interviewers on issues such as:

- Understanding HIV and/or AIDS: facts and myths
- Basic interviewing skills with special emphases on interviewing about sex and injecting drug use issues
- Sex, gender and HIV and/or AIDS, gender and rights issues related to HIV and collection of IBBS data, and the importance of collecting and analyzing sex-disaggregated data
- Values and attitudes
  Different aspects of field work accessing vulnerable groups subject selection and recruitment process explaining the rationale and objectives of the study to the subjects ethical issues including confidentiality acquiring informed consent collecting biological samples debriefing and referral process

In addition to lectures and training sessions, actual field visits by the trainees were included in the workshop. Workshop participants included members of the data collection teams (including social mobilizers), data management personnel, field supervisors, and representatives of the NGO and research institutions and members of the NACP/PACPs.

"Code books" for the questionnaires as well as manuals for field activity were provided to help fieldworkers maintain uniformity and consistency in data collection.

2.7 Data Collection and Fieldwork

Venues used for conducting interviews varied depending on the population being surveyed. HSWs were interviewed at their Dera's, MSWs and IDUs were interviewed at the central field office. FSW interviews were conducted at side of operation for home and kothi khana SWs and in central office for street based SWs.

2.7.1 Informed consent

The consent form was read aloud to each eligible participant. This form provided participants with an overview of the objectives of the study, the confidential nature of the interview, the right of the participants to refuse to answer questions, as well as the right of subjects to end the interview at any time. Consent was also taken to obtain a biological sample for HIV testing.

2.7.2 Dealing with refusals

If the participant agreed to provide questionnaire information, but not to provide DBS, only the questionnaire was administered and compensation was provided. However, the participant was not counted toward achieving the target sample size. Similarly, if a person refused to participate in the study, the reasons for non-participation were asked and noted down along with the gender and approximate age.

2.7.3 Debriefing and referrals

After completing the interview, a debriefing session was held with participants so as to allow the interviewer to respond to any questions that the participants may have had. Information was also provided to participants during this session on the modes of transmission and prevention of HIV and primary health care services.

As unlinked testing of the DBS samples was conducted, the results were not shared with the individuals. Rather, all of the respondents were provided with an opportunity to know their HIV status through referral to the closest VCT and care and support services, provided either through NGOs or Provincial AIDS Control Programs. Adolescents were referred to child welfare services in the city.

2.8 Blood Sample Collection and Handling

Upon completion of the interview, consenting participants were[10, 11] requested to provide a blood sample for HIV antibody testing. The capillary "Dried Blood Spot" (DBS) specimen methodology, was selected for the collection of biological specimens because

- it's relatively easy to collect, store and ship these specimens;
- the methodology has been successfully used in other jurisdictions conducting second generation HIV surveillance; and
- there was potential for the use of the detuned assay with DBS samples to help identify recent HIV infection (incidence) and different strains of HIV.

[10] Solomon S.S. Solomon S, Rodriguez I.I, Mc Garvey T, Ganesh A.K, Thyagarajan S.P, Mahajan P.A, Mayer K.H. Dried Blood Spots(DBS): A valuable tool for HIV surveillance in developing/tropical countries. Int J of STD and AIDS 2002;13:25-28

[11] Serologic Assays for Human Immunodeficiency Virus antibody in dried-blood specimens collected on filter paper from neonates : US Department of Health and Human Services, Public health Services, CDC, Atlanta GA; August 1989

The DBS were collected on a specially designed filter paper with five inscribed circles. Each of the five circles was saturated with drops of blood obtained from the finger tip of the participant using an automatically retractable lancet device.

2.8.1 Biological specimen shipping and storing

The DBS were dried and stored at room temperature before sealing in specimen bags. Each specimen bag was coded with a unique subject identifier number (see Section 2.12.2: Ethical Review – Confidentiality). The specimens were handed over to the team leaders and subsequently to the study coordinators on a daily basis by the data collection staff. These were in turn transported on weekly basis to HASP, Islamabad. From HASP office DBS cards were sent to selected laboratory for HIV testing.

2.8.2 Laboratory methods

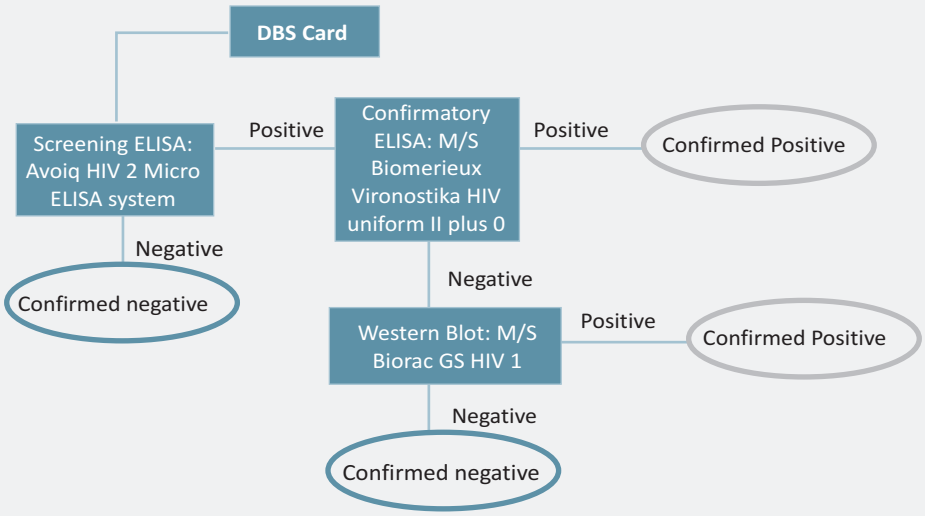
All DBS specimens were first screened by the HIV Genetic Systems r LAV Enzyme immunoassay (ELISA/EIA) (Bio-Rad USA). Samples that tested positive were subsequently confirmed in duplicate by the Vironostika HIV Uni-Form II EIA (Bio meriux, The Netherlands). The Genetic Systems HIV-1 Western Blot (Bio-Rad USA) was used to confirm the status of any specimen found to be diagnostically indeterminate after EIA testing. Fig 2.8a provides schematic illustration of the testing algorithm for HIV testing

2.9 Quality Assurance

2.9.1 Behavioural surveillance

At the field level, the site-coordinator in charge of data collection ensured eligibility, completeness and consistency of the completed questionnaires at the end of every day. Independent of the field team, quality assurance (QA) team was created and visited the field offices randomly on a daily basis. The team confirmed the sampling methodology and verified at least 10% of the questionnaires. Any questionnaires with significant errors were discarded.

Figure 2.8a: Illustrative presentation of the testing Algorithm for HIV testing for IBBS in Pakistan, 2011



2.9.2 Biological surveillance

In order to monitor laboratory performance, the National Reference Laboratory and the laboratories of Shaukat Khanam Memorial Trust hospital and Armed forces institute of Pathology were enrolled in a DBS based serology proficiency testing program administered by the National HIV and Retrovirology Laboratories, Public Health Agency of Canada. An external DBS based quality assurance panel specific to HIV infections in Pakistan was developed by the National HIV and Retro virology Laboratories in Canada and shipped to participating laboratories in Pakistan before the start of data collection and mid-way through data collection to ensure quality.

2.10 Organization & Monitoring of Field Work

Although the number of field teams varied depending on the key populations targeted in the different locations, a uniform team structure was maintained. The basic structure of each team comprised of a team leader, two community mobilizers (2), and two interviewers (2). All field data collection was monitored by the team leader, who reported to the site coordinator (depending on the team). Field staff members were provided with mobile phones to stay in contact with team supervisors. A site coordinator at each site worked under the technical supervision of HASP senior researchers and facilitated the data collection process. Random spot checks by

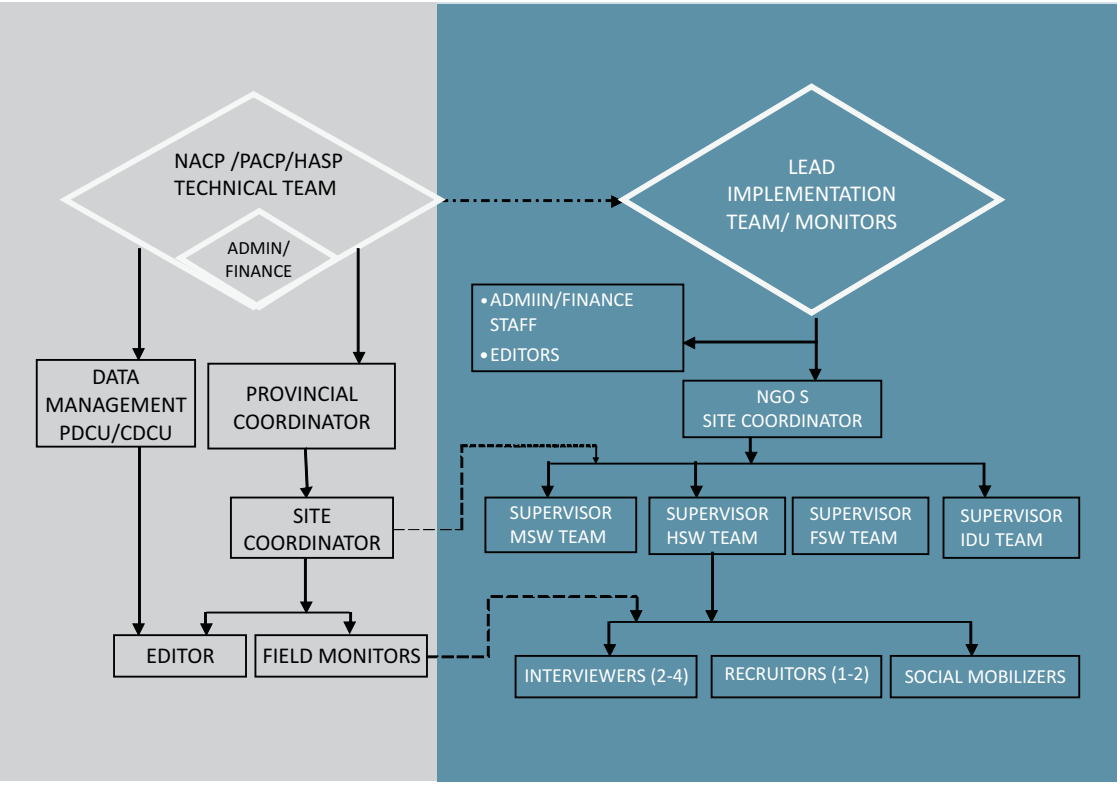


Figure 2.10a: Structure of the field teams during IBBS, 2011

various senior members of the team, comprising of HASP, NACP and PACPs ensured adherence to the protocol (Figure 2.10a)

2.11 Data Management

The data were managed at three levels:

i) Field data management
ii) Provincial Data Management at the Provincial Data Coordination Units (PDCU); and
iii) Central Data Coordination Unit (CDCU).

In the field, the interviewer provided hard copies of the questionnaires to the relevant supervisor and to the Data Editor on a daily basis. Each supervisor checked the questionnaires for completeness, appropriateness and responses to difficult

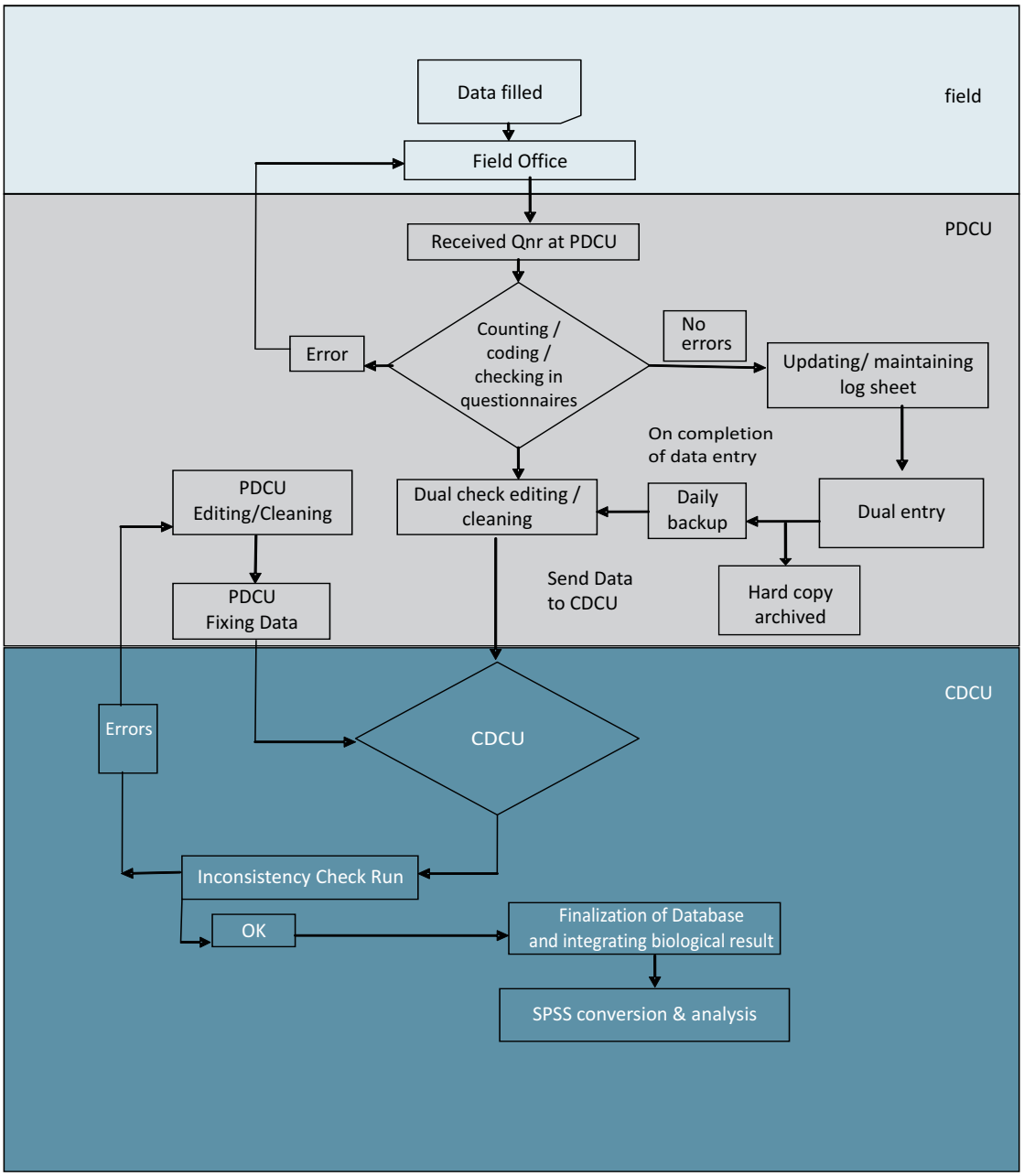


Figure 2.11a: Data flow during IBBS 2011

questions. Detailed editing was conducted by the Data Editor who provided their feedback to the interviewers. Open ended responses were coded which was maintain by CDCU. Completed hard copies of the final, corrected questionnaires were sent along with log sheet to respective PDCUs for data entry by trained staff into an Microsoft™ Access database specifically designed for HASP data. Further, at PDCU a Data Base Administrator maintained an electronic log sheet and maintained coding list . The CDCU was responsible for conducting data entry error checks, validating and finalizing the database through dual data entry checks, performing inconsistency checks, limits value checks etc.

Laboratory results were sent directly to the CDCU, and linked to the corresponding interview data by the encrypted unique identifier and unique study site code; no personal information accompanied these records.

The final data set was converted to SPSS™ files for analysis. The electronic data was password protected and only authorized officials of NACP/HASP had access to the data files. All hardcopy data were stored in a secure room at the CDCU office. Fig 2.11a provides schematic illustration of the data management of IBBS

2.12 Ethical Review

The study protocol was reviewed and approved by the Ethical Review Board of the Public Health Agency of Canada, as well as in Pakistan by HOPE International's Ethical Review Board. This survey was designed to meet international ethical guidelines, specifically addressing the following ethical issues:

2.12.1 Informed consent and voluntary participation

Recruitment of participants was conducted only after describing the study procedures and obtaining informed consent. During the process of obtaining informed consent, prospective participants were clearly informed that participation was voluntary and that non-participation would have no negative consequences in terms of access to programs or services. Monetary compensation was provided to participants for their time commitment and inconvenience due to participation. The level of appropriate compensation for each sub-population was based on consultations with community members, with the objective of ensuring fairness.

2.12.2 Confidentiality

Considerable effort was taken to maintain the confidentiality of participants. This included non-disclosure of participants' identity and the use of a non-identifying coding system to track and link study data. The electronic data was password protected and only authorized officials of NACP/HASP had access to the data files.

2.12.3 HIV test results

HIV test results were kept confidential from study personnel and were not provided to participants. Instead, participants were advised that if they wanted to know their HIV status, the study personnel would facilitate this access through an official HIV counselling and testing service.

3 Injection Drug Users (IDUs)

3.1 Geographic Distribution and Estimates of IDUs

The mapping study estimated a total number of 46,351 (ranged between 39,793 to 52,896) injecting drug users (IDUs) spread over 5,898 spots mapped in 19 cities. The highest number of IDUs was found in Karachi, followed by Faisalabad and Lahore, where the estimated numbers were 16,544, 7,907 and 3,596 respectively. The IDUs in Karachi constituted more than one third of the total IDUs estimated, while those in Faisalabad and Lahore comprised 17.1% and 7.8% of the total IDUs population in the cities mapped. Among the 19 cities, six had insignificant IDUs populations, with the estimated numbers of IDUs less than 500. These cities were Gujrat, Pakpattan, Rahim Yar Khan in Punjab, Dadu in Sind, Haripur in KPK and Turbat in Balochistan.

Table 3.1a: Estimated size of the IDUs population, IBBS 2011

Province	City	No of spots	IDUs (avg)	IDUs per spot	% IDUs	IDUs per 1000 adult males
Punjab	DG Khan	59	596	10.1	1.3%	5.6
	Faisalabad	1,024	7,907	7.7	17.1%	8.1
	Gujrat	55	431	7.8	0.9%	1.8
	Multan	268	870	3.2	1.9%	1.3
	Pakpattan	91	487	5.3	1.1%	5.2
	Rahim Yar Khan	35	426	12.2	0.9%	1.2
	Sargodha	261	1,621	6.2	3.5%	5.2
Sind	Dadu	36	470	13.1	1.0%	3.4
	Hyderabad*	688	3,857	5.6	8.3%	7.1
	Karachi	2,070	16,544	8	35.7%	3.5
	Larkana	94	1,096	11.7	2.4%	8.0
	Mirpurkhas*	102	1,229	12	2.7%	11.8
	Nawabshah*	125	1,865	14.9	4.0%	13.1
	Sukkur	204	1,979	9.7	4.3%	8.9
KPK	Haripur	109	493	4.5	1.1%	1.9
	Peshawar	225	1,850	8.2	4.0%	2.3
Balochistan	Quetta	153	626	4.1	1.4%	1.8
	Turbat	43	408	9.5	0.9%	2.7
TOTAL		**5,898**	**46,351**	**7.9**		**3.7**

* IBBS was not conducted in these cities

3.2 Socio-demographic Characteristics

Out of the 4,956 IDUs interviewed, 98.4% were males. Females IDUs interviewed were 39 (13 in Sargodha, 11 in Karachi, 6 in Quetta, 4 in DG Khan, 2 in Rahim Yar Khan, 2 in Lahore and 1 in Faisalabad). These numbers do not reflect the overall proportion of female IDUs in Pakistan.

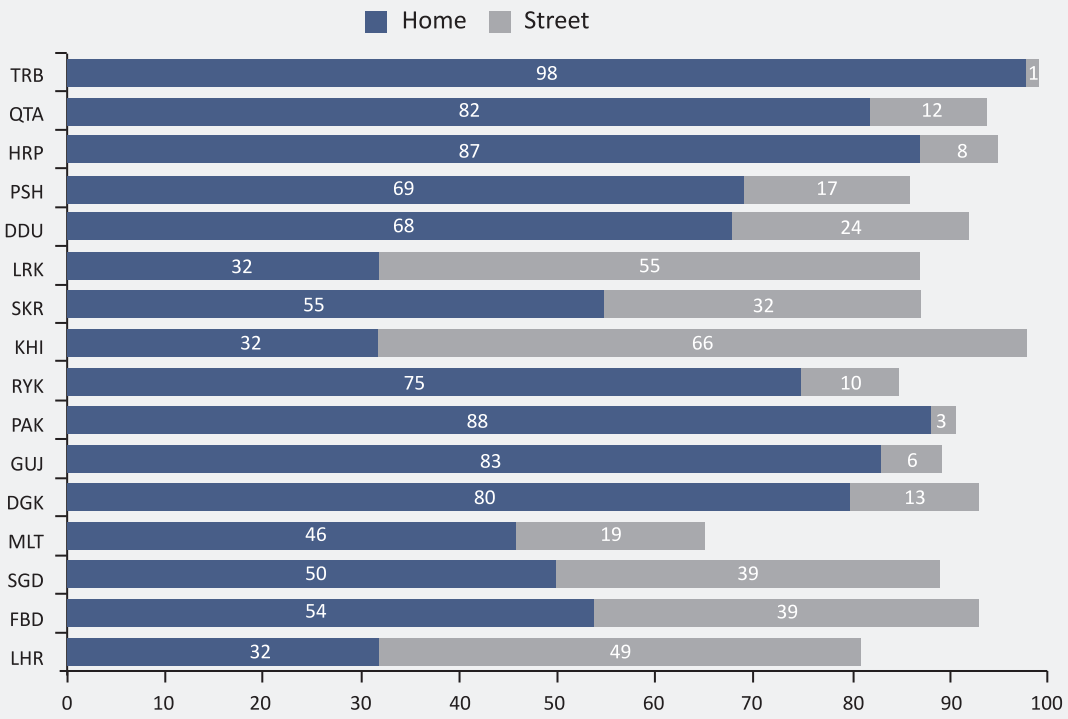
The average age of IDUs was 30.4 ± 8 years (median = 29 years), with approximately 52% of the IDUs less than 30 years of age. The highest proportion (26.2%) of IDUs were between 25 to 29 years of age (Table 3.2a). It is important to note that nearly two thirds of the IDUs were between 25 and 40 years of age. More than half (57.1%) of the IDUs interviewed had no formal education (Table 3.2a). More than two-thirds of the IDUs surveyed lived with their family and 35.5% with their friends (35.5%), Approximetely 45 % of IDUs lived at home and 47.6 % on the street. However there were geographic variations. In Karachi and Larkana, more than 50% of IDUs indicated they lived on the street (Figure 3.2a). In Faisalabad and Lahore, there was a 50-50 split between IDUs living at home vs. on the streets. In the remaining cities, the majority lived at home (Figure 3.2a).

Table 3.2a: Socio-demographic characteristics of IDUs, IBBS 2011

Characteristics	IDUs
Gender	
▪ Male	98.4
▪ Female	1.6
Age	
▪ Up to 24 years	25.7
▪ 25 - 29 years	26.2
▪ 30 - 34 years	18.9
▪ 35 - 40 years	19.1
▪ More than 40 years	10.1
Average age ± SD years	*30.4 ± 8*
Marital status	
▪ Unmarried	56.9
▪ Married	33.8
▪ Separated / divorced	6.0
▪ Widowed	3.3
Years of education	
▪ Illiterate	57.1
▪ Up to 05 yrs	18.4
▪ 06 to 10 yrs	22.2
▪ > 10 yrs	1.9
Living with	
▪ Lives alone	18.4
▪ Family	45.7
▪ Friends	35.5
Current living arrangement	
▪ Home	45.4
▪ Street	47.6
▪ Other	7.0
Median income/month in PKR (USD)	6,000 (68 USD)

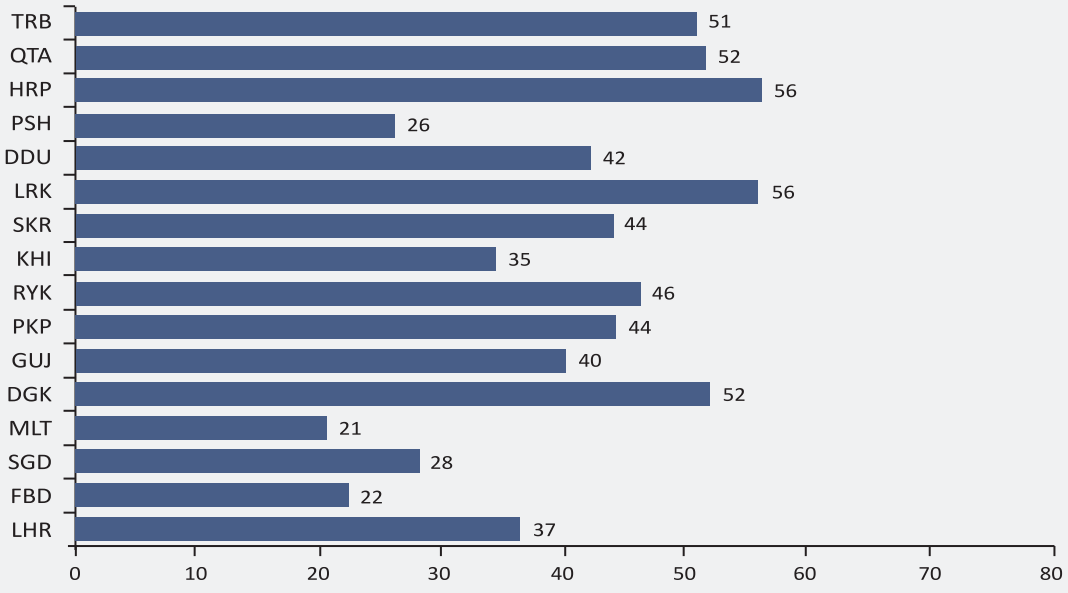
Average ± SD income/month: 6,266 ± 2,914 PKR; 1 PKR = US $0.011

Figure 3.2a: Proportion of IDUs living at home and street by city, IBBs 2011



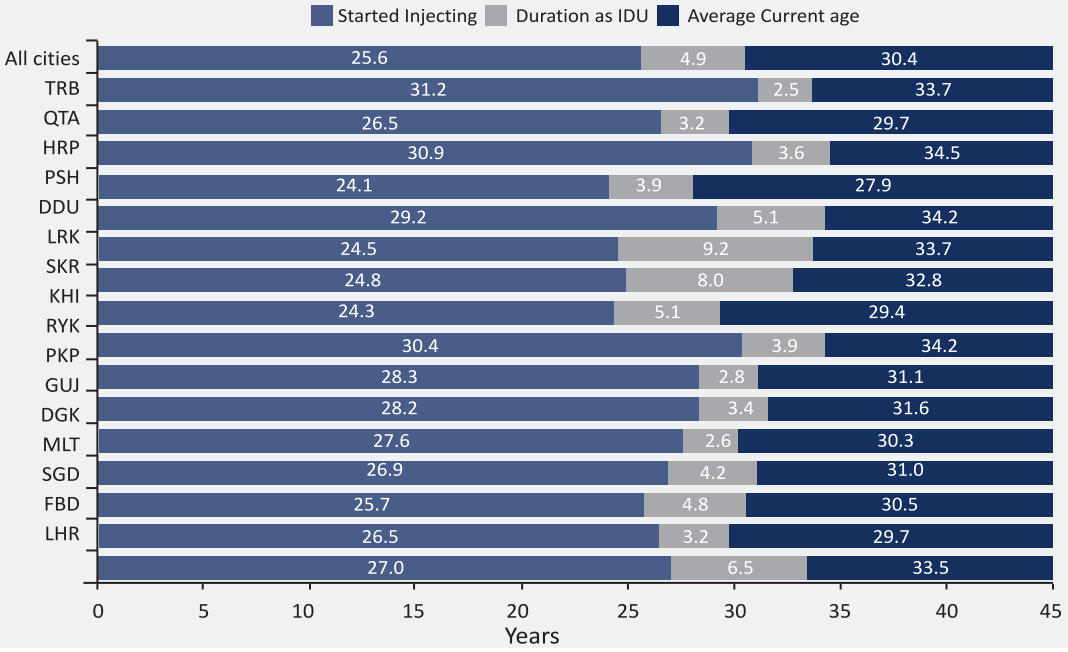
The median monthly income was PKR 6,000 or US $68 per month (mean = PKR 6,266 ± 2,914). Education level, living arrangements, and monthly income did not vary significantly across cities. Overall, 4.4% of IDUs reported being physically abused in the past six months, 15.9% were arrested during the same time period, and 8.4% reported alcohol use at the time of sex during the past six months. Approximately 33.8% of the IDUs surveyed were currently married (Table 3.2a). The highest proportion of married IDUs was seen in Haripur (56%) and Larkana (56%), followed by D.G Khan (52%) and Quetta (52%) and Turbat (51%) (Figure 3.2b).

Figure 3.2b: Proportion of married IDUs by city, IBBS 2011



On an average, IDUs started injecting drugs at the age of 25.6 years, and had been injecting for a period of about 4.9 years at the time of the survey. The age at initiation varied from 24.1 years in Peshawar to 31.2 in Turbat. The average duration of injecting range between 2.5 years in Turbat to 9.2 years in Larkana (Figure 3.2c).

Figure 3.2c: Average age at initiation of injecting drug use, duration of use and average current age of IDUs by city, IBBS 2011



3.3 Migration and Mobility

A significant proportion of IDUs had originated in the city where they were interviewed (90.8%), and nearly one-half (45.7%) lived with their families. Among the 9.2% of IDUs who had migrated from another city, 10.5% were permanent settlers, while 89.5% were visitors. The major reasons reported for migration were work/business (53%), and drugs (29.1%). We also looked into the mobility of the IDUs (travel from the city where they were interviewed). Approximately 16.9%of the respondents had traveled to other cities within the past year. As expected, results showed that IDUs in the smaller cities traveled to larger cities such as Lahore (16.8%) and Karachi (8.4%, Table 3.3a). A small proportion of IDUs (3.6%) reported travelling abroad; 43.7% of these had been involved in sex work during their travel abroad (Table 3.3a)

Table 3.3a: Migratory pattern of the IDUs, IBBS 2011

Variable	IDUs %
Domestic Travel	
Migratory pattern (in migration)	
Migrated from other cities	9.2
▪ Permanently staying	10.5
▪ Visiting	89.5
Mobility Pattern (out migration)	
Traveled to other city in the past 12 months	16.9
▪ Most common cities traveled to	
○ Lahore	16.8
○ Karachi	8.4
○ Larkana/Sanghar	5.5
○ Rawalpindi	5.4
International Travel	
Ever travel aboard	3.6
▪ involved in sexual activity	43.7

3.4 Drug Injecting Practices

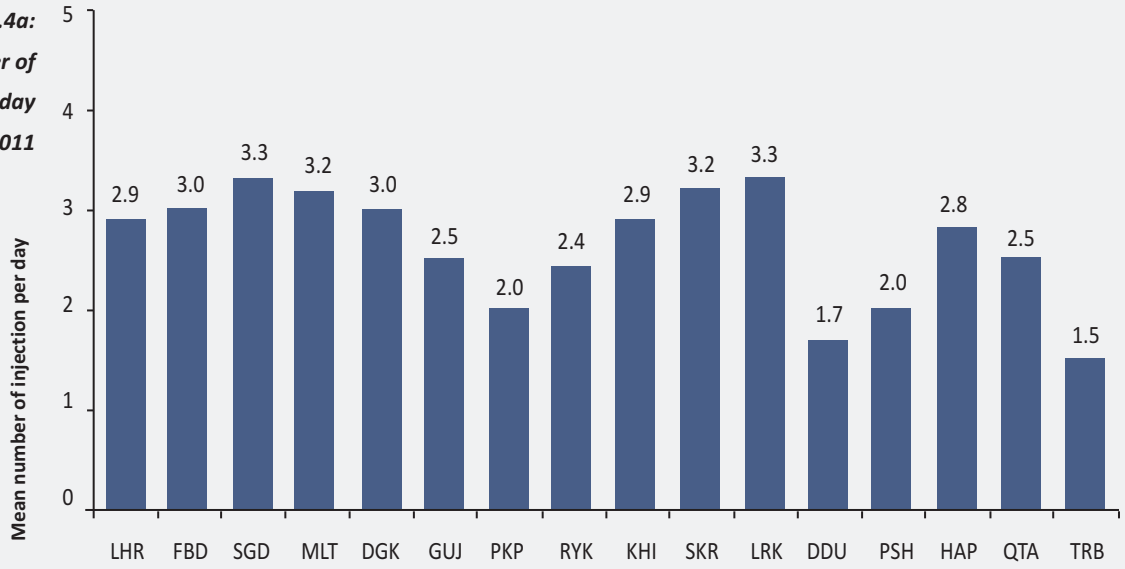
Almost three-quarters of IDUs surveyed (71.5%) reported injecting between two to three times a day in the past month and 21.1% reported injecting more than three times a day (Table 3.4a). Public spaces including parks, streets and/or open areas were most commonly cited as venues for the most recent injection with 90.5% of IDU reporting injecting in these spaces. The vast majority of the IDUs (80.9%) reported injecting with friends and/or acquaintances however 18.0% reported injecting alone (Table 3.4a).

The mean number of injections per day ranged from 1.5 to 3.3 injections per day with Larkana and Sargodha reporting the highest mean number of injections per day and Turbat, the lowest mean number of injections per day (Figure 3.2a).

Table 3.4a: Injecting practices of IDU, IBBS 2011

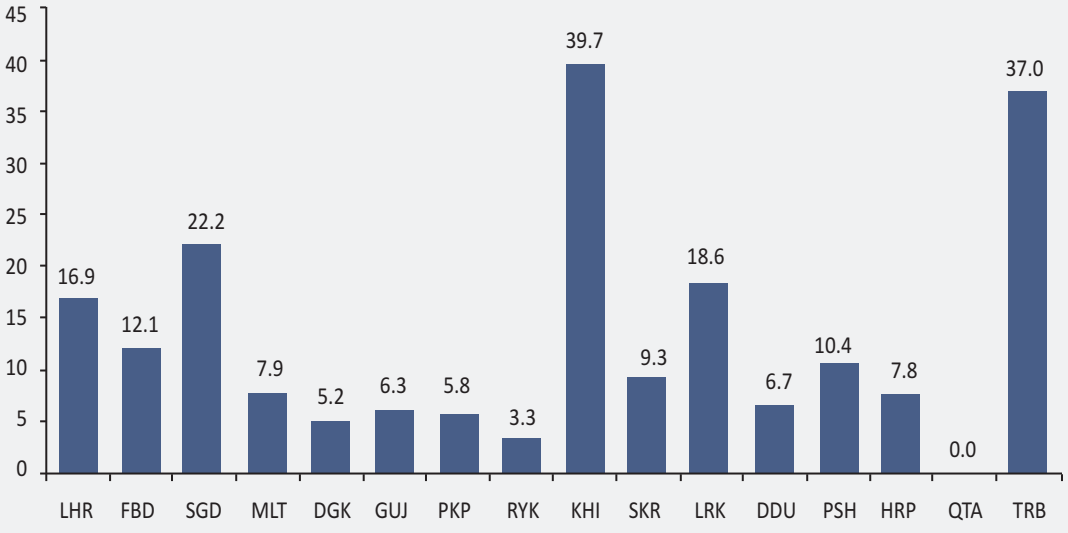
Variable	IDUs %
Number of injection per day in past one month	
▪ Once a day	6.2
▪ 2-3 times a day	71.5
▪ More than 3 times a day	21.1
Last time injected at	
▪ Park/street/open spaces	90.5
▪ Home	4.6
▪ Shrines/*Darbar*	2.6
▪ Hotel/shop	1.3
Last time injected with	
▪ Family member(s)	0.9
▪ Friends + acquaintances	80.9
▪ Strangers	0.2
▪ Alone	18 .0
Injected by "professional" injectors	
▪ Always	24.1
▪ Most of the time	22.1
▪ Some times	24.1
▪ Never	29.4
Used a new syringe for injecting	
▪ Always used a new syringe	38.6
▪ Never	2.5

Figure 3.4a: Average number of injections per day by city, IBBS 2011



About two-thirds of all IDUs reported that they had sought help in injecting from "professional injectors/street doctors"[12] during the past month (Table 3.4a). Of these, 24.1% always got their injections from these professional injectors and (Table 3.4a). There was substantial variation between cities in the proportion of IDUs who reported always using the services of professional injectors ranging between 39.7% in Karachi to 0% in Quetta (Figure 3.4b).

Figure 3.4b: Proportion of IDUs who always used services of "professional" injectors during the past month by city, IBBS 2011



[12] Street doctors or Professional injectors are IDUs themselves, who are paid by other IDUs to inject drugs.

Poly drug use was common in all cities and all types of opiates, anti-histamines, narcotic analgesics, psychoactive drugs and heroin were injected. Avil (injection containing antihistamine pheniramine maleate) was the drug of choice in most cities. Avil is usually injected in combination with other drugs/ heroin. While in Rahim Yar Khan, DG Khan, Sargodha, Larkana, and Turbat, heroin was the most common drug injected in the past month (Table 3.4b). The proportion of IDUs injecting opiates (Sosegon) in Haripur and Quetta was substantially higher (56.6% and 63.5%, respectively) when compared to other cities (0.9% to 18.6%, Table 3.4b).Similarly, injecting the psychoactive drug Diazepam was reported more frequently in Lahore as compared to other cities (80.1% vs. 0.9% to 46.8% in other cities, Table 3.4b).

