THE BEHAVIORAL & BIOLOGICAL SURVEILLANCE SURVEY AMONG FEMALE SEX WORKERS IN RWANDA IN 2015

RWANDA BIOMEDICAL CENTER

A Healthy People, A Healthy Nation

INSTITUTE OF HIV/AIDS, DISEASE PREVENTION& CONTROL HIV-AIDS, STIs & Other Blood Borne Infections Division

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BACKGROUND

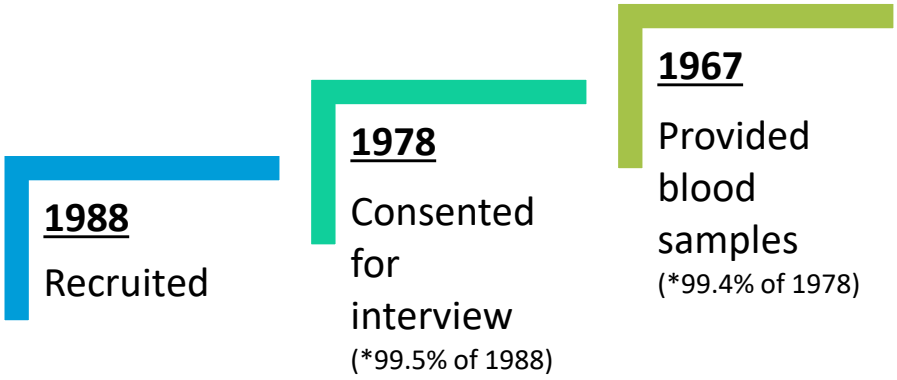
Included in its strategy to control the spread of HIV in the population, the Rwanda Biomedical Centre (RBC) conducts biological and behavioural surveillance surveys (BSS) among various high risk populations. In 2015, a BSS was conducted among Female Sex Workers (FSWs) to assess the progress of programs targeting this population since the last BSS was conducted among FSWs in 2010.

OBJECTIVE

The general objective of the 2015 BSS among FSWs was to better understand HIV, and the sexual and reproductive health needs and behaviours among FSWs in Rwanda. It was aimed at determining the prevalence of HIV, syphilis, and Hepatitis B and C, and to better understand risk factors among FSWs.

METHODOLOGY

Figure 1: Recruitment cascade of FSWs participants in the survey



The survey targeted FSWs aged 15 years and above operating in Rwanda. Hotspot mapping and time location sampling (TLS) was used to recruit a national representative sample of 1988 FSWs. Of these, 99.5% (1,978) consented to an interview, and 1967 (99.4%) provided a blood sample for HIV, syphilis and Hepatitis B and C test. Rapid tests for HIV, syphilis and Hepatitis B and C were performed and results were given to participants at the survey site. Participants who tested positive for any of the tests were referred to the nearest health facility of their choice upon completion of post-test counselling.

Blood samples were transported to National Reference Laboratory (NRL) for HIV ELISA testing, CD4 cells count, and viral load (VL) testing for HIV positive participants. The quality control testing for syphilis and Hepatitis B and C was also done at the NRL.

KEY FINDINGS

Among 1978 FSWs in the 2015 survey, 77.9% were aged between 20-34 years and most of them were never married (63.4%) or ever married (36.2%). A higher proportion of participants had completed at least a primary education, and reported the venue (which includes bar, lodges and hotel), and street (including market) as their regular workplace. Though the national health insurance is accessible to all Rwandans, only a little more than half (57.9%) of FSWs in the survey reported having health insurance coverage.

HIV prevalence

Overall, the National prevalence of HIV infection among participating FSWs was 45.8% (CI:42.4,49.2) and higher prevalence was fund in Kigali City (55.5%, CI:50.3,60.5) while the lower prevalence in Northern province (35.1, CI: 29.1,41.6). HIV prevalence increases with age, 24.6% aged 15-19 years compared to 66.1% among FSWs 40 years of age or more. FSWs never married had lower HIV prevalence (41%, CI: 36.7,45.5) compared to those ever married (54.1%, CI: 49.5,58.6). The HIV prevalence was also higher among FSWs with non-formal education (54.1%) compared to those with higher education level (33.7%). FSWs who worked in the street or market had higher HIV prevalence compared to those worked from home or used a middle man.

Approximately 52.3% of participants tested positive for syphilis, hepatitis B (2.4%) and hepatitis C (1.1%).

Sexual behaviour

Most FSWs (69.8%) reported having sexual intercourse for the first time at the age of 15-19 years old, and most of them (45.2%) engaged in SW for the first time within the same age range. Frequency of condom use among FSWs varied with paying and non-paying partners/clients within the past 30 days. More than half of FSWs (50.5%) throughout the country reported consistent condom use with paying partners/clients but only 38.1% were consistently using condoms with non-paying partners.

Regarding the number of clients received in the last 7 days, the higher proportion of FSWs (52%) reported 3-5 paying clients. Almost FSWs in Other Provinces and in Kigali City reported to be under the influence of alcohol during sex with their paying partners/clients (88.5% vs 85.7%).

HIV and STIs knowledge

Comprehensive knowledge of HIV among FSWs in the survey was 48.6%. They survey recognised that the use of a condom for each sexual act was the best prevention method for HIV and STI, but fewer recognized having only one monogamous sexual partner as a prevention method because they did not have confidence a partner could be monogamous. They were also highly knowledgeable of MTCT.

FSWs were able to identify potential STIs symptoms for men such as pain while urinating, genital discharge and spots/wounds on the penis. For women, they identified spots/wounds on the genitalia, feeling of burning while urinating, vaginal discharge with bad smell, genital discharge.

HIV testing and treatment (self-reported)

Almost all of the FSWs (94.9%) in this survey self-reported that they had previously been tested for HIV. However, fewer (73.6%) reported being tested in the 12 months preceding the survey. Almost all participants (98.3%) had received the results of their most recent HIV test. Among those who tested and were positive, 25.7% were in Kigali and 24% were in Other Provinces. Most of them (78.4%) reported regularly taking ARVs. Approximately, 28.3% and 21.1% of participants had been diagnosed with STI and TB respectively, after having been diagnosed with HIV. About half of the FSWs in Kigali City compared to 34% in Other Provinces reported having had at least one STI symptom in last 12 months.

Violence

More than 60% of FSWs in the 2015 BSS have experienced a form of physical violence in life time. Sexual violence of any kind was reported by 36.5% in Kigali City and 32.3% in Other Provinces; Occupational (15.1% in Kigali City and 19.7% in Other Provinces) Intimate partner (18.0% in Kigali City and 15.3% in Other Provinces).

Conclusion

Innovative and targeted HIV prevention programs are needed countrywide to reduce the transmission of HIV and STIs among FSWs. Areas that are potential hotspots for FSWs and their clients must be prioritized. Since consistent condom usage is still lower among FSWs, education efforts focused on condom use and proper administering of them must be increased, as well as the number of condoms distributed at community level and in health care centers. As the prevalence of HIV is lower among younger FSWs and increases with age, prevention programs must scale-up their efforts to reach younger FSWs and those newly entering SW, while more of the older SWs and those who are seasoned in the profession should be linked to care and enrolled on to ART.

Gender based violence (GBV) contributes to the vulnerability of HIV infection among FSWs. As revealed in this survey, FSWs in Rwanda experience physical and sexual violence at alarming rates. Many participants believed a man is justified in beating his wife or girlfriend under certain circumstances. Efforts should be made to educate men and women about GBV, and to implement community-based interventions to change traditional gender roles that may be harmful to women (and men). At a higher level, protection from GBV for uniquely vulnerable populations such as FSWs should be incorporated into policy frameworks. Government entities, police, and health service providers must be partners and work together to eliminate physical and sexual violence among women in Rwanda, including FSWs.

ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
BSS	Behavioral surveillance survey
CD4	Cluster of Differentiation 4
CDC	Disease Control and Prevention
CNLS	National AIDS Control Commission
DHS	Demographic and Health Survey
ELISA	Enzyme-linked immunosorbent Assay
HBsAG	Hepatitis B Surface Antigen
FHI	Family Health International
FSW	Female Sex worker
HIV	Human Immunodeficiency Virus
KI	Key informant
MTCT	Mother to Child Transmission
NRL	National Reference Laboratory
OIs	Opportunistic Infections
PDA	Personal Digital Assistant
PLHV	People Living with HIV/AIDS
PSI	Population Services International
RBC/IHDPC	Rwanda Biomedical Centre – Institute of HIV/AIDS, Disease Prevention and Control/ HIV-AIDS, STIs & Other Blood Borne Infections Division
STI	Sexually transmitted infection
VL	Viral Load
UNAIDS	Joint United Nations Programs on AIDS

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1. INTRODUCTION

Since the beginning of the HIV-AIDS epidemic, nearly 78 million people worldwide have contracted HIV and close to 39 million have died of AIDS-related causes. Globally, by the end of 2014, approximately 37 million people were living with HIV. Among those individuals, 2.6 million are under the age of 15, and more than 70% (25.8 million) live in sub-Saharan Africa. During the same year in sub-Saharan Africa, an estimated 1.4 million people became newly infected with HIV. Although global AIDS-related deaths have been declining due to greater coverage of life-saving antiretroviral therapy, 1.2 million people died of AIDS-related causes in 2014. An estimated 790,000 (66%) of those deaths occurred in sub-Saharan Africa.[1]

Transmission of HIV in sub-Saharan Africa is generally through unprotected heterosexual sex. However, among key populations (KPs), who may engage in higher risk taking behaviour such as sex work (SW), the HIV prevalence among sex workers is 12 times greater than among the general population HIV infections are often higher than those in the general population. In low- and middle-income countries, HIV prevalence among SWs is estimated to be 12%. [2]The impact of SW on the rate of new HIV infections varies in sub-Saharan Africa but in some countries, HIV prevalence among (SWs) can be 50 times higher than in the general population[3]. One study of 16 countries in sub-Saharan Africa found an average HIV prevalence of 37% among SWs. In Nigeria and Ghana, HIV prevalence among SWs is eight times higher than the general population.[4] In particular, female sex workers (FSWs), their clients, and the sexual partners of clients made up a third of all new HIV infections in Ghana in 2009, 10% of all new HIV infections in Uganda, and 14% of HIV infections in Kenya (UNAIDS 2010)[5]. A study conducted by Ngugi et al[6] in 2012 among FSWs in various countries throughout Africa, found prevalence to be 10-20 fold higher than that of the general population.

[1] UNAIDS Report: How AIDS changed everything, 2015; UNAIDS 2014 Global Statistics

[2] Bural,S.et al(2012),Burden of HIV among Female Sex Workers in low-income and middle-income countries: a systematic review and meta-analysis , The Lancet 12(7):538-549

[3] UNAIDS, the Gap Report, 2014

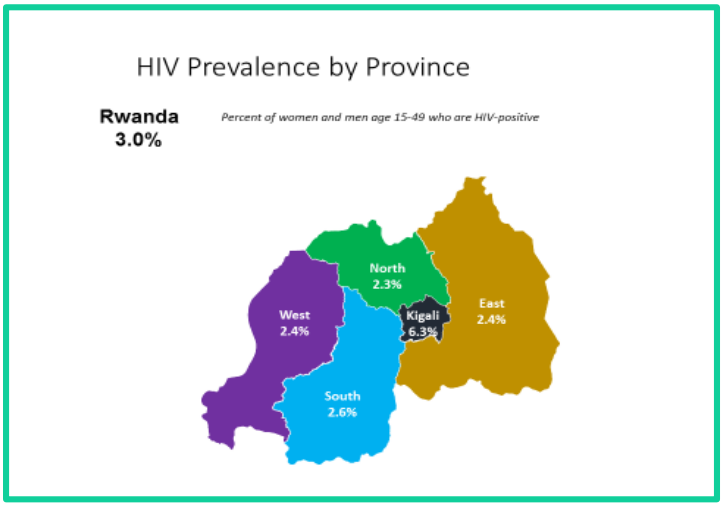
[4] Global AIDS response Progress Reporting 2014

[5] UNAIDS (2010) 'UNAIDS report on the global AIDS epidemic

[6] N. Ngugi , E. Roth , Theresa Mastin , M. G. Nderitu & Seema Yasmin (2012): Female sex workers in Africa: Epidemiology overview, data gaps, ways forward.

The HIV epidemic in Rwanda is generalized, with a prevalence of 3%, in the general population aged 15-49, and varies geographically with 6.2% in urban areas and 2.2% in rural (NISR, 2015). The HIV epidemic is largely spread through heterosexual transmission, and prevalence is highest among high risk populations such as FSWs. A Behavioural Surveillance Survey (BSS) conducted among FSWs in 2010 in Rwanda found 51% HIV prevalence among FSWs, with the highest rates in Kigali City (56%) and lowest in the Eastern province (33%)[7]. In 2012, a size estimation exercise performed by Rwanda Biomedical Centre (RBC) found the population size of FSWs in the country was an estimated 12,278, mostly concentrated in the capital (Kigali City), and two towns bordering Democratic Republic of Congo (Rusizi and Rubavu)[8]. In 2013, a Modes of Transmission modelling exercise conducted in Rwanda estimated that FSWs and their clients may contribute approximately 20% of general population new HIV infections[9].

Figure 2: HIV Prevalence by Province



Understanding behavioural and risk factor trends among FSWs is essential to HIV programming. The Government of Rwanda (GOR), Ministry of Health (MOH), and their development partners have implemented programs targeting FSWs in the country. The National HIV Strategic Plan 2013-2018 also prioritized interventions targeting HIV prevention and service provision among FSWs[10].

Prevention programs for FSWs in Rwanda focus on HIV voluntary counselling and testing of FSWs and their children, provision of information on HIV, STIs and gender-based violence (GBV), condom distribution through peer educators (PE) and community linkages to nearest health facilities, family planning, peer education and screening of STIs.

Despite the documented high HIV prevalence among FSWs in Rwanda, considerable gaps remain in the quality and quantity of information related to behavioural risk factors and trends over time within this group. Since 2000, Rwanda has conducted a series of BSS every two years. In 2010, for the first time, the BSS among FSWs was conducted to integrate both behavioural and biological outcomes of HIV. The BSS among FSWs in 2015 was implemented as a follow-up to the 2010 BSS FSWs. Behavioural and biological data were collected from late March to May 2015 throughout the country.

[7] Ministry of Health, Behavior and Biological Surveillance Survey among Female Sex Workers Report, Rwanda 2010
[8] Participatory site assessment and size estimation of female sex workers in Rwanda, RBC 2012. Unpublished report.
[9] Rwanda Biomedical Center (2013). Understanding the dynamics of HIV epidemic in Rwanda: Modeling the expected distribution of new HIV infections by exposure group.
[10] Rwanda Biomedical Center, Rwanda HIV and AIDS National Strategic Plan, July 2013-June 2018

This data was collected to better understand determinants of HIV infection among FSWs, the proportion of FSWs enrolled into HIV care and treatment, the proportion currently on ART, and immunological and virological outcomes. In addition, the prevalence of other STIs, including Syphilis, Hepatitis B and C, and co-infection with HIV were recorded. The 2015 BSS among FSWs will inform policy makers on the current national response addressing HIV treatment and prevention needs among FSWs in the Rwanda.

2. OBJECTIVES

2.1. General objective

The general objective of the 2015 BSS among FSWs was to study HIV prevalence and the evolution of sexual behaviours among FSWs in Rwanda.

2.2. Specific objectives

- Determine prevalence
    a. Determine the prevalence of HIV infections among FSWs
    b. Determine the prevalence of known HIV-infected and newly tested HIV infected
    c. Assess the prevalence of other STIs, including syphilis, hepatitis B and C among FSWs in Rwanda
    d. Assess the prevalence of exposure to hepatitis C among FSWs in Rwanda;
    e. Assess the prevalence of co-infections (HIV and syphilis, hepatitis) among FSWs in Rwanda
- Understand sexual behaviour and reproductive health
    a. Understand the HIV transmission behaviours among FSWs in the country, including condom use for high risk sex
    b. Compare changes in sexual behaviour and reproductive health among FSWs in Rwanda over time, by comparing to past and future BSSs.
- Determine risk factors for prevalence
    a. Assess risk factors associated with HIV infection among FSWs
    b. Understand risk factors associated with HIV, syphilis, and hepatitis B and C co-infection among FSWs in Rwanda
    c. Assess temporal changes in risk factors for HIV infection and STI co-infection among FSWs in Rwanda

- Assess program coverage for FSWs
    a. Assess the magnitude of those enrolled in care and treatment among self-reported HIV-infected FSWs in Rwanda
    b. Determine those eligible for treatment (by CD4 counts) in both known and newly tested HIV-positive FSWs in Rwanda
    c. Determine prevention of maternal to child transmission (PMTCT) usage in FSWs who are known HIV infected.
- Determine overall immunological and virological outcomes (VL suppression) and adherence of those FSWs on ART
- Determine the number of children born to FSWs who have been tested for HIV and enrolled in care and treatment, if their mothers are HIV positive.

3. METHODOLOGY

3.1. Study Design

The 2015 BSS among FSWs consisted of cross-sectional study design. It used mainly individually self-reported quantitative data.

3.2. Study Population

The 2015 BSS among FSW was targeting FSWs aged 15 to 49 years and above, who are currently operating in Rwanda. Sex workers include "female, male and transgender adults and young people (18 years of age and above) who receive money or goods in exchange for sexual services, either regularly or occasionally". Sex work (SW) is consensual sex between adults, which takes many forms, and varies between and within countries and communities. SW may vary in the degree to which it is more or less "formal" or organized. (WHO, UNAIDS, 2012).[11]

3.3. Sampling Procedures

The 2015 BSS among FSWs used a clustered, stratified two-stage sampling design. Primary sampling units were street-based and venue-based hotspots with a minimum of 5 FSWs per hotspot. At the first stage, 180 hotspots were selected from a survey sampling frame constructed from a previous mapping exercise of commercial sex hotspots using probability proportional to size (PPS) at provincial and hotspot size level. Results from a 2012 FSW mapping exercise in Rwanda indicated that the total estimated number of FSWs hotspots is 1,837 and estimated the total number of FSWs in Rwanda at 12,278. In the second stage 1,988 FSWs were selected countrywide using a take-all approach within the small and medium sites, and a segmented take-all for the large sized hotspots.

