An Overview Snapshot on HIV Integrated Biological and Behavioral Surveillance: National Survey Pakistan

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ABSTRACT

Objectives: To determine the prevalence of HIV in IDUs, MSWs, HSWs and understand its transmission dynamics.

Methods: This cross-sectional study was done to evaluate the behavioral and biological analysis of three national surveys, conducted from Jan to Dec, 2017 in Pakistan on high risk cohorts including; Injecting Drug Users (IDUs), Male and female sex workers (MSWs and FSWs), though the largest elevated risk cohorts, Hijira sex workers (HSWs) excluded from third surveillance phase because of the steadily less sero-pervasiveness cases detected in follow up surveillance phases such as 0.2% during phase 1(2006) 0.02% during phase 2(2013) and 0.01% phase 3(2016-17). The behavioral data were gathered using a validated questionnaire. The data with regards to demographic characteristics, and indicators related to behavioral risk were located from the literature on HIV/AIDS, that includes variables in relation to profession, practices, risk behavior & knowledge on HIV and STIs. The biological data method includes capillary blood samples "Dried Blood Spot" (DBS) methodology.

Results: The sero-pervasiveness among Male sex workers was 0.9%; highest (3.1%) was MSWs reported from Karachi. While the HIV pervasiveness was 6.4% in HSWs; highest pervasiveness detected was 27.6% from Larkana. Aphase 31% of HSWs reported having awareness with regards to HIV prevention-project (SDP) in their respective area; on the other hand only 18.3% participation identified in SDP. The antibodies to HIV in their blood serum among IDUs was 21%; the highest pervasiveness of injecting drug users was from district Hyderabad (30.5%), shadowed by Larkana (28.5%) district, Karachi (23.1%) and Sargodha (22.8%).

Conclusions: Intensive HIV prevelance in IDU population group of Pakistan now well proven despite various preventive efforts, the disease rates among IDUs has increased from 10.8% in 2013 to nearly 21% in 2017. The pattern specifies that HIV is growthing in a way to become proven in other HRGs as well.

Key Words: Third Cohort Surveillance, Pakistan HIV/Aids, National Report 2017, HIV Biological and Behavioral Information

INTRODUCTION:

HIV prevelance is in a transition phase in Pakistan; from a less pervasiveness to an intensive pervasiveness state. While the HIV projected

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incidence among the over-all population is <0.1%[1]. Recent surveillance findings[1,2] revealed that the prevelance is establishing among certain elevated risk cohorts (ERGs) population group such as drug abusers, sex workers, healthcare professionals. Compare to a number of other states in the Asia region, the HIV prevelance in Pakistan is categorized with elevated initial pervasiveness among injectable drug users (IDUs), which possibly growth to other HRGs including FSWs, a male performing sex with male (MSM). A mixture of risk factors is currently putting the country at the thoughtful threat to promote virus transfer from high to fewer vulnerability cohorts

through bridging population group. The reported factors are the widegrowth presence, and elevated risk sexual networks, interlinking of drug users, the pattern is comparable in several other Asian states[1,2]. Methodatized and committed preventive measures required to curtail the magnitude of the disease and curb the prevelance at an early stage.

The routine first cohort surveillance methods gather and supervise data for disease outbreaks and trend. Further, it depends upon passive gathering and scrutiny of data. The patients usually identified by examination of blood (biological samples). However, in the routine Second Cohort Surveillance methods take account of collection of behavioral data and biological data. The effective second cohort surveillance method includes:

1) Support understanding HIV virus dynamics in the country framework (e.g., population or cases susceptible to HIV);
2) Offers preliminary evidence directing and methoding mediation plans in line contained by a national policy, for example, stages and pattern in HIV disease.
3) Delivers evidence base data for stakeholders to help figure out the effect of prevention activities in several population cohorts leading to program development and ultimately informed policies[2,3].