Overall, 38.6% of IDUs reported that they always used a new syringe in the past month (Table 3.4a). The reasons for this relatively low number need to be further explored but may be partially explained by cuts to service delivery programs in certain cities. However, responses varied substantially across cities with the highest reported proportion in Pakpattan (66.8%) followed by Turbat (64.9%), Dadu (60.8%) Haripur (59.4%) and Karachi (54.8%) (Figure 3.4c).

Approximately 31.2% the IDUs reported injecting with a used needle/syringe during their last injection (Table 3.4c).

Table 3.4b: Types of drugs injected at least once in past one month by IDUs by city, IBBS 2011

Drugs	GJR	PAK	RYK	DAD	HRP	TRB	QTA	KHI	SKR	LRK	MLT	FBD	SGD	LHR	PSH	DGK
Tamgesic	6.3	1.9	1.9	0.5	-	1.6	0.6	-	0.8	0.5	12.9	26.2	11.3	57.2	13.4	1.4
Bupron	2.4	7.9	1.9	8.2	4.3	25.8	0.8	2.2	-	0.8	23.3	6.3	1.4	37.3	1.6	3.0
Sosegon	5.3	7.9	0.9	18.6	57.4	1.9	63.5	1.4	1.1	1.9	5.5	3.0	5.5	6.3	5.0	1.4
Avil	96.6	88.8	98.6	89.7	66.1	87.4	81.6	97.8	92.1	77.3	95.6	81.5	95.1	97.0	95.4	78.6
Phenergan	0.5	0.3	0.5	1.0	-	-	1.7	0.5	-	-	3.0	1.1	2.7	25	16.2	0.3
Marzine	-	0.3	-	1.0	8.2	-	0.3	0.8	-	0.3	3.3	0.8	13.8	3.3	2.7	
Pentonil	-	2.7	-	1.0	-	0.3	3.3	0.5	-	-	1.4	0.6	-	0.8	2.7	1.1
Pentazogon	1.9	18.9	0.5	8.2	2.2	-	3.3	2.7	-	-	6.8	0.8	-	4.4	2.3	3.0
Diazepam	16.5	45.8	0.9	51.5	40.7	1.9	42.0	4.9	4.1	10.7	38.6	17.9	6.6	80.1	28.7	1.1
Restoril	-	0.3	2.8	1.0	-	0.3	0.8	72.1	-	3.8	1.1	1.4	17.9	1.1	12.4	0.5
Heroin	84.1	7.1	99.1	59.3	-	92.1	81.0	96.2	77.5	96.7	67.9	59.2	96.4	30.5	90.7	93.7

[1]Street doctors or Professional injectors are IDUs themselves, who are paid by other IDUs to inject drugs.

Figure 3.4c: Proportion of IDUs always using a new syringe for injecting in past month by city, IBBS 2011

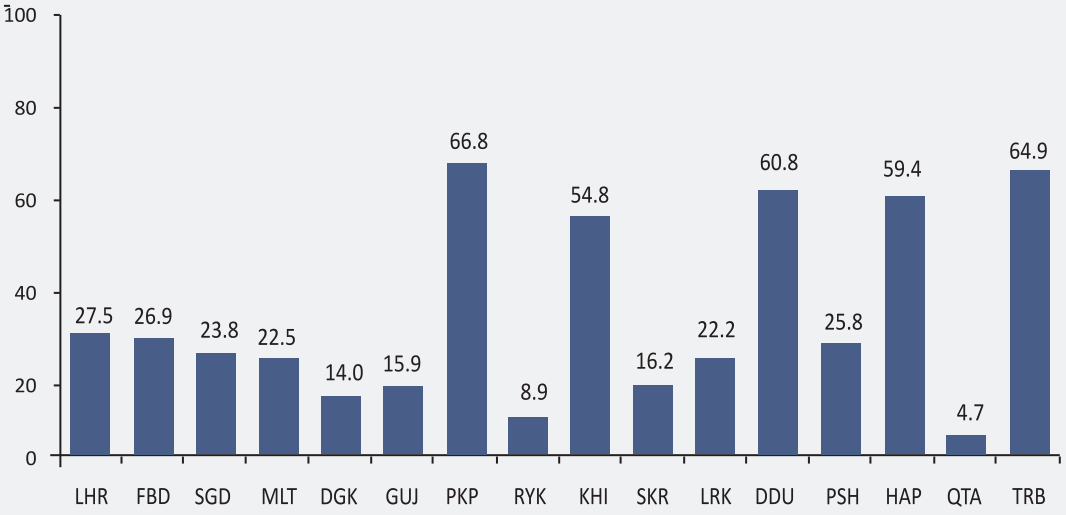


Table 3.4c: Injection practices on last injection among IDUs, IBBS 2011

Variables	IDUs %
Sharing needle/syringe at last injection	39.2
Injected with a needle used by another IDUs	31.2
Passed a needle/syringe to another IDUs	22.6
Proportion of IDUs sharing same needle	
▪ One	
▪ Two	9.7
▪ More than two	6.2
Used injection paraphernalia	13.6
Shared injection paraphernalia*	43.5
Injected by professional injector	44.3

* Of those who used paraphernalia for injection

About 39% IDUs reported sharing their needle/syringe. Among those who reported sharing; 31.2% reported they injected with used syringe while 22.6% passed on their needle during the last injection. Among those who injected with a used needle/syringe, the main reported reasons for not using a new needle/syringe were: new syringe was not available at the time of injection, syringe was too expensive, and injection partner insisted to use the same and did not think that it was necessary to use a new needle/syringe. Sharing needle/syringe was most commonly reported from Quetta (76%) followed by Sukkur (72%) Rahim Yar Khan and Gujrat (68%). (Figure 3.4d). Injected

with used needle/syringe and past on needle/syringe to another IDU varis substantially across city (Figure 3.4e, 3.4f). Approximately 14% of IDUs reported that they had used injecting paraphernalia including a cooker, water, cotton, caps etc on last injection out of which 43.5% reported sharing these items (Table 3.4c). About 44% sought help from a professional injection during their last injection

Figure 3.4d: Proportion of IDUs sharing syringes/needles on last injection by city, IBBS 2011

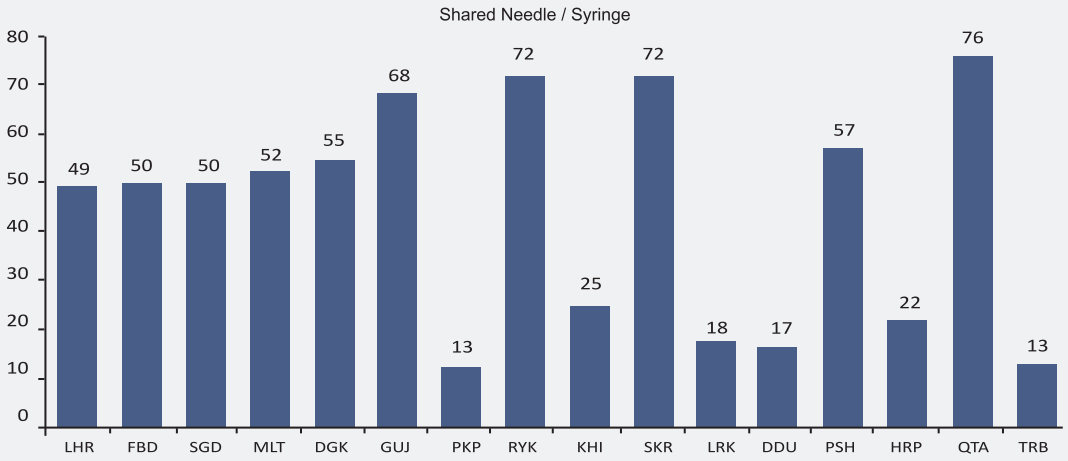


Figure 3.4e: Proportion of IDUs injected with used syringes/needles on last injection by city, IBBS 2011

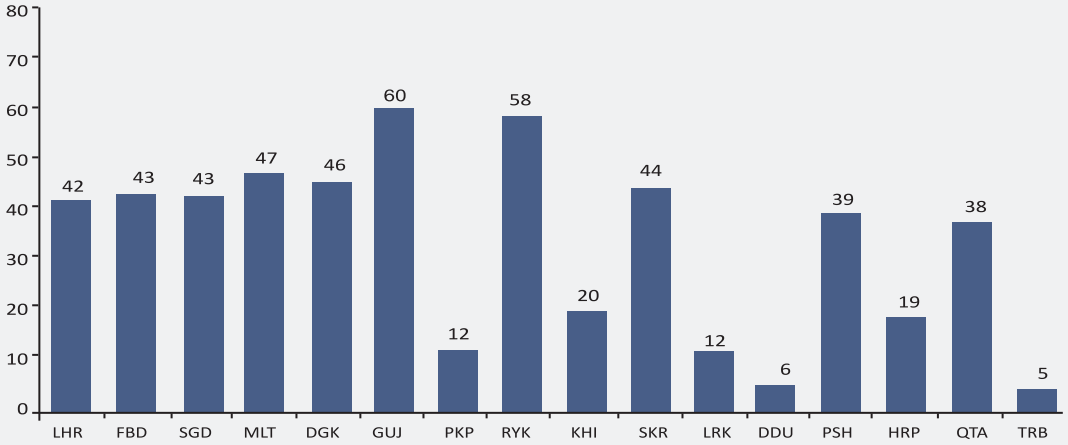
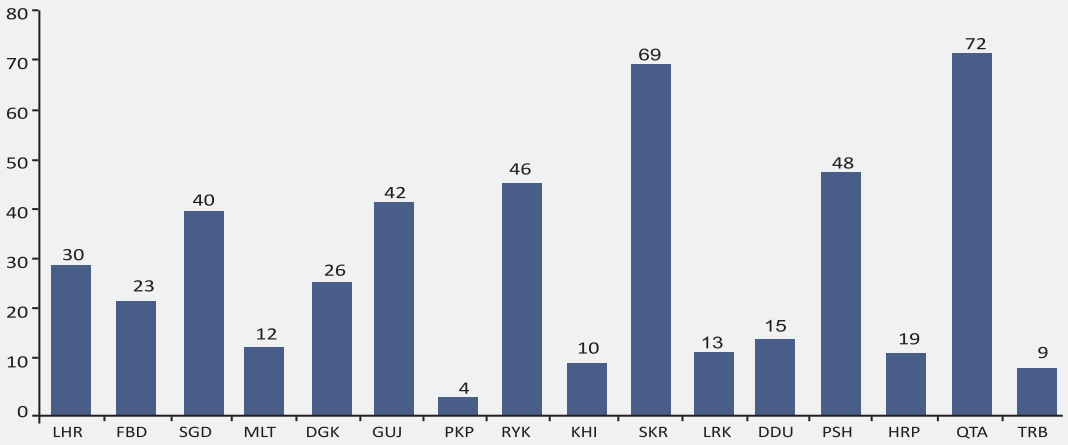


Figure 3.4f: Proportion of IDUs passed on syringes/needles on last injection by city, IBBS 2011



3.5 Sexual Behaviours and Practices

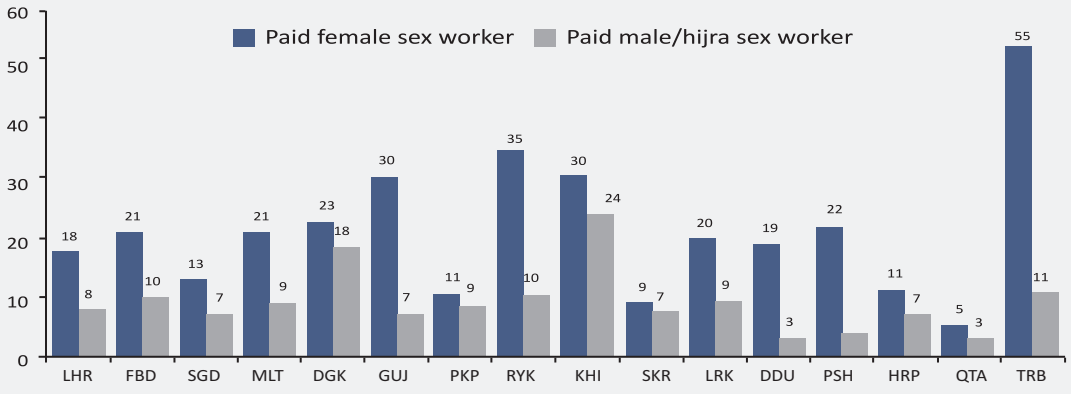
The HIV epidemic among IDUs in Pakistan is characterized by high prevalence; expansion into other key populations, including MSWs, HSWs and FSWs, could signify epidemic transition. Given the importance of IDUs networks in HIV transmission dynamics, we networks in HIV transmission dynamics, we examined sexual behaviours and practices to assess the potential for epidemic expansion into other groups. Key findings are summarized in Table 3.5a. The mean age at first sexual intercourse was reported to be 17.4 ± 3.5 years (Table 3.5a). Only 6.8% of IDUs reported that they never had sex. months. Among those reporting sex with a FSW, the mean number of paid female sex partners was 4.6±7.5 in the last six months. Condom use in this instance was reported to be 28.4%. In addition to buying sex from FSWs, 7.1% of IDUs reported sex with MSWs and/or HSWs in the past six months. Condom use during last sex with a MSW/HSW was 16.3% with 40.1% using some sort of a lubricant (Table 3.5a). The main reasons for not using a condom during sexual encounters were do not like condom, do not think it is necessary, and did not think of it. All cities showed a higher number of sexual transactions with FSWs than with HSWs/MSWs with highest rates reported in

Table 3.5a: Selected sexual behaviour patterns among IDUs, IBBS 2011

Practices / Behaviors	IDUs %
Age of first sexual intercourse (mean ± S.D)	17.4 ±3.5
Never had sexual intercourse	6.8
Regular female sex partner (last 6 months)	
▪ Sexually active with regular female sex partner	26.4
▪ Condom use at last sex	25.8
Had sex with FSW (last 6 months)	13.9
▪ Mean number of paid female partners (mean ±S.D)(mode)	4.6 ± 7.5(2)
▪ Condom use in last sex with paid female sexual partner	28.4
Had sex with a MSW or HSW (last 6 months)	7.1
▪ Condom used in last sex with MSW / HSW	16.3
▪ Lubricant use in last sex with MSW / HSW	40.1
Exchanged/sold sex for drugs omoney (last 6 months)	15.3

Approximately 26.4% reported having sex with a regular female partner, which correlates to the proportion of married IDUs. Condom use with a regular partner during the last sexual encounter was reported by 25.8% of IDUs. About 14% of IDUs reported having had sex with FSWs in the past six Turbat (55%) followed by Rahim Yar Khan (35%), Karachi (30%), and Gujrat (30%). Compared with other cities, IDUs in Karachi (24%) and DG Khan (18%) reported paying MSWs/HSWs for sex more frequently (Figure3.5a).

Figure 3.5a: Proportion of IDUs reporting paying for sex in the past six months by city, IBBS 2011



3.6 HIV and STI-related Knowledge

Approximately 86.7% of IDUs had heard of HIV and/or AIDS (Table 3.6a). Seventy-three percent believed that a healthy looking person can be infected with HIV. Among those IDUs who knew of HIV and/or AIDS, 87.2% knew that HIV can be transmitted by sharp instruments/needle (syringe) and 83.8% were aware of sexual intercourse as mode of HIV transmission. However, only 23.5% knew that transfusion of infected blood can also cause HIV (Table 3.6a). Information collected on how HIV transmission can be prevented revealed that 79.3% of IDUs knew that using a clean needle/syringe for injections protects against HIV transmission, 68.8% knew that using condoms is an effective method of HIV prevention, while 38.4% believed that sexual abstinence is a mode of HIV prevention (Table 3.6a).

Sixty-four percent believed that they were at a risk of acquiring HIV but only 32.8% knew of a place where they could be tested for HIV, while 25.1% had been tested for HIV in the past. Among those who had been tested, 71.8% knew of their HIV status (Table 3.6a). Further analysis showed that among those who knew of their HIV status, 10.4% stated that they were positive in comparison to 89.6% who said that they were negative at the time of the test.

Approximately 71.5% of IDUs were aware that other infections can be transmitted sexually. Among those IDUs who knew about sexually transmitted infections (STIs), 4.6% reported being infected with an STIs in past six months, of which a large majority (84.3%) had received treatment (Table 3.6a).

Table 3.6a: HIV and STI related knowledge among IDUs, IBBS 2011

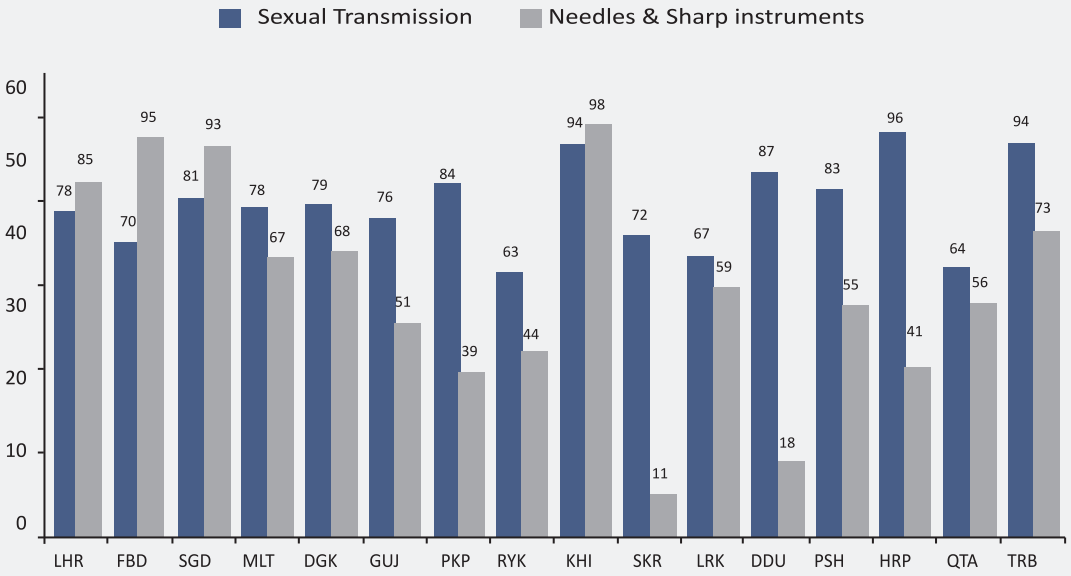
Knowledge Area	IDUs %
Ever heard of HIV and/or AIDS	86.7
Healthy looking person can have HIV/AIDS*	73.4
HIV transmitted by sharp* Instruments /needles/syringes*	87.2
HIV transmitted by sexual intercourse*	83.8
HIV transmitted by blood transfusion*	23.5
Clean syringes/needles to prevent HIV transmission*	79.3
Condoms can prevent HIV transmission*	68.8
Sexual abstinence to prevent HIV transmission*	38.4
Self perception of risk for HIV*	64.1
Know where to receive HIV test*	32.8
Have been tested for HIV*	25.1
Knows test results*	71.8
Awareness of sexually transmitted infection (STIs)	71.5
Self reported STI in past 6 months*	4.6
Received treatment for reported STI*	84.3

* positive response to initial question

City wise analysis showed that large proportions of IDUs in all cities knew that HIV is transmitted sexually. However, knowledge about HIV being transmitted by sharp instruments and needles was less consistent (Figure 6.a).

respondents knew that condoms can protect against HIV (Figure 3.6b). In contrast, a higher proportion of respondents knew that HIV can be prevented by use of a clean needle (ranged between 90% in Karachi to 21% in Sukkur).

Fig 3.6a: Knowledge of modes of HIV transmission among IDUs who have heard of HIV/AIDS by city, IBBS 2011



Interestingly, while knowledge about HIV as a sexually transmitted infection was high, in all the cities except Karachi, Larkana, and Dadu, only approximately one-half of the

Figure 3.6b: Knowledge of HIV preventive measures among IDUs who have heardof HIV/AIDS by city, IBBS 2011

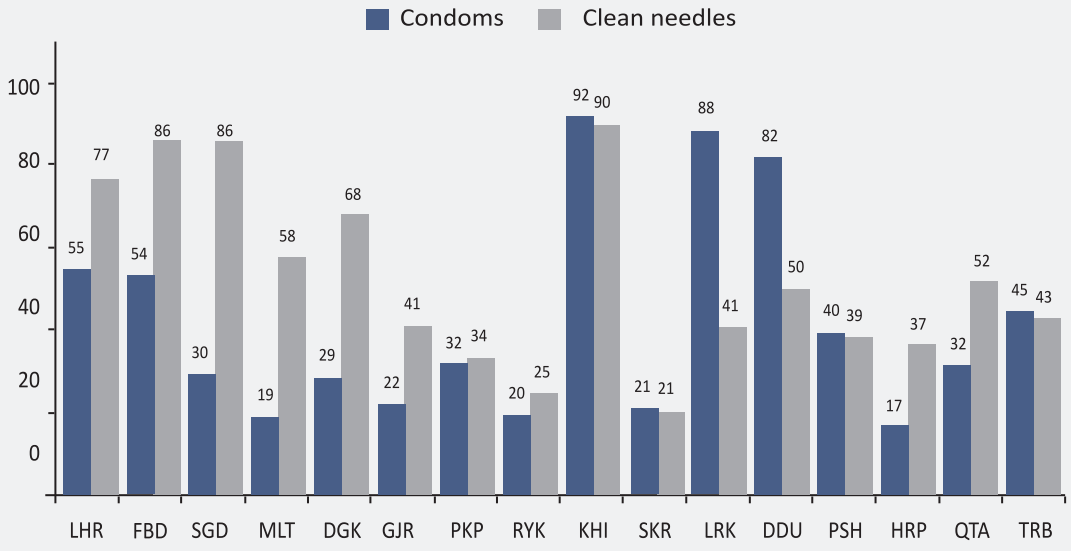


Table 3.7a: Knowledge and utilizationof HIV prevention programs among IDUs who had heard of SDPs, IBBS 2011

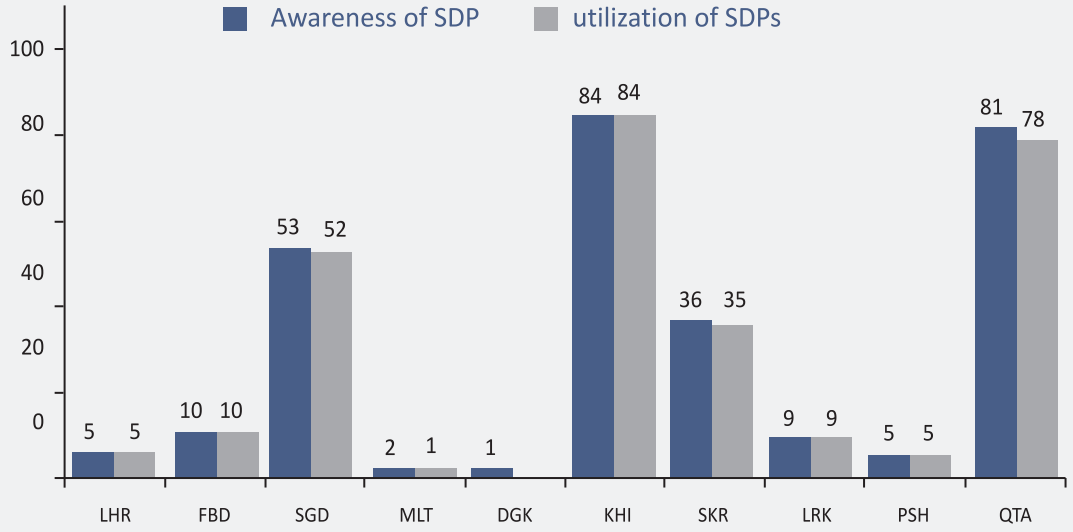
Variable	IDUs %
Ever heard of HIV prevention programs	44
Number of times SDP* services were availed	
More than once in a week	74.6
Once in a week	11.7
After two weeks	5.5
Once in a month	2.7
Less than once in a month	4.4
Never	1.1
Received free syringe in past one month	45.1

* SDP; service delivery program

3.7 Program Exposure and Utilization

Overall, IDUs surveyed reported insufficient knowledge and utilization of HIV prevention program. Only 44% of IDUs were aware of the HIV prevention programs in their city (Table 3.7a). Among those IDUs who participated in these preventive programs, approximately 74.6% utilized the services more than once a week, which shows that regular contact, had been established with in this group (Table 3.7a). The knowledge and utilization of HIV SDPs was reported highest by IDUs from Karachi, Quetta and Sargodha (Figure 3.7a). Pakpattan, Rahim Yar Khan, Dadu, Turbat and Haripur had no service delivery programs at the time of survey.

Figure3.7a: Knowledge and utilizationof SDPs among IDUs by city, IBBS 2011



The vast majority of IDUs who accessed SDPs in the past six months visited these programs to obtain new syringes (92.6%, Figure 3.7b). Approximately two-thirds of the IDUs (63.1%) came for treatment and medicine, while 38.2% % were provided with an anti-septic dressing (ASD), 17.3% availed social services, and 10.2% requested HIV testing (Figure 3.7b). City wise utilization of various services provided by SDPs is shown in Table 3.7b.

Figure 3.7b: Common services utilized at SDPs in past 6 months by among IDUs who utilize these programs, IBBS 2011

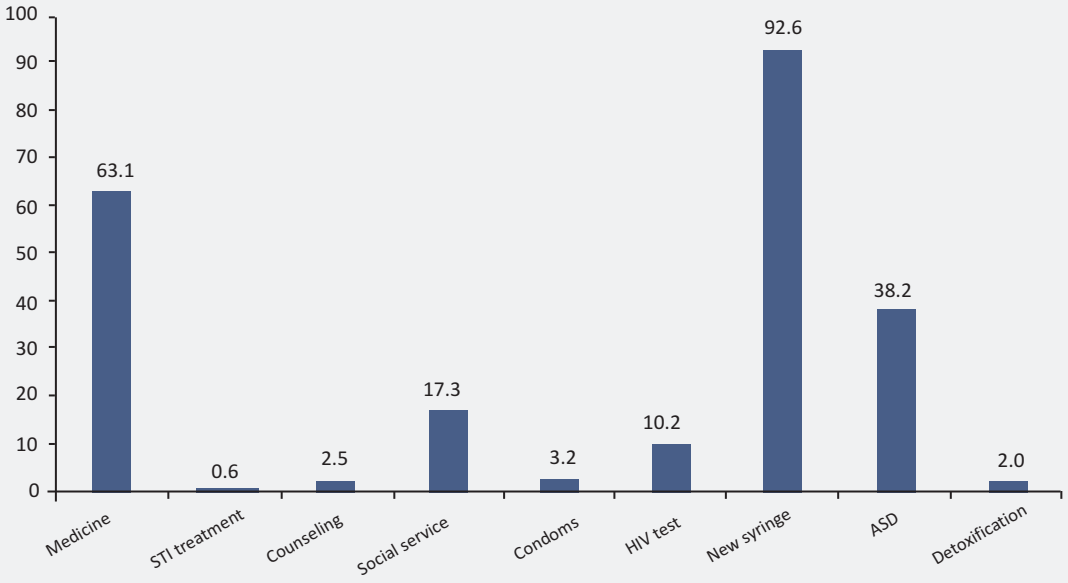


Table 3.7b: Services utilized by IDUs in past 6 months by city, IBBS 2011

Services	QTA	KHI	SKR	LRK	MLT	FBD	SGD	LHR	PSH	DGK
Medicines	26.6	63.3	0.5	6.8	0.3	0.3	9.3	0.3	1.2	0.3
STI treatment	6.6	0.3	0	0.3	0	0	0.5	0	0	0.3
Counseling	24.9	0.8	0	0	0	1.4	1.1	0.3	0	0.3
Social services	44.9	15.9	0	1.4	0	0	4.7	0	0	0
Condoms	8.5	1.4	0.3	2.2	0	2.7	1.4	0	0	0.3
HIV test	2.2	10.1	0	3.0	0	0.5	0	0	0.4	5.5
New Needle/ Syringes	57.0	79.7	34.5	4.9	1.4	8.0	51.5	4.9	4.2	1.1
(ASD)	8.8	37.0	0	2.2	0	2.5	19.7	0.3	0.8	0
Detoxification	0	1.9	0	0	0	0	1.1	0	0	28.9

3.8 HIV Prevalence

The overall, weighted prevalence of HIV among IDUs was 37.8% (95% CI: 37.3%, 38.3%),[un-weighted prevalence 27.2% (95% CI: 26.0%, 28.5%)] with variation between cities (Table 3.8a). The highest prevalence was among IDUs from Faisalabad (52.5%) followed by D.G Khan (49.6%), Gujrat (46.2%) and Karachi (42.2%, Table 3.8a).

Table 3.8a: HIV prevalence among IDUs by city , IBBS 2011

City	Tested	Positive	Prevalence % (95% CI)
DG Khan	365	181	49.6 (45.6,53.6)
Faisalabad	364	191	52.5 (51.4,53.6)
Gujrat	208	96	46.2 (41.5,50.9)
Lahore	367	113	30.8 (29.3,32.3)
Multan	365	91	24.9 (22.2,28.0)
Pakpattan	365	12	3.3 (2.1,5.3)
Rahim Yar Khan	214	32	14.9 (11.8,18.6)
Sargodha	365	148	40.6 (38.2,43.0)
Dadu	194	31	16.0 (13.0,19.6)
Karachi	365	154	42.2 (41.4,42.9)
Larkana	365	68	18.6 (16.4,21.0)
Sukkur	365	70	19.2 (17.5,21.0)
Haripur	65	5	7.9 (5.8,10.3)
Peshawar	260	52	20.0 (18.3,21.9)
Quetta	365	26	7.1 (5.3,9.3)
Turbat	365	78	21.4 (17.8,25.5)

Key Findings: Injecting Drug Users

- The mapping study estimated a total number of 46,351 (range: 39,793 - 52,896) injecting drug users (IDUs) spread over 5,898 spots mapped in 19 cities.
- The highest number of IDUs was found in Karachi, followed by Faisalabad and Lahore, where the estimated numbers were 16,544, 7,907 and 3,596 respectively.
- Most IDUs interviewed were male (98.4%), two-thirds were between 20-45 years of age, more than one-half (56.7%) were unmarried, illiterate (57.1%), and lived with either family or friends (81.2%). The median monthly income was low at PRK 6,000.
- Approximately 9.2% of IDU migrated from other cities.
- On an average, IDUs started injecting drugs in their mid-twenties (25.6 years) and had been injecting for about five years. The age at initiation varied (from 24.3 years in Karachi to 31.2 in Turbat) as did the average duration of injecting (from 2.5 years in Turbat to 9.2 years in Larkana).
- Almost three-quarters of IDUs surveyed (71.5%) reported injecting between two to three times a day in the past month and 21.1% reported injecting more than three times a day
- 90.5% of IDU reported injecting in public spaces and 80.9% reported injecting with friends/family; about two-thirds of all IDUs (70.3%) reported that they had sought help in injecting by “professional injectors/street doctors” during the past month.
- Poly-drug use was commonly reported with Avil being the drug of choice in most cities except for Rahim Yar Khan, DG Khan, Sargodha, Larkana, and Turbat where heroin was the drug of choice.
- Safe injection practices are uncommon. Overall, only 38.6% of IDUs report always using a new needle and syringe for injection in the past month. However, responses varied significantly across cities (range = 66.8% in Pakpattan, 4.7% in Quetta).
- Almost one-quarter (22.6%) of IDUs reported that they passed their used needle/syringe to another IDU at their last injection; 13.6% of IDUs reported that they use injection paraphernalia during the last injection.

Key Findings: Injecting Drug Users

- City wise analysis showed that using someone's syringe did not necessary translate to passing on a used syringe. Passing on used syringes was most commonly reported in Quetta (71.5%) followed by Sukkur (69.3%). Sharing someone else's used syringe was most frequently reported by IDU in Gujrat (60.1%) and Rahim Yar Khan (58.4%).

- Nearly 13.6% of IDUs reported having sex with FSWs in the past six months; the mean number of paid female sex partners was 4.6 ± 7.5 in this time period.7.1 % of IDUs also reported sex with MSWs and/or HSWs.

- Reported condom use was low (16.3%) during the last anal sex with MSW or HSW and only slightly higher (28.4%) during last sex with a FSW.

- Sexual contact with FSWs was highest among IDU in Turbat (56%) followed by Rahim Yar Khan (35%), Karachi (30%), and Gujrat (30%). Compared with other cities, IDUs in Karachi (24%) and DG Khan (18%) reported paying MSWs/HSWs more frequently for sex.

- Although more than two-thirds (86.7%) of IDU had heard of HIV and/or AID Sand knew it could be sexually transmitted; in all the cities except Karachi, Larkana, and Dadu, only approximately one-half of the respondents knew that condoms can protect against HIV transmission.

- Only 44% of IDUs had ever heard of HIV prevention programs in their city, but among those using the services, 74.6% were frequent (at least once a week) users.

- Sixty-four percent believed that they were at a risk of acquiring HIV but only 32.8% knew of a place where they could be tested for HIV, while 25.1% had been tested for HIV in the past.

- The vast majority of IDUs (92.6%) who accessed SDPs in the past six months visited these programs to obtain new syringes.

- The knowledge and utilization of HIV SDP was reported highest by IDUs from Karachi, Quetta and Sargodha.

- The overall, sero-prevalence of HIV among IDUs was 37.8 % (95% CI:37.3%, 38.3%) [un-weighted prevalence 27.2% (95% CI: 26.0%, 28.5%)] The highest prevalence was in Faisalabad (52.5%, 95% CI: 51.4, 53.6) followed by D.G Khan (49.6%, 95% CI: 45.6, 53.6), Gujrat (46.2%, 95% CI: 41.5, 50.6) and Karachi (42.2%, 95% CI: 41.4, 42.9) Prevalence was lowest in Pakpattan (3.3%, 95% CI: 2.1, 5.3).

4 Male Sex Workers (MSWs)

4.1 Geographic Distribution and Estimates of MSWs

Mapping study estimated an average number of 19,119 (range; 16,010 to 22,220) MSWs spread over 3,706 spots in the 14 cities mapped. Karachi was found to have the highest number with 6,742 (5,723 to 7,761) MSWs estimated. Hyderabad had the second largest number of 1,908 (1,551 to 2,264) followed by Faisalabad with 1,716 (1,370 to 2,061) MSWs. Together these 3 cities constituted more than half of the MSW population identified in the 14 cities mapped. Substantial estimates (more than 1000 MSWs) were also identified in Lahore, Quetta, Peshawar and Larkana, while the remaining cities showed fairly small numbers.

Table 4.1a: Estimated Number of MSWs in 14 cities of Pakistan, IBBS 2011

Province	City	No of spots	MSWs (avg)	MSWs per spot	% MSWs	MSWs per 1000 adult males
Punjab	Faisalabad	528	1,716	3.2	9.0	1.7
	Lahore	293	1,361	4.6	7.1	0.6
	Multan	120	459	3.8	2.4	0.7
	Rawalpindi	205	490	2.4	2.6	0.4
	Sargodha	87	559	6.4	2.9	1.8
Sind	Hyderabad*	433	1,908	4.4	10	3.5
	Karachi	1,023	6,742	6.6	35.3	1.4
	Larkana	167	1,213	7.3	6.3	8.9
	Mirpurkhas*	44	340	7.7	1.8	3.2
	Nawabshah*	53	497	9.4	2.6	3.5
	Sukkur	148	805	5.4	4.2	3.6
KPK	Haripur	155	669	4.3	3.5	2.6
	Peshawar	190	1,108	5.8	5.8	1.3
Balochistan	Quetta	260	1,252	4.8	6.5	3.6
TOTAL		**3,706**	**19,119**	**5.2**		**1.6**

*IBBS was not conducted in these cities

4.2 Socio demographic Characteristics

Table 4.2a provides information on the key socio-demographic characteristics of MSWs. The average age of all MSWs interviewed was 21.4 ± 5.0 years (median = 20).

Approximately 90% of MSWs were less than 30 years of age, with the highest proportion (42.1%) between 13 and 19 years of age (Table 4.2a).

Table 4.2a: Socio-demographic characteristics of MSWs, IBBS 2011

Characteristics	MSW %
Current age	
▪ 13-19 years	42.1
▪ 20-24 years	36.1
▪ 25-29 years	14.2
▪ 30-34 years	4.7
▪ 35+years	2.9
Average age ±SD (median) years	*21.4± 5.0 (20)*
Marital status	
▪ Unmarried	83.6
▪ Currently married	15.5
▪ Separated /divorced	0.7
▪ Widowed	0.1
Year of formal education	
▪ Quranic Education	0.2
▪ Illiterate	40.0
▪ Up to 05 years	21.2
▪ 06 to 10 years	33.3
▪ > 10 years	5.3
Living arrangement	
▪ Lives at home	80.9
▪ Lives at Dera	3.5
▪ Lives alone	5.1
Other sources of income	40.5
Income (PKR, USD)	
▪ Median Monthly Income (From all resources)	9,000 (103 USD)
▪ Median Monthly Income (From sex work)	6,000 (69 USD)

income/month: 10,600 ± 6,627 PKR (122 ± 76 USD)
Average sex work income/month: 7,603 ± 5,918 PKR (87 ± 68 USD)

MSWs in Haripur were the youngest (mean = 18 years) whereas those in Lahore were oldest (mean = 24.6 years) (Figure 4.2a). On an average, MSWs started sex work at the mean age of 15.8 years and had been in sex work for approximately 5.6 years. The age of initiation of sex work was lowest in Haripur (mean = 13.2 years) while those in Rawalpindi and Lahore began sex work at a relatively older age (mean = 17.3 and 17.2 years respectively). MSWs in Quetta were involved in sex work for the longest period (mean = 8.1 years) where as those in Sukkur were in sex work for shortest period (mean 3.7 years, Figure 4.2a).