[11] UNAIDS, Guidance note on HIV and Sex Work, 2012

3.4. Inclusion criteria

Eligibility to participate in the 2015 BSS-FSW survey included the following criteria:

- Found at a selected hotspot
- Female, aged 15 years or more at the time of interview
- Self-reported FSW
- Agreed to provide blood sample for STI testing
- Able to provide informed consent

3.5. Exclusion criteria

Participants were deemed ineligible according to the following criteria:

- Refusal to undergo STI testing
- Has been previously interviewed by the survey team
- Unable to provide informed consent

3.6. Sample size calculation

The 2015 BSS among FSWs had two primary objectives relevant to the sample size calculation: estimating HIV prevalence, and comparing changes in sexual behaviour over time. The study was sufficiently powered to determine HIV prevalence. The target sample size calculation was generated by estimating national HIV prevalence with a ±10% relative precision. With this sample size, the detectable difference in proportion of FSW reporting consistent condom use during the past 30 days was 18%. The following formula was used to determine the sample size for estimating HIV prevalence among FSWs:

$$n1 = Z^2 \frac{p(1-p)}{d^2} \left[\frac{Deff}{R}\right] fpc^2$$

n1 = FSW target sample size
Z= The two-tailed Z score, normal value of 0.05=1.96
P= HIV prevalence among FSWs (based on 2010 data)
D= Margin of error (Z* standard error)
Deff= Design effect (assigned to 3.2 based on DEFF observed in 2010 BSS FSW)
R= Response rate (assigned to 0.83 based on R from 2010 BSS FSW)
Fpc2 = Finite Population correction (based on total estimated FSW population size from the 2012 FSW mapping exercise)

According to the 2015 BSS protocol, STI testing was mandatory to meet the inclusion criteria of the survey and to satisfy the biological component of the survey. HIV testing however, was not mandated so that in cases where a participant refused, her behavioral risk factors could still be assessed.

The sample size calculation (formula above) was based on the prevalence of HIV among FSWs aged 15 years and older, estimated from the 2010 BSS among FSWs. In 2010, the level of this indicator (P) was 51% overall (East: 33%, Kigali City: 56%, North: 47%, West: 55%, South: 55%).The design effect (Deff) is estimated at 3.2 based on the observed design effect from the 2010 FSW BSS. The Z score value is 1.96 with an alpha level of 0.05 (95% confidence), and the finite population correction was applied using the results of 2012 FSW population size estimation.

Based on the stated design effect of 3.2, response rate of 83%, and finite population correction, a minimum sample size of 1,951 FSWs resulted in a relative 10% precision around a point estimate (HIV prevalence) of 51% among FSWs. The sample size also sufficiently powered the study to detect an 18% change in consistent condom use reported during the past 30 days.

The sample size calculation was conducted as shown:

Table 1: Sample Size Calculation

Province	East	Kigali*	North	West	South	Total
Z2	3.8416	3.8416	3.8416	3.8416	3.8416	
P	0.33	0.56	0.47	0.55	0.55	
SE	0.033	0.056	0.047	0.055	0.055	
D	0.0042	0.012	0.0085	0.0116	0.0116	
n1 (SRS)	203	79	113	82	82	558
FSW population size	1435	2336	845	2483	2051	
fpc2	0.8591	0.9668	0.8676	0.9674	0.9606	
n2 (with fpc2)	174	76	98	79	79	506
R	0.83	0.83	0.83	0.83	0.83	
Deff	3.2	3.2	3.2	3.2	3.2	
Calculated n	672	293	377	305	303	1951

The sample size allocation by Province will be distributed as follows:

Table 2: Sample Size Allocation by Province

Province	East	Kigali	North	West	South	Total
Calculated n	672	293	377	305	303	1951
Proportional allocation factor	0.345	0.15	0.193	0.156	0.155	1
No. of clusters	62	27	35	28	28	180
FSWs per cluster	11	11	11	11	11	
Sampled FSWs	682	297	385	308	308	1980

The province-specific target sample sizes allow for 95% confidence intervals around the HIV point prevalence estimates:

Table 3: Target sample Sizes

Province	Target Sample Size	2010 HIV Prevalence Estimate	95% CI Width	95% CI - Lower Limit	95% CI - Upper Limit
East	682	0.33	0.129	0.265	0.395
Kigali City	297	0.56	0.220	0.450	0.670
North	385	0.47	0.184	0.378	0.562
West	308	0.55	0.216	0.442	0.658
South	308	0.55	0.216	0.442	0.658
Total N	**1,980**				

3.7. Data collection

3.7.1. Pre-data collection phase

A. Recruitment and Training of data collectors

The survey field staff including interviewers and lab technicians, were recruited based on their experience in data collection and testing activities (HIV, syphilis, and hepatitis). A seven-day training was conducted for 40 interviewers and 10 lab technicians prior to data collection. The training focused on survey objectives, research ethics and survey methodologies including participant recruitment procedures, data quality assurance and use of data collection tools. The main survey tools were: consent form, survey questionnaire designed in PDA, laboratory forms, referral form and data collection report form.

The training was organized and led by the HIV division of HIV Epidemiological Surveillance and Research Unit in collaboration with Rwanda National Laboratory (NRL) and Centres for Disease Control and Prevention (CDC Rwanda).

B. Individual Tasks of survey staff

The Rwanda Biomedical Centre (HIV and NRL Divisions) and CDC Rwanda provided the staff for supervision of data collection including ensuring the respect of participant recruitment procedures, following up referrals to the nearest health facilities for positive participants, ensuring the compensation of participants and daily data backup.

The interviewers were mainly responsible for recruitment and screening of participants, obtaining consent from eligible participants and questionnaire administration while the Lab Technicians were responsible for blood sample draw, rapid testing, sample transportation from survey sites to NRL and confirmatory, CD4 and VL testing.

3.7.2. Data Collection Phase

A. Participant recruitment, screening and behavioural data collection

FSWs were contacted by the data collection team through key informants (KIs). In this survey, KIs are the members of the survey target population or people who know FSWs operating at a given area, site or hotspot. One KI per survey site was recruited and facilitated the recruitment of survey participants. After the recruitment of survey participants, eligibility screening questionnaire was administered by the data collectors. A verbal informed consent was obtained from the eligible participants prior to the administration of survey questionnaire and blood sample draw.

B. Blood sample collection

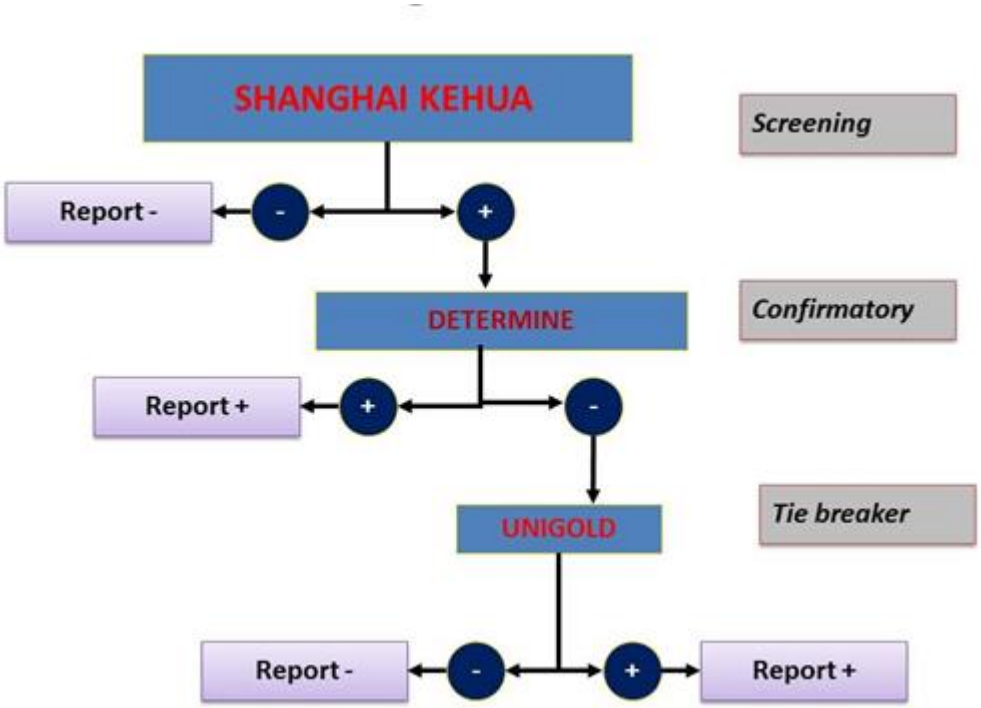
Trained laboratory technicians for the survey collected the blood samples from eligible survey participants who consented for testing. In total, 1967 (99.4%) individual blood samples were taken. The rapid tests for HIV, syphilis and Hepatitis B and C were performed and results given to the participants. This was facilitated by the HTC counsellor from the nearest health facility to the survey site. The participants who tested positive at any test were referred to the nearest health facility of their choice upon completion of post-test counselling.

For the purpose of survey testing results, within 24 hours, the blood samples were transported to NRL for HIV ELISA testing, as well as CD4 cells count and VL testing for HIV positive participants. The testing at NRL was performed by three trained Lab Technicians who were based at NRL. They also performed quality control testing for syphilis and hepatitis B and C.

Screening for syphilis was conducted on survey sites using the SD BIOLINE SYPHILIS 3.0 rapid test kit, using 20µl of whole blood.

Screening for hepatitis B was conducted using the SD BIOLINE HBV rapid test kit, using 100µl of serum or plasma. The test detected HB surface Ag (HBsAg), Anti-HBs, and HBeAg/HBsAg. The rapid test kit detected: HBsAg with a sensitivity and specificity of >99%, Anti-HBs with a sensitivity of 91.7% and specificity of 98.9%, and HBeAg/HBsAg with a sensitivity of 95.5% and specificity of 98.6%.

Figure 3: National HIV Rapid Test Algorithm, BSS Rwanda, 2015



3.8. Data Management and Analysis

Behavioural and Biological data were collected among 1,978 participants and analysed using survey procedures in STATA, version 13. Mean, proportion, and a 95% confidence interval were computed for major indicators. P-values were computed to assess the statistical significance of observed differences among key indicators. The following were key indicators analysed, at the time of the survey:

- Participant characteristics
- Risk behaviours and risk factors
- Condom use
- Knowledge of HIV (Comprehensive knowledge, prevention, MTCT and STIs symptoms)
- Attitudes towards PLHIV and gender

- Physical and sexual violence
- Exposure to HIV prevention programs and Family planning
- HIV Testing and Treatment
- Experienced STIs symptoms in the last 12 months
- Prevalence of HIV and risk factors
- Prevalence of STIs
- Prevalence of hepatitis B and C
- HIV, syphilis and hepatitis co-infection

3.9. Ethical Consideration

Appropriate measures were taken to ensure survey participant protection, voluntary participation, and confidentiality. First, prior to the implementation of this survey, the research protocol was reviewed and approved by the Rwanda National Ethics Committee and CDC, Atlanta. Second, all data collection teams were trained on research ethics including good clinical practice. Third, during the data collection, anonymity of the participants was preserved by using an ID survey code to identify the participants. Finally, all participants included in the survey gave their consent after being informed about aims of the survey, their rights including the right to refuse to participate, to withdraw from the study at any time or to refuse to answer any question. The potential risks and benefits associated with the study, compensation, and confidentiality were explained and participants were provided with a contact for more information or clarification.

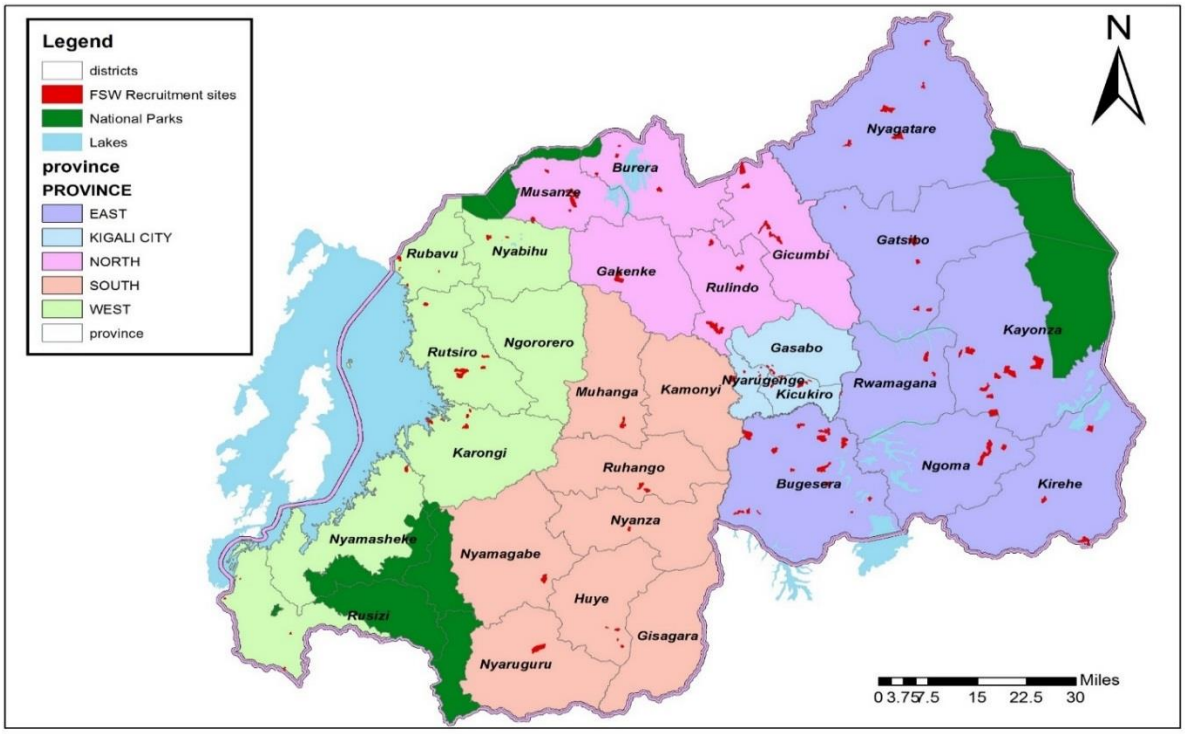
4. FINDINGS

4.1 Socio-demographic characteristics of respondents

KEY FINDINGS

- FSWs participating in the survey were predominately found in Kigali City (28.1%)
- In general, participants were 20-34 years old (59.4%)
- Younger FSWs (<15 years) and those over the age of 35, were not highly represented in this survey
- The women in the survey had usually achieved at least a primary level of education (83.5%)
- Participants routinely worked at a venue (i.e. bar/Hotel) (48.2%)

Figure 4: Map of 2015 FSWS hotspots in Rwanda by district

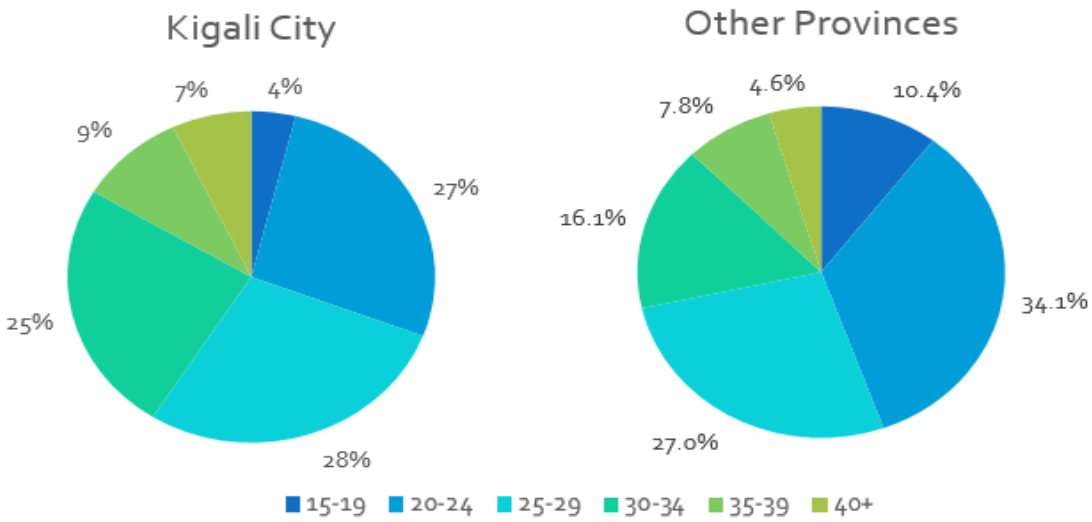


4.1.1. Survey participants by Age group

Most FSWs in the 2015 BSS were aged 20-34 years (78%), representing 80% of all participants in Kigali City, and 77% in Other Provinces. The largest proportion of FSWs in both geographic areas was in the 25-29-year age group (28.2% and 27%). In Kigali City, fewer FSWs were found to be

over the age of 35 (9%) or within the youngest age category of 15-19 years (4%). Similar results were found in Other Provinces, with 12.4% of FSW over the age of 35 and only 10.4% aged 15-19 years.

Figure 5: Age group of study participants, BSS Rwanda, 2015



Across the country, respondents were unlikely to be married. In Kigali City and Other Provinces, 51.2% and 63.9% reported being never married, 48.8% and 36.2% reported being ever married. The majority of FSWs in the survey did have a religious affiliation. In Kigali City and Other Provinces, 42.7% and 42.6% identified as Catholic, or Protestant (27% and 27.4%), 10.2% and 8.4% were Adventist while 7.4% and 8.1% identified as Muslim. Approximately 12.7% and 13.6% reported having traditional beliefs/other values/non-religious.

Even though National health insurance (Mutuelle de santé) is accessible to all Rwandans, only half of FSWs in the survey reported having health insurance coverage (57.1% in Kigali City and 58% in Other Provinces), while 42.9% and 42% remained without coverage.

Health Insurance Scheme in Rwanda (Mutuelle de santé)

In order to obtain public health insurance "Mutuelle de santé", a small contribution is requested for each person. The contribution is based on the individual's social economic status. The social-economic status is defined in the "Ubudehe categorization". The Ubudehe categorization consists of four (4) categories:

Category 1: Families who do not own a house and can hardly afford basic needs
Category 2: Those who have a dwelling of their own or are able to rent one but rarely get full jobs
Category 3: Those who have a job and famers who go beyond subsistence farming to produce a surplus which can be sold.
Category 4: Those who own large scale business, individuals working with international organizations and industries as well as public servants

There is no cost to individuals who are in Category 1 for Mutuelle de Santé. Individuals in categories 2-4 are required to pay an annual contribution that varies from 3000 RFW-7000RFW.