The Surveillance method in HIV, 2008-2013 reinforced the formation of third cohort HIV/AIDS surveillance plan under the capacity building and program management component of the National AIDS Control Program's (NACP's). The method is in place by the Consulting Ltd a Candian enterprise, Partners for Community-Health, Inc, "Agriteam" affiliated with Manitoba University, National Institute Health, National AIDS Program (NACP), & Ministry of Health Pakistan. The method has proven to be instrumental in founding Pakistan's main aspects of a national HIV/AIDS surveillance method (Program). The method improves the procedural capacity of main stack holders in Pakistan and partners to conduct three state surveillance phases such as 2006, 2013 and 2017. Subsequently, the findings were disseminated so that they may serve as the basis for policy making and service delivery program[4].

The information data of initial two phases of surveillance appear to be instrumental in developing program and policies by Provincial and national AIDS Control Projects. These reports provide behavioral and biological data on HRGs. The initial two phases identified evolving wave among HSWs, IDUs and MSWs the emphasis for Phase three was to consider studying pattern in these cohorts. It is expected that this study will provide a further understanding of the status of the prevelance and the transmission dynamics, for evidence base decision making and drafting.

METHODS:

The main focus for the 3rd phase was to explore the trends in high risk-cohorts and provide an in-depth indulgent of the status of the prevelance in HSWs, IDUs, and MSWs. The growing mechanism will serve as a key to drafting, executing, enlightening, and averting HIV growth.

We used cross-sectional method to investigate social and biological features of three surveys on Injecting Drug Users an HIV-HRG in 08 main towns, the HSWs and MSWs in 06 main towns of Sindh, Punjab and NWFP. The FSWs among HRG, were excluded in the 3rd surveillance phase because of consistently less so-pervasiveness[1,2]. The mapping results from 2017 were used to develop sampling frames in the third surveillance phase, for recruiting study subjects.

The integrated behavioral and biological survey consists of blood samples (dried blood spot) face-to-face interviews for HIV testing was done. This behavioral assessment was carried out from January to August 2017 in eight towns. The selection of towns subject to the presence of a service delivery program (SDP) for the HRG targeted. The study population includes three high-risk cohorts: HSWs, IDUs, and MSWs. Female sex workers were excluded from the last phase due to the consistently less zero-pervasiveness in the last two surveillance phases. Sample sizes for each risk group is based on assumption that the HIV pervasiveness was anticipated to change. However, the main behavioral indicators were kept different across a range of probable values for obtaining maximum sample size. A total sample size of 400 was calculated representing MSWs, IDUs, and HSWs. This sample size deemed appropriate based on adequate statistical power:

To understand a 25% change in the

pervasiveness of consistent condom use, that has a pervasiveness of 40% in a given sub-population.

The pervasiveness was phase off to 50% of the population, with a precision of minus or plus 5%.

The HIV pervasiveness was calculated with a precision of minus or plus 2%, if the pervasiveness anticipated 5%.

To identify a doubling in HIV pervasiveness, if the baseline pervasiveness is between 5-6%.

The previous mapping studies were based on list-out potential sampling units[1,3]. The investigators were able to enroll a representative sample of three identified high-risk cohorts using numerous sampling techniques, such as: Male sex workers enrolled through participant-driven Sampling. A Multistage Cluster type Sampling used to employ injecting drug users. In towns where the estimated number of IDUs enrolled lesser as required in calculated sample size (400), a "take all" approach was used for example in DG Khan, Peshawar. Hijra Sex workers were recruited through snowball Sampling in which Guru was randomly nominated from the Deras list available from plotting findings.

The information was acquired by interviewers well experienced and trained in using structured questionnaires. The questions were on personal characteristics, socio-demographic as well as a key indicators on risk activities for observing the behavioral patterns of population group under study.

RESULTS:
Drug Injecting Practices
The mean number of injectable varies among towns, the highest frequency was found in Sargodha. The mean injections /day for Sargodha was 2.18 ± 1.38, median = injections per day, for Lahore 2.7 ± 1.5 and Faisalabad 2.7 ± 1.5.

