A Bio-Behavioral HIV Survey of Female Sex Workers in South Sudan.

THE EAGLE SURVEY

Final Report

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Government of the Republic of South Sudan, Ministry of Health

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Foreword

The Republic of South Sudan got its Independence, after decades of civil war that left over 2 million dead and utter destruction of the basic infrastructure – especially health care infrastructure. As development agenda is being undertaken by all arms of the government and with the support of partners, HIV response remains key area particularly for the key populations that all stakeholders need to address alongside other basic and humanitarian needs. This is well highlighted and prioritized in the National HIV/AIDS Strategic plan 2013-2017.

Comprehensive studies to estimate the prevalence and dynamics of HIV epidemic among key population especially female sex workers (FSW) have not been done before in South Sudan and this study provides the opportunity for the Ministry of Health (MOH) to understand the HIV prevalence among this population and to better plan for the interventions that best address the HIV epidemic in his population.

The MOH of South Sudan is committed to continuously undertake this kind of studies in other locations in South Sudan, in order to understand the HIV epidemic and follow trends among this population.

The MOH is also working hard with South Sudan AIDS Commission (SSAC) and HIV Partners to conduct population based surveys that will give the true picture of the epidemic nationwide and among the different age groups.

This survey results therefore can be quoted by all institutions, noting the limitations that were encountered in the course of the study.

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Under Secretary
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List of acronyms and abbreviations

ART	Antiretroviral Therapy
BBS	Bio-behavioral survey
CDC	Centers for Disease Control and Prevention (United States)
NPHL	National Public Health Laboratory
FA	Formative assessment
FSW	Female sex worker(s)
FWA	Federal Wide Assurance
HIV	Human Immunodeficiency Virus
HTC	HIV testing and counseling
IHI	IntraHealth International
MOH	Ministry of Health
NGO	Non-governmental organization
PEPFAR	President's Emergency Plan for AIDS Relief (United States)
RDS	Respondent-driven sampling
SSP	South Sudanese Pounds
STI	Sexually Transmitted Infection(s)
UPC	Unique participant code
VL	Viral load
WHO	World Health Organization

Operational definitions:

Non injection drugs: Any drugs that may be used without injecting. Such drugs may be smoked, inhaled or snorted. These include drugs like marijuana, crystal meth, cocaine, crack, ecstasy, heroin, or opium.

Social cohesion: Social life and relationships of FSW with other women and girls who sell and or exchange sex.

Main sex partner: Someone the FSW is committed to, for example spouse, live-in sex partner, or boyfriend and she doesn't receive money, gifts, goods, or services from him in exchange for sex.

Casual male partner: A man FSW has sex with but does not feel committed to. In addition, there is no payment or exchange of goods and services for sex with these partners.

Male clients: Includes men who paid money, provided goods or services to FSW in exchange for sex.

A regular client: Someone the FSW has had sex with on more than one occasion.

A one-time client: Someone the FSW has had sex with only once.

A peer educator: A fellow FSW who has received HIV related training and support in HIV education.

An outreach worker: Someone employed by an organization, government or private agency, which might provide HIV services to FSW.

Executive summary

Background and methods

The Bio-behavioral Surveys (BBS) of Human Immunodeficiency Virus (HIV) infection for Female Sex Workers (FSW) in South Sudan was conducted in Juba between November 16th, 2015 and March 15th, 2016 using the Respondent Driven Sampling (RDS) methodology. In addition the population size of FSW in Juba was estimated using the multiplier and the capture - recapture methods. The goal of the BBS was to collect representative biological and behavioral information about FSW in Juba to be used for planning HIV and STI prevention, care and treatment services.

The BBS was conducted in two phases; the first was unique object distribution for population size estimation. The second phase was a cross-sectional RDS survey that recruited FSW in Juba. Data was collected using structured questionnaire programmed onto computer tablets. A biological component consisted of HIV and syphilis testing. The survey protocol was approved by the MOH ethical review committee and CDC Atlanta. Excel, STATA and SAS software were used for data cleaning and generation of the sample estimates while RDS Analyst software was used to generate the population adjusted estimates which are presented in this report.

Results

A total of 850 FSW completed the screening process for the survey. 835 FSW consented to and provided specimens for HIV and syphilis testing.

The median age was 29 years with approximately 4% being aged 19 years and below. Forty percent of FSW are from Uganda, 34% from South Sudan, 22% from Democratic Republic of Congo (DRC) and only 4% from Kenya. Many FSW (50%) had not completed primary school, and two-thirds could neither read nor write in any language. More than half (53%) were divorced or separated. The main source of income for nearly all of the FSW (97%) was exchanging sex for money or goods. More than half of FSW (56%) lived in Juba between one and four years, with the median length of stay being 3 years. Ninety percent had at least one child living with them for whom they were responsible.

The population size of FSW in Juba through the multiplier method yielded an estimate of 5,800 (95% CI: 4,927-6,673) while the capture-recapture method yielded a similar result of 5,306 (95% CI: 4,673-5,939).

Thirty-nine percent of FSW screened positive for depression. One-third of FSW (33%) had scores indicative of alcohol abuse. Fifteen percent had ever used a non-prescription drug at some point in their lives.

Many FSW regularly relied on the support of other FSW on issues related to their occupation and their livelihood. Seventy percent of them counted on other FSW to accompany them to the doctor and to help deal with violent or difficult clients.

The median age at first vaginal or anal sex with a male sex partner was 15 years with 78% of them being younger than 18 years. A sizeable number (82%) began exchanging sex for money or goods when they were 20 years of age or older. Financial needs of family motivated the majority of FSW (83%) in making their decision to start sex work. Eighty percent of FSW typically met or found their clients at a bar; club or lodge. Most (72%) FSW found clients on their own, 36% received referrals from hotel managers, 26% from boda boda riders, and 22% from non-sex worker friends.

Forty-three percent of women had at least one main (regular) male sex partner during the past 6 months. Fifty-four percent of FSW had at least one casual (non-paying partner) sex partner (median: 2) with 75% of FSW reported using a condom the last time they had sex with the casual partner. In the last two weeks, FSW had a median of 2 regular cash clients and 3 one-time cash clients. Forty-seven percent always used a condom with cash clients over the past six months.

On condom use, 20% and 56% of FSW did not know where male and female condoms could be obtained respectively. Fifty four percent could not get condoms when needed with more than half (53%) indicating cost as biggest barrier. Conversely, only 18% used lubricant during anal or vaginal sex in the last 6 months, of which nearly half (48%) used some form of water-based lubricant, 16% saliva and 14% used vaseline. Nearly half (44%) of FSW had a condom break during vaginal or anal sex in the last 6 months of which, two-thirds did not use a lubricant at the time.

Nearly two thirds (66.4%) of women were ashamed to sell or exchange sex and 51.4% would be ashamed to disclose it to a health worker in their community. Most FSW (55.7%) did not disclose to anyone about their sex work and only 17.4% had disclosed to health care. Approximately one-quarter had been treated poorly in the past year because of their involvement in sex work. Overall, 17% of FSW had ever been arrested due to being a sex worker of which, 66% had been arrested within the past 12 months.

Only 13% of FSW demonstrated a comprehensive knowledge of HIV.

Most FSW in Juba (86%) have been pregnant, with a median number of 2 pregnancies per person with 79% attending an antenatal care (ANC) clinic during their last pregnancy. A majority (85%) of FSW were not currently trying to get pregnant, yet two-thirds were not using any family planning method.

Over one-third (38%) of FSW have ever received HIV education through peer education or outreach. Most women received condoms (71%) and HIV testing (67%) from a health educator.

Almost half (49%) of these services were affiliated with IntraHealth International, while 37% of participants did not know which organization provided the services.

Over three-quarters of FSW (78.7 %) had had an HIV test previously with 31% reporting being HIV positive. Of the HIV positive, 40% did not disclose their status to anyone and 40% disclosed to a family member. Eighty-two percent of the HIV positives had received HIV care and majority (91%) were on cotrimoxazole. HIV positive FSW not in care reported the reasons being not knowing where to get care and far distances to the facility. Three-quarters of the HIV positives had ever taken ART with nearly all (97%) still on treatment.

Nearly half of the FSW reported having either abnormal discharge from their vagina (28%) and/or an ulcer/sore near their vagina (21%) in the last 12 month. Over half (56%) of those who sought care for their symptoms were formally diagnosed with STI and 93% got treatment for the STI.

Twenty-two percent of the FSW had ever experienced physical violence with more than half (59%) not seeking professional help after experiencing violence. About 20% of women had experienced sexual violence with stranger (32%) being the most common perpetrator. About 34% of women had been abused by a client in the past six months with some forced to have sex, and 13% threatened by a client in the past six months.

The HIV prevalence among the FSW in Juba was estimated at 38%, (95% CI; 33.6, 42.2) and 37% of those with HIV were unaware of their status. Sixty-five percent of HIV-infected FSW had a CD4 count below 500 cells/mm^3. Twelve percent of FSW had ever been infected with syphilis and 7.3% had active syphilis at the time of the survey.

Recommendations

Overall, HIV prevalence among FSW in Juba is high (38%) and the MOH with partners should urgently prioritize HIV interventions for these populations with focus on achieving the 90, 90, 90 UNAIDs targets. The MOH and the HIV services delivery and program implementing partners, particularly those working with the FSW, should expand HIV testing through targeted outreaches/mobile HIV testing services to hot spots so that FSW and clients can access testing and integrate condom and lubricant promotion and distribution and behavior change messages particularly in Custom, Jebel and other areas where FSW operate. Peer educators should educate FSW and improve their comprehensive knowledge on HIV, build condom use negotiation skills with all types of clients especially one time and casual clients to prevent the spread of HIV and other STI. Strengthen linkage of all HIV positive FSW to friendly clinics for ART initiation, adopt test and treat policy for FSW, conduct TB screening, viral load testing and adequate follow up. Work with health facility management to provide a package of friendly HIV treatment and care services integrated with STI screening and treatment, Family Planning and Gender Based Violence (GBV) services.