Table 4. Socio-demographic characteristics of participants, BSS Rwanda, 2015

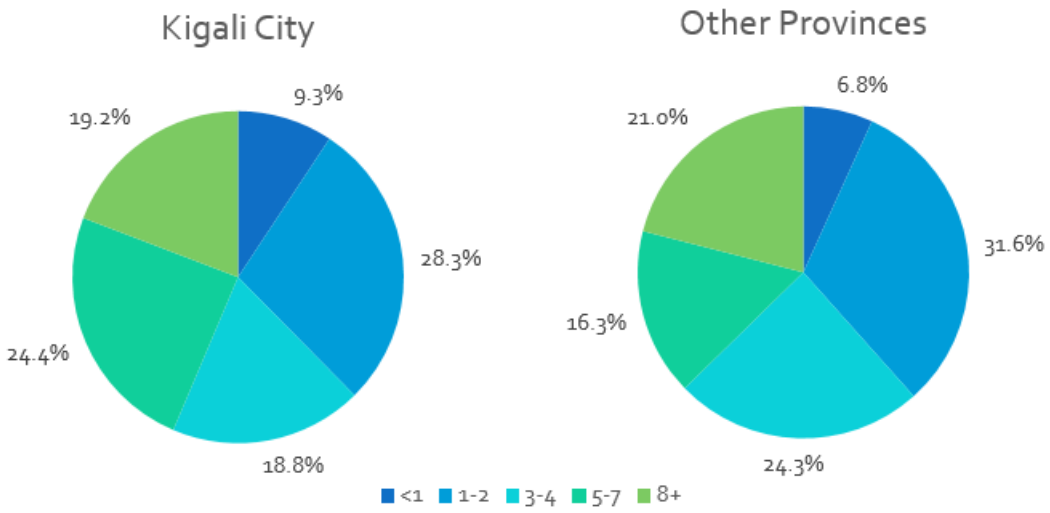
	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Respondents	556	100	1422	100	1978	100
Age group						
15-19	22	3.9	147	10.4	169	8.5
20-24	150	26.9	485	34.1	635	32.1
25-29	157	28.2	384	27.0	541	27.3
30-34	137	24.6	229	16.1	366	18.5
35-39	52	9.4	111	7.8	163	8.2
40+	39	7	66	4.6	105	5.3
Marital status						
Never married	150	51.2	1113	66.1	1263	63.9
Ever married	143	48.8	572	34	715	36.2
Religion						
Catholic	237	42.7	606	42.6	843	42.6
Protestant	150	27	389	27.4	539	27.3
Muslim	41	7.4	115	8.1	156	7.9
Adventist	57	10.2	119	8.4	176	8.9
Traditional/Other/No religion	71	12.7	193	13.6	264	13.3
Health insurance coverage (Any)						
Yes	317	57.1	830	58	1,147	57.9

4.1.2. *Survey Participants by Education level and Experience, BSS Rwanda, 2015*

In the 2015 BSS-FSW, educational level refers to the highest level of schooling an individual has achieved including a primary, secondary, high school, and university education. Most FSWs in the survey had achieved *at least* a primary education level with 69.1% in Kigali City and 61.9% in Other Provinces. Across the country, FSWs who attained at least a secondary or high school education level (14.7% and 20.1%) was comparable to those who had no educational achievement (16.2% and 18%).

For the purpose of this survey, a workplace is defined as a system used by a FSW to regularly solicit clients. Examples of workplaces are venue: hotel, bar, night club, the street: market, and home: telephone. In Kigali City and Other Provinces, FSWs in this survey routinely solicited clients in the venue (51.5% and 46.9%), followed by the street (42.1% and 37%). Few FSWs in Kigali City used their home as their workplace (6.3%) but it was more common in Other Provinces (16.1%).

Figure 6: Year of experience in sex work, BSS-FSW 2015



Participants in the survey typically had at least 1-2 years of experience working as a FSW (28.3% in Kigali City and 31.6% in Other Provinces), followed by 24.4% and 16.3% with 5-7 years of experience. In Kigali City, 19.2% of respondents and 21% in Other Provinces had more than eight years of experience; and 18.8% and 24.3% had 3-4 years. Fewer respondents (9.3% and 6.8%) reported less than1 year of experience in sex work which indicates that those FSWs who are new to sex work are not being captured in these hotspots.

Table 5: **Educational level, workplace and professional experience, BSS Rwanda, 2015**

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Educational level						
None	90	16.2	256	18.0	346	17.5
Primary	384	69.1	880	61.9	1,264	63.9
Secondary/High	82	14.7	286	20.1	368	18.6
Regular workplace						
Street	234	42.1	526	37.0	760	38.4
Home	35	6.3	229	16.1	264	13.4
Venue	286	51.5	667	46.9	953	48.2
Years of experience in sex work						
<1	52	9.3	96	6.8	148	7.5
1-2	157	28.3	445	31.6	601	30.6
3-4	104	18.8	342	24.3	446	22.7
5-7	135	24.4	230	16.3	365	18.6
8+	106	19.2	296	21.0	402	20.5

FSWs may sometimes engage a third party middle man (aka “PIMP”) to assist them in soliciting clients. In exchange for protection from physical and sexual abuse, the PIMP brings the FSWs their clients. For the purpose of this survey, a PIMP is defined as a manager or sex trade facilitator.

Overall, 19.2% of FSWs in this survey reported using a PIMP to solicit clients. The proportion of FSWs using a PIMP was similar in Kigali City (18.9%) and Other Provinces (19.3%). Though age group was not suggestive of PIMP services, FSWs aged 25-34 years and those having 5 or more years of experience in sex work were more likely to use one (21.8% and 20.7%). About 20% of FSWs using PIMPs regularly work in venue.

Table 6: Characteristics of participants using third party middle man (PIMP) BSS Rwanda, 2015

	Kigali City		Other Provinces		Total	
	N	%	n	%	N	%
Overall	293	18.9	1684	19.3	1977	19.2
Age group						
15-24	93	13.1	722	17.4	815	16.5
25-34	156	19.4	742	23	898	21.8
35+	44	28.5	220	13.5	264	18.6
Experience as FSW						
<2	114	12.9	627	21.1	741	18.9
3-4	57	19.4	404	16.6	461	17.2
5+	122	23.9	653	19.2	775	20.7
Regular Workplace						
Street	125	20.4	641	19.5	766	19.7
Home	19	26.2	343	13	362	14.8
Venue	149	16.9	695	21.5	849	20

4.2. Sexual risk Behaviours

KEY FINDINGS

- Participants largely reported they were 15-19 years old when they had sexual intercourse for the first time
- They were also around the same age when they performed their first commercial sexual act
- In the seven days leading up to the survey, over half of the participants (53.8% and 52.0%) reported that they had 3 or more paying partners/clients in Kigali City and in Other Provinces
- According to the respondents, they believed their partners/clients were unmarried (63.4%) or married (36.6%)
- Alcohol was taken by a high percentage of FSWs during sex with their paying partner/client in Kigali City and in Other Provinces (88.5% vs 85.7%) but less with their non-paying partner/client (9.1% vs 13.2%)
- Efforts to locate FSWs in the 15-19 age group should be increased as recruiters were unable to find them at the hotspots used for this survey

4.2.1. Sexual History

Early sexual debut has been associated with higher risk of HIV infection. Young females who engage in sex at an early age are often more susceptible to HIV infection due to the physiological and immunological immaturity of their reproductive health system. Females who engage in sex early also tend to have a higher number of sexual partners, multiple sexual partnerships, and have sex with partners who are at higher risk themselves for HIV infection.

The survey revealed that many participants had experienced their sexual debut at an early age. Overall, 69.8% of them had sex for the first time when they were 15-19 years old with similar rates in Kigali City and Other Provinces (72.3% and 68.9%). They also reported that they had their first commercial sex within that same age range (48.2% in Kigali City and 37.6% in Other Provinces), followed by 20-24 years (30.1% in Kigali City and 29.9% Other Provinces), and 25+ years (15.1% in Kigali City and 28.3% in Other Provinces). Few participants reported engaging in their first commercial sex under the age of 15 years (6.6% in Kigali and 4.3% other provinces).

Figure 7: Participants age at first sex and commercial sex

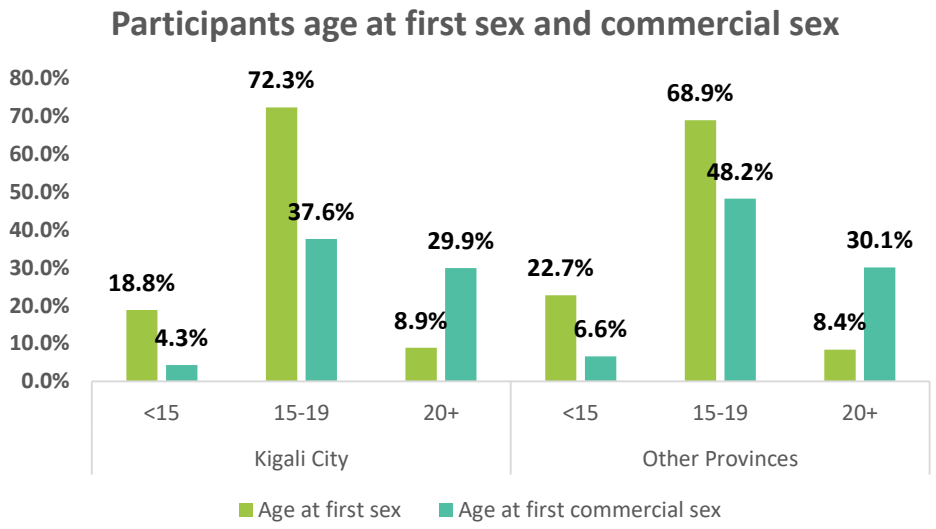
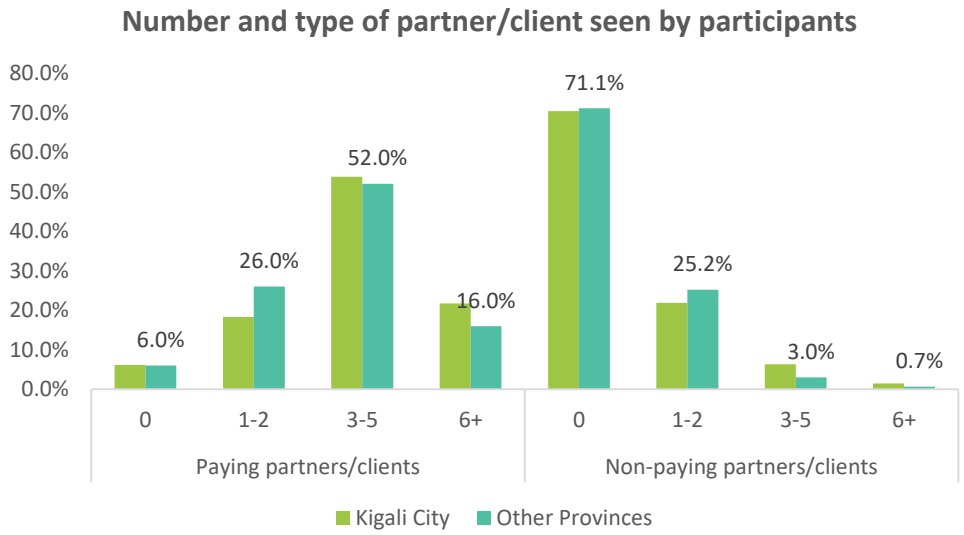


Table 7: Sexual History of participants, BSS Rwanda, 2015

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Age at first sexual intercourse						
<15	54	18.8	386	22.7	440	21.6
15-19	211	72.3	1122	68.9	1,333	69.8
20+	28	8.9	144	8.4	172	8.5
Age at first commercial sex						
<15	13	4.3	117	6.6	130	6
15-19	106	37.6	780	48.2	886	45.2
20-24	87	29.9	494	30.1	581	30
25+	83	28.3	280	15.1	363	18.8

4.2.2. Sexual behavior

Figure 8: Number and type of partner/client seen by participants



During the survey, FSWs were questioned about the types of partners with whom they had sex in the 7 days leading up to the survey. Their partners/clients fall into two main categories: Paying and Non-paying. As defined in the 2015 BSS-FSW, a non-paying partner/client does not pay money or goods in exchange for sex, and a paying partner/client pays money or goods in exchange for sex.

Almost one quarter (25.2% and 21.9%) reported having had sex with 1-2 non-paying partners/clients in the past 7 days, while 3% and 6.3% reported having sex with 3 or more non-

paying partners/clients. But in general, participants reported they had not seen their non-paying partners/clients in the last 7 days (71.1% in Kigali City and 70.4% in Other Provinces).

With respect to paying partners, 52.3% of the FSWs throughout the country (53.8% in Kigali City and 51.7% in Other Provinces) reported they had 3 to 5 paying partners in the 7 days before the survey. It was also found that 18.3% and 26% had sex with 1-2 clients while only 6.2% and 6% reported no sex at all with a paying partner within the past 7 days.

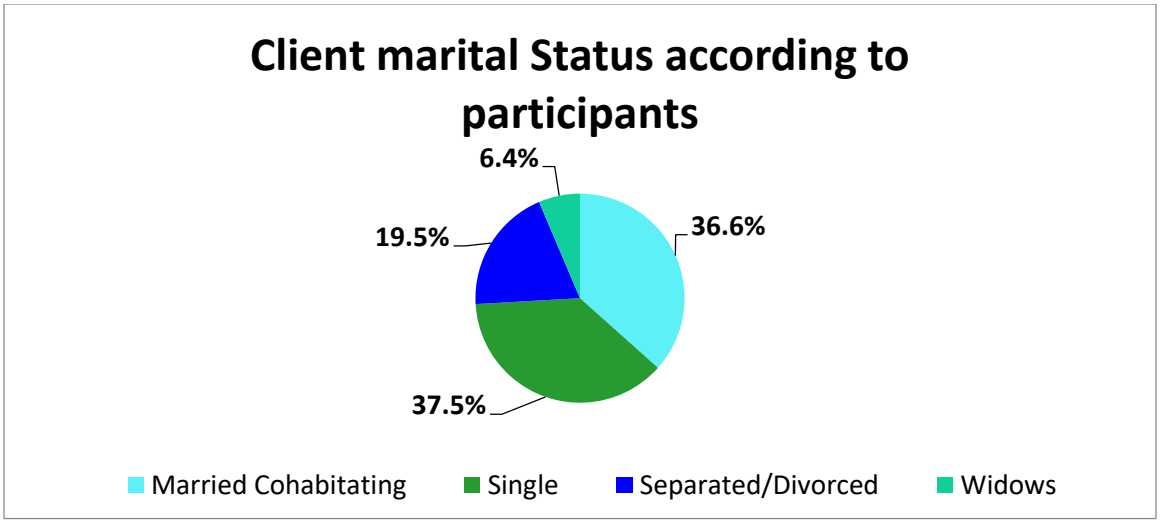
Table 8: Sexual Behavior of participants, BSS Rwanda, 2015

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Number of Non-Paying clients in the past 7 days						
0	204	71.1	1,116	70.4	1,320	70.6
1-2	77	25.2	412	21.9	489	22.8
3-5	9	3.0	129	6.3	138	5.3
6+	2	0.7	24	1.5	26	1.3
Number of Paying Partners in the past 7 days						
0	18	6.2	86	6	104	6.3
1-2	52	18.3	448	26	500	23.7
3-5	143	53.8	834	52	977	52.3
6+	62	21.7	278	16	340	17.8

4.2.3. Types of clients

During the survey, participants were asked about the marital status of their paying partners/clients. Many of the FSWs in this survey self-reported the marital status of the clients/partners seen in the 30 days leading up to the survey. According to the participants, clients/partners were unmarried (63.4%), while approximately 36.6% of their clients were thought to be married or cohabitating.

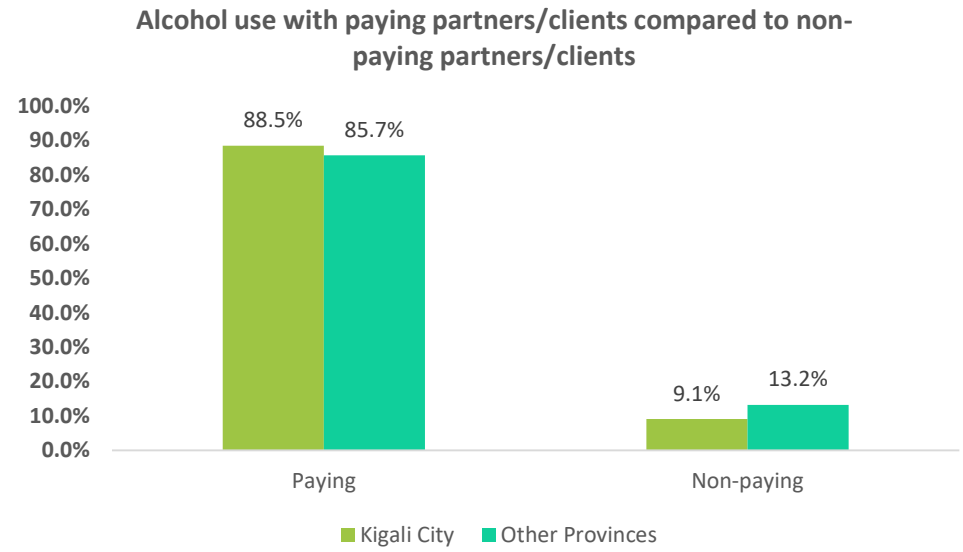
Figure 9: Client marital status according to participants



4.2.4. Influence of alcohol

Alcohol use has been associated with increased risk-taking behaviours such as unprotected sex, and greater risk of HIV infection. The majority of participants (88.5% and 85.7% in Kigali City and in Other Provinces) reported they were under the influence of alcohol during sex with their paying partners/clients. Fewer respondents had taken alcohol with their non-paying partners/clients alcohol (13.2% and 9.1%).