The analysis showed multi drug consumption was highest among kind of drug injected in the past month in different study towns. Also all kind of anti-histamines, opiates, narcotic analgesics, psychoactive drugs found injected. In most towns of Punjab Avil

(pheniramine maleate) was the drug of choice, while other anti-histamines (marzine, phenergan etc.) were injected in NWFP and Sindh. Larkana, Sargodha and D.G Khan Heroine were the choices see table II.

The 77.3% drug users reported injecting 2-3/day. The injections number was different across each city or by type of drug. About 2/3 of drug consumers found that they had sort assistance from professional paramedics staff during the past month. However, 12.2% always dependent from these professionals. Almost 50%% of drug users interviewed, communicated that they used a new needle (syringe) in the last month. Results also revealed no substantial differences with regards to education level or age group in subjects using a clean needle (syringe). Nevertheless, replies across towns showed the highest proportion in 86% in Lahore, 74% Faisalabad and 74% in Sargodha.

Table-I: City wise HIV pervasiveness among IDUs in 2017

City	Pervasiveness	Tested	Positive
Karachi	23.1%	403	93
Hyderabad	30.5%	397	121
Faisalabad	12.3%	400	49
Sargodha	22.8%	403	92
Lahore	14.5%	401	58
DG Khan	18.6%	345	64
Peshawar	12.8%	231	30
Larkana	28.5%	389	111
Total	20.8%	2969	618

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Table II. Kind of Drugs Injected at Least once in the Past Over Last Month by IDUs/City 2017 (%)

| DRUGS	TOWNS							
	KAH	HDR	LRK	FSB	SRG	LR	PSR	D.GK
ANALGESICS (Narcotics)								
Pentazogon	62.3	33.1	7.9	0.5	0	6.7	72.2	2.6
Pentonil	70.0	34.9	7.8	0.3	0.2	7.2	70.8	1.2
ALKALOID COMPOUND								
Tamgesic	69.1	36.8	9.2	0.9	1.6	55	70.8	1.4
Sosegon	67.0	35.4	7.6	0.8	0.9	6.5	72.1	1.4
Bupron	65.5	36.4	8.6	0.7	11.5	70.4	2	0
BENZODIAZEPINE								
Diazepam	70.5	37.2	7.6	65.8	5.7	60.6	73.7	5.3
Restoril	68.1	35.2	6.8	0.3	0.5	3.7	70	1.4
HEROIN	34.8	73.3	90.9	28.5	98.5	37.2	30	92.2
H2 RECEPTOR ANTAGONIST								
Phenergan	65.0	34.8	6.6	3.3	1	2.2	78.2	0
Marzine	63.2	34.4	8.3	1.0	0.7	4.2	70	0
Avil	31.3	65.3	91.7	99.0	98.3	83.5	28.8	65.8
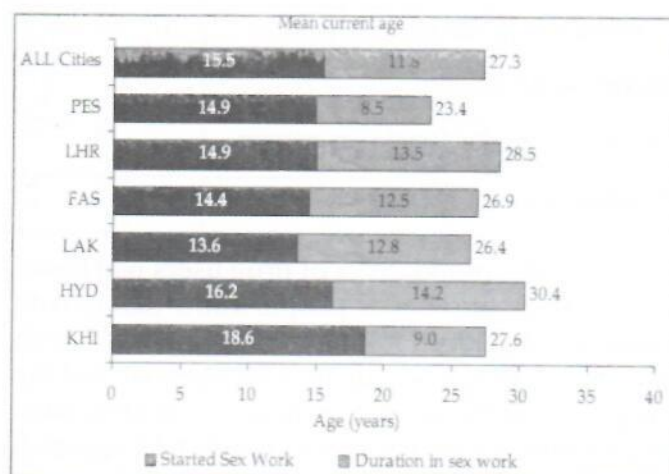
Figure I: Mean Duration, Initiation & Existing Age of HSWs by Town, 2017

In this round, 41% of the drug injectables reported were found married. The maximum proportion of the married group was indicated from Larkana (49%), 47% Hyderabad and 44% Faisalabad. Nearly 55% of the interviewed IDUs didn't receive a formal education. The family median income was reported 45 USD /month. Nearly 2/3 IDUs lived at home with their families, 85% born resident of the city where they were interviewed, and 15% of IDUs migrated from another city. The main causes of migration were drugs (52%), work/business (41%), and to visit families (6.9%).