1.0 Introduction

1.1 Overview

Bio-behavioral Survey (BBS) of Human Immunodeficiency Virus (HIV) infection are used to determine HIV prevalence and associated risk factors among key populations and other groups. The BBS for Female Sex Workers (FSW) in South Sudan-Eagle Survey was conducted in Juba between November 2015 and March 2016. Prior to the BBS, a formative assessment was conducted in September/October 2014 in order to inform the methodology and the logistics for the BBS. RDS was identified as the most suitable method for sampling FSW in Juba. In addition, the population size of FSW in Juba was estimated using the multiplier method and the capture and recapture method.

This report provides a comprehensive overview of the quantitative results of the Eagle Survey and is aimed at policy and program developers at the MOH, South Sudan AIDS Commission (SSAC), HIV services providers, researchers, civil society and community organizations, along with other individuals and groups implementing HIV services especially for the key populations in South Sudan and the region.

1.2 Background

The South Sudan HIV epidemic is characterized as a generalized low-level epidemic, with an estimated HIV prevalence of 2.6% (CI: 2.3-2.8%) in the ANC sentinel surveillance survey of 2012 (Ministry of Health 2012). The epidemic is geographically concentrated in the Greater Equatoria states of Western Equatoria, Central Equatoria and Eastern Equatoria with an estimated HIV prevalence of 6.8%, 2.6% and 3.4% respectively (Ministry of Health 2012). There are no available data on HIV incidence in South Sudan.

Key populations are at higher risk of HIV infection. Female sex workers have been identified as one of the key populations with higher risk of HIV infection in South Sudan due to their increased number of sex partners and engagement in HIV risky behaviours (USAID, 2011). As a hard-to-reach population with limited access to health and legal services, FSW are especially vulnerable to the transmission of HIV and other STI. In addition to multiple partners, including clients and non-clients, their low condom use poses a greater risk for HIV infection.

The few recent studies that have been conducted in South Sudan among the FSW were qualitative in nature (USAID 2011; Groenendiijk and Veldwijk, 2011; South Sudan AIDS Commission and UNAIDS, 2012). No study has comprehensively documented HIV prevalence among FSW and only a few population estimates of FSW have been done in South Sudan. Some of the qualitative studies documented lack of condom use among FSW, inconsistent condom use, higher payment from clients for unprotected sex, and gender-based violence as factors that increase vulnerability and risk for HIV among FSW.

The recently conducted FSW formative assessment in Juba and Yambio determined that most FSW were from the neighboring countries (62%). South Sudanese FSW (34%) were younger and newer to selling sex than those from the foreign countries. Most sex workers in Juba are lodge-based but they can also be found on a daily basis selling sex in larger hotels and bars during the day or at night. Friday, Saturday and Sunday are the busiest days of the week. Generally, soldiers, government officials, businessmen and drivers form the bulk of their clients, although employees of Non-Governmental Organizations (NGOs) and United Nations (UN) agencies have also been noted (MOH, 2014).

FSW in South Sudan reported having little access to HIV services. FSW have reported being reluctant to seek services due to provider mistreatment. Many HIV-positive foreign FSW reported accessing testing and treatment in other countries due to perceived lack of integrity and accuracy of the South Sudan testing process, fear of imprisonment if found to be HIV-positive, being refused services at in-country testing facilities, or being turned away from the treatment facilities (USAID, 2011, MOH 2014).

The South Sudan National HIV/AIDS Strategic plan (NSP) 2013-2017 prioritizes interventions for key populations, especially FSW. It also prioritizes the implementation of the BBS for FSW in order to collect quality information to inform the key interventions among this population.

The general lack of quantitative information about HIV prevalence and related factors as well as limited data on population size estimates of FSW in South Sudan has hampered the planning and provision of FSW HIV interventions. Therefore, the FSW Eagle Survey was planned in order to provide quality quantitative data which will guide the MOH and its partners in their efforts to provide HIV services for FSW and combat the HIV epidemic in South Sudan.

2.0 Goal and objectives:

2.1 Goal

The goal of the BBS was to collect representative biological and behavioral information about FSW in Juba, South Sudan to be used for planning HIV prevention, care, treatment, and other STI treatment services targeting them.

2.2 Objectives

The following were the objectives of the BBS in Juba.

1. To estimate the prevalence of HIV and syphilis among FSW.
2. To determine access to and uptake of HIV prevention, care and treatment services among FSW.
3. To assess HIV-related knowledge, attitude and practices among FSW.
4. To estimate the FSW population size.

3.0 Methodology

The Juba BBS was in two phases. The first phase was the unique object distribution done approximately five weeks before the start of the survey. The second phase was a cross-sectional respondent-driven sampling (RDS) survey that recruited FSW in Juba. The RDS survey was conducted between 16 November 2015 and 15 March 2016. Data was collected through a structured questionnaire administered by trained interviewers using programmed computer tablets. A biological component was included which consisted of HIV and syphilis testing. Survey administration, blood collection, counseling and testing was conducted confidentially in private rooms in a secure compound.

3.1 Study site

The study site was identified in collaboration with the MOH and the FSW peer educators. The site was a secure compound in Juba and was centrally located and easily accessible to the FSW. The site had 24 hour security and access to the site was only granted to the study team and participants.

3.2 Study population

The study population consisted of all FSW in Juba, South Sudan who met the following criteria:

- Was aged 15 years or older[1]
- Received money, goods, or services in exchange for sex in the past six months
- Resided, worked or socialized in Juba for at least the last one month
- Was able to communicate in English, Juba-Arabic, or Swahili
- Was able to verbally consent to the survey administration and/or HIV/syphilis testing
- Was in possession of a valid peer recruitment coupon

Any participant who did not meet any of the above criteria was excluded from the study.

3.3 Sampling and recruitment

The survey employed the RDS method which is a method of chain referral sampling where participants are recruited by each other. RDS is recommended for hard-to-reach and hidden populations. As typified in the RDS method, recruitment began with seeds purposely selected by study investigators. The four initial seeds were selected based on age, neighborhood, nationality, and how influential they were. Five additional seeds were added in the course of implementation in order to reach underrepresented populations, including South Sudanese and Congolese. In total nine seeds were used for this study. After participating in the study, seeds were given three coupons each to recruit their peers. The peers then reported to the study site with the coupon and were screened for eligibility. Eligible peers were enrolled in the study after

[1] *We requested a waiver of parental permission under conditions 45 CFR 46.116 (d) given the local context. This was granted by the South Sudan MOH Ethical review board.*

providing informed consent. After participating in the survey, these individuals were in turn given three coupons to give to their peers. This process resulted in 17 “waves” to meet the required sample size. Most of the participants were recruited by seed two. Participants were given 60 South Sudanese Pounds (SSP) as reimbursement for their time and transportation (primary incentive). Each subsequent respondent was provided an additional reimbursement when their peers enrolled and presented a coupon linked to the seed for a maximum of 65 SSP (secondary incentive).

3.4 Sample size

Given that the prevalence of HIV among the FSW was not known, prevention program data was used to inform the sample size. Program data indicated that HIV positivity among FSW in Juba was 39% with lower rates of 18% in Yei and Nimule. Data from Kampala and Nairobi also showed FSW prevalence of between 30% and 35%. The prevalence of HIV among the FSW was assumed to be between 20-40% and design effect of two was used. The sample size that would allow measuring a reasonable difference in HIV prevalence between two RDS surveys based on various HIV estimates was first calculated and yielded 600 participants. However an estimate of HIV prevalence of 25%, incidence at 20%, and 50% drop out (censoring) was decided and a sample size of 910 participants was calculated.

3.5 Study design and procedures

3.5.1 Recruitment

At the start of the RDS survey, after four seeds were identified, the seeds were invited to the study site to be enrolled into the study and complete the entire process; each eventually received three coupons for subsequent peer recruitment. The peers who reported to the study site for the first visit with a valid coupon were screened by the Coupon Manager for eligibility using the short participant screening form that was uploaded on the tablet computers. Upon confirmation of eligibility, informed consent process was conducted and the participant verbally consented to participate in the survey. The participants were interviewed in a private room at the study site.

3.5.2 Interviews and mapping

A structured questionnaire was administered by the interviewers to FSW during the study visit. The questionnaires included questions on sociodemographic (age, education, religion, marital status, residence, country of origin, ethnicity/tribe for the South Sudanese participants only), social cohesion, HIV/AIDS knowledge, sexual behaviors, desire for, access to, and uptake of HIV and STI services (including accessing care and treatment for those who were known to be HIV-positive), alcohol use, and mental health. The questionnaires were translated into Juba Arabic and Kiswahili and back-translated to verify the translations. The questionnaires were pre-tested

before implementation in the field to ensure that language, cultural and peer norms were considered.

The questionnaires were programmed onto a computer tablet and administered as computer-assisted personal interviews (CAPI) in English, Juba Arabic or Swahili depending on the language the participant was well conversant with. The interviewer read each survey question and each answer choice aloud (where applicable), the respondent answered, and the interviewer marked the response directly into the computer. The interviews during the RDS phase took on average approximately 60 minutes to complete. Interviewers also asked participants to provide information about where they sell or exchange sex most of the time. Using an offline digital map of Juba city, survey staff "pinned" locations and recorded key location information. No private locations (i.e., a private home) were "pinned" or recorded, and no personal information was collected. This provided the geographic (mapping) information on the distribution of sex work locations and high-risk behaviors.

