HIV SECOND GENERATION SURVEILLANCE IN PAKISTAN

NATIONAL REPORT ROUND III 2008

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NATIONAL AIDS CONTROL PROGRAM

MINISTRY OF HEALTH

CANADA-PAKISTAN HIV/AIDS SURVEILLANCE PROJECT

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October 9, 2008

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TABLE OF CONTENTS

ACRONYMS

AFIP	Armed Forces Institute of Pathology
AIDS	Acquired Immune Deficiency Syndrome
CDCU	Central Data Coordinating Unit
CIDA	Canadian International Development Agency
DBS	Dried Blood Spot(s)
DGK	Dera Ghazi Khan
EIA	Enzyme Immunoassay
FAS	Faisalabad
FSW	Female Sex Worker
HASP	HIV/AIDS Surveillance Project
HIV	Human Immunodeficiency Virus
HRA	High Risk Activity
HRG	High Risk Group
HSW	Hijra Sex Worker
HYD	Hyderabad
IBBS	Integrated Behavioral and Biological Surveillance
IDU	Injecting Drug User
KHI	Karachi
KI	Key Informant
LAK	Larkana
LHR	Lahore
L1	Level 1
L2	Level 2
MSW	Male Sex Worker
MSM	Male having Sex with Male
NACP	National AIDS Control Program
NGO	Non-Governmental Organization
PACP	Provincial AIDS Control Program
PES	Peshawar
PKR	Pakistani Rupee
RDS	Respondent Driven Sampling
SD	Standard Deviation
SDP	Service Delivery Program/Package
SGD	Sargodha

SGS	Second Generation Surveillance
SIUT	Sindh Institute of Urology & Transplantation
SRS	Systematic Random Sampling
STI	Sexually Transmitted Infection
TA	Take All
UC	Union Council
VCT	Voluntary Counseling and Testing

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We would like to acknowledge the effort put in by the HASP team to help complete this round. This was a particularly demanding round as at six out of nine sites where the HASP team directly conducted and supervised the process of data collection.

Dr. Sohail Abbas
Field Director

FOREWORD

After conducting the first two rounds of surveillance and covering 12 major urban centers in the country, the NACP along with the HASP has collected sufficient data to determine the direction of the epidemic in Pakistan.

While planning for the third round, a number of important issues were considered, including whether:

- We should concentrate only on cities which are covered by SDPs so that the information collected is utilized for policy formulation, planning and improvement in interventions; and

- We need to work with HRGs which need urgent attention, the IDUs with concentrated epidemic and the MSW/HSW group which is showing concentrated epidemic in some cities and data is indicative of a possible fast growing epidemic

- HASP had already done surveillance through the two models: to work with consortia of NGOs and Research Institutes (RI), and this time they needed to try doing the surveillance directly by recruiting and training the field teams themselves as well as to work with small but relevant NGOs directly.

HASP has done very significant work in bringing to light the HRGs data in the country. Along with the data from the RTIs studies undertaken by NACP, we now have a pretty good picture of the status of HIV and STIs among the HRGs in Pakistan. We now need to focus our attention on the general population, including collecting data from the families of deported immigrant workers for determining their status as HIV+ and also of the communities they live in. This is necessary in order to understand whether a situation like that of Jalalpur Jattan, district Gujrat, exists in other parts of the country as well. This outbreak is believed to be contributed, in large part, by the widespread use of therapeutic injections by medical doctors and quakes alike.

There is also a need to ascertain the prevalence of HIV in the general population through screening in anti-natal clinics. These are some of the areas that have so far not been covered in the surveillance activities. The NACP encourages and supports researchers who are interested in looking into these areas and also other aspects of the surveillance data that demand further clarity including the sudden drop in the number of HIV+ IDUs in Sargodha, discrepancy in prevalence results from Sukkur in R1 and R2 etc. Another interesting area for further research could be an investigation into the discrepancy of number of IDUs estimated by the HASP and the number claimed by an NGO implementing a SDP on ground, or

any discrepancy in mapping or IBBS estimates between the HASP reports and NGOs working in the concerned areas.

The dynamics of the HIV epidemic in the country are changing, as evidenced by the latest surveillance results. Time is running out for planning and designing of implementation to take action and arrest the spread of HIV/AIDS with the aim of restricting the epidemic within the HRGs and, ultimately, arresting if not completely eradicating it.

Dr. Hassan Abbas Zaheer
National Program Manager
National AIDS Control Program

EXECUTIVE SUMMARY

This report provides biological and behavioural information of HIV related high risk groups (HRGs) from the 3rd round of surveillance, conducted from March, 2008 – June, 2008 in Pakistan.

The study was a cross-sectional behavioral and biological survey of three HRGs including Injecting Drug Users (IDUs), in 08 major cities, and Male Sex Workers (MSWs) and Hijra Sex Workers (HSWs) in 06 major cities in Sindh, Punjab and NWFP. Female Sex Workers (FSWs), though the largest HRG, were not included in the third surveillance round due to consistently low sero-prevalence observed in successive surveillance rounds i.e., 0.2% during round 1 (2005) and 0.02% during round 2 (2006-07). The cities included Karachi, Hyderabad and Larkana in Sindh; Lahore, Faisalabad, Sargodha and Dera Ghazi Khan in Punjab; and Peshawar in NWFP. In the initial planning of surveillance round 3, Quetta in Balochistan was also included, but was later suspended indefinately due to security issues. City selection was based on the presence of multiple HRGs and the presence of a service delivery programme (SDP) in the targeted city. Mapping results from 2006-07 were used to develop sampling frames required for recruiting study subjects. Dera Ghazi Khan was a new city included in this round, and mapping information was not available. Therefore, Integrated Biological and Behavioral Surveys (IBBS) were preceded by Mapping in DG Khan. Diverse sampling techniques were used to draw representative samples of the key populations in each city. Behavioral data were gathered from these population samples using a structured questionnaire covering socio-demographic information and risk behavior indicators identified from the literature on HIV, including profession related variables, risk behavior and practices, and knowledge of HIV and STIs. Informed consent was obtained prior to conducting interviews. Biological data were gathered using the capillary "Dried Blood Spot" (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. On completion of the questionnaire and drawing of a biological sample, a debriefing session was held with the participants to answer any queries. Information on HIV prevention and available services including voluntary counseling and testing (VCT) and specified SDPs for the HRGs was also provided.

Injecting drug users

Although overall HIV prevalence was low, risk behaviors were widespread in all types of commercial sex work. Out of the 2,979 IDUs interviewed, 6 were females (3 in Lahore, 2 in DG Khan and one in Faisalabad). The average age of IDUs was 33.2 ± 8.9 years (median = 32), with 40% of the IDUs less than 30 years of age. More than half of IDUs had no formal schooling, and approximately 41% were currently

married. The mean number of injections per day was 2.18 ± 1.38 (median = 2; 95% CI: 2.13, 2.23), with the highest number reported from Sargodha 3.13 ± 1.39 (median = 3, 95% CI: 2.99, 3.27). Poly drug abuse was reported and type of drug injected varied between cities. Larkana, Sargodha and DG Khan showed Heroin as the most common drug injected in the past month. Approximately three quarter (77.3%) of IDUs reported injecting 2-3 times a day and had been injecting on streets, parks or in open public space. Forty eight percent of IDUs reported that they "always" used a new syringe in the past month; while 23% percent reported injecting with a used needle/syringe at their last injection. About 18% of IDUs passed on their needle/syringe to another IDU. Approximately 29% of IDUs reported that they used injecting paraphernalia including cooker, water, cotton, caps etc., out of which 32% reported sharing it. Nearly 18% of IDUs reported having sex with female sex workers, with 31% reporting condom use. Fourteen percent of IDUs reported to have had sex with MSWs and/or HSWs, with only 14% of these reporting that a condom was used at last anal sex. Overall, 61% of IDUs had heard of HIV prevention programs in their city, 51% reported utilizing these services.

The overall, sero-prevalence of HIV among IDUs was 21% (95% CI: 19.4%, 22.3). The highest prevalence was reported among IDUs from Hyderabad (30.5%) followed by Larkana (28.5%), Karachi (23.1%) and Sargodha (22.8%)

Male Sex Workers

The mean age of all MSWs interviewed was 21.7 ± 5.1 years (median = 20). Approximately 76% of MSWs were less than 30 years of age. MSWs started sex work at the mean age of 16.2 years and had been in sex work for approximately 5.5 years. Nearly 42% of MSWs had received no formal schooling, and nearly all were unmarried. Approximately 67% of MSWs reported an additional source of income; the most common reported occupations were physical labor, tailoring, *malishiay* masseurs and shopkeeping. A considerable numbers of students were also included. About 62% of MSWs solicited clients by roaming around in public places like bus stops and markets. The average number of clients was approximately 2/day and 20/per month. Client volume varied considerably across cities which ranged from 13 clients per month in Faisalabad to 31 clients per month in Lahore. Twenty four percent of MSWs reported that they always used a condom with paid clients in past one month where as 22.2% of MSWs reported that they always used a condom with a regular sex partner. Approximately 14% of MSWs were aware of a HIV prevention program (SDP) in their city, although only 8.5% utilized these services.

The overall, sero-prevalence among MSWs was 0.9% (95% CI: 0.3%, 1.5%). Sero-prevalence was highest among MSWs in Karachi (3.1%). No MSW tested positive for HIV in Hyderabad, Faisalabad and Peshawar.

Hijra Sex Workers

The mean age of HSWs interviewed was 27.3 ± 6.1 years (median = 27). On an average, HSWs started sex work at a relatively young age (15.5 years) and were involved in sex work for approximately 12 years. The majority of HSWs were unmarried, and only 12% reported to be currently married. More than half (59.6%) of the HSWs had received no formal schooling. Approximately half of the HSWs interviewed solicited clients by roaming around in public places like bus stop, markets etc., while approximately 22% accessed clients through telephone (cell phones). Only 16% of HSWs relied on *Gurus* for clients. On an average, HSWs provided services to 3 clients per day and 49 clients per month. Client volume varied substantially across cities, ranging between 15 clients/month in Lahore to 119 clients per month in Larkana. Consistent condom use was generally low, with only 20% of HSWs reporting consistent condom with paid clients in the past month.

Overall, 31% of HSWs were aware of HIV prevention programs (SDP) in their city, however only 18.3% reported participation in SDP. The overall HIV prevalence was (75/1181) 6.4% (95% CI: 5.0%, 7.7%), with the highest prevalence reported in Larkana (27.6%).

Conclusions:

Like many other countries in South Asia, Pakistan now has a well established, concentrated HIV epidemic in IDU populations throughout the country. Despite various preventive efforts, the infection rates among IDUs have steadily increased from 10.8% (262 HIV +ve out of 1779 tested) in 2005 to nearly 21% (618 HIV +ve out of 2969 tested) in 2008. In addition to IDUs, trends are suggestive that HIV is beginning to become established in other HRGs as well. Substantial levels of infections are now reported among HSWs in several cities, and Larkana appears to have a major outbreak among this group. The infection rate among MSWs is still unchanged, but behavioral data suggest that the potential for the epidemic to spread among this group is much higher. Prevention among these populations remains a key challenge for Pakistan's efforts to curtail the HIV epidemic. Although the utilization of service delivery and preventive programs has increased substantially, additional efforts are required to bring about broad changes in injecting and sexual behaviors of IDUs. In addition, a need for rapid implementation of effective programs and improving coverage of existing programs to curtail further expansion of the HIV epidemics in these groups is emphasized. To do this effectively, it is important that this information is integrated into the planning and delivery of prevention programs, and those implementing these programs are provided with the capacity to use this information effectively.

1. INTRODUCTION

Pakistan is going through a transition of the HIV epidemic; from a low prevalence state to a concentrated epidemic. Although the estimated prevalence among the general population is less than 0.1% in the country, recent surveillance results clearly indicate that the epidemic is becoming established among certain high risk groups (HRGs). As in several other regions of Asia, the HIV epidemic in Pakistan is characterized by high initial prevalence among injecting drug users (IDUs), with the potential to expand into other HRGs including men who have sex with men (MSM) and female sex workers (FSWs). A combination of risk factors is currently putting Pakistan at serious risk of further transmission from high to low risk groups through bridging populations. These factors include the widespread presence and interlinking of IDUs and high risk sexual networks, as is the pattern in several other Asian countries. Organized and focused prevention efforts are required to minimize the size of this impact and curtail the epidemic at an early phase.

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 the active collection of both biological and behavioral 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. The HIV/AIDS Surveillance Project, HASP (2004-2008) supported the establishment of a second generation HIV/AIDS surveillance system 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. The Pakistani partners consist of the Ministry of Health, National Institute of Health, NACP, and Provincial AIDS Control Programs (PACPs) in Punjab, Sindh, North-West Frontier Province (NWFP) and Balochistan.

The project has been instrumental in establishing key aspects of a national HIV/AIDS surveillance system in Pakistan. HASP has been effective in building the technical capacity of key Pakistani partners and stakeholders to conduct three national surveillance rounds (2005, 2006-07 and 2008). Findings were then published so that they could be used as the basis for policy development, program planning and delivery. Biological data on HIV prevalence collected during these surveillance rounds verified the presence of a

concentrated HIV/AIDS epidemic in Pakistan, while behavioural information identified and highlighted the various factors for further spread of the disease.

HASP conducts a comprehensive assessment of the size and locations of key HRGs, followed by an analysis of the key socio-demographic characteristics, behaviors and HIV prevalence (called integrated behavioral and biological surveillance or IBBS). In Pakistan, the HRGs that have been identified include commercial sex workers (females, males and hijras[1]) and injecting drug users.

In 2004-5, HASP conducted pilot studies in Karachi and Rawalpindi that set the ground work for SGS in Pakistan[2]. During the pilot study many important lessons on methodologies (field research, sampling techniques and questionnaire content) were learned. These areas were modified and improved in the subsequent surveillance rounds. The first major assessment or Round 1 of surveillance of these HRGs was conducted in 2005-6 in eight cities across all four provinces of Pakistan[3]. The findings showed high prevalence of HIV among IDUs in Sindh (Karachi and Hyderabad) and the presence of the infection among MSWs. In 2006-7, Round 2 of surveillance was conducted in 12 cities in all four provinces[4]. The rapidly increasing HIV epidemic was identified among IDUs in Sindh and Punjab (Karachi, Hyderabad and Sargodha). The findings of Round 2 also showed that HIV had become established among MSWs and HSWs. Results indicated interlinking between various HRGs through high risk injecting and sexual behaviours, and low levels of HIV knowledge. Cumulatively these factors provided a clear warning of the HIV epidemic potential in Pakistan, particularly among the most vulnerable populations. The results of the first two surveillance rounds have been instrumental in developing policies and programs by the National and Provincial AIDS Control Programs.

This report provides national biological and behavioural information of HRGs gathered in Round 3 of SGS, conducted between March-June 2008. Since the first two rounds had identified emerging epidemics among IDUs, MSWs and HSWs, the focus for Round 3 was to monitor trends in these groups. It is anticipated that this report will provide further insight into the status of the epidemic in these sub-populations and the transmission dynamics, and that will serve as key information for planning, improving and implementing prevention and care services.

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[1] 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.

[2] NACP 2004-05, Integrated Biological and Behavioral Surveillance, A Pilot study in Karachi and Rawalpindi, National AIDS Control Programme, Ministry of Health, Islamabad, Pakistan.

3 NACP 2005. HIV Second Generation Surveillance in Pakistan, National Round 1 Report. National AIDS Control Programme, Ministry of Health, Islamabad, Pakistan.

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

2. METHODOLOGY

2.1 Overview

The study was a cross-sectional behavioral and biological survey of three HRGs including Injecting Drug Users (IDUs) in 08 major cities, and Male Sex Workers (MSWs) and Hijra Sex Workers (HSWs) in 06 major cities in Sindh, Punjab and NWFP. Female Sex Workers (FSWs), though the largest HRG, were not included in the third surveillance round due to consistently low sero-prevalence observed in successive surveillance rounds i.e., 0.2% during R1 in 2005 and 0.02% during R2 in 2006-07.

In the third surveillance round, mapping results from 2006-07 were used to develop sampling frames required for recruiting study subjects. Dera Ghazi Khan was a included in this round for the first time, and mapping information was not available. Therefore, the Integrated Biological and Behavioral Survey (IBBS) were preceded by Mapping in that city.

In IBBS of the HRGs, face-to-face interviews and collection of blood

Box # 1
Mapping in DG Khan

Mapping in DG Khan was based on a geographical approach to gather data and understand the risk situation to be quantified in terms of number of settings, size of the population, as well as determine the various sub-types of the vulnerable group.

Mapping approach was broadly divided into following levels:

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

In DG Khan the city was divided into six zones based on Union Councils (UC) after acquiring detailed maps. Field staff attended a four-day training workshop on HASP mapping methodology and local stakeholders (e.g., law enforcement authorities, NGOs, etc.) were briefed about the study and their support was ensured.

Level one (L1) collected information on the presence of IDUs in a given geographical setting through interviewing secondary and tertiary key informants. Nearly 50 interviews in each zone were conducted at L1, followed by data collation in which a list of all spots commonly called "hot spots" where HRAs are being conducted was generated. The data were manually collated, while at the same time, entry was done in the computer. Based on the list generated, "hot spots" were validated in level two (L2), which was carried out through primary key informants. Information obtained through L2 was integrated with L1 information through data analysis.

In the final step, meetings with stakeholders were held and estimates were triangulated with other data sources.

samples (dried blood spot or DBS) for HIV testing was done. In each city, the sampling strategy for each geographic area and typology were based on mapping estimates from the previous round. Thus study subjects were recruited from most frequently mentioned spots identified during Round 2 mapping.

2.2 IBBS Methodology[5]

2.2.1 Study Design, Setting and Population

A cross-sectional behavioral survey was conducted from March to June 2008 in eight cities (Table 2.2a). The city selection for this round was based on the presence of a service delivery programme (SDP) for the HRG targeted. Dera Ghazi Khan in Southern Punjab was never surveyed before, and was included in this round for the first time. Although no SDP existed there other than a VCT centre, DG Khan was still included in the list because of the fact that a number of HIV positive cases were reported from that region through PACP, who wanted to have an urgent baseline assessment of the HIV situation. Moreover, all cities from Punjab were either from northern or central Punjab, and the HIV risk situation in southern Punjab was unknown. The study population comprised of the three HRGs: MSWs, HSWs and IDUs (Box 2). As mentioned, FSWs were not included due to consistently low sero-prevalence in the previous surveillance rounds. Initially Quetta was scheduled to be included but work there was suspended indefinitely due to security concerns.

Table 2.2a: Selected sites for IBBS by province, 2008

Provinces	Cities	SDP exists		HRGs selected	Study period
		IDUs	M/HSW		
Punjab	Lahore	Yes	Yes	IDU/MSW/HSW	March – April
	Faisalabad	Yes	Yes	IDU/MSW/HSW	March –April
	Sargodha	Yes	No	IDU	April- May 2008
	D G Khan	No	No	IDU	May-June 2008
Sindh	Karachi	Yes	Yes	IDU/MSW/HSW	March-April 2008
	Hyderabad	Yes	Yes	IDU/MSW/HSW	March-May 2008
	Larkana	Yes	Yes	IDU/MSW/HSW	March-April 2008
NWFP	Peshawar	Yes	Yes	IDU/MSW/HSW	Mar-May 2008
Balochistan	Quetta	Yes	No	IDU	Suspended indefinitely

[5] Refer to HASP IBBS Field Operations and Monitoring Manual for further details on protocol.

2.2.2 Sample Size

Sample sizes for each HRG were calculated based on assumptions in which baseline HIV prevalence was expected to change and key behavioural characteristics were varied across a range of likely values to get a maximum sample size. A sample size of 400 was aimed for IDUs, and MSWs and HSWs combined in each city. This sample size provided adequate statistical power:

- To measure prevalence of a characteristic that is present in 50% of the population, with a precision of plus or minus 5%.
- To detect a 25% difference in a characteristic that has a prevalence of 40% in a given sub-population (e.g., prevalence of consistent condom use).
- To measure HIV prevalence with a precision of plus or minus 2%, if the prevalence is approximately 5%.
- To detect a doubling in HIV prevalence, if the baseline prevalence is between 5% and 6%.

The sample size achieved in each of the target city is provided in Table 2.2b.

Table 2.2b: City wise sample distribution of IDUs, HSWs and MSWs for IBBS, 2008

Provinces	Cities	IDUs	HSWs	MSWs
Punjab	Lahore	401	201	204
	Faisalabad	400	200	202
	Sargodha	403	Not Done	Not Done
	D G Khan	345	Not Done	Not Done
Sindh	Karachi	403	225	200
	Hyderabad	398	200	199
	Larkana	396	199	200
NWFP	Peshawar	233	161	200

Box 2 : Study Subjects and Case Definitions

Injecting Drug Users (IDUs)

Inclusion Criterion

A person who has injected drugs, for non-therapeutic purposes in the past six months

Exclusion Criteria

- Age: under 18 yrs (lower age limit for the age of consent for research)
- Not willing to participate in the study/unwilling to provide informed consent
- 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.)
- A person who has already participated in the survey in the current round

Male Sex Workers (MSWs)

Inclusion Criterion

Any male who undertakes sexual activity with a man in return for money or other financial benefits

Exclusion Criteria

- Age: under 15 yrs or over 45 yrs
- Not willing to participate in the study/ unwilling to provide informed consent
- 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.).
- A person who has already participated in the survey in the current round

Hijra Sex Worker (HSWs)

Inclusion Criterion

Any transvestite/transsexual who undertakes sexual activity with a man in return for money or other financial benefits

Exclusion Criteria

- Age: under 15 yrs or over 45 yrs
- Not willing to participate in the study/ unwilling to provide informed consent
- 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.)
- A person who has already participated in the survey in the current round

2.2.3 Sampling Design and Technique

Since a list of potential sampling units was available from previous mapping studies, we were able to recruit a representative sample of different HRGs through various sampling techniques.

- **IDUs** were recruited through Multistage Cluster Sampling. In cities where the estimated number of IDUs was smaller than the required sample size (400), a "take all" approach was used (i.e., Peshawar, DG Khan).

- **MSWs** were recruited through Respondent Driven Sampling (RDS).
- **HSWs** were recruited through Network Sampling in which Deras/*Gurus* were selected randomly from a list of *Gurus/Deras* available from previous mapping results, and these contacts were utilized to recruit eligible subjects.

2.2.4 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 behavior indicators to monitor the behavioral patterns of key populations. The following are the principal variables for which data were collected:

- ***Socio-demographic variables:*** age, gender, education, living arrangements, family information, income, migration status, employment and professional background.
- ***Profession related variable:*** number of clients, charges, types of services offered, etc.
- ***Injecting risk behavior & 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, internal travel within Pakistan, etc.
- ***Sexual risk behaviors:*** 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 behavior, availability and utilization of health services, etc.

2.2.5 Training on IBBS Data Collection

The field teams participated in a three day workshop, 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, 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, representatives of the research institutions and members of the NACP/PACPs.

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

2.2.6 Data Collection and Fieldwork

Venues used for conducting interviews varied depending on HRG type. HSWs were interviewed at their *Deras*, MSWs were interviewed at the central field office, while IDUs were interviewed in the field.

Informed consent

Informed consent was read aloud for the eligible participant. The consent 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 (DBS) for HIV testing.

Administration of questionnaire

Eligible participants were first briefed about the objectives of the survey and confidentiality of the interview. This was followed by a face-to-face interview conducted by a trained study interviewer.

Debriefing and referrals

After the completion of 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

infection, and on the service packages available for individual HRGs. Notably, all participants were referred to local SDPs in their respective cities.

2.2.7 Blood Sample Collection and Handling

Upon completion of the interview, participants were requested to provide a blood sample for HIV antibody testing.

Dried blood spot (DBS)

The capillary DBS methodology[6,7] for collection of a biological specimen was selected for SGS for following reasons:

- relative ease of collection
- absence of any special requirements for storage and shipping (due to the non-infections nature of DBS)
- potential for the use of the detuned assay with DBS samples to help identify recent HIV infection and estimate incidence
- potential to identify different strains of HIV
- methodology has been successfully used elsewhere in similar studies

The DBS was 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.

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 ID number of the subject, using a permanent marker (see Section 2.2.10: 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 the selected laboratories (Sindh Institute of Urology and Transplantation (SIUT) in Karachi and Armed Forces Institute of Pathology (AFIP) in Rawalpindi) for testing.