Sexual Practices and Behavior

The drug injectors with HIV in Pakistan is characterized by a rise in pervasiveness, and growth potential into other risk cohorts such as HSWs, FSWs, and MSWs. Keeping in view the significance of drug users linkages in dynamics HIV spread, we also observed sexual practices and behaviors to forsee the potential of HIV prevalence into other groups.

18.3 ± 3.6 years was the mean age at first intercourse was reported. 4.6% of drug users

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documented that they didn't get involved in intercourse at the age below 25 years. Nearly 38% documented enjoying intercourse with the same female partner, which link to the percentage of married drug users. The Condom used by couple was 34% in drug users during the last sexual act. Virtually 18.4% of IDUs have had sex with female sex workers.
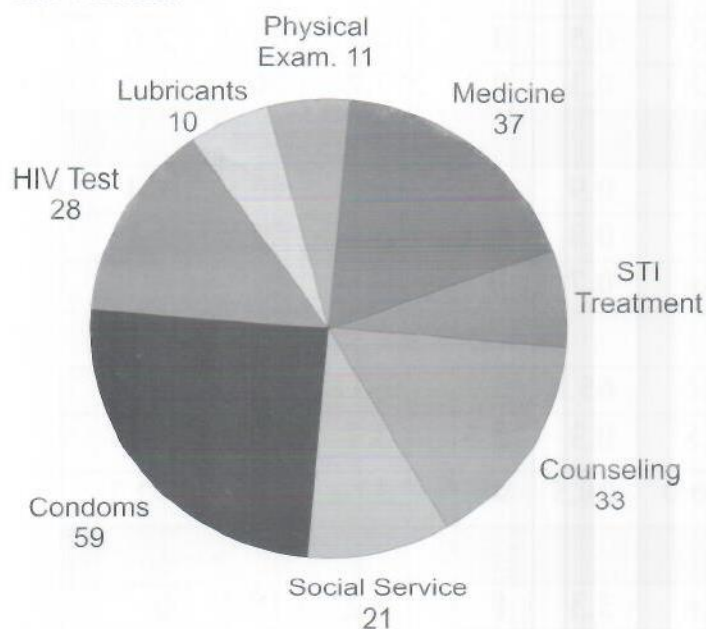

Figure II: Services utilization bthe SDPs in the last six months, by MSW in 2008

Condom use was 34%. Additionally, 14% of IDUs found purchasing sex service from FSWs, also reported to have sex with MSWs and/or
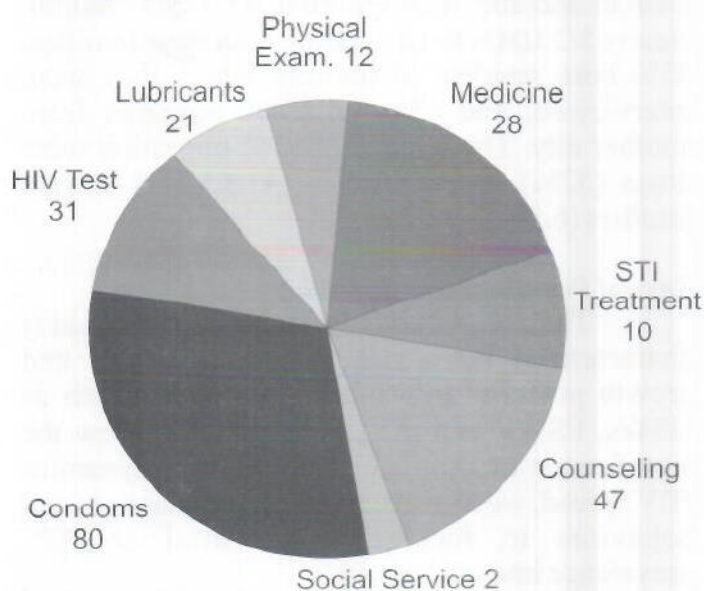