3.5.3 HIV and syphilis counseling and testing

Upon completion of the interview the participants who consented to testing were taken by a qualified nurse through the standard pretest counselling and standard HIV rapid test based on the national MOH testing algorithm. Whole blood was collected in two EDTA-capillary tubes using a finger-stick procedure by a trained counselor. A three-step serial HIV testing algorithm was used in which Determine™ (Alere, MA, USA) was the screening test. If the Determine™ test was non-reactive, the HIV testing stopped and the result was recorded as HIV negative. However, if the Determine™ test was reactive, a Uni-Gold™ (Trinity Biotech, Ireland) test was used to confirm the initial result. If the Uni-Gold™ test was reactive, then the result was recorded as HIV positive. If the Uni-Gold™ test was non-reactive, the test was repeated in parallel with Determine and Uni-Gold. If the results were resolved in concordance i.e. both Determine and Uni-gold were reactive or both Determine and Uni-gold were non-reactive, they were reported as HIV positive or HIV negative respectively. If the results remained discrepant, the specimen was further tested using a third assay, SD Bioline. If the third assay was non-reactive, the test result was considered negative and reported as HIV negative. If the third assay was reactive, the test result was reported as HIV-inconclusive, and the participant was asked to come back for repeat testing two weeks later.

Syphilis testing was also conducted using the SD Bioline syphilis 3.0 rapid test followed by Rapid Plasma Reagin (RPR) test. Any participant that tested syphilis positive on SD Bioline was offered a single dose of Benzathine penicillin at the site. Additional confirmatory RPR testing was conducted on all the SD Bioline positive participants. They were also screened for other STI using the syndromic approach which relies on reported STI symptoms and observed signs such as vaginal discharge and genital ulcers and thereafter offered treatment if they had any of the

syndromes. Posttest counselling was provided to all participants. Participants who were HIV positive had CD4 testing performed and were offered referral for care and treatment to two main hospitals- Juba Teaching and Juba Military hospitals. All participants received information on family planning, HIV prevention and risk reduction interventions at the study site. They were informed of the LINKAGES project; the services offered at the Drop-in-Centre (DIC) and were also provided a pack of condoms.

In the process of interview, participants were asked questions related to Gender-Based Violence (GBV) and provided with GBV information and leaflets. The participants who experienced GBV were referred to the organizations providing GBV interventions.

On completion of the entire process, participants returned to the Coupon Manager for a short interview on social network characteristics, peer recruitment training and provision of three recruitment coupons, and to schedule an appointment for the second visit in two weeks.

Fifteen Dry Blood Spots (DBS) were collected from all the HIV positive participants and every 10^{th} HIV negative participant for quality assurance and further testing at the Juba National Public Health Laboratory (NPHL) and the United States Centers for Disease Control and Prevention (CDC) Atlanta. The DBS samples are stored at the NPHL under appropriate conditions awaiting further testing which will include viral load and HIV quality assurance tests.

3.6 FSW population size estimation

Two methods were utilized to estimate the size of the Juba FSW population. The first was the multiplier method, which compares two independent sources of data to estimate the population size. The first source of data was a count of the total number of FSW who received HIV testing services from Linkages in 2015. The second source of data was the survey, which included a question asking whether or not the participant had ever been tested for HIV by Linkages.

The second method used for population size estimation was the capture-recapture method, which involved the distribution of a unique object to members of the study population (in this case a keychain). The number of FSW receiving a keychain during the distribution was the first source of data. The second source of data was the survey which included questions to assess whether the participant had received a keychain.

Five weeks prior to the start of the RDS, a total of 1,127 key holders were distributed by 54 volunteers in 10 hot spots in Juba city in a period of two days.

3.7 Human subjects protection

The protocol for the study was approved by the Government of South Sudan MOH Research Ethics Committee and CDC Atlanta. All the study procedures were conducted in private rooms at the study site. Potential participants were read standardized consent forms which provided all relevant information about the study, including the testing procedures. All participants provided informed consent to voluntarily participate in the survey. Participant data was linked through study ID numbers. All the study staff received training in research ethics and confidentiality and signed a confidentiality agreement. All forms, logs and notes were kept in a locked filing cabinet at the study site. For safety and security, all the computer tablets and computers were password protected and were collected and locked up in a strong metal box at the end of each day.

3.8 Survey data management

Survey data and serologic testing data were entered by the study staff into password protected computer tablet devices and computers. At the end of each data collection day, data from each tablet was uploaded to a cloud-based server. Only authorized study staff had access to the survey and test results. When the study was concluded all the data was sent to IntraHealth and CDC for data cleaning and analysis.

Excel, STATA and SAS software were used for the data cleaning process and generation of the sample estimates. RDS analyst software was used for generation of the population adjusted estimates.

4.0 Results

4.1 Overview

The results of this survey are structured based on the thematic areas in the questionnaire and presented in tables, pie charts and bar graphs. All results are presented using the population adjusted figures only. The population refers to all the FSW in Juba city.

4.2 Description of the sample participants

A total of 850 FSW completed the screening process for the survey. Following screening, two FSW dropped out of the study. Another two began the survey but dropped out before finishing and their results were not included. The data for eight FSW were also lost due to a data management error at the server, leaving 838 FSW who completed the survey. Additionally, 835 FSW consented to and provided specimens for HIV and syphilis testing.

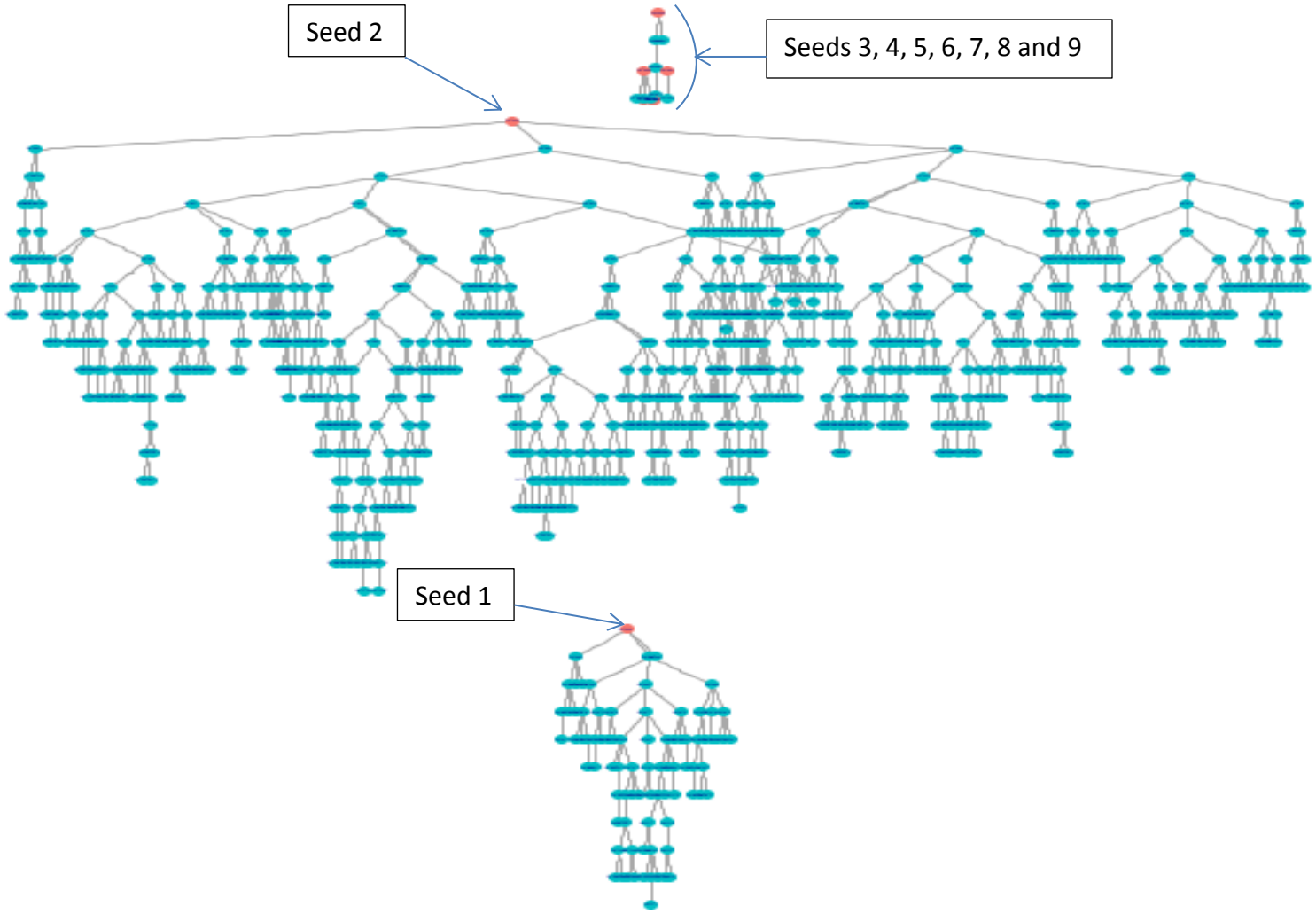
4.3 Estimated population size for FSW in Juba

The multiplier method yielded an estimate of 5,800 (95% CI: 4,927-6,673) for the population size of FSW in Juba. The capture-recapture method yielded a similar result of 5,306 (95% CI: 4,673-5,939).

4.4 Recruitment of participant in RDS phase

In total nine seeds were used in this survey. At the beginning of the survey, four seeds were recruited in consultation with the FSW peer educators. As the study progressed five additional seeds were recruited in order to penetrate under represented populations. In total there were 17 waves of recruitment and seed two propagated more than the other seeds (Figure 1). The figure below illustrates the recruitment process. Each participant would receive a maximum of three coupons and would recruit three, two, one or none at all. Based on the recruitment yield this linked to the recruiter through the ID and this recruitment tree is generated based on those recruitments.