[6] Solomon S.S. Solomon S, Rodriguez I.I, McGarvey 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

[7] 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

Laboratory methods

All DBS specimens were first screened by the HIV Genetic Systems rLAV Enzyme immunoassay (ELISA/EIA) (Bio-Rad USA). Samples that tested positive were subsequently confirmed in duplicate by the Vironostika HIV Uni-Form II EIA (Biomeriux, 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.

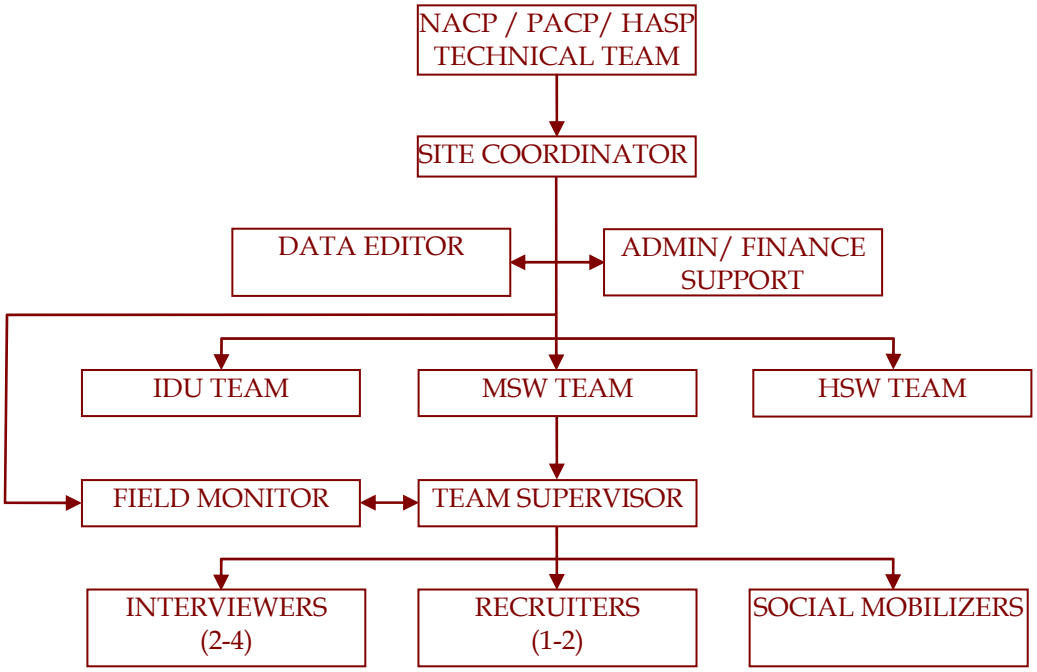
2.2.8 Quality Assurance

At 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, a 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. The questionnaires were discarded if significant errors were observed. In order to monitor laboratory performance, both the SIUT and AFIP laboratories were enrolled in a DBS based serology proficiency testing program administered by the National HIV and Retrovirology Laboratories, Public Health Agency of Canada.

2.2.9 Organization and Monitoring of Field Work

Although the number of field teams varied at different locations, a uniform team structure was maintained. The data were collected by trained teams comprising of senior and junior field workers/interviewers. The teams were accompanied by social mobilizers. All field data collection was monitored by team supervisors, who reported to the site coordinator (depending on the team). Field staff was provided with mobile phones to stay in contact with team supervisors. The monitoring process was designed to provide assistance to the field staff, rather than be of a policing nature. A site coordinator at each site worked under the technical supervision of the respective Provincial Surveillance Support Officer (PSSO) and facilitated the data collection process. Random spot checks by various senior members of the team, comprising of HASP, NACP and PACPs ensured adherence to the protocol (Figure 2.2a).

Figure 2.2 a: Basic structure of the field teams during IBBS in each city, Round III, 2008



2.2.10 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:

- ***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.
- ***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.

- ***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 counseling and testing service.

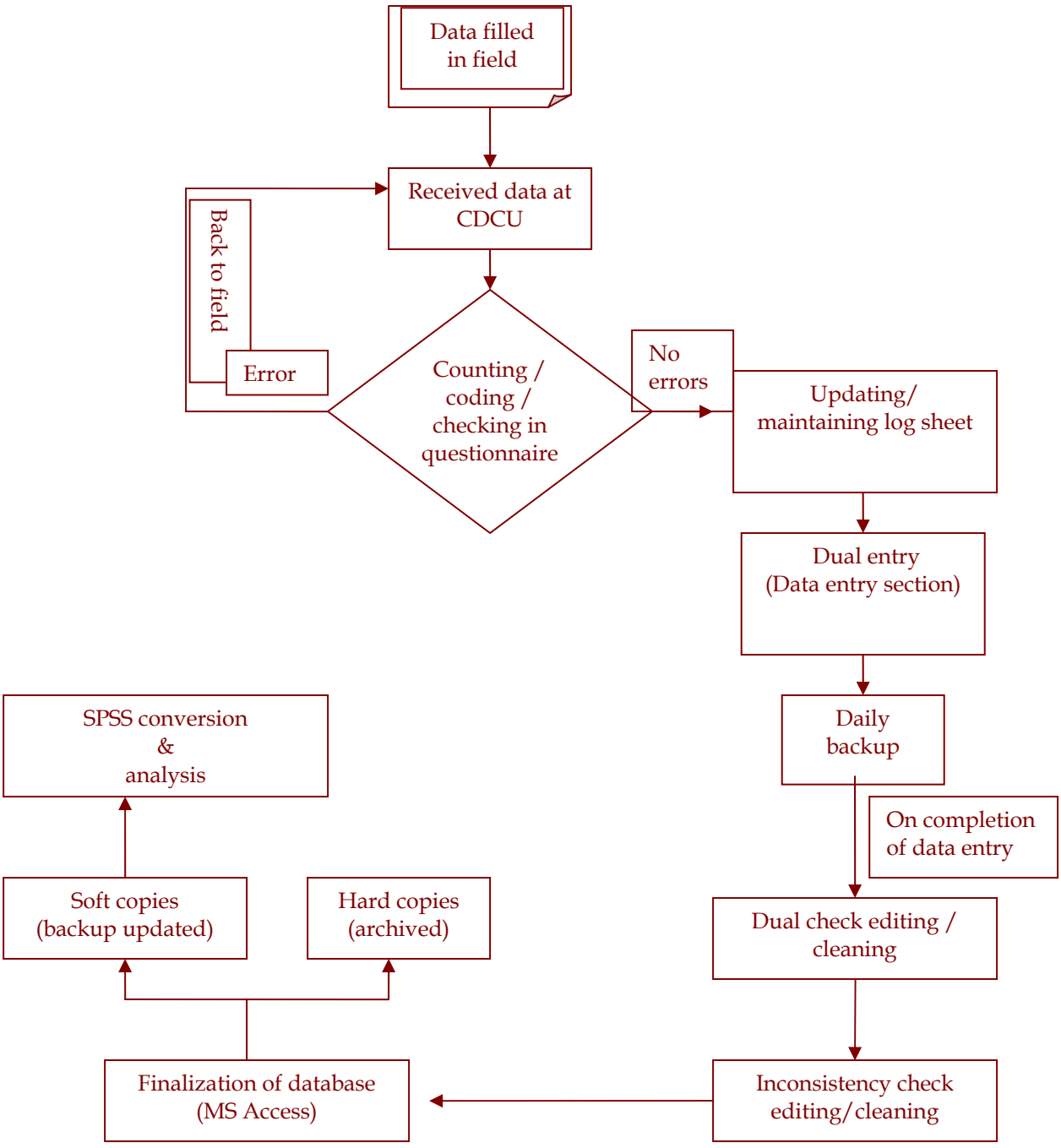
2.2.11 Data Management

Data entry in the current round was done at the Central Data Coordinating Unit (CDCU) in Islamabad. To ensure the quality of data, two data management groups were hired; one at field level at all the study sites (i.e., field editor), and second at CDCU (i.e., office editor, data coordinator and data entry officers). In the field, the editor received all questionnaires on a daily basis to check for completion, appropriateness of responses, skip patterns, and coding of the open ended responses.

Upon completion of data editing and coding, the questionnaires were sent to CDCU. At CDCU all questionnaires were re-edited for errors and all questionnaires were dual entered into an MS Access database especially designed for HASP data. On completion of dual data entry, dual data entry error and errors for inconsistency of responses to related questions within a questionnaire were checked using specially designed programs to further guarantee the quality of data.

Laboratory results were linked to the corresponding interview data by an encrypted unique identifier and unique study site code; no personal information accompanied these records. The electronic data was password protected and only authorized officials of NACP/HASP had access to the data files. All hard copy data were stored in a secure room at the CDCU office.

Figure 2.2 b: Flow Chart for Data Management, Round 3, 2008



3. INJECTING DRUG USERS

3.1 Geographic distribution and Estimates of IDUs in Dera Ghazi Khan

Dera Ghazi Khan Town (DG Khan) is one of the four *Tehsils* in district DG Khan in Punjab province of Pakistan. The town is situated at a distance of 15 kilometer on the right bank of river Indus, 96 Km west of Multan. DG Khan is divided into 41 Union Councils (7 Urban, 34 rural) with total population of approximately 1,141,000.

Table 3.1a: Geographical distribution of IDUs in DG Khan, 2008

Zone	# of Spots	Minimum	Maximum	Average	Avg. no. of IDUs/spot
1	5	41	50	46	**9.2**
2	20	91	112	102	**5.1**
3	5	15	21	18	**3.6**
4	22	77	99	88	**4.0**
5	13	59	73	66	**5.1**
6	19	86	105	96	**5.1**
TOTAL	**84**	**369**	**460**	**415**	**4.9**

A total number of 415[8] IDUs were reported from 84 spots in Dera Ghazi Khan (DG Khan). These estimates were higher then those reported by Peshawar, Bannu and Quetta in year 2007 *(reference IV Second Generation Surveillance in Pakistan, National Report Round II, 2006-07)*. The largest number of IDUs were found in zone 2 (mean 102, range 91,112) followed by zone 6, 4 and 5.

Overall, the concentration of IDUs per spot was approximately 5 IDUs/spot. The number of IDUs per spot was highest in zone 1, with 9.2 IDUs/spot and lowest in zone 3, with 3.6 IDUs per spot.

[8] The drug addiction in DG khan was reported to be predominantly Drug Users (DU), as opposed to *injecting* drug users, with a total number of 1,085 DUs located at 93 spots.

3.2 Socio-Demographic Characteristics

A total of 2,979 Injecting Drug Users (IDUs) were interviewed in the 8 cities that were selected for conducting the 3rd round of surveillance: Karachi, Hyderabad, Larkana, Lahore, Faisalabad, Dera Ghazi Khan, Sargodha and Peshawar. This section describes the key socio-demographic characteristics of surveyed IDUs.

Table 3.2a: Socio-demographic characteristics of IDUs, 2008

Characteristics	IDUs (n=2,979)
Gender	
▪ Male	99.8% (2973)
▪ Female	0.2% (6)
Age	
▪ Up to 24 years	16.7% (498)
▪ 25-29 years	22.6% (673)
▪ 30-34 years	16.9% (503)
▪ 35+ years	25.3% (754)
▪ More than 40 years	18.5% (551)
Mean age ± SD (median) years	*33.16 ± 8.9 (32)*
Marital status	
▪ Unmarried	47.8% (1423)
▪ Married	41.1% (1223)
▪ Separated / divorced	8.4% (249)
▪ Widowed	2.8% (84)
Years of education	
▪ Illiterate	59.7% (1777)
▪ Up to 05 yrs	19.5% (580)
▪ 06 to 10 yrs	18.0% (535)
▪ > 10 yrs	2.9% (87)
Living with	
▪ Lives alone	16.0% (475)
▪ Family	58.3% (1735)
▪ Friends	25.4% (755)
Current living arrangement	
▪ Home	59.9% (1783)
▪ Street	22.4% (668)
▪ Other	3.6% (107)
Median income/month(PKR)	3500

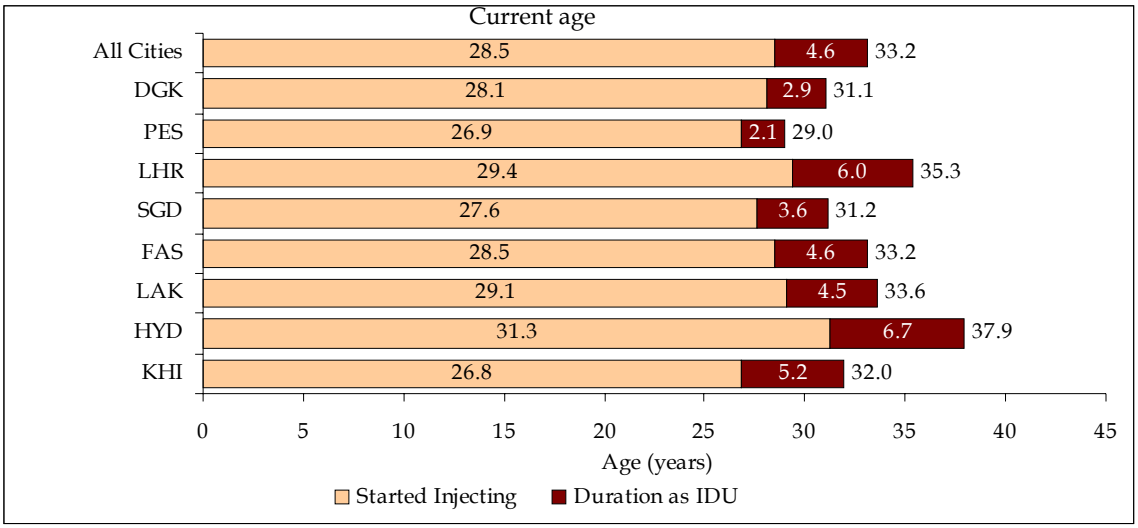
Mean income/month: PKR 3977 ± 2220

Out of the 2,979 IDUs interviewed, 99.8% were males. Only 6 females were interviewed (3 in Lahore, 2 in DG Khan and one in Faisalabad). This does not reflect the overall proportion of female IDUs in Pakistan, which might be more than reported.

The average age* of IDUs was 33.2 years ± 8.9 (median = 32), with approximately 40% of the IDUs less than 30 years of age. The highest proportion (25.3%) of IDUs was between 35 to 40 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.

On an average, IDUs started injecting drugs at the age of 28.5 years, and had been injecting for a period of about 4.6 years at the time of the survey. The duration of injecting ranged between 2.1 years in Peshawar to 6.7 years in Hyderabad (Figure 3.2a).

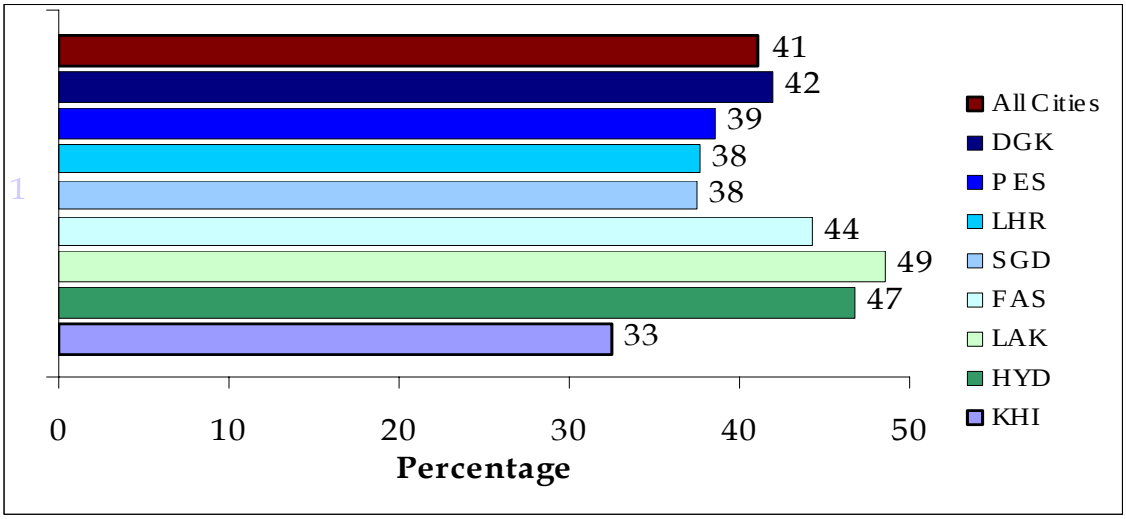
Figure 3.2a: Mean age at initiation of injecting drug use, duration of use and current age of IDUs by city, 2008



Approximately 41% of the IDUs surveyed were currently married. The highest proportion of married IDUs was seen in Larkana (49%), followed by Hyderabad (47%) and Faislabad (44%) (Figure 3.2b).

* The statistic of "average age of IDUs" should be used with caution, because of the age limits used in selection criteria. Younger IDUs were excluded from the study, which could have inflated the average age slightly.

Figure 3.2b: Proportion of married IDUs by city, 2008



Approximately 60% of the IDUs interviewed had not received formal education. The median monthly income was PKR 3,500 or 45 USD per month (mean = 3977 ± 2220 PKR). Both education level and monthly income did not vary significantly across cities.

3.3 Migration and Mobility

Table 3.3a: Migratory pattern of the IDUs, 2008

Variable	IDUs (n=2979)
Migratory pattern (influx)	
Migrated from other cities	15% (447)
o Permanently staying	41% (183)
o Visiting	59%(264)
Mobility Pattern (outflux)	
Traveled to other city in the past 12 months	26.5% (788)
o Most common cities traveled to	
▪ Lahore	17.7% (139)
▪ Karachi	15.9% (125)
▪ Rawalpindi/Islamabad	9.3%(72)
▪ Multan	8.9% (70)

A significant proportion of IDUs belonged to the city where they were interviewed (85%), and nearly two thirds lived at home with their families. Among the 15% of IDUs who had migrated from another city,

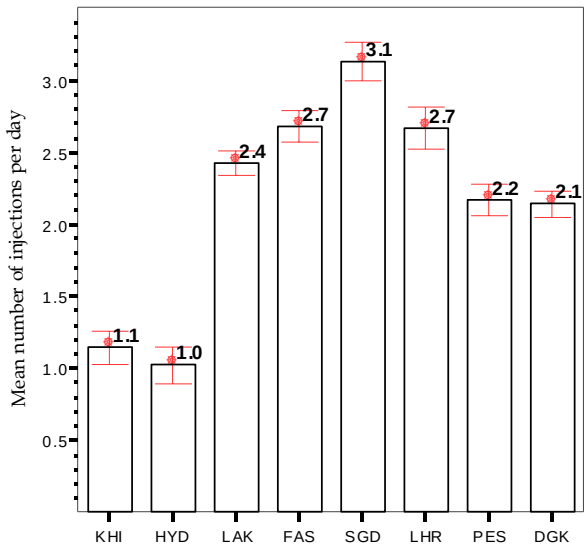
41% were permanent settlers, while 59% were visitors. The major reasons reported for migration were work/business (51.9%), drugs (37.4%) and to visit families (6.9%).

We also looked into the mobility of the IDUs (out flux from the city where they were interviewed). Nearly one quarter 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 within the same province (Table 3.3a)

3.4 Drug Injecting Practices

The mean number of injections per day was 2.18 ± 1.38 (95% CI: 2.13, 2.23; median = 2 injections/day). The mean number of injections varied substantially across cities with the highest number reported from Sargodha, 3.13 ± 1.39 (95% CI: 2.9, 3.3), followed by Faislabad 2.7 ± 1.5 (95% CI: 2.6, 2.8) and Lahore 2.7 ± 1.5 (95% CI: 2.5, 2.8) (Figure 3.4a).

Figure 3.4a: Mean number (95% CI) of injections per day by city, 2008



We also looked at the type of drug injected in the past month in various cities. It was interesting to note that all cities analyzed showed a situation in which poly drug use was common, and all types of opiates, anti-histamines, psychoactive drugs and narcotic analgesics were injected. Avil (injection containing antihistamine pheniramine maleate) was the drug of choice in most cities of Punjab, while in NWFP and Sindh other anti-histamines were injected. Larkana, Sargodha and DG Khan showed Heroin as the most common drug injected in the past month (Table 3.4a).

Table 3.4a: Types of drugs injected at least once in past one month by IDUs by city, 2008 (in percentages)

Drug	KHI	HYD	LAK	FAS	SGD	LHR	PES	DGK
OPIATES								
▪ **Tamgesic**	69.2	34.9	8.1	62.5	1.7	23.9	70.8	1.4
▪ **Bupron**	65.5	36.4	8.6	8.0	0.7	11.5	70.4	2.0
▪ **Sosegon**	67.0	35.4	7.6	0.8	0.2	8.7	72.1	1.4
ANTI-HISTAMINE								
▪ **Avil**	31.3	65.3	91.7	99.0	98.3	83.5	28.8	94.8
▪ **Phenergan**	67.0	35.7	7.6	2.3	0	4.2	71.2	0
▪ **Marzine**	71.2	34.4	8.3	1.0	0.7	4.2	70.0	0
NARCOTIC ANALGESICS								
▪ **Pentonil**	70.0	34.9	7.8	0.3	0.2	7.2	70.8	1.2
▪ **Pentazogon**	60.3	35.4	8.1	0.3	0	6.5	70.8	1.4
PSYCHOACTIVE DRUGS								
▪ **Valium / Diazepam**	63.5	37.2	8.6	63.8	4.7	56.6	74.7	2.3
▪ **Restoril**	69.0	34.2	7.8.	0.3	0.5	3.7	70.0	1.4
HEROIN	31.8	63.3	90.9	28.5	98.5	37.2	30.0	95.9

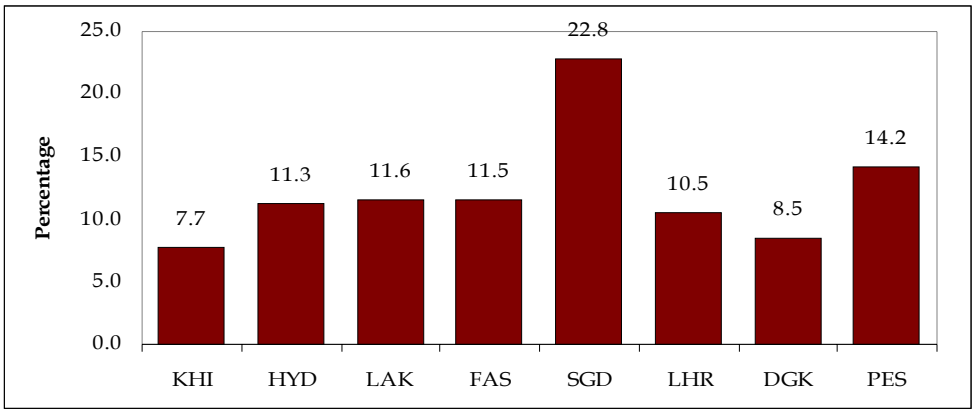
Table 3.4b: Injection practices of IDUs, 2008

Variable	IDUs (n=2979)
Last time injected at	
▪ Park/street/open spaces	82.2% (2446)
▪ Home	8.9% (265)
▪ Shrines/*darbar*	6.8% (201)
▪ Hotel/shop	2.1% (62)
Last time injected with	
▪ Family member(s)	0.8% (25)
▪ Friends + acquaintances	64.4% (1925)
▪ Strangers	0.6% (19)
▪ Alone	33.9% (1010)
Number of injection per day in past one month	
▪ Once a day	8.4%(251)
▪ 2-3 times a day	77.3%(2301)
▪ More than 3 times a day	14.3%(425)
Injected by "professional" injectors[9]	
▪ Always	12.2% (364)
▪ Most of the time	15.6% (464)
▪ Sometimes	32.8% (974)
▪ Never	39.4% (1172)
Used a new syringe for injecting	
▪ Always used a new syringe	48.3% (1435)
▪ Never	1.9% (57)

[9] "Professional injector" commonly known as "street doctors" are IDUs themselves who are paid by other IDUs to inject drugs

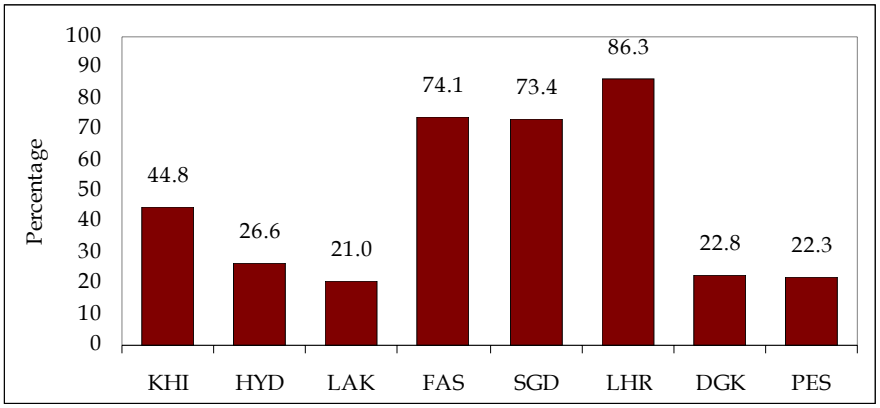
Approximately three quarters (77.3%) of IDUs reported injecting 2-3 times a day. The number of injections did not vary substantially across each city or by the drug of choice. About two-thirds of all IDUs reported that they had sought help in injecting by "professional injectors/street doctors" during the past month. Out of these, 12.2% always got their injections from these professional injectors (Table 3.4b). Getting injections by professional injector varied considerably across cities ranging between 7.7% in Karachi to 22.8% in Sargodha (Figure 3.4b).