Figure III: Services utilization by SDPs in the last six months, by HSW in 2008

HSWs. During anal-sex condom use was awfully low (14-60.3%) lubricant used during previous sexual intercourse. The reasons for not using a condom during intercourse were; not comfortable with a condom (22.3%), not required (17%) and did not think of it (11%).

Table-III: IDUs service utilization Behavior pattern in 2008 round

BEHAVIOR / PRACTICES	IUDs: N 2979
Age at first sexual intercourse (mean ± S.D)	18.3 ± 3.6
Never had sex	4
Had sex with a MSW or HSW (last 6 months)	14
Condom used in last sex with HSW or MSW	14
Lubricant use by MSW or HSW	60
Sold sex on money or drugs in the last six months	17
Had sex with FSW (last 6 months)	18
Paid female partners (mean ± S.D)	2.9 ± 4.4
Condom use in last sex with paid female sexual partner	32
Sex with a regular female sex partner	38
Condom use (last sex)	34

In this round, 89% of drug users had heard of HIV. Wide number of people know that person apparently healthy looking can get infected with HIV (62%), out of which 88% recognized that the disease could be spread by needles, instruments; information via sexual transmission was reported in 82%, and 24% think that transfusion via contaminated blood adding disease growth.

Information on preventive measures shows that (79%) using a clean injection protects against HIV growth. Condoms, an effective method of HIV-prevention was reported by 46%, although 60% still believe that sexual-abstinence is a means of prevention.
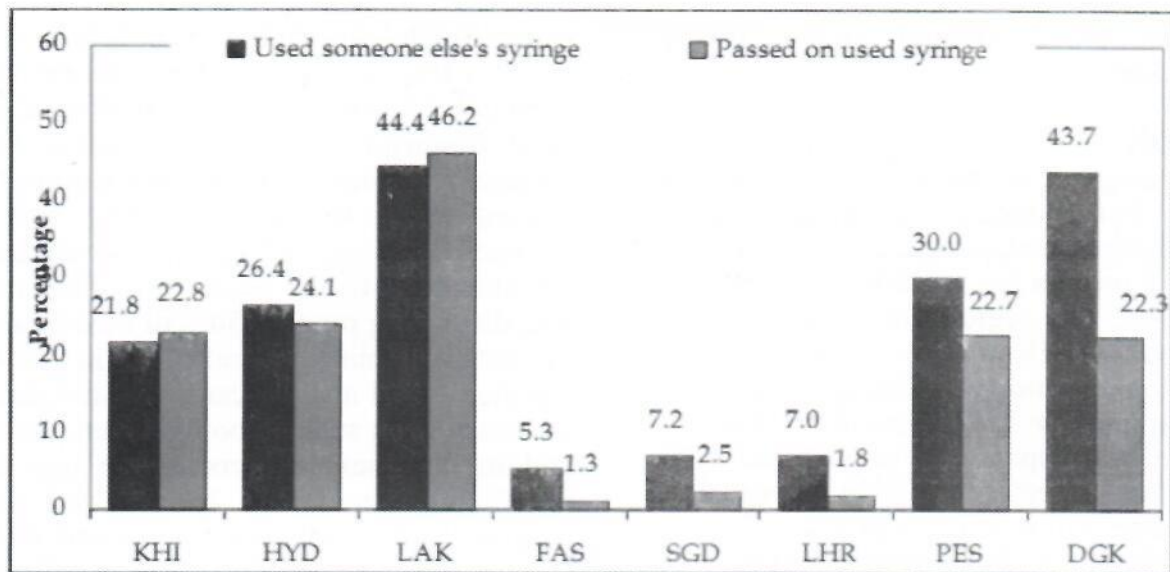
Figure IV: Proportion of IDUs sharing needle (syringe)s/needles on last injection by town 2017
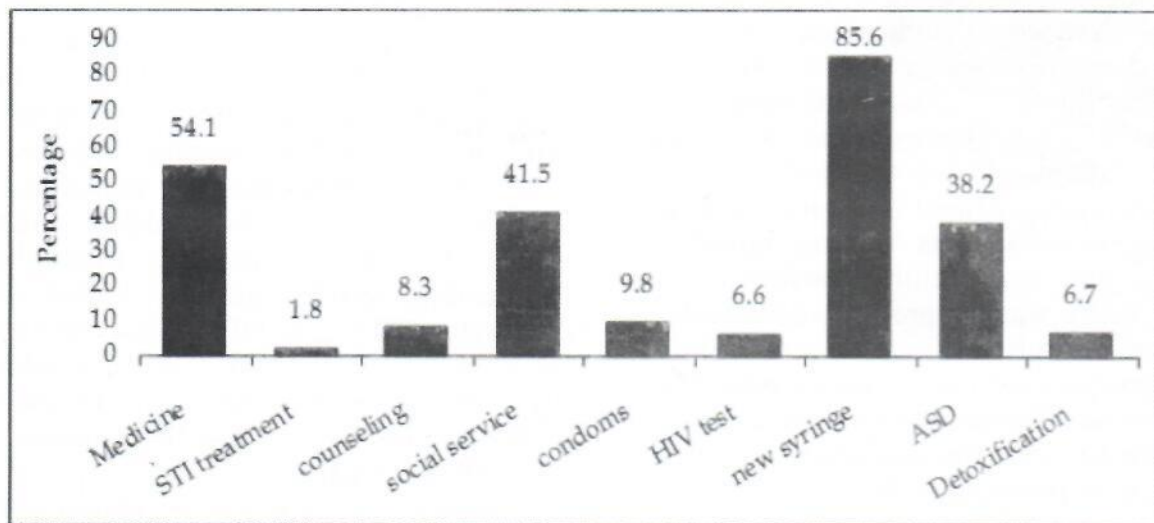

Figure V: Services utilization by SDPs in last six months, by IUDs, 2017