Figure 1 Graphic representation of the recruitment tree



4.5 Socio-demographic characteristics

4.5.1 Basic socio-demographic characteristics

A total of 838 FSW participated in the study. The median age of FSW in Juba was 29 years (Interquartile range-IQR: 29-34), with approximately 4% of the FSW being age 19 years and below and less than 1% being over the age of 50 (Figure 2). Forty percent of FSW were from Uganda, 34% from South Sudan, and 22% from Democratic Republic of Congo (DRC) (Table 1). FSW lived in neighborhoods throughout Juba, primarily in Custom (25%), Jebel (17%), Tong ping (11%) and Gudele (10%), among others (Figure 3). Many FSW (50%) had not completed primary school, and two-thirds could neither read nor write in any language. More than half (53%) were divorced or separated (Table 1).

Figure 2: Distribution of the Participant's age (in years)

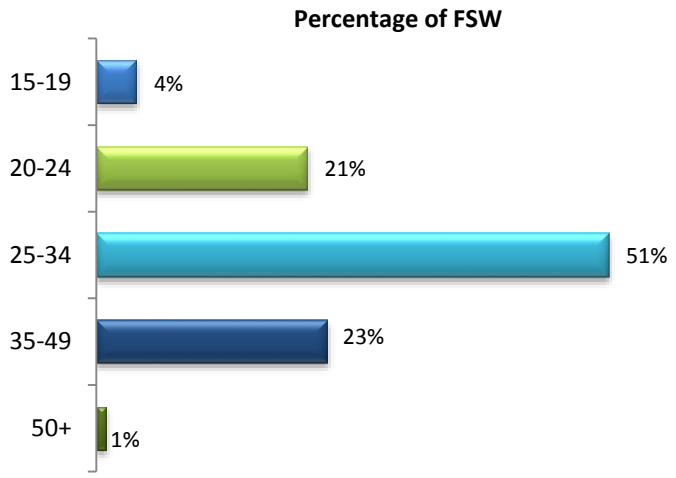


Figure 3: Distribution of FSW current residences in Juba by neighborhood

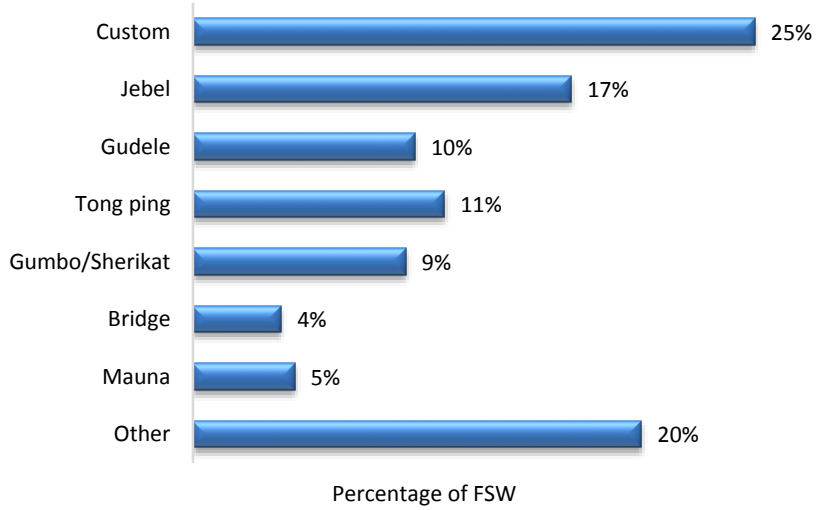


Table 1: Basic sociodemographic characteristics of FSW in Juba

Variable	Frequency	Population Proportion % (95% CI)
Country of Birth	**838**	
Uganda	355	40.0 (34.0, 46.1)
South Sudan	252	34.0 (30.3, 37.8)
DRC	188	20.8 (14.9, 26.8)
Kenya	40	04.4 (00.0, 14.0)
Other[1]	3	00.7 (00.0, 01.8)
Literacy	**838**	
Cannot read or write	513	65.7 (61.9, 69.5)
Can read and write	274	28.7 (25.1, 32.3)
Can read only	51	05.6 (03.8, 07.3)
Highest education level	**838**	
None	371	49.6 (46.4, 52.7)
Primary	276	30.4 (27.0, 33.9)
Secondary	176	18.7 (15.5, 22.0)
Higher	15	01.3 (00.6, 02.0)
Current marital status	**838**	
Separated/divorced	446	53.0 (50.0, 56.0)
Single, never married	216	25.5 (22.3, 28.8)
Widowed	140	16.6 (13.5, 19.6)
Married	36	04.9 (03.2, 06.7)
Religion	**838**	
Catholic	345	41.3 (37.6, 45.0)
Protestant	313	39.0 (36.1, 41.8)
Muslim	92	11.1 (08.2, 14.1)
Pentecostal	20	02.5 (01.0, 04.0)
Orthodox	21	01.9 (01.1, 02.6)
Seventh day Adventist	7	00.5 (00.4, 00.6)
None	5	00.4 (00.0, 00.6)
Other	35	03.3 (02.2, 04.4)

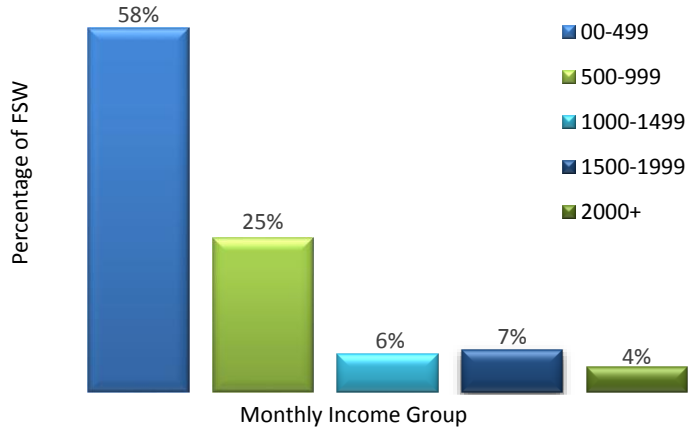
[1] *Includes Rwanda, Eritrea and Ethiopia,*

4.5.2 Monthly income and main source of income among FSW in Juba

The main source of income for nearly all of the FSW (97%) was exchanging sex for money or goods. The median monthly income of FSW was 500 SSP (approximately 6.75 USD) (IQR: 250-

1000 SSP). A large majority (83%) earned less than 1,000 SSP (approximately 14 USD) per month (Figure 4).

Figure 4: Distribution of monthly income among FSW in Juba



4.5.3 Weekly income from sex work

The FSW in Juba had a median weekly income of 145 SSP (IQR: 50-300) from selling sex, earning a median of 15 SPP (approximately 21 cents USD) (IQR: 10-20) for each instance of vaginal sex with a client.

4.5.4 Living arrangements, partners, children and mobility.

More than half of the FSW (56%) lived in Juba between one and four years, with the median length of stay being three years (IQR: 2-5) (Table 4). Ninety percent had at least one child living with them for which they were responsible while over 16% had five or more children in their care. In the past six months, nearly one-quarter (24%) of FSW had spent a night away from home at least once, with 8% spending a night away from home ten or more times. Thirty-six percent of the FSW lived with a sexual partner.

Table 2: Living arrangements of the FSW in Juba

Variable	Frequency	Population Proportion % (95% CI)
Sleep same place most of the nights	**835**	
Yes	606	73.1 (70.4, 76.0)
Length of stay in Juba	**836**	
<1 year	69	09.2 (06.6, 11.7)
1-4 years	469	56.4 (52.6, 60.3)
5-9 years	228	25.8 (22.6, 29.0)

10+ years	70	08.6 (06.2, 10.9)
Away from home more than a month	**225**	
Yes	162	70.5 (61.8, 78.5)

4.6 Depression, alcohol use and non-injection drug use

4.6.1 Experience of depression

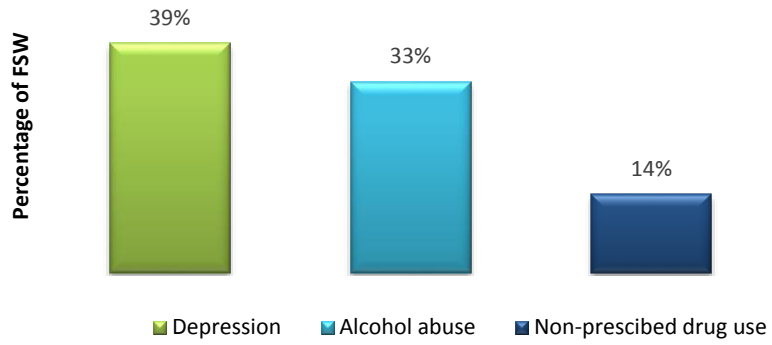
Using the Patient Health Questionnaire-2 (PHQ-2) questions were asked in order to screen for depression. A cumulative score of three or greater was indicative of depressive disorder. Thirty-nine percent of FSW screened positive for depression (Figure 5).

4.6.2 Alcohol use and non-injection drug use

Using the AUDIT-C assessment tool, three questions were used to determine risk of alcohol abuse. Generally, the higher the score, the more likely it is that the person engages in unhealthy alcohol consumption. Each AUDIT-C question has five answer choices on a scale from 0-4. For women, a score of three or higher indicates alcohol abuse. One-third of FSW (33%) had scores indicative of alcohol abuse (Figure 5). Additionally, 10% suffered from both depression and alcohol abuse.