Figure 3.4b: Proportion of IDUs who always used services of "professional" injectors during the past month by city, 2008



Nearly half of the IDUs interviewed (48%), reported that they always used a new syringe in the past month. Further analysis revealed no significant differences in using a clean needle/syringe by level of education or age group. However, responses varied substantially across cities with the highest reported proportion in Lahore (86.3%) followed by Faisalabad (74.1%) and Sargodha (73.4%) (Figure 3.4c).

Figure 3.4c: Proportion of IDUs always using a new syringe for injecting in past month by city, 2008



Approximately 23% of the IDUs reported injecting with a used needle/syringe during their last injection (Table 3.4c). 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, injection partner insisted to use the same and did not think that it was necessary to use a new needle/syringe.

Table 3.4c: Injection practices on last injection among IDUs

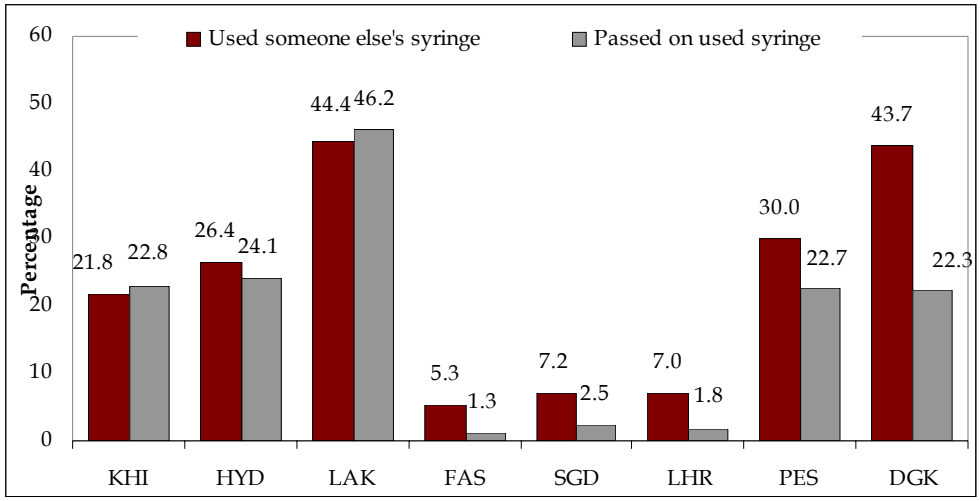
Variables	IDUs (n=2979)
Injected with a needle used by another IDUs	22.5% (667)
Number of IDUs sharing same needle	
▪ One	4.9% (139)
▪ Two	8.3% (236)
▪ More than two	7.8% (223)
Passed a used needle/syringe to another IDUs	17.6% (523)
Used injection paraphernalia	29.1% (866)
▪ Shared injection paraphernalia*	32.3% (276)
Injected by professional injector	32.2% (953)

* Of those who used paraphernalia for injection

About 18% of IDUs passed on their needle/syringe to another IDU. In addition, approximately 29.1% of IDUs reported that they used injecting paraphernalia including a cooker, water, cotton, caps etc., out of which 32% reported sharing one or more of these items.

The harmful practice of injecting with someone else's syringe, and passing on their own syringe to someone else, showed no significant differences within different age groups as well as education status. City wise analysis showed that both these sharing practices were reported most frequently by IDUs in Larkana, followed by DG Khan and Peshawar (Figure 3.4d).

Figure 3.4d: Proportion of IDUs sharing syringes/needles on last injection by city, 2008



3.5 Sexual Behaviors and Practices

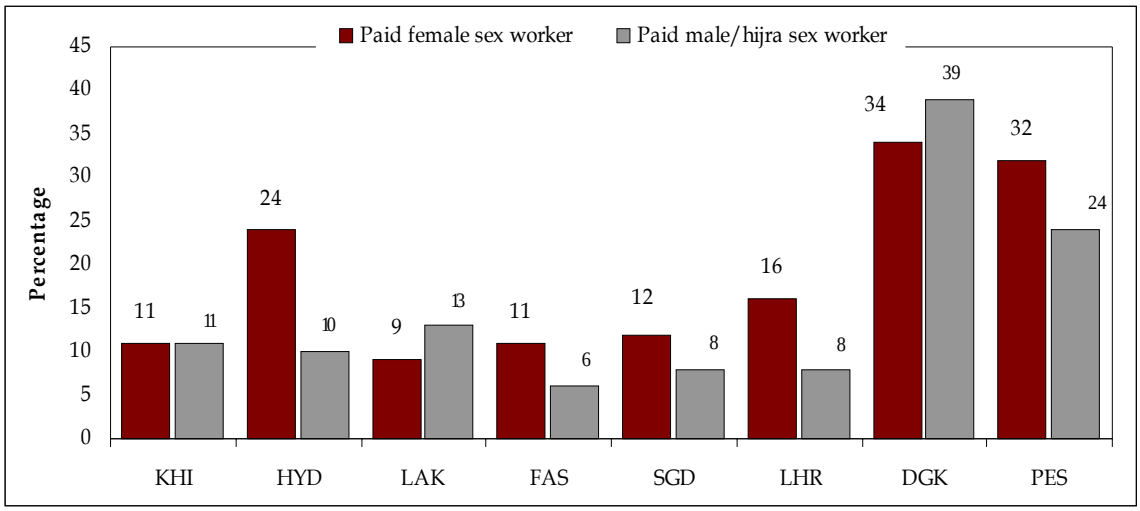
The HIV epidemic among IDUs in Pakistan is characterized by high prevalence with a potential to expand into other HRGs, including MSWs, HSWs and FSWs. Given the importance of IDU networks in HIV transmission dynamics, we examined sexual behaviors and practices to assess the potential for epidemic expansion into other groups. Key findings are summarized in Table 3.5a.

Table 3.5a: Selected sexual behavior patterns among IDUs, 2008

Practice / Behavior	IDUs (n=2979)
Age of first sexual intercourse (mean ± S.D)	18.3 ± 3.6
Never had sex	4.6% (137)
Regular female sex partner (last 6 months)	
▪ Sexually active with regular female sex partner	37.8% (1073)
▪ Condom use at last sex	33.5% (357)
Had sex with FSW (last 6 months)	17.7% (503)
▪ Mean number of paid female partners (mean ± S.D)	2.9 ± 4.4
▪ Condom use in last sex with paid female sexual partner	31.0% (154)
Had sex with a MSW or HSW (last 6 months)	13.9% (414)
▪ Condom used in last sex with MSW or HSW	13.8% (57)
▪ Lubricant use in last sex with MSW or HSW	60.3% (248)
Exchanged/sold sex for drugs or money (last 6 months)	16.8% (498)

The mean age at first sexual intercourse was reported to be 18.3 ± 3.6 years. Only 4.6% of IDUs reported that they had never had sex, most of them being less than 25 years of age. Approximately 38% reported having sex with a regular female partner, which correlates to the proportion of married IDUs. Condom used with regular partner during last sexual encounter was reported by 33.5% of IDUs. Nearly 18% of IDUs reported having sex with FSWs. Among those reporting sex with a FSW, the mean number of female commercial sex partners was 2.9 ± 4.4 in the last six months. Condom use in this instance was reported to be 31%. In addition to buying sex from FSWs, 14% of IDUs also reported sex with MSWs and/or HSWs in the past six months. Condom use during last anal sex was extremely low (13.8%); however, 60.3% used some sort of a lubricant during the last sexual transaction (Table 3.5a). The main reasons for not using a condom during sexual encounters were do not like condom (22.3%), do not think it is necessary (16.2%) and did not think of it (12.2%).

Figure 3.5a: Proportion of IDUs reporting paying for sex in the past six months by city, 2008



Further analysis of commercial sexual transactions by city showed significantly higher proportions in DG Khan, Peshawar and Hyderabad as compared to other cities. Other than DG Khan and Larkana, all other cities showed a higher number of sexual transactions with FSWs, while IDUs in DG Khan and Larkana reported paying MSWs/HSWs more frequently (Figure3.5a).

3.6 HIV and STI Related Knowledge

Table 3.6a: HIV and STI related knowledge among IDUs, 2008

Knowledge Area	IDUs (n=2,979)
Ever heard of HIV and/or AIDS	89.4% (2662)
Healthy looking person can have HIV/AIDS*	61.6% (1637)
Self perception of risk for HIV*	35.9% (941)
HIV transmitted by sexual intercourse*	81.9% (2081)
HIV transmitted by sharp instruments/needles/syringes*	88.0% (2235)
HIV transmitted by blood transfusion*	24.0% (610)
Condoms can prevent HIV transmission*	44.0% (1107)
Sexual abstinence to prevent HIV transmission*	59.6% (1500)
Clean syringes/needles to prevent HIV transmission*	78.9% (1980)
Know where to receive HIV test*	26.4% (700)
Have been tested for HIV*	20.7% (547)
Knows test results*	64.4% (352)
Awareness of sexually transmitted infection (STIs)	65.3% (1946)
Self-reported STI in past 6 months*	11.4% (222)
Received treatment for reported STI*	79.5% (175)

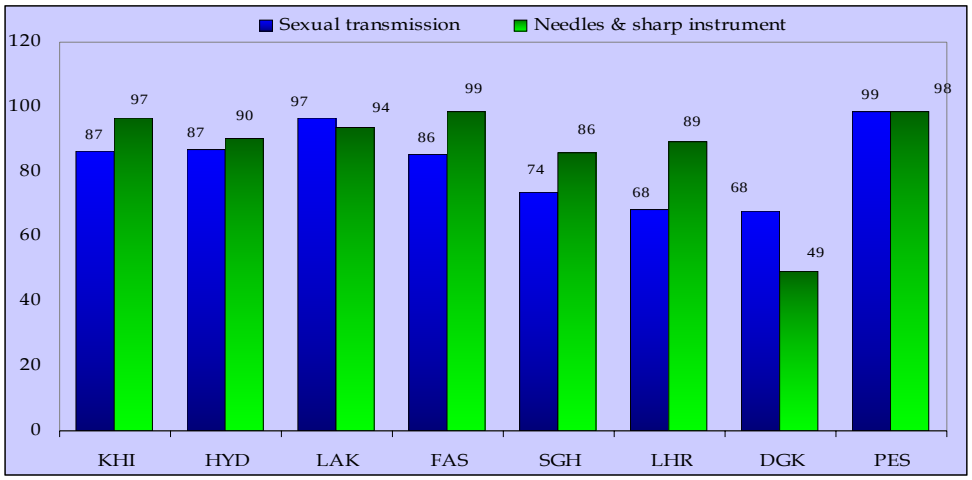
*Valid percentages i.e positive response to initial question

Approximately 89% of IDUs had heard of HIV and/or AIDS. Sixty-two percent believed that a healthy looking person can be infected with HIV. Among those IDUs who knew of HIV and/or AIDS, 88% knew that HIV can be transmitted by sharp instruments/needle (syringe); knowledge of sexual intercourse as mode of HIV transmission was prevalent among 82%, but only 24% 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% knew that using a clean needle/syringe for injections protects against HIV transmission. Forty-four percent of IDUs knew that using condoms is an effective method of HIV prevention, while about 60% believed that sexual abstinence is a mode of HIV prevention (Table 3.6a).

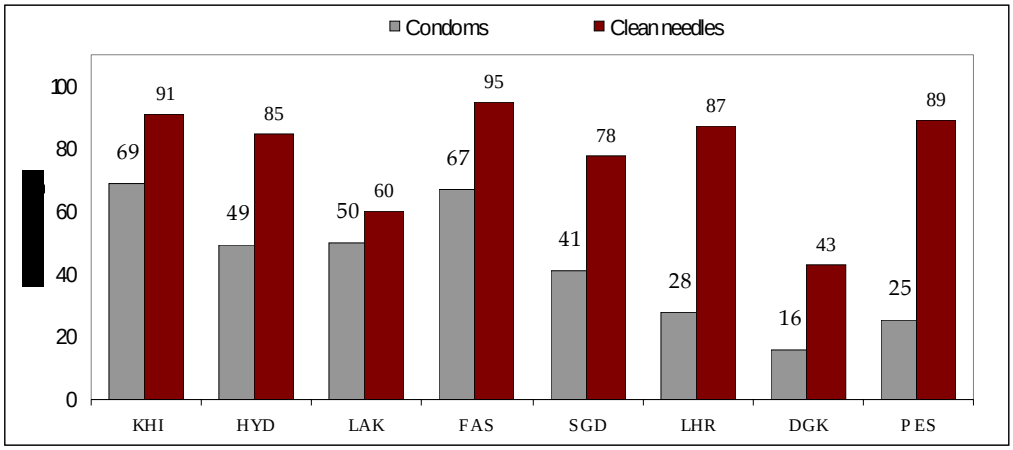
Nearly 40% believed that they were at a risk of acquiring HIV. Twenty-six percent knew of a place where they could be tested for HIV, while 21% had been tested for HIV in the past. Among those who had been tested, 64.4% knew of their HIV status (Table 3.6a). Further analysis showed that among those who knew of their HIV status, 13.7% were positive in comparison to 50.8% who were negative at the time of the test.

Fig 3.6a: Knowledge of modes of HIV transmission among IDUs by city, 2008
(Among those who have heard of HIV and/or AIDS)



City wise analysis showed that large proportions of IDUs knew that HIV is transmitted sexually. Similarly, in all cities except DG Khan, more than 50% of IDUs knew that HIV is transmitted by sharp instrument and needle (Figure 3.6a).

Figure 3.6b: Knowledge of HIV preventive measures among IDUs by cities, 2008
(Among those who have heard of HIV and/or AIDS)



Further analysis showed that while a fairly high proportion of respondents knew that HIV can be prevented by use of a clean needle (ranged between 95% in Faisalabad to 43% in DG Khan), fewer knew that condoms can protect against HIV. The low knowledge levels for all indicators in DG Khan can be attributed to the non existence of an SDP in that city (Figure 3.6b).

Approximately 65% of IDUs were aware that various diseases can be transmitted sexually. Among those IDUs who knew about STIs, 11.4% reported to have suffered from STI in past six months, and a large majority (79.5%) of those received treatment (Table 3.6a).

3.7 Program Exposure and Utilization

Table 3.7a: Knowledge and utilization of HIV prevention programs among IDUs, 2008

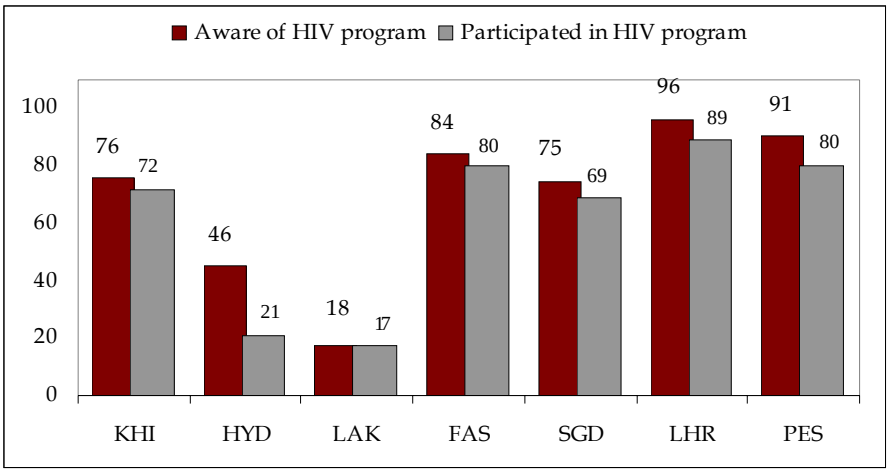
Knowledge Area	IDUs (n=2,979)
Ever heard of HIV prevention programs	60.5% (1802)
Participated in HIV programs	50.8% (1512)
Duration of association with a SDP* (mean ± SD in years)	1.2 ± 1.9
Number of times SDP services were availed	
More than once in a week	80.5% (1205)
Once in a week	12.0%(179)
After two weeks	3.1% (46)
Once in a month	2.8% (42)
Less than once in a month	1.5% (23)
Never	0.1% (5)
Received free syringe in past one month	58.3%(1737)
Arrested in the past 6 months	28.8% (858)
Taken alcohol during sexual act in past 6 months	11.0% (327)
Sold blood for money in past 6 months	4.7% (141)

* SDP; service delivery program

Approximately 61% of IDUs were aware of the HIV prevention programs in their city, while 51% reported utilizing SDPs. The mean duration of association of an IDUs with a SDP was reported to be 1.2 ± 1.9 years. Among those IDUs who participated in these preventive programs, approximately 81% utilized the services for more than once a week, which shows that a regular contact had been maintained (Table 3.7a). The knowledge and utilization of HIV SDP was reported highest by IDUs from Lahore, Peshawar, Faisalabad, Karachi and Sargodha (Figure 3.7a). Awareness and utilization of these services was low in Larkana and Hyderabad. DG Khan does not have a SDP for IDUs.

Figure3.7a: Knowledge and participation in SDPs among IDUs by selected cities, 2008

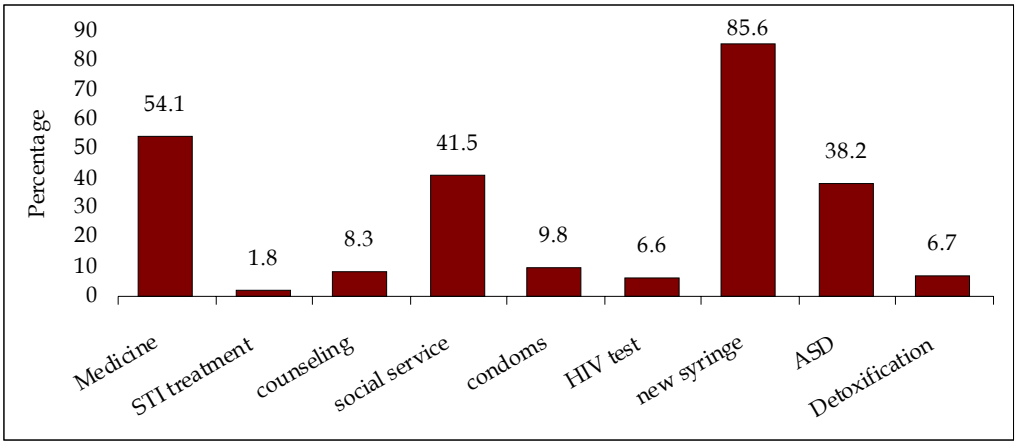
(Among those who have heard of SDP)



The common services for which IDUs visited these SDPs were evaluated. More than 85% of the IDUs who utilized services of the SDP obtained new syringes from the program. In the past six months, more than half of the IDUs (54%) came for treatment and medicine, while 41.5% availed social services i.e., bathing, shaving, clean clothes, etc. (Figure 3.7b).

Figure 3.7b: Common services utilized at SDPs in past 6 months by IDU, 2008

(Among those who have heard of SDP)



City wise utilization of various services provided by SDPs is shown in Table 3.7b.

Table 3.7b: Types of services used at the SDPs in past 6 months by IDUs by city, 2008 (in percentages)

Services	KHI	HYD	LAK	FAS	SGD	LHR	PES
Medicines	79.0	61.4	.4	65.8	22.0	70.6	87.9
STI treatment	1.6	.9	0	4.9	1.0	.8	2.6
Counseling	7.1	6.2	2.8	6.5	2.1	9.7	32.1
Social services	21.0	55.3	0	43.2	30.1	68.8	86.3
Condoms	8.1	1.8	0	16.0	15.0	11.8	4.2
HIV test	20.6	3.5	0	12.8	1.6	1.0	3.2
New Needle/ Syringes	97.7	65.8	96.4	98.4	96.9	93.5	0.5
Anti-Septic Dressing (ASD)	9.0	1.8	0	72.3	42.3	37.6	85.3
Detoxification	5.8	.9	0	22.6	.5	.5	14.7

- DG Khan has no service delivery program
- In Peshawar there was no distribution of needles/syringes
- In Larkana, the program is currently only providing new needle/syringe and counseling services

3.8 HIV Prevalence

Table 3.8a: HIV prevalence among IDUs by city, 2008

City	Prevalence (95% CI)	Tested	Positive
Karachi	23.1% (19.0, 27.2%)	403	93
Hyderabad	30.5% (26.0, 35.0%)	397	121
Larkana	28.5% (24.0, 33.0%)	389	111
Faisalabad	12.3% (9.0, 15.5%)	400	49
Sargodha	22.8% (18.7, 26.9%)	403	92
Lahore	14.5% (11.0, 17.9%)	401	58
DG Khan	18.6% (14.5, 22.7%)	345	64
Peshawar	12.8% (8.6, 17.2%)	231	30
Total	**20.8% (19.4, 22.3%)**	**2969**	**618**

The overall, sero-prevalence of HIV among IDUs was 21% (95% CI: 19.4, 22.3), with variation between cities (Table 3.8a). The highest prevalence was among IDUs from Hyderabad (30.5%) followed by Larkana (28.5%), Karachi (23.1%) and Sargodha (22.8%) (Table 3.8a).

Table 3.8b: A comparison of HIV prevalence by socio-demographic, injecting and sexual practices of IDUs, 2008

Variable	HIV (+ve)	HIV (-ve)
A) Socio-demographic status		
Age category*		
▪ Up to 24 years	18.1%	16.4%
▪ 25-29 years	25.2%	21.9%
▪ 30-34 years	17.6%	16.8%
▪ 35-40 years	24.4%	25.4%
▪ More than 40 years	14.6%	19..6%
Illiteracy	60.8%	59.4%
Current living arrangement*		
▪ Home	57.9%	60.4%
▪ Shrine	5.5%	7.9%
▪ Street	26.2%	21.5%
Living with whom		
▪ Alone	18.1%	15.3%
▪ With relatives/family	57.8%	58.5%
▪ With friends	23.9%	25.7%
B) Drug and injection practices		
Injected Heroin *	66.2%	58.9%
▪ Injecting > three times a day*	16.2%	13.8%
▪ Injecting with a used syringe/needle	21.2%	22.7%
Shared (passed) syringe/needle on last time*	19.1%	17.1%
Injection by professional injector on last time	31.4%	32.5%
Sharing injecting equipments**	37.8%	30.8%
Had sex with FSW	16.8%	18.1%
Had sex with MSW/HSW	12.5%	14.3%

*Statistically significant p value < 0.05
** Statistically significant at p<0.1

Indicators that were significantly associated with HIV sero-prevalence (Table 3.8b) in univariate analysis included young age, living on the street, injecting heroin, injecting more than 3 times a day, passing used needle and sharing injection equipment.

4. MALE SEX WORKERS

A total of 1,205 male sex workers (MSWs) were interviewed in the 6 cities that were selected for conducting the 3rd round of surveillance: Karachi, Hyderabad, Larkana, Lahore, Faisalabad and Peshawar.

4.1 Socio-Demographic Characteristics

Table 4.1a provides information on the key socio-demographic characteristics of MSWs.