Figure 10: Alcohol use among FSWs with clients/partners



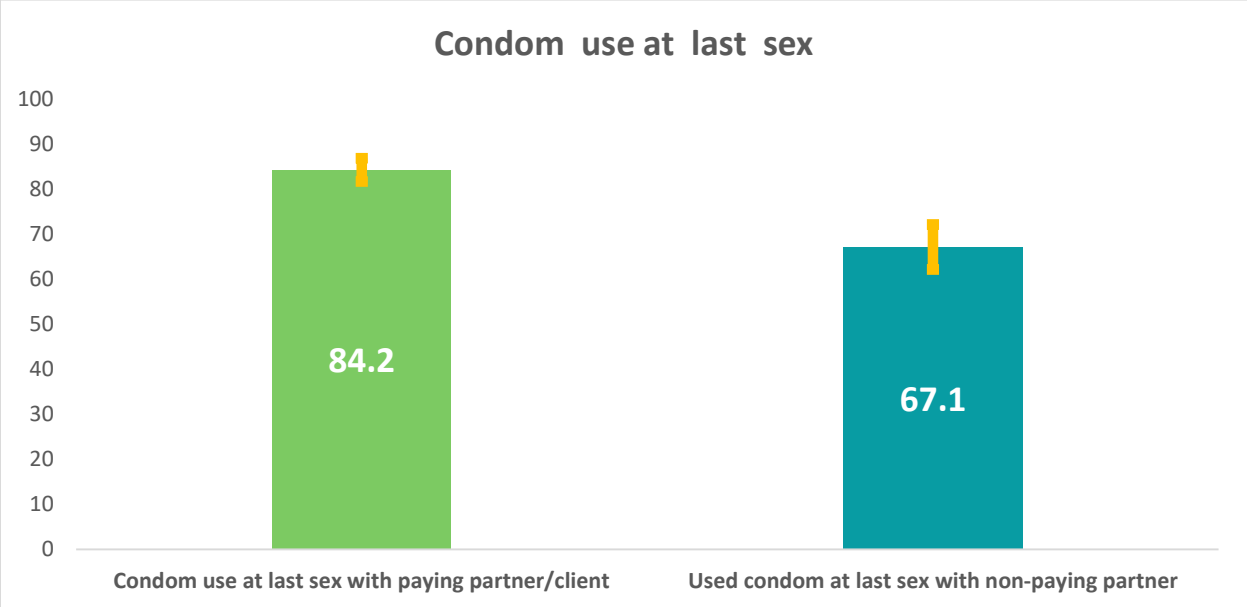
4.3. Condom Use and type of sex

KEY FINDINGS

- During the last sexual intercourse with paying partners/clients, 84.3% in this survey used a condom. 67.0% used one with their non-paying partners/clients
- Condom use is not consistent among FSWs; particularly with their non-paying partners/clients.
- Only 38% of FSWs in the country used a condom every time they had sex with a non-paying client, and only about half (50.5%) regularly used condoms with their paying client/partner.
- Condom usage is mostly suggested by the FSWs during sex with their clients

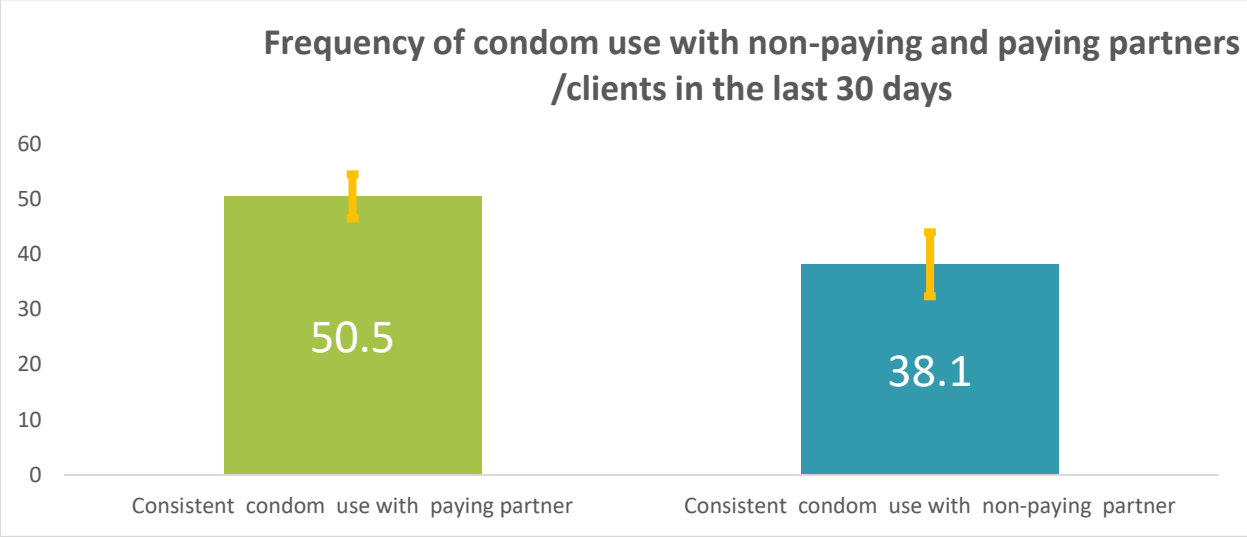
Condom use is the most appropriate method of prevention against HIV transmission. Consistent and correct condom use is particularly important for individuals engaging in high risk behaviours such as having sex with multiple partners. As FSWs by trade have sex with multiple partners (paying and non-paying), understanding condom usage among respondents in the survey is key to informing prevention programs for this population.

Figure 11: Condom use with paying and no-paying partners/clients



With paying partners/clients in both Kigali City and Other Provinces, most FSWs in the study reported using condoms during their last sexual intercourse (85.2% and 83.9%). In general, FSW themselves were more likely to suggest the use of condoms (78.9% in Kigali City and 75.9% in Other Provinces). 14% of respondents said condom use was jointly suggested by the client and themselves. Paying partners/clients were far less likely to initiate condom use (7% and 10%).

Figure 12: Frequency of condom use with non-paying and paying partners/clients



During the last sexual intercourse with paying partners/clients, 84.3% in this survey used a condom and 67.0% used one with their non-paying partners/clients.

Frequency of condom use among FSWs varied with paying and non-paying partners/clients within the past 30 days. More than half of FSWs (50.5%) throughout the country reported consistent condom use with paying partners/clients but only 38.1% were consistently using condoms with non-paying partners.

Anal sex was minimally reported by FSWs as a type of sex (8.6%). Among those who did engage in anal sex, 61.7% reported using a condom.

Table 9: Condom use at last sex, BSS Rwanda, 2015

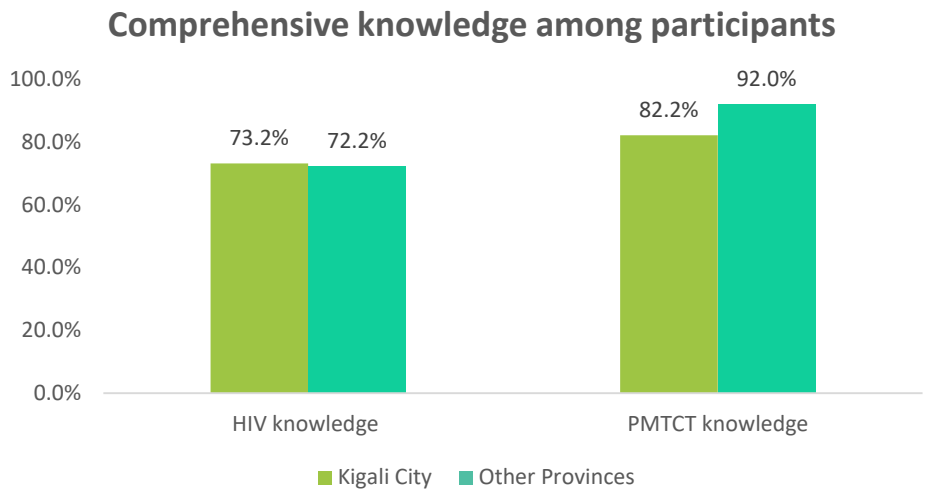
	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Condom used at last sex with paying partner						
	250	85.2	1,394	83.9	1,644	84.3
Condom use at last sex with non-paying partner						
	182	74.7	485	64.3	667	67.1
Suggestion of condom use at last sex with partner/client (paying)						
My self	197	78.9	1055	75.9	1252	76.8
My partner	18	7	138	10	156	9
Joint Decision	35	14.1	201	14	236	14
Consistent condom use with non-paying partner during the past 30 days						
	201	47	44	34.7	245	38.1
Consistent condom use with paying partner during the past 30 days						
	162	54	803	49.1	965	50.5
Engaged in anal sex						
	23	10.1	140	7.9	163	8.6
Condom used at last anal sex with paying partner						
	16	72.6	81	56.3	97	61.7

4.4. Knowledge and Attitudes

KEY FINDINGS

- In general, FSWs participating in the survey had comprehensive HIV knowledge (48.6%)
- Overall, 92% of FSWs in Kigali City and 82.2% of FSWs in Other Provinces had correct MTCT knowledge
- Participants had low to moderate knowledge of STI symptoms and varied in their abilities to identify potential STI symptoms in a female or male

Figure 13: Comprehensive knowledge among participants



4.4.1. HIV Comprehensive Knowledge

Comprehensive knowledge of HIV is defined as percentage of people who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting to one faithful, uninfected partner), who reject two most common local misconceptions about HIV transmission, and who know that a health-looking person can have HIV.

The 2015 BSS-FSW assessed comprehensive knowledge about HIV and attitudes towards PLHIV among participants. The results indicate that FSWs in the survey have a broad understanding of HIV prevention and transmission, and there was little geographic variation. 48.6% of participants had comprehensive HIV knowledge. Approximately 96.6% of FSWs recognized that proper use of condoms during each act of sexual intercourse is an appropriate prevention method, but only 65.8% accepted that having only one uninfected, monogamous partner is a legitimate method for prevention.

Respondents were able to correctly identify common misconceptions about HIV. For example, most participants knew that HIV cannot be transmitted by sharing meals with an infected person or by mosquito bite and that a healthy-looking person can be infected with and transmit HIV.

Figure 14: Participants identified appropriate methods of prevention

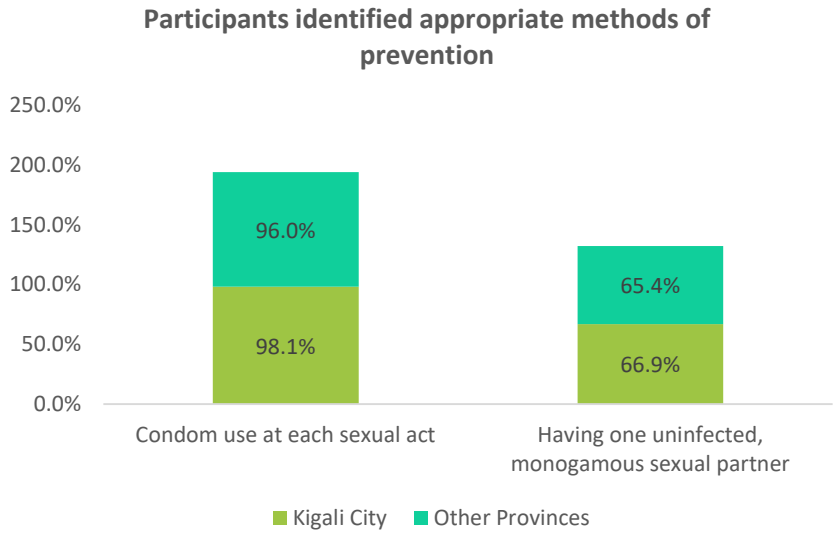


Table 10: HIV comprehensive knowledge among participants, BSS Rwanda, 2015

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Comprehensive HIV knowledge with faithfulness						
	528	47.7	1,339	49.0	1,867	48.6
Comprehensive HIV knowledge without faithfulness						
	528	73.2	1,339	72.2	1,867	72.5
Identified appropriate methods for the prevention of HIV						
	287	98.1	1618	96	1905	96.6
Having only one uninfected monogamous sexual partner						
	191	66.9	1,124	65.4	1,315	65.8
Comprehensive MTCT knowledge						
	1,394	82.2	268	92	1,662	84.97

4.4.2. Comprehensive Knowledge of MTCT

HIV can be transmitted from an HIV-positive woman to her child during pregnancy, childbirth and breastfeeding. Comprehensive knowledge of mother to child transmission (MTCT) should aid in the prevention of MTCT. The FSWs who participated in the 2015 BSS-FSW were asked questions to assess their knowledge about MTCT.

Overall, 84.97% of FSWs in the survey had comprehensive MTCT knowledge. Participants in Kigali City (82.2%) were less likely to have this knowledge compared to participants from Other Provinces (92.0%). In general, participants in Kigali City and Other Provinces knew that a

pregnant woman infected with HIV/AIDS can infect her child during pregnancy, and through breast-feeding. Most participants in Kigali City (98.3%) and in Other Provinces (96.6%) knew what an HIV infected woman could do to prevent the transmission of HIV to her child.

Table 11 :Knowledge of MTCT among FSWs in Rwanda, 2015

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Aware of pregnant woman infected with HIV/AIDS infect her child						
	1479	88.2	277	95.0	1756	90.09
Aware of prevention methods to prevent MTCT						
	1439	96.6	272	98.3	1711	97.07
Can a pregnant woman infected by HIV/AIDS infect her new born through breast-feeding						
	1563	92.6	284	97.0	1847	93.87
Comprehensive MTCT knowledge						
	1,394	82.2	268	92.0	1,662	84.97

4.4.3. Knowledge of STIs Symptoms

Knowledge of STIs symptoms is an indicator considered by prevention programs. The FSWs in the survey were questioned about their knowledge of STIs symptoms among women and men. Knowledge of specific STI symptoms varied among participants. Pain during sex and inguinal swelling as potential symptoms of an STI among women were less reported by participants (13% and 15%, respectively) compared to 45% in Kigali City and 49% in Other Provinces who were aware that symptoms such as spots/wounds on the genitalia, a feeling of burning while urinating, vaginal discharge with foul odor, or genital discharge were potential symptoms.

For STI symptoms in men, more than half of participants were aware of STIs symptoms of men such as pain while urinating, genital discharge, spots/wounds on the penis, testicular swelling and penile itching, were reported by 24% of participants while only 16% identified inguinal swelling as a potential STI symptom in men.

Figure 15: Knowledge of STIs symptoms in men, BSS Rwanda, 2015

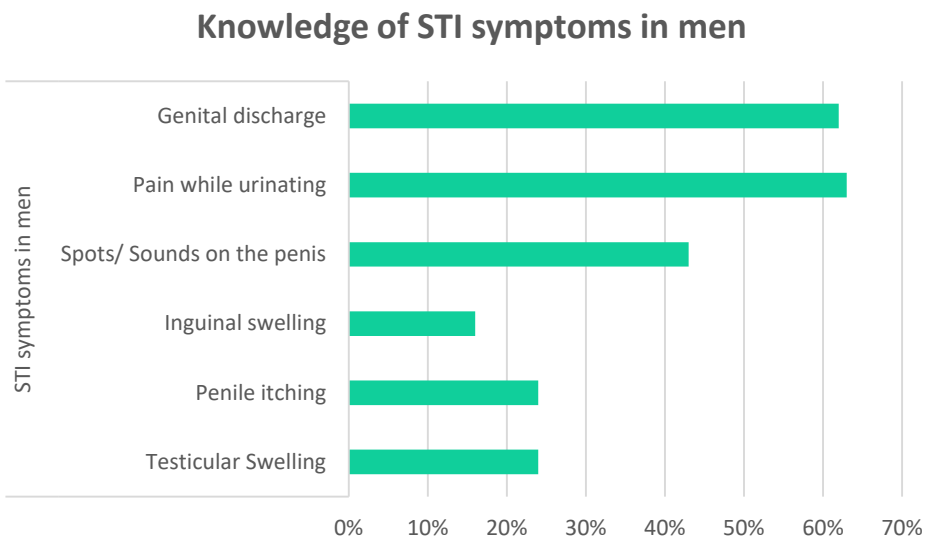
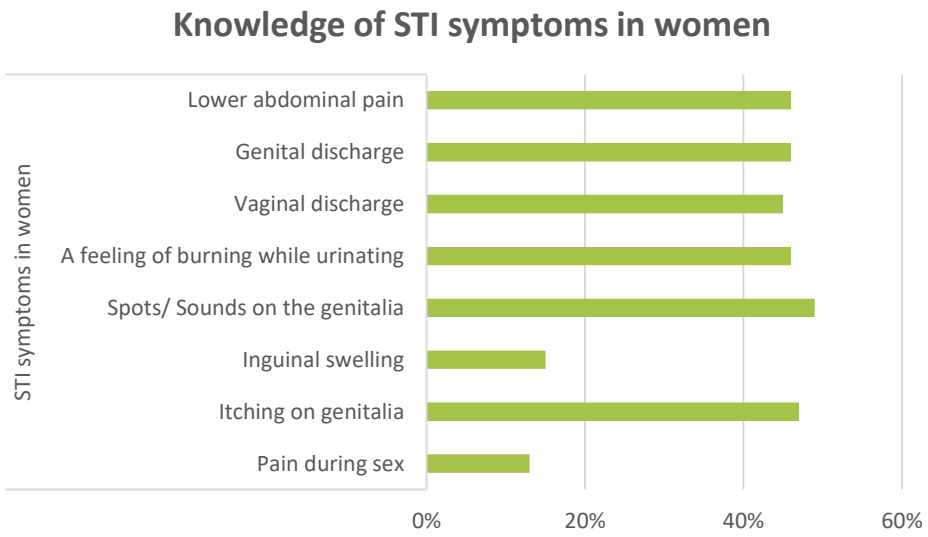


Figure 16: Knowledge of STI symptom in women, BSS Rwanda, 2015



4.5. Attitude towards PLHIV and gender attitudes

KEY FINDINGS

- In general, participants throughout the country had acceptable attitudes towards PLHIV
- More traditional attitudes toward gender were slightly more common participants working in Other Provinces compared to those working in Kigali City
- Approximately 41.8% of women participating in the survey believe a man has the right to hit or beat a woman if she refuses to have sex with him and if she argues with him

The degree of acceptable attitudes towards PLHIV by participants was measured by assessing the degree of which participants believe that: HIV can be transmitted by sharing meals with and HIV positive person; she is willing to care for an HIV positive relative in the household; an HIV positive student who does not display opportunistic infections (OIs) should carry on with his/her study; an HIV positive teacher who does not display (OIs) should be allowed to continue teaching; and it is acceptable to buy fresh vegetables from an HIV positive person.

Overall 88.9% of FSWs (91.6% in Kigali City and 87.8% in Other Provinces) had acceptable attitudes towards PLHIV. In general, the proportion did not vary significantly for all five categories.