Non-injection drugs are any drugs that may be used without injecting. Such drugs may be smoked, inhaled or snorted. These include drugs like marijuana, crystal meth, cocaine, crack, ecstasy, heroin, or opium. Fifteen percent of FSW had ever used a non-prescription drug at any point in their lives. Nearly the same proportion (14%) had used such a drug within the past six months (Figure 5).

Figure 5: Distribution of depression, alcohol abuse and drug use[1]



[1]*Non-prescribed drug use within past six months*

4.7 Social cohesion among the FSW

4.7.1 Social life and relationship with women and girls

Many FSW regularly relied on the support of other FSW in issues related to their occupation and their livelihood. Seventy percent of FSW counted on other sex workers to accompany them to the doctor and to help deal with violent or difficult clients. In the last 12 months, many women also helped other sex workers negotiate or stand up to police (46%), madams or pimps (39%), and clients or other sex partners (58%).

Table 3: Social capital and support among the FSW

Variable	Population Proportion		
	Frequency	%	(95% CI)
Count on other sex workers to accompany to the doctor or hospital	**827**		
Agree	565	69.6	(66.1, 73.1)
Disagree	262	30.4	(26.9, 34.0)
Count on other sex workers to help deal with a violent or difficult clients, partner, or persons in her life	**829**		
Agree	556	68.9	(65.3, 72.6)
Disagree	273	31.1	(27.4, 34.7)
Count on other sex workers to support use of condoms	**829**		
Agree	643	77.5	(74.1, 80.8)
Disagree	186	22.5	(19.2, 25.9)
Negotiated with or stood up against police in order to help a fellow sex worker in past 12 months	**389**		
Yes	174	45.8	(39.8, 52.2)
Negotiated with or stood up against a madam/broker/pimp in order to help a fellow sex worker in past 12 months	**378**		
Yes	147	39.3	(33.1, 45.4)
Negotiated with or stood up against clients/any other sexual partner in order to help a fellow sex worker in past 12 months	**517**		
Yes	287	58.2	(52.7, 64.3)

4.8 Sexual experience

4.8.1 Sexual debut and lifetime sexual history

The median age at first vaginal or anal sex with a male sex partner was 15 years (IQR: 15-17). Over three-fourths of FSW (78%) were younger than 18 at sexual debut. For 45% of FSW, their first male partner was more than five years older than them at the time. Sixteen percent did not know the age of their first male sexual partner. Seventy-seven percent indicated the first male sexual partner was a boyfriend/partner. Fourteen percent of FSW received money or goods in exchange for sex from their first partner, and 23% were forced into their first sexual encounter. Fourteen percent of the FSW had ever had anal sex.

Figure 6: Distribution of age at sexual debut (in years)

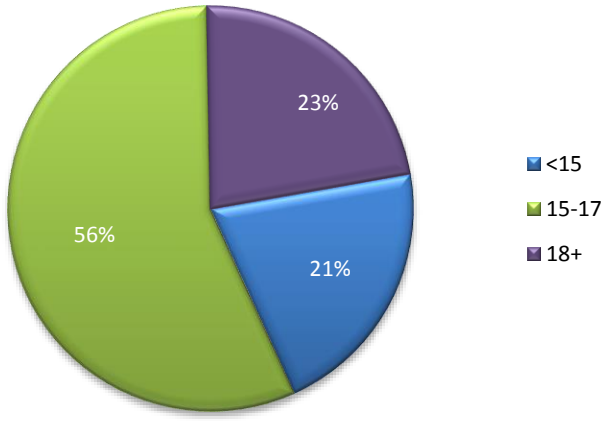


Table 4 Lifetime sexual history of FSW

Variable	Frequency	Population Proportion % (95% CI)
Ever had anal sex	**834**	
Yes	124	13.7 (11.1, 16.2)
Age of male sex partner at the time of first sex	**837**	
More than 5 years younger than me	53	07.2 (05.0, 09.5)
About the same age	265	32.6 (29.0, 36.2)
5-10 years older than me	231	28.1 (24.8, 31.4)
More than 10 years older than me	168	16.4 (13.9, 18.8)
Don't know	120	15.7 (12.9, 18.6)
First time sex, physically forced or pressured through harassment, threats, or tricks	**176**	
Physically forced	125	68.2 (59.1, 76.5)
Pressured	51	31.8 (23.5, 41.0)
Description of first man had sex with	**831**	

Variable	Frequency	Population Proportion % (95% CI)
Boyfriend/partner	644	77.4 (74.1, 80.7)
Friend/acquaintance/ coworker	85	10.3 (08.1, 12.6)
Stranger	73	08.9 (06.7, 11.1)
Other	29	03.4 (02.0, 04.7)

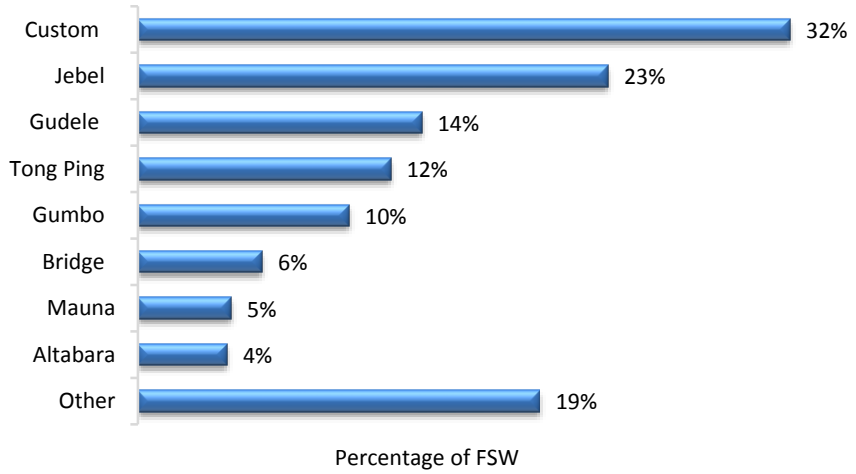
4.9 Sex work characteristics

4.9.1 Initiation, duration, reason and venues of sex work

A sizable majority (82%) of FSW began exchanging sex for money or goods when they were 20 years of age or older, with a median age of 25 years (IQR: 20-29). Most FSW (73%) had been selling sex for less than five years (median: three years). Most women (83%) were motivated by the financial needs of their family in making their decision to start sex work. The distribution of sex work locations in Juba over the past six months closely resembles the distribution of current residence by neighborhood. Most FSW engaged in sex work in Custom (32%) and Jebel (23%). More than 12 other neighborhoods comprise the remaining sex work locations in Juba. Only a small minority of FSW (5%) sold sex outside of Juba in the past 12 months and only 18% had changed the sex location in the past six months.

Eighty percent of FSW typically met or found their clients at a bar, club or lodge, with 72% finding clients on their own without the assistance of others. Among those who had clients referred to them, 36% received referrals from hotel managers, 26% from boda boda drivers, and 22% from non-sex worker friends.

Figure 7: Distribution of sex work location in Juba by neighborhood[1]



[1]*Mulitple responses allowed*

Table 5: Initiation, duration, reason and venues of sex work among FSW in Juba

Variable	Population Proportion		
	Frequency	%	(95% CI)
Age at first exchange sex	**790**		
15-19	131	18.4	(15.0, 21.8)
20-29	470	58.4	(54.5, 62.4)
30-39	163	19.9	(16.8, 23.1)
40+	26	03.3	(01.8, 04.7)
Time engaged in sex work	**819**		
<1 year	86	11.3	(08.6, 14.0)
1-4 years	512	61.6	(57.8, 65.4)
5-9 years	172	20.8	(17.7, 23.9)
10+ years	49	06.3	(04.5, 08.1)
Venue where usually meet or find clients	**837**		
Bar, club, or lodge	678	80.2	(77.1, 83.2)
Private home	130	15.8	(13.0, 18.6)
Street or park or other public places	96	11.8	(09.5, 14.1)
Hotel	61	07.6	(05.6, 09.6)
Other	17	02.1	(01.0, 03.3)
Have agents that helps FSW meet clients	**832**		
Yes	233	29.0	(25.5, 32.6)
Type of agent	**233**		
Hotel manager	74	35.5	(28.5, 43.7)
Boda Boda driver	53	26.3	(18.4, 35.1)
Friend	55	21.9	(14.3, 29.3)
Another sex worker	29	09.1	(05.0, 11.8)
Lodge owner	18	08.8	(04.8, 13.1)
Hotel porter	15	07.5	(03.7, 11.8)
Other	25	08.5	(04.1, 12.2)

4.10 Sexual behaviors with male partners and clients

4.10.1 Sexual behaviour with main (regular) male, casual sex partners (non-paying partners) and condom use

Forty-three percent of women had at least one main (regular) male sex partner during the past 6 months (median: 0; IQR: 0-1), and 65% indicated they would ask the main sex partner to use condom during sex. Fifty-four percent of FSW had at least one casual (non-paying) sex partner

(median: 2; IQR: 0-10) and seventy-five percent of FSW used a condom the last time they had sex.