Table 4.1a: Socio-demographic characteristics of MSWs, 2008

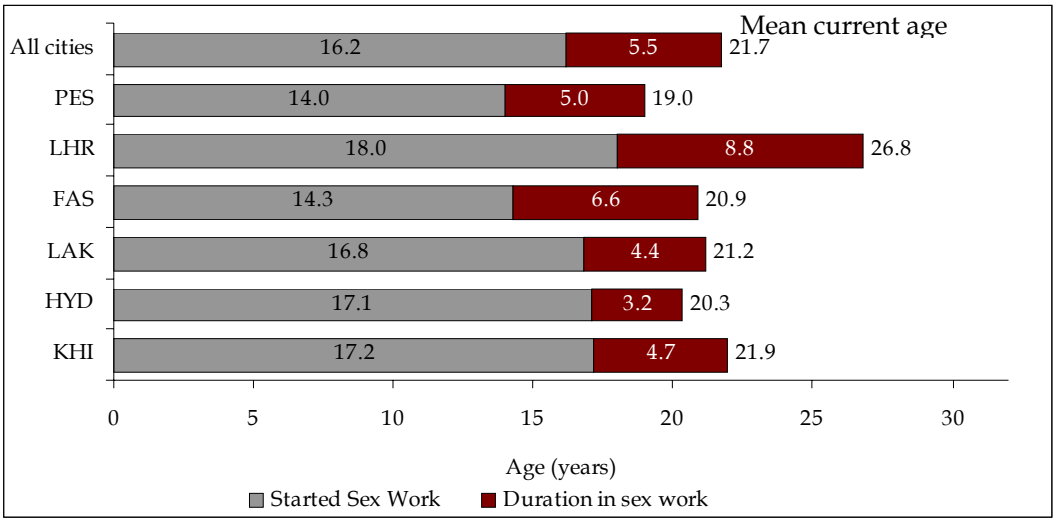
Characteristics	MSW (n=1,205)
Current age	
▪ 15-19 years	41.5% (500)
▪ 20-24 years	34.1% (411)
▪ 25-29 years	14.2 % (171)
▪ 30-34 years	6.2% (75)
▪ 35+years	4.0% (48)
Mean age ±SD (median) years	*21.7 ± 5.1(20)*
Marital status	
▪ Unmarried	88.9% (1071)
▪ Currently married	10.5% (127)
▪ Separated /divorced	0.3% (4)
▪ Widowed	0.2 % (3)
Year of formal education	
▪ Illiterate	42.4% (511)
▪ Up to 05 years	22.6% (272)
▪ 06 to 10 years	29.5% (356)
▪ > 10 years	5.5 % (66)
Living arrangement	
▪ Lives at home	76.9% (927)
▪ Lives alone	7.6% (92)
Other sources of income	67.2% (810)
Income (PKR)	
▪ Median income /month*	5000
▪ Median income from sex work/ month	3000

* includes income from other profession
Mean income/month: 5446 ± 3392 PKR
Sex work mean income/month: MSW = 3123 ± 2038 PKR

The mean age[10] of all MSWs interviewed was 21.7 years ± 5.1 (median = 20). Approximately 76% of MSWs were less than 30 years of age, with the highest proportion of respondents between 15 and 19 years of age (Table 4.1a). MSWs in Peshawar were the youngest (mean = 19) whereas those in Lahore were oldest (mean = 26.8) (Figure 4.1a).

On an average, MSWs started sex work at the mean age of 16.2 years and had been in sex work for approximately 5.5 years. The age of initiation into sex work was lowest in Peshawar (mean = 14) and Faisalabad (mean = 14.3), while those in Lahore began sex work at a relatively older age (mean = 18). MSWs in Lahore were involved in sex work for the longest period (mean = 8.8) where as those in Hyderabad were in sex work for shortest period (mean 3.2 years) in comparison to other cities (Figure 4.1a).

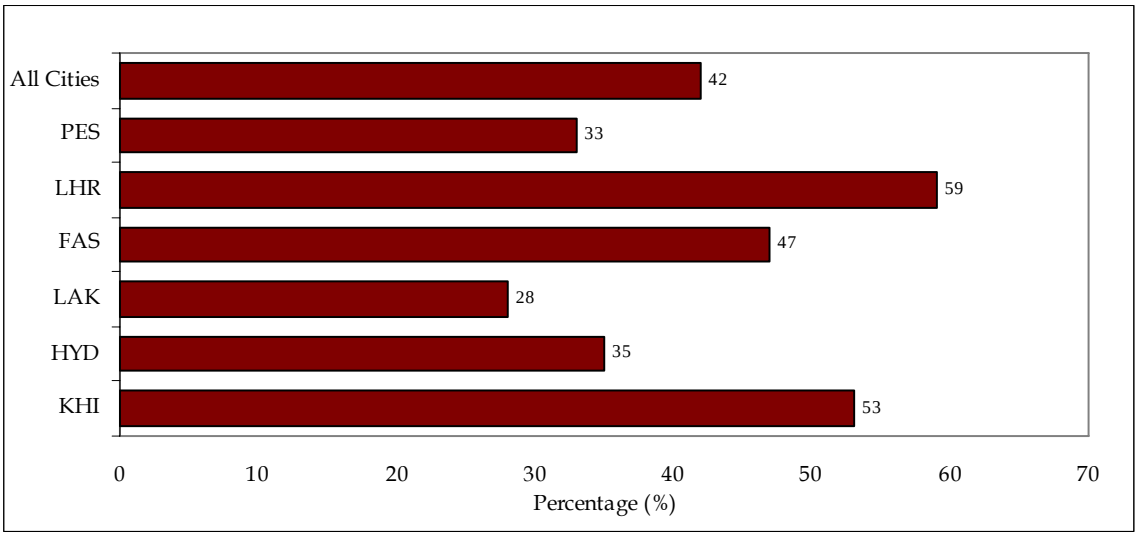
Figure 4.1a: Mean age of initiation, duration and current age of MSWs by city, 2008



The majority of MSWs interviewed were unmarried; only 10.5% reported to be currently married. Approximately 42% of MSWs had received no formal education (Table 4.1a). The highest proportion of illiteracy was reported by MSWs from Lahore (59%), followed by Karachi (53%) and Faisalabad (47%) (Figure 4.1b). Almost three quarters of MSWs lived at home with their families.

[10] The age limits used in selection criteria removed MSWs less than 15 years and over 45 yrs. The interpretation of mean age should therefore be used with caution.

Figure 4.1b: Illiteracy among MSWs by city, 2008



In addition to sex work, approximately 67% of MSWs reported an additional source of income (Table 4.1a). The most common reported occupations were laborers, 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 a student.

The median total monthly income was approximately 5000 PKR (mean = 5446 ± 3392 PKR), with the largest proportion of that income generated from sex work at a median of approximately 3000 PKR (mean = 3123 ± 2038 PKR) (Table 4.1a).

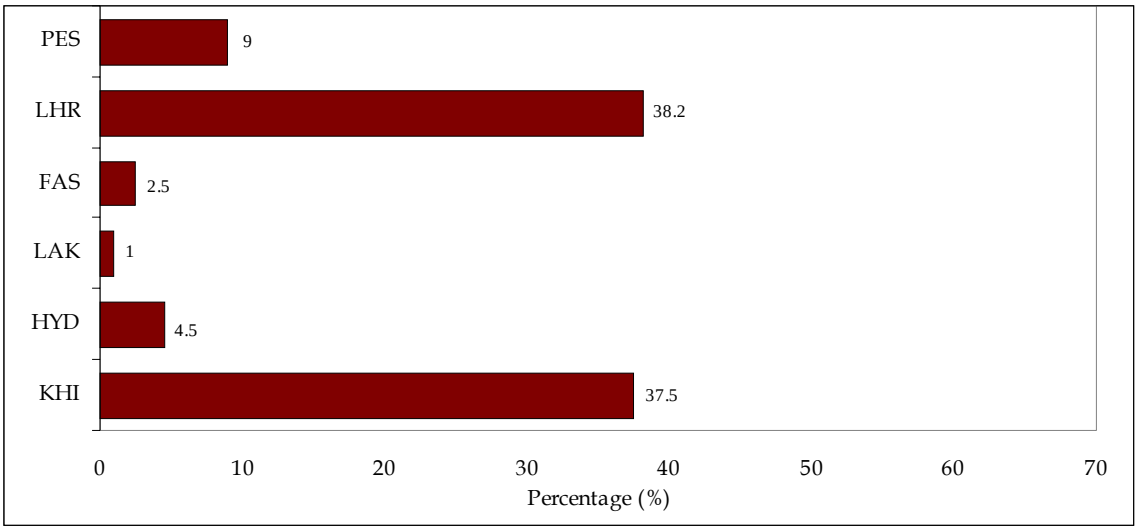
4.2 Migration and Mobility

A significant proportion of MSWs belonged to the city where they were interviewed (84.5%), and three quarters lived at home with their families. Among the 15.5% of MSWs who had migrated from another city, only 30% were permanent settlers, while 70% were visitors. Nearly 29% of those who had migrated from another city, moved specifically for sex work. Lahore had the highest proportion of in-migration (38%), followed by Karachi (37%). In all of the remaining cities, the numbers were fairly low (Table 4.2a)

Table 4.2a: Migratory pattern of MSWs, 2008

Variable	MSWs (n=1,205)
Migratory pattern (influx)	
Migrated from other cities	15.5% (187)
▪ Permanently staying	29.9% (56)
▪ Visiting	70.1%(131)
Migrated specifically for sex work	28.6%(52)
Mobility Pattern (outflux)	
Traveled to other city in the past 12 months	17.4% (209)
o Most recent cities traveled to	
▪ Lahore	33% (69)
▪ Karachi	9.6%(20)
▪ Hyderabad	8.1%(17)
▪ Multan	8.1%(17)

Figure 4.2a: Proportion of migrants MSWs in the city, 2008



We also looked at the mobility of MSWs (out flux from the city where they were interviewed) (Table 4.2a). Nearly 17% of the respondents 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.

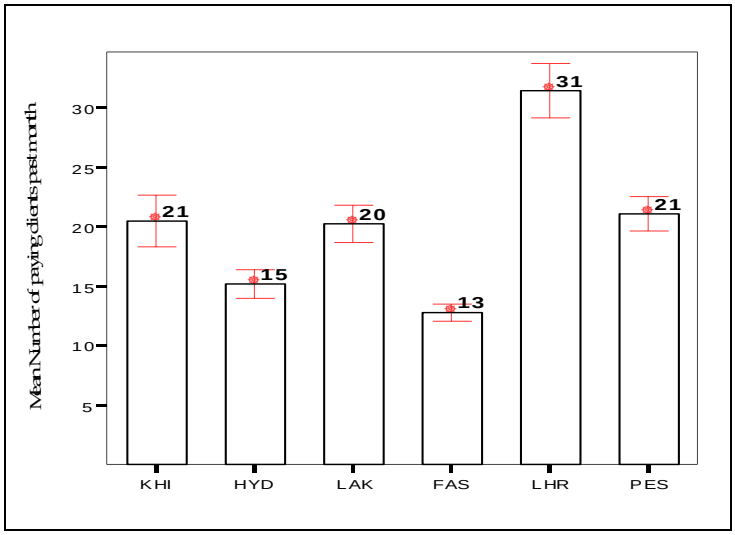
4.3 Sexual Behaviors and Practices

Table 4.3a: Sexual behaviors and practices of MSWs, 2008

Practice / Behavior	MSW (n=1,205)
Main source of clients	
▪ Pimp / *Guru*	1.2% (14)
▪ Roaming around	62.2% (749)
▪ Personal telephone	16.0% (193)
▪ Client referral	18.5% (223)
▪ Other sources	2.2% (26)
Client information	
▪ Avg. clients / day ± SD	1.9± 0.98
▪ Avg. clients past month ± SD	20.3± 13.2
Non commercial partners	
▪ At least one other partner last month	41.8% (503)
Consistent condom use with	
▪ Commercial sex partner	24.0% (287)
▪ Non commercial sex partner	22.2%(111/500)
Paid anyone for anal sex in the past month	4.5% (54)
Paid a female in the past month	42.7%(513)
Alcohol/drugs during sex in the past 6 months	33.2% (399)
Injected drugs in the past 6 months	4.2% (51)
Had sex with IDUs in past 6 months	6.4% (77)

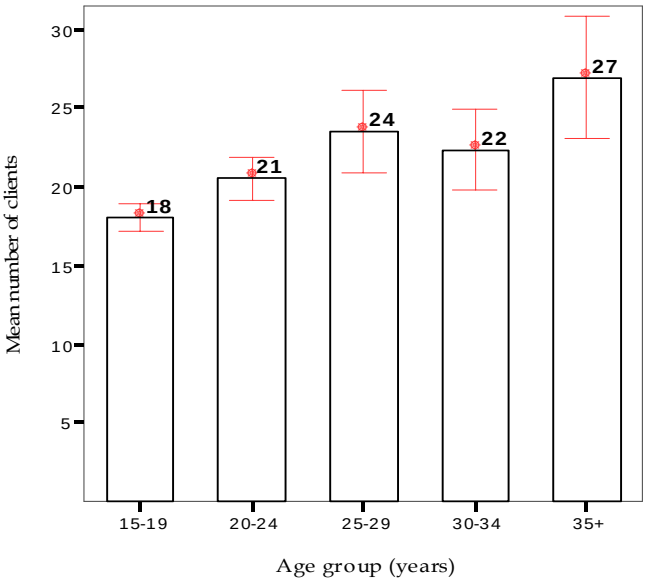
Approximately two thirds of MSWs solicit clients by roaming around in public places like bus stops and markets, which formed the largest mechanism of getting new clients. In addition, referral through old clients (18.5%) and being accessed through cell phones (16%) were also mentioned. On an average, MSWs entertained 2 clients per day, however since many MSWs do not work every day, the average number of clients per month was 20.3± 13.2 (Table 4.3a). The client volume varied considerably across cities, ranging from 13 clients/month in Faisalabad to 31 clients/month in Lahore (Figure 4.3a).

Figure 4.3a: Mean number (95% CI) of clients in the past month for MSWs by city, 2008



The mean number of clients per month showed a statistically significant increase with age (i.e. 18 clients per month for MSWs aged 15-19 years in comparison to 27 client per month for MSWs >35 yrs of age) (Figure 4.3b).

Figure 4.3b: Mean number (95% CI) of clients in the past month for MSWs by age group, 2008



In addition to commercial sex partners, approximately 42% of MSWs reported having at least one regular, non-paying sex partner. It is also worth mentioning that in addition to selling anal sex, 5% of MSWs reported paying other MSWs for anal sex. Bisexual behaviour was reported by approximately 43% of MSWs, where a female was paid for sex (Table 4.3a). Approximately half of MSWs in all cities, except Faisalabad, reported at least one female partner in past one month, with a mean of 2.7 female partners.

An assessment of sexual practices showed that consistent condom was generally low. Only 24% of MSWs reported that they always used a condom with paid clients in past one month (Table 4.3a). The major reasons reported for low consistent condom use were: do not like condoms (30%), partners' objection (23%), not available at that time (13%) and do not think that it was necessary (12%). Consistent condom use during the past month showed a significant change between different age groups (Figure 4.3c). Younger MSWs are less likely to use condoms, in comparison to MSWs belonging to older age groups. A significant association ($p<0.001$) was observed between consistent condom use with their clients during anal sex in past month among MSWs who were equal to or older than 30 years as compared to those who were less than 30 yrs

Figure 4.3c: Consistent condom use by MSWs with clients among different age groups, 2008

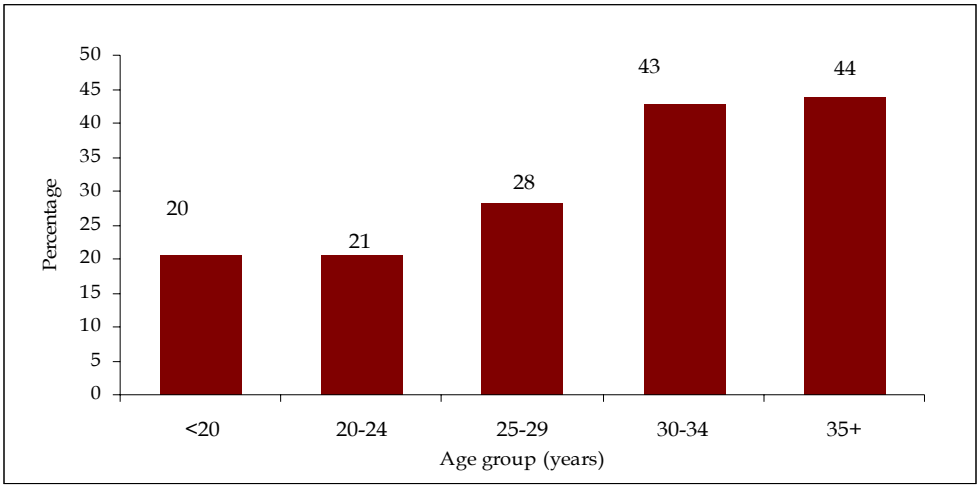
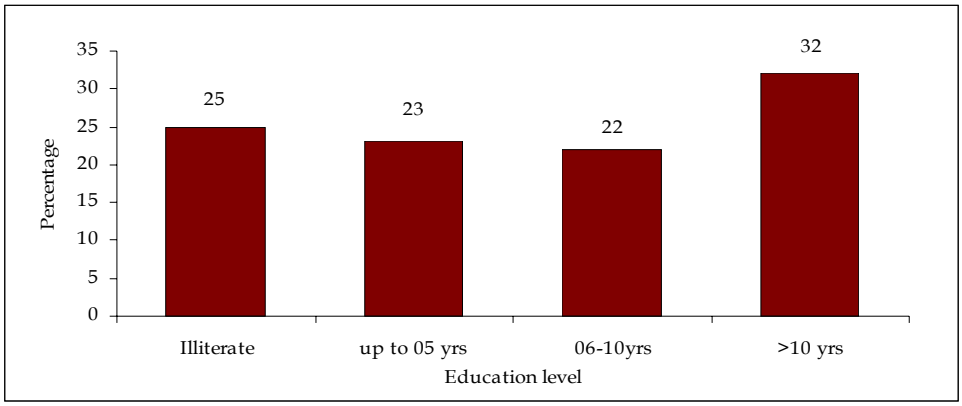
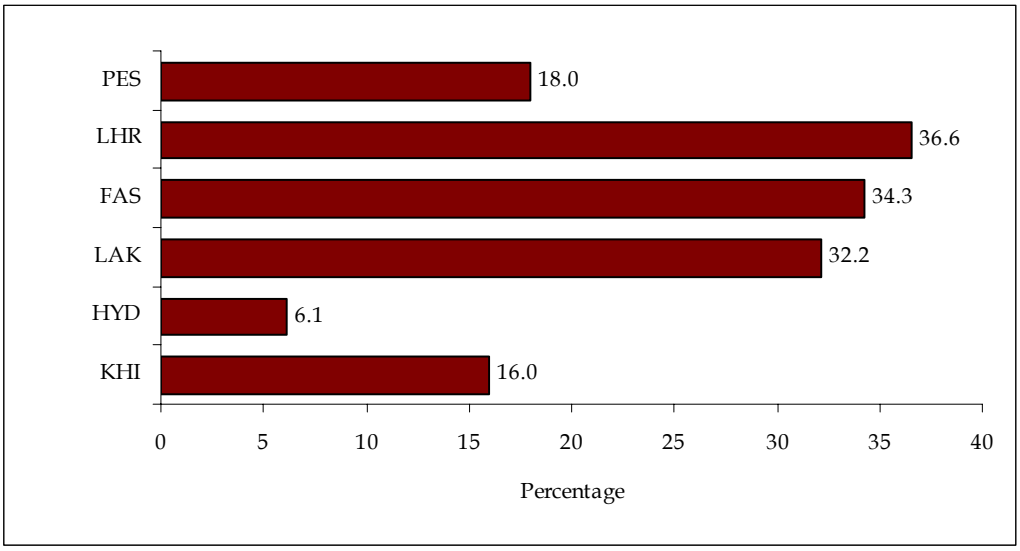


Figure 4.3d: Consistent condom use by MSWs in past month with clients by education level, 2008



Consistent condom use also showed an association with education. MSWs who have more than 10 years of education (32%) are more likely to use condoms consistently in comparison to MSWs who have lower educational levels (Figure 4.3d). Consistent condom use also varied considerably across cities, with highest proportions of consistent condom use reported from Lahore (36.6%), and lowest from Hyderabad (6.1%) (Figure 4.3e).

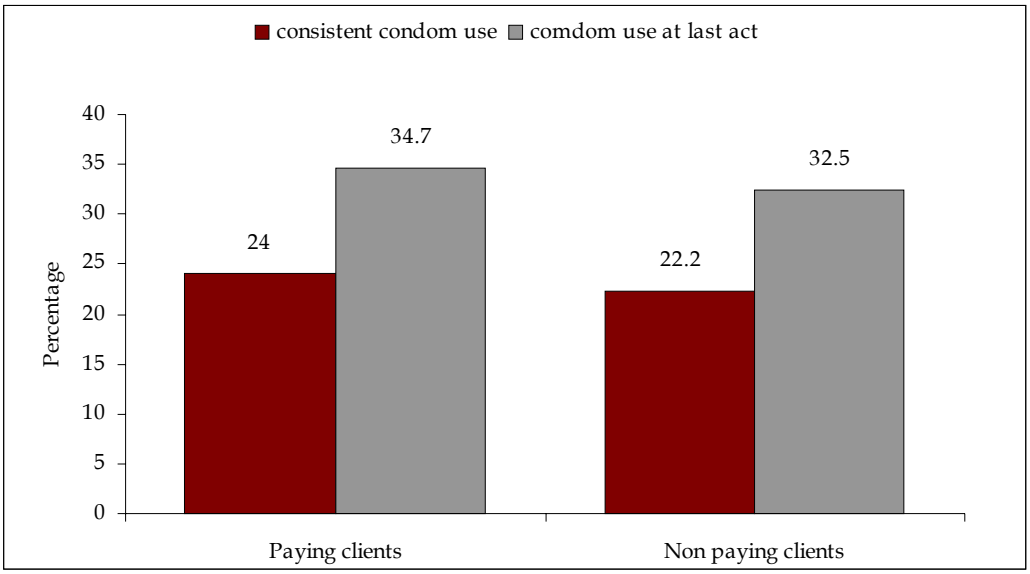
Figure 4.3e: Proportion of MSWs consistently using condoms with clients by city, 2008



No significant difference was seen between consistent condom use with regular and paid sex partners (i.e., 24% in commercial sexual transactions vs. 22.2% with regular sex partner). Likewise condom use at

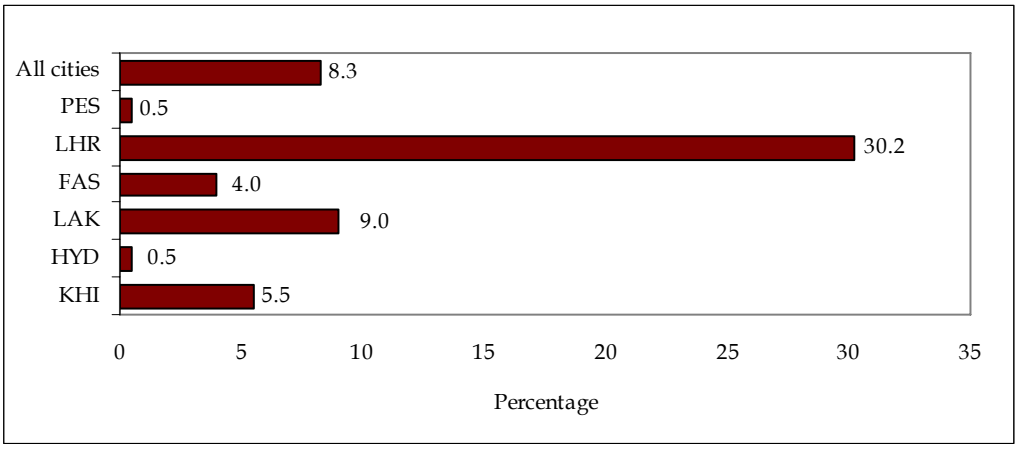
last sexual encounter also showed no significant differences for commercial or regular sex partner (i.e., 34.7% vs. 32.5%) (Figure 4.3f).

Figure 4.3f: Condom use practice of MSW with commercial and non- commercial clients, 2008



Overall, 8.3% of MSWs were carrying a condom at the time of interview. The highest proportions of condom carriage were reported from Lahore (30.2%) and lowest from Peshawar and Hyderabad (< 1% each) (Figure 4.3g).

Figure 4.3g: Proportion of MSWs carrying a condom at the time of the survey by selected cities, 2008



Approximately 44% of all MSWs reported using lubricants during anal sex with last client (Figure 4.3h). In all cities except Lahore and Faisalabad, less than fifty percent of MSWs interviewed, reported use of a lubricant during last anal sex (Figure 4.3h).