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Almost 40% respondents believe that they pose a risk of HIV disease, A very thin minority (21%) know the correct place of HIV screening and detection, however, 23% found tested for HIV in the recent past. Among HIV positive cases, (64.4%) most of them knew of their HIV status.

A sizeable number of drug users knew that HIV is transmitted sexually, as per City wise analysis. In the same way, except DG Khan, in all towns, more than 50% of drug users knew that HIV

is growth by blood (through sharps, needle (syringe)s, needles, etc).

DISCUSSION:

The program of the United Nations on HIV/AIDS, stated globally that 32 million people and children are having active HIV disease. And almost 3 million are predicated on being in Southeast Asia. The region has an overall less pervasiveness of HIV disease. However, it is imperative to examine the existing epidemiolo gical trend to identify the pattern of disease as it would have an impact on prevention.[5] The behavioral data collected will give the valuable important prior information about the disease progress, which may not be oversighted because of concentration on improving HIV sero-surveillance.[6] A study was done in Lahore on hijra sex worker state that 27.1% were not having any knowledge about the physical appearance of the diseases spread by sex, but majority of the hijras (81.5%) were very well known with HIV/AIDS. However, the awareness of various ways of transmission was faulty[7].

A study done in Miami USA reported the risk for seroconversion was sharing injection equipment in the year before conversion; a marginal risk factor was the presence of sexually transmitted disease during this same period. Both an injection component and a sexual component play a role in seroconversion among injection drug users, although the injection component is much stronger[8] which support our results.