The majority of MSWs interviewed were unmarried; only 15.5% reported to be currently married. Approximately 40.2% of MSWs had received no formal education (Table 4.2a). The highest proportion of illiteracy was reported by MSWs from Sukkur (76.1%), followed by Karachi (51.1%) and Larkana (47.8%, Figure 4.2b). Approximately 80% of MSWs lived at home with their families (Table 4.2a).

Figure 4.2a: Average age of initiation, duration and average current age of MSWs by city, IBBS 2011

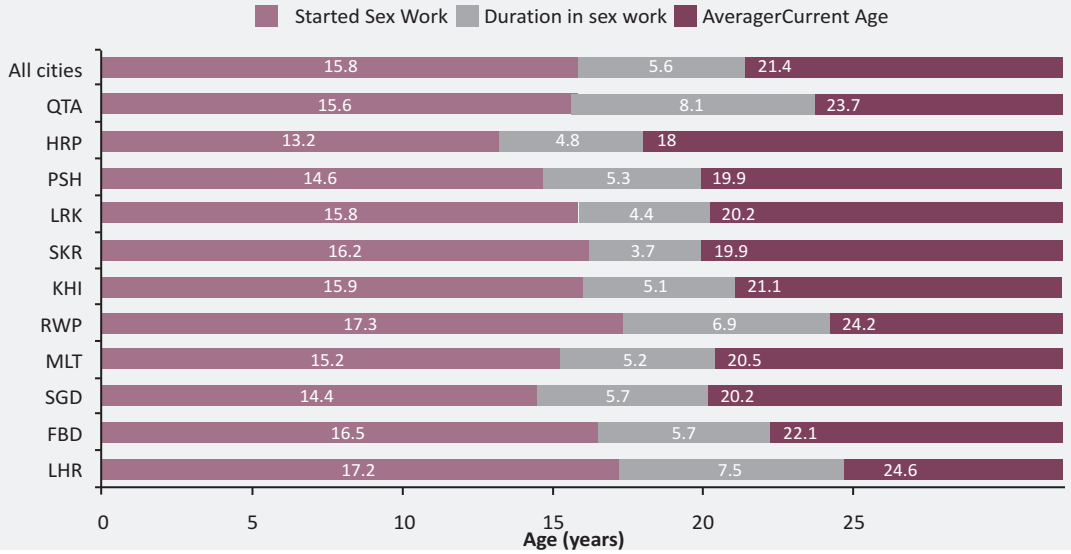
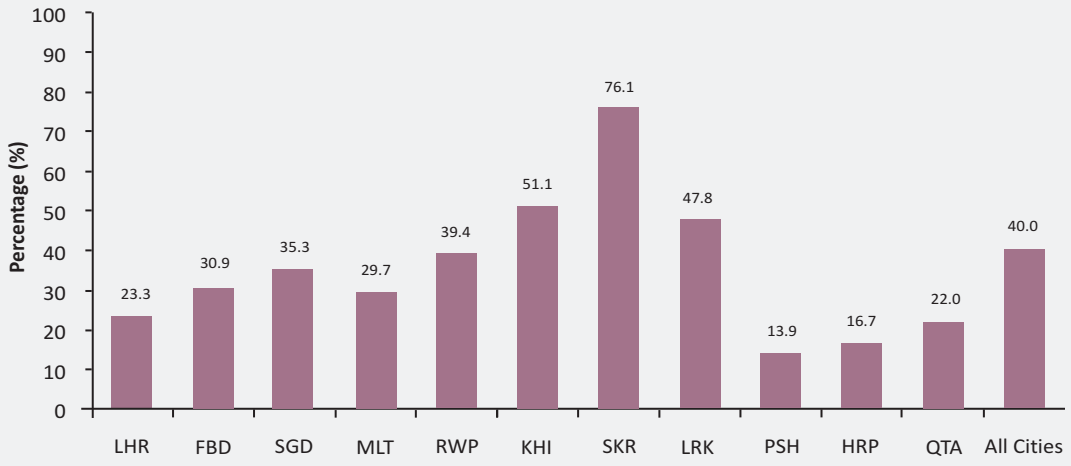


Figure 4.2b: Illiteracy among MSWs by city, IBBS 2011



Approximately 16% of MSWs had been arrested in the past 6 months and 1.9% had sold their blood for money in the same time period. In addition to sex work, 40.5% of MSWs reported an additional source of income (Table 4.2a). The most common reported occupations were labourers, tailors, malishi (masseurs) and shopkeepers. A substantial number of MSWs also worked as factory workers and hotel waiters; with a considerable proportion reporting that they were students. The median total monthly income was PKR 9,000 or US $ 103 with the largest proportion of that income generated from sex work at a median of approximately PRK 6000 or US $ 69 (Table 4.2a).

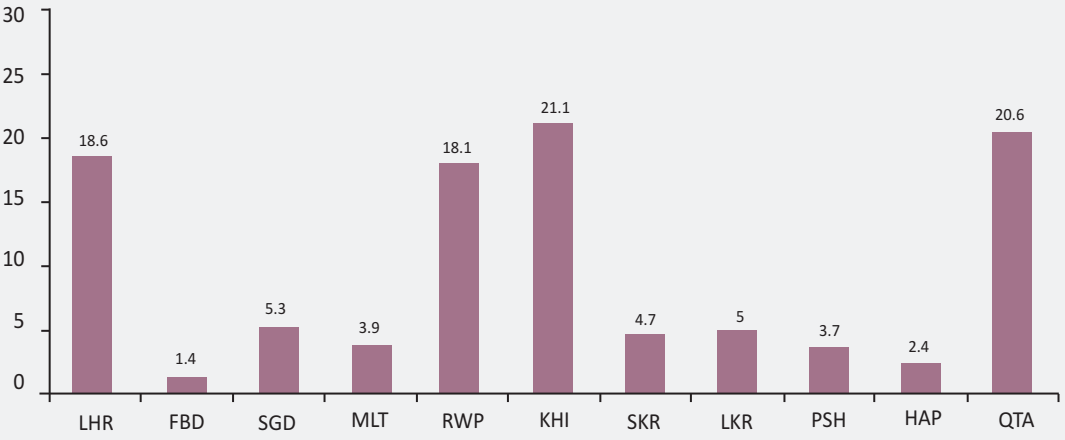
4.3 Migration and Mobility

A significant proportion of MSWs belonged to the city where they were interviewed. Among the 13.7% of MSWs who had migrated from another city, approximately 40% were permanent settlers, while 60.3% were visitors. Nearly 41% of those who had migrated from another city, moved specifically for sex work. Karachi had the highest proportion of in-migration (21.1%), followed by Quetta (20.6%), Lahore (18.6%), and Rawalpindi (18.1%). In all of the remaining cities, the numbers were fairly low (Figure 4.3a). About 11.6% of the MSWs had traveled to other cities within the past year. As expected, results showed that MSWs from smaller cities traveled to larger cities within the same province. Approximately 3% had travelled internationally and of these, 79.2% had travelled for sex work.

Table 4.3a: Migratory pattern of MSWs, IBBS 2011

Variable	MSWs%
Migratory pattern (in Migration)	
Migrated from other cities	13.7
▪ Permanently staying	39.7
▪ Visiting	60.3
Migrated specifically for sex work	41.0
Mobility Pattern (out Migration)	
Traveled to other city in the past 12 months	11.6
International Travel	
▪ Ever travel abroad	3.0
▪ Involved in Sex work	79.2

Figure 4.3a: Proportion of migrants MSWs in the city, IBBS 2011



4.4 Risk Behaviors and Practices

4.4.1 Sexual Partners

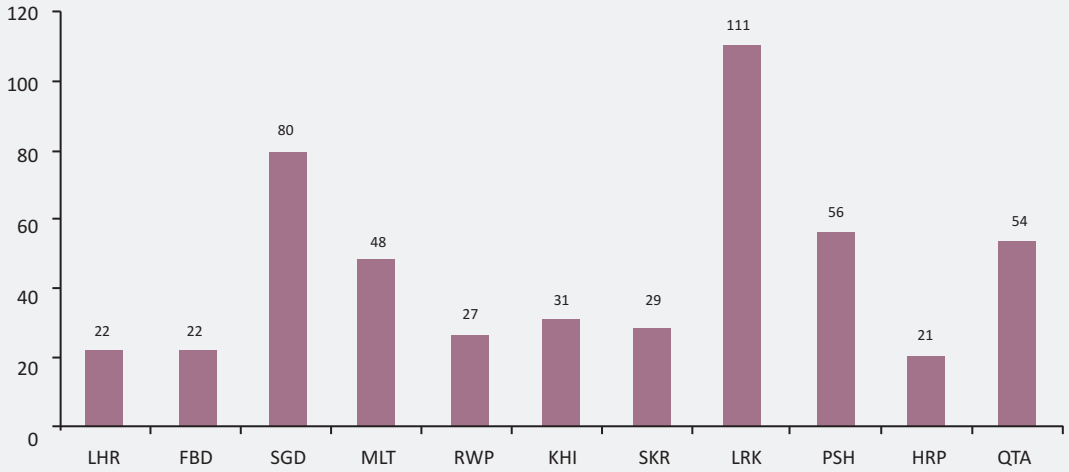
Approximately one half (57.6%) of MSWs solicited clients by roaming around in public places like bus stops and markets, which formed the largest mechanism of getting clients (Table 4.4.1a). A large proportion (30.4%) used cell phones to access clients. In addition, referral through old clients (10.8%) was also mentioned. On an average, MSWs entertained 2 clients per day, however since many MSWs do not work every day, the average number of clients per month was 40.4 ± 32.1 (Table 4.4.1a).

The client volume varied considerably across cities, ranging from 111 clients/month in Larkana to 21 clients/month in Haripur (Figure 4.4.1a).

Table 4.4.1a: Sexual behaviours and practices of MSWs, IBBS 2011

Practice / Behavior	MSW %
Main source of clients	
▪ Pimp / *Guru*	0.8
▪ Roaming around	57.6
▪ Cell phone contact	30.4
▪ Client referral	10.8
▪ Other sources	0.3
No. of Clients	
▪ Avg. clients / day ± SD	2.3±1.4
▪ Avg. clients past month ± SD	40.4±32.1
Non Paid Partners	
▪ At least one other partner last month	43.9
Consistent condom use with	
▪ Paid Clients	13.0
▪ Non Paid Partners	10.9
Paid anyone for anal sex in the past month	4.6
Paid a FSW in the past month	39.5
Alcohol/drug used during sex in the past 6 months	52.5
Injected drugs in the past 6 months	1.7
Had sex with IDUs in past 6 months	10.1

Figure 4.4.1a: Average number of clients in the past month for MSWs by city, IBBS 2011



The mean number of clients per month showed a substantial increase with age (39 clients per month for MSWs aged 13-19 years vs. to 44 client per month for MSWs aged 20-24 years) (Figure 4.4.1b).

In addition to paid clients, approximately 43.9% of MSWs reported having at least one regular, non-paying sex partner (Table 4.4.1a). Of note is that in addition to selling anal sex, 4.6% of MSWs reported paying other MSWs for anal sex. Bisexual behaviour was reported by approximately 39.5% of MSWs, where a female was paid for sex (Table 4.4.1a).

4.4.2 Condom Use

An assessment of sexual practices showed that consistent condom was generally low. Only 13% reported regular condom use with paid clients; the proportion was lower (10.9%) with non-paid sex partners (Table 4.4.1a). The major reasons reported for low consistent condom use were: partners' objection, do not like condoms, do not think that it was necessary and did not think of it. Consistent condom use during the past month varied significantly by age with younger MSWs less likely to use condoms when compared to MSWs belonging to older age groups (Figure 4.4.2a). Consistent condom use also showed an association with education (Figure 4.4.2b).

Figure 4.4.1b: Average number of clients in the past month for MSWs by age group, IBBS 2011

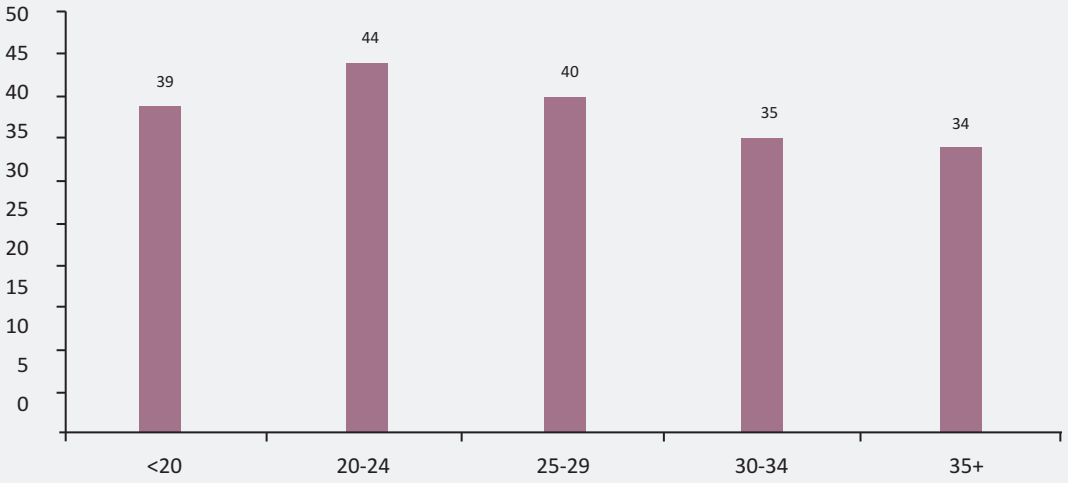


Figure 4.4.2a: Consistent condom use by MSWs with clients among different age groups, IBBS 2011

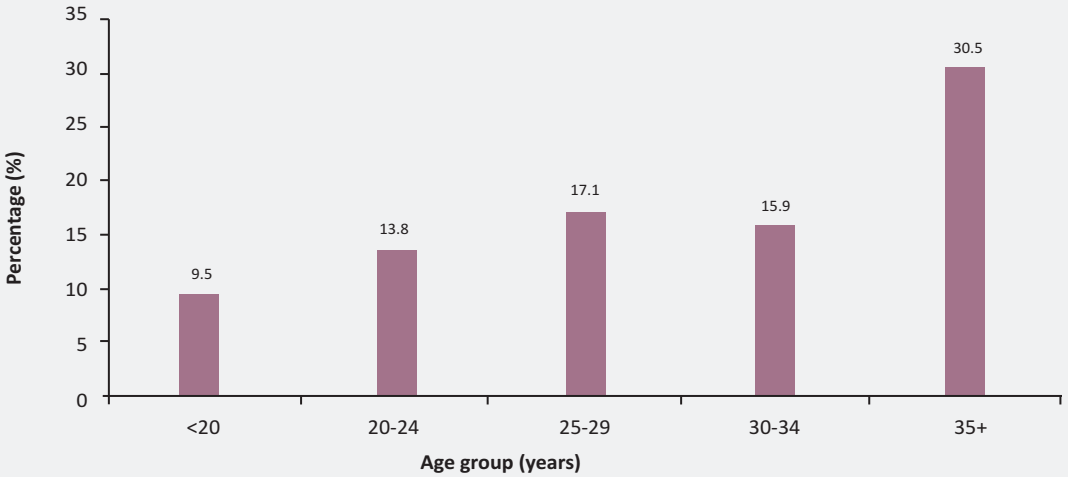
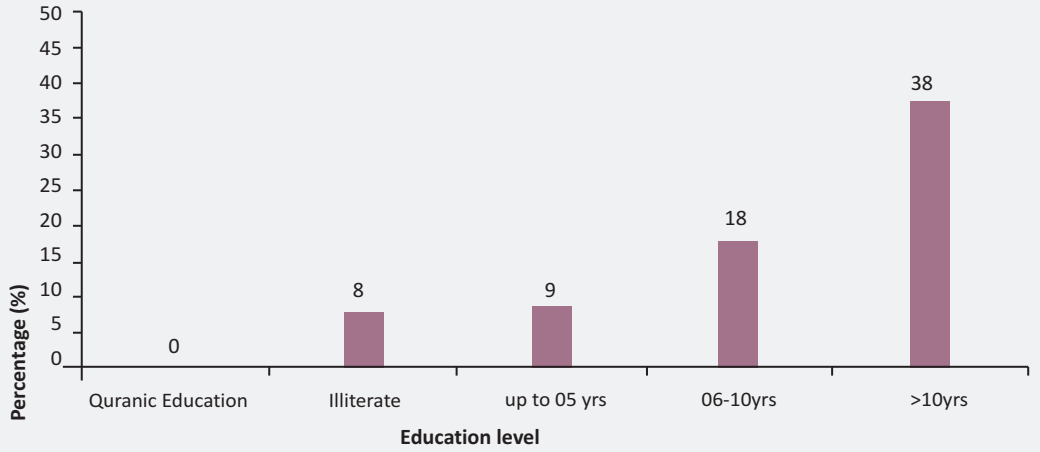


Figure 4.4.2b: Consistent condom use by MSWs in past month with clients by education level, IBBS 2011



Consistent condom use varied considerably across cities, with highest proportions of consistent condom use reported in Rawalpindi (38.1%), and Quetta (31.2%) and the lowest from Multan (3.6%, Figure 4.4.2c).

Almost three-quarter (71.1%) of all MSWs reported using lubricants during anal sex with last client (Figure 4.4.2e). In all cities except Peshawar and Haripur over 50% of the MSWs interviewed reported use of a lubricant during last anal sex (Figure 4.4.2e).

Condom use during last anal sex with clients showed considerable geographic variation, with highest reported condom use in Rawalpindi and Larkana and lowest in Multan (Figure 4.4.2d)

Overall, 10.3% of MSWs were carrying a condom at the time of interview. The highest proportions of condom carriage were reported from Larkana (34.2%) and Quetta (25.3%) and lowest from Multan (2.5%) and Sukkur (1.7%, Figure 4.4.2e).

Figure 4.4.2c: Proportion of MSWs consistently using condoms with clients by city, IBBS 2011

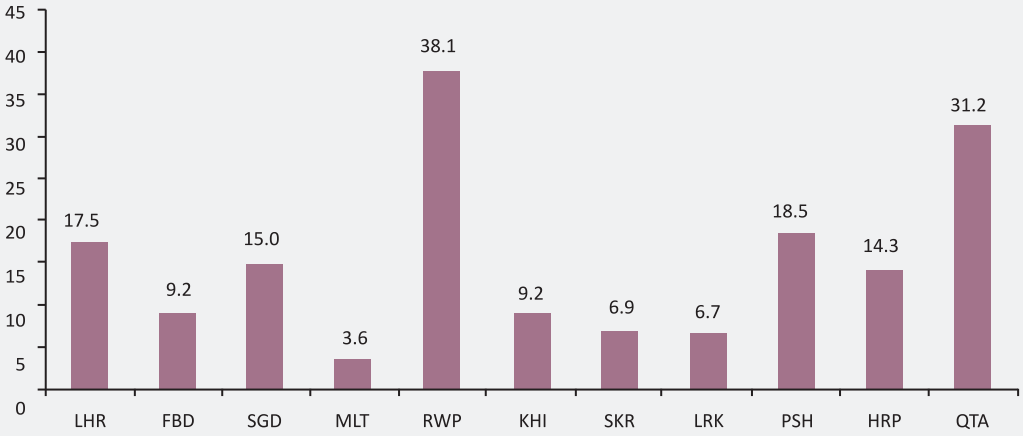


Figure 4.4.2d: Condom use by MSWs at last anal sex with clients by city, IBBS 2011

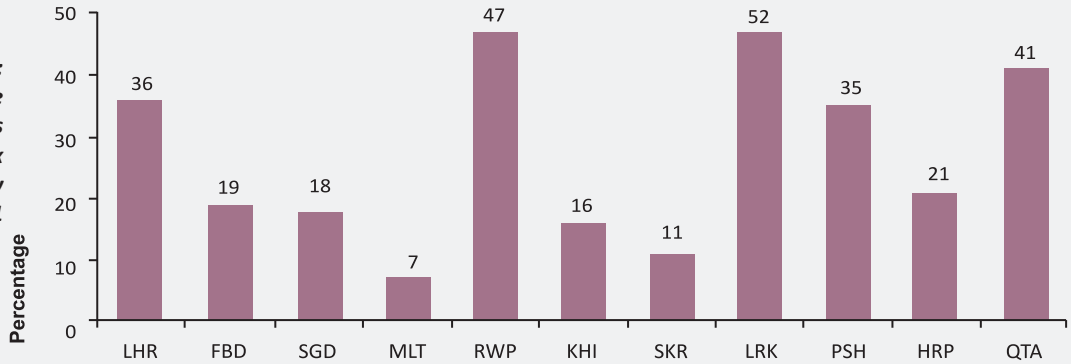
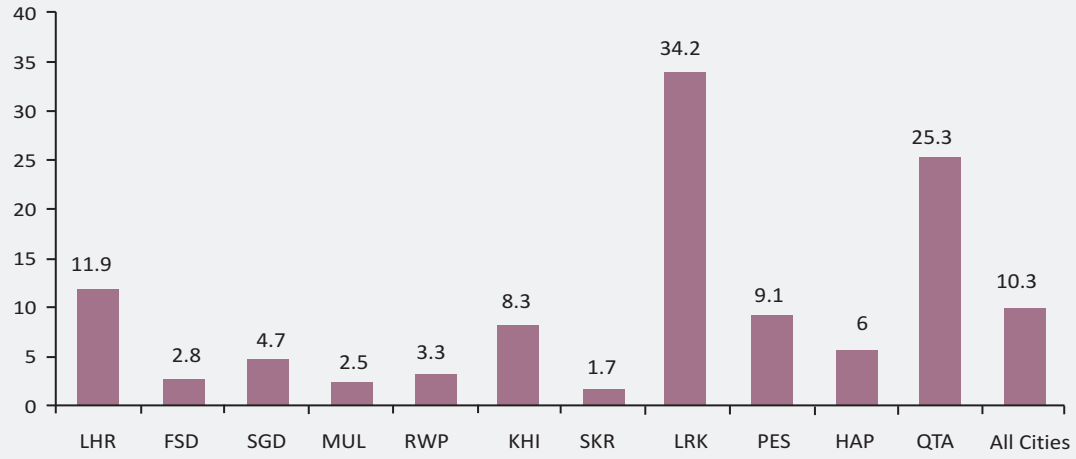


Figure 4.4.2e: Proportion of MSWs carrying a condom at the time of the survey by city, IBBS 2011



Almost three-quarter (71.1%) of all MSWs reported using lubricants during anal sex with last client (Figure 4.4.2f). In all cities except Peshawar and Haripur over 50% of the MSWs interviewed reported use of a lubricant during last anal sex (Figure 4.4.2f).

4.4.3 Injecting Drug Use

Overall, 1.7% of MSWs reported injecting drugs in the six months and 52.5% reported using alcohol or drug while having sex in the past six months (Table 4.4.1a). Approximately 10.1% of MSWs reported having had sex with an injecting drug user (IDU) in the past six months (Table 4.4.1a). Injecting drugs and having sex with an IDU was high in Quetta (7% and 16.2%, respectively). Reporting sex with an IDU was high in Karachi (18.3%), followed by Sargodha 8.6 % and Sukkar (6.1 %)(Figure 4.4.3a).

Figure 4.4.2f: Use of lubricants at last anal sex encounter with a client by MSWs by city, IBBS 2011

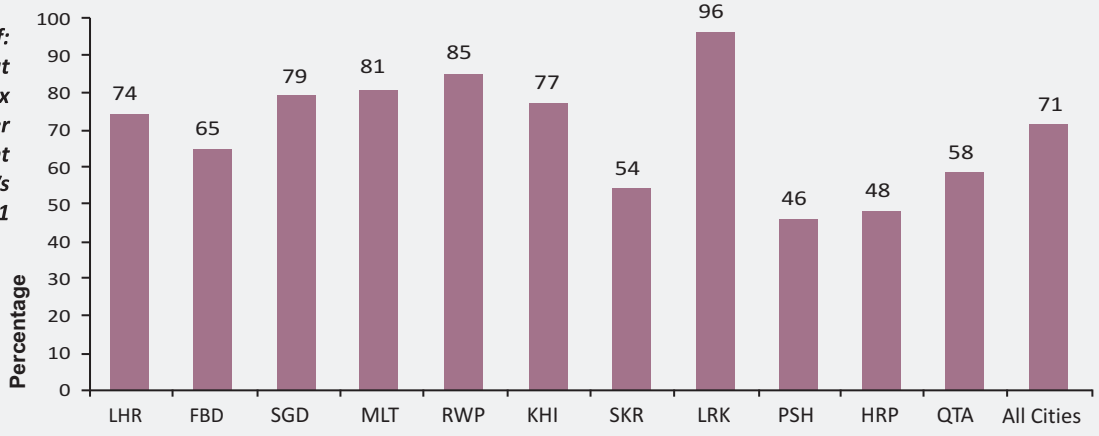
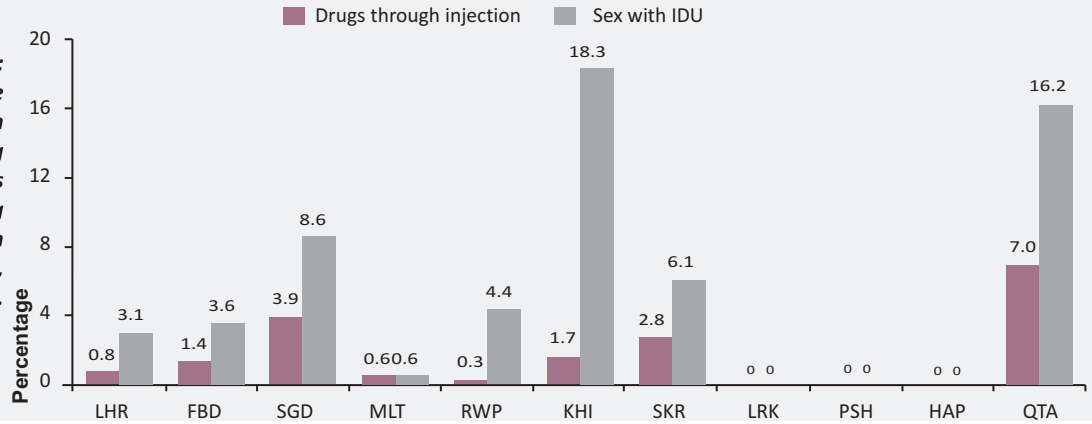


Figure 4.4.3a: City wise distribution of MSWs injecting drugs and having sex with an IDU, IBBS 2011.



4.5 HIV and STI Related Knowledge

Approximately 76.9% of MSWs had heard of HIV and/or AIDS (Table 4.5a). Of those MSWs who had heard of HIV and/or AIDS, 62.4% believed that a healthy looking person can have the disease (Table 4.5a). Knowledge of sexual transmission as a mode of HIV transmission was reported in 94.5% of MSWs, whereas only 46.2% knew that HIV can be transmitted through sharp instrument /syringe. Approximately 69.8% of those who had heard of HIV knew that HIV transmission can be prevented by using a condom during sex, and 70.2% believed that sexual abstinence can prevent HIV transmission. Only 27.3% knew that the use of clean needles/syringes could prevent HIV transmission.

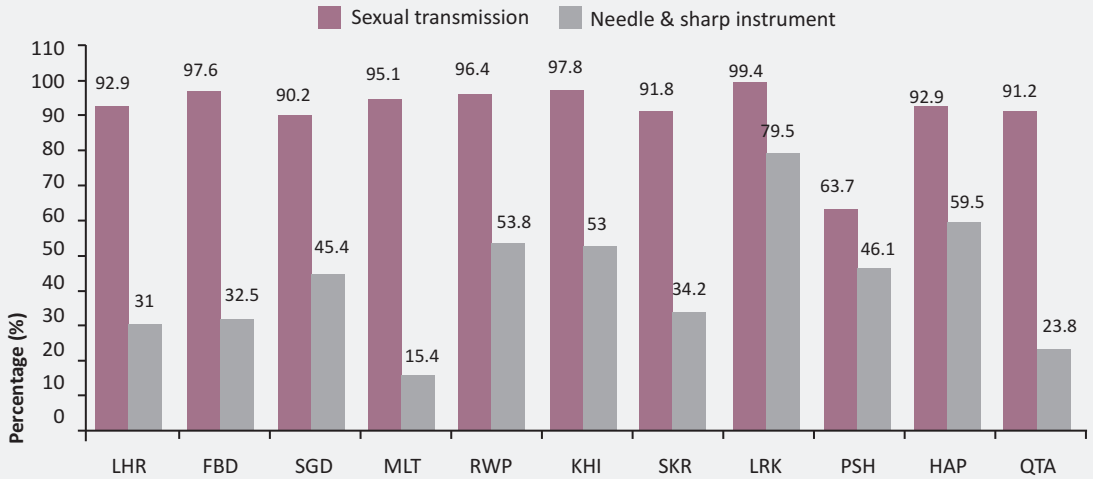
Further analysis on the knowledge of mode of HIV transmission by city among MSWs who had heard of HIV and/or AIDS suggested that a considerable high proportion of MSWs knew about sexual transmission of the disease in all cities, however knowledge of HIV transmission through needle/syringe was low (Figure 4.5a). Likewise, when knowledge about HIV prevention knowledge was analyzed, a higher proportion of MSWs who had heard of HIV and/or AIDS knew of condom and sexual abstinence as modes of HIV prevention, in comparison to the use of sterile needles as a protective factor (Figure 4.5b).

Table 4.5a: HIV and STI related knowledge among MSWs, IBBS 2011

Knowledge Area	MSW %
Ever heard of HIV and/or AIDS	76.9
Healthy looking person can have HIV/AIDS*	62.4
HIV transmitted by sexual intercourse*	94.5
HIV transmitted by sharp instrument/needle*	46.2
Condom can prevent HIV transmission*	69.8
Sexual abstinence to prevent HIV transmission*	70.2
Clean needle/syringe can prevent HIV transmission*	27.3
Ever tested for HIV*	17.4
Know where to receive HIV test*	22.0
Self perception of risk for HIV*	55.0
Aware of sexually transmitted infection (STIs)	65.9
Self reported STI in past 6 months*	36.1

*positive response to initial question

Figure 4.5a: Knowledge of modes of HIV transmission among MSWs who have heard of HIV and/or AIDS by city, IBBS 2011



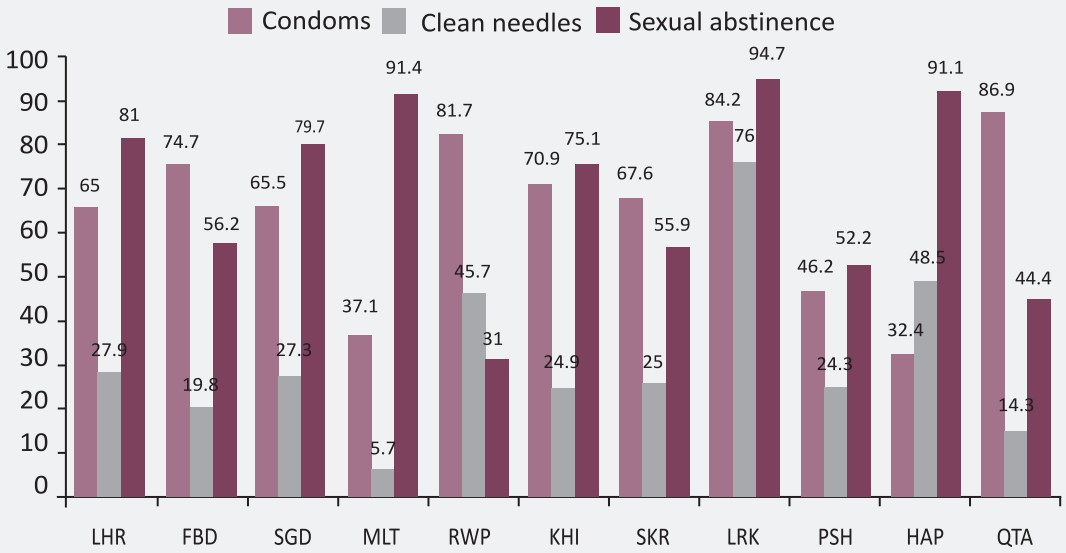


Figure 4.5b: Knowledge of HIV preventive measures among MSWs who have heard of HIV and/or AIDS by city, IBBS 2011

Only 17.4% of MSWs interviewed had ever been tested for HIV and approximately one-half (55%) felt they were at risk of acquiring HIV infection (Table 4.5a). A slightly higher proportion were aware of other STIs (65.9%) and 36.1% reported being diagnosed with an STI in the past six months (Table 4.5a).

4.6 Program Exposure and Utilization

Only 12.7% of MSWs were aware of a HIV prevention program (SDP) in their city (Table 4.6a). Among those who utilized the SDP, over one-half (57.8%) used the services less than once a month; 8.8% received free condoms (Table 4.6a).

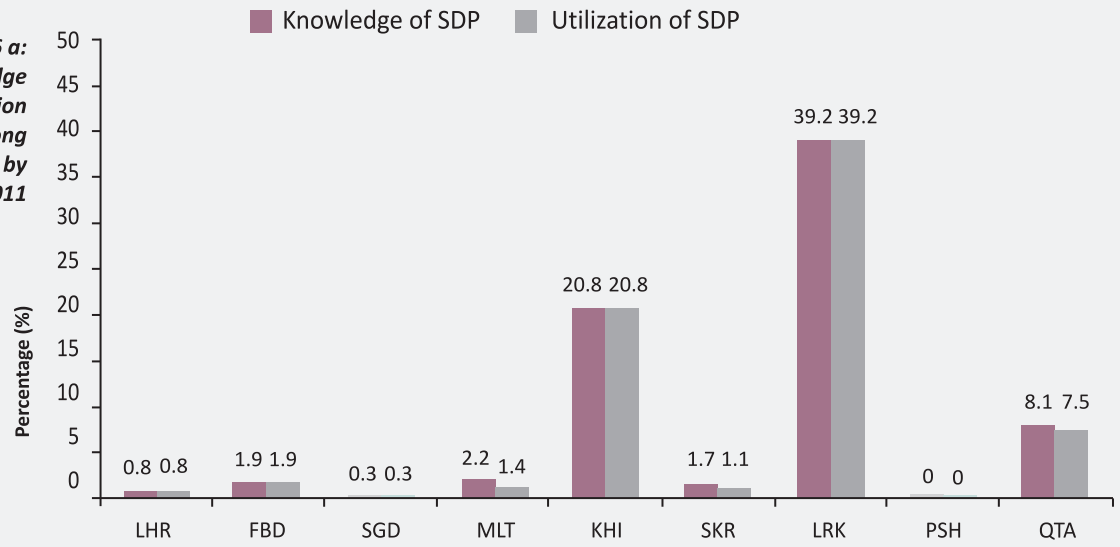
The knowledge and utilization of HIV SDPs were reported hightest by MSWs from Karachi and Larkana (Figure 4.6a), however in all other cities in Punjab, Balochistan and KPK the knowledge and utilization of the preventive services were very low.

Table 4.6a: Knowledge and utilization of HIV prevention programs among MSWs IBBS 2011

Knowledge Area	MSW %
Ever heard of HIV prevention programs	12.7
Number of times SDP* services were availed	
More than once in a week	5.2
Once in a week	3.9
After two weeks	3.4
Once in a month	28.9
Less than once in a month	57.8
Never	0.7
Received free condom in past one month	8.8

*service delivery program

Figure 4.6 a: Knowledge and utilization of SDPs among MSWs by city, IBBS 2011



Provision of comprehensive HRG service packages had been top priority of ACP, and to this end, a wide variety of services are provided by HIV prevention programs. Analysis of various services utilized by MSWs in past six months showed that getting condoms from the SDP was the most utilized service (79.9%), followed by lubricants (56.6%) and HIV testing (29.5 percent). Getting counselling (27.1%), physical examination (16.9%) and utilizing social services (5.0%) like new clothes, bathing etc from the program were also reported by MSWs (Figure 4.6b).