Figure 4.3h: Use of lubricants at last anal sex encounter with a client by MSWs by city, 2008

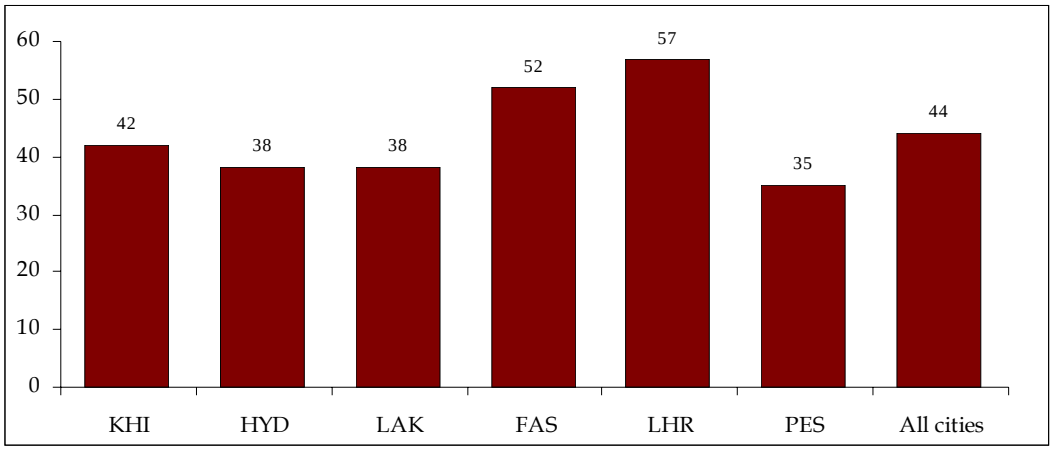
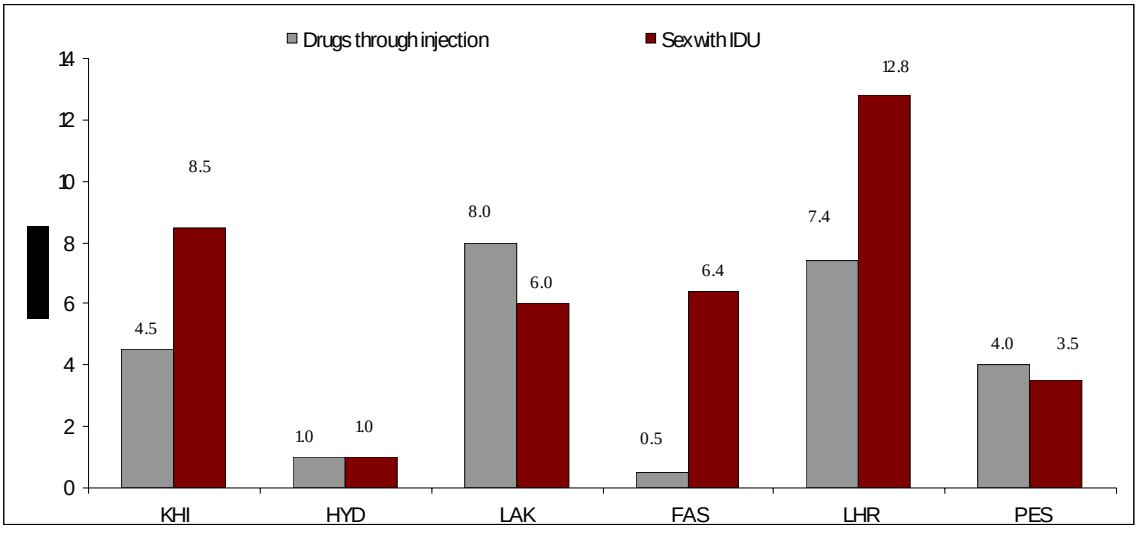


Figure 4.3i: City wise distribution of MSWs injecting drugs and having sex with an IDU, 2008.



Overall, 6.4% of MSWs reported having had sex with an injecting drug user (IDU) in the past six months, whereas 4.2% of MSWs reported that they had been injecting drugs in the past six months (Table 4.3a). Injecting drugs was highest in Larkana, while in Lahore both injecting drugs and reported sex with IDUs

was high (Figure 4.3i). Thirty-three percent of MSWs reported using alcohol and/or drugs in the past six months (Table 4.3a).

4.4 HIV and STI Related Knowledge

Table 4.4a: HIV and STI related knowledge among MSWs, 2008

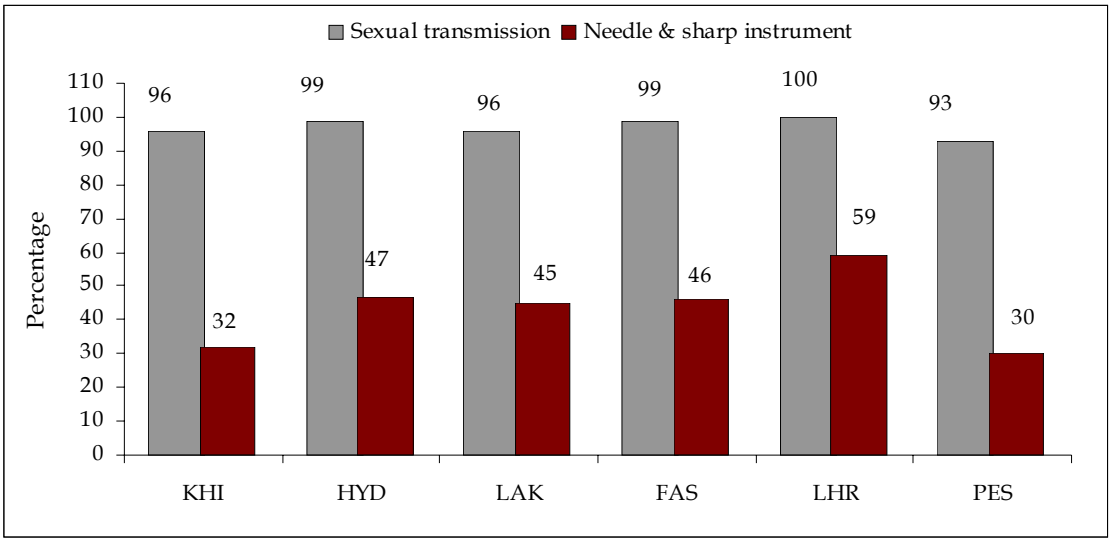
Knowledge area	MSW(n= 1,205)
Ever heard of HIV and/or AIDS	70.6% (849)
Healthy looking person can have HIV/AIDS*	47.1% (396)
HIV transmitted by sexual intercourse*	96.9% (739)
HIV transmitted by sharp instrument/needle*	41.8% (317)
Condom can prevent HIV transmission*	61.7% (461)
Sexual abstinence to prevent HIV transmission*	78.2% (586)
Clean needle/syringe can prevent HIV transmission	26.3% (196)
Ever tested for HIV*	14.8% (125)
Know where to receive HIV test*	27.9% (236)
Self perception of risk for HIV	37.9% (320)
Aware of sexually transmitted infection (STIs)	46.3% (558)
Self-reported STI in past 6 months*	20.9v (117)
Receive treatment for reported STI*	56.9% (66)

*Valid percentages (i.e., of those who "ever heard of HIV and/or AIDS")

Approximately 71% of MSWs had heard of HIV and/or AIDS. Of those MSWs who had heard of HIV and/or AIDS, 47% believe that a healthy looking person can have the disease (Table 4.4a). It is important to note that the percentages that are provided in the table are a sub-group analysis of those MSWs who had ever heard of HIV and/or AIDS.

Knowledge of sexual transmission as a mode of HIV transmission was reported in 96.9% of MSWs, where as only 42% knew that HIV can be transmitted through sharp instrument /syringe. Approximately 62% of those who had heard of HIV knew that HIV transmission can be prevented by using a condom during sex, and 78% believe that sexual abstinence can prevent HIV transmission (Table 4.4a).

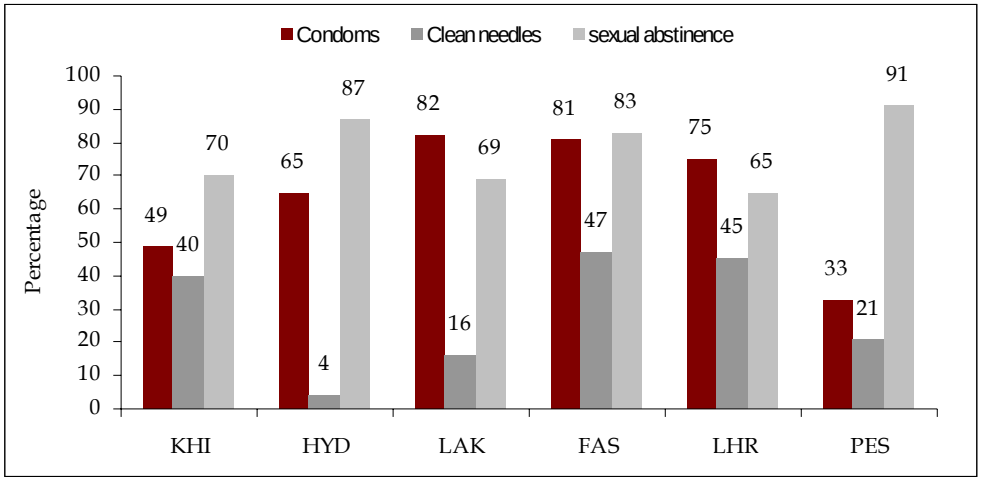
Figure 4.4a: Knowledge of modes of HIV transmission among MSWs by city, 2008
(Among those who have heard of HIV and/or AIDS)



Further analysis of knowledge of mode of HIV transmission by city showed 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 4.4a).

Likewise, when knowledge about HIV prevention knowledge was analyzed, a higher proportion of MSWs knew of condom and sexual abstinence as modes of HIV prevention, in comparison to the use of sterile needles as a protective factor (Figure 4.4b).

Figure 4.4b: Knowledge of HIV preventive measures among MSWs by cities, 2008
(Among those who have heard of HIV and/or AIDS)



4.5 Program Exposure and Utilization

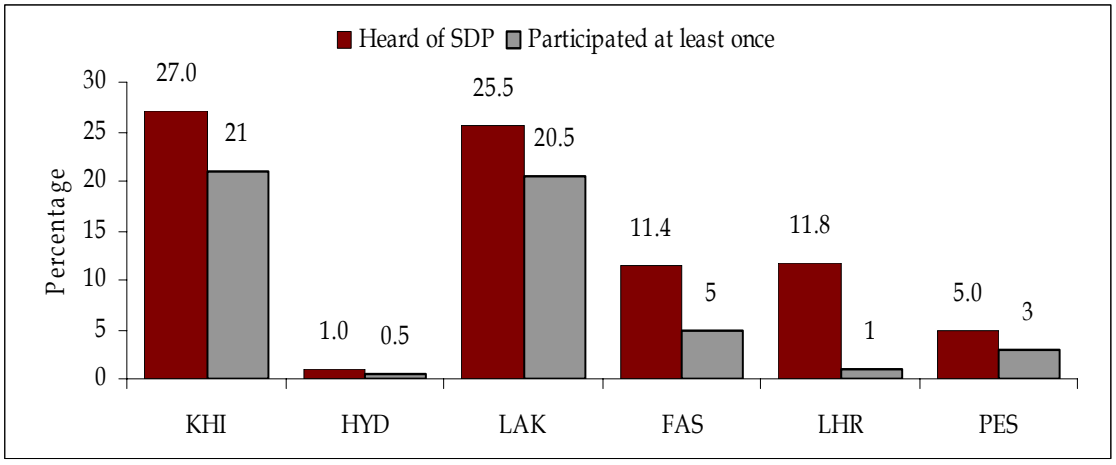
Table 4.5a: Knowledge and utilization of HIV prevention programs among MSWs, 2008

Knowledge Area	MSW(n= 1,205)
Ever heard of HIV prevention programs	13.6% (164)
Participated in HIV programs	8.5% (102)
Duration of association with a SDP* (mean ± SD) in years	1.2 (± 1.0)
Number of times SDP services were availed	
More than once in a week	29.7% (30)
Once in a week	32.7% (33)
After two weeks	14.9% (15)
Once in a month	14.9% (15)
Less than once in a month	6.9% (7)
Never	1% (1)
Received free condom in past one month	13.3%(160)
Arrested in the past 6 months	19.1% (230)
Sold blood for money in past 6 months	2.4%(29)

Tables may be based on slightly lower numbers when data were missing for specific questions

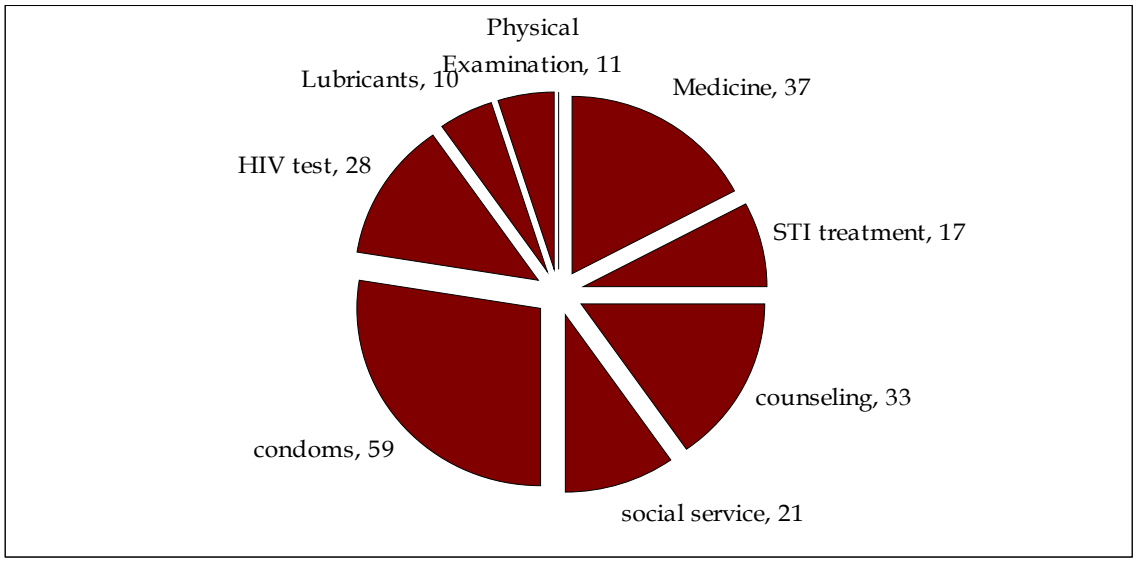
Approximately 14% of MSWs were aware of a HIV prevention program (SDP) in their city; although only 8.5% utilize these services. Among those who utilized the SDP, the mean duration of association with an SDP was 1.2 ± 1.0 years (Table 4.5a). Awareness and utilization of SDP varied substantially across cities, with relatively higher coverage rates in Karachi and Larkana in comparison to other cities (Figure 4.5a).

Figure 4.5a: Knowledge of and participation in HIV prevention programs among MSWs by cities, 2008



Provision of comprehensive HRG service packages has been a top priority of NACP, 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 (59.3%), followed by obtaining medicines (37.2%) and counseling (33.1%). Getting tested for HIV (28%) and utilizing social services (21%) like new clothes, bathing etc from the program were also reported by MSWs (Figure 4.5b)

Figure 4.5b Common services utilized at SDPs in past 6 months by MSW, 2008 (in percentage)
(Among those who participant in SDP)



The common services utilized by MSWs vary considerably across cities. A summary of this is provided in Table 4.5b.

Table 4.5b: Types of services used at the SDPs in the past 6 months by MSW by city, 2008 (in percentage) **(Among those who participant in SDP)**

Services	KHI	HYD	LAK	FAS	LHR	PES
Medical Treatment	75.0	66.7	4.5	61.1	25.0	33.3
STI treatment	2.3	66.7	23.9	0	25.0	33.3
Counseling	25.0	83.3	31.3	44.4	25.0	33.3
Social services	50.0	33.3	3.0	16.7	25.0	0
Condoms	40.9	50.0	68.7	50.0	100	100
HIV test	6.8	50.0	37.3	27.8	25.0	50.0
Lubricants	15.9	0	0	33.3	25.0	0
Physical Examination	15.9	0	7.5	11.1	0	33.3

The low utilization of SDP services is reflective in the knowledge and awareness levels of this group, and still presents a huge challenge for service providers. Although the utilization of SDPs was much below an effective level, better knowledge of HIV and/or AIDS and safer sexual practices were noted in MSWs who participated in SDPs as compared to those who never did (Table 4.5c).

Table 4.5c: HIV knowledge levels among MSWs by SDP usage, 2008

HIV knowledge indicator	ever utilized SDPs	never utilized SDPs	*P* value
Healthy looking person can be infected with HIV	66.7% (80)	33.3% (40)	0.09*
HIV can be transmitted by ▪ sexual intercourse ▪ infected syringe	 97.8% (87) 64.9% (61)	 98.1% (51) 35.1% (33)	 0.89 0.31
HIV can be prevented by ▪ condoms ▪ clean syringes	 65.3% (79) 55.1% (38)	 34.7% (42) 44.9% (31)	 0.13* 0.81
Perception of self risk	71.6% (63)	38.8% (19)	0.00**
Ever tested for HIV	87.5% (56)	12.5% (8)	0.00**
Aware of STIs	65.0% (91)	35.0% (49)	0.04**
Consistent condom use	52.7%(48)	36.5%(19)	0.06*

* Significant at α = 0.1;
** Significant at α= 0.05

4.6 HIV Prevalence

Figure 4.6a: HIV prevalence among MSWs by city, 2008

City	MSWs		
	Prevalence (95% CI)	Tested	Positive
Karachi	3.1% (0.7, 5.5%)	197	6
Hyderabad	0	199	0
Larkana	0.5% (-0.5, 1.48)	200	1
Faisalabad	0	202	0
Lahore	1.0% (-0.4, 2.4%)	202	2
Peshawar	0	200	0
Total	**0.9% (0.3, 1.5%)**	**1200**	**9**

The overall HIV sero-prevalence among MSWs was 0.9% (95%CI: 0.3%, 1.5%). Sero-prevalence was highest among MSWs in Karachi (3.1%). No MSW tested positive for HIV in Hyderabad, Faisalabad and Peshawar (Table 4.6a).

Due to the low numbers of positive cases among MSWs, statistical tests for association showed insignificant results for all the variables.

5. HIJRA SEX WORKERS

A total number of 1,186 hijra sex workers (HSW) were interviewed in 6 cities of Pakistan: Karachi, Hyderabad, Larkana, Lahore, Faislabad and Peshawar. Table 5.1a provides information on the key socio-demographic characteristics of the HSWs.

5.1 Socio-Demographic Characteristics

Table 5.1a: Socio-demographic characteristics of HSWs, 2008

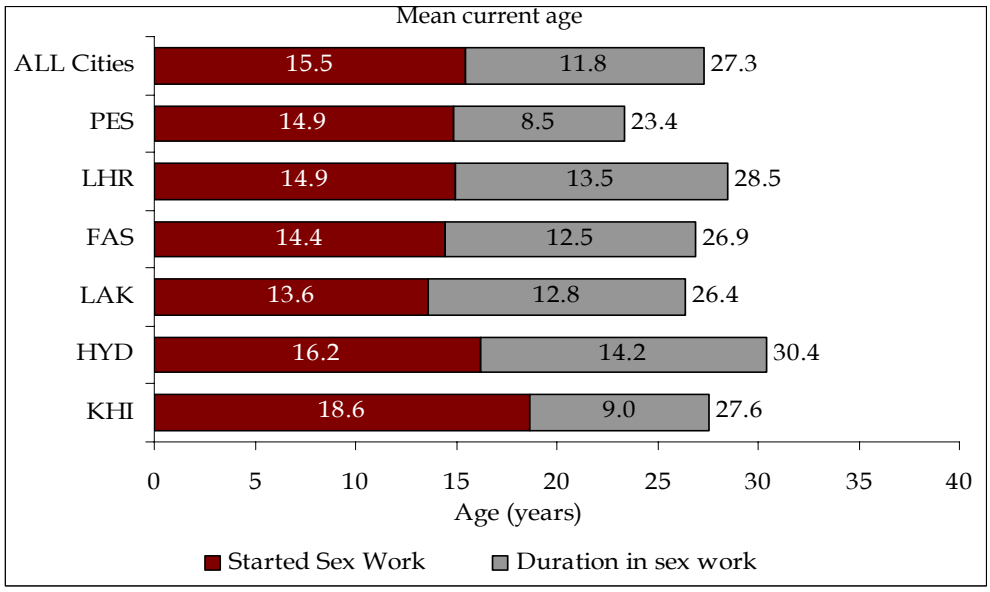
Characteristics	HSW (n=1,186)
Current age	
▪ 15-19 years	10.3% (122)
▪ 20-24 years	22.7% (269)
▪ 25-29 years	31.5% (374)
▪ 30-34 years	19.3% (229)
▪ 35 + years	16.2% (192)
Mean age ±SD (median) years	*27.3 ± 6.1 (27)*
Marital status	
▪ Unmarried	85.7% (1016)
▪ Currently married	12.2% (145)
▪ Separated / divorced	1.8% (21)
▪ Widowed	0.3% (4)
Year of formal education	
▪ Illiterate	59.6% (706)
▪ Up to 05 years	23.6% (280)
▪ 06 to 10 years	14.4% (171)
▪ > 10 years	2.3v (27)
Living arrangement	
Place of living	
▪ Dera	70.9% (841)
▪ Lives at home	21.3% (253)
Living with	
▪ Friends	63.2% (750)
▪ Family	13.8% (164)
▪ Lives alone	10.0% (119)
Other sources of income	60.5% (718)
Income (PKR)	
▪ Median income /month*	8000
▪ Median income from sex work/month	5000

* include income from other profession
Total Mean income/month: 8896 ± 3667 PKR
Sex work Mean income/month: 6057 ± 3282 PKR

The mean age of HSWs interviewed was 27.3 years ± 6.1 (median = 27)[11]. Approximately 10% of HSWs were aged 15-19 years, while the highest proportion (32%) felt between the ages of 25-29 years (Table 5.1a). The mean age of HSWs ranged between 23.4 years (Peshawar) and 30.4 years (Hyderabad) (Figure 5.1a).

On average, HSWs started sex work at a relatively young age (15.5 years) and were involved in sex work for approximately 12 years. Age of initiation into sex work was lowest in Larkana (mean = 13.6), while those in Karachi began sex work at a relatively older age (mean = 18.6). HSWs in Hyderabad started sex work at 16.2 years and were involved in sex work for the longest period (mean = 14.2), whereas those in Peshawar were in sex work for a shorter time period (mean = 8.5) in comparison to other cities (Figure 5.1a).

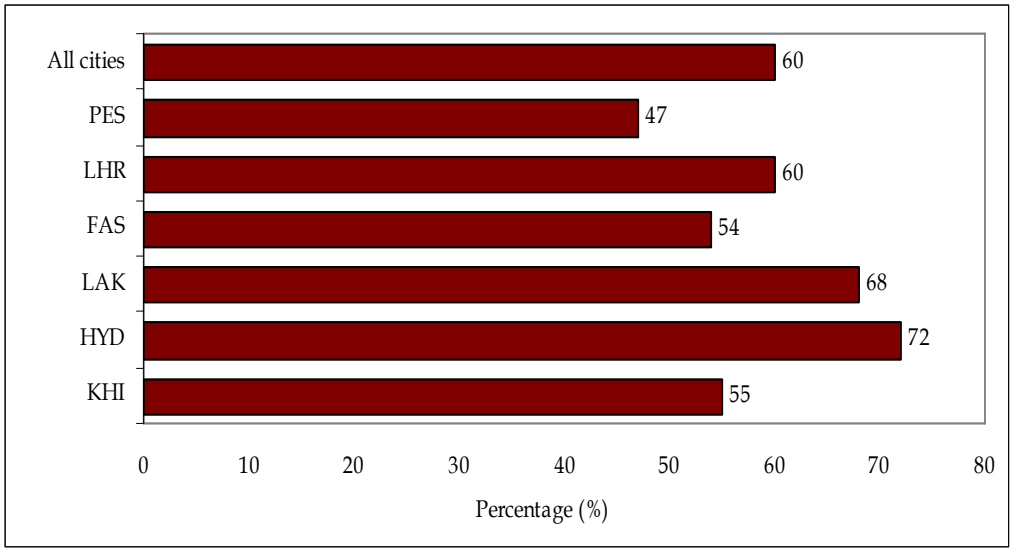
Figure 5.1a: Mean age of initiation, duration and current age of HSWs by city, 2008



A majority of HSWs were unmarried and only 12% reported to be currently married. More than half (59.6%) of the HSWs were illiterate, while 40% had received at least primary education (Table 5.1a). Illiteracy was highest in Hyderabad (Figure 5.1a).