Figure 8: Frequency of condom use with main and casual male sex partners, last six months

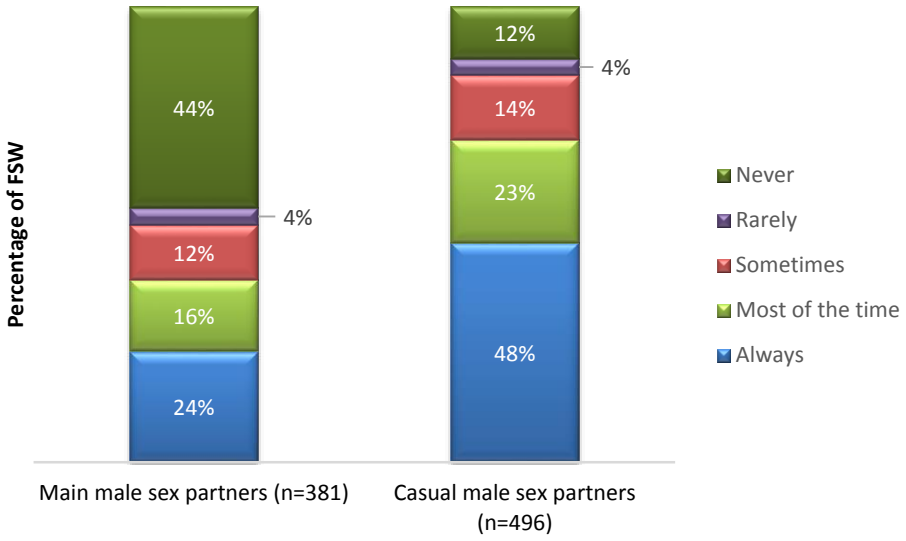


Table 6: Reasons of non-condom use during vaginal sex in general in last 6 months

Variable	Population Proportion		
	Frequency	**%**	**(95% CI)**
Reasons of non-condom use during vaginal sex in general in last 6 months[1]	**462**		
When my partner refuses	131	28.4	(23.2, 33.6)
When having sex with a non-regular partner	141	24.6	(17.3, 30.6)
When I cannot afford to buy a condom	65	17.3	(12.1, 23.4)
When I cannot find one	42	11.6	(07.5, 16.3)
When having sex with a regular partner	37	08.2	(05.0, 11.4)
Other	77	17.0	(12.8, 21.3)

1- Multiple responses allowed

4.10.2 Male clients

FSW in Juba had a median of 21 (IQR 15-120) unique clients that paid money for sex (cash clients) in the last six months. In the last two weeks, FSW had a median of two (IQR 0-10) regular cash clients and three (IQR 0-7) one-time cash clients. Nearly three quarters of women (72%) used a condom the last time they had sex with a cash client. Forty-seven percent always used a condom with cash clients over the past six months, compared with only 9% who never used a condom with cash clients.

Figure 9: Distribution of condom use at last sex and willingness to ask for condom use with regular clients and one-time clients, past two weeks

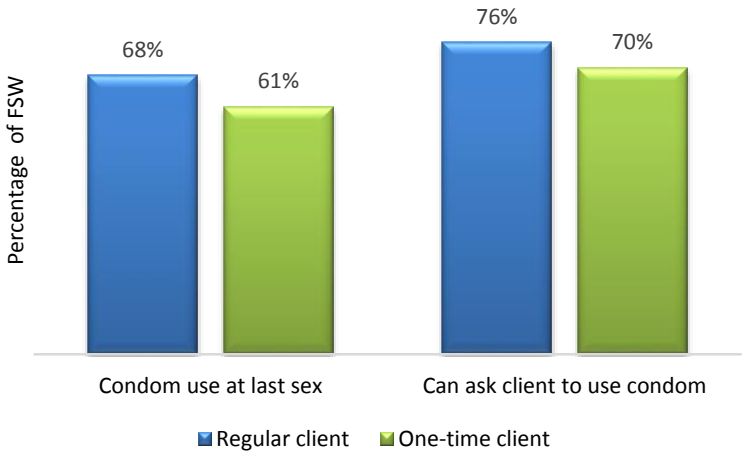


Table 7: Condom use at last sex and willingness to ask for condom use with regular clients and one-time clients,

Variable	Frequency	Population Proportion % (95% CI)
Cash clients		
Use of condom at last sex with cash client	**800**	
Yes	605	72.4 (67.0, 77.6)
No	195	27.6 (22.5, 33.0)
Frequency of use of condoms with cash client In last 6 months	**804**	
Always	379	46.8 (41.0, 52.6)
Most of the time	217	25.6 (22.0, 29.1)
Sometimes	106	12.4 (10.0, 14.7)

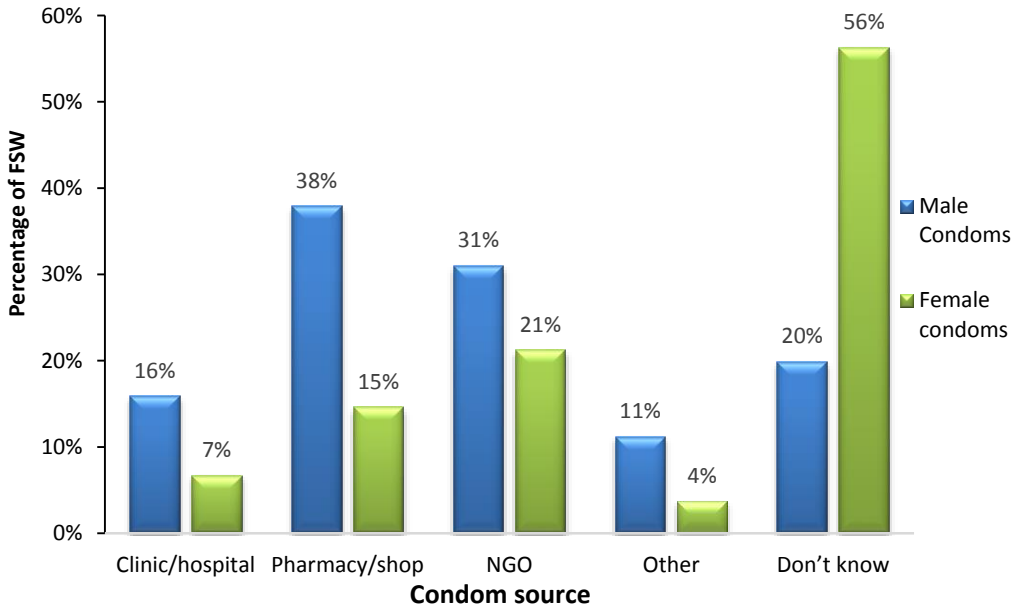
Rarely	30	04.7 (02.8, 06.7)
Never	72	10.6 (06.9, 14.3)
Clients that give gifts, goods or services		
Frequency of use of condoms with clients that give gifts, goods, and services for sex in last 6 months	**171**	
Always	72	46.1 (35.9, 57.3)
Most of the time	52	27.9 (18.6, 36.4)
Sometimes	19	09.1 (03.0, 14.7)
Rarely	8	04.1 (00.4, 07.4)
Never	20	12.8 (07.8, 18.5)

4.11 Condoms and lubricants

4.11.1 Access to condoms, experience and information on condom use

Twenty percent of FSW do not know where male condoms can be obtained, compared to 56% who do not know where to obtain female condoms. An overwhelming majority of women (91%) were not carrying a condom with them.

Figure 10: Distribution of where FSW believe condoms can be obtained[1]



[1]*Multiple responses allowed*

Only 46% of FSW felt they could get condoms when they needed them. Of the 54% who could not get condoms when needed, 53% said that cost was the biggest barrier to obtaining condoms. Sixty-two percent of women had received information about condoms in the last 12 months. Roughly half of FSW (49%) had received free condoms in the past 12 months, with NGOs being the source of free condoms for 64% of women.

Table 8: Access to condoms, experience and information on condom use among FSW

Variable	Frequency	Population Proportion % (95% CI)
Preferred brand of male condoms	**836**	
Number one	381	47.4 (43.1, 51.6)
Protector	73	08.4 (06.4, 10.4)
Other	70	08.4 (06.2, 10.6)
Don't know	382	44.9 (40.6, 49.2)
Received free condoms in last 12 months	**815**	
Yes	408	48.8 (43.2, 54.2)
Source of free condoms	**408**	
Clinic/hospital	37	08.0 (05.0, 10.7)
Community health worker	49	09.7 (06.7, 12.3)
NGO	238	63.5 (58.5, 69.6)
Other	43	10.1 (06.4, 13.7)
Don't know	46	10.0 (06.6, 13.2)
Use free condoms	**408**	
Yes	400	96.5 (93.4, 99.4)
Prefer free or paid for condoms	**400**	
Free	394	98.6 (97.5, 99.7)
Can always get condoms when needed	**836**	
Yes	383	46.2 (42.3, 50.2)
Reasons couldn't get condoms when needed	446	
Costs too much	230	52.9 (47.2, 58.9)
Not convenient	94	17.1 (12.5, 20.8)
Other	122	30.0 (24.7, 35.9)
Received information on condoms in last 12 months from outreach service, drop-in center or health clinic,	**812**	
Yes	319	37.6 (33.3, 41.9)
Source of information on condoms	**292**	

Variable	Frequency	Population Proportion % (95% CI)
Community outreach	80	23.3 (16.4, 28.9)
Peer educators	140	54.2 (47.4, 63.0)
Other	72	22.5 (16.3, 28.0)

4.11.2 Lubricant access and use

A sizable portion of FSW (30%) regularly smoked or dried out their vagina before sex. Conversely, only 18% used lubricant during anal or vaginal sex in the last six months, of which nearly half (48%) used some form of water-based lubricant, 16% saliva and 14% used vaseline. . The majority of respondents never heard of lubricants (78.9%). Nearly half (44%) of FSW had a condom break during anal or vaginal sex in the last six months and among this group, two-thirds did not use a lubricant at the time. Only 6% of respondents said they had received free packets of lubricant in the last 12 months.