A Chinese study showed overall HIV-1 antibody pervasiveness was 5.4% (279/5128); 4.9% among injecting drug users (IDU) not sharing needles and 3.7% among non-injecting drug users. A substantial heterogeneity among the surveillance sites with pervasiveness rates ranging between 0% and 54%. HIV status was strongly affected by the regional pervasiveness of HIV. Risk behaviors were highly prevalent in regions where HIV pervasiveness is still less[9].

Overall, data on lifetime pervasiveness of sex with men (among males) yielded figures of 35% for East Asia, 6-12% for South and South East Asia, 6-15% for Eastern Europe, and 6-20% for Latin America. Last year figures were approximately half of lifetime figures, and pervasiveness of high-risk sex among MSM last year was approximately 40-60% in all regions except South Asia, where it is 70-90%[10].

Many new studies from Africa and Asia, depicting hidden HIV waves among MSM. The most frequently reported estimation was HIV disease, with high estimate ranges in most of the regions, except for the Middle East, and Eastern Europe and North Africa. The most commonly reported was lifetime occurrence of heterosexual-sex, displaying roughly 50% of MSM hardly had sex with a woman[11]. A study done in Los Angeles reported MSM a significantly greater percentage of sexual risks such as both uneven condom-use and multiple-sex partners in the past 1twelve months compared with heterosexual men and women. Multivariate analyses stated that MSM and heterosexual men showed more HIV risk than heterosexual women which support our study[12].

The regression models used to assess risk-factors for each disease. Out of 309, studied IDUs, the HBV, HIV and HCV cases were 42.4%, 80.9%, and 74.1%, respectively. 11% indicated vaccination against hepatitis-B. Whereas 13% of drug users reported sharing needles, 63.8% involved in indirect-sharing, including sharing solutions, containers, frontloading drugs, rinse water, etc. Further, the drug sharing through frontloading was considerably related with HIV odds ratio OR = 2.8, HBV virus OR = 3.8, and HCV virus OR = 4.6. We found a relationship between sharing-drugs through front-loading and high rates of HBV, HIV and HCV diseases among male IDUs in Thailand[13]

In a case-control study among active drug users aged 1845 who participated in a population-based survey. The HIV-infected drug cases were matched with one HIV-uninfected drug infusion case (control) by sex, age, and study site. Comparable techniques were used for HBV cases (50 pairs) and HCV cases (65 pairs).

The National survey results emphasize the importance of national projects to rapidly trickle down specified stoppage to curb the expansion of the HIV spread in risky cohorts. Extensive and intensive steps are vital to bringing tangible changes in elevated risk drug users as well as to ensure safe sexual-behaviors. Disposable needle (syringe) projects are not enough to curtail HIV growth among drug users. Alternatively, they should be reinforced by complementary steps, for example, referrals to a drug management

center, risk-reduction awareness, and wound-management, in a sexually transmitted diseases cases, condom promotion, HIV/AIDS screening, counseling and delivery of care, management and emotional support for the cases.

It is critical to implement effective projects swiftly to reduce sexual-transmission in the hijra sex networks. The main and effective key to the problem of HIV growth during sex between male is to method super quality condoms, supplemented with efficient emollient, radially accessible and available. Moreover, offer HIV screening, counseling, management and emotional support for HIV/AIDS person. Even though Female Sex cohorts were not studied in this phase, it is imperative to guard FSWs & partners by tickling down preventive activities and projects. Do you to the sizeable FSW population, the extensive growth and the multiple sex clients, to keep the pervasiveness of HIV at a less rate among women sex network, the focus on this group should be on the top agenda of stakeholders.

The results from the last phase revealed that Pakistan has a well-recognized intensive-HIV prevalence in drug users in the country. The HIV cases dynamics further suggest that HIV is beginning growth among Hijras in several areas. The disease among male sex workers has a similar trend. However, behavioral data indicate the possibility for further growth in the MSWs is much high.

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