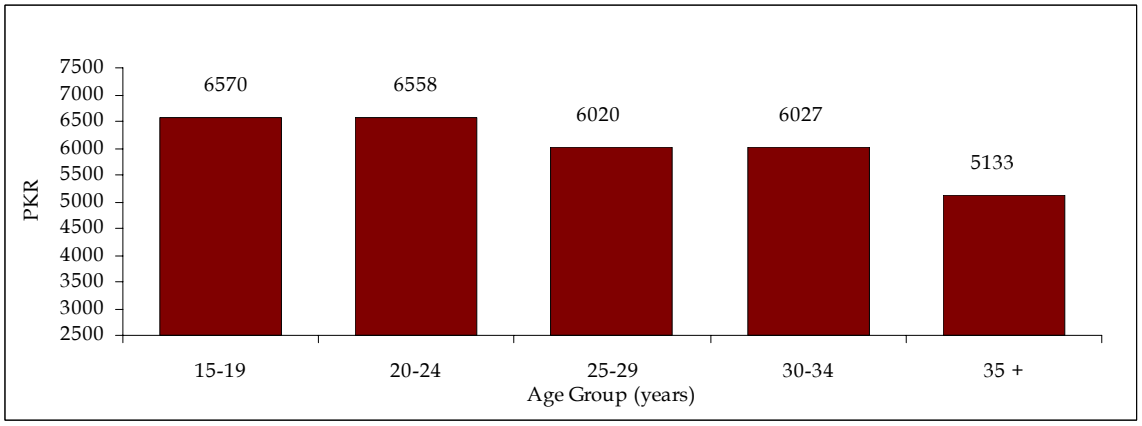
[11] The age limits used in selection criteria removed HSWs less than 15 years and over 45 yrs. The interpretation of mean age should therefore be used with caution.

Figure 5.1b: Illiteracy among HSWs by city, 2008



Approximately 71% of HSWs reported living in *Deras* and almost one quarter (24%) lived in their family home. In addition to sex work, approximately 61% of HSWs reported an additional source of income (Table 5.1a). The most commonly reported occupations were dancing (43.7%), begging (9.4%) and tailoring (2.3%).

Figure 5.1c: Mean monthly sex work income of HSWs by age group, 2008



The median total monthly income was 8000 PKR (mean = 8896 ± 3667 PKR), whereas the median monthly income from sex work was approximately 5000 PKR (mean = 6057 ± 3282 PKR) (Table 5.1a). The sex work income decreased with increasing age of the HSW, with an average sex work income of 6570 PKR reported by HSWs aged 15-19 years in comparison to mean income of 5133 PKR for older (35-45 years) HSWs (Figure5.1c).

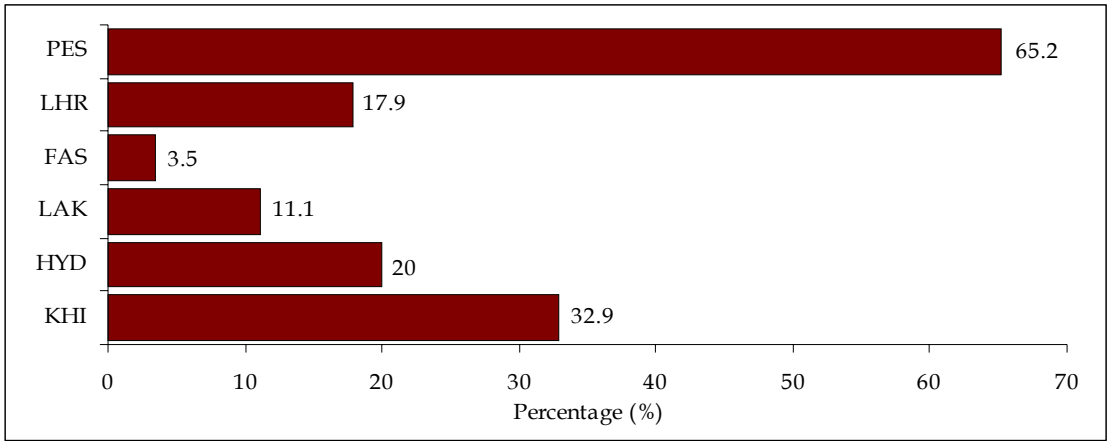
5.2 Migration and Mobility

Table 5.2a: Mobility pattern of HSWs, 2008

Variable	HSWs (n=1186)
Migratory Pattern (Influx)	
Migrated from other cities	23.9% (284)
▪ Permanently staying	19.7%(56)
▪ Visiting	80.3%(228)
Migrated specifically for sex work	85.4%(240)
Mobility Pattern (Outflux)	
Traveled to other cities in the past 12 months	35.6% (422)
▪ Most common cities traveled to	
o Karachi	24.9%(105)
o Lahore	15.6%(66)
o Hyderabad	9.2%(39)
o Multan	7.3%(31)

A significant proportion of HSWs interviewed did not belong to the city of interview (23.9%). However, approximately 20% of the migrant HSWs planned to live in their new city permanently, and a sizeable proportion reported that they were visiting for an extended period of time. On average, they planned to stay in the city for 2.3 ± 2.2 years. Among those who migrated, more than three quarters reported to be currently living in *Deras.* A large majority (85%) of the migrants reported to have moved to the city specifically for sex work (Table 5.2a).

Figure 5.2a: Proportion of migrants HSWs in the city, 2008



Peshawar reported the highest proportion of in-migrants followed by Karachi, Lahore and Hyderabad (Figure 5.2a). The migration to Karachi, Lahore and Hyderabad may be for the better economic opportunities in these cities whereas travel to Peshawar was attributable to the prevailing security situation in other parts of NWFP specifically cities like Bannu, Swat, etc.

Overall, 36% of HSWs reported to have traveled to other cities during the past 12 months. Among those who had traveled, the most frequently visited city was Karachi followed by Lahore, Hyderabad and Multan. Most of the movements of HSWs are reported to be within provinces (Table 5.2a).

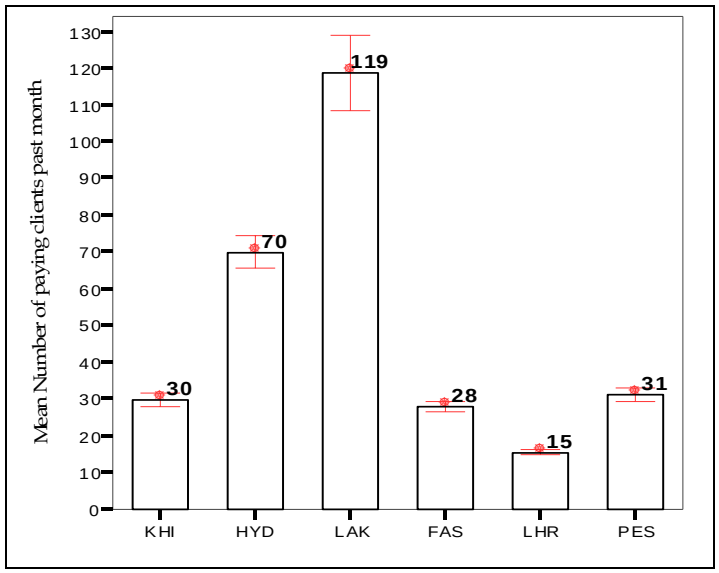
5.3 Sexual Behaviors and Practices

Table 5.3a: Sexual behaviors and practices of HSWs, 2008

Practice / Behavior	HSW (n= 1,186)
Main source of clients	
▪ Pimp / *Guru*	15.9% (188)
▪ Roaming around	46.9% (556)
▪ Personal telephone	21.8% (258)
▪ Client referral	13.7% (162)
▪ Other sources	1.9% (22)
Client information	
▪ Avg. clients / day ±SD	2.59±1.9
▪ Avg. clients last month ±SD	49.07±49.4
Non commercial partners	
▪ At least one other partner last month	44.0% (521)
Consistent condom use with	
▪ Commercial sex partner	19.7% (234)
▪ Non commercial sex partner	19.6%(102/521)
Lubricant use during last anal sex	**78.7% (923)**
Alcohol/drugs during sex in the past 6 months	**62.4% (740)**
Had sex with IDUs in past 6 months	**6.3% (75)**
Injected drugs in the past 6 months	**4.6% (55)**

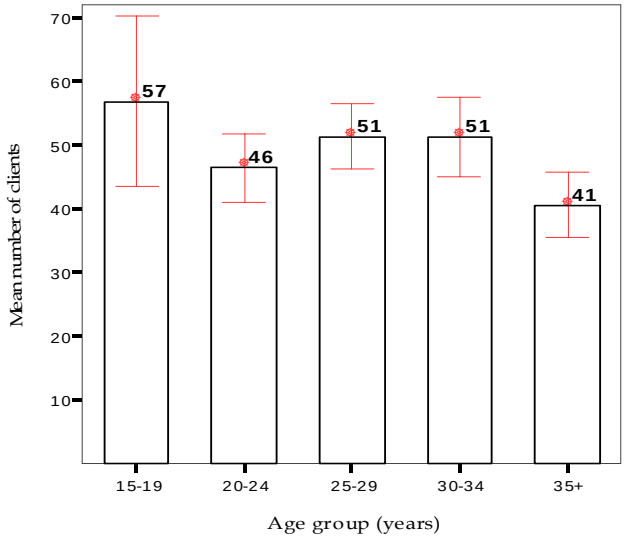
Approximately half of HSWs solicit clients by roaming around in public places like bus stops and markets, while approximately 22% do so through cell phones. Only 16% of HSWs rely on *Gurus* for clients, reflecting the decreasing dependency of HSWs on their Guru for sexual partners (Table 5.3a).

Figure 5.3a: Mean number (95% CI) of clients in the past month for HSWs by city, 2008



On an average, HSWs entertained three clients per day and 49 clients per month (Table 5.3a). Client volume varied substantially across cities, ranging between 15 clients/month in Lahore, to 119 clients/month in Larkana (Figure 5.3a). The mean number of clients per month showed no difference between different age groups (Figure 5.3b). In addition to paid clients, 44% of HSWs also reported having at least one regular, non paying partner.

Figure 5.3b: Mean number (95% CI) of clients in the past month for HSWs by age group, 2008



Consistent condom use was generally low, with only 20% of HSWs reporting that they always used a condom with paid clients in the past month (Table 5.3a). The major reasons reported for low consistent condom use were: do not like condom (41.1%), partners' objection (26.6%), do not think that it was necessary (17.1%) and do not think of them (6.1%). No differences in consistent condom use with clients were observed between different age groups (Figure 5.3c), but a strong association (p=0.002) between consistent condom use and education was evident (figure 5.3d).

Figure 5.3c: Consistent condom use by HSW among different age groups, 2008

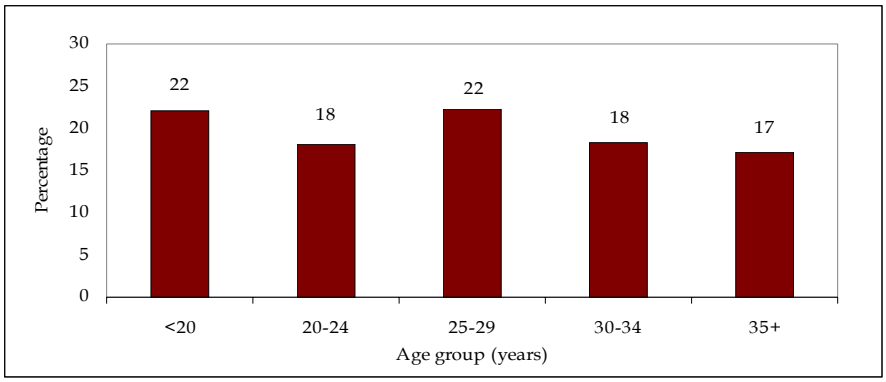
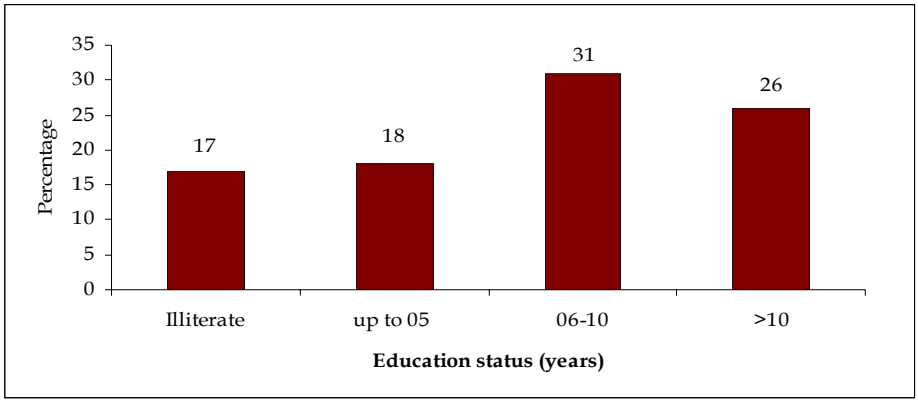
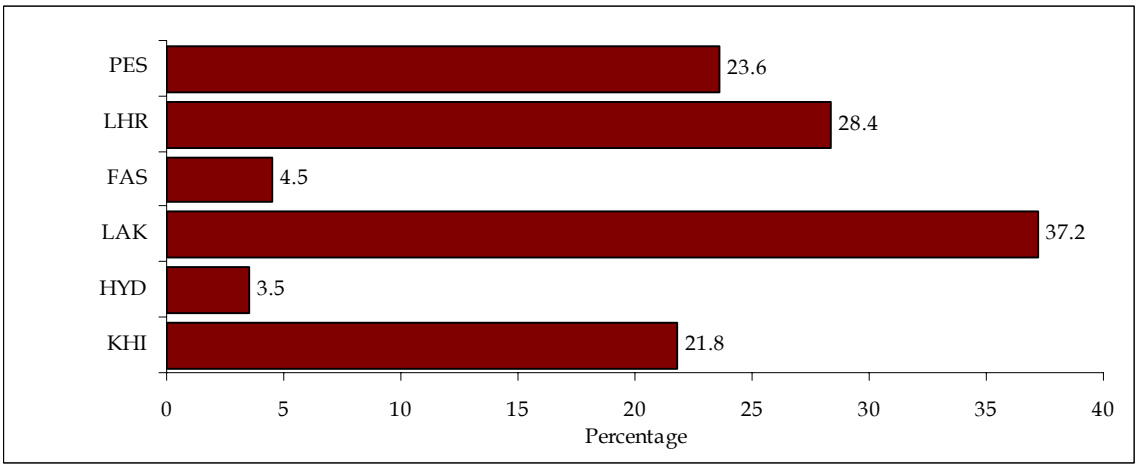


Figure 5.3d: Proportion of HSWs consistently using condoms with clients in the past month by education level, 2008



Consistent condom use with clients was lowest (17%) among illiterate HSWs and highest among those who had more than six years of education (Figure 5.3d). Consistent condom use also varied considerably across cities, with the highest proportion of consistent condom use reported from Larkana (37.2%), and the lowest from Hyderabad (3.5%) (Figure 5.3e).

Figure 5.3e: Proportion of HSWs consistently using condoms with clients in the past month by city, 2008



No significant difference was seen between consistent condom use with regular and paid sex partners. In comparison to 19.7% condom use in commercial sexual transactions, a similar proportion (19.6% or 102/521) was reported for sex with regular non-commercial sex partners (Table 5.3a) in the past last one month. Though insignificant, condom use on last commercial sexual encounter was slightly higher in comparison to last non-commercial sex (32.3% vs. 26%) (Figure 5.3f).

Figure 5.3f: Condom use practice of HSW with commercial and noncommercial clients, 2008

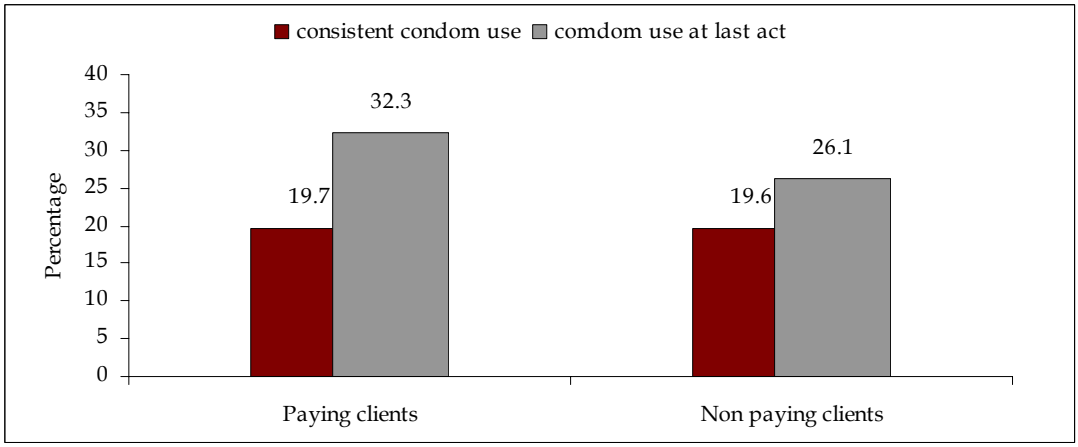
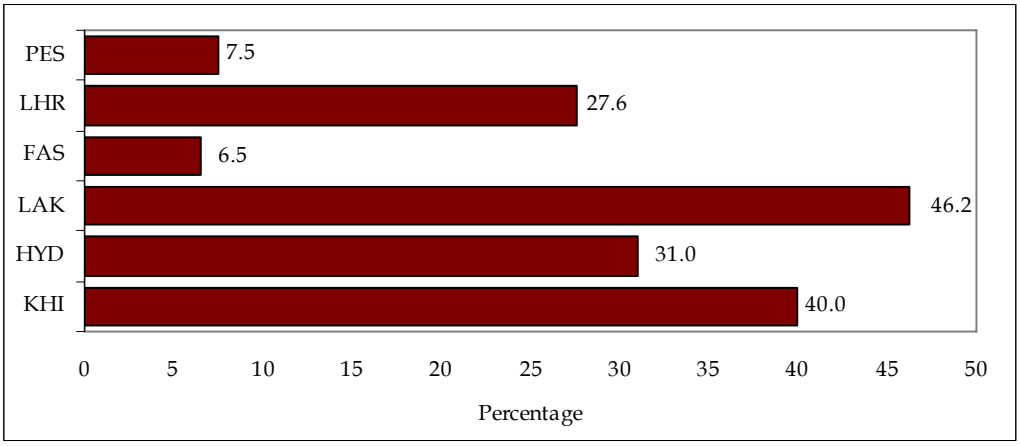
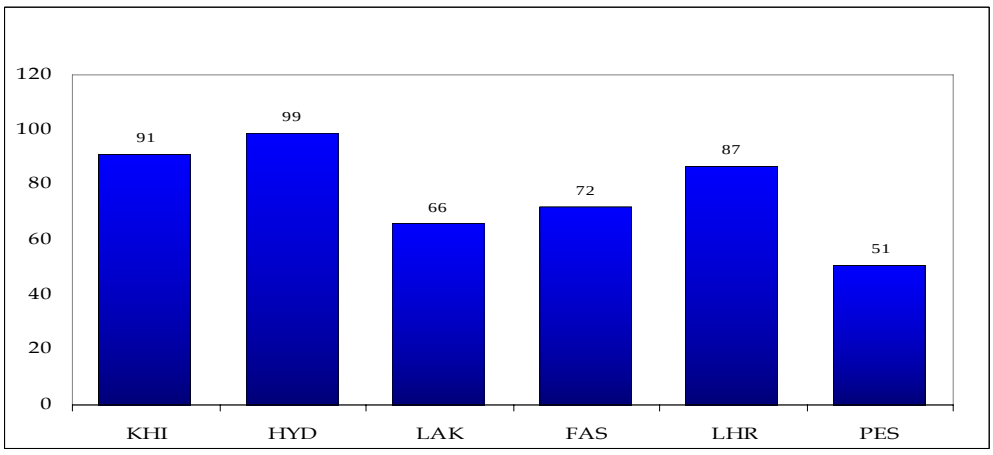


Figure 5.3g: Proportion of HSWs carrying a condom at the time of the survey by selected cities, 2008



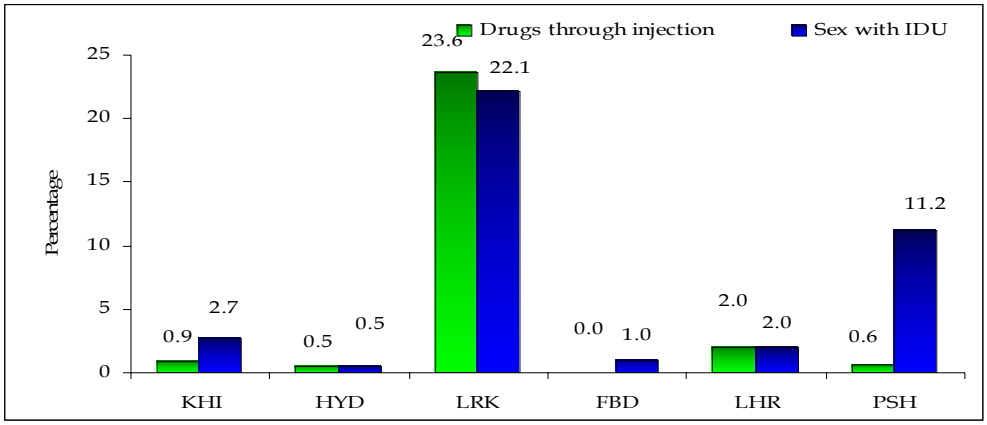
Condom carriage as a surrogate of condom practice might bias the results as it is highly dependent on the place of interview. However, since the proportion of respondents who could show a condom was in unison with the proportion reporting using it, we believe that the results reflect the actual practice to a large extent. Overall, approximately 27.4% of HSWs could show a condom at the time of interview. The highest proportion of condom carriage was reported from Larkana (46.2%), while the lowest was reported from Faisalabad (6.5%) (Figure 5.3g).

Figure 5.3h: Use of any type of lubrication in last anal sex encounter with a client by HSWs by city, 2008



Approximately 79% of all HSWs reported using lubricants during last anal sex (Table 5.3a). The highest proportion of lubricant use was reported from Hyderabad (99%), while the lowest (51%) was reported from Peshawar (Figure 5.3h).

Figure 5.3i: City wise distribution of HSWs injecting drugs and having sex with an IDU, 2008.



Overall, 6.3% of HSWs reported to have had sex with IDU in the past six months, whereas 4.6% HSWs reported that they had been injecting drugs in the same time period (Table 5.3a). Injecting drugs and reported sex with an IDU was highest in Larkana, while in Peshawar a considerable proportion of HSW had IDUs as their sex partners (figure 5.3i).

Overall, 62.4% of HSWs reported using alcohol and/or drugs during sexual intercourse in the past six months (Table 5.3a).

5.4 HIV and STI Related Knowledge

Table 5.4a: HIV and STI related Knowledge among HSWs, 2008

Knowledge area	HSW(n= 1,186)
Ever heard of HIV and/or AIDS	85.2% (1010)
Healthy looking person can have HIV/AIDS*	55.9% (563)
HIV transmitted by sexual intercourse*	78.7% (795)
HIV transmitted by sharp instrument/needle*	50.6% (418)
Condom can prevent HIV transmission*	66.5% (538)
Sexual abstinence to prevent HIV transmission*	65.8% (532)
Clean needle/syringe can prevent HIV transmission	30.7%(248)
Ever tested for HIV*	23.4% (236)
Know where to receive HIV test*	31.4% (317)
Self perception of risk for HIV	40.8% (410)
Aware of sexually transmitted infection (STIs)	71.8% (852)
Self-reported STI in past 6 months*	22.4% (191)
Received treatment for reported STIs*	54.0% (102)

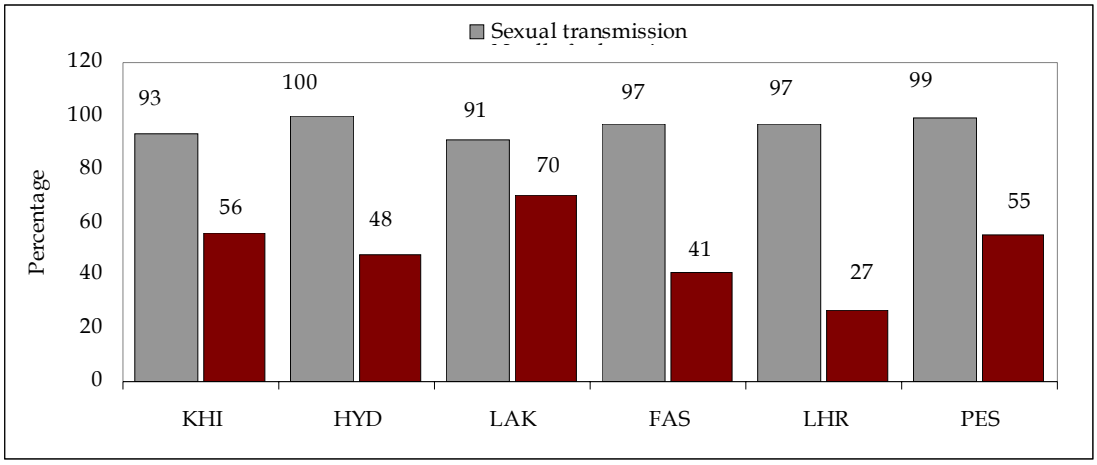
*Valid percentages i.e positive response to initial question

Approximately 85% of HSWs had heard of HIV and/or AIDS. Of those, 60% believed that a healthy looking person can have the disease. It is important to note that the percentages that are provided in the table 5.4a represent a sub-group analysis of those HSWs who had heard of HIV and/or AIDS. The knowledge level is slightly lower if percentages are calculated for the entire sample.