Figure 4.6b Common services utilized at SDPs in past 6 months among MSW who are aware of HIV /AIDS, IBBS 2011

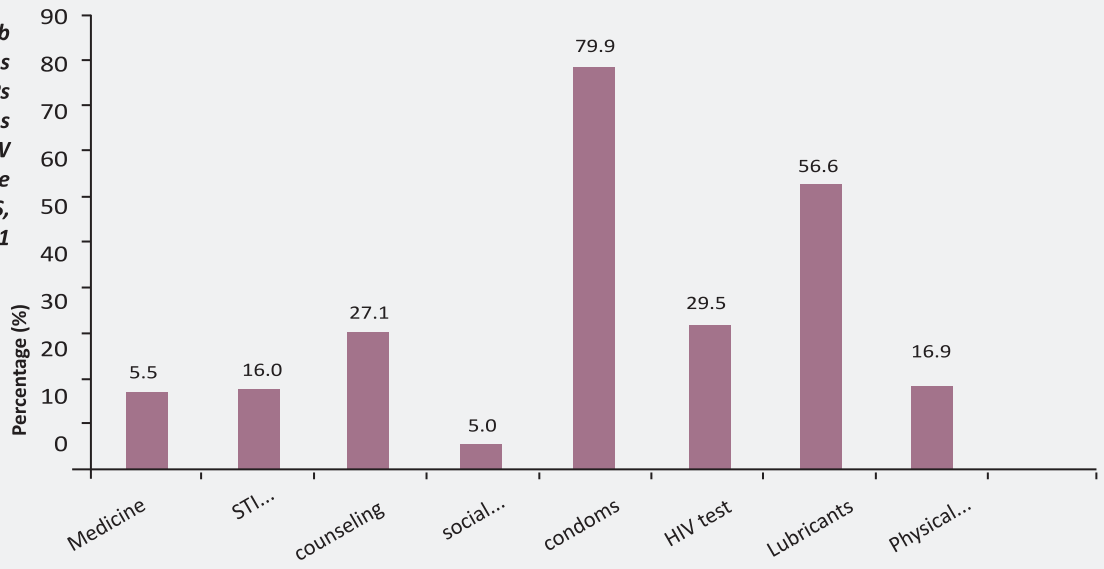


Table 4.6b: Knowledge of and participation in HIV prevention programs among MSWs by cities, IBBS 2011

Services	LHR	FSD	MUL	RWP	KHI	SKR	LRK	QTA
Medical Treatment	66.7	57.1	12.5	100	17.1	33.3	0	17.2
STI treatment	0	14.3	25.0	0	19.7	0	63.1	10.0
Counseling	33.3	14.3	25.0	62.5	36.0	16.7	3.5	20.7
Social services	0	0	0	0	6.7	0	0	10.3
Condoms	66.7	85.7	75.0	100	73.3	66.7	100	89.7
HIV test	0	0	0	50.0	24.0	0	56.7	0
Lubricants	0	14.3	0	0	53.3	0	88.7	0
Physical Examination	0	0	0	25.0	22.7	0	3.5	13.8

4.7 HIV Prevalence

The overall weighted HIV sero-prevalence among MSWs was 3.1% (95% CI: 2.8, 3.4) [un-weighted prevalence 1.6% (95% CI: 1.3%, 2.1%)]. Sero-prevalence was highest among MSWs in Karachi (5.9%, 95% CI: 3.9, 8.9) followed by Larkana (3.1%, 95% CI: 1.7, 5.4). No MSW tested positive for HIV in Haripur, Peshawar, and Sargodha (Table 4.7a).

Table 4.7a: HIV prevalence among MSWs by city, IBBS 2011

City	Tested	Positive (n)	Prevalence % (95% CI)
Karachi	360	21	5.9 (3.9,8.9)
Larkana	360	11	3.1 (1.7,5.4)
Sukkur	360	8	2.2 (1.2,4.3)
Multan	360	7	1.9 (0.96,4.0)
Lahore	360	6	1.7 (0.8,3.6)
Sargodha	360	0	0
Rawalpindi	360	2	0.6 (0.2,2.0)
Faisalabad	359	1	0.3 (0.07,1.5)
Haripur	84	0	0
Peshawar	352	0	0
Quetta	359	4	1.1 (0.5,2.8)

Key Findings: Male Sex Workers

- The mapping study estimated a total number of 19,119 (range: 16,010 – 22,220) MSWs spread over 3,706 spots mapped in 14 cities.
- The highest number of MSWs was found in Karachi, followed by Hyderabad and Faisalabad, where the estimated numbers were 6,742, 1,908 and 1,716 respectively.
- Approximately 90% of MSWs were less than 30 years of age, with the highest proportion (42.1%) between 13 and 19 years of age
- The majority of MSWs interviewed were unmarried, approximately 40.2% had received no formal education, and more than 80% of MSWs lived at home with their families
- In addition to sex work, 40.5% of MSWs reported an additional source of income. The median total monthly income was approximately PKR 10,000 or US $ 110 with the largest proportion of that income generated from sex work at a median of approximately PRK 7000 or US $ 77.
- Among the 13.7% of MSWs who had migrated from another city, most (86.3%) were permanent settlers.
- Nearly 11.6% of the MSWs had traveled to other cities within the past year. Approximately 3% had travelled internationally and of these, 79.2% had travelled for sex work.
- Approximately one half (57.6%) of MSWs solicited clients by roaming around in public places however, a large proportion (30.4%) used cell phones to access clients.
- On an average, MSWs entertained 2 clients per day, however since many MSWs do not work every day, the average number of clients per month was 40.4 ± 32. The mean number of clients per month increased with age.
- In addition to selling anal sex, 4.9% of MSWs reported paying other MSWs for anal sex. Bisexual behaviour was reported by approximately 39.5% of MSWs.
- Consistent condom was generally low and varied geographically. Overall, only 13% reported regular condom use with paid clients; the proportion was lower (10.9%) with non-paid sex partners. Consistent condom use during the past month varied significantly by age with younger MSWs less likely to use condoms when compared to MSWs belonging to older age groups. Consistent condom use increased as education level increased.
- In all cities except Peshawar and Haripur over 50% of the MSWs interviewed reported use of a lubricant during last anal sex.

Key Findings: Male Sex Workers

- Injecting drugs and having sex with an IDU was high in Quetta (7% and 16.2%, respectively). Reporting sex with an IDU was high in Karachi (18.3%), while in Faisalabad, Sargodha, Sukkur and Multan, relative to the proportion of MSW reporting IDU, reported sex with IDUs was high.

- Approximately 76.9% of MSWs had heard of HIV and/or AIDS but while knowledge of sexual transmission and condom as prevention methods was high in this group, only 27.3% knew that the use of clean needles/syringes could prevent HIV transmission.

- There was also geographical variation in the extent of HIV/AIDS-related knowledge.

- Only 22% of MSWs interviewed had ever been tested for HIV and approximately one-half (55%) felt they were at risk for acquiring HIV infection.

- Only 12.7% of MSWs were aware of a HIV prevention program (SDP) in their city and among those who utilized the SDP, over one-half (57.8%) used the services less than once a month. Service utilization varied considerably by city.

- The overall HIV sero-prevalence among MSWs was 3.1% (95% CI: 2.8, 3.4) [un-weighted prevalence 1.6% (95% CI: 1.3%, 2.1%)] . Sero-prevalence was highest among MSWs in Karachi (5.9%, 95% CI: 3.9, 8.9) followed by Larkana (3.1%, 95% CI: 1.7, 5.4). No MSW tested positive for HIV in Haripur, Peshawar, and Sargodha.

5 Hijra Sex Workers (HSWs)

5.1 Geographic Distribution and Estimates of HSW

A total of 23,317 HSWs were estimated by using network mapping techniques in 14 cities. In addition to the HSWs the mapping study also estimated 3,594 Gurus in these 14 cities. The highest number of HSWs was in Karachi, which contributes nearly 40% of the hijras in all cities mapped.

Two major types i.e., home-based HSWs and Dera-based HSWs were identified based on the ways in which they operate. Although every hijra is associated with a Guru and a Dera, nearly 6,884 HSWs were found to live in their homes (most often with families), and only visited Deras for socializing with community members and/or sex work. On the other hand a much larger number of HSWs (n=16,433) were living in Deras.

Table 5.1a: Estimated numbers of Gurus and HSWs in 14 cities of Pakistan, IBBS 2011

Province	City	No of Gurus	DB HSW (avg)	HB HSW (avg)	Total HSW (avg)	HSWs %	HSWs per 1000 adult males
Punjab	Faisalabad	342	1,332	281	1,613	6.9	1.6
	Lahore	668	2,896	747	3,643	15.6	1.8
	Multan	204	1,538	728	2,266	9.7	3.4
	Rawalpindi	194	437	53	490	2.1	0.4
	Sargodha	95	556	223	779	3.3	2.5
Sind	Hyderabad*	157	245	413	658	2.8	1.2
	Karachi	550	6,915	2,154	9,069	38.9	1.9
	Larkana	155	298	187	485	2.1	3.5
	Mirpurkhas*	49	217	133	350	1.5	3.3
	Nawabshah*	14	105	205	310	1.3	2.1
	Sukkur	148	496	1,037	1,533	6.6	6.9
KPK	Haripur	142	185	333	518	2.2	2.0
	Peshawar	134	239	217	456	2.0	0.5
Balochistan	Quetta	742	974	173	1,147	4.9	3.3
TOTAL		**3,594**	**16,433**	**6,884**	**23,317**	**100.0**	**1.9**

* IBBS not conducted in these city

5.2 Socio-demographic Characteristics

Table 5.2a provides information on the key socio-demographic characteristics of the HSWs. Of the 3,714 HSWs interviewed, the average age of HSWs interviewed was 27.6 ± 6.2 years (median = 27 years). Approximately 7.1% of HSWs were aged 15-19 years, while the highest proportion (34.7%) was between the ages of 25-29 years (Table 5.2a). The average age of HSWs by city ranged between 25.4 years in Sukkur to 30.6 years in Haripur (Figure 5.2a). On average, HSWs started sex work at 16 years of age and were involved in sex work for approximately 11.6 years. Age of initiation into sex work was lowest in Larkana (mean = 14.2 years), while those in Faisalabad began sex work at an older age (average = 19.3.years).

Table 5.2a: Socio-demographic characteristics of HSWs, IBBS, 2011

Characteristics	HSW %
Current age	
▪ 15-19 years	7.1
▪ 20-24 years	23.9
▪ 25-29 years	34.7
▪ 30-34 years	19.9
▪ 35 + years	14.3
Average age ±SD (median) years	27.6 ± 6.2 (27)
Marital status	
▪ Unmarried	85.1
▪ Currently married	13.0
▪ Separated / divorced	1.7
▪ Widowed	0.1
Year of formal education	
▪ Quranic Education	0.3
▪ Illiterate	42.4
▪ Up to 05 years	27.2
▪ 06 to 10 years	26.3
▪ > 10 years	3.9
Living arrangement	
Place of living	
▪ Dera	70.6
▪ Lives at home	29.1
Living with	
▪ Friends	24.5
▪ Family	30.4
▪ Lives alone	12.3
▪ Sexual partner	15.7
Other sources of income	68.2
Income (PKR)	
▪ Median Monthly Income (From all resources)	12,000 (132 USD)
▪ Median Monthly Income (From sex work)	7,000 (77 USD)

Average Monthly Income (From all resources): 14,178 ± 9,117 PKR (156±100 USD)
Average Monthly Income (From sex work): 9019 ± 7069 PKR (99±78 USD)
PKR 1.00 = US $ 0.011

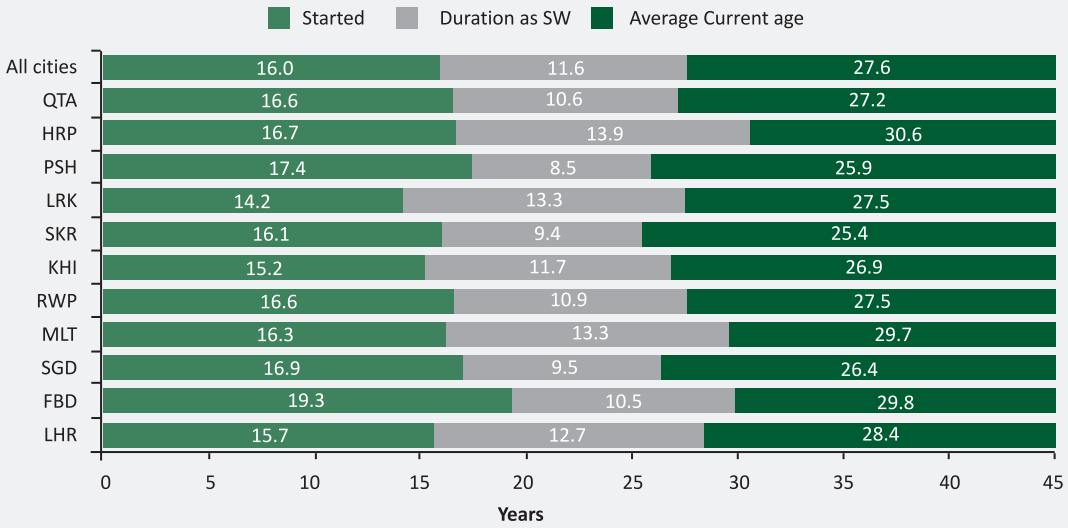


Figure 5.2a: Average age of initiation, duration and Average current age of HSWs by city, IBBS 2011

HSWs in Haripur were involved in sex work for the longest period (mean = 13.9 years), whereas those in Peshawar were in sex work for a shortest time period (mean = 8.5 years) (Figure 5.2a).

A majority of HSWs (85.1%) were unmarried and 13% reported to be currently married. Approximately one-half (42.4%) of the HSWs were illiterate, while 53.5% had completed between 5 and 10 years of education (Table 5.1a). Illiteracy was highest among HSWs in Larkana (71%) followed by Sukkur (66%, Figure 5.2b).

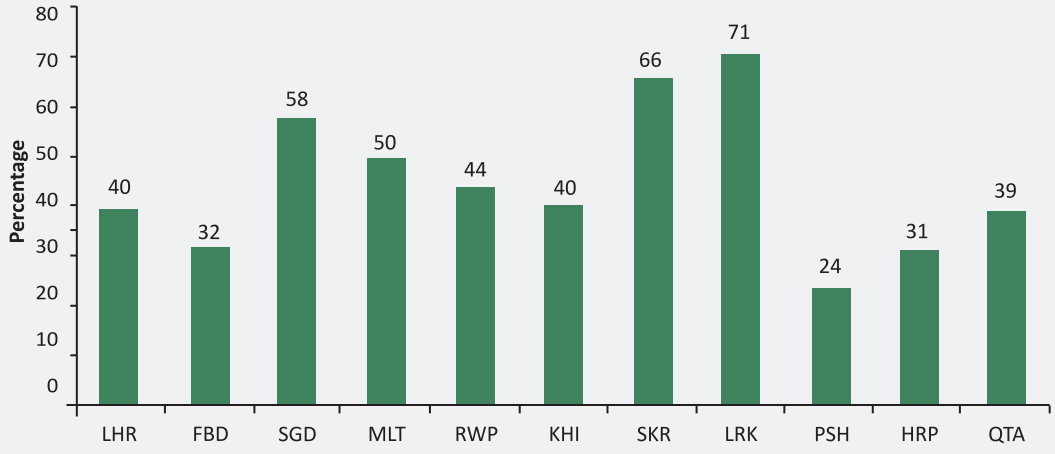


Figure 5.2b: Illiteracy among HSWs by city, IBBS 2011

Approximately three quarters (70.6%) of HSWs reported living in Deras; 29.1% of HSWs lived in their family home (Table 5.2a). In addition to sex work, approximately 68.9% of HSWs reported an additional source of income (Table 5.2a). The most commonly reported occupations were dancing (33.2%), begging (25.2%) and tailoring (4.2%). The median total monthly income was PKR 12,000 or US $132 (mean = PKR 14,178 ± 9,117), whereas the median monthly income from sex work alone was approximately PKR 7,000 or US $77 (mean = PKR 9,019 ± 7,069, Table 5.1a). The mean income from sex work peaked at age 20-24 years of age at PKR 9,818 or US $108 and subsequently decreased with age to PKR 7,786 or US $86 at 35+ years of age (Figure5.2c). Approximately 10% of HSWs had been arrested in the past 6 months and 1.4% had sold their blood for money in the same time period.

5.3 Migration and Mobility

A significant proportion of HSWs interviewed did not belong to the city of interview (22.7%). Of these individuals, approximately 40.7% planned to permanently live in their new city, and more than one-half (59.3%) reported that they were visiting for an extended period of time (Table 5.3a).

Approximately 51.8% of the migrant HSWs reported to have moved to the city specifically for sex work (Table 5.3a).

Figure 5.2c: Average monthly sex work income of HSWs by age group, IBBS 2011

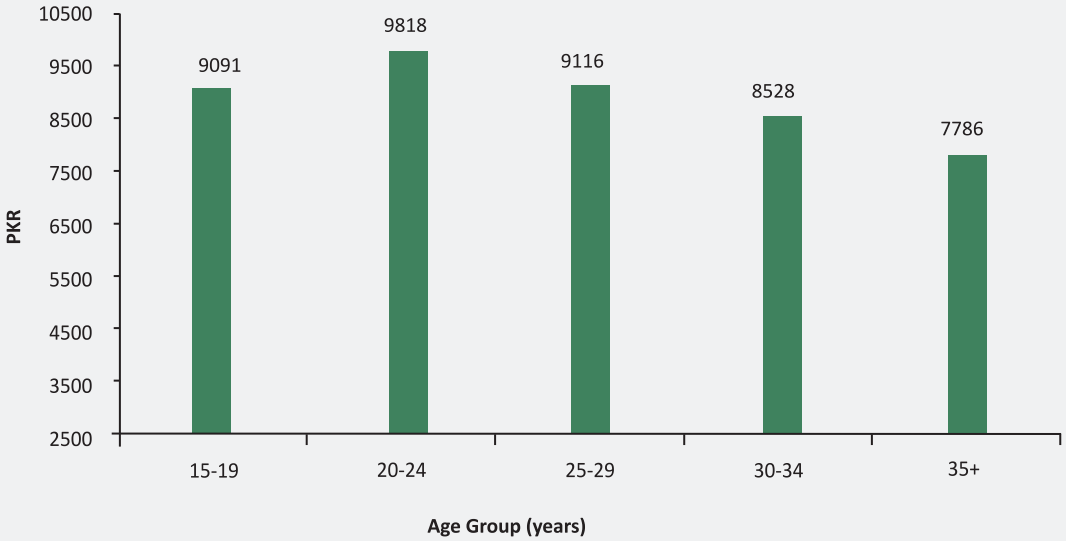
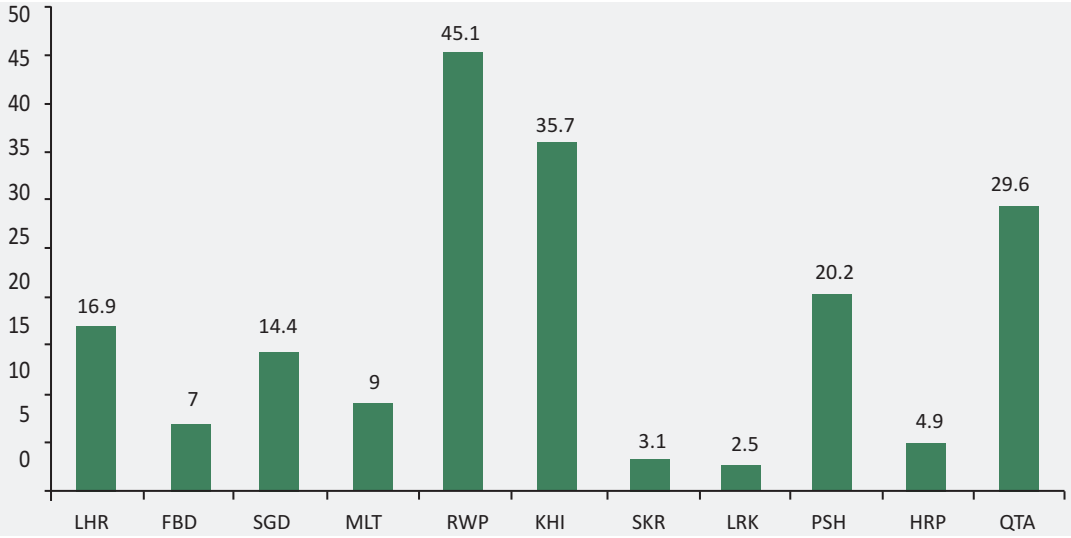


Table 5.3a: Mobility pattern of HSWs, IBBS 2011

Variable	HSWs %
Migratory Pattern (In Migration)	
Migrated from other cities	22.7
▪ Permanently staying	40.7
▪ Visiting	59.3
Migrated specifically for sex work	51.8
Mobility Pattern (Out Migration)	
Traveled to other cities in the past 12 months	25.8
Most common cities traveled to	
○ Lahore	12.3
○ Karachi	9.3
○ Hyderabad	8.1
○ Rawalpindi	7.7
International Travel	
▪ Ever traveled aboard	3.2
▪ Involved in sex work	62.0

Rawalpindi followed by Karachi, Quetta, and Peshawar reported highest proportion of migrant HSWs (Figure 5.3a). Overall, 25.8% of HSWs reported having traveled to other cities in the past one year. Lahore followed by Karachi, Hyderabad, and Rawalpindi being most commonly cited by HSW (Table 5.3a). Approximately 3 % of HSW reported that they have ever traveled aboard. Among those who traveled aboard, 62% were involved in sex work (Table 5.3a).

Figure 5.3a: Proportion of Migrant HSWs in the city, IBBS 2011



5.4 Risk Behaviours and Practices

5.4.1 Sexual Partners

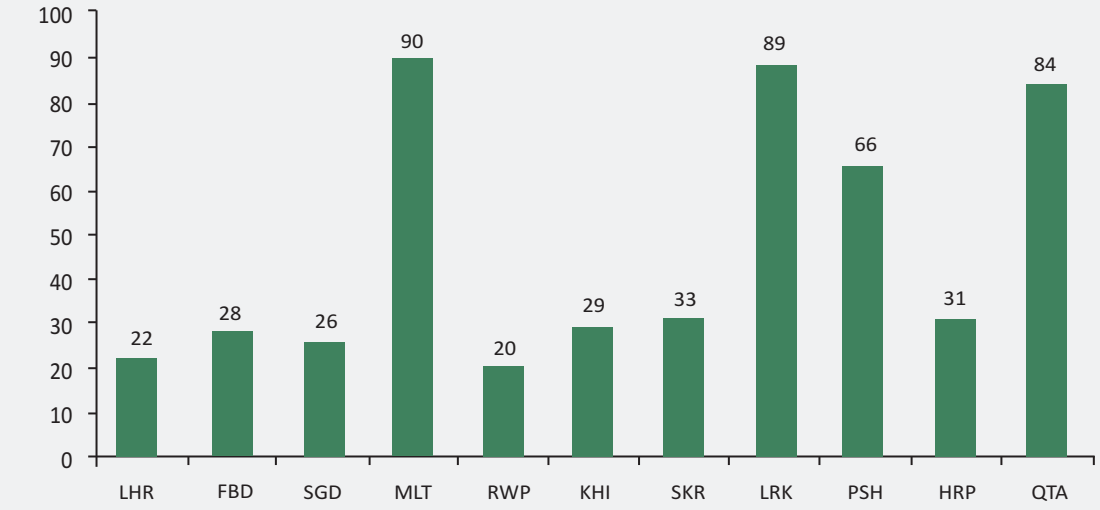
Approximately one-third (38%) of HSWs solicit clients in public places like bus stops and markets, while approximately 44.4% do so through cell phones. Indeed, compared to the previous rounds of IBBS more HSWs are relying on personal cell phones to contact clients. Only 10.7% of HSWs rely on gurus for clients, reflecting the decreasing dependency of HSWs on their guru for sexual partnering (Table 5.4.1a).

On an average, HSWs entertained two clients per day and 40 clients per month (Table 5.4.1a). Approximately 40.1% of HSWs also reported having at least one regular, non-paying partner in the past month (Table 5.4.1a). Three cities (Multan, Larkana, and Quetta) had a very high client volume in comparison to the remaining cities. The volume of paying clients, however, varied substantially across cities, ranging from a average of 20 clients per month in Rawalpindi, to 90 clients per month in Multan (Figure 5.4.1a).

Table 5.4.1a: Sexual behaviours and practices of HSWs, IBBS 2011

Practice / Behaviour	HSW %
Main source of clients	
▪ Pimp / *guru*	10.7
▪ Roaming around	38.0
▪ Cell phones	44.4
▪ Client referral	6.5
▪ Other sources	0.3
No. of Clients	
▪ Avg. clients / day ±SD	2.2 ± 1.6
▪ Avg. clients last month ±SD	40. 0 ± 33.0
Non Paid partners	
▪ At least one other partner last month	40.1
Consistent condom use with	
▪ Paid Clients	23.6
▪ Non Paid Partners	18.1
Condom use during last anal sex	30.2
Lubricant use during last anal sex	66.5
Alcohol/drug use during sex in the past 6 months	55.3
Had sex with IDU s in past 6 months	10.1
Injected drugs in the past 6 months	3.4

Figure 5.4.1a: Average number of paying clients inthe past month for HSWs by city, IBBS 2011



5.4.2 Condom Use

Reported consistent use of condoms was low, with only 23.6% of HSWs reporting that they always used a condom with paid clients in the past month; the proportion was even lower with respect to regular condom use with regular non-paying partners at 18.1% (Table 5.4.1a). The major reasons reported for low condom use were: partners objection (42.5%) did not like condom (30.0%), did not think that it was necessary (9.8%) and do not think of them (7.3%). No differences in consistent condom use with clients were observed between different age groups (Figure 5.4.2a) but a strong association ($p<0.01$) between consistent condom use and education was evident (Figure 5.4.2b).

Figure 5.4.2a: Consistent condom use by HSWs with clients among different age groups, IBBS 2011

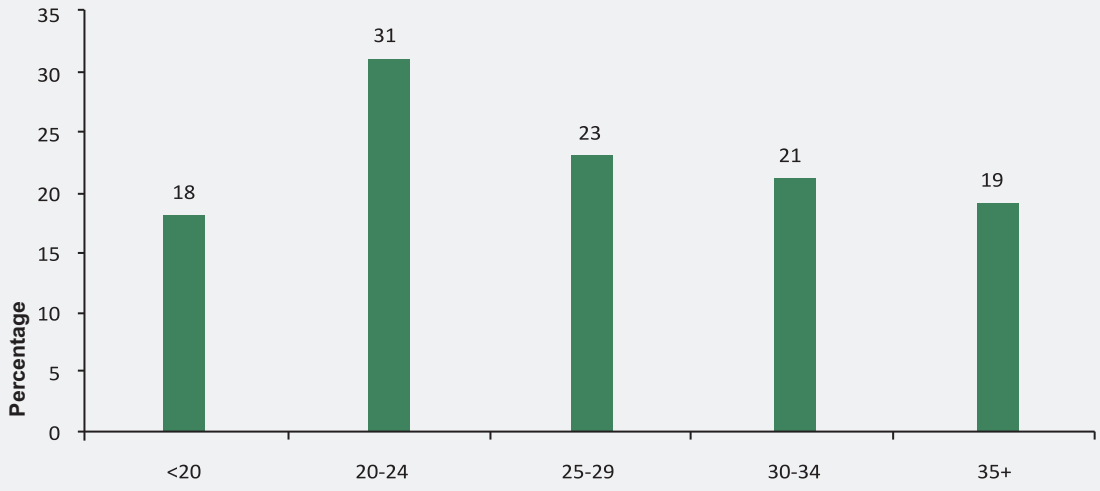
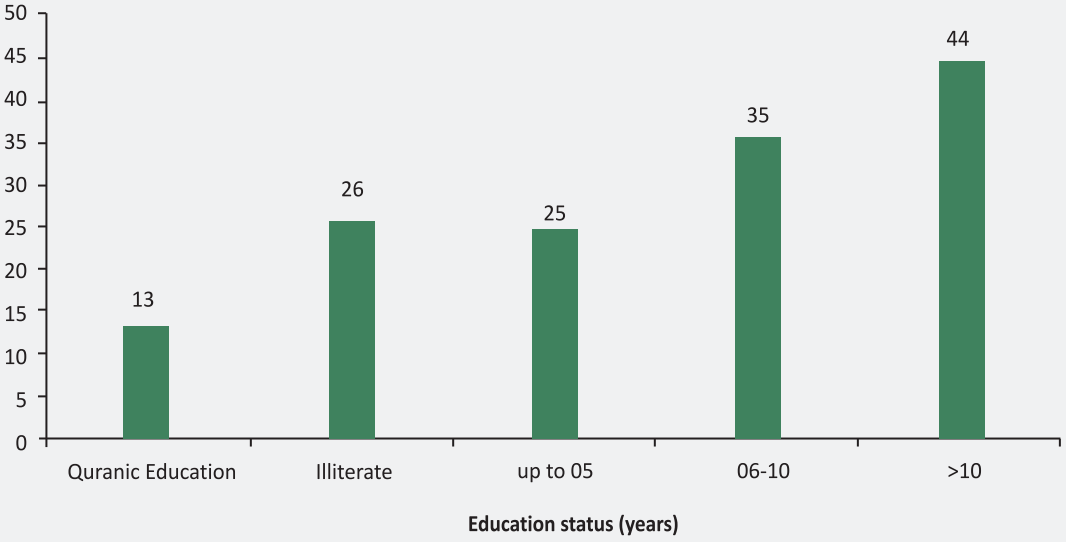


Figure 5.4.2b: Proportion of HSWs consistently using condoms with clients in the past month by education level, IBBS 2011



Consistent condom use varied considerably across cities, with the highest proportion of consistent condom use reported among HSWs in Haripur (66.4%), and the lowest in Multan (4.8%). Across all cities, consistent condom use was higher with paying clients compared to regular (non-paid) partners Figure 5.4.2c).

Overall, 27.7% of HSWs carried a condom at the time of interview. The highest proportion of HSWs carrying a condom was in Haripur (53.2%) followed by Larkana (52.1%), while the lowest was in Multan (8.8%, Figure 5.3.2d). Of note, condom carriage as a surrogate for condom practice might bias the results as it is highly dependent on the place of interview. However, the proportion of respondents carrying a condom was in accordance with the proportion reporting their use.

Approximately, 30% of HSW reported using condom during the last anal sex (Table 5.4.1a). HSW from Haripur (68%) reported highest condom use at last encounter while

Figure 5.4.2c: Proportion of HSWs consistently using condoms with clients in the past month by city, IBBS 2011

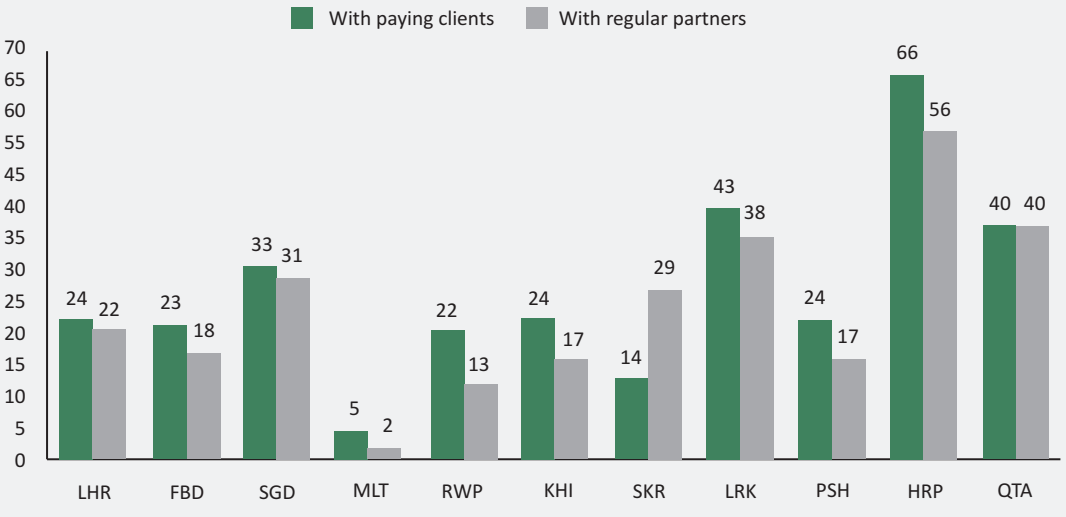


Figure 5.4.2d: Proportion of HSWs carrying a condom at the time of the survey by city, IBBS 2011

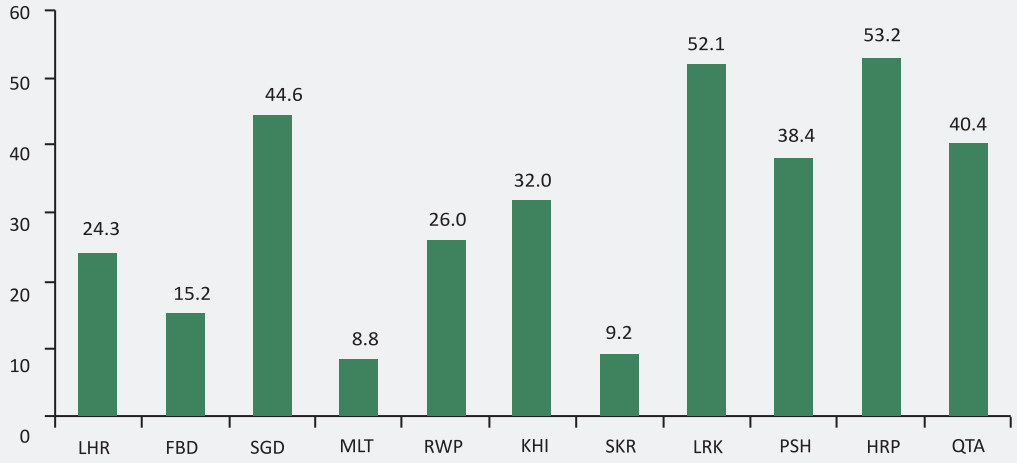


Figure 5.4.2e: Proportion of HSWs using condoms during last anl sex with clients by city, IBBS 2011

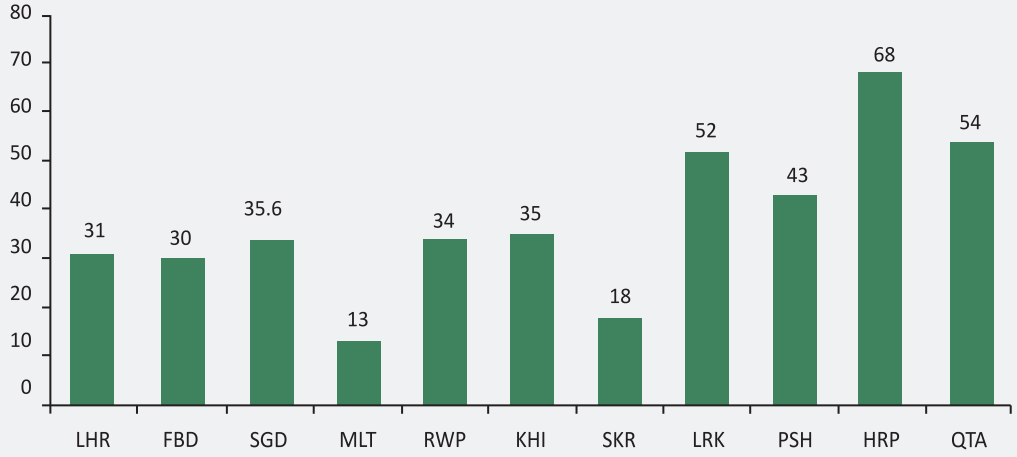
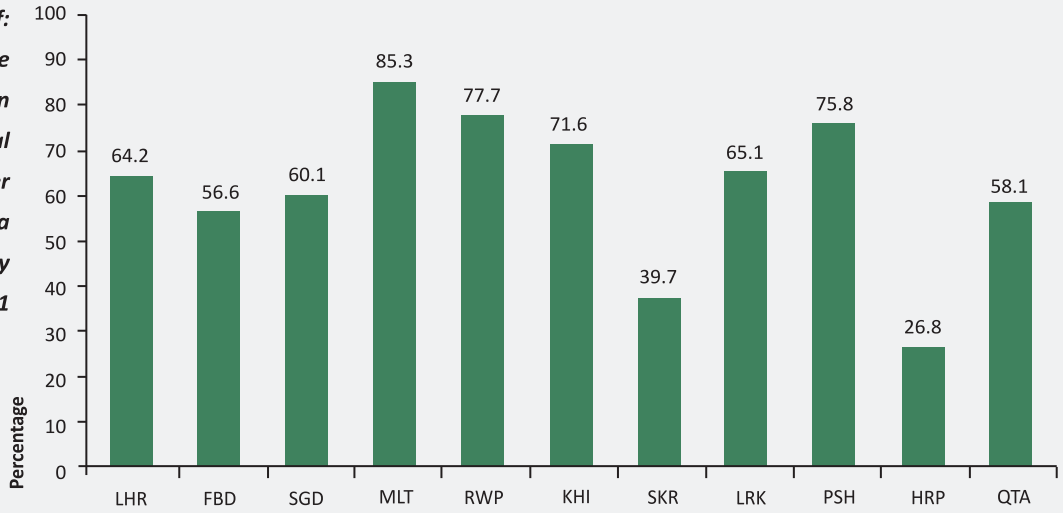


Figure 5.4.2f: Use of any type of lubrication in last anal sex encounter with a client by HSWs by city, IBBS 2011

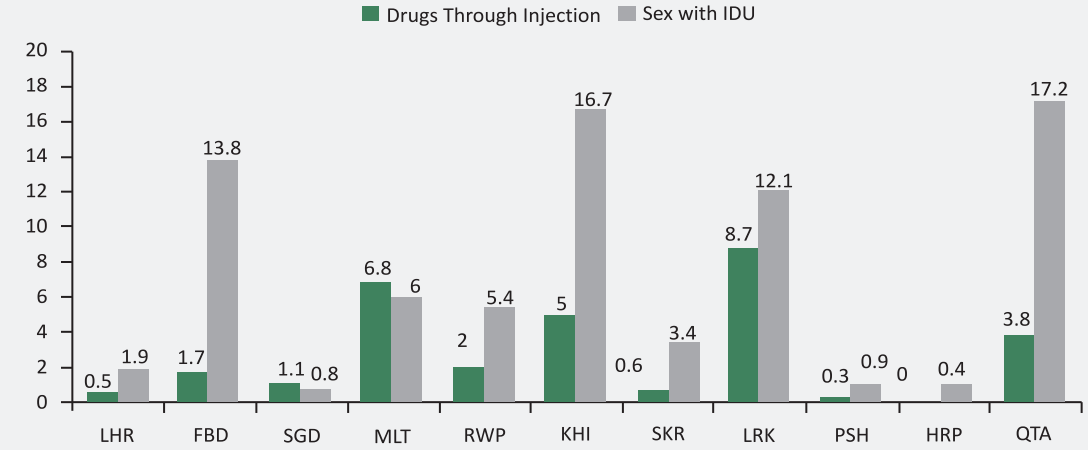


followed by Quetta (54 %) and Larkana(52%). Multan reported lowest (Figure 5.4.2e). Approximately 66.5% of all HSWs reported using lubricants during last anal sex (Table 5.4.1a). The highest proportion of lubricant use was reported among HSWs in Multan (85.3%), while the lowest (26.8%) was reported from Haripur (Figure 5.4.2f).