Table 9: Lubricants access and use among FSW

Variable	Frequency	Population Proportion % (95% CI)
Used Lubricant during anal or vaginal Sex in last 6 months	**819**	
Yes	154	17.6 (14.7, 20.6)
Reason for not using lubricants	657	
Never heard of it	525	78.9 (74.7, 83.0)
Do not like lubricants	96	15.7 (12.0, 19.6)
Other	36	05.3 (03.4, 07.3)
Lubricant used during anal or vaginal sex in the last 6 months	**151**	
Water-based lube, KY jelly, vendome	72	47.8 (22.4, 72.8)
Saliva	25	15.9 (-13.8, 44.9)
Vaseline/pomade/other petroleum jelly product	19	14.1 (07.6, 21.2)
Other	35	22.2 (08.2, 36.1)
Affordability of water-based Lubricants	**67**	
Very affordable	9	14.5 (06.5, 23.1)
Somewhat affordable	44	58.9 (40.9, 74.8)
Not affordable	14	26.6 (10.6, 44.2)
Ease of obtaining water-based lubricant	**71**	
Very easy	21	28.8 (14.9, 42.6)

Variable	Frequency	Population Proportion % (95% CI)
Somewhat easy	33	45.0 (27.9, 61.9)
Not easy	15	16.7 (-2.7, 34.3)
Cannot get them	2	09.5 (06.5, 14.5)
Ever had condom break during vaginal or anal sex in the last 6 months	**630**	
Yes	298	44.2 (38.7, 49.3)
Use of Lubricant at the time of break	**297**	
Yes	110	34.1 (25.8, 41.5)
Given packets of lubricant for free last 12 months	**810**	
Yes	55	06.0 (04.3, 07.6)

4.12 Shame, stigma, discrimination and violence

4.12.1 Shame about sex work

Nearly two thirds (66.4%) of women were ashamed to sell or exchange sex and 51.4% would be ashamed to disclose to a health worker in their community that they sell or exchange sex.

Table 10: Shame about Sex work among FSW

Variable	Frequency	Population Proportion % (95% CI)
Ashamed to sell/exchange sex for money, gifts, goods or services	**824**	
Strongly agree	217	22.6 (19.1, 26.1)
Agree	344	43.8 (39.8, 47.9)
Neutral	39	04.9 (03.4, 06.5)
Disagree	86	11.4 (08.6, 14.2)
Strongly disagree	138	17.3 (14.1, 20.5)
Ashamed to say I sell/exchange sex when I meet with a health care worker who works in my community	**825**	
Strongly agree	139	14.5 (11.8, 17.2)
Agree	302	36.9 (33.2, 40.6)
Neutral	65	09.2 (06.8, 11.5)
Disagree	176	22.3 (18.8, 25.8)
Strongly disagree	143	17.2 (14.4, 20.0)

4.12.2 Disclosure of selling or exchanging sex

Most sex workers (55.7%) did not disclose to any one that they exchange sex for money or goods and only 17.4% had disclosed to health care. Approximately one-quarter of sex workers had been treated poorly in the past year because of their involvement in sex work. In health care settings specifically, 10% of sex workers had been treated unfairly due to involvement in sex work and 16% felt the need to hide their involvement in sex work from health workers.

Overall, 17% of sex workers had ever been arrested due to being a sex worker. Of those arrested, 66% had been arrested within the past 12 months. Twelve percent of women had given something to the police to avoid trouble, with money being provided most frequently (98%).

Table 11: Disclosure of selling or exchanging sex among FSW

Variable		Population Proportion	
	Frequency	**%**	**(95% CI)**
Have told the following that they sell or exchange sex for money [1]	**828**		
No one	464	55.7	(52.0, 59.4)
Partner/spouse	14	02.0	(00.9, 03.1)
Family	66	08.1	(06.0, 10.1)
Friends/acquaintances who are not sex workers	38	05.5	(03.7, 07.4)
Healthcare providers	147	17.4	(14.6, 20.2)
Other	5	01.0	(00.0, 02.4)
Treated badly or excluded because sell or exchange sex in the last 12 months [1]	**827**		
No one	616	76.9	(73.8, 80.0)
Partner/spouse	10	01.5	(00.6, 02.5)
Family	20	02.3	(01.1, 03.5)
Friends/acquaintances who are sex workers	32	03.3	(02.0, 04.6)
Friends/acquaintances who are not sex workers	15	01.9	(00.9, 03.0)
Other	146	15.3	(12.7, 17.9)
Treated unfairly or denied health care because sell/Exchange sex	**819**		
Yes	70	09.6	(07.3, 12.0)
Feel need to <u>hide</u> that sell sex or exchange sex when seeking Health care	**804**		
Yes	132	16.2	(13.2, 19.2)

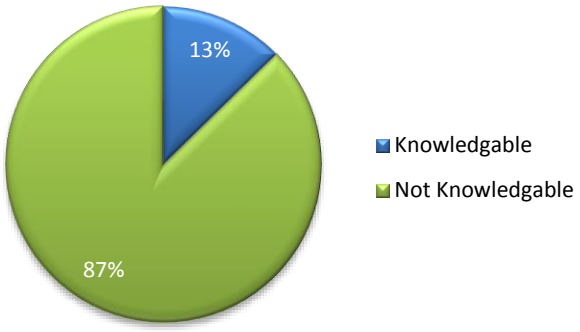
Ever been arrested because sell or exchange sex	**828**	
Yes	157	17.4 (14.5, 20.2)
Arrested because sell or exchange sex in last 12 months	**157**	
Yes	107	66.3 (55.8, 75.9)
Number of times given something in cash or kind to the police to avoid trouble with them	**836**	
None	722	88.2 (86.0, 90.4)
Once	70	06.9 (05.2, 08.5)
More than Once	44	04.9 (03.4, 06.4)
Item/service given to the police to avoid trouble	**114**	
Money	110	98.0 (98.2, 98.6)
Sex	3	00.9 (00.0, 00.9)
Other	2	01.4 (01.2, 01.5)
Stigma on PLHIV		
Believes FSW talk badly about people living with or thought to be living with HIV	**748**	
Yes	235	28.9 (25.0, 32.7)
No	282	38.9 (24.8, 43.1)
It depends	231	32.1 (28.1, 36.3)

[1]*Multiple response questions*

4.13 HIV knowledge and perceptions

A series of questions, included in the table below, was used to determine if FSW could correctly identify ways of preventing sexual transmission of HIV, and reject major misconceptions about HIV transmission. Correctly answering all five questions indicated that FSW had a "comprehensive knowledge of HIV," per the UNAIDS definition. Though each of the five questions was answered correctly by between 48% and 64% of FSW, only 13% demonstrated a comprehensive knowledge of HIV by answering all five questions correctly.

Figure 11: Distribution of comprehensive HIV knowledge



A large majority of FSW (78%) believed that vaginal sex was the type of sex that puts one most at risk for HIV when not using a condom, while 7% thought that all types of sex carry equal risk of HIV transmission. Additionally, 31% of FSW were no longer "as careful about HIV and sex" because there is now better treatment for HIV.

Table 12: HIV Knowledge and perceptions among FSW

Variable	Frequency	Population Proportion % (95% CI)
Having only one HIV- sex partner with no other sex partners reduce chance of getting HIV	**836**	
Answered correctly (Yes)	440	52.4 (48.8, 56.1)
Can person reduce the risk of HIV by using condom each time they have sex	**836**	
Answered correctly (Yes)	485	57.9 (54.3, 61.6)
Can healthy looking person have HIV	**836**	
Answered correctly (Yes)	411	48.1 (44.4, 51.9)
Can person get HIV from mosquito bites	**836**	
Answered correctly (No)	431	50.9 (46.9, 54.9)
Can person get HIV by sharing food with someone who is infected	**836**	
Answered correctly (No)	544	63.8 (59.9, 67.6)
Comprehensive HIV knowledge- all 5 answered correctly)	**836**	
Knowledgeable	111	12.7 (10.1, 15.3)
Not knowledgeable	725	87.3 (84.7, 89.9)
Kind of sex that puts one most at risk if condom not used	**836**	

Oral sex	25	22.4 (01.4, 03.1)
Vaginal sex	635	78.5 (75.7, 81.4)
Anal sex	29	03.4 (02.1, 04.7)
Mutual masturbation	4	00.5 (00.0, 01.1)
All the above equally	79	07.0 (05.5, 08.4)
Don't Know	64	08.4 (06.2, 10.6)
Agree with Statement *" You are not as careful about HIV and sex now because there is better treatment for HIV"*	**763**	
Agree	244	30.7 (26.8, 34.5)
Don't agree	519	69.3 (65.5, 73.2)

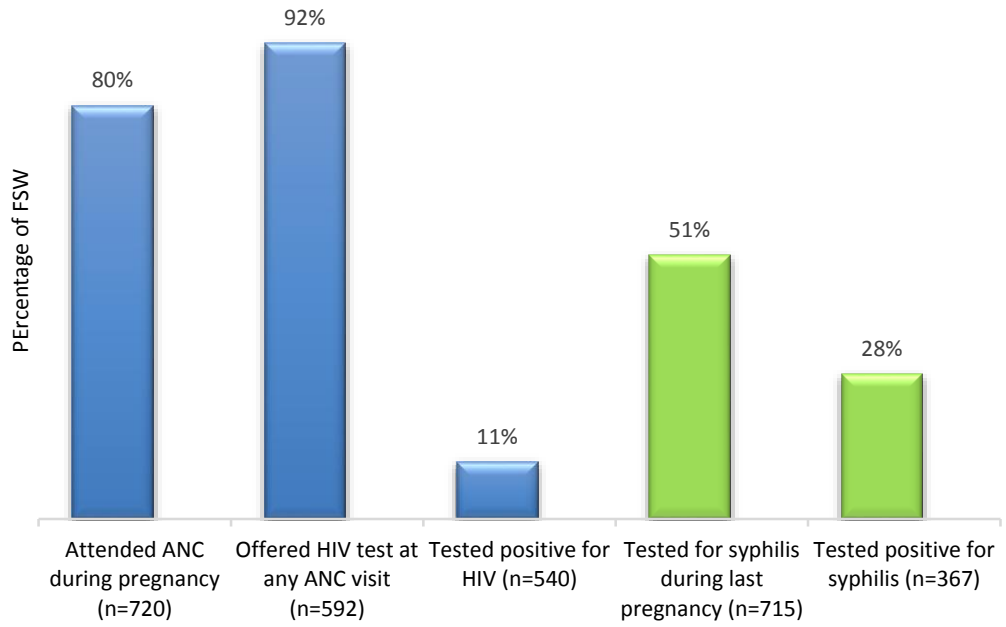
4.14 Reproductive health

4.14.1 Pregnancy history and ANC services (HIV testing, ART and syphilis testing)

Most FSW in Juba (86%) have been pregnant, with a median number of two pregnancies per person (IQR: 1-4). Seventy-one percent of pregnancies among FSW occurred more than three years ago. Of those who have been pregnant, 79% attended an antenatal care (ANC) clinic during their last pregnancy. Ninety-two percent were offered an HIV test at any of their ANC visits. Only 51% of FSW were tested for syphilis during their last pregnancy.