Knowledge of sexual intercourse as mode of HIV transmission was reported by 96% of HSWs, where as a little more than half knew that HIV can be transmitted through a sharp instrument/syringe. Knowledge that condom use is an effective mode of preventing HIV was prevalent among 66.5% HSWs; 65.8% and 31% believed that sexual abstinence and use of clean needle/syringe can prevent HIV transmission, respectively (Table 5.4a).

Fig 5.4a: Knowledge of modes of HIV transmission among HSWs by city, 2008

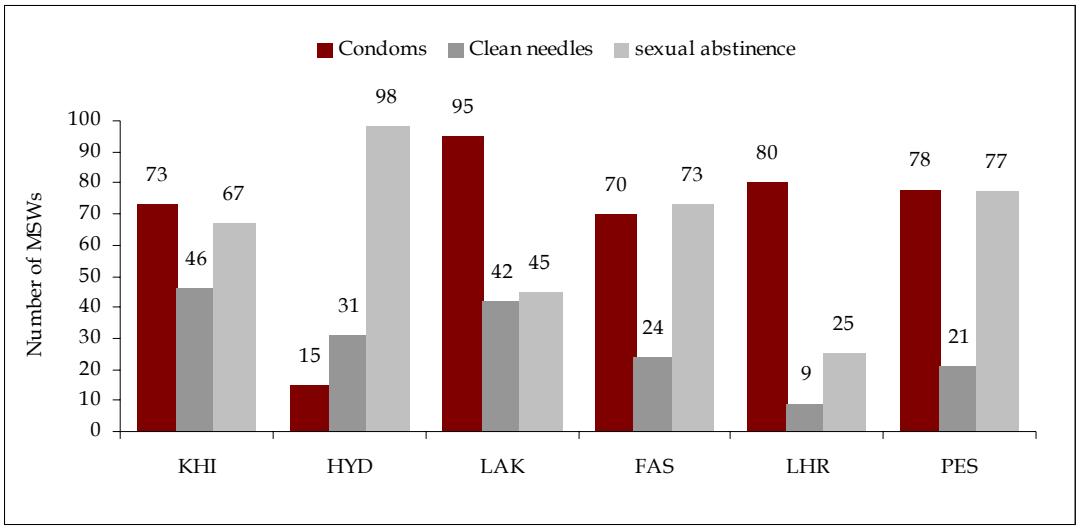
(Among those who have heard of HIV and/or AIDS)



Further analysis of knowledge of mode of HIV transmission by city showed that a considerable high proportion of HSWs knew about sexual transmission of HIV and/or AIDS in all cities, however knowledge of HIV transmission through sharp needle/syringe was low (Figure 5.4a).

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 a protective factor (Figure 5.4b).

Figure 5.4b: Knowledge of HIV preventive measures among HSWs by cities, 2008
(Among those who have heard of HIV and/or AIDS)



5.5 Program Exposure and Utilization

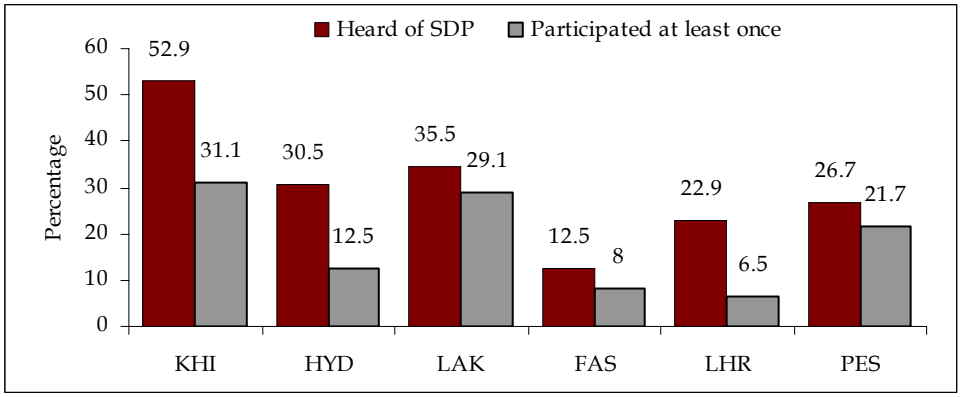
Table 5.5a: Knowledge and utilization of HIV prevention program among HSWs, 2008

Knowledge Area	HSW(n= 1,186)
Ever heard of HIV prevention programs	30.6% (363)
Participated in HIV programs	18.3% (217)
Duration of association with a SDP* (mean ± SD) in years	0.8 ± 0.5
Number of times SDP services were availed	
More than once in a week	5.1% (11)
Once in a week	19.0% (41)
After two weeks	24.1% (52)
Once in a month	38.4% (83)
Less than once in a month	28.0% (13)
Never	0.5% (1)
Received free condom in past one month	27.3%(323)
Arrested in the past 6 months	19.4% (229)
Sold blood for money in past 6 months	1.6%(19)

Approximately 31% of HSWs were aware of HIV prevention programs (SDPs) in their city, however only 18.3% said they had utilized these services. Among those HSWs who utilized the SDP services, the mean duration of association with SDPs was slightly less than one year (mean = 0.8 ± 0.5 years) (Table 5.5a). Awareness and utilization of SDPs among HSWs was further analyzed across different cities (Figure

5.5a); programs in Karachi and Larkana showed relatively high coverage rates in comparison to Faisalabad and Lahore, followed by Peshawar.

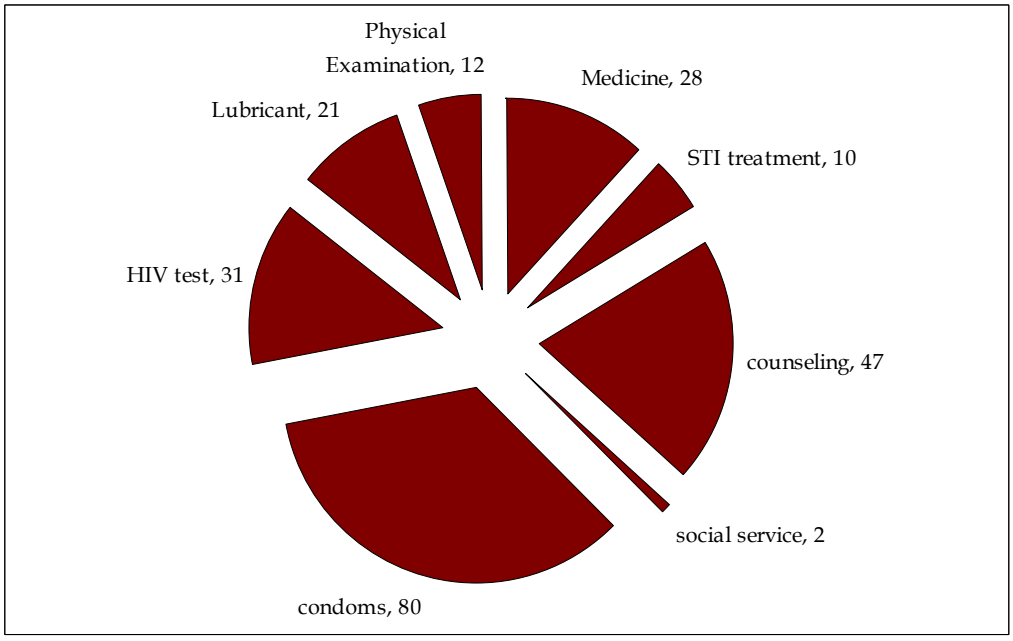
Figure 5.5a: Knowledge and participation in HIV prevention programs among HSWs by cities, 2008



Further analysis of various services availed by HSWs in the past six months showed that getting condoms from the SDP was the most utilized service (80%), followed by using counseling (47%) and HIV testing (31%). Getting medicines (28%) and lubricants (21%) from the program were other common services being utilized by HSWs (Figure 5.5b).

Figure 5.5b: Common services utilized at SDPs in past 6 months by HSW, 2008 (in percentage)

(Among those who have heard of SDP)



The common services utilized by HSWs in different cities are reported in Table 5.5b.

Table 5.5b: Types of services used at the SDPs in the past 6 months by HSW by city, 2008 (in percentage)

Services	KHI	HYD	LAK	FAS	LHR	PES
Medicines	57.3	26.7	5.7	21.1	16.7	28.2
STI treatment	15.6	4.4	13.2	5.3	2.8	5.1
Counseling	50.0	24.4	80.2	10.5	19.4	20.5
Social services	3.1	4.4	0	0	2.8	0
Condoms	82.3	73.3	90.6	73.7	55.6	79.5
HIV test	41.7	0	29.2	36.8	22.2	53.8
Lubricants	69.8	0	.9	26.3	0	0
Physical Examination	19.8	0	8.5	0	2.8	33.3

Although the utilization of SDPs was reported to be low, knowledge of HIV and/or AIDS, as well as sexual practices were much improved in HSWs who had participated in SDPs as compared to those who had never participated (Table 5.5c).

Table 5.5c: HIV knowledge levels among HSWs by SDP usage, 2008

HIV knowledge indicator	ever utilized SDPs n=193	never utilized SDPs n=115	*P* value
Healthy looking person can be infected with HIV	88.6% (171)	73.9% (85)	0.001*
HIV can be transmitted by ▪ sexual intercourse ▪ infected syringe	 99.0%(189) 71.2% (136)	 96.1%(99) 48.5% (50)	 0.101 0.000*
HIV can be prevented by ▪ condoms ▪ clean syringes	 83.8% (160) 42.4% (81)	 60.4% (61) 36.6% (37)	 0.000* 0.339
Perception of self risk	63.2% (122)	37.1% (43)	0.000*
Ever tested for HIV	59.6% (115)	15.8% (18)	0.000*
Aware of STIs	95.9% (185)	80.0% (92)	0.000*
Consistent condom use	52.8%(102)	2.6%(26)	0.000*

* Significant at α 0.01

5.6 HIV Prevalence

Figure 5.6a: HIV prevalence among HSWs by city, 2008

City	HSWs		
	Prevalence (95% CI)	Tested	Positive
Karachi	3.6% (1.2, 6.1%)	222	8
Hyderabad	0	198	0
Larkana	27.6% (21.4, 33.9%)	199	55
Faisalabad	2.5%(0.3, 4.7%)	200	5
Lahore	2.5%(0.3, 4.7%)	201	5
Peshawar	1.2% (-0.5, 2.9%)	161	2
Total	**6.4% (5.0, 7.7%)**	**1181**	**75**

Among HSWs, overall HIV prevalence was (75/1181) 6.4% (95% CI: 5.0%, 7.7%), with the highest prevalence reported in Larkana (27.6%); all other cities had less than 5% prevalence (Table 5.6a).

Table 5.6b: A Comparison of HIV +ve/–ve HSWs by socio-demographic and sexual practices, 2008

	HSW	
Variable	HIV (+ve)	HIV (-ve)
Age category		
▪ 15-19	10.0%	90%
▪ 20-24	7.5%	92.5%
▪ 25-29	6.2%	93.8%
▪ 30-35	5.7%	94.3%
▪ >35	3.7%	96.3%
Illiterate	7.3%	92.7%
Clients/month*		
▪ 1-19	8.0%	21.8%
▪ 20-32	16.0%	29.6%
▪ 33-59	16.0%	24.1%
▪ =>60	60.0%	24.5%
Always used condom*	11.2%	88.8%
Took drugs through injection**	12.7%	87.3%
Had sex with an IDU**	16.0%	84.0%
Knows HIV spread by sex	5.9%	94.1%
Knows condoms protects HIV*	8.2%	91.8%
Utilize SDPs^	9.2%	90.8%

*Statistically significant P value < 0.05
**Statistically significant P value < 0.05 by fisher exact test
^ Statistically significant P value < 0.1

HIV sero-prevalence was associated with client volume, consistent condom use, history of drug injection in past six months, history of having sex with an IDU in past six months, knowledge of sexual intercourse as a mode of transmission, and knowledge of use of condom as preventive method in chi-square analysis (Table 5.6b).

6. TRANSMISSION DYNAMICS

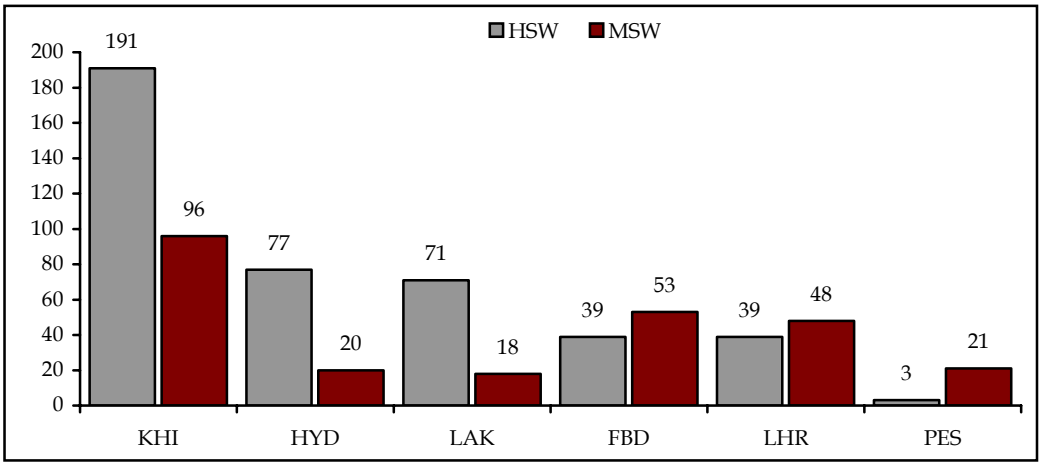
6.1 Bridge Populations

The analysis of bridge populations for MSW and HSWs showed substantial variation in the estimated number of monthly sexual partners within and between cities (Figure 6.1a)[12]. 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, though much of this is influenced by very high prevalence among HSWs in Larkana (see Figure 6.1a). The high HIV prevalence and relatively large sexual network of HSWs in Larkana (71,000 sexual partnerships per month) indicate an urgent need for effective targeted prevention among HSWs in that city. In terms of the overall volume of encounters, Karachi requires a large-scale program for both HSWs and MSWs, with a combined estimate of almost 300,000 sexual partnerships for these two groups per month.

Interestingly, the relative size of sexual networks of HSWs and MSWs differed by city, with HSWs having much larger bridge populations in Karachi, Hyderabad and Larkana, whereas MSW bridge populations were relatively larger in Faisalabad, Lahore and Peshawar. In designing programs it will be important to understand the level of overlap between the HSW and MSW populations, and to ensure that programs are appropriately scaled for each of these groups.

Figure6.1a: Estimated number of monthly sexual partnerships among MSWs, and HSWs by city (in thousands), 2008



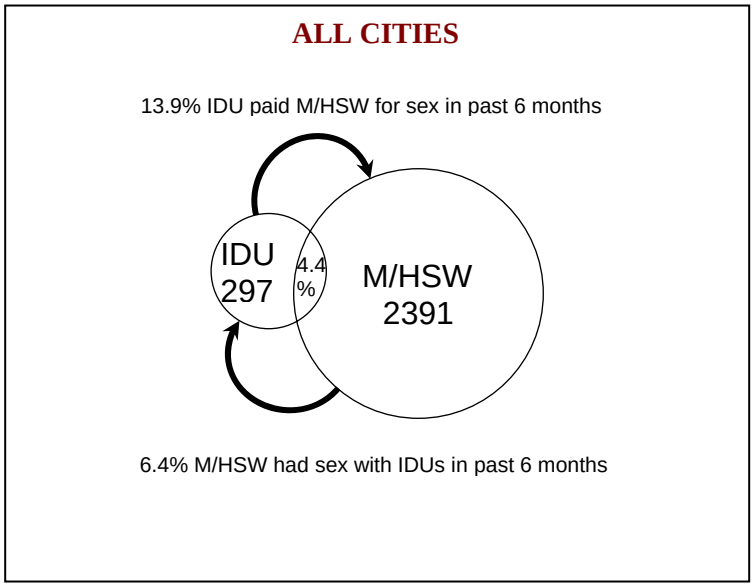
[12] The size of potential bridge population for each HRG was estimated by multiplying the average number of sex partners/month from current round with the estimated size of the HRGs reported in R2 mapping results.

7. 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 regular, casual and commercial partners. To prevent the spread of HIV, it is important to understand the type and size of HRGs and the extent of their risk behaviors. In addition, it is also important to understand the extent and pattern of interaction between the different HRGs and the coverage of preventive programs targeting these groups.

The surveillance data suggest some important interactions between IDUs and sex workers, as illustrated in Figure 7a.

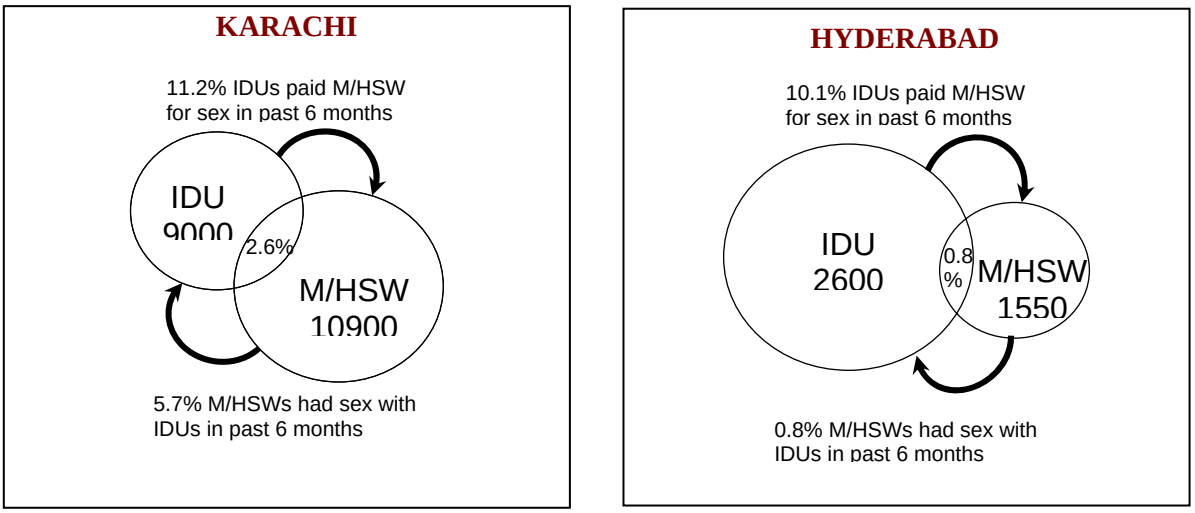
Figure7a: Interactions between the IDU, MSW and HSW population, 2008



Overall, approximately 6.4% of MSWs and HSWs reported having sex with IDUs in the past six months, and 14% of IDUs reported paying MSW and/or HSWs for sex in the same time period. In addition, 4.4% of MSW and/or HSW reported that they had been injecting drugs. The network interaction among the HRGs varies considerably for different cities, as indicated below and in Figure 7b:

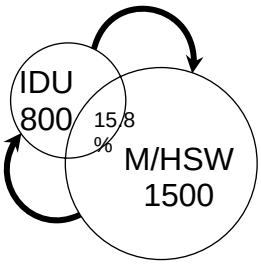
- Karachi: Approximately 11% of IDUs paid a MSW/HSW for sex in past six months, and 6% of MSWs/HSWs reported having sex with IDUs. About 3% of MSWs/HSWs also reported injecting drugs in past six months.
- Hyderabad: A substantial proportion (10.1%) of IDUs paid a MSW/HSW for sex; however, only 0.8% MSWs/HSWs reported having had sex with an IDU in the past 6 months.
- Larkana: A large proportion (16%) of MSW/HSWs reported that they had injected drugs in the past six months. Similarly 14% of MSW/HSW reported sex with IDUs, whereas 13% of IDUs paid MSW/HSW for sex in past six months, which could be one of the factors accounting for the high percentage of HIV+ HSW (27.6%) (95% CI: 21.4%, 33.9%) in this city.
- Faisalabad: A low degree of overlap between different HRGs networks was reported in Faisalabad. Only 0.2% of MSWs/HSWs reported injecting drugs, and approximately 4% reported that they had sex with IDUs in past six months. Approximately 6% of IDUs paid a MSW/HSW for sex in the same time period.
- Lahore: About 4.7% of MSWs/HSWs reported injecting drugs, and 7.5% reported having sex with IDUs. Approximately 8% of the IDUs reported having sex with MSWs/HSWs in past six months.
- Peshawar: A large proportion (24%) of IDUs reported having sex with MSWs/HSWs in past six months in contrast, only 7% of MSWs/HSWs reported that they had sex with an IDU in the same time period. About 3% of MSW/HSW also reported injecting drugs in the past six months.

Figure7b: Interactions between the IDU, MSW and HSW population by city, 2008



LARKANA

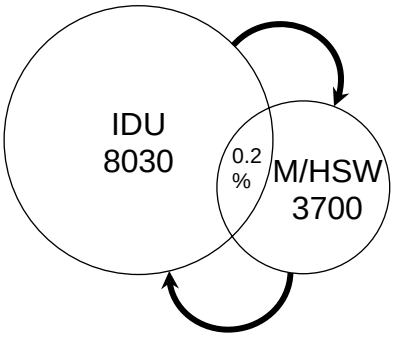
12.9% IDUs paid M/HSW for sex in past 6 months



14.1% M/HSWs had sex with IDUs in past 6 months

FAISALABAD

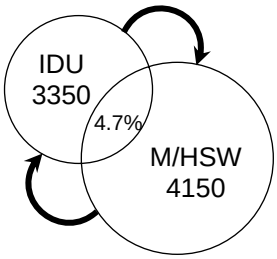
5.8% IDUs paid M/HSW for sex in past 6 months



3.8% M/HSWs had sex with IDUs in past 6 months

LAHORE

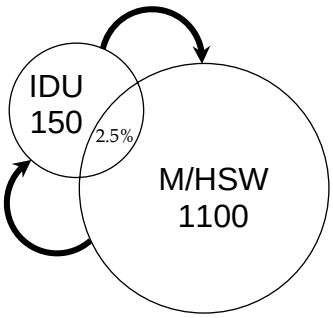
8.3% IDUs paid M/HSW for sex in past 6 months



7.5% M/HSWs had sex with IDUs in past 6 months

PESHAWAR

24.0% IDUs paid M/HSW for sex in past 6 months



7.0% M/HSWs had sex with IDUs in past 6 months

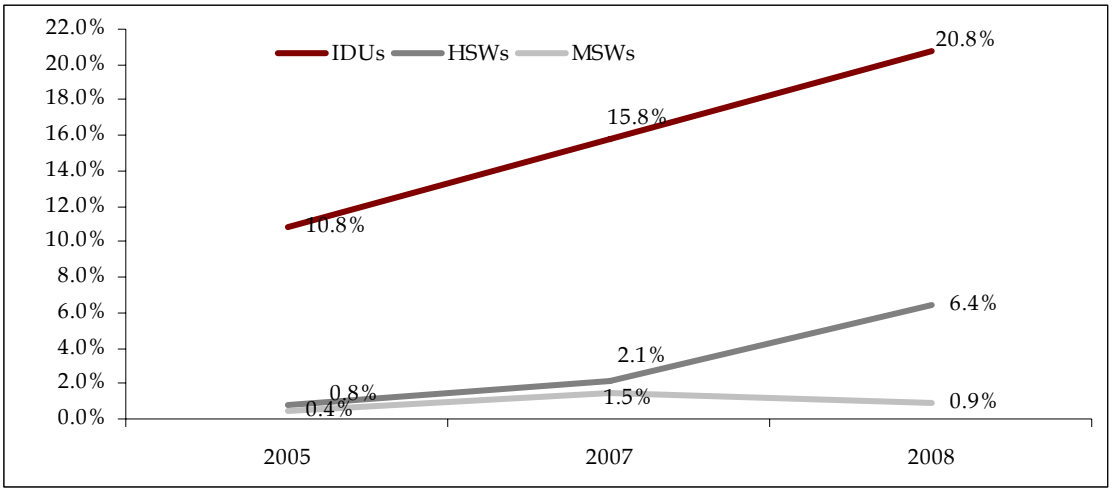
8. CHANGING PATTERN OF THE EPIDEMIC

With the detection of HIV infection among the first Pakistani in 1987[13], Pakistan's HIV epidemic remained at a relatively low level for more than a decade. During that time, most new infections were reported among Pakistanis living or traveling abroad, likely due to higher levels of testing in those populations. However, as in other Asian countries, the presence of higher risk sub-populations provided an important context for the development of an indigenous epidemic.