5.5 HIV and STI Related Knowledge

Approximately 91.9% of HSWs had heard of HIV and/or AIDS (Table 5.5a). Among those individuals who had heard of HIV/AIDS, 65.9% believed that a healthy looking person can have the disease, 94.5% were aware that HIV can be transmitted by sexual intercourse and 34.3% knew that HIV can be transmitted through a sharp instrument/syringe (Table 5.5a). Approximately 72.7% of the sub-group with knowledge about HIV/AIDS were aware that condoms can prevent HIV transmission, 54.6% knew that abstinence from sex could prevent HIV transmission and only 20.6% were aware that the use of clean needles were important in preventing HIV transmission (Table 5.5a).

Figure 5.4.3a: City wise distribution of HSWs injecting drugs and having sex with an IDU, IBBS 2011



5.4.3 Injecting Drug Users

Overall, 10.1% of HSWs reported to have had sex with IDU in the past six months, whereas 3.4% HSWs reported that they had been injecting drugs in the same time period (Table 5.4.1a). The proportion of HSWs reporting injecting drug use was highest in Larkana (8.7%) whereas reported sex with an IDU was highest in Quetta (17.2%, Figure 5.4.3a).

Overall, 55.1% of HSWs reported using alcohol and/or drugs during sexual intercourse in the past six months (Table 5.4.1a).

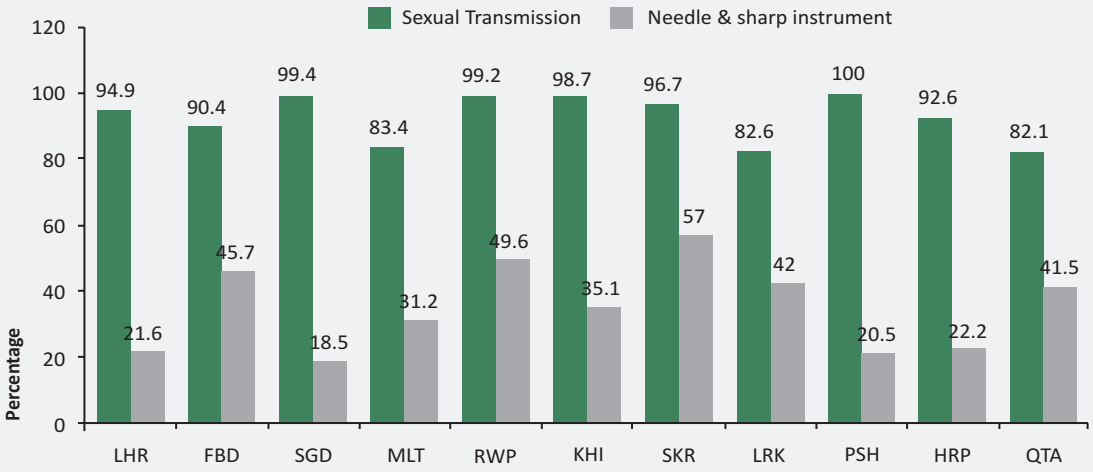
Table 5.5a: HIV and STI related knowledge among HSWs, IBBS 2011

Knowledge area	HSW %
Ever heard of HIV and/or AIDS	90.9
Healthy looking person can have HIV/AIDS*	65.9
HIV transmitted by sexual intercourse*	94.5
HIV transmitted by sharp instrument/needle*	34.3
Condom can prevent HIV transmission*	72.7
Sexual abstinence to prevent HIV transmission*	54.6
Clean needle/syringe can prevent HIV transmission*	20.6
Ever tested for HIV*	32.6
Know where to receive HIV test*	35.8
Self perception of risk for HIV*	55.6
Aware of sexually transmitted infection (STIs)	78.9
Self reported STI in past 6 months*	19.7
Received treatment for reported STIs*	53.2

*positive response to initial question

Further analysis regarding knowledge about HIV transmission by city showed that a considerably high proportion of HSWs in all cities were aware that HIV was a sexually transmitted infection, although knowledge of HIV transmission through sharp needle/syringe was low (18.5% to 57%, Figure 5.5a).

Figure 5.5a: Knowledge of modes of HIV transmission among HSWs who have heard of HIV and/or AIDS by city, IBBS 2011



Likewise, when knowledge about HIV prevention was analyzed, a higher proportion of HSWs knew of condoms and sexual abstinence as modes of HIV prevention in comparison to the use of sterile needles as protection (Figure 5.5b). Of note, knowledge about sexual abstinence as a preventive measure for HIV transmission was very low in Haripur (16%) and Larkana (9%).

Only 32.6% of HSWs had ever been tested for HIV, 35.8% of HSWs knew where to go to access HIV testing, and a little over one-half (55.6%) reported feeling at risk for HIV infection (Table 5.5a). Approximately three quarters (78.9%) of the HSWs were aware of other sexually transmitted infections; and 19.7% reported being diagnosed with an STI in the past six months of whom 53.2% reported having received treatment (Table 5.5a).

5.6 Program Exposure and Utilization

Approximately 32% of HSWs were aware of HIV prevention programs (SDPs) in their city. However 7.8% of these HSWs said they never utilized these services (Table 5.6a). Among those HSWs who utilized the SDP services, almost one-half of HSWs (47.9%) used the services less than once a month (Table 5.6a).

Figure 5.5b: Knowledge of HIV preventive measures among HSWs who have heard of HIV and/or AIDS by city, IBBS 2011

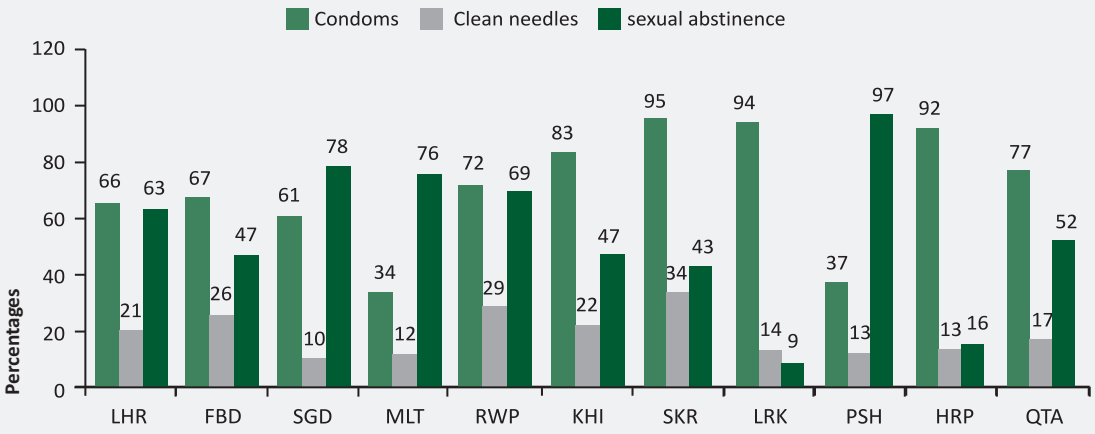


Table 5.6a: Knowledge and utilization of HIV prevention program among HSWs, IBBS 2011

Knowledge Area	HSW %
Ever heard of HIV prevention programs	31.6
Number of times SDP* services were availed	
More than once in a week	5.8
Once in a week	9.0
After two weeks	6.6
Once in a month	23.0
Less than once in a month	47.9
Never	7.8
Received free condom in past one month	21.8

*service delivery program

Awareness of SDPs among HSWs was further analyzed across the different cities. With the exception of Larkana and Karachi, less than one-half of the HSWs were aware of services in their cities (Figure 5.6a).

Awareness and utilization of SDP services was, in general, low. However, among those aware of SDPs, participation was high (between 70 -100%) across all cities except Larkana, Karachi and Sukkur. Further analysis services availed by HSWs in the past six months showed that obtaining condoms from the SDP was the most utilized service (85%), followed by collecting lubricants (39%), obtaining medications (26%), and HIV testing (20%, Figure 5.6b).

The common services utilized by HSWs in different cities are reported in Table 5.6b.

Figure 5.6a: Knowledge & Utilization of HIV prevention programs among HSWs by cities, IBBS 2011

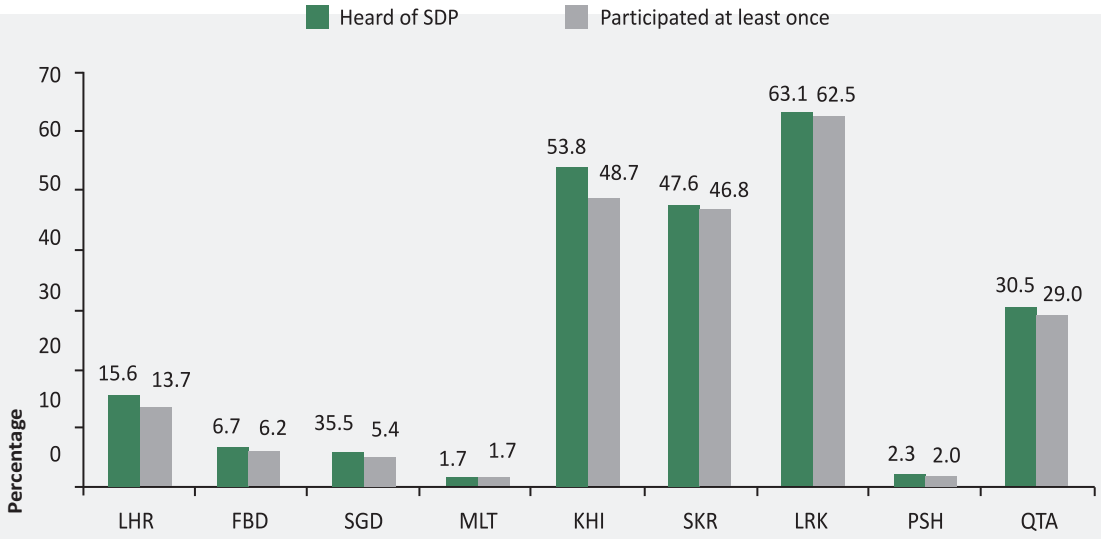


Figure 5.6b: Common services utilized at SDPs in past 6 months by HSWs who have heard of these programs, IBBS 2011

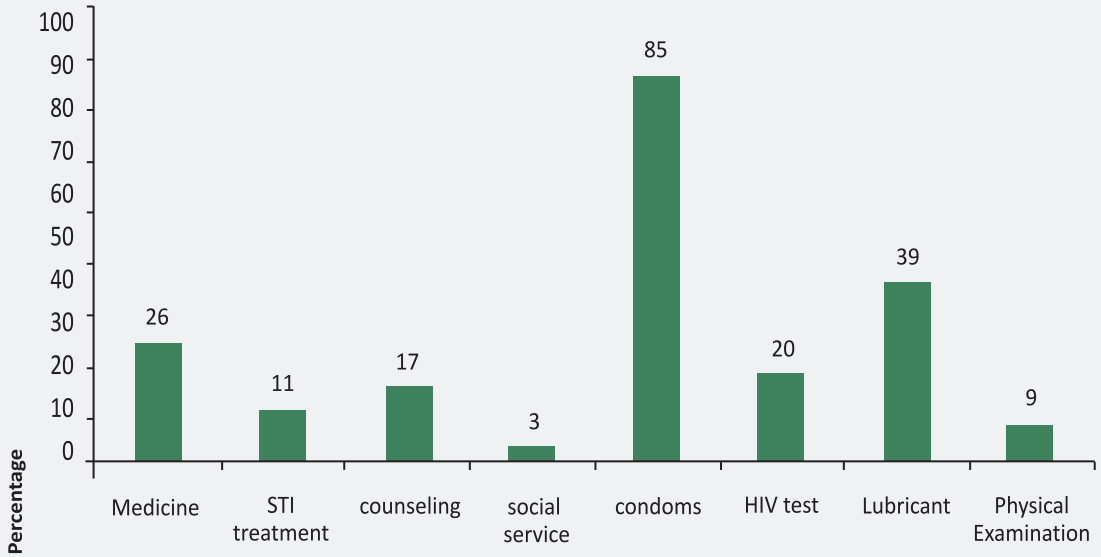


Table 5.6b: Types of services used at the SDPs in the past 6 months by HSW who have heard of these programs by city, IBBS 2011 (in percentage)

Services	LHR	FBD	SGD	MLT	RWP	KHI	SKR	LAK	PSH	QTA
Medicines	49.1	25.0	23.8	16.7	7.1	32.1	47.1	0	2.3	33.0
STI treatment	7.0	8.3	14.3	0	18.6	19.4	9.4	0	62.5	19.4
Counseling	15.8	8.3	19.0	50.0	14.3	24.4	22.4	0	12.5	31.1
Social services	3.5	0	0	0	2.9	3.1	0	1.3	0	13.6
Condoms	57.9	95.8	81.0	83.3	85.7	73.6	92.4	94.6	50	88.3
HIV test	7.0	4.2	4.8	0	40.0	20.2	5.9	40.2	0	1.0
Lubricants	10.5	16.7	0	0	0	58.0	14.7	87.9	0	1.0
Physical Examination	5.3	0	4.8	0	14.3	20.2	1.2	0.4	12.5	18.4

5.7 HIV Prevalence

Among 3,777 HSWs who were tested for HIV the overall HIV prevalence was 7.2% (95% CI: 6.8%, 7.5%) [un-weighted prevalence 5.2% (95% CI: 4.5%, 5.9%)], with the highest prevalence reported in Larkana (14.9%) followed by Karachi (12.0%) and Lahore (5.2%); all other cities had less than 5% prevalence (Table 5.7a).

Table 5.7a: HIV prevalence among HSWs by city, IBBS 2011

City	Tested	Positive (n)	Prevalence % 95% CI
Larkana	355	53	14.9 (11.6, 19.1)
Karachi	359	43	12.0 (9.3, 16.1)
Sukkur	357	22	6.2 (4.1, 9.2)
Lahore	366	19	5.2 (3.5, 8.2)
Rawalpindi	355	15	4.2 (2.6, 6.9)
Faisalabad	356	14	3.9 (2.3, 6.5)
Sargodha	354	13	3.7 (2.2, 6.2)
Multan	355	4	1.1 (0.5, 2.9)
Peshawar	352	4	1.1 (0.5, 2.9)
Haripur	266	0	-
Quetta	338	9	2.7 (1.4, 5.1)

Key Findings: Hijra Sex Workers

- A total of 23,317 HSWs were estimated by using network mapping techniques in 14 cities. In addition to the HSWs the mapping study also estimated 3,594 Gurus in these cities.
- The highest number of HSWs was in Karachi, which contributes nearly 40% of the hijras in all cities mapped.
- A little over one-third (34.7%) were between 25-29 years old, more than two-thirds (85.1%) were unmarried, almost one-half were illiterate (42.4%), and 70.6% lived in Deras.
- The median monthly income was low at PRK 12,000 (US $132); sex-work related income was PKR 7,000 (US $77) per month. The mean income from sex work peaked at age 20-24 years of age at PKR 9,849 (US $108) and subsequently decreased with age to PKR 7,960 (US $88) at 35+ years of age.
- Approximately one-quarter (22.7%) of HSWs had migrated from other cities. Rawalpindi, followed by Karachi, Quetta, and Peshawar were the most commonly reported destination points.
- Public places (38%) and/or cell phones (44.4%) were most commonly used to solicit clients; only 10.7% of HSWs rely on gurus for clients, reflecting the decreasing dependency of HSWs on their guru for sexual partnering
- On an average, HSWs entertained two clients per day or approximately 40 clients per month.
- The volume of paying clients varied substantially across cities, ranging from a mean of 20 clients per month in Rawalpindi, to 90 clients per month in Multan
- Reported consistent use of condoms was low, with only 23.6% of HSWs reporting that they always used a condom with paid clients in the past month; the proportion was even lower with respect to regular condom use with regular non-paying partners, at 18.1%. With respect to condom use during the last sexual act, the corresponding proportions were 36.6% and 26.8%, respectively.
- Consistent condom use varied considerably across cities, with the highest proportion of consistent condom use reported among HSWs in Haripur (66.4%), and the lowest in Multan (4.8%).
- Approximately 66.5% of all HSWs reported using lubricants during last anal sex (range = 85.3% in Multan, 26.8% in Haripur).
- Overall, 10.3 % of HSWs reported to have had sex with IDU in the past six months, whereas 3.4 % HSWs reported that they had been injecting drugs in the same time period (range = 17.2% in Quetta, 8.7% in Larkana). 55.1 % of HSWs reported using alcohol and/or drugs during sexual intercourse in the past six months.
- A high proportion (90.9%) had knowledge of HIV and/or AIDS and its prevention. However, only 54.6% knew that abstinence from sex could prevent HIV transmission and only 20.6% were aware that using clean needles was important in preventing HIV transmission.

Key Findings: Hijra Sex Workers

- Only 32.6% of HSWs had ever been tested for HIV, 35.8% of HSWs knew where to go to access HIV testing, and a little over one-half (55.6%) reported feeling at risk for HIV infection.
- Approximately 31.6% of HSWs were aware of HIV prevention programs (SDPs) in their city. Among those aware of SDP services, 7.8% said they never utilized them but almost one-half of HSWs(47.9%) used the services less than once a month,
- Obtaining condoms from the SDP was the most utilized service (85%), followed by requests for lubricants (39%), obtaining medications (26%), and HIV testing (20%).
- Programs in Larkana showed relatively high utilization rates (67.6%), but participation was less than 20% in the rest of the cities.
- The overall HIV prevalence was7.2% (95% CI: 6.8%, 7.5%) [un-weighted prevalence 5.2% (95% CI: 4.5%, 5.9%)], with the highest prevalence reported in Larkana (14.9%, 95% CI: 11.6, 19.1) followed by Karachi (12.0%, 95% CI: 9.3, 16.1), and Lahore (5.2%, 95% CI: 3.5, 8.2); all other cities had less than 5% prevalence. No HIV infections among HSWs were reported in Haripur.

6 Female Sex Workers (FSWs)

6.1 Geographic Distribution and Estimates of FSWs

A dual approach of mapping i.e., geographical and network mapping, was used to estimate the size of FSWs as well as to gather information on the operational networks within which FSWs function. Results from these mapping exercises suggested 89,178 FSWs were in the 15 cities where mapping was done (Table 6.1a). Of note, while mapping was performed in Mirpurkhas, Hyderabad and Nawabshah, these three cities were not included in the IBBS round 4.

The highest number of FSWs were estimated in Karachi (25,399, range; 21,794 to 29,004), closely followed by Lahore (23,766, range; 21,109 to 26,422, Table 6.1a). More than 56% of the total FSW population was mapped in these two cities, the capitals of the two largest provinces and economic hubs of the country. None of the other cities mapped present such high estimates of FSWs. The remaining cities contribution to overall female sex work in Pakistan is relatively small and shows an even distribution.

Table 6.1a Estimated Number of FSWs in 15 cities of Pakistan, IBBS 2011

Province	City	FSW (min)	FSW (max)	FSWs (avg)	% FSWs
Punjab	DG Khan	1,307	1,518	1,413	1.6
	Faisalabad	4,381	5,311	4,846	5.4
	Lahore	21,109	26,422	23,766	26.7
	Multan	4,767	5,847	5,308	6.0
	Rawalpindi	3,263	4,021	3,635	4.1
	Sargodha	3,597	4,198	3,898	4.4
Sind	Hyderabad^	4,018	5,113	4,566	5.1
	Karachi	21,794	29,004	25,399	28.5
	Larkana	969	1258	1114	1.2
	Mirpurkhas^	852	915	884	1.0
	Nawabshah^	1,672	2,352	2,011	2.3
	Sukkur	2,031	2,610	2,317	2.6
KPK	Haripur	2,850	3,138	2,994	3.4
	Peshawar	2,897	3,736	3,317	3.7
Balochistan	Quetta	3,271	4,149	3,710	4.2
TOTAL		**78,778**	**99,592**	**89,178***	

*Average may not add up due to rounding off decimal

^ IBBS was not concluded in these cities

Box 1: Typologies of Female Sex Workers

- **Brothel-based (BBSW):** Brothels are fixed venues which are owned/operated by madams and/or other individuals or groups. Multiple FSWs live in this house which is licensed for singing and dancing, and which is located in a larger sex work or red light district and entertain clients there. The key feature of typical brothels is that they have a stable location that is known by local clients and brokers. Sex work takes place either at the brothel or at the client's house. Sex workers are usually full time.

- **Kothikhana-based (KKSW):** "Kothikhana" is a colloquial expression for a sex work venue that literally means "grand house". However, Kothikhanas are generally small premises, which are rented by a madam and/or broker where a small number of FSWs live and entertain clients. Kothikhanas are often in residential areas and are largely clandestine and a key feature is that their location moves from time to time when the madam determines that the current location is unsafe or unsuitable.

- **Street-based(SBSW):** Street-based FSWs solicit clients from various 'pick up points', for example streets market places, and bus stops. Sexual transactions then occur at a venue chosen by the FSW and or the client.

- **Home-based(HBSW):** These Sex workers usually live with their families and are based at their own houses. They rely mostly on network operators/pimps for soliciting clients, as well as for the place where sexual activity takes place. Sex workers are usually part time, operating when required for financial purposes

- **Cell Phone(CPSW):** These FSWs who use cell phones as the major way of acquiring clients.

- **Others(FSWs):** These include hotel base FSWs, massage parlor based FSWs and beggars.

Table 6.1b shows the wide variation in the typology of various FSWs (Box 1) across the cities mapped. Street-based, home-based and Kothikhana-based FSWs were reported to be a regular feature of female sex work in Pakistan across all cities, while brothel based FSWs were only reported in seven out the 15 cities mapped. Other than Larkana (approximately 11.2%) and Nawabshah (8.5%), brothel-based FSWs made up a very small proportion of the overall FSW populations in all other cities. The type of FSWs seen most frequently in all cities was home based FSWs. The proportion of home-based FSWS was highest in Larkana, and lowest in Mirpurkhas, where a large number of FSWs operate through cell phones. The proportion of FSWs operating through cell phones was highest in Haripur, Peshawar and Quetta, cities that are known for their conservative cultures. These three cities also have the lowest number of street-based FSWs. FSWs categorized as 'others' were mainly of 3 different types. In Mirpurkhas, Multan, Hyderabad, Faisalabad and Sukkur, female street-based 'beggars' were also observed to provide sex services if clients were interested. Sex workers who provided services to various hotels were also categorized under this typology. A new observation in this mapping study was sex being provided under the cover of a few 'massage parlors', mainly in the bigger cities of Punjab. These establishments are extremely hidden, located in residential colonies and change their locations every 2 to 3 months.

Table 6.1b: Estimated numbers of FSWs in 15 cities of Pakistan by typology, IBBS 2011

Province	City	Brothel	Street	Home	Kothi khana	Cell-phone	Other FSWs
Punjab	DG Khan	-	53	939	387	34	-
	Faisalabad	-	882	2,887	878	59	140
	Lahore	350	4,597	12,683	5,303	579	254
	Multan	148	448	2,754	1,449	171	338
	Rawalpindi	-	748	1,955	851	-	81
	Sargodha	80	1,621	1,022	990	82	103
Sind	Hyderabad	220	887	1,707	978	601	173
	Karachi	175	6,298	10,915	7,138	763	110
	Larkana	125	15	701	41	232	-
	Mirpurkhas	-	222	356	183	20	103
	Nawabshah	170	525	839	146	331	-
	Sukkur	-	350	1,326	260	308	73
KPK	Haripur	-	346	611	230	521	1,286
	Peshawar	-	529	1,032	722	1,013	21
Balochistan	Quetta	-	754	1,586	1,370	-	-
TOTAL		1,268	18,275	41,313	20,926	4,714	2,682

6.2 Socio-demographic Characteristics

The main socio-demographic characteristics of FSWs are summarized in Table 6.2a. Across all cities of the 4,298 FSWs interviewed, the average current age of FSWs was 26.9 ± 6.4 years, with little variation between different types of FSWs. Overall, 12.3% of FSWs were aged 15-19 years, with the highest proportion of FSWs who are less than 20 working out of Kothikhanas (16.1%). Overall, study participants have been working as a sex worker for an average of 5.3 years, beginning on average at 21.9 years of age (Figure 6.2a).

Table 6.2a: Socia-demograsphic characteristics of FSWs, IBBS 2011

Characteristics	All FSWs (%)	FSW Topology					
		Street (%)	Brothel (%)	Home (%)	Kothikhana (%)	Mobile (%)	Other FSWs (%)
Age							
15-19 years	12.3	11.9	9.5	10.7	16.1	9.4	18.8
20-24 years	23.3	21.9	18.9	24.4	22.7	22.4	26.8
25-29 years	28.7	29.6	35.1	26.0	31.2	32.2	26.1
30-34 years	17.7	21.5	15.6	17.4	14.9	19.8	15.6
35+ years	18.0	15.2	21.0	21.4	15.1	16.2	12.8
Average age ± SD	*26.9 ± 6.4*	*26.8 ± 6.1*	*27.6 ± 6.7*	*27.0 ± 6.6*	*26.3 ± 6.3*	*27.1 ± 6.2*	*25.3 ± 6.5*
Marital status							
Unmarried	24.8	21.0	11.2	23.8	34.7	24.4	26.1
Married	63.7	66.4	78.8	65.0	53.9	62.7	64.5
Separated/ Divorced	8.0	8.3	8.7	7.6	7.8	10.0	7.0
Widowed	3.5	4.2	1.4	3.6	3.6	2.8	2.5
Number of children							
None	14.6	17.7	11.8	13.0	18.6	11.7	13.8
1 to 2	37.7	37.3	49.6	38.8	34.3	37.6	28.0
3 to 4	29.5	31.5	23.7	29.1	29.7	31.2	28.9
5 and above	18.2	13.4	14.8	18.9	17.4	19.5	29.3
Years of formal education							
Quranic Education	1.6	1.2	0.8	2.0	1.2	2.8	0.8
Illiterate	50.6	52.4	63.9	44.2	49.6	45.6	84.8
Up to 05 yrs	18.3	18.7	20.1	21.0	16.6	15.6	8.2
06 to 10 yrs	24.8	24.4	15.2	27.1	26.8	30.2	5.9
> 10 yrs	4.4	3.2	0	5.4	5.6	5.8	0.4
Living arrangement							
Lives at home	84.3	94.7	82.1	96.8	40.6	94.0	98.1
Lives with Relative/Family	77.1	85.4	52.6	88.6	43.0	83.6	88.5
Lives with Friends	11.1	7.8	9.7	3.9	35.1	6.9	5.5
Lives alone	5.8	4.0	21.4	4.9	3.7	7.4	5.8
Other source of Income	23.5	17.4	13.5	23.6	11.4	26.9	74.1
Income (PKR)							
Median Monthly Income (From all resources)	16,000	15,000	15,000	17,500	20,000	20,000	12,000
Median Monthly Income (From sex work)	15,000	15,000	15,000	15,000	20,000	16,000	9,000

Average monthly income (from all resources): 19,778 ±13,482 PKR (227 **± 155 USD)**
Average monthly income (from sex work): 18,250 ± 12,348 PKR (210 **± 142 USD)**
PKR 1.00 = US $ 0.011

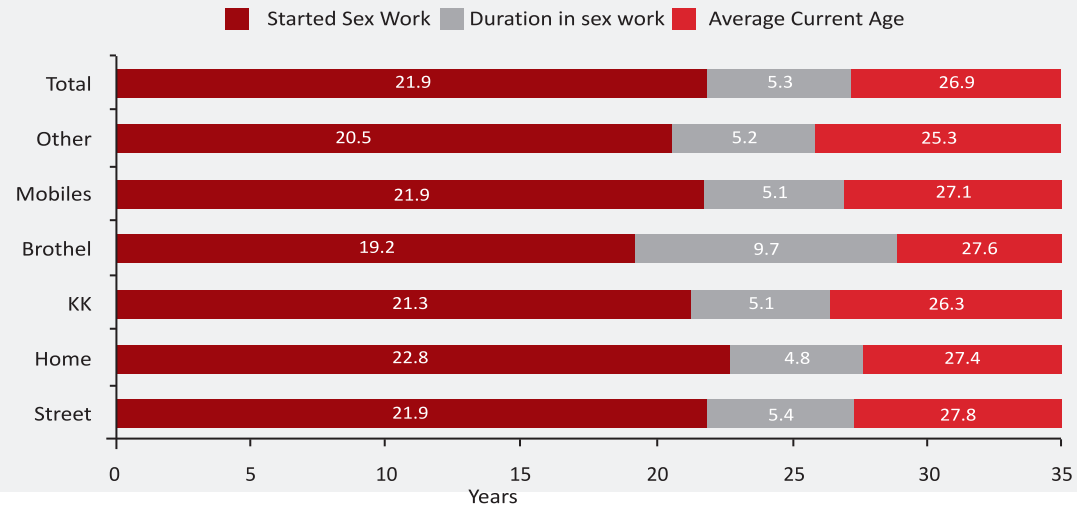


Figure 6.2a: Average age of sex work initiation, duration in sex work and average current age by sex work typology among FSWs, IBBS 2011

FSWs who work in brothels initiated sex work at a younger age (avg 19.2 years), and had worked for longer (avg 9.7 years) than other types of sex workers (Figure 6.2a). FSWs in Quetta, Larkana, and Multan started sex work at a younger age (avg 18.8, 18.9, and 18.9 years, respectively) than those in other cities (see Figure 6.2b).

The majority of FSWs (63.7%) were married, and a small proportion of FSWs were either widowed (3.5%) or separated/divorced (8.0%). Among unmarried FSWs, the majority (34.7%) worked in Kothikhana (Table 6.2a). There was substantial variation in the marital status of FSWs across the 12 cities (see Figure 6.2c). The largest percent of unmarried FSWs resided in Quetta (49%) followed by Sukkur (36%) and Peshawar (32%); Sargodha had the lowest proportion of unmarried FSWs (15%, Figure 6.2c). The majority (85.4%) of FSWs had children, with 18.2% reporting at least five children (Table 6.2a).

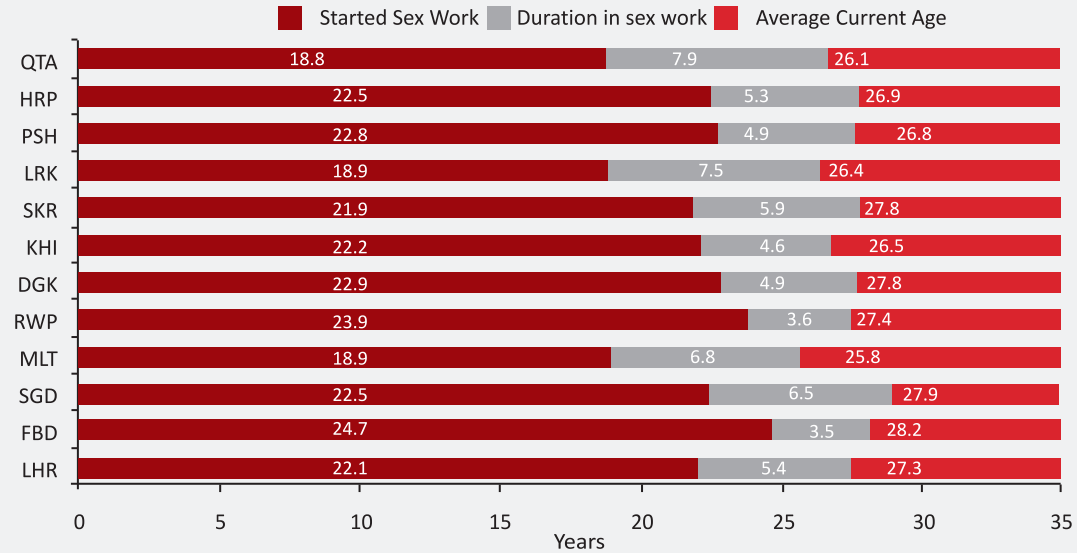
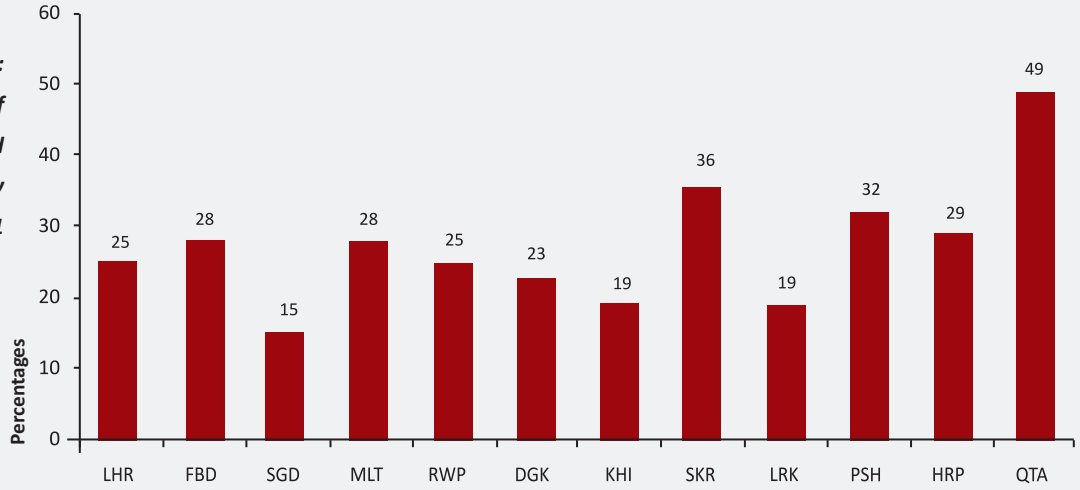


Figure 6.2b: Average age of sex work initiation, duration in sex work and average current age of FSWs by city, IBBS 2011

Figure 6.2c: Proporation of Unmarried of FSWs by city, IBBS 2011

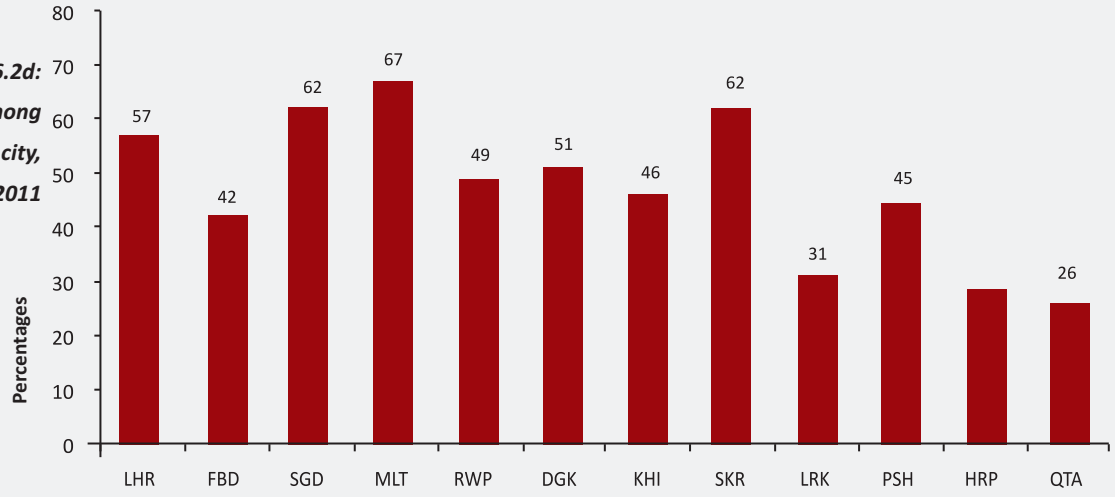


The majority of FSWs (50.6%) were found to be illiterate, with illiteracy being more common among FSWs in brothels (63.9%, Table 6.2a). Less than five percent of FSWs had more than ten years of education.

Illiteracy levels varied substantially by city, with very high illiteracy among FSWs in Multan (67%), Sukkur (62%) and Sargodha (62%); illiteracy was lowest among FSWs in Quetta (26 %, Figure 6.2d).