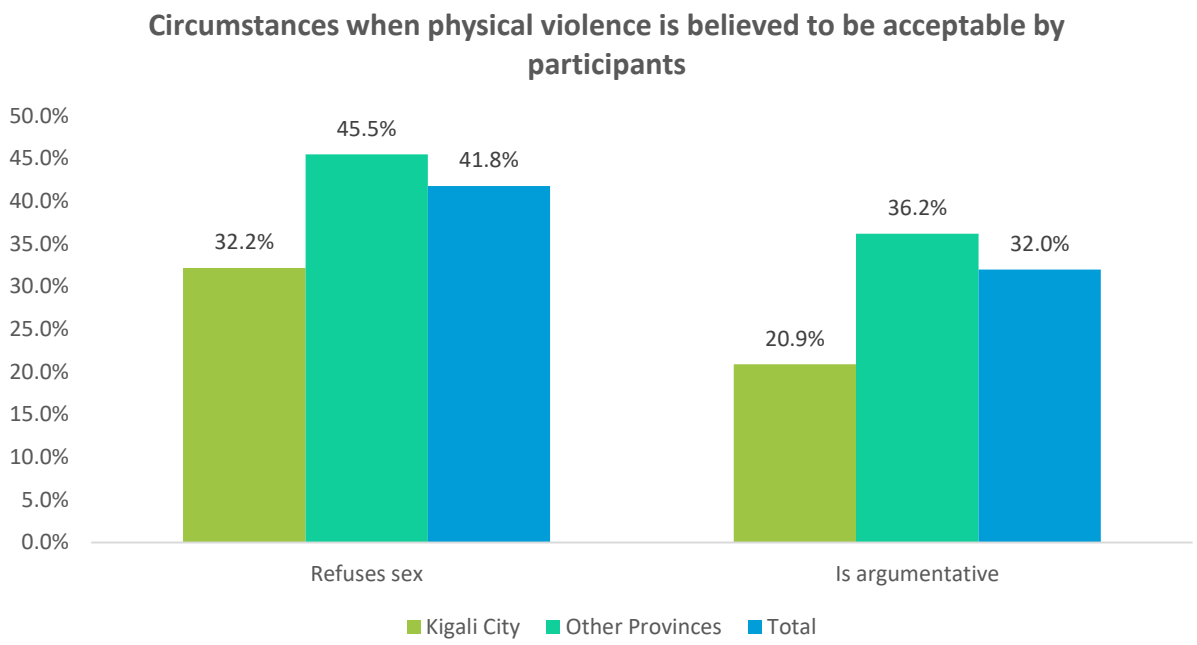
Table 12: Attitudes towards PLHIV among FSWs, Rwanda, 2015

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Will share meal with HIV positive person	284	97.1	1,577	94	1,861	94.9
Willing to care for an HIV Positive family member	289	98.8	1,646	97.5	1,935	97.9
Will allow an HIV positive student who does not display OIs to carry on with his/her study	283	96.8	1,612	96.1	1,895	96.3
Will allow an HIV positive teacher who does not display OIs to keep teaching	282	96.3	1,596	95.4	1,878	95.6
Will buy food from a known HIV positive vendor	284	97.1	1,601	95.7	1,885	96.1
Overall	556	91.6	1,422	87.8	1,978	88.9

Gender attitudes

Attitudes toward gender assessed the acceptance of traditional, submissive, and passive roles of women in society. Many participants shared the common belief that women must "obey" their partner or boyfriend. The proportion of participants who believe a man has the right to hit or beat a woman if she refuses to have sex with him was slightly lower in Kigali City (32.2%). In Other Provinces, this proportion rose to 45.5%.

Figure 17: Gender attitude among FSWs in Rwanda, 2015 (Circumstances when physical violence is believed to be accepted by participants)



4.5. Gender-Based Violence

KEY FINDINGS

- About 70.3% of participants had experienced any form of physical violence
- 46.4% of participants have been experienced of Youth violence, 34.4% by intimate partners and 47.4% had experienced occupational violence
- Respondents have endured any form of sexual violence (32.3%) youth violence (12.7%), by their intimate partner (15.3%), or while engaging in sex work (19.7%)

Due to the nature of their work, FSWs are often subjected to both physical and/or sexual violence. Categories of violence assessed in the survey includes: youth violence, intimate partner violence (IPV) and occupational violence (OV).

4.5.1. Physical violence

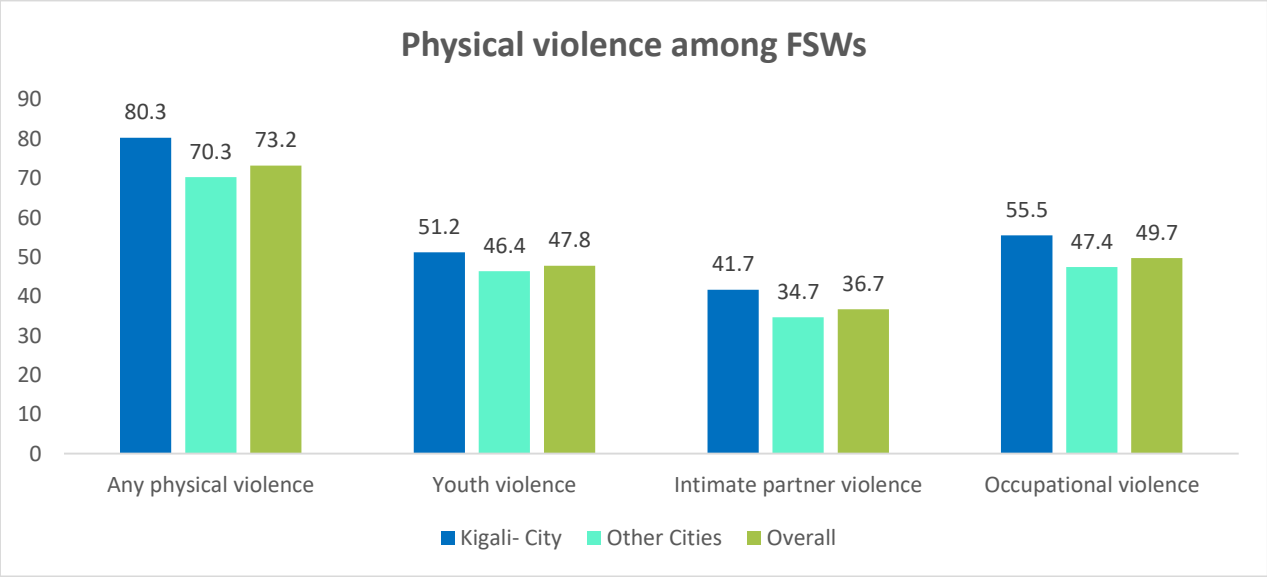
In general, 67.7% of FSWs had experienced any form of physical violence. Physical violence was predominately reported by participants in Kigali City (77.7%), but also significantly reported by those Other Provinces (64%).

For this survey, physical violence was documented as experiencing violence in the forms of punching, kicked, whipped, or beaten with an object; choked, smothered, drowning attempt, or burned intentionally; and threatened with or having with a knife, gun or other weapon used Youth violence refers to physical violence the participant experienced before 15 years of age. Frequently, participants experience youth violence frequently in the form of being punched, kicked, whipped and/or beaten with an object. The proportion of those who reported to have experienced this form of violence was similar in Kigali City (41.9%) and in Other Provinces (40.4%). A small proportion of respondents cited experiences of choking, smothering, attempted drowning, intentional burning, or, or threatening with a knife, gun or other weapon.

Participants in the survey reported experiencing physical violence by an intimate partner such as a romantic partner, boyfriend, or husband. Overall, 27.8% of respondents were subjected to physical violence by their intimate partner. This experience varies slightly regionally with 31.4% in Kigali City and 26.4% in Other Provinces reporting physical violence by an intimate partner.

Many FSWs in the survey reported the occurrence of occupational physical violence during sex work. In total, 38.8% of FSWs reported ever being punched, kicked, whipped or beaten with an object. It varied only slightly by geographic region with 42.5% of FSWs experiencing physical occupational violence in Kigali City and 37.4% in Other Provinces. At least 12% of participants also reported being threatened with a knife, gun or other weapon, with 16.3% in Kigali City and 10.3% in Other Provinces.

Figure 18: Forms of physical violence experienced by participants, BSS Rwanda, 2015

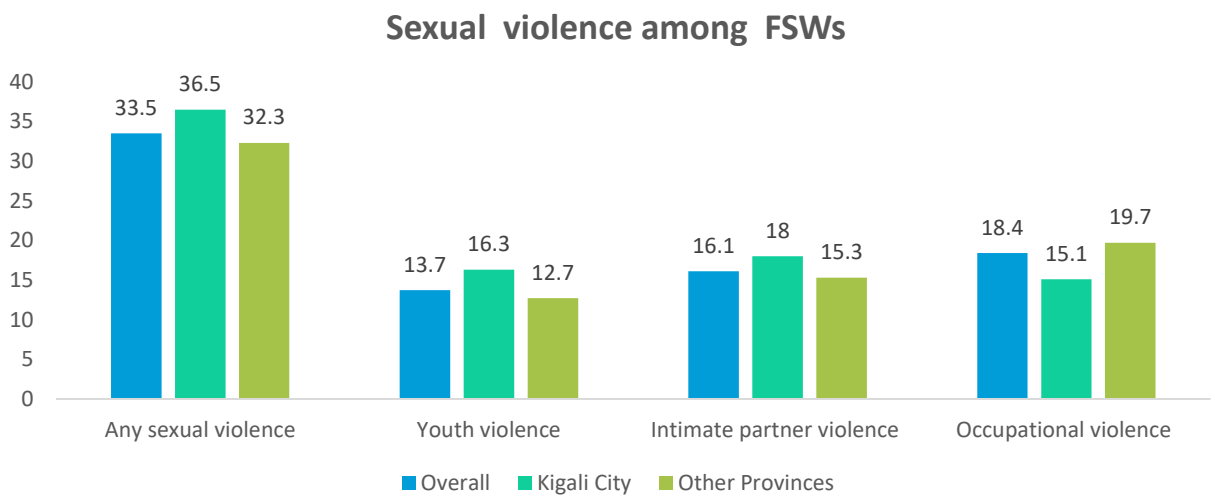


4.5.2. Sexual violence

Sexual violence for the purpose of this survey is defined as being forced to have sex or to perform sexual acts against one's will. A total of 33.5% of participants, 36.5% in Kigali City and 32.3% in Other Provinces, reported they had either experienced sexual violence as a youth, by their intimate partner, and/or while performing sex work.

In Kigali City, 16.3% of participants and 12.7% in Other Provinces reported sexual violence experience as a youth in the form of being forced to have sex or to perform sexual acts against their will before the age of 15 years. 18% of FSWs in Kigali City and 15.3% in Other Provinces had been raped or forced by the romantic partner, boyfriend or husband. Occupational violence among participants was experienced by 15.1% of respondents in Kigali City and 19.7% in Other Provinces.

Figure 19: Forms of sexual violence experienced by FSWs in Rwanda, 2015



4.6. HIV testing and treatment among participants, BSS Rwanda

KEY FINDINGS

- 70.6% of participants in Kigali City and 74% in Other Provinces self-reported they had been tested for HIV within the past year
- At least a quarter of those respondents reported they were HIV positive at the previous testing
- 86.5% of participants in Kigali City and 89.9% in Other Provinces reported that they have taken their prescribed antiretroviral treatment all the time in the past month

Figure 20: HIV testing among participants

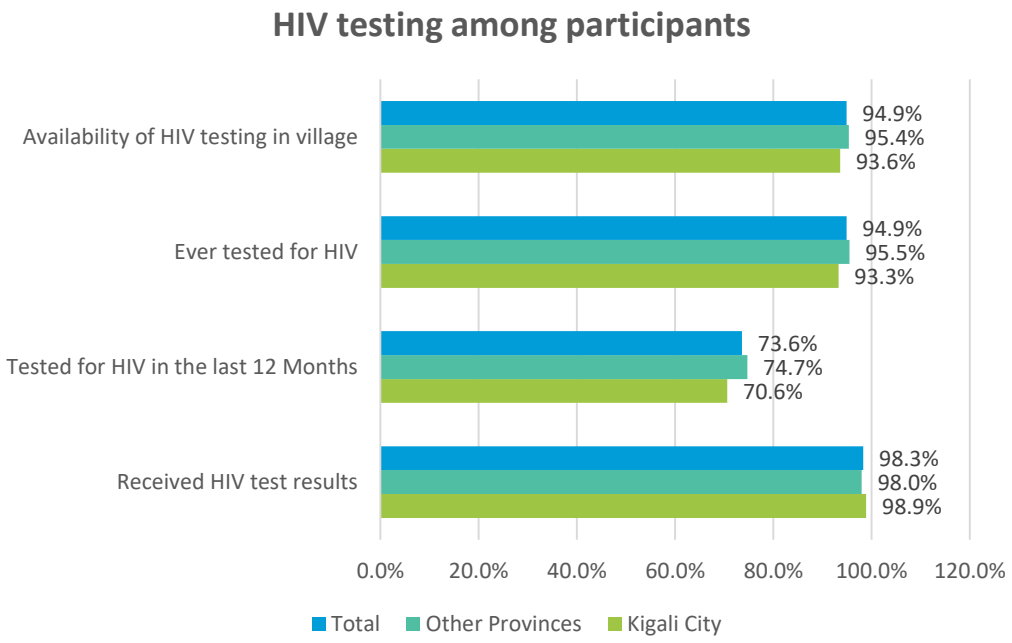
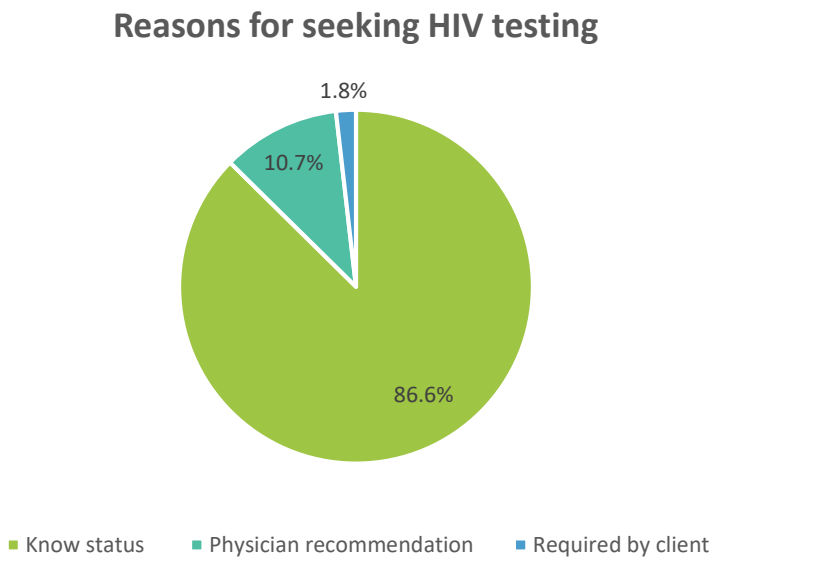


Figure 21: Reasons for seeking HIV testing



The majority of FSWs in Kigali City (95.4%) and in Other Provinces (93.3%) reported HIV testing was available in their village. In general, 94.9% of FSW self-reported had ever tested for HIV, with 93.3% in Kigali City and 95.5% in Other Provinces. However, those who had been tested in the last 12 months, decreased to 70.6% in Kigali City and 74.7% in Other Provinces. The proportion of FSWs who reported receiving their HIV test results after the most recent HIV test

was similar in Kigali City (98.8%) and in Other Provinces (98.0%). Participants were primarily self-motivated to go for HIV testing in Kigali City and Other Provinces in order to know their status (88.6% and 85.8%). Fewer were recommended for testing by a physician (10.3% and 11%). Only 1.8% of participants were recommended to get tested by their client.

4.6.1. HIV Status and Treatment

Information on previous HIV status was collected among participants. In Kigali City and in Other Provinces, 25.7% and 24. % of participants reported an HIV positive sero-status from previous testing. Among participants who had a positive serological status from previous testing, antiretroviral drugs were taken more by women located in Other Provinces (78.4%) than in Kigali City (73.2%).

Overall, 28.3% of FSWs and 21.1% of FSWs self- reported having been diagnosed STIs and TB positive respectively.

Figure 22: HIV testing and treatment cascade adult (FSWs)

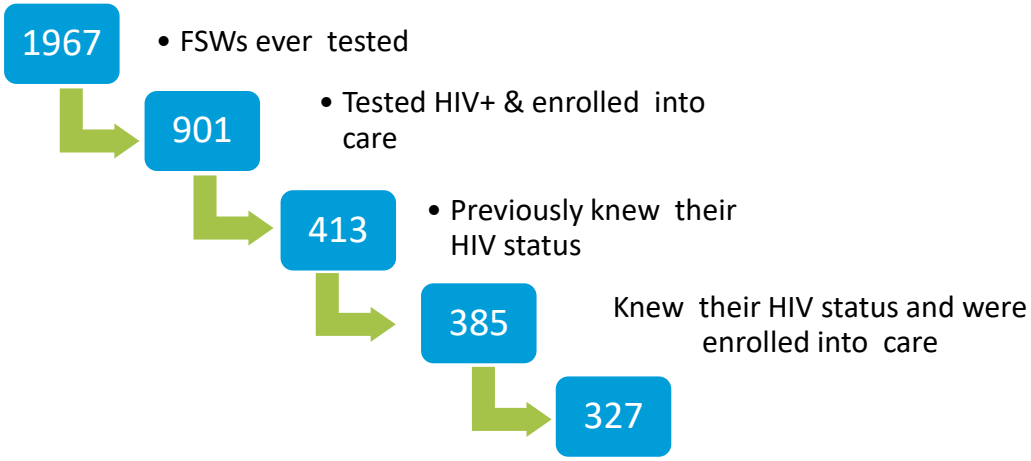


Table 13: HIV status at last HIV test, ART enrolment and adherence to treatment (self-reported)

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
HIV results at last HIV Test (prior to survey)						
Positive	72	25.8	341	24	413	24.5
Negative	200	74.2	1,216	76	1,416	75.5
Enrolled on ART	53	73.2	274	80.5	327	78.4
Consistent adherence	46	86.5	246	89.9	292	88.9
Diagnosis after HIV positive result						
STI	21	29.5	90	27.8	111	28.3
TB	18	25.8	49	19	67	21.1

During this study, information on the number of children born seropositive FSWs were collected. It has been noticed that even if the knowledge of PMTC is high, yet 13% of children are still testing for HIV. Among tested HIV positive, 48% are not enrolled on ART.