8.1 From a low prevalence stage to a concentrated epidemic

Like many other countries in South Asia, Pakistan now has a concentrated HIV epidemic among IDUs, which was first manifested in an outbreak of HIV among IDUs in Larkana. Since then, surveillance has shown that HIV is well established in IDU populations throughout the country. Despite various preventive efforts, the infection rates among IDUs have steadily increased from 10.8% (262 HIV +ve out of 1,779 tested) in 2005 to nearly 21% (618 HIV +ve out of 2,969 tested) in 2008. Not only has the overall prevalence increased, but the number of sites with relatively advanced epidemics has also expanded. All 8 cities where surveys were conducted in 2008 showed prevalence rates of over 5% among IDUs, in comparison to 5 out of 8 cities in 2005 and 8 out of 12 cities in 2006-7.

Figure 8.1: HIV prevalence trends among different HRGs over time



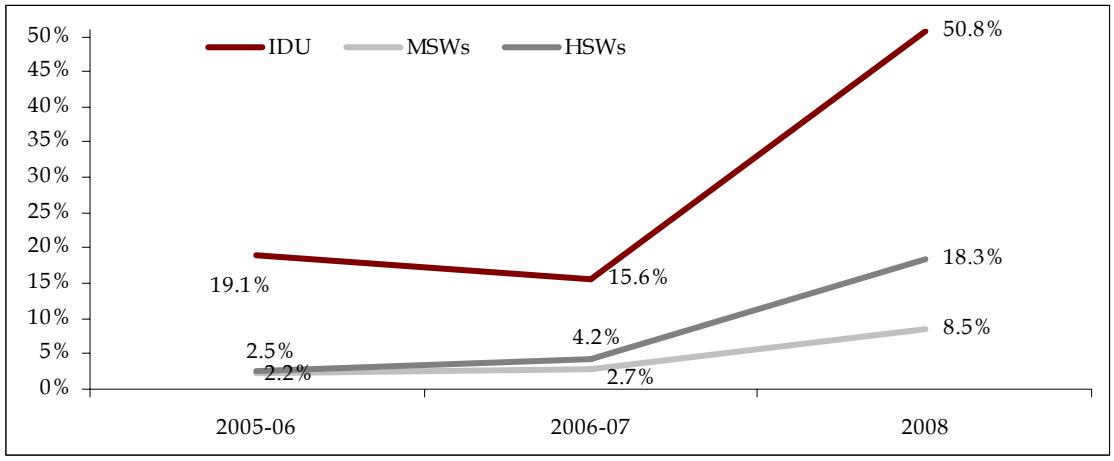
[13] GoP & UNAIDS 2000. HIV/AIDS in Pakistan. A situation and response analysis. Ministry of Health & UNAIDS.. Islamabad. May 2000.

In addition to IDUs, trends are suggestive that HIV is beginning to become established in other HRGs as well. Substantial levels of infections are now reported among HSWs in several cities, and Larkana appears to have a major outbreak among this group. The infection rate among MSWs is still unchanged, but behavioral data suggest that the potential for the epidemic to spread among this group is much higher.

8.2 The government response – Increasing SDPs for HRGs

The expansion of preventive services to high-risk populations, the backbone of an effective response to a concentrated HIV/AIDS epidemic, is at a relatively early stage in Pakistan. The objective of the interventions is to increase the prevalence of safe behaviors and to improve the availability of services for STIs among vulnerable population groups. Over a period of time, multiple SDPs were initiated in all major cities of Punjab and Sindh and in provincial capitals in Balochistan and NWFP.

Fig 8.2a Utilization of SDPs among all HRGs over time



Compared to previous years, the knowledge and utilization of various SDPs was dramatically higher among all three HRGs surveyed in 2008. In contrast to previous years, the information about such services and their utilization increased many fold, especially among IDUs, which could be due to an improved coverage through mobile services. Among MSWs, the knowledge of SDPs improved from 9.5% in 2005-06 to 13.6% in 2008, and service utilization increased to 8.5% from 2.2% over three years. Likewise the utilization of services showed significant improvement in 2008 for HSWs, which increased from 2.5% in 2005 to 18.3% in 2008. This improvement in the utilization was reflected in the overall improvement of knowledge and awareness of HIV modes of transmission and prevention among all three groups. Still, the overall coverage of HRGs is very low and much expansion is still required.

8.3 Improved Knowledge of HIV among HRGs

Figure 8.3a Changes in knowledge of HIV among IDUs over time

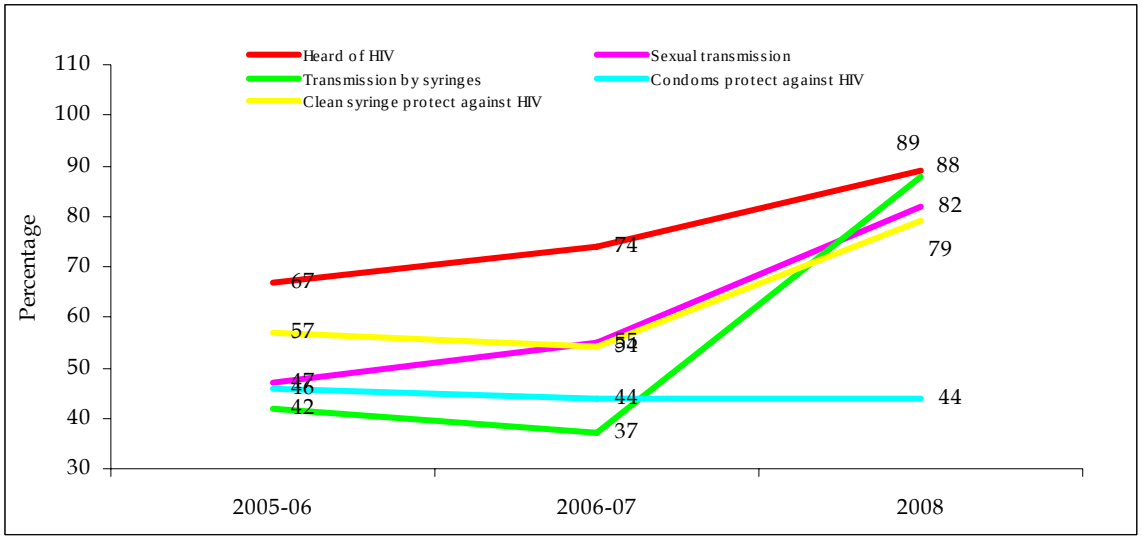


Figure 8.3b Changes in knowledge of HIV among MSWs over time

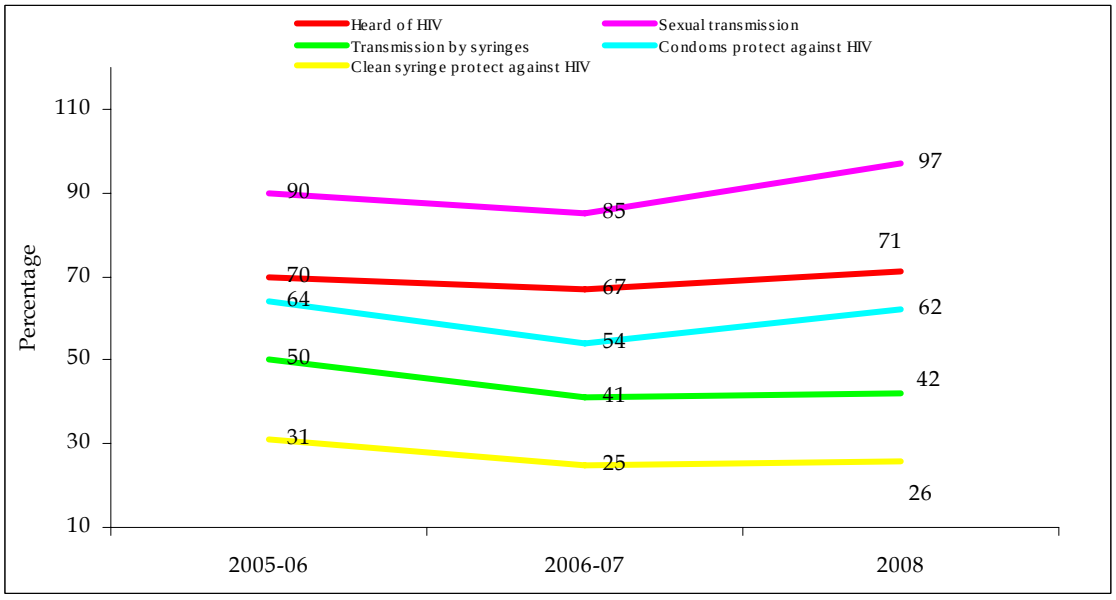
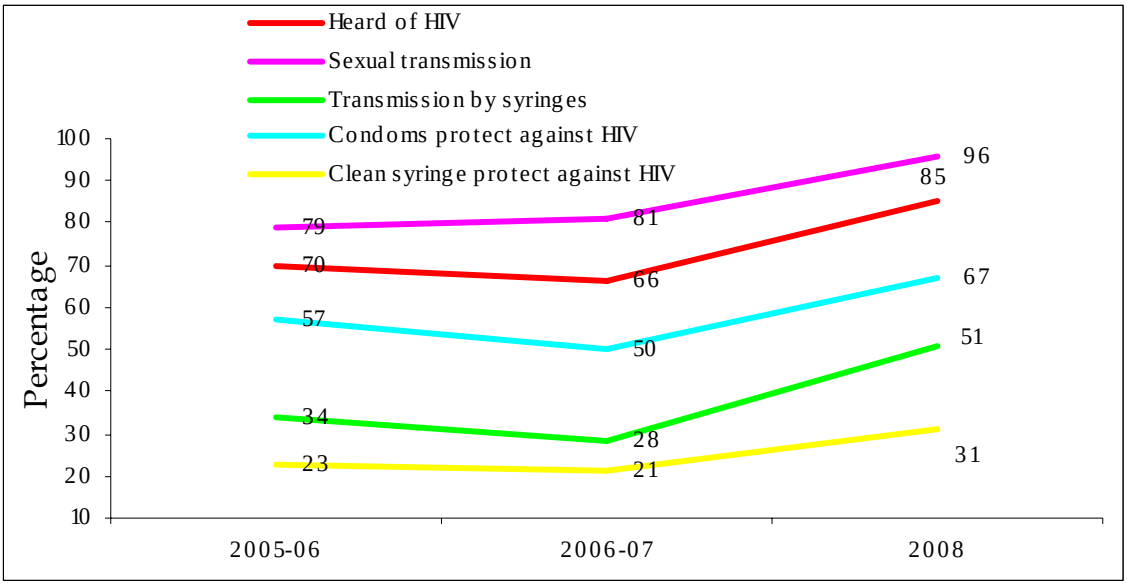


Figure 8.3c Changes in knowledge of HIV among HSWs over time

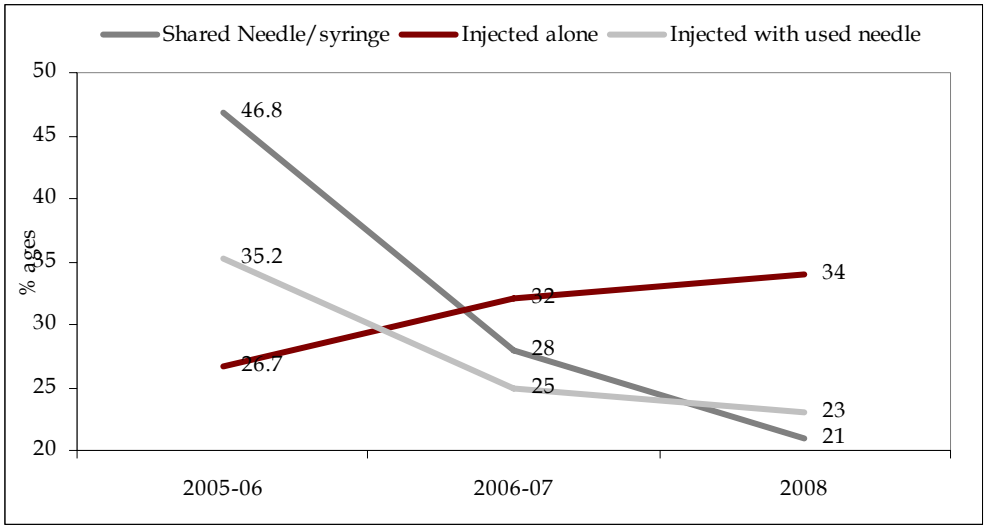


The knowledge and awareness of HIV and/or AIDS has improved considerably over time which has led to an increase in the perception of one's risk of acquiring HIV in nearly all groups. The most significant improvement was noticed among IDUs although concentrated efforts are still required for a similar improvement to be seen in the MSW group. This may be partly due to differences in the initiation of various SDPs and media campaigns in these cities.

8.4 Improved Practices among IDUs

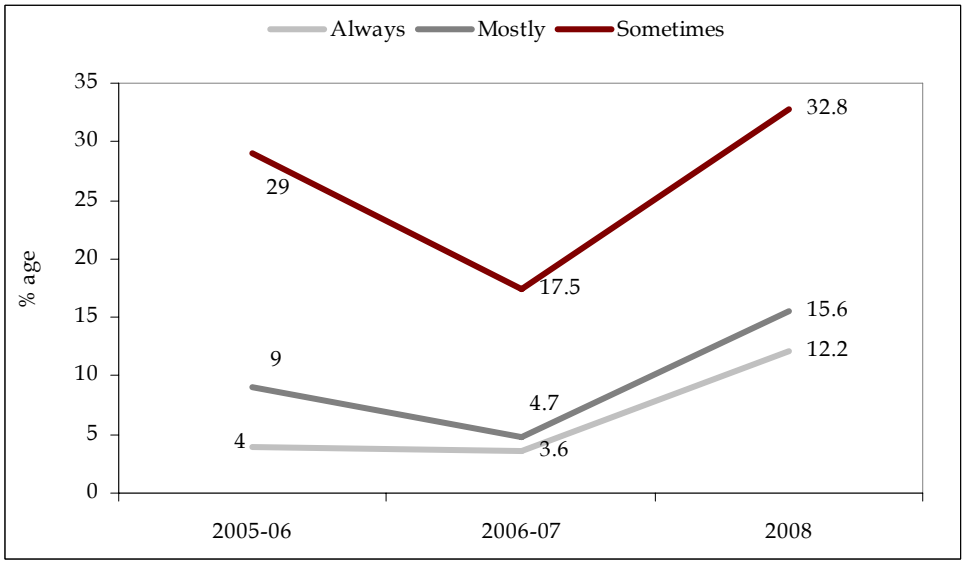
The enrichment in the knowledge of IDUs and an increase in the perception of one's risk of acquiring HIV has led to an improvement in injecting as well as sexual practices of this group. It is encouraging to note that injecting practices have significantly improved over time as shown by data serially collected for some of the key practices. More IDUs tend to inject alone now (34% in 2008) and the sharing of syringes and needles has significantly decreased from 47% in 2005 to 21% in 2008. In addition, reuse of syringes has also declined from 35% in 2005 to 23% in 2008.

Figure 8.4a Trends of injecting alone and needle sharing behaviors among IDUs over time



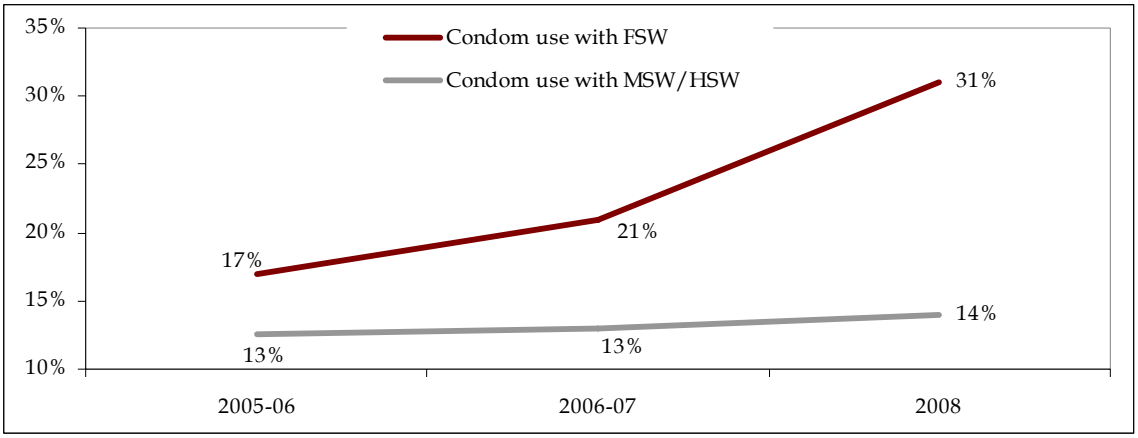
While these decreases in risky behaviors are significant, one risky behaviour that has increased over time is seeking help from by professional injectors/street docs for injecting. While 4% of IDUs reported always getting injections from professional injectors/street docs in 2005-2006, this proportion increased to 12% in 2008. This finding has important program implications as more IDUs are targeted and become involved with the SDPs.

Figure 8.4b Trends of seeking assistance from professional injectors/street docs by IDUs



The sexual practices of IDUs also show a slight improvement over time as condom use in commercial sexual transactions with females improved from 17% to 31%. However, condom use in sexual encounters with MSWs and HSWs did not change significantly. This may partly explain the transmission and progression of HIV among HSWs and highlights an important area for attention by SDPs.

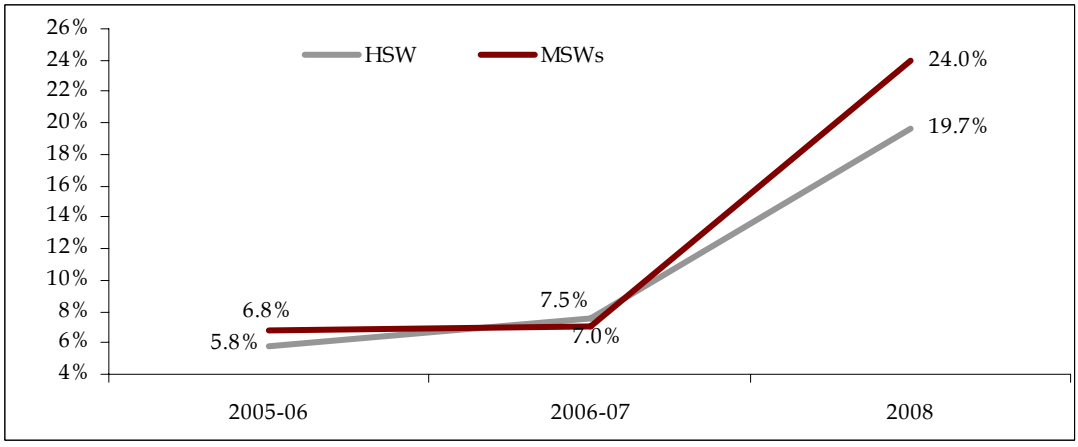
Figure 8.4c Condom use in last commercial sex transactions among IDUs over time



8.5 Improved Sexual Practices of MSWs and HSWs

A significant improvement in consistent condom use by MSWs and HSWs was observed from that reported in previous years. However, the overall condom use rates remain much too low and serious attention needs to be paid to scaling up programs and the implementation of effective behaviour change interventions.

Figure 8.5a: Consistent condom use with clients by MSWs/ HSWs over time



9. RECOMMENDATIONS

Based on the results of this surveillance activity, following is recommended:

- The results reinforce the importance of NACP and PACP's plans to rapidly scale up focused prevention to curtail the growth of the HIV epidemic in HRGs, thereby reducing the overall size of the HIV epidemic. Widespread and intensive efforts are required to bring about broad changes in high risk injecting as well as sexual behaviors among IDUs. Needle and syringe programmes on their own are not enough to control HIV infection among IDUs. Rather, they should be supported by a range of complementary activities, such as risk-reduction education, referrals to drug-dependence treatment and wound management, treatment of sexually transmitted infections, promote condom use, HIV testing and counseling and provision of care, treatment and support for persons with HIV/AIDS.

- It is equally important to rapidly implement 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. The most important and effective responses to the problem of HIV transmission during anal sex between men is to make high-quality male condoms, together with water based lubricants, available and accessible, through the peer education and outreach programmes. In addition it is important to provide HIV testing and counseling, provide care, treatment and support for persons with HIV/AIDS and offer treatment of sexually transmitted infections. Although FSWs were not surveyed in this round, it is vital to protect FSWs and their partners by scaling up prevention programs for them as well. Given the relatively large size of the FSW population, the widespread distribution and the high numbers of partners, keeping the HIV prevalence low in female sex work networks should remain a high priority.

- The overall coverage of SDPs still remains low and needs to be scaled up to reach a larger proportion of these key populations. In addition, it suggests that where there are SDPs, there is scope for substantial improvement in the outreach and mobilization of members of these communities. This challenge, among others, will require evolving and innovative strategies, since these populations do not remain static, and the context appears to be changing rapidly. With the information and experience available, there is no longer any justification for small-scale programmes, as they may further delay much-needed programme expansion and result in inadequate coverage. Programmes should be implemented on a large enough scale to stop and reverse HIV/AIDS epidemics among these high risk populations

- It is highly imperative at this stage that surveillance and service provision should work in close collaboration to utilize data which has been collected over the years. This data should be used for advocacy to strengthen commitment, mobilize communities and lobby for a more effective response in the future and designing effective services and formulating programs that will have the greatest impact.

There are a number of avenues which need exploration through operational research. There is a need to better understand and provide support to those populations directly connected to HRGs including clients and sexual partners of sex workers as well as IDUs. With gradual increasing trends of HIV prevalence and its potential to spread to the general population, it is also suggested that the surveillance system be expanded to conduct general population surveys once every 2 to 3 years.

10. FINAL THOUGHTS

The HIV/AIDS epidemic in Pakistan is an extraordinary threat to the well being of the nation, and requires an extraordinary response. Global experience suggests that the most effective national strategic plans are those that are multi-sectoral, well coordinated, and fully and consistently supported by those at the highest levels of government. If Pakistan wants to avoid a massive destruction, commitment at the highest level of leadership is required toward the strengthening and up-scaling of the national response against HIV.

Data from this round is suggestive that Pakistan has a well established concentrated HIV epidemic among IDUs, throughout the country. In addition to IDUs, trends are suggestive that HIV is beginning to become established among HSWs in several cities, and Larkana appears to have a major outbreak among this group. The infection rate among MSWs is still unchanged, but behavioral data suggest that the potential for the epidemic to spread among this group is much higher. Over a period of time, a considerable improvement has been noticed in the knowledge and utilization of various SDPs among HRGs as compared to previous years. This improvement in the utilization reflects in the overall improvement of knowledge and awareness of HIV modes of transmission and prevention. However, the overall coverage remains low and needs to be scaled up to reach a larger proportion of these key populations.

In conclusion, it is clear from the data gathered for this report that HIV prevention among vulnerable key populations remains a key challenge for Pakistan's efforts to curtail the HIV epidemic. To do this effectively, it is important that this information is integrated into the planning and delivery of prevention programs, and that those implementing these programs are provided with the capacity to use this information to improve their effectiveness.