The majority of FSWs of all types and in all cities lived at home (84.6%) and/or with family/relative members (77.1%). However, Kothikhana-based FSWs were less likely to live at home (40.6%, Table 6.2a). Only 23.5% of all FSWs had a source of income other than sex work, cell-phone based FSWs to most likely to have other sources of income (26.9%) and kothikhana-based FSWs being the least likely to have other sources of income (11.5%, Table 6.2a). The monthly median income reported among all FSWs was PKR 16,000 or US $ 176 (range = PKR 15,000 – 20,000). When limited to sex work alone, the reported

Figure 6.2d: Illiteracy among FSWs by city, IBBS 2011

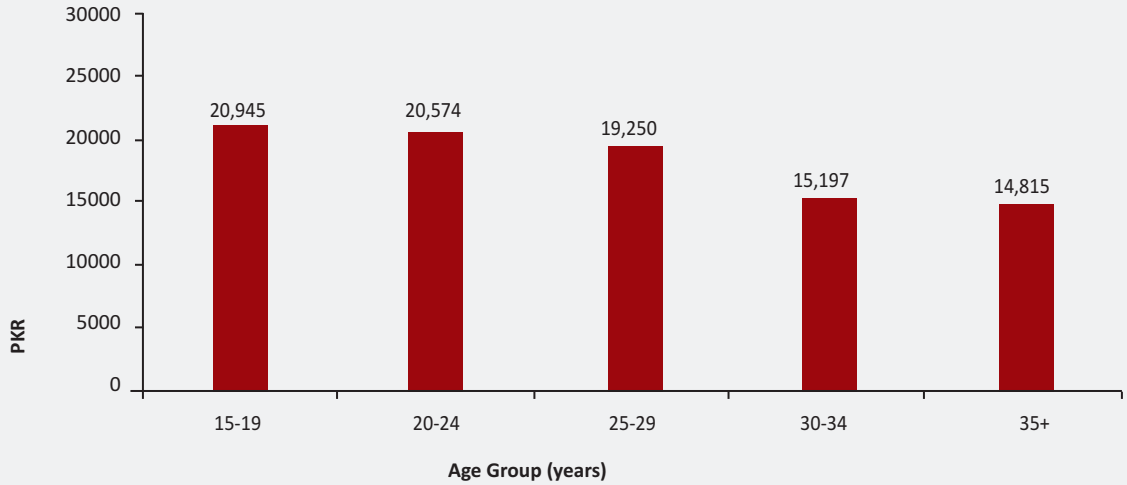


monthly median income was PRK 15,000 or US $ 165 (range = PKR 15,000 – 20,000). The lowest median income was reported among others FSW followed by brothel-based FSWs, home-based, street-based, cell phone based and kothikhana-based FSWS (Table 6.2a). Income from sex work decreased with age with FSWs between 15 and 19 years reporting an average monthly income of PKR 20,945 or US $230 versus those in over 35 years of age reporting an average monthly income of PKR 14,815 or US $163 (Figure 6.2e). Approximately 16% of FSWs had been arrested in the past 6 months and 3.7% had sold their blood for money in the same time period. Begger FSW reported highest rate of arrest (23.6%) and sold blood for money more (7.7%) than any other FSWs typology

6.3 Migration and Mobility

Approximately one-fifth (20.5%) of FSWs interviewed did not belong to the city of interview (Table 6.3a). About 34% of FSWs interviewed in Karachi did not belong to Karachi in contrast almost all FSWs in Larkana were local residents. (Figure 6.3a).Of these individuals, approximately 55.6% planned to permanently live in city of migration with the highest proportion of these being among street and brothel-based FSWs (72.1% and 70.8%, respectively). Nearly one-half (44.4%) reported that they were visiting for an extended period of time with the largest proportion in this category belonging to Kothikhana-based FSWs (64.7%, Table 6.3a). Approximately 54.6% of the FSWs reported to have moved to the city specifically for sex work (Table 6.3a) and of these the large type (84.6%) were brothel-based.

Figure 6.2e: Average monthly income related to sex work by age, IBBS 2011



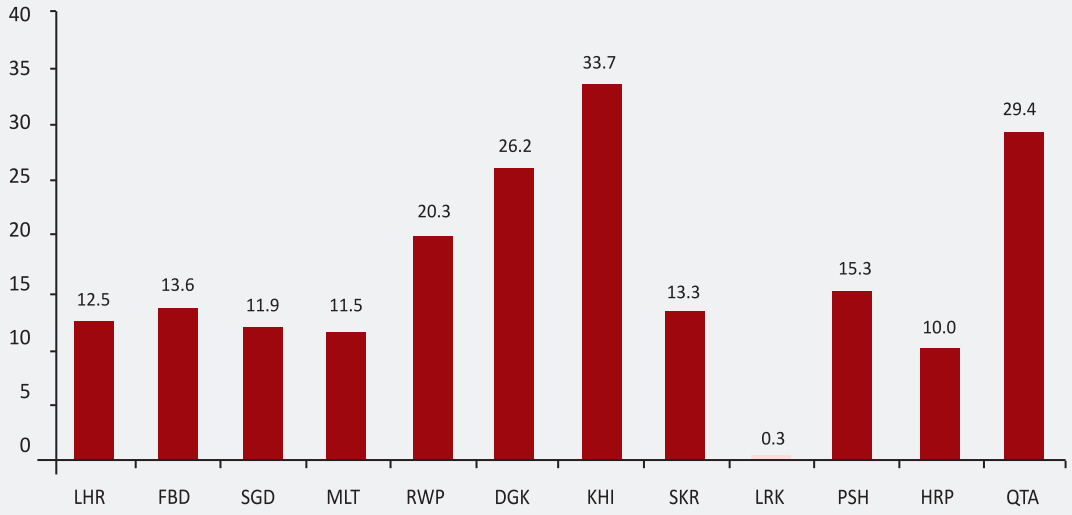
PKR 1.00= US $ 0.011

Table 6.3a: Mobility pattern of FSWs, IBBS 2011

Characteristics	All FSWs (%)	Type of FSW: Street (%)	Brothel (%)	Home (%)	Kothi khana (%)	Cell phone (%)	Others (%)
Migratory Pattern (In Migration)	20.5	22.3	43.5	15.8	22.7	18.7	36.3
Migrated from other cities							
▪ Permanently staying	55.6	72.1	70.8	60.7	35.3	42.0	55.3
▪ Visiting	44.4	27.9	29.2	39.3	64.7	58.0	44.7
Migrated specifically for sex work	54.6	40.8	84.6	46.0	65.3	66.4	53.3
Mobility Pattern (Out Migration)							
Traveled to other cities in the past 12 months for sex work	17.7	15.0	23.0	15.3	22.0	17.7	15.1
Most common cities traveled to							
Lahore	12.9	10.5	20.3	11.0	11.7	20.3	16.1
Karachi	12.7	15.3	20.2	9.8	12.0	19.3	5.6
Islamabad	9.9	4.6	3.5	10.6	15.5	9.5	7.5
Rawalpindi	7.2	7.3	12.2	9.9	6.6	0	0
Ever Travelled abroad	4.0	3.3	4.4	3.1	7.1	6.2	0
Involved in sex work when living abroad	77.1	72.7	99.0	77.4	71.2	85.3	0

Overall, 17.7% of FSWs reported having travelled to other cities in the past one year with Lahore followed by Karachi, Islamabad, and Rawalpindi being most commonly cited as in-migration cities (Table 6.3a). Four percent of all FSWs reported travelling abroad with the highest proportion of travel abroad being reported by Kothikhana-based (7.1%) and cell phone based FSWs (6.2%, Table 6.3a). Among those who traveled 77% were involved in sex work.

Figure 6.3a: Proportion of migrants FSWs by city, IBBS 2011



6.4 Risk Behaviours and Practices

6.4.1 *Sexual Partners*

With the exception of FSWs who work in public places, most FSWs (43.1%) relied on a "madam" as their main source of clients (Table 6.4.1a). However, this reliance on "madams" was typology based. For example, only 11.6% of FSWs who were street-based relied primarily on a madam for clients. Personal telephone contact, informal contacts ("roaming around"), and referrals from other clients were also important client sources for all types of FSWs (Table 6.4.1a).

Overall, FSWs report that on days that they work they have an average of three clients a day (SD = 2.3, Table 6.4.1a). On an average per month 50 ± 37.2 clients were reported. There was not much variation by typology. Comparing these data to the daily client volumes, it is evident that regardless of venue, the number of clients seen on a daily basis did not significantly vary by typology. Monthly client volume varies substantially between different cities, ranging from an average of 29 clients in Haripur to an average of 108 clients in Multan (Figure 6.4.1a). Client volume also varied by age, with younger FSWs having the highest client volume (Figure 6.4.1b).

Table 6.4.1a: Selected sex work related practices and behaviours among FSWs, IBBS 2011

	Types of FSW						
Practice / Behavior	**All FSWs (%)**	**Street (%)**	**Brothel (%)**	**Home (%)**	**Kothi khana (%)**	**Cell phone (%)**	**Others (%)**
Main source of clients							
Madam	43.1	11.6	60.2	50.9	82.6	7.3	3.6
Personal telephone	24.7	15.0	11.3	26.1	12.0	82.6	6.8
Roaming around	22.3	69.3	5.7	7.3	0.2	8.3	85.5
Client referrals	9.6	4.1	22.8	14.8	5.0	1.7	4.1
No. of Clients							
Avg # of clients/day ± SD	3.0 ± 2.3	2.9 ± 2.8	3.3 ± 2.2	2.9 ± 2.0	3.2 ± 2.3	2.7 ± 1.8	3.4 ± 3.1
Avg # of clients/mth ± SD	50.0 ± 37.2	42.4 ± 30.4	54.2 ± 34.3	51.5 ± 40.0	51.2 ± 38.1	47.4 ± 35.4	55.8 ± 40.7
Consistent condom use with							
Paid clients	33.2	32.3	54.6	32.8	27.3	38.7	28.9
Non Paid Partners	20.6	28.0	12.6	19.9	13.9	26.2	16.9
Condom use at last intercourse							
Vaginal sex	50.0	48.8	70.5	49.8	49.1	54.4	34.1
Anal sex*	37.0	42.5	48.4	33.7	37.1	44.8	14.3
Oral sex*	21.3	23.0	10.9	19.4	28.5	17.5	11.5
Alcohol/drug use during sex in the past 6 months	39.0	37.7	51.7	34.7	43.1	47.2	36.4
Sex with injecting drug user in past 6 months	10.8	10.4	15.8	8.9	10.7	13.7	14.7
Injected drugs in the past 6 months	4.9	3.4	7.2	5.2	3.8	5.3	6.9
Physically forced to have sex in past 6 months	21.2	23.5	20.5	17.9	20.1	25.7	33.4

*Among those who reported these activities

Figure 6.4.1a: Average number of paying clients in the past one month for FSWs by city, IBBS

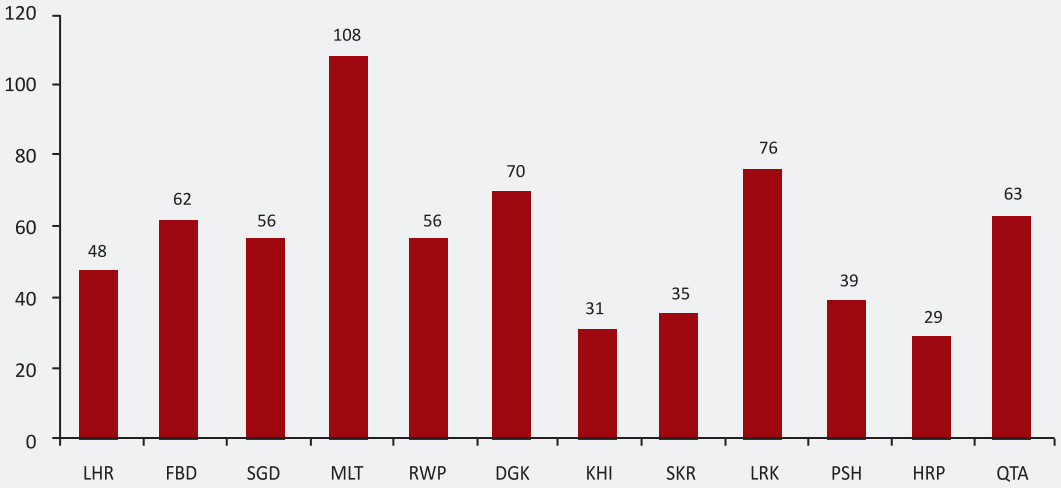
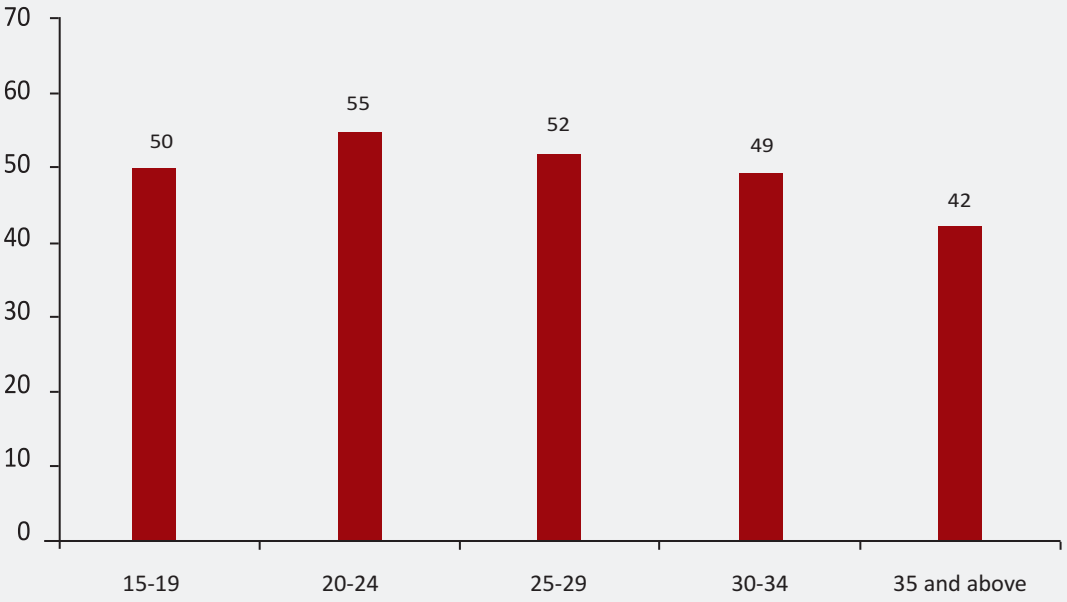


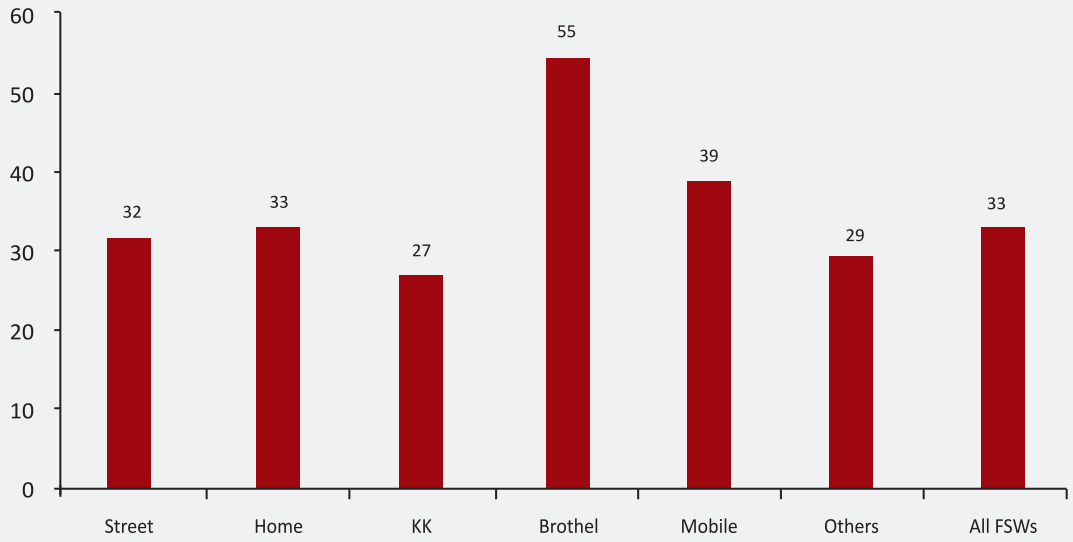
Figure 6.4.1b: Average number of paying clients in the past one month by age group for FSWs, IBBS 2011



6.4.2 Condom Use

Condom use by FSWs with their clients was generally very low. Only 33.2% of FSWs reported that they always used a condom with their clients in the last month, and 20.6% reported that consistent condom use with non-paid partners (Table 6.4.1a). Brothel-based FSWs reported substantially more condom use than the other types of sex workers, with 55% of them reporting consistent condom use (Figure 6.4.2a). However, only 12.6% of brothel-based FSWs reported consistent condom use with non-paid sex partners in the past month (Table 6.4.1a).

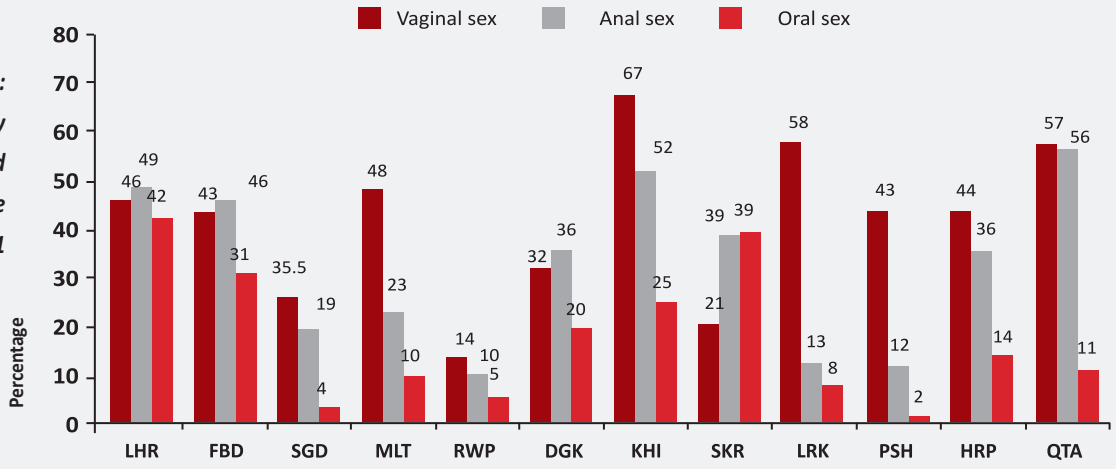
Figure 6.4.2a: Consistent condom use by various types of FSWs with clients in the past one month, IBBS 2011



Overall, 35.1% of FSWs reported having engaged in anal sex in the last one month. The corresponding proportions for oral sex and vaginal sex were 32.3% and 99.4%, respectively. One-half (50%) of FSW reported using a condom during their last vaginal intercourse (Table 6.4a). The highest proportion of FSWs reporting consistent condom use during the last intercourse was among brothel-based FSWs (71%) followed by cell phone based (54%), home-based (50%), street-based (49%), and Kothikhana-based (49%) FSWs (Table 6.4a). The same trends applied to condom use during last anal sex with the exception of home-based FSWs who reported the lowest rates (34%). Overall, condom use during anal sex was lower than that reported during vaginal sex (Figure 6.4.2b).

(50%), street-based (49%), and Kothikhana-based (49%) FSWs (Table 6.4a). The same trends applied to condom use during last anal sex with the exception of home-based FSWs who reported the lowest rates (34%). Condom use at last oral sex was reported lowest by brothel-based FSWs (10.9%) and highest by Kothikhana-based (28.5%) followed by street-based Sws (23.0%). A large variation of condom use at last sexual encounter was reported by different cities (Figure 6.4.2b). Overall, condom use during oral sex was lowerest than that reported during anal and vaginal sex (Table 6.4a).

Figure 6.4.2b: Condom use by FSWs at last paid sexual intercourse by city, IBBS 2011



Overall, condom use seemed to decline with age however this was not significant (Figure 6.4.2c). The exception however was in the context of oral sex where a higher proportion of younger FSWs (age 15-19 years) reported using a condom when compared to other age groups.

There was an inverse relationship between education and consistent condom use; the longer the number of years in school, the more consistent the condom use (Figure 6.4.2d).

Figure 6.4.2c: Condom use of FSWs at last paid sexual intercourse by age, IBBS 2011

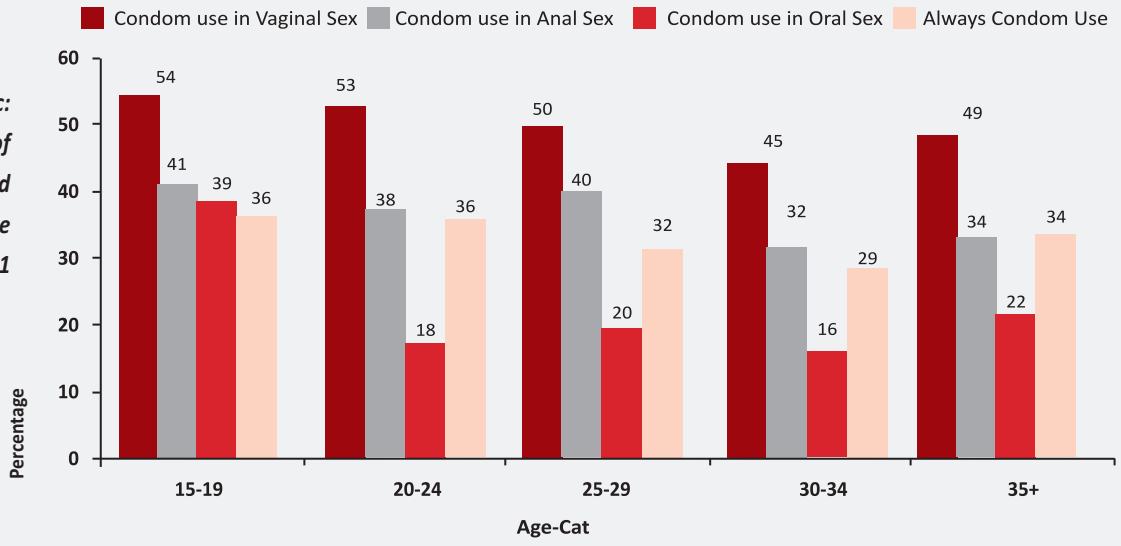
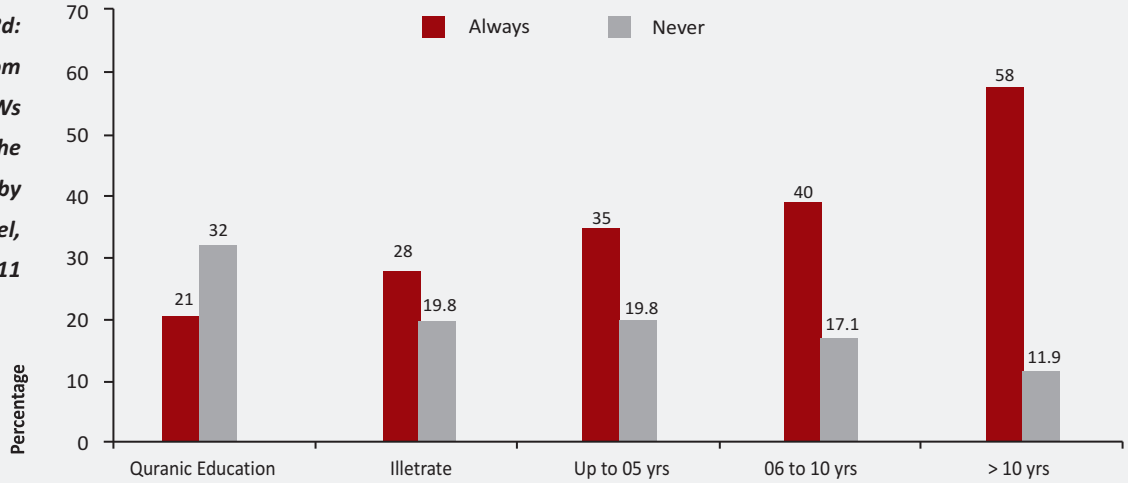


Figure 6.4.2d: Consistent condom use by FSWs with clients in the past one month by education level, IBBS 2011



There was significant geographic variation in the consistency of condom use. Condom use varies substantially by city (Figure 6.4.2e). Reported condom use was highest among FSWs residing in Larkana (53%), followed by Karachi (48%). The lowest rates of consistent condom use were reported among FSWs in Sukkur (5%) followed by D.G. Khan (8%) and Rawalpindi (8%).

Only a small percentage of FSWs were carrying a condom at the time of the survey interview (Figure 6.4.2f). Consistent with self-reported condom use, brothel-based FSWs were much more likely to be carrying a condom (37%) than other types of FSWs.

Figure 6.4.2e: Consistent condom use by FSWs with clients by city, IBBS 2011

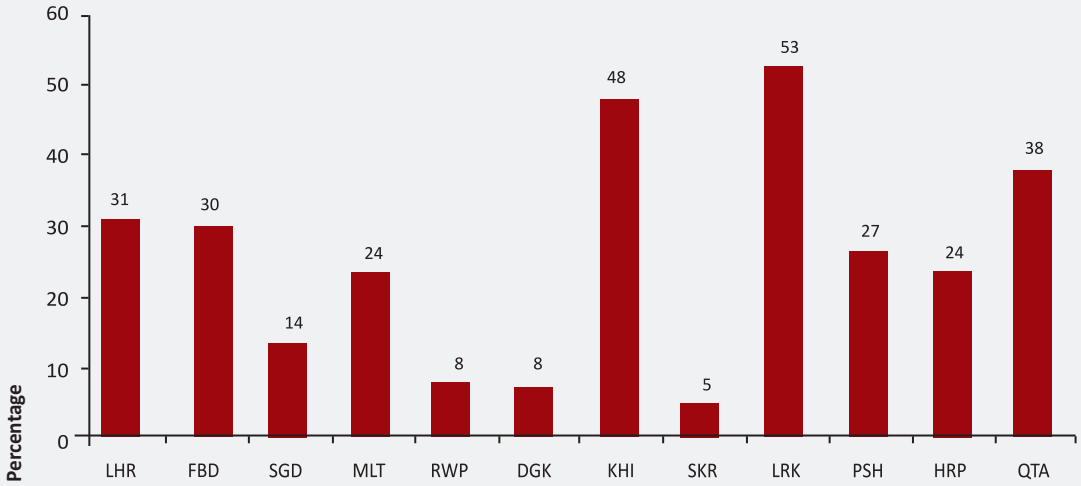
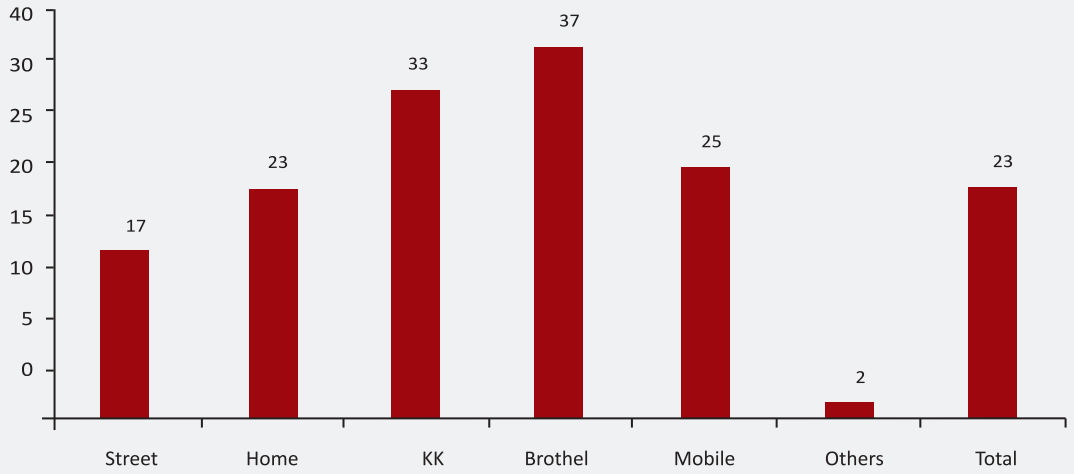


Figure 6.4.2f: Proportion of FSWs who were carrying a condom at the time of the survey by Typology, IBBS 2011



6.4.3 Risk behaviour

Overall, 39% of FSWs reported taking alcohol and or drugs in the context of sex in the past six months (Table 6.4.1a). The use of alcohol in sexual encounters was more commonly reported among brothel-based FSWs (52%) followed by cell phone (47%) and Kothikhana-based FSWs (43%, Figure 6.4.3a).

Use of alcohol in the context of sex did not vary significantly by age. However, there were notable geographic differences in this regard with the highest proportions being reported in Sukkur (70.7%) followed by Multan (61.5%) and Quetta (59.6%, Figure 6.4.3b).

Figure 6.4.3a: Use of alcohol by FSWs in the context of sex in the past 6 months by typology, IBBS 2011

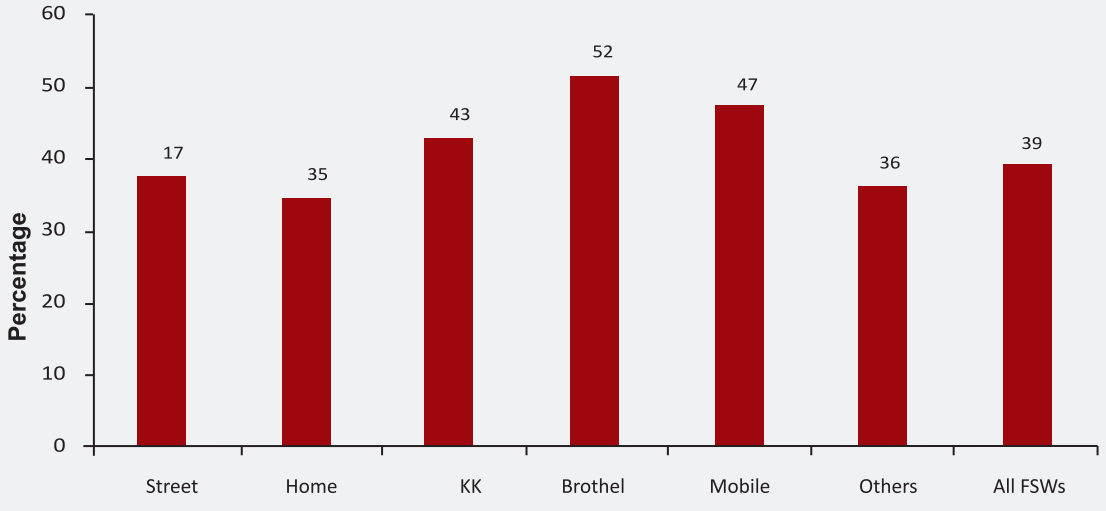
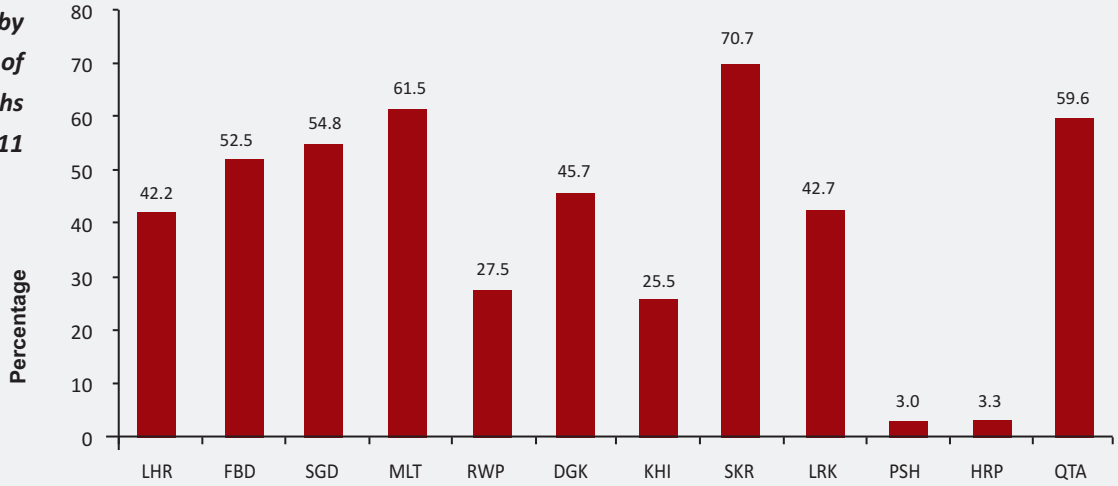
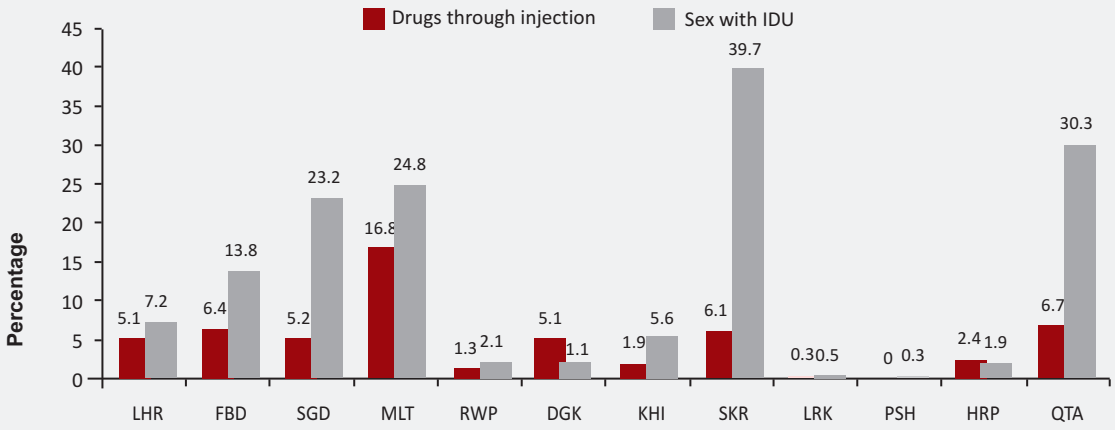


Figure 6.4.3b: Use of alcohol by FSWs in the context of sex in the past 6 months by city, IBBS 2011



Overall 4.9% of FSWs reported injecting drugs in the past six months and 10.8% reported having sex with an IDU in the same time period (Table 6.4.1a). Both injecting drugs and having sex with an IDU were highest among brothel-based FSWs (7.2% and 15.8%, respectively) followed by FSWs who solicit clients using a cell phone (5.3% and 13.7%, respectively). The highest proportion of FSWs reporting injecting drug use resided in Multan (16.8%). However, Sukkur topped the list of cities surveyed with respect to the reported proportion of FSWs having sex with an IDU (39.7%) followed by Quetta (30.3%) and Multan (24.8%, Figure 6.4.3c). With respect to typology, the highest proportion of brothel-based FSWs reported sex with an IDU followed by other FSWs and cell-phone based FSWs (Figure 6.4.3d)

Figure 6.4.3c: City-wise distribution of FSWs injecting drugs and having sex with an IDU, IBBS 2011



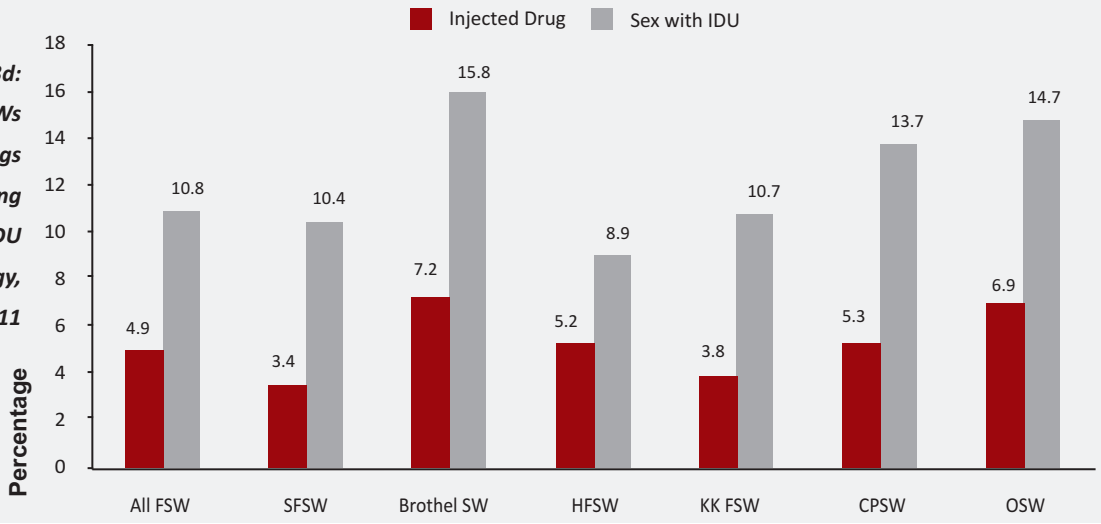


Figure 6.4.3d: Distribution of FSWs injecting drugs and having sex with an IDU by Typology, IBBS 2011

Over one-fifth (21.2%) of FSWs reported physical abuse in the context of sex with the highest proportion of this abuse being reported among FSWs in public spaces; 25.7% of cell phone based FSWs and 23.5% of street-based FSWs reported being physically forced to have sex in the past six months (Table 6.4.1a).