PMTCT Cascade (self-reported)

Table 14: Number of Children born HIV positive

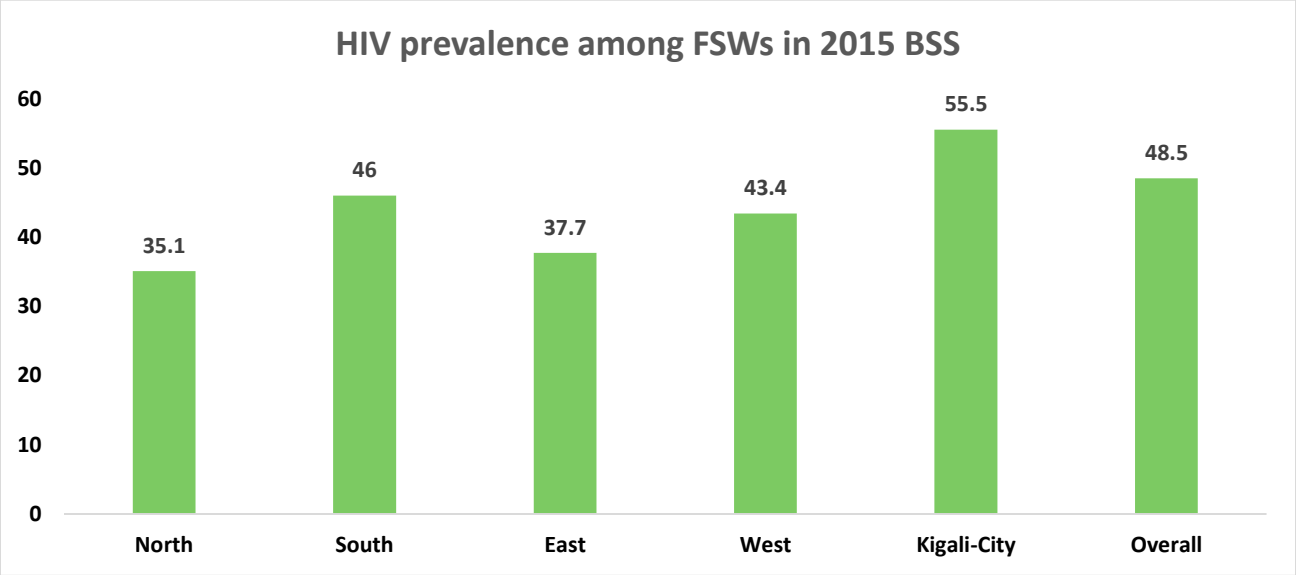
	Total	Std. Err.	[95% Conf.	Interval]
No. of children of FSW known HIV+ prior to survey	702	23.048	656.791	747.21
No. of children who have been tested for HIV	652	78.9035	496.896	807.104
No. of children who tested HIV+	50	7.19228	35.8453	64.1547
Among those HIV positive, no. currently on ART	31	3.14064	24.6705	37.3296

4.7. HIV prevalence among Female Sex Workers

KEY FINDINGS

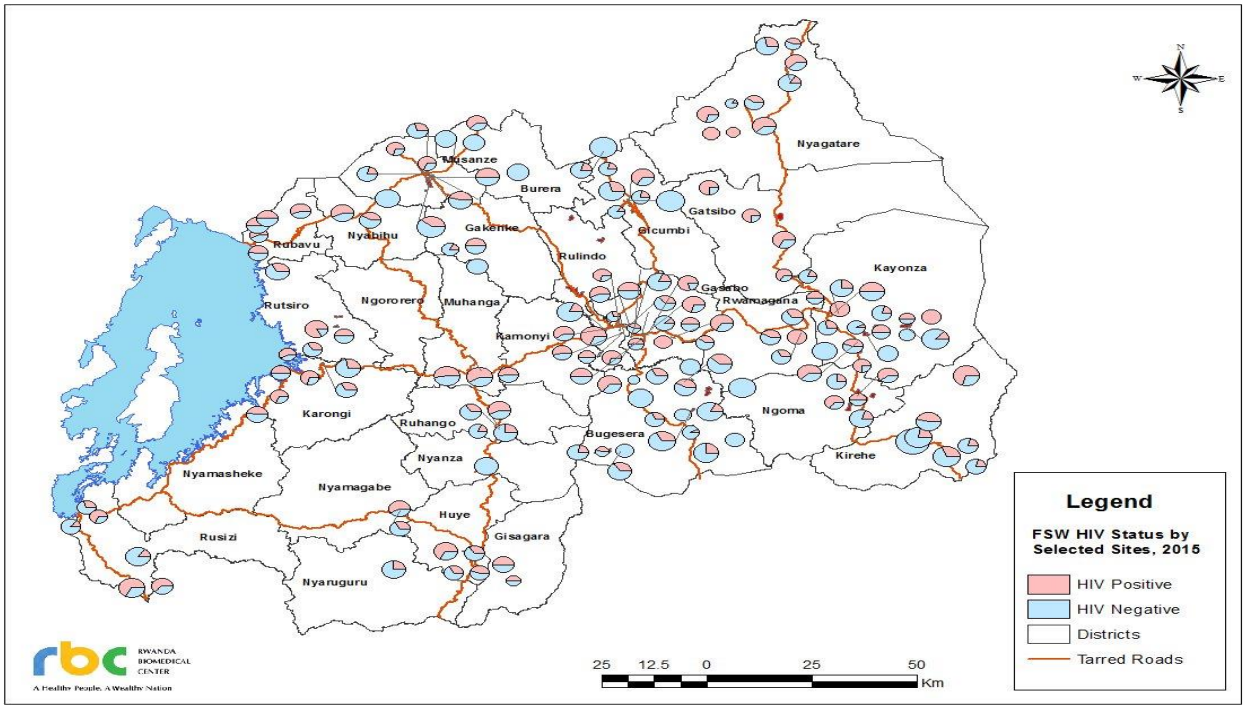
- Overall, 45.8% of FSWs in the survey in were HIV positive
- HIV Prevalence among participants was higher in Kigali City (55.5%) and lower in Northern province (35.1%)
- HIV prevalence among participants increases with age and years of experience in sex work

Figure 23: Number of Children born HIV positive



Studies have shown that HIV prevalence is higher among KPs such as FSWs than in the general population. To understand the scale of the epidemic and concentration of HIV among FSWs in the country, HIV tests of survey respondents were analysed using ELISA.

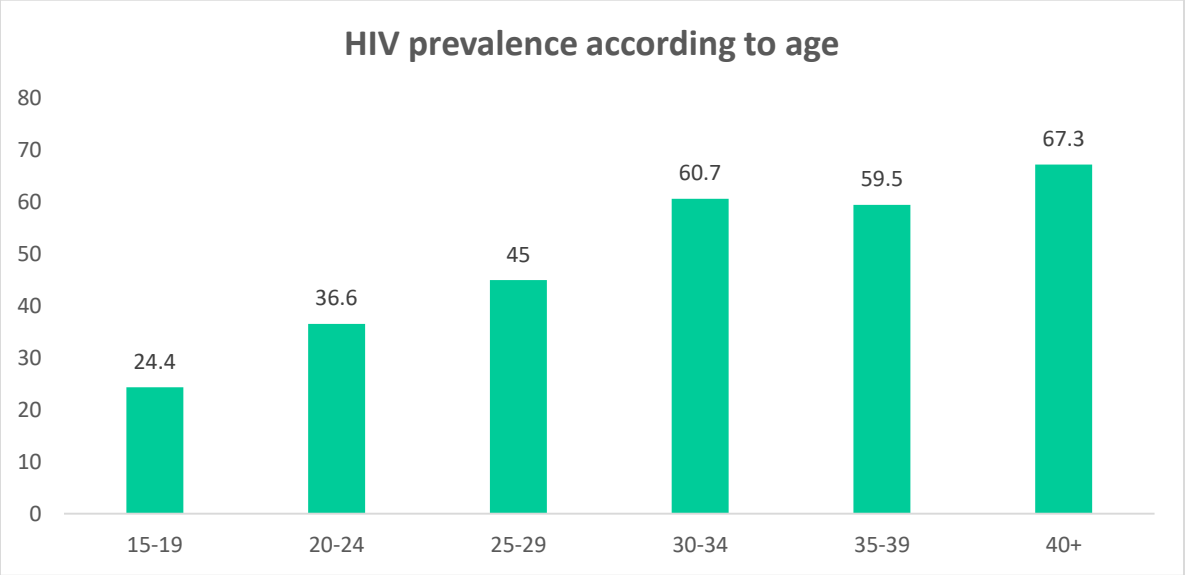
Figure 24: Map of FSWs HIV status per Hotspots selected in FSW2015 survey



4.7.1. HIV prevalence by socio-demographic characteristics

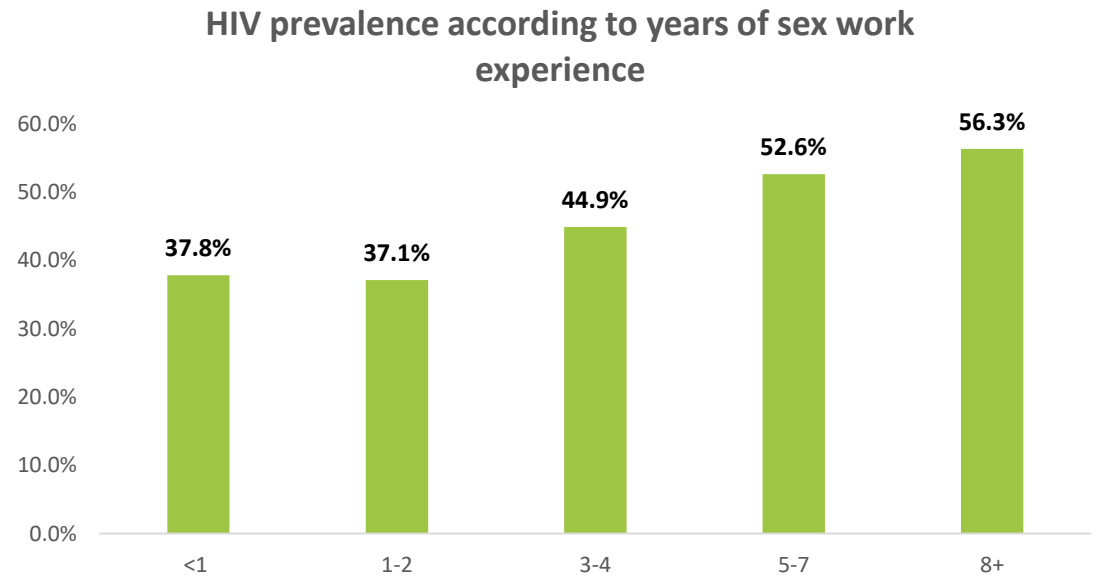
Based on the ELISA results, HIV prevalence among FSWs participating in the survey was 45.8%(CI: 42.4,49.2**)** HIV prevalence varied by socio-demographic characteristics with the exception of religion. HIV prevalence steadily increased with age. The prevalence was highest (67.3%, CI:53.3,78.8) among FSWs who were over the age of 40, and lowest (24.4%, CI:18.0,32.2) among younger FSWs in the 15-19 age-group.

Figure 25: **HIV prevalence among FSWs according to age**



HIV prevalence also increased with the amount of time a participant had been engaging in sex work. HIV prevalence among FSWs with less than one year of experience was 37.8% but 56.3% among FSWs with 8 or more years in sex work).

Figure 26: HIV prevalence among FSWs according to years of sex work experience



The prevalence of HIV was lower (41%) among participants who had never married compared to 54.1% who had married. Educational attainment was also associated with higher HIV prevalence. Prevalence was higher among participants with no formal education (57%)

compared to 33.7% with a secondary level of education. Participants who regularly worked in the street and venue had higher prevalence (49.7% and 45.7%) than FSWs working from home (35.3%).

Table 15: HIV prevalence by socio-demographic characteristics among participants, BSS Rwanda, 2015

	N	%[95%CI]
Overall	**1,967**	**45.8[42.4,49.2]**
North	388	35.1[29.1,41.6]
South	322	46.0[38.4,53.8]
East	642	37.7[30.9,44.9]
West	322	43.4[37.4,49.6]
Kigali-City	293	55.5[50.3,60.5]
Age-group		
15-19	198	24.4[18.0,32.2]
20-24	615	36.6[31.7,41.8]
25-29	533	45.0[39.6,50.4]
30-34	360	60.7[54.4,66.7]
35-39	159	59.5[51.3,67.1]
40+	102	67.3[53.3,78.8]
Years of experience		
<1	145	37.8[30.2,46.1]
1-2	591	37.1[32.5,42.0]
3-4	460	44.9[39.1,50.8]
5-7	361	52.6[45.4,59.6]
8+	396	52.6[45.4,59.6]
Education level		
No-formal education	350	57.3[50.2,64.1]
Primary	1,228	46.2[42.3,50.0]
Secondary/Higher	389	33.7[28.5,39.4]
Regular work place		
Street	760	49.7[44.7,54.8]
Home	361	35.3[28.8,42.4]

Venue	846	45.6[41.4,49.9]
Marital status		
Never married	1,257	41.0[36.7,45.5]
Ever married	710	54.1[49.5,58.6]
Religion		
Catholic	771	47.5[42.0,53.0]
Protestant	579	44.0[39.3,48.8]
Muslim	164	45.0[35.7,54.6]
Adventist	185	45.6[35.8,55.7]
Traditional/Other/Non-religion	268	44.8[37.9,52.0]

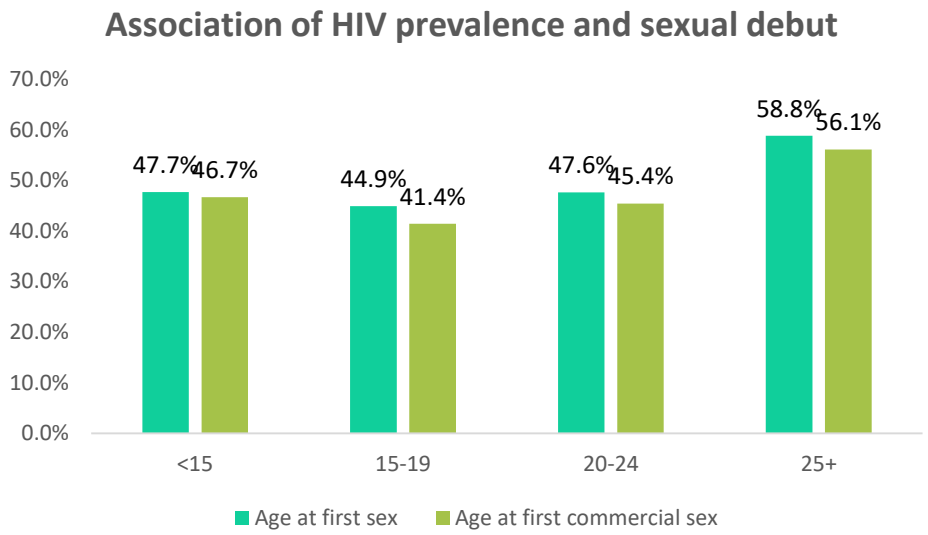
4.7.2. HIV Prevalence by Selected Risk Factors, BSS Rwanda, 2015

KEY FINDINGS

- Contrary to evidence provided on earlier sexual debut, HIV prevalence was higher (56.1%) among FSWs who reported having started their first sexual commercial intercourse after the age of 25, and lower for those before the age of 15 years (46.7%)
- HIV prevalence was higher among participants who took alcohol (46.9%) than those who did not (38.6%)
- HIV prevalence was higher among FSWs who had experienced sexual violence (52.8%) compared to 49.8% of those who had not been violated sexually

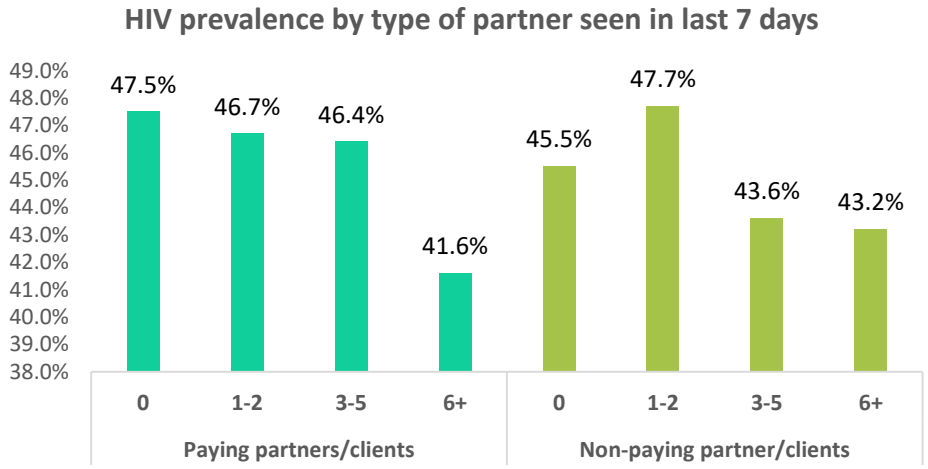
In this survey, risk factors such as age at first sexual commercial intercourse, alcohol intake, consistent condom use, and sexual and physical violence were associated with higher HIV prevalence among participants.

Figure 27: Association of HIV prevalence and sexual debut among FSWs, Rwanda, 2015



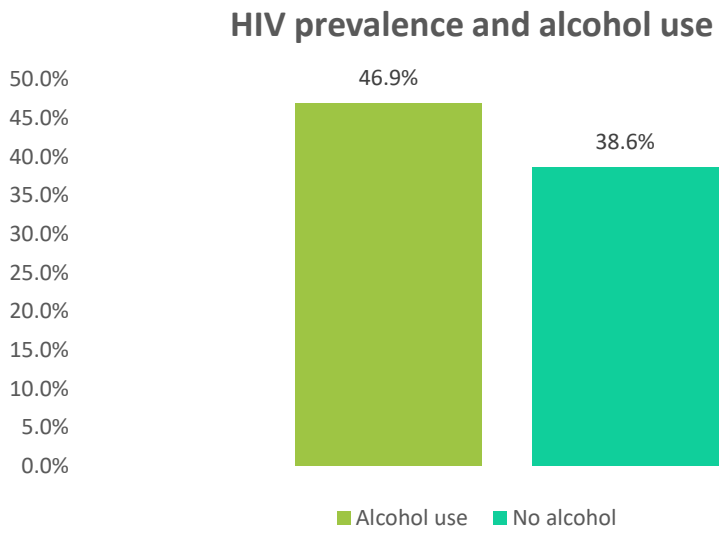
Interestingly, HIV prevalence was highest (56.1%) among participants who were 25 years old or older when they engaged in their first commercial sex act. The number of paying or non-paying partners however, was not associated with higher prevalence. FSWs in the survey who reported inconsistent condom use had higher prevalence (47.6%) compared to 44.2% of FSWs who consistently used condoms.

Figure 28: HIV prevalence by type of partners seen in last 7 days



Participants who consumed alcohol had higher HIV prevalence (46.9%) than those who were not under the influence of alcohol (38.6%).

Figure 29: HIV prevalence and alcohol use



HIV prevalence was also higher among participants who had experienced sexual violence (52.8%), and physical violence 48.9%.