6.5 HIV and STI Related Knowledge

Overall, approximately 80.4% of FSWs had ever heard of HIV and/or AIDS, with brothel based sex workers reporting the highest level of awareness (91.2%, Table 6.5a). Of those who had heard about HIV and/or AIDS, only 63.9% believed that a healthy looking person can be living with HIV and/or AIDS. Most FSWs (94.3%) who had heard about HIV and/or AIDS knew that HIV can be transmitted by sexual intercourse, but less than one-third (32.6%) knew that HIV can be transmitted through injuries by sharp instruments or needles/syringes and only 13.4% knew about mother to child transmission of HIV (Table 6.5a). Overall, among FSWs who had heard of HIV and/or AIDS, brothel-based FSWs had the highest levels of knowledge with respect to HIV transmission (Figure 6.5a).

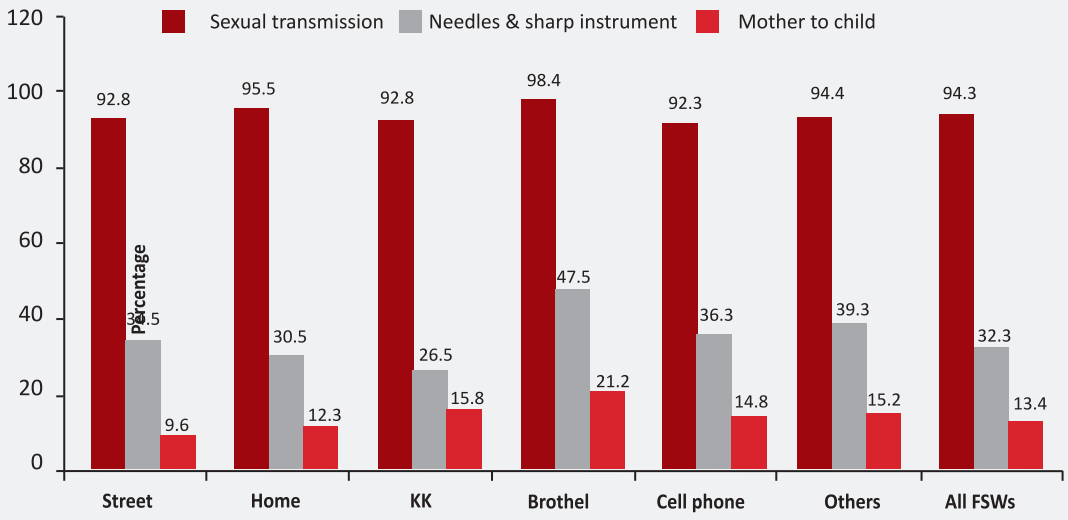
Approximately 73.2% of those who had heard of HIV and/or AIDS were aware that condom use is a method to prevent HIV transmission, and 63.2% believed that sexual abstinence is an HIV prevention method. Only 15.7% had ever been tested for HIV and 22.5% knew where HIV testing services were offered

Table 6.5a: HIV and STI related knowledge among FSW, IBBS 2011

Knowledge area	Types of FSW						
	All FSWs (%)	Street (%)	Brothel (%)	Home (%)	Kothi khana (%)	Cell phone (%)	Others (%)
Ever heard of HIV and/or AIDS	80.4	80.3	91.2	83.2	85.2	84.9	36.2
Healthy looking person can have HIV/AIDS*	63.9	61.0	58.0	66.2	64.5	65.1	52.5
HIV transmitted by sexual intercourse*	94.3	92.8	98.4	95.5	92.9	92.3	94.4
HIV transmitted by sharp instrument/needle*	32.6	34.8	47.9	30.9	26.5	36.1	39.3
Transmitted from mother to child*	13.4	9.6	21.2	12.3	15.8	14.8	15.2
Condoms can prevent HIV transmission*	73.2	73.8	92.7	70.7	71.1	73.9	67.7
Sexual abstinence to prevent HIV transmission*	63.2	63.5	53.4	63.0	68.8	54.0	83.4
Ever tested for HIV*	15.7	12.5	31.9	14.3	18.5	15.0	3.1
Know where to receive HIV test*	22.5	18.2	43.3	20.9	21.9	29.1	9.3
Self perception of risk for HIV*	45.1	43.0	62.6	45.1	46.4	36.6	41.0
Awareness of STIs	79.9	77.2	86.9	82.5	86.3	81.8	45.8
Self-reported STI in past 6 months*	31.2	32.7	26.5	32.1	28.1	31.8	35.5
Receive treatment for reported STI*	43.1	46.5	48.6	40.7	52.0	33.6	33.1

*positive response to initial question

Figure 6.5a: Knowledge of modes of HIV transmission among FSWs by typology, IBBS 2011



(Table 6.5a). A little less than one-half (45.1%) who had heard of HIV and/or AIDS believed that they were at risk for acquiring HIV infection. With respect to other STIs, 79.9% were aware of such infections, 31.2% reported having had an STI in the past six months, and 43.1% reported being treated for the infection (Table 6.5a).

6.6 Program Exposure and Utilization

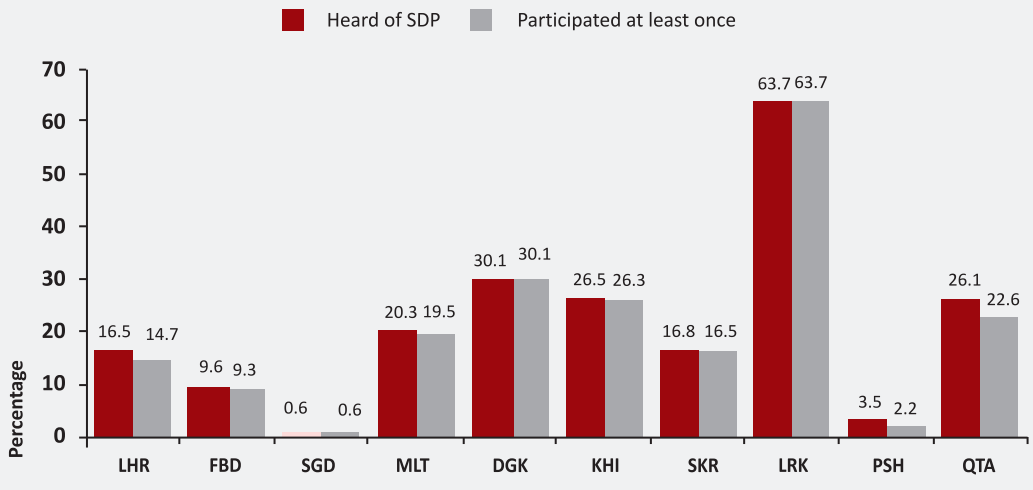
Only 18.9% of FSWs were aware of HIV prevention programs (SDPs) in their city, however, awareness of SDPs was relatively high among brothel-based FSWs at 88.2% (Table 6.6a). Among those FSWs who were aware of these services, the majority (36.6%) used the services once a month. Approximately 5.3% of the FSWs never used the Sdp services (Table 6.6a). Knowledge of and participation in programs was much higher among brothel based FSWs than any other types; approximately 89.1% of brothel-based FSWs had received a free condom in the past month. Overall, 16.1% of FSWs reported being arrested in the past six months with street-based FSWs reporting the highest (21.3%) proportion of arrests. A minority (3.7%) of FSWs reported selling blood for money during the past six months (Table 6.6a).

Awareness and utilization of SDPs among FSWs was further analyzed across the different cities. With the exception of Larkana, less than one-third of the FSWs were aware of services in their cities (Figure 6.6a). Programs in Sargodha showed the lowest utilisations rates (0.6%).

Table 6.6a: Knowledge and utilization of HIV prevention program among FSWs, IBBS 2011

Knowledge Area	All FSWs (%)	Street (%)	Brothel (%)	Home (%)	Kothikhana (%)	Cell phone (%)	Others (%)
Ever heard of HIV prevention programs	18.9	8.5	88.2	17.3	18.6	17.9	0.4
Number of times SDP services were availed							
More than once in a week	11.3	10.2	13.0	12.0	5.3	15.5	78.3
Once in a week	11.9	8.4	17.2	12.7	4.1	12.0	0
After two weeks	12.8	18.2	18.1	10.3	7.9	13.0	21.7
Once in a month	36.6	41.5	34.6	31.6	49.9	33.6	0
Less than once in a month	22.1	14.4	15.4	24.3	29.5	24.0	0
Never	5.3	7.3	1.6	9.1	3.3	2.0	0
Received free condom in past one month	24.6	10.8	89.1	22.9	30.6	23.7	2.1

Figure 6.6a: Knowledge and utilization of HIV prevention programs by FSWby city, IBBS 2011



Further analysis of various services availed by FSWs in the past six months showed that obtaining condoms from the SDP was the most utilized service across all cities followed by requests for medications. However, with the exception of Karachi program uptake was generally low across all cities (Figure 6.6b).

Figure 6.6b: Common services utilized at SDPs in past 6 month s by FSWs who have heard of these programs, IBBS 2011

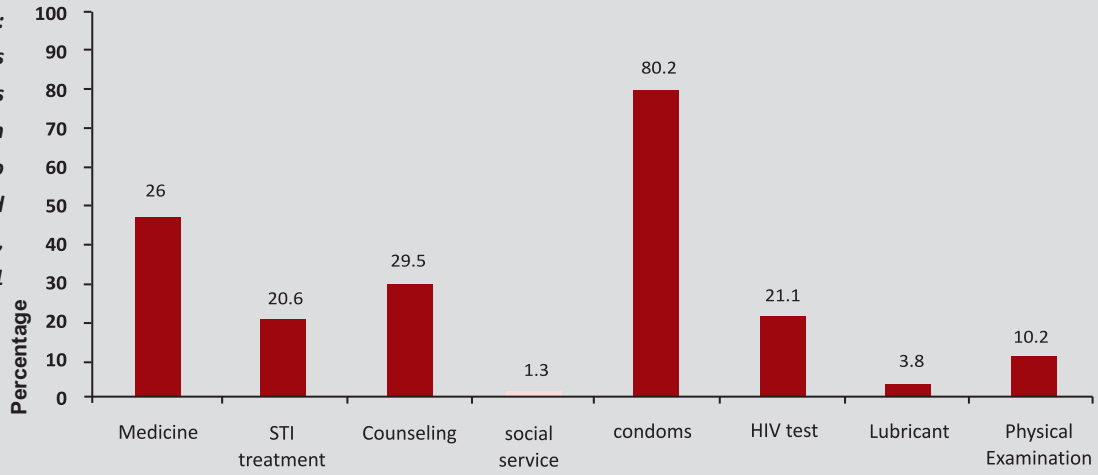


Table 6.6b Types of services used at the SDPs in the past six months among FSWs who have heard of these programs by city, IBBS 2011

Services	LHR	FBD	SGD	MLT	RWP	DGK	KHI	SKR	LAK	PSH	QTA
Medicines	50.0	0	100	10.5	44.4	37.5	65.0	9.5	0.8	69.2	43.3
STI treatment	8.1	0	50.0	5.3	0	2.5	36.0	47.6	0.4	0	12.2
Counseling	4.8	5.6	50.0	59.2	22.2	7.5	44.0	22.2	0	0	30.0
Social services	1.6	0	0	0	0	0	1.0	0	0	0	5.6
Condoms	79.0	88.9	100	86.8	70.0	94.2	84.0	39.7	94.1	38.5	58.9
HIV test	0	0	0	2.6	0	5.0	46.0	0	5.9	0	4.4
Lubricants	0	0	0	1.3	0	1.7	8.0	0	0.8	0	1.1
Physical Examination	3.2	2.8	50.0	27.6	0	6.7	9.0	4.8	0	0	31.1

6.7 HIV Prevalence

The prevalence of HIV among FSWs was low (Table 6.7a). A total of 25 FSWs tested HIV-positive, for an overall weighted prevalence of 0.8% (95% confidence interval, 0.4%,0.9%)[un-weighted prevalence 0.6% (95% CI: 0.4%, 0.9%)]. Larkana and Karachi reported the highest prevalence of HIV among FSWs (1.9% each) followed by Haripur (0.9%), Sukkur (0.8%), Lahore (0.5%), DG Khan (0.5%), Sargodha (0.3%), and Multan (0.3%, Table 6.7a). The highest absolute number of HIV positive cases resided in Larkana and Karachi (n=7) followed Sukkur (n=3). Lahore, Haripur and DG Khan each reported two HIV positive cases with Sargodha and Multan each reporting one HIV positive case. No HIV positive cases were reported in Faisalabad, Rawalpindi, Peshawar, or Quetta. The highest HIV prevalence was in Karachi where seven FSWs tested positive for HIV corresponding to a prevalence of 1.9% (95% CI = 0.9%, 3.8%).

Table 6.7a: HIV prevalence among FSWs by city IBBS 2011

City	Tested	Positive (n)	Prevalence 95% CI
Karachi	377	7	1.9 (0.9, 3.8)
Larkana	375	7	1.9 (0.9, 3.8)
Sukkur	375	3	0.8 (0.3, 2.3)
Rawalpindi	375	0	0
DG Khan	375	2	0.5 (0.1, 1.9)
Lahore	375	2	0.5 (0.1, 0.9)
Multan	375	1	0.3 (0.05, 1.5)
Sargodha	345	1	0.3 (0.05, 1.6)
Faisalabad	376	0	0
Peshawar	367	0	0
Haripur	211	2	0.9 (0.3, 3.4)
Quetta	345	0	0

Key Findings: Female Sex Workers

- Results from mapping exercises suggested 89,178 FSWs were in the 15 cities where mapping was completed.
- The highest number of FSWs were estimated in Karachi (25,399, range; 21,794 to 29,004), closely followed by Lahore (23,766, range; 21,109 to 26,422, Table 6.1a). More than 56% of the total FSW population was mapped in these two cities
- Across all cities the average current age of FSWs was 26.9 years, with little variation by FSW typology. Overall, 12.3% of FSWs were aged 15-19 years, with the highest proportion of FSWs who are less than 20 working out of Kothikhanas (16.1%).
- Overall, FSWs have been working as a sex worker for an average of 5.3 years, FSWs who work in brothels initiated sex work at a younger age (avg 19.2 years), and had worked for longer (avg 9.7 years) than other types of sex workers.
- The majority of FSWs (63.7%) were married, and a small proportion was either widowed (3.5%) or separated/divorced (8.0%). Among unmarried FSWs, the majority (34.7%) worked Kothikhanas. Sargodha had the highest proportion of unmarried FSWs (15%).
- The majority (85.4%) of FSWs had children with 18.5% reporting at least five children.
- The majority of FSWs (50.6%) were found to be illiterate, with illiteracy being more common among FSWs in brothels (63.9%).
- Only 23.5% of all FSWs had a source of income other than sex work, with FSWs who solicit clients through cell phones being most likely to have other sources of income (26.9%).
- The monthly median income reported among all FSWs was PKR 16,000 (range = 15,00 – 20,000). When limited to sex work alone, the reported monthly median income was PRK 15,000 (range = 15,703 – 21, 341). The lowest median income was reported among brothel-based FSWs followed by home-based, street-based, cell phone, and kothikhana-based FSWS.
- Average monthly income decreased with age.
- Approximately one-fifth (20.5%) of FSWs interviewed did not belong to the city of interview; there was some variation by city in the proportion of FSWs who were local residents.
- Overall, 17.7% of FSWs reported having traveled to other cities in the past one year with Lahore followed by Karachi, Islamabad, and Rawalpindi being most commonly cited as in-migration cities; 4% of FSWs had traveled abroad.
-
- With the exception of FSWs who work in public places, most FSWs (43.1%) relied on a “madam” as their main source of clients.
-
- On days that they work, FSWs had an average of three clients a day (SD = 3.0,). Per month, an average of 50 + 37.2 clients were reported. There was not much variation by typology but younger FSWs had a higher client volume than older FSWs.

Key Findings: Female Sex Workers

- Monthly client volume varies substantially between different cities ranging from average of 29 clients in Haripur to an average of 108 clients among FSWs in Multan.
- Condom use by FSWs with their clients was generally very low. Only 33.2% of FSWs reported that they always used a condom with their paid clients in the last month, and 20.6% reported that consistent condom use with non-paid partners. 50% of FSWs reported using a condom during their last vaginal intercourse.
- Brothel-based FSWs reported substantially more condom use than the other types of sex workers.
- Reported condom use was highest among FSWs residing in Larkana (53%), followed by Karachi (48%); lowest rates were reported in Sukkur (5%).
- Overall, condom use during anal sex was lower than that reported during vaginal sex
- The use of alcohol and/or drugs in sexual encounters was more commonly reported among brothel-based FSWs (52%) followed cell phone based (47%) and Kothikhana-based FSWs (43%).
- Both injecting drugs and having sex with an IDU were highest among brothel-based FSWs (7.2% and 15.8%, respectively) followed by cell phone based FSWs (5.3% and 13.7%, respectively).
- The highest proportion of FSWs reporting injecting drug use resided in Multan (16.8%). However, the reported proportion of FSWs having sex with an IDU was highest in (30.3%) followed by Multan (24.8%) and Sargodha (23.2%).
- Approximately 80.4% of FSWs had ever heard of HIV and/or AIDS, with brothel based sex workers reporting the highest level of awareness (91.2%).
- Most FSWs (94.3%) who had heard about HIV and/or AIDS knew that HIV can be transmitted by sexual intercourse, but less than one-third (32.6%) knew that HIV can be transmitted through injuries by sharp instruments or needles/syringes and only 13.4% knew about mother to child transmission of HIV.
- Only 15.7% of FSWs had ever been tested for HIV and 22.5% knew where HIV testing services were offered.
- Only 18.9% of HSWs were aware of HIV prevention programs (SDPs) in their city; awareness of SDPs was relatively high among brothel-based FSWs at 88.2%.
- With the exception of Larkana and Karachi, less than one-third of the FSWs were aware of services in their cities. Programs in Sargodha showed the lowest utilisations rates (0.6%).
- The prevalence of HIV among FSWs was low. A total of 27 FSWs tested HIV-positive, for an overall weighted prevalence of 0.8% (95% confidence interval, 0.4, 0.9)
- Larkana and Karachi reported the highest prevalence of HIV among FSWs (1.9% each) followed by Haripur (0.9%), Sukkur (0.8%), Lahore (0.5%), DG Khan (0.5%), Sargodha (0.3%), and Multan (0.3%). No HIV cases were reported in the remaining cities.

7 Transmission Dynamics

7.1 Bridge Populations

By combining the estimated size of different key population at risk and their numbers of sexual paying partners, it is possible to estimate the total number of sexual partners involved with each of the key population. These sexual partners act as bridge population which are an important consideration in assessing the transmission dynamic and epidemic potential.

The analysis of bridge populations for MSWs, HSWs, and FSWs showed substantial variation in the estimated number of monthly sexual partners both within and between cities (Figure 7.1a). These figures indicate the overall potential for epidemic expansion within cities, and provide guidance about the importance of program scaling up across cities.

Overall, the HIV epidemic appears to be more established in HSWs than among MSWs and FSWs, though much of this is influenced by very high prevalence among HSWs in Larkana and Karachi. The high HIV prevalence and potential for relatively large sexual network of HSWs in these cities indicate an urgent need for effective targeted prevention among HSWs particularly in this city. Karachi is of particular concern since it also has the largest MSW and FSW populations. Therefore, in terms of the overall volume of encounters, Karachi requires a large-scale program for all three key populations. Interestingly, as previous reports suggest the relative size of sexual networks of HSWs and MSWs differed by city, in designing programs it will be important to understand the level of overlap between these three populations, and to ensure that programs are appropriately scaled for each of these groups.

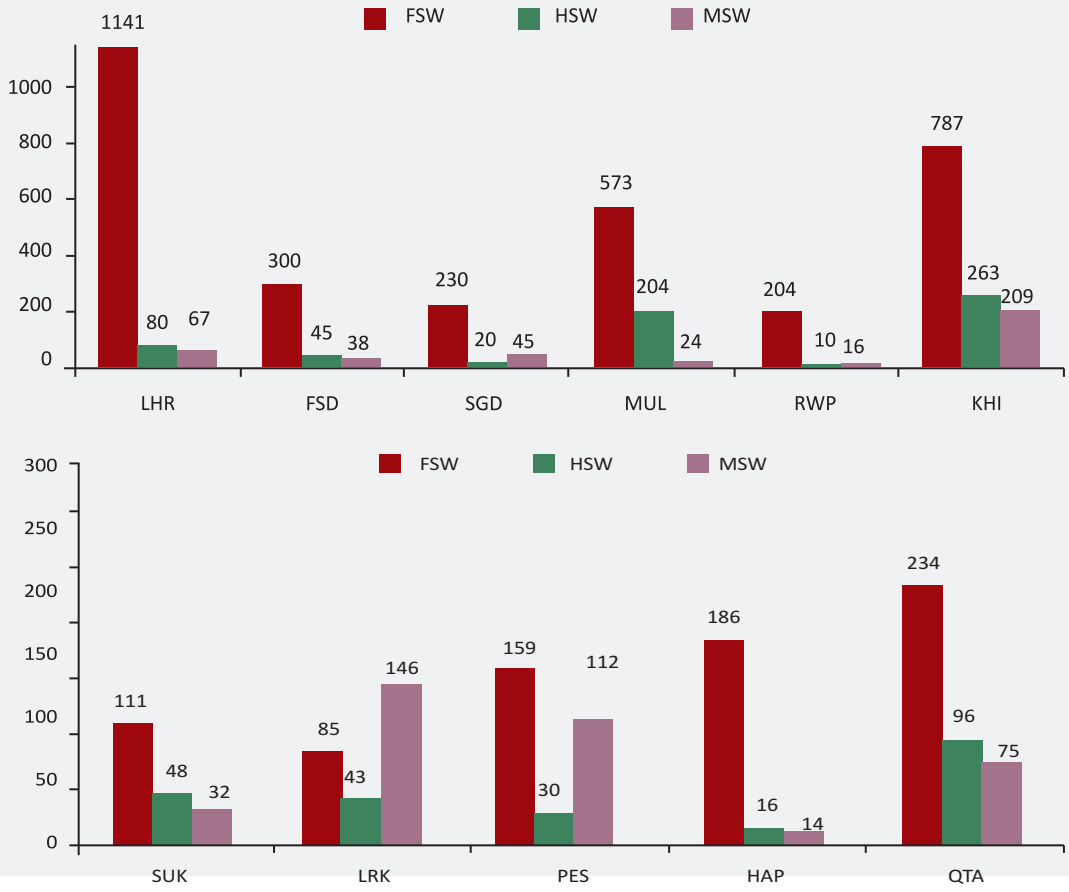


Figure7.1a: Estimated number of monthly sexual partnerships among MSWs, HSWs, and FSWs by city (in thousands), IBBS 2011

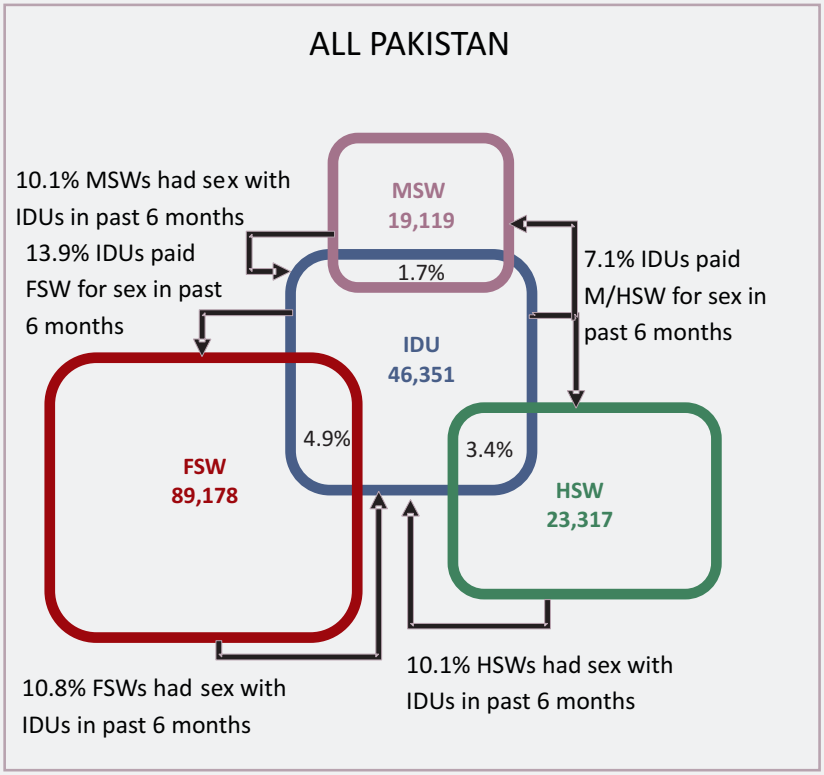
7.2 Network Interactions

Since the major outbreak of HIV among IDUs in the city of Larkana, Sindh in 2003, HIV surveillance data have shown increasing infections among the IDU groups in other cities. In cities where there is an established epidemic among IDUs, there is a danger of further spread of HIV through sex with paid and/or non-paid sex partners. The extent of sexual partnering with IDU and travel and migration also needs to be taken into consideration in the program design. To prevent the spread of HIV, it is important to understand the extent and pattern of interactions between the different key populations and the coverage of prevention programs targeting these groups. The surveillance data suggest some important interactions between IDUs and sex workers, as illustrated in Figure 8a.

Overall, 1.7% of MSW, 4% of HSW and 4.9% of FSW reported injecting drugs in the past six months. Furthermore, 4.8% and 9.4% of IDUs reported having sex with M/HSWs and FSWs, respectively, in the past six months; 11.2% of HSWs, 9.8% of FSWs, and 12.2% of MSWs reported having sex with IDUs during the same time period (Figure 8a).

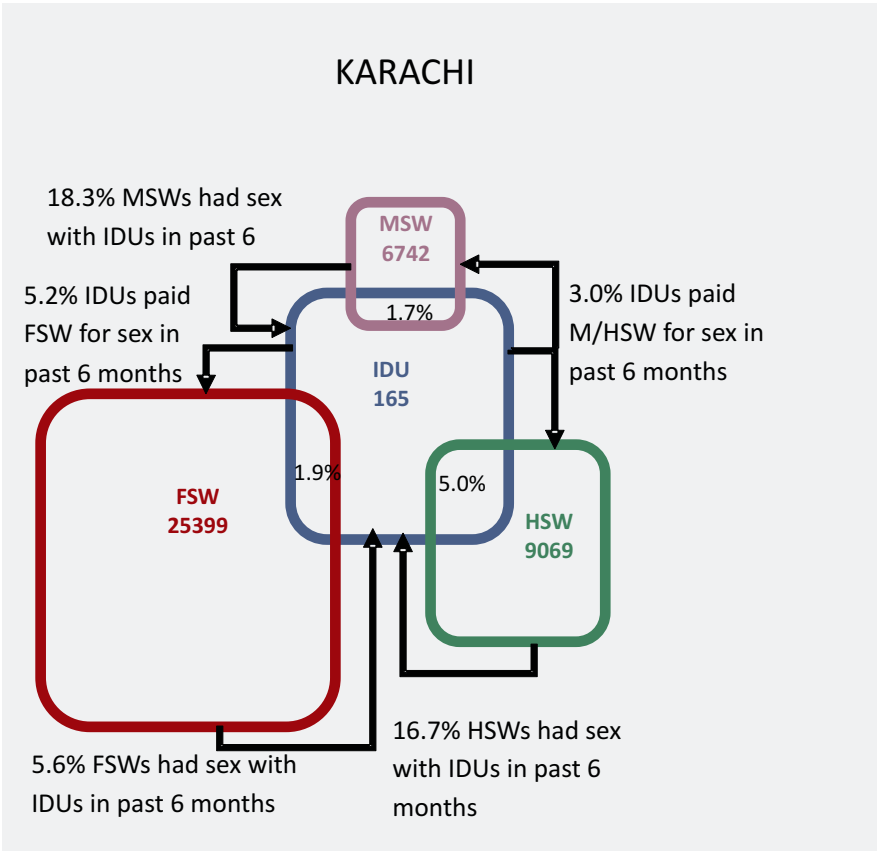
Sexual and injecting drug use networks between the various key populations differ geographically as presented below:

Figure. 7 a: Interactions between the IDU, MSW and HSW population, IBBS 2011

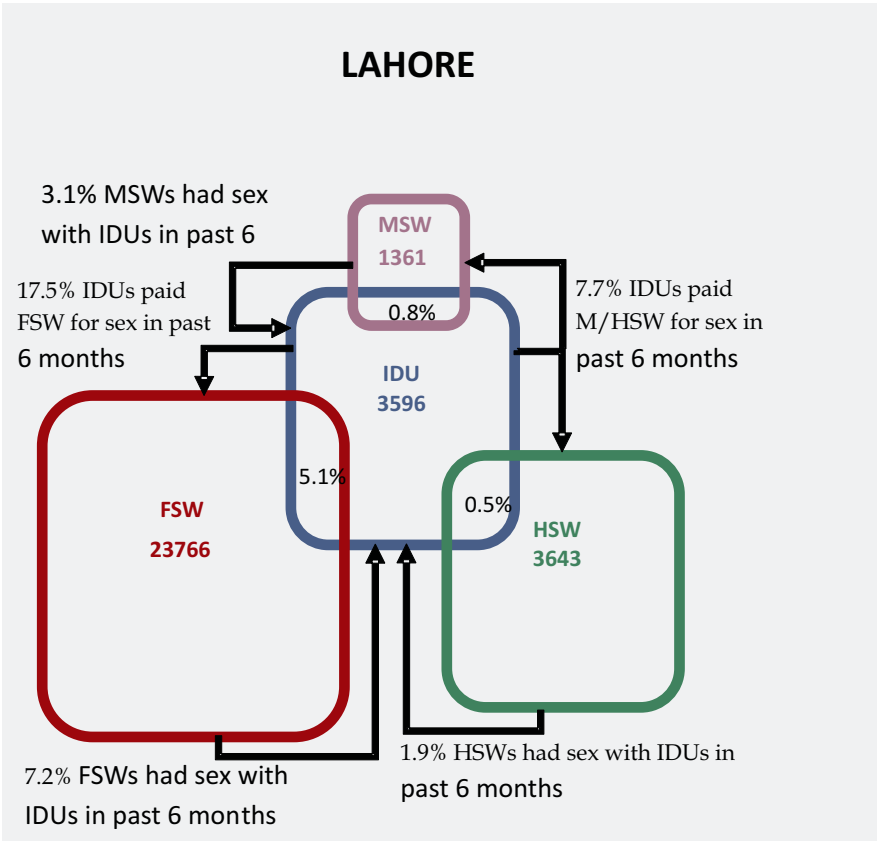


network interaction was calculated for those cities whereall 4 key population at risk were included IBBs

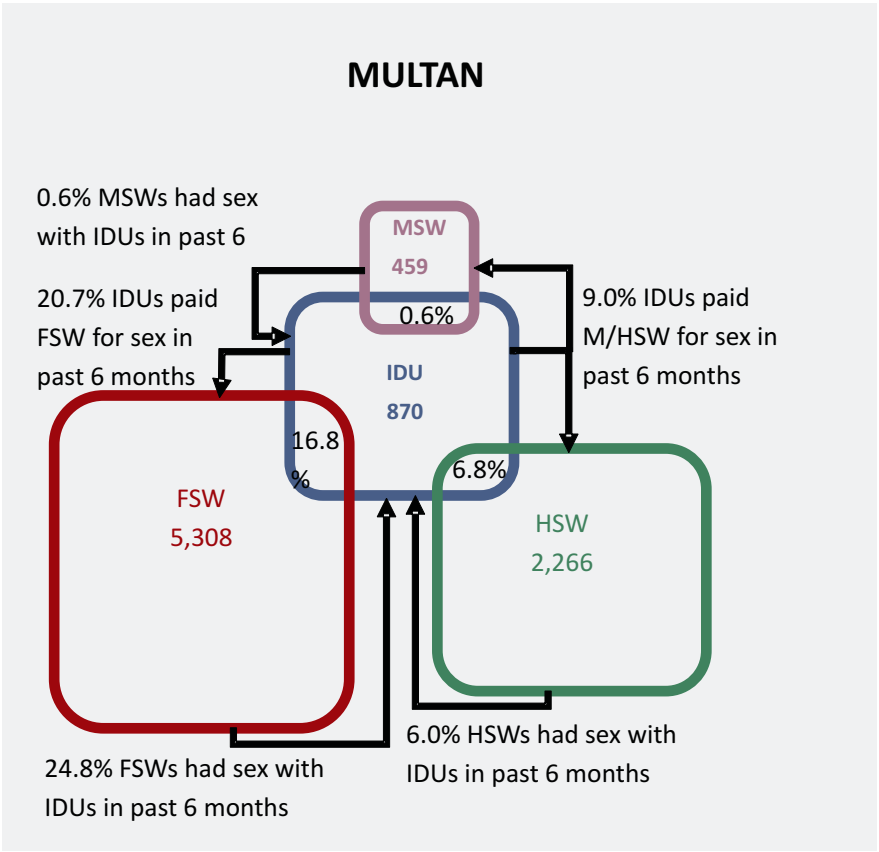
7.1 Karachi: 1.7% of MSWs, 5% of HSWs and 1.9% of FSWs reported injecting drugs in the past six months. Approximately 3% and 5.2% of IDUs paid a M/HSW or FSW, respectively, for sex in past six months. A large proportion of MSWs (18.3%) and HSWs (16.7%) and 5.6% of FSWs reported sex with IDUs in the past six months. These factors could all account for the high percentage of HIV possitive HSWs, MSWs, and FSWs in this city.



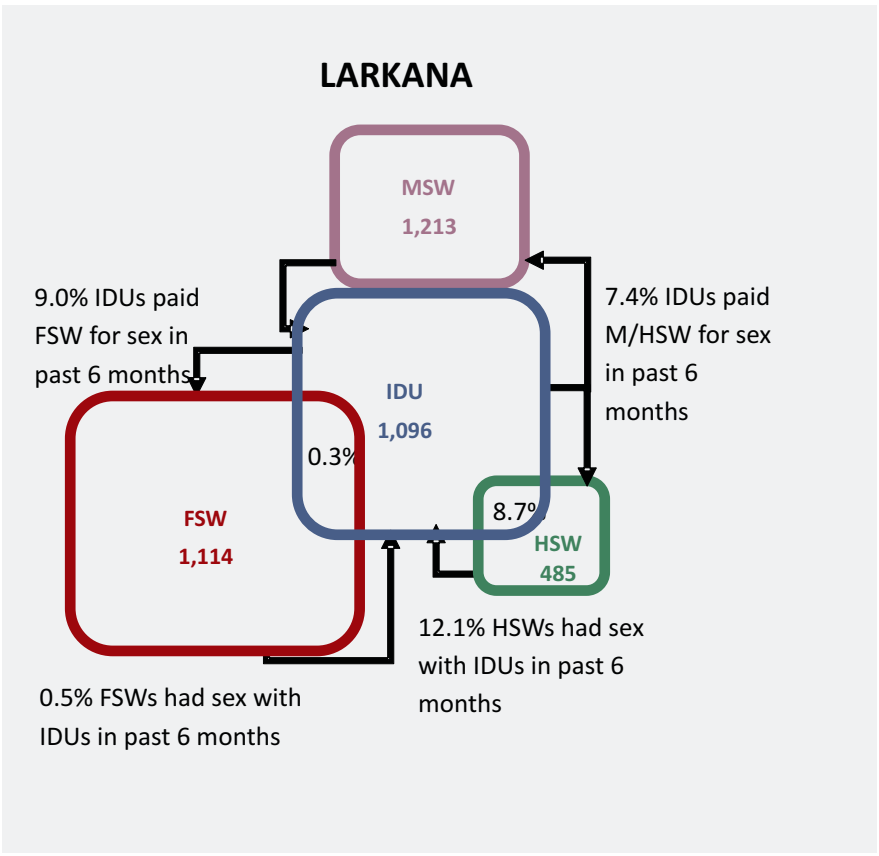
7.2 Lahore: 0.8% of MSWs, 0.5% of HSWs and 5.1% of FSWs reported injecting drugs in the past six months.7.7% of IDU paid for sex with an M/HSW in the past six month and a higher proportion (17.5%) paid for sex with an FSW during the same time period. 3.1% of MSW, 1.9% of HSW and 7.2% of FSW had sex with an IDU in the past six months.



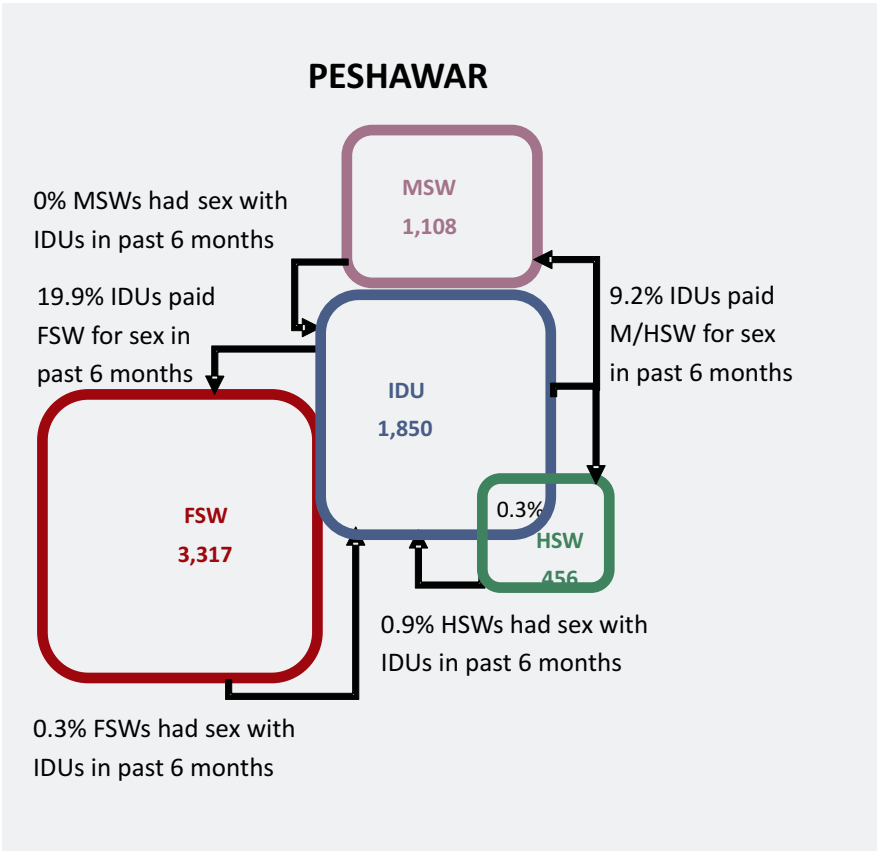
7.3 Multan: The levels of interactions between IDU and other key populations remain moderate with the IDU/FSW interactions being the most highly reported in this city. 0.6% of MSWs, 6.8% of HSWs, and 16.8% of FSWs reported injecting drugs in the past six months. 9% of IDU reported sex with an M/HSW in the past six months and 20.7% reported sex with an FSW in the same time period. Similarly, 24.8% of FSW reported sex with an IDU in the past six month; 6% of HSW and 0.6% of MSW reported sex with an IDU during the same time period.



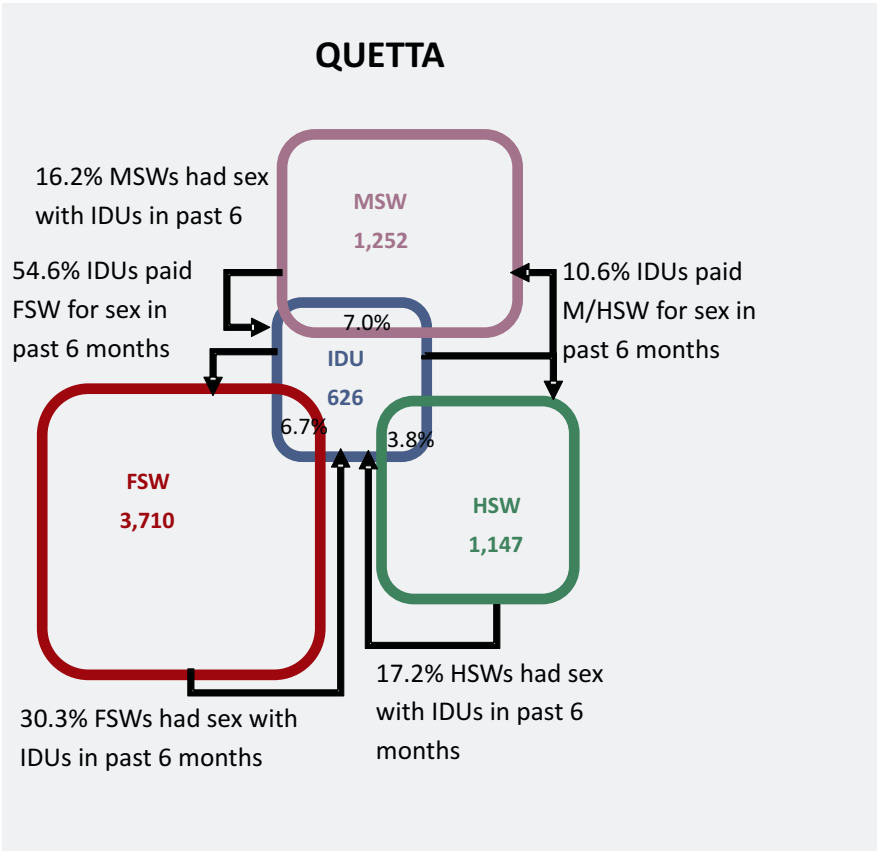
7.4 Larkana: The HSW/IDU interactions are of most concern in this city, however given the noted HIV prevalence among all key populations in this city the reported levels of interaction between the FSW/IDU and MSW/IDU populations is noteworthy. 8.7% HSW reported injecting drugs in the past six months, among FSWs, this proportion was 0.3%. 12.1% of HSW reported sex with an IDU in the past six months while 7.4% of IDU reported sex with an M/HSW during the same time period. Only 0.5% of FSW reported sex with an IDU during the past six months and 9% of IDU reported the same with FSWs. No MSW reported having sex with IDU in past 6 months



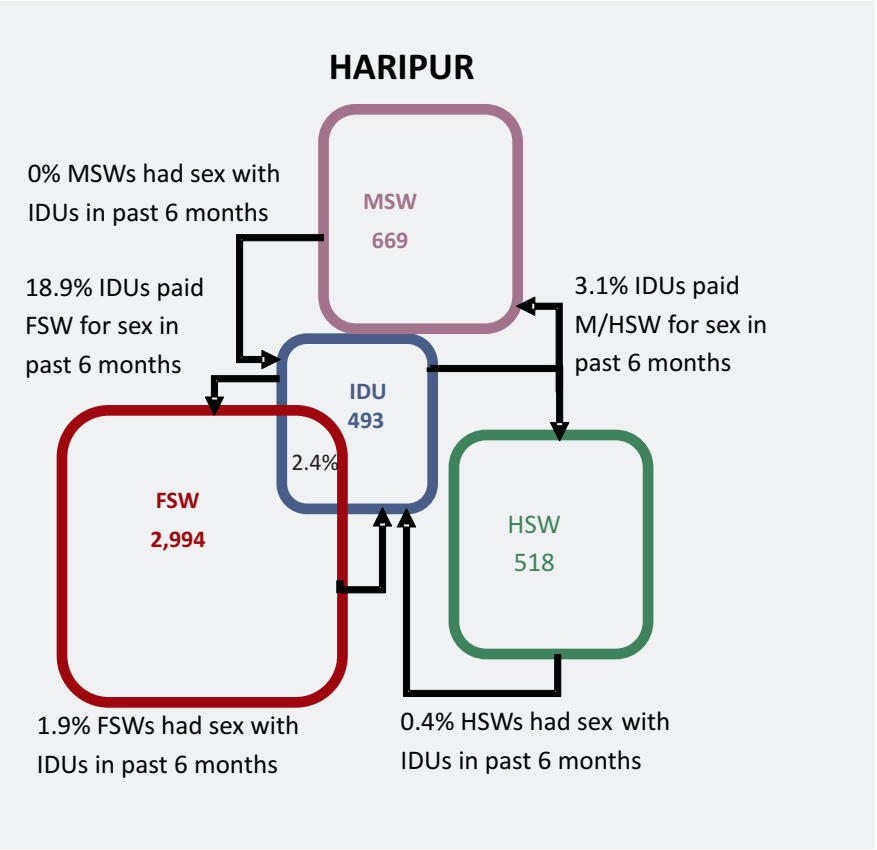
7.5 Peshawar: Interactions betwēen populations remain low in this city. Only 0.3% of HSWs and no FSWs or MSWs reporting injecting drugs in the past six months. However, 19.9% and 9.2% of IDU reported paying FSWs and M/HSWs, respectively for sex in the past six months. Only 0.3% of FSWs and 0.9% of HSWs reported sex with an IDU in the past six months.



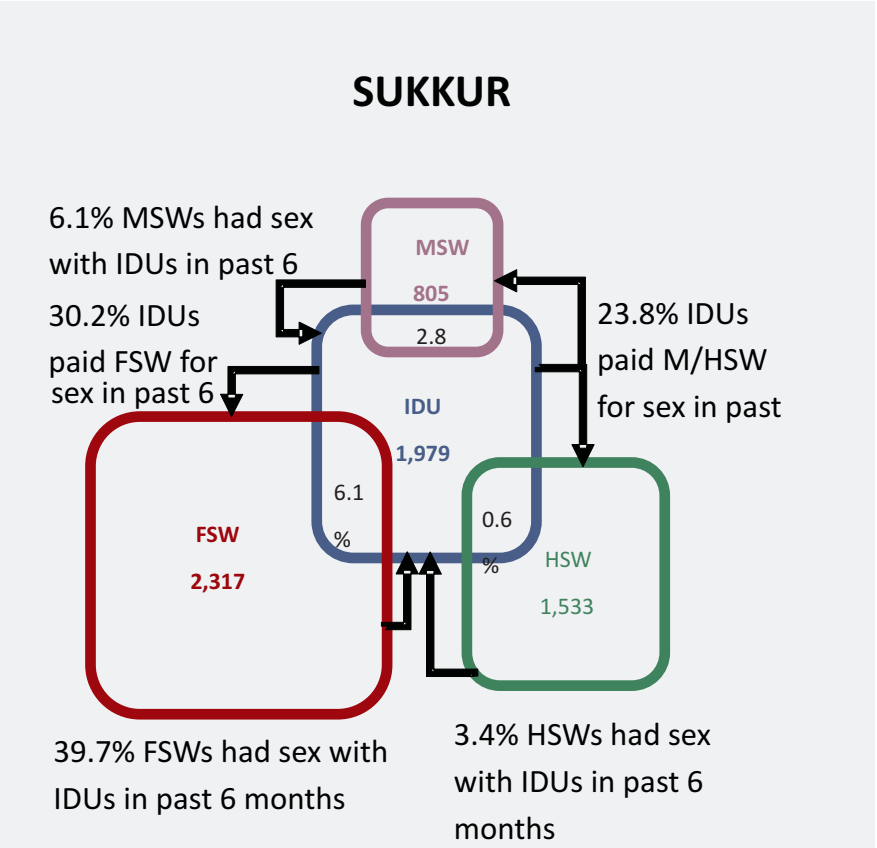
7.6 Quetta: 7% of MSWs, 3.8% of HSWs, and 6.7% of FSWs reported injecting drugs in the past six months. Reported sex between IDUs and FSWs is exceptionally high with 54.6% of IDU reporting sex with an FSW during the past six months and 30.3% of FSWs reporting sex with an IDU during the same time period. 10.6% of IDU reported sex with M/HSWs in the past six months whereas 16.2% of MSWs and 17.2% of HSWs reported sex with IDU in the same time period.



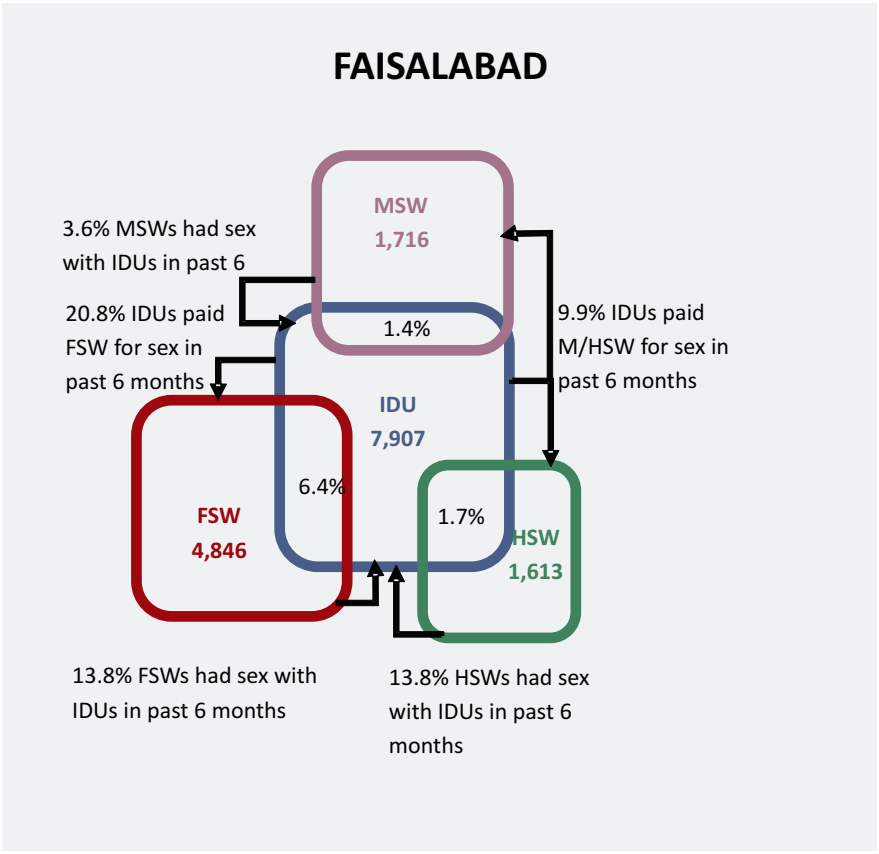
7.7 Haripur: Interactions betweēn key populations remain low in this city. Only 2.4% of FSW reporting injecting drugs in the past six months and no such activity was reported among M/HSWs. 18.9% and 3.1% of IDUs reported sex with FSWs and M/HSWs, respectively, during the past six months. Only 0.4% of HSWs reported sex with IDUs during the same time period.



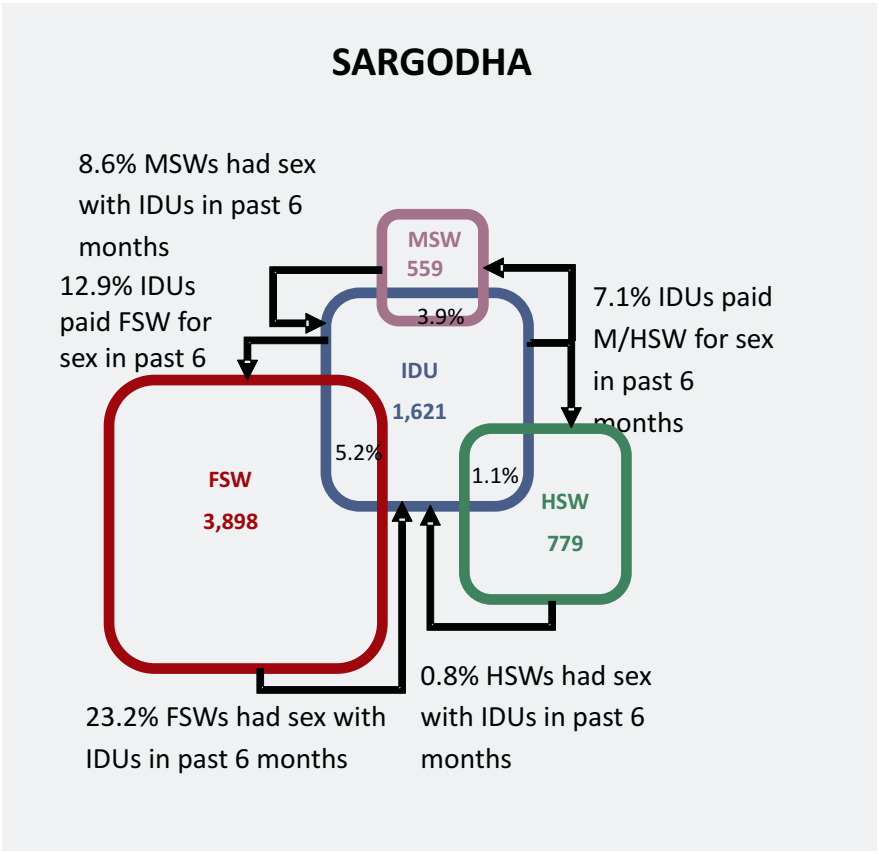
7.8 Sukkur: The reported higher prevalence of FSWs in this city could be partially explained by the extensive interactions between the FSW/IDU populations. Reported sex between IDUs and FSWs is high with 30.2% of IDU reporting sex with an FSW during the past six months and 39.7% of FSWs reporting sex with an IDU during the same time period. Similarly, 6.1% of FSW reported injecting drugs in the past six months contrasted with 2.8% of MSWs, 0.6% of HSWs reporting injecting drug use during the same period. 23.8% of IDU reported sex with M/HSWs in the past six months whereas only 6.1% of MSWs and 3.4% of HSWs reported sex with and IDU in the same time period.



7.9 Faisalabad: 1.4% of MSWs, 1.7% of HSWs, and 6.4% of FSWs reported injecting drugs in the past six months. 9.9% of IDU reported sex with an M/HSW in the past six months and 20.8% reported sex with an FSW in the same time period. 13.8% of FSW reported sex with an IDU in the past six month; 6% of HSW and 3.6% of MSW reported sex with an IDU during the same time period.



7.10 Sargodha: 3.9% of MSWs, 1.1% of HSWs, and 5.2% of FSWs reported injecting drugs in the past six months. 7.1% of IDU reporting sex with an M/HSW in the past six months and 12.9% reported sex with an FSW in the same time period. 23.2% of FSW reported sex with an IDU in the past six month; 0.8% of HSWs and 8.6% of MSWs reported sex with an IDU during the same time period.



Gender and Rights

As the populations most likely to be infected by HIV have tended to also belong to excluded or de-valued groups in society, the risks for HIV transmission exist within broader gender and rights-based vulnerabilities. It therefore follows that in order to address HIV/AIDS we need to move beyond concerns related to socio-demographic factors and risk behaviours, to understanding and providing guidance for addressing the underlying social, cultural and economic factors that make individuals vulnerable to HIV infection.

The purpose of this section is to discuss key gender-based inequities and issues related to rights in relation to HIV infection. For sex workers (FSWs, MSWs and HSWs), three indicators were chosen to reflect these inequities – ever having been arrested, experience of sexual violence, and control over money. Factors associated with HIV infection were classified into two categories: (1) "upstream" elements comprising largely of socio-demographic factors (ex: age, sex work typology, marital status), and (2) "downstream" factors comprising of risk behaviours and access to services. For IDUs, we examined the association between ever having been arrested and experience of sexual violence which served as proxies for gender-based inequities with the aforementioned "upstream" and "downstream" factors. In doing this analyses, we hope to begin the process of exploring relationships between key power, control, and rights outcomes and variables describing the individuals' socio-demographic and life situations, and in terms of HIV risks, vulnerabilities, and access to services.

Street based FSWs and 'other FSWs' (a category which include beggars, those roaming the streets to access clients), FSWs between 20-34 years of age, those married or separated/divorced, those never accessing services and HIV positive FSWs were more likely to report ever being arrested (Table 8.a). In contrast, younger (<20 years), unmarried FSWs who were HIV negative reported having experienced sexual violence (Table 8.a). Furthermore, a higher proportion of street and cell phone based FSWs, those relying on "aunties" or roaming the streets to access clients, and those who reported never accessing SDPs also reported sexual violence (Table 8.a). Interestingly, control over money was highest among the SBSW and CPBSWs, typologies; more independent sex work appears to bring benefits as well as increasing the risk of arrest and violence. Monetary control also increased with age, was lower among the unmarried FSWs, but also higher among those who were HIV positive or had accessed HIV services at least once (Table8.a).

The World Health Organisation's definition of gender:
"Gender" refers to the socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women. These socially constituted gender differences are not neutral but result in women/girls and men/boys being valued differently and having unequal opportunities and life chances. This differs from the term "sex" which refers to the biological and physiological characteristics that define men and women (ex: women menstruate while men do not, men have testicles while women do not, and women have developed breasts that are usually capable of lactating, while men have not).

Table 8.a: Percentage of FSWs experiencing arrest or sexual violence, and extent of monetary control by socio-demographic status, HIV risk factors, and access to services

Downstream factors	Ever having been arrested		Experience of sexual violence		Control of money			
Up-stream elements	%	p-value	%	p-value	Keep myself (%)	Share (%)	Give all (%)	p-value
Typology								
Home based SW	13.5	0.000	17.9	0.000	45.6	34	20.4	0.000
Brothel based SW	14.5		20.5		59	13.8	27.2	
Street based SW	21.3		23.6		63.1	20.9	16	
KK SW	14.7		20.1		36.1	35	28.9	
Cell phone based SW	16.3		25.7		61.6	16.8	21.6	
Others	23.6		33.4		55.3	33.7	11	
Age								
Less than 20 years	13.6	0.000	22.5	0.000	30.4	26.6	43	0.000
20-24 years	17.1		22.2		43.9	31.4	24.7	
25-29 years	16.3		21.7		53.5	29.4	17.2	
30-34 years	17.6		19.1		52.5	33.4	14.1	
35 and above	14.7		20.6		62.5	23.3	14.2	
Marital status								
Unmarried	15.5	0.000	26.5	0.000	34.5	36.3	29.2	0.000
Married	16.3		19.1		54.3	26.7	19	
Separated/divorced	17.7		21.0		55.2	29.3	16.6	
Widowed	11.3		22.2		65.9	23	11.1	
Client contact								
Aunty/guru	15.6	0.000	21.4	0.000				
Cell phone	12.1		16.4					
Roaming around	22.2		27.4					
Through old clients	14.2		18.5					
Access to services								
At least once	10.0	0.000	18.2	0.000	59.3	18.8	22.0	0.000
Never	35.2		34.3		39.7	20.0	40.3	
HIV Status								
Positive	22.2	0.000	10.6	0.000	65.4	24.4	10.1	0.000
Negative	16.1		21.4		49.7	29.2	21.1	

Among MSWs, being less than 20 years or between 25 and 34 years, being single (unmarried, divorced/separated or widowed), not using condoms during anal sex, relying on roaming the streets to access clients, and never accessing SDPs but being HIV positive were all factors associated with a history of being arrested (Table 9.b). A higher proportion of younger (< 20 years), unmarried MSWs who did not use condoms during the last sexual intercourse and relied on contacting clients on the streets reported experiencing sexual violence (Table 9.b). Interestingly, it was the younger, single MSWs who reported having full control over their money (Table 9.b), albeit while being a higher risk of arrest and violence.

Table 8.b: Percentage of MSWs experiencing arrest or sexual violence, and extent of monetary control by socio-demographic status, HIV risk factors, and access to services

Downstream factors	Ever having been arrested		Experience of sexual violence		Control of money			
Up-stream elements	**%**	**p-value**	**%**	**p-value**	**Keep myself (%)**	**Share (%)**	**Give all (%)**	**p-value**
Age								
Less than 20 years	18.1		50.5		75.2	18.8	6.0	
20-24 years	13		31.9		66.8	24.2	9.0	
25-29 years	17.4	0.000	21.9	0.000	60.8	30.2	9.0	0.000
30-34 years	19.5		12.9		57.1	39.3	3.6	
35 and above	11.6		10.7		54.5	42.3	3.2	
Marital status								
Unmarried	16.6		40.2		71.9	20.7	7.4	
Married	12.4	0.001	19.3	0.000	50.6	42.3	7.1	n/a
Separated/divorced	28.2		21.4		77.9	16.8	5.3	
Widowed	41.2		23.5		76.5	23.5	0	
Condom use during last								
Anal Sex	13.8	0.000	27.6	0.00	67.2	22.8	10.0	n/a
Oral Sex								
Access to services								
At least once	16.7	0.326	25.7	0.575	58.3	34.1	7.6	n/a
Never	25		31.3		86.7	6.7	6.7	
HIV Status								
Positive	21.7	0.000	33.7	0.191	61.5	30.9	7.6	0.000
Negative	15.5		36.6		68.8	23.8	7.4	
Client contact								
Aunty/guru	8.5		35.4		73.1	12.3	14.6	
Cell phone	13.5	0.001	28.1	0.000	63.4	27.7	8.9	n/a
Roaming around	18.2		42.3		71.3	23.4	5.4	
Through old clients	13.6		33.7		69.5	17.7	12.8	

Sample sizes were too small to allow for complete analyses of all variables related to HSWs. However, among this population, a higher proportion of younger HSWs and those not using condoms during the last anal sex reported ever being arrested (Table 8.c). Younger MSWs were also more likely to report sexual violence. Consistent with this, those who relied on established sexual contacts, gurus and dera networks to solicit clients were less likely to report previous sexual abuse (Table 8.c). Control over money seemed to peak among the 25-29 year age group, and was highest among widowed HSWs, those who reported condom use during last anal sex, and those relying on previous clients to make additional client contacts (Table 8.c).

-

Table 8.c: Percentage of HSWs experiencing arrest or sexual violence, and extent of monetary control by socioeconomic status, HIV risk factors, and access to services

Downstream factors	Ever having been arrested		Experience of sexual violence		Control of money			
Up-stream elements	**%**	**p-value**	**%**	**p-value**	**Keep myself (%)**	**Share (%)**	**Give all (%)**	**p-value**
Age								
Less than 20 years	15.9		53.8		34	53.6	12.4	
20-24 years	11.6		45.3		46	44.2	9.8	
25-29 years	9.4	n/a	29.7	0.000	60.4	32.4	7.2	0.000
30-34 years	7.2		24.8		57.9	30.4	11.7	
35 and above	9.7		23.3		55.4	35.3	9.3	
Marital status								
Unmarried	9.9		33.7		52.7	38.4	8.9	
Married	10.7	n/a	30.7	0.002	59.8	27.2	13	0.000
Separated/divorced	9.5		28.4		62.9	28.9	8.2	
Widowed	0		34.5		89.7	10.3	0	
Condom use during last								
Anal Sex	9.2	0.000	28.0	0.000	56.8	31.9	11.3	0.000
Oral Sex								
Access to services								
At least once	9.6	n/a	26.1	0.827	60.5	33.6	5.9	0.000
Never	0.5		25.6		71.3	28.1	0.5	
HIV status								
Positive	11.4	n/a	26.4	0.000	51.8	44.1	4.1	0.000
Negative	9.4		33.5		54.1	35.9	10	
Client contact								
Aunty/Guru	10.2		39.0		25.9	52	22.1	
Cell phone	9.4	n/a	32.2	0.000	59.8	31.5	8.7	0.000
Roaming around	11.3		35.2		53.2	40.8	6	
Through old clients	6.7		19.6		61.8	25.1	13.1	

The percentage of male and female IDUs experiencing arrest or sexual violence by socio-demographic status, HIV risk factors, and access to services is provided in Table 9.d. The small number of female IDUs prevented sex-disaggregation and analysis by upstream factors. A significantly higher proportion of male than female IDUs reported being arrested in the past six months. In contrast, sexual violence was reported among a higher proportion of female IDUs. Among those IDUs who reported being arrested in the past six months, a higher proportion reported migrating from another city, being unmarried or separated/divorced, having lower incomes (PKR <4,000), having purchased sex, sharing used needles, did not report condom use during the last sexual intercourse, were HIV negative and never used SDP services. Similarly, with respect to sexual violence, a higher proportion of IDUs had migrated from another city, had purchased sex from F/M/HSWs, and had shared used needles (Table 9.d). However, the proportion of IDUs reporting sexual violence was lower among widows, that not reporting condom use during their last sexual intercourse, HIV negative IDUs and those not accessing SDPs.

Table 8.d: Percentage of male and female IDUs experiencing arrest or sexual violence by socio-demographic status, HIV risk factors, and access to services

Downstream factors	Arrested in past 6 months		Experience of sexual violence	
Up-stream elements	%	p-value	%	p- value
Sex				
Male	16.1	0.000	4.3	0.000
Female	8.7		7.3	
Migration status				
Migrated from other cities	19.4	0.000	7.8	0.000
Local	15.6		4	
Marital Status				
Unmarried	16.8	0.000	4.5	0.024
Married	14		4.2	
Separated / divorced	22.7		4.2	
Widowed	9.3		2.9	
Education				
Illiterate	16.3	0.000	4.5	0.000
Quranic education	0		0	
Up to 5 years	18.9		3.5	
06-10 years	13.1		4	
>10 years	14.6		12.4	
Monthly income				
PKR <4000	27.6	0.000	5.6	0.000
PKR 4000-5999	14.5		3.8	
PKR 6000-7499	12.4		3.2	
7500	18		6.4	
Purchasing sex				
With female				
Yes	24.8	0.000	11.7	0.000
No	13.9		3.5	
With male/hijras				
Yes	30.7	0.000	17.3	0.000
No	14.8		3.3	
Needle passed				
Yes	23	0.000	4.8	0.025
No	13.7		4.2	
Condom use last sex				
Yes	22.4	0.013	16.1	0.000
No	25.7		10.1	
HIV status				
Positive	14.8	0.000	5.2	0.000
Negative	16.7		3.9	
Access to SDPs				
At least once	10.2	0.000	4	0.043
Never	27.4		1.1	

In summary the relationship between the downstream factors of sexual violence, arrest and control over resources and upstream elements is complex. Being associated with a network operator, dera or other sex work network seems to protect sex workers from violence and arrest but to also remove their control over money. The advice for HIV programmes would seem to be promoting prevention through network operators and also provide them training and assist them include more sex workers under their influence while also promoting the rights of sex workers, a challenge. For IDUs risk behaviors seemed to be associated with increased history of arrest and sexual violence, but not with HIV infection, albeit with the numbers and thus the indications for programming are less clear.

9 Conclusion

Like many other countries in South Asia, Pakistan faces a concentrated but a severe HIV epidemic among IDUs, first manifested in an outbreak of HIV among IDUs in Larkana. Since then, surveillance has shown that HIV is getting well established in IDU populations throughout the country and despite various preventive efforts, the infection rates among IDUs have steadily increased to 37.8% (37.3% to 38.3%) in 2011. Not only has the overall prevalence increased, but the number of sites with relatively advanced epidemics has also expanded. With the exception of Pakpatan, all 17 cities where the survey was conducted showed prevalence rates of over 5% among IDUs, and in a few cities like Faisalabad and DG Khan, HIV prevalence has reached almost 50% among the surveyed population. In comparison, during 2005, only five out of eight cities had HIV positive cases and in 2006-07 HIV cases were identified in eight out of twelve cities.

Of concern is the increase in the HIV prevalence among HSWs and MSWs, which now stands at 7.2% (6.8% to 7.5%) and 3.1% (2.8% to 3.4%) respectively. The role, if any, that these populations may play in the sexual networks and as potential bridges from the IDU population needs to be closely monitored. With respect to HSW, concentrated epidemics are now seen in cities with long standing IDU epidemics such as Karachi, Larkana, Sukkhur and Lahore. Karachi also shows a concentrated HIV epidemic in MSWs as well. Although the HIV prevalence among FSWs still remains low at 0.8%, of concern is the fact that HIV is now beginning to show its presence. During 2007, only one FSW tested positive for HIV from a sample of 12 cities, while in contrast, during 2011, a total of 27 FSWs tested positive for HIV from the same number of cities. Even with lower prevalence rates, the sheer size of this population and its close link with the general population through a large bridge warrants close monitoring of this population to ensure successful prevention of HIV transmission.

Trends in injecting behaviours have shown that the proportion of IDUs reporting needle/syringe sharing reduced between 2005 and 2008 but has remained relatively unchanged during 2011. In contrast a higher injecting with a used needle reversed trends in 2011, while injecting alone has significantly decreased during this same time period. There has been a significant increase in the use of professional injectors/street doctors by IDU for injecting purposes. Sexual behaviours of sex workers were even more disturbing. Consistent condom use which is the key to prevent the sexual transmission of HIV infection, showed significantly low levels among certain key populations most notably MSWs and HSWs. Given the potential for the spread of HIV infection among these populations and their possible roles in bridging sexual networks to IDUs, this finding is a major cause for concern.

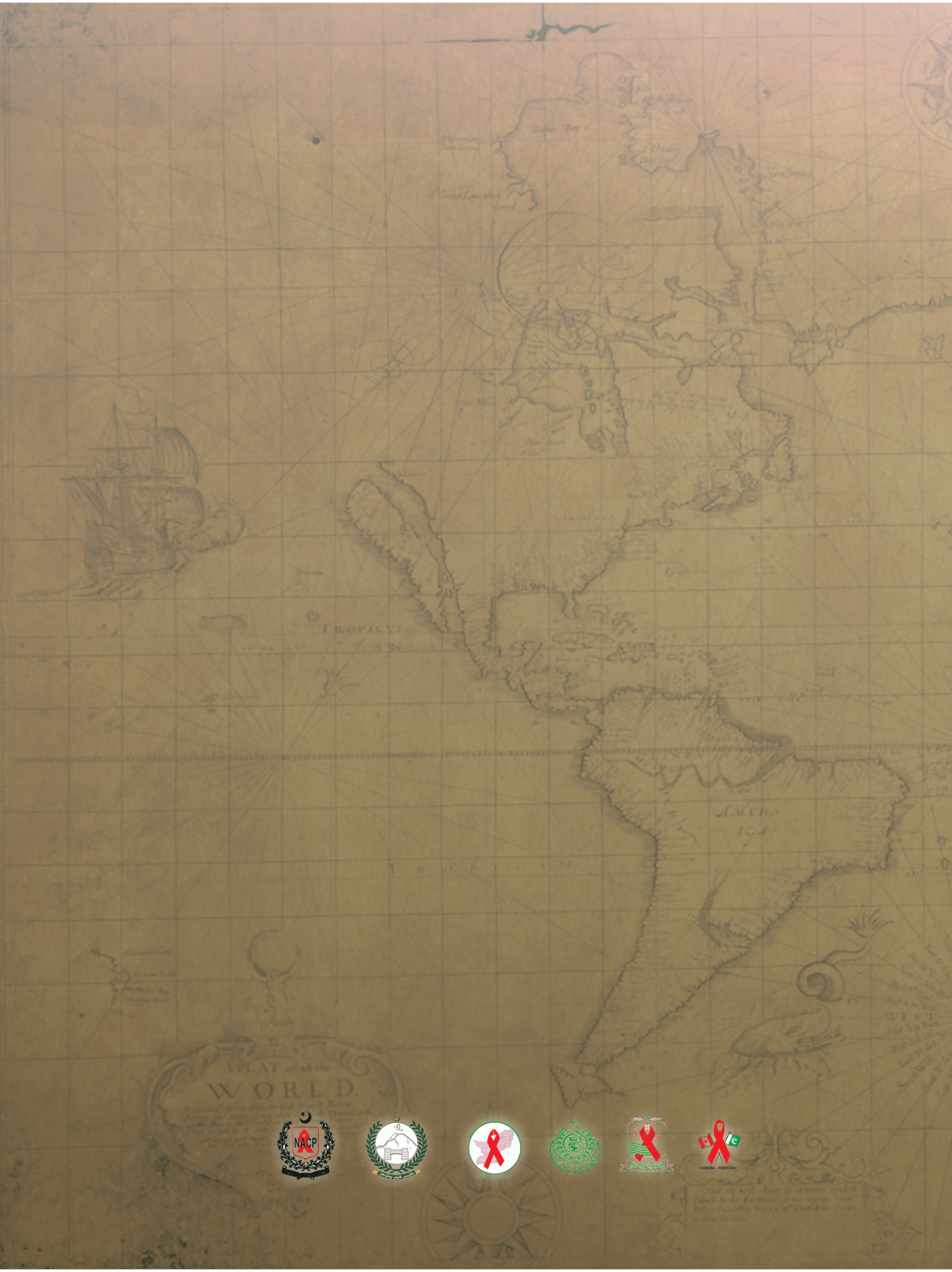
The use of prevention services by the various key populations over time is mixed. Among IDUs, after a significant increase in service utilisation between 2006-7 and 2008, there appears to be a drop in the proportion of IDU using SDPs.

Although 44% IDUs reported that they know of and utilize services of prevention programs, the number are much lower and needs to be much higher for an efficient and meaningful coverage. Service utilisation is further lower in sex worker populations and there is a urgent need to scale up services and coverage levels to a level which can halt the proliferation of HIV in these populations.

Interpretation of the results of this surveillance round should be made with caution, and a comparison with previous surveillance rounds might be misleading due to modification in methodologies and adjustments made in analyses of data.

The higher number of cities included in this round, adds to the overall power of the study and precision of results. The age limit for inclusion in the MSWs sample was lowered by 2 years, to have representation of younger MSWs in the sample as well. Moreover, because of the rapid progression of HIV epidemic in hijras and male sex workers sample size for these two populations was almost double in this round in comparison to the previous rounds. The improved analyses technique employed for analysis of round 4 data also makes it difficult to compare results of subsequent rounds. Thus the prevalence of 37.6% among IDUs in 2011, does not necessarily signifies that the prevalence has almost doubled in IDUs from 20% in 2008, as the former represents a weighted prevalence while the latter is an un-weighted proportion. The same holds true for similar other statistics. Moreover various data regarding knowledge and utilization of prevention services needs to be triangulated with programmatic data in context of place and time before an actual picture of coverage is portrayed.

Overall, this surveillance round has significantly improved our understanding of the distribution of HIV and of the underlying sexual and injection behavior determinants of HIV transmission. The contours of the epidemic are increasingly apparent and we know that the HIV epidemic in Pakistan is highly heterogeneous and shows wide diversity among provinces and within cities. The epidemic is currently largely centered around networks of injecting drug users, with evidence of epidemic expansion among MSM and Hijra communities. Effective prevention programs among these communities may avert a wider epidemic. If HIV spreads from injection drug users to sex workers, the epidemic will become even more serious, and a major prevention opportunity will have been lost. With each passing year it is becoming more stabilized and severe, but still eminently preventable. The future of this epidemic will depend on the scope and effectiveness of HIV prevention programs for injection drug users and their sexual partners, sex workers and their clients, and men having sex with men and their other sexual partners. These programs need to be supported to address the underlying socio-economic determinants of the epidemic, and to reduce stigma and discrimination towards people with high risk behaviors, as well as people living with HIV.


NACP
CANADA - PAKISTAN