Table 16: HIV prevalence by Sexual behavior

	N	%	P-Value
Age at first sexual intercourse			
<15	439	47.7	0.453
15-19	1323	44.9	
20-24	158	47.6	
25+	14	58.8	
Age at first commercial sex			
<15	130	46.7	0.003
15-19	880	41.4	
20-24	579	45.4	
25+	360	56.1	
Clients seen in the past 7 days (paying)			
0	102	47.5	0.647
1-2	496	46.7	
3-5	972	46.4	
6+	340	41.6	
Clients seen in the past 7 days (non-paying)			
0	1311	45.5	0.816
1-2	487	47.7	
3-5	138	43.6	
6+	26	43.2	

Had sex under the influence of alcohol			
No	300	38.6	0.001
Yes	1,65	46.9	
Used third party middle man (PIMP)			
No	1576	45.8	0.951
Yes	390	45.8	
Have you ever had anal sex with a client?			
No	1800	45.7	0.515
Yes	163	47.4	

Figure 30: HIV prevalence by condom use

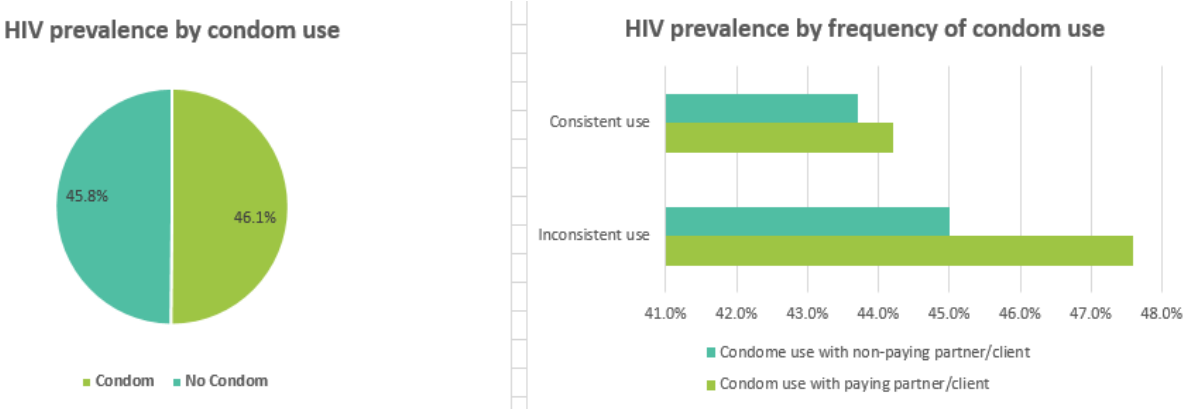
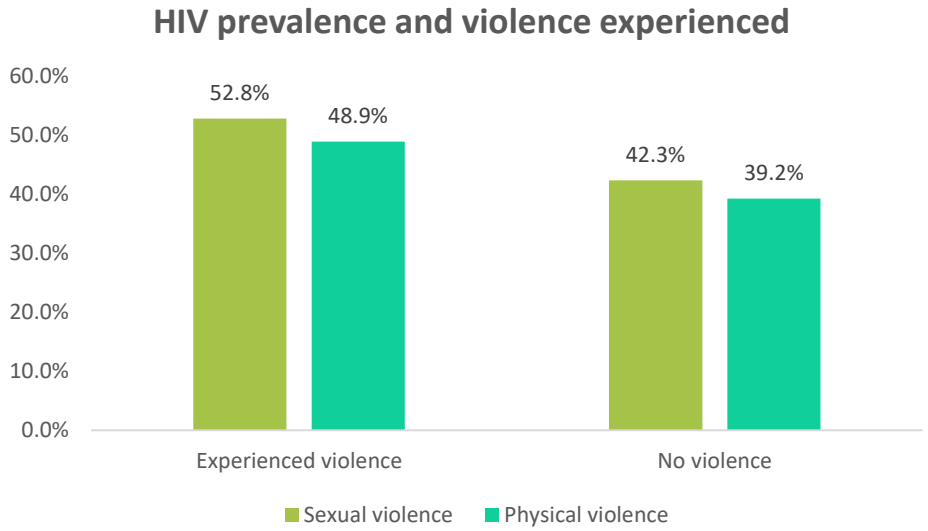


Figure 31: HIV prevalence by violence



4.8. Sexual Transmitted Infections (Self-reported)

KEY FINDINGS

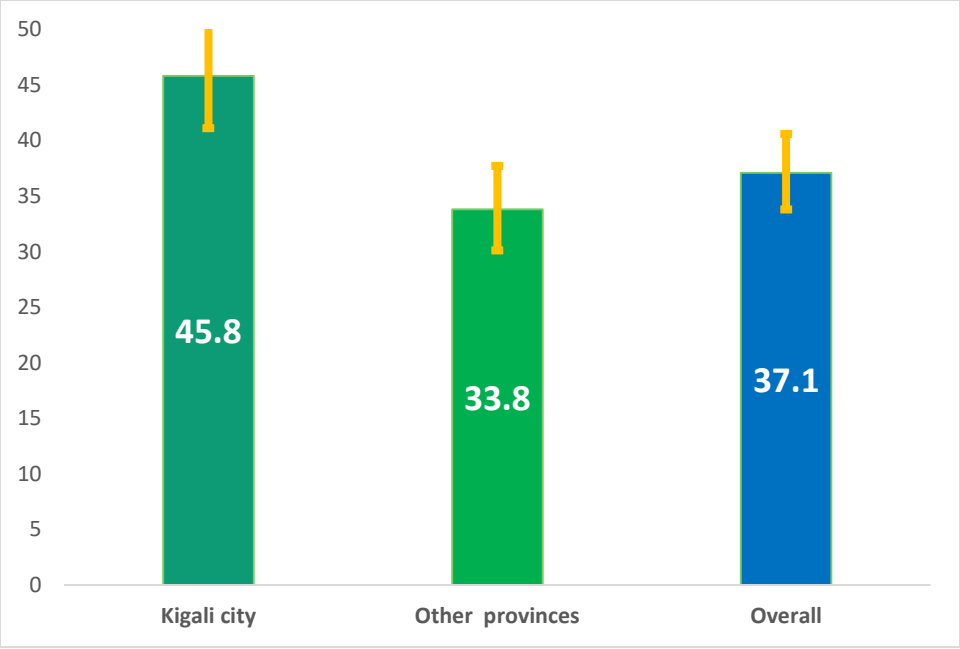
- Overall, 37.2% of participants had at least one STI symptom of STIs in the past month
- More respondents in Kigali City (45.8%) had at least one STI symptom compared to 33.8% in Other Provinces
- Since testing positive for HIV, 28.3% of FSWs compared to 21.1% had been diagnosed for STI and TB, since testing positive for HIV

The FSWs who participated in the survey assessed for STI symptoms they might have had in the last 30 days. The diagnosis of an STI and/or a TB since testing HIV positive was also assessed.

4.9.STIs Symptoms (Self-reported)

Overall, 37.1% of participants self-reported STIs symptoms in the last 12 months prior to the survey. Within the last 12 months, 45.8% of participants in Kigali City and 33.8% in Other Provinces reported experienced at least one STI symptom.

Figure 32: STI symptoms experienced by participants in the last 12 months



FSWs who were serologically positive were also assessed for a diagnosis of an STI and/or TB. In Kigali City, 29.5% of FSWs with an HIV positive status self-reported they had been diagnosed with a STI and 25.8% had been diagnosed with TB. In Other Provinces, STI was diagnosed in 27.8% of participants and 19% were diagnosed with TB.

Table 17:Symptoms of STIs among FSWs in Rwanda, 2015(self-reported)

	Kigali City		Other Provinces		Total	
	n	%	n	%	N	%
Experienced STI symptom						
No STI symptom	164	54.2	1,119	66.2	1,283	62.8
At least one STI symptom	129	45.8	562	33.8	691	37.2
STI symptom reported						
Wounds only	41	13.9	202	11.8	243	12.4
Genital discharge only	21	7.4	102	6.1	123	6.5
Wounds and genital discharge	67	24.6	258	15.8	325	18.3

4.10. Prevalence of STIs, Hepatitis B and Hepatitis C

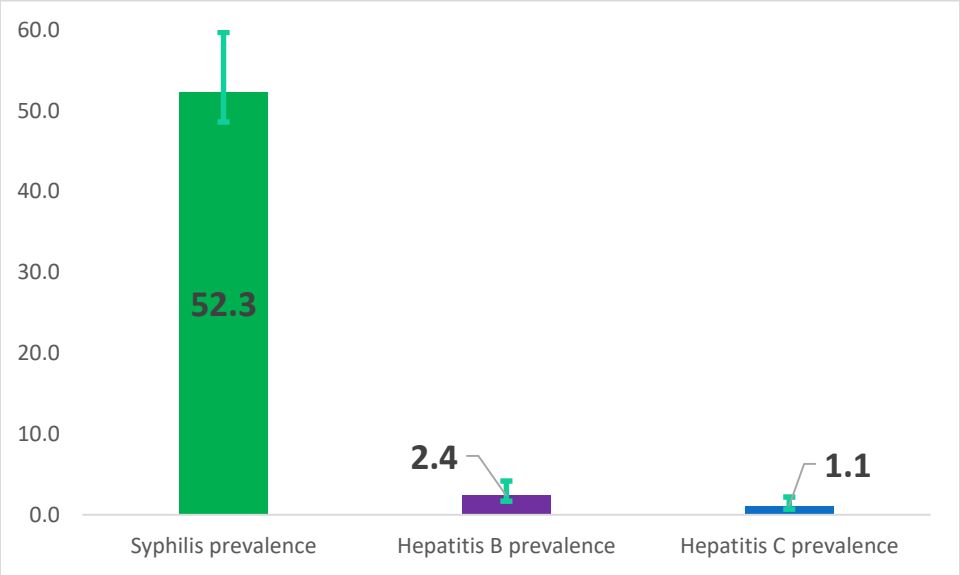
KEY FINDINGS

- Participants who were HIV positive, experienced significantly higher rates of syphilis than those who were negative
- Overall, 52.3% of FSWs tested positive for a syphilis, 2.4% had hepatitis B and 1.1% had Hepatitis C
- Prevalence of an STI was higher among participants in 25-29 and 30-34 age-categories, as educational level increased, and among FSWs who reported Street and venue as their regularly work place
- Half of FSWs who were HIV positive was also infected with Hepatitis C

During the survey, blood samples were collected from participants and analysed to determine the prevalence of the commonly identified STI-syphilis. RPR was used for syphilis testing. The prevalence of Hepatitis B and Hepatitis C were also assessed.

Over half, (52.3%) of participants were found to have syphilis, hepatitis B was determined for 2.4% of participants and 1.1% had hepatitis C.

Figure 33: Prevalence of STIs among participants



The table below shows that the proportion of syphilis infection varied according to socio-demographic characteristics. Participants from Southern (55.8%, CI 46.6,64.5) and Western (58.3%, CI 49.7,66.5) Provinces were more likely to be infected than those from Kigali City (49.0, CI: 42.9,55.1), Northern (45.2, CI: 37.3,53.3) and Eastern (48.9%, CI: 42.6,55.3) provinces. Also, the highest proportion of syphilis was observed among FSWs in the 25-29(54.9%, CI: 49.8,59.9) and 30-34 age-group (58.3%, CI: 52.8,63.5) while the lowest percentage was among those in 15-19 age group (43.3%, CI: 35.1,51.9). FSWs in the 20-24 age group had almost similar rates (47.6%, CI: 40.4,54.8) as those in the 40+ age group (51.2%, CI: 37.0,65.3). Interestingly, prevalence of an STI was found more often among the FSWs who had ever been married (56.7%, CI: 52.3,60.9), compared to those who never married (49.7%, CI: 45.3,54.1).

FSWs in the survey with 3 or more years of experience in sex work had the highest rates of syphilis. It was higher among FSWs with 3-4-year experience in sex work (51.5%), 5-7 years (56.0%), and 8+ years (52.9%) compared to those with <1 (43.8%) and 1-2 years (46.6%) of experience.

Educational attainment was associated with the prevalence of syphilis, and hepatitis B and C as well. Prevalence was highest among participants who had no education (69.7%), followed by

having at least a primary education (52.7%). 34.5% of participants with at least a secondary education had syphilis.

The highest prevalence of syphilis was found among FSWs who regularly working in the street (49.7%) and bars (45.7%). Prevalence was lower among FSWs who regularly worked from home (35.3%)

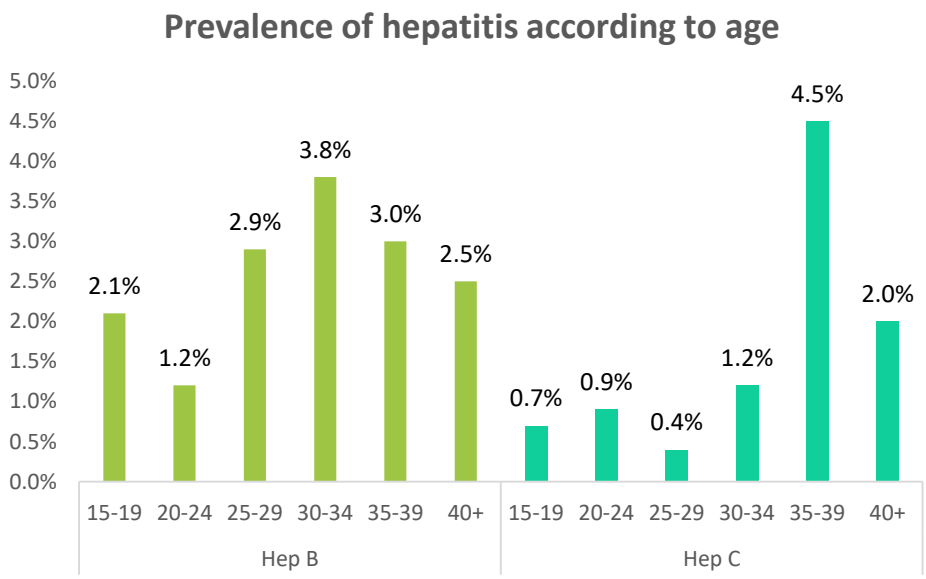
Table 18: Prevalence of Syphilis among FSW by sociodemographic characteristics

	N	%[95%CI]
Overall	**1,978**	**52.3[48.6,56.0]**
Province		
North	389	45.2[37.3,53.3]
South	326	55.8[46.6,64.5]
East	646	48.9[42.6,55.3]
West	324	58.3[49.7,66.5]
Kigali-City	293	49.0[42.9,55.1]
Age-group		
15-19	199	42.9[34.8,51.4]
20-24	618	47.6[40.4,54.8]
25-29	538	54.9[49.8,59.9]
30-34	360	58.5[52.3,64.4]
35-39	160	57.9[48.8,66.6]
40+	103	51.9[37.3,66.1]
Years of experience		
<1	146	45.4[35.3,55.9]
1-2	596	47.5[41.7,53.4]
3-4	461	54.4[48.3,60.4]
5-7	362	57.0[50.8,62.9]
8+	398	54.8[48.3,61.1]
Education level		
No-formal education	353	69.7[63.6,75.2]
Primary	1,231	52.7[48.7,56.]
Secondary/Higher	394	34.5[28.5,41.1]
Regular work place		
Street	767	56.6[51.3,61.7]
Home	362	45.0[37.8,52.4]
Venue	849	50.9[45.8,55.8]
Marital status		
Never married	1,263	49.7[45.3,54.1]

Ever married	715	56.7[52.3,60.9]
Religion		
Catholic	775	54.2[49.1,59.1]
Protestant	584	52.2[46.4,58.0]
Muslim	164	52.4[42.6,62.0]
Adventist	186	41.8[32.2,52.1]
Traditional/Other/Non-religion	269	53.3[45.0,61.4]

Hepatitis C was higher among FSWs in 30-34 age group while the lower prevalence among those in 20-24 age group. Regarding Hepatitis C, the prevalence was higher among FSWs aged between 35-39 years old while the similar prevalence was found among FSWs in 15-19, 20-24 and 30-34 age groups. Only 0.4% was observed among FSWs in age group of 25-29 years old.

Figure 34: Prevalence of hepatitis according to age



4.11. HIV Prevalence among other STIs

Various co-infections, comorbidities and other health conditions are common among PLHIV. Based on laboratory results of HIV, syphilis, and Hepatitis B and Hepatitis C, this survey determined 6 out of 10 FSWs in the survey were co-infected with both HIV and syphilis. This was the same for HIV and Hepatitis B. Most notably, half of FSWs who were HIV positive was also infected with Hepatitis C.

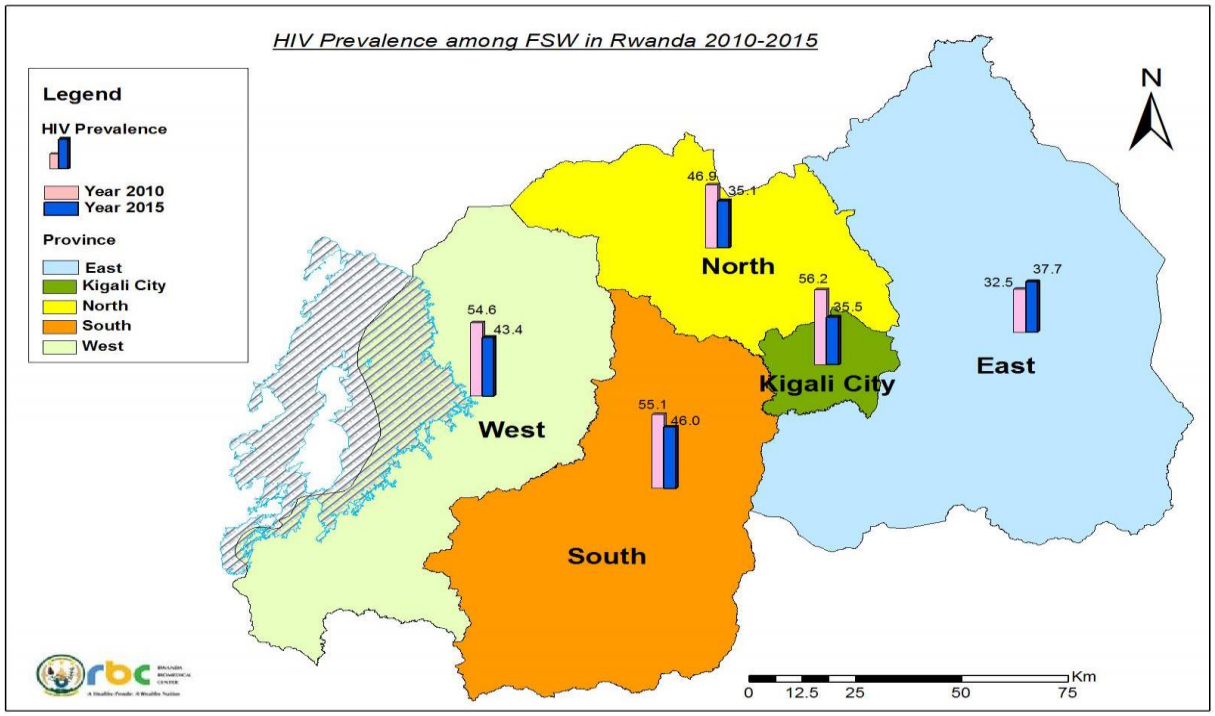
Table 19: Proportion of HIV among other STIs

	HIV-		HIV+		P-value
	n	%	n	%	
Syphilis					
Negative	681	63.9	290	32.2	<0.001
Positive	385	36.1	611	67.8	
Hepatitis B					
Negative	1048	98.3	870	96.7	0.003
Positive	18	1.7	30	3.3	
Hepatitis C					
Negative	1055	98.9	890	98.8	0.895
Positive	11	1.1	11	1.2	

4.12. Change in Key indicators

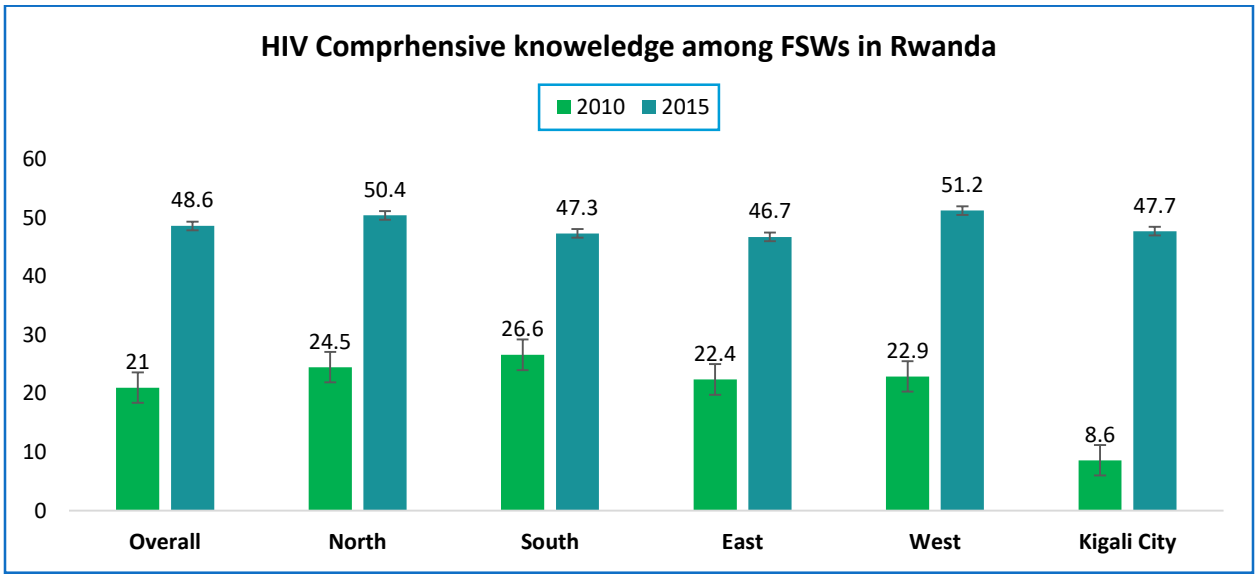
- Decline of HIV prevalence among FSWs between 2010 (50.8%) and 2015(45.8%)
- Increase of HIV comprehensive knowledge among FSWs from 21% in 2010 to 48.8% in 2015
- Decrease of positive attitudes towards PHLIV among FSWs from 93.8% in 2010 to 88.9% in 2015

Figure 35: HIV prevalence among FSWs in Rwanda



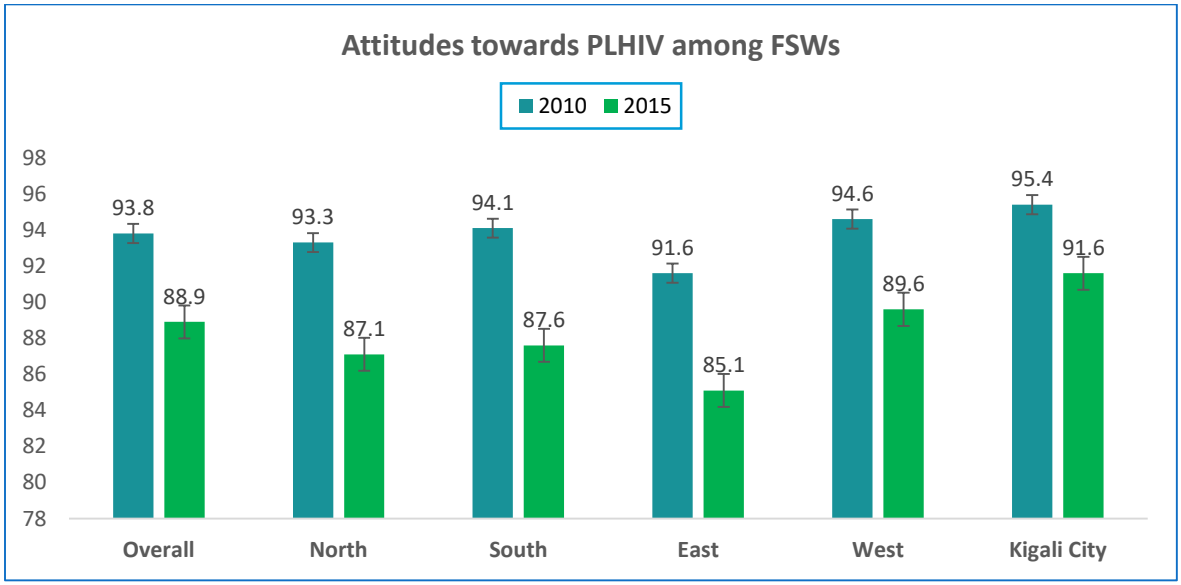
Overall, HIV prevalence among FSWs in Rwanda decreased from 50.8% in 2010 to 45.8% in 2015. This decline was observed for all provinces except Eastern Province where the HIV prevalence increased from 32.5% in 2010 to 37.7% in 2015.

Figure 36: HIV comprehensive knowledge among FSWs in Rwanda



Overall, in 2015 HIV comprehensive knowledge among FSWs has substantially increased to the 2010 BSS. The proportion of those who had HIV comprehensive knowledge increased from 21% in 2010 to 48.6% in 2015. This progress is also observed for all provinces but a considerable improvement was found in Kigali City where the proportion of FSWs who had HIV comprehensive knowledge increased from 8.6% in 2010 to 47.7% in 2015.

Figure 37: Attitudes towards PHLIV among FSWs in Rwanda, 2015



Unlike the previous indicators where the progress was observed between 2010 and 2015, the proportion of FSWs who had positive attitudes decreased from 93.8% in 2010 to 88.9% in 2015. This reduction was observed for all provinces.

4. CONCLUSION

5.1. Findings

In 2015, Rwanda Bio-Medical Center through HIV Division conducted the Combined Behavioral and Biological Surveillance Survey among FSWs aged 15 years and over. In the framework of this study, HIV testing, syphilis, hepatitis B and C were performed among FSWs who provided consent. Information was also collected on risk sexual behaviors, HIV and STI knowledge, violence and HIV testing (self-reported) as well as exposure to HIV prevention programs.

5.1.1. HIV Prevalence among FSWs

Consistent with other research on high HIV prevalence among KPs, the results from this survey showed that the prevalence of HIV and syphilis was higher among FSWs. We can appreciate existing prevention efforts that have reduced 5% of HIV infections among FSWs in Rwanda from 51% in 2010 to 45.8% in 2015. The HIV prevalence among FSWs in Rwanda is similar to that of the Republic of Benin from 1992 to 2012 (45.8%).[12]

In Rwanda, the HIV prevalence varied according to geographic location. The highest prevalence among FSWs in the survey was in Kigali City (55.5%) compared to 42% in other Provinces. HIV prevalence increased with age: the prevalence was significantly lower (24.6%) among FSWs in the survey in the age group of 15-19 compared to that found among FSWs aged 30 years and above. This case is consistent with 2011-2012 HIV prevalence rates among FSWs in urban areas in the Republic of Mozambique. Participants recruited for that survey were significantly higher among FSWs aged 25 and over as compared to FSWs aged 15-25 years (60.3% versus 14.5% in Maputo, 47.9% versus 14.5% in Beira, and 48.0% versus 8.8% in Nampula.)[13]

5.1.2. Factors associated with HIV prevalence among FSWs in Rwanda

Some risk factors were associated with high prevalence among the participants such as age at first commercial sexual intercourse, marital status, education level, number of years of experience in sex work, place of work, alcohol consumption as well as physical and sexual violence.

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[12] Papworth E Et al. Journal of the International AIDS Society 2013, 16 (suppl 3)18557, http:www.jiasociety.org/index.php/jias/article/view/18757|http://dx.doi.org/10.7884/Jias.16.4.18751, Epidemiological of HIV among Female Sex Workers, their clients, men who have sex with men and people who inject drugs in West and Central Africa

[13] Mozambique, the Integrated Biological and Behavioral Survey among Female Sex Workers, 2011-2012

FSWs who self-reported having started CSW at an advanced age had higher exposure to HIV infection compared to those who started this profession at younger age. This finding refutes ongoing literature and research which suggests that FSWs who start sexual activity at a young age are more exposed to HIV infection. Identifying new hotspots and partnering with health centers that provide adolescent sexual and reproductive health could provide opportunities to locate FSWs who are entering SW at a younger age.

Regarding marital status, HIV prevalence was high among the FSWs who had ever been married. In theory, marriage should protect against the spread of HIV infection because it is an institution that endorses and promotes monogamy. It is unclear if FSWs become infected before or during marriage, during cohabitation, or if the infection is transmitted by the husband or partners/clients. Some primary partners have married FSWs in an effort to support them in discontinuing SW. There is no evidence in Rwanda however, that marriage keeps the primary partner from continuing to seek services from other FSWs still active in the trade. What can prevention programs do to respond to this situation? Prevention programs may consider increasing advocacy efforts to improve education around HIV testing before marriage, couples testing (outside of ANC visits), monogamous sexual relationships, and use of condoms during high risk sex.

The research revealed that FSWs with no formal education were also exposed to HIV infection perhaps because they do not meet the qualification requirements of other occupations. Efforts should be increased to support FSWs in educational achievement, and finding alternative sources of income by learning a trade or developing skills that provide more economic stability and are sustainable. Advancing these efforts to reach the younger females and those newly entering SW could have significant impact on the prevalence of HIV among FSWs. Results from the survey revealed that participants who had engaged in SW for longer periods of time had increased risk of exposure to HIV and higher HIV and STI prevalence.

Workplace also contributes to the increase of HIV transmission. It is possible that the clients who seek FSWs in streets or bars are infected. It could also be the case that FSWs who seek clients in these areas are already infected. Prevention services and interventions among FSWs and their clients should target hotspots and keep up to date on new or changing locations.

Condom use at last sex was higher among FSWs but decreased for those who reported consistent condom use in the 30 days preceding the survey. It was found that the prevalence was higher among the FSWs who did not use condoms consistently in the last 30 days. The proportion decreased during sex with non-paying partners compared with paying partners. Programs should consider the significance of low condom use with non-paying partners/clients

and the potential implications of this on the general population. Furthermore, if comprehensive HIV knowledge is high, what is preventing FSWs from consistently condoms? Ensuring the availability of condoms (and lubricants) in health centers and within communities, and providing instruction for proper administration of the condom is one option. But it should also be noted that harmful beliefs regarding gender roles may also be a barrier to negotiating safe sex. Many participants, particularly those in Other Provinces, believe a man has the right to beat her if she argues with him or refuses to have sex with him.

5.1.2. HIV testing coverage among FSWs

In 2010, the number of FSWs who had been tested for HIV within a 12-month period was 89%. With increased focus on KPs including FSWs, testing rates should theoretically be increasing. However, this survey revealed a downward trend with 73.2% of FSWs in 2015 being tested in the past year. The higher proportion of HIV prevalence among FSWs is largely explained by the increased exposure to HIV infection through SW. In order to identify new cases of HIV and begin to curb the incidence of HIV, knowing one's HIV status is imperative. According to 94.9% respondents in the survey, HIV testing was available in their village. Further exploration into the reasons for this decrease in testing within the past 12 months is critical to prevention planning. Increased efforts to reach clients and partners of FSWs should also be made for testing in order to identify new positives.

5.1.3. Gender Based Violence among FSWs (GBV)

FSWs in Rwanda and in other countries commonly experience physical and sexual violence at alarming rates. Yet results from research in Mozambique found lower levels of violence among FSWs compared to that found in Rwanda. Approximately 68% and more than 30% of FSWs in Rwanda were subjected to physical and sexual violence in 2015. This percentage is higher compared with the violence in general population where in 2015, twenty-two percent of women age 15-49 report having experienced sexual violence at least once in their lifetime while in Mozambique the proportion of FSWs who experienced physical and sexual violence were less than 20% in 2012..[14]

Best practices from other countries should be incorporated into existing GBV programs in Rwanda.

Not surprisingly, alcohol consumption with paying partners/clients was found to be a high risk factors leading to HIV infection among participants. Often, FSWs drink alcohol

[14] RWANDA, Demographic and Health Survey, 2014-2015

to manage the stress of engaging in SW. High rates of alcohol use can lead to high risk taking behaviors and for some, depression and alcohol dependency. FSWs regularly working in bars have more access to alcohol than those working in the street or from home? There is limited available information on programming around substance abuse and FSWs in Rwanda.

Included in the 2015 BSS, the collection of biological data was added to estimate the HIV and STI prevalence among FSWs in Rwanda. The results obtained found disturbingly high prevalence of syphilis. More than half of FSWs in this survey tested positive for syphilis. High HIV prevalence has been associated with syphilis and other STIs. In this survey, HIV prevalence was also higher among FSWs who had syphilis (67.8%) compared to 32.2% of those who did not. [15]The prevalence of hepatitis B and C was low compared to HIV prevalence and syphilis. The proportion of those who had hepatitis B and C varied between 1% and 2%, with a relatively small increase seen for hepatitis C among FSWs aged 35-39 years.

5.1.4. Syphilis co-infection

The co-infection of syphilis and HIV may be explained in part by inconsistent and incorrect use of condoms among FSWs with their paying and non-paying partners/clients. Many FSWs may not have received adequate STI information and are not fully aware of STIs symptoms. This lack of knowledge can delay the treatment of symptoms, thus accelerating transmissions of STIs from FSW to partner/client (and vice versa), and even to the general public. Inadequate health insurance coverage among FSWs may be a barrier to seeking health services; especially the treatment for STI symptoms that can put them at further risk of acquiring HIV.

In some categories of FSWs where HIV prevalence was higher, there was the same for STIs prevalence. For example, STIs prevalence was high among FSWs aged 25-34 compared to STIs prevalence among FSWs aged 15-19 years old, the same applies for HIV prevalence. STIs prevention, care and treatment should be reinforced as well as HIV infection not forgetting Hepatitis given that the number of people who suffer from it is high compared to the previous years.

[15] Jay G. Silverman, * Michele R. Decker, *Jhumka Gupta, * Ashwin Dharmadhikari,†
George R. Seage, III, * and Anita Raj‡, Syphillis and Hepatitis B Co-infection among HIV-Infected, Sex-Trafficked Women and Girls, Nepal, 2008

5.1.5. ART Cascade among FSWs in Rwanda

Antiretroviral therapy (ART) is the standard treatment for HIV that consists of a combination of at least three drugs. ART, when taken correctly and consistently, has the potential to reduce mortality and morbidity rates among individuals living with HIV, and to improve their quality of life.

The 2015 FSW BSS collected information on the continuum of care for FSWs, but data on viral load suppression was not available at the time of publication. Of the 1,967 FSWs who participated in the survey and received HIV testing, 45.8% (901) were diagnosed as HIV positive and enrolled into care at a health facility. According to the information provided by FSWs who participated in the survey, 423 self-reported they had previously tested for HIV and knew their HIV status. 385 of those who knew their HIV status were enrolled into treatment and 239 were on ART. The proportion of FSWs (78.4%) in this study who were previously tested HIV+ and on ART is consistent with those on ART from high income countries (80%; 95% CI: 48%–94%, I2 = 70%, 2 studies).

In order to eliminate HIV/AIDS by the year 2030, the World Health Organization (WHO) recommends expanding enrolment onto ART for all people living with HIV (PLHIV). The Government of Rwanda, through the MOH, will adopt the "Treat all" approach to enroll people who are living with HIV onto ART, regardless of CD4 count.

Prior to the official adoption of "Treat all", the approach has been implemented among FSWs by a small number of health centers. In order to curb the higher transmission rates of HIV found with FSWs, additional national strategies should be considered such as the availability of pre-exposure prophylaxis (PrEP) for high risk populations.

5.2. Study limitations

Within the hotspots selected for recruitment, teams were able to reach only a portion of the FSWs in Rwanda, such as those regularly working in streets and venues. FSWs who worked from home were not easily reached and locating younger FSWs or those new to SW also proved challenging.

This is a primarily quantitative survey. Qualitative information was not collected to further inform the quantitative analysis.

Viral load results for participants were not available at the time of publication so the entire continuum of care for FSWs could not be assessed.

5.3. RECOMMANDATIONS

- Strengthen existing community-based and facility-based programs through aggressive outreach such as active case-finding, and broaden the scope of programs to reach FSWs and partners and clients of FSWs

- Accelerate the sensitization on condom use and increase the number of condom distributed in communities through implementing partners and in health centers in hotspot areas

- Bolster efforts to reach younger FSWs and those newly entering SW with HIV prevention, education, and testing, and increase enrolment of older FSWs onto ART

- Increase support, care and health services to FSWs experiencing GBV by promoting collaboration between police and health centers, and educate communities on traditional gender roles and beliefs that may perpetuate violence among women (and men)

- Create alternative sources of income through income-generating projects and learning opportunities that will aid FSWs in developing professional skills and competencies

- Conduct qualitative studies to further explain behavioral factors associated with HIV infection

- Develop a government-led strategy to update and improve existing routine data capture and frameworks for monitoring and evaluation

- Improve collaboration between health centers and communities to increase HIV testing and linkage to ART

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