Among women who were tested for HIV during their last pregnancy, 11% reported receiving a positive HIV test result. Greater than 80% of those who tested positive for HIV took ART both before giving birth (81%) and after they had stopped breastfeeding (85%).

Figure 12: Distributions of key reproductive health indicators during last pregnancy[1]



[1]*Value of n for the final two variables represents those who responded "yes" to the previous variable*

Table 13: Pregnancy history and use of ANC services (HIV testing, ART and syphilis testing)

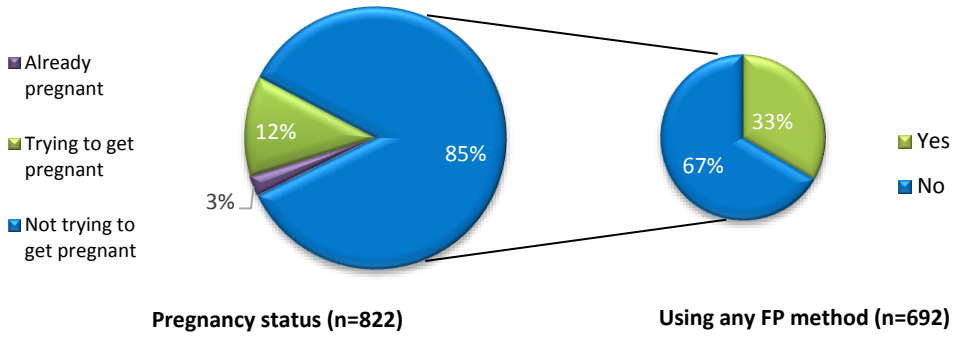
Variable	Frequency	Population Proportion % (95% CI)
When last pregnant	**727**	
Pregnant now	20	02.6 (00.9, 04.2)
Within the last 12 months	84	11.5 (09.0, 14.1)
Within 1-3 years ago	107	15.1 (12.2, 18.2)
Longer than 3 years ago	516	70.7 (66.6, 74.7)
The trimester in which last tested for HIV	**536**	
First trimester	157	31.0 (26.4, 36.1)
Second trimester	257	46.6 (41.5, 51.3)
Third trimester	122	22.4 (18.1, 26.6)
HIV positive only		
Took ART before giving birth	**60**	
Yes	47	81.2 (73.2, 90.9)

Continued taking ART after stopped breastfeeding	**60**	
Yes	50	84.5 (74.3, 95.2)
Last time pregnant, tested for syphilis	**715**	
Yes	372	51.4 (47.3, 55.4)
Last pregnancy, tested positive for syphilis	**367**	
Yes	91	28.1 (22.0, 35.0)
Got treatment for syphilis	**90**	
Yes	74	84.3 (74.6, 94.9)

4.14.2 Family planning

A significant majority (85%) of FSW were not currently trying to get pregnant, yet two-thirds of this group were also not using any family planning method. Of the one-third who were using a family planning method, 53% had a contraceptive injection, 29% had implants while 12% relied on condoms as their primary method of family planning.

Figure 13: Distributions of pregnancy status and those using any FP method



4.15 Access to outreach HIV services

4.15.1 Type of services provided/received

Over one-third (38%) of sex workers ever received HIV education through peer education or outreach. Nearly half (46%) of these sessions occurred in the last 30 days. Most women received condoms (71%) and HIV testing (67%) from a health educator. Almost half (49%) of these services were affiliated with IntraHealth International, while 37% of participants did not know which organization provided the services.

Table 14: Access to outreach HIV services among FSW

Variable	Frequency	Population Proportion % (95% CI)
Ever talked about HIV with a peer educator or outreach worker	**822**	
Yes	327	37.6 (33.2, 41.9)
Last time Peer educator/outreach worker talked to about HIV	**319**	
In last 30 days	149	46.1 (39.3, 53.0)
In the last 3 months	83	28.0 (23.5, 36.4)
In the last 1 year	63	17.5 (13.3, 21.9)
More than a year ago	22	03.4 (03.5, 09.2)
Things given last time met peer educator/outreach worker [1]	**327**	
Nothing	87	24.9 (17.3, 31.9)
Condoms	222	70.5 (63.7, 78.0)
Medicines	30	09.1 (05.6, 12.4)
Other	18	03.7 (01.6, 05.2)
Services received last time met peer educator/outreach worker	**327**	
HIV testing	205	67.0 (61.3, 73.8)
Training on condom use	166	50.0 (42.4, 57.2)
Counselling on Risk	135	36.3 (29.0, 42.2)
Referral	12	04.0 (00.0, 08.2)
Nothing	33	09.2 (05.1, 12.8)
Other	5	01.9 (00.0, 04.1)
Organization the peer educator/outreach worker comes from	**327**	
IntraHealth	150	49.6 (42.3, 57.3)
Other	52	13.4 (09.1, 16.7)
Don't know	125	37.1 (29.5, 44.9)

[1] *Multiple responses*

4.16 HIV counselling and testing

4.16.1 Previous HIV testing and counselling

Over three-quarters of FSW (78.7%) have had an HIV test. For those who have never been tested, the most common reason was due to not knowing where to test (74%). Fifty-three percent of women disclosed their involvement in sex work to the counselor at last HIV test. The most common place where women sought testing was a hospital or health clinic (45%) and an

outreach or testing center (35%). Many women sought testing due to wanting to know their status (55%) and one-fifth received testing due to being pregnant (21%).

Thirty-one percent of women self-reported a positive result from their last HIV test. Over one-quarter of women (27%) thought they were likely to be infected with HIV over the next year, and an additional 15% felt that it was extremely likely.

Table 15: HIV counselling and testing among FSW

Variable		Population Proportion	
	Frequency	**%**	**(95% CI)**
Ever been tested for HIV	**834**		
Yes	665	78.7	(75.2, 82.2)
Reason for not testing for HIV [1]	**164**		
Don't know where to test	114	73.7	(66.5, 81.0)
Test costs too much	14	06.9	(02.8, 11.0)
Other **(CSCTNV_1)**	41		
At last test, told counsellor that FSW	**665**		
Yes	339	52.2	(47.5, 57.0)
Place of last HIV test	**665**		
Health clinic, hospital or similar	300	44.5	(40.0, 49.2)
Outreach/mobile testing	234	35.0	(30.2, 39.6)
Testing and counselling center	121	18.9	(15.7, 22.3)
Other	10	01.4	(00.5, 02.5)
Reason for last HIV test	**665**		
I just wanted to know	377	54.9	(49.9, 59.8)
I was pregnant	126	20.9	(16.7, 25.4)
Health care or outreach offered test	77	12.2	(09.2, 15.3)
Felt at risk or sick	67	09.6	(07.3, 12.0)
Other	18	02.3	(01.1, 03.5)
Result of the last HIV test	**664**		
Positive	204	30.7	(26.0, 35.3)
Likelihood of getting HIV infected in the next year	**272**		
Extremely unlikely	34	11.2	(06.8, 15.7)
Somewhat unlikely	119	46.9	(39.8, 53.8)
Somewhat likely	76	27.3	(20.8, 33.8)
Extremely likely	43	14.6	(10.2, 19.1)
Ever tested together with main partner	**149**		

Yes	144	97.1 (94.8, 99.5))

[1] *Multiple Responses Question*

4.17 Experience of living with HIV

4.17.1 Disclosure of HIV status

Of those living with HIV, 40% did not disclose their status to anyone, and 40% disclosed to a family member. Only 6% disclosed their status to a spouse or sex partner.

Table 16: Disclosure of HIV status among FSW

Variable	Frequency	Population Proportion % (95% CI)
Disclosure		
Person told that she is HIV positive [1]	**204**	
No one	72	39.7 (31.0, 49.3)
Family member	85	39.7 (28.2, 50.6)
Friend - fellow sex worker	50	20.9 (14.1, 26.8)
Doctor	32	13.8 (09.0, 18.4)
Spouse / sex partner	11	05.5 (01.6, 09.5)
Friend – not involved in sex work	14	05.0 (01.9, 07.5)
Client	2	01.0 (00.0, 02.4)
Other	1	00.3 (-00.02-0.7)

[1] *Multiple responses question*

4.17.2 Access to support groups

Sixteen percent of women with HIV had ever attended a support group for people living with HIV. Of those who attended a group, 80% attended at least once a month. About one-third of women did not know the organization that organized the support group.

Table 17: Access to HIV support groups among FSW

Variable	Frequency	Population Proportion % (95% CI)
Ever attended support group for HIV positives	**204**	
Yes	33	16.4 (10.8, 22.3)
Frequency of attendance in a support group	**32**	
Do not attend anymore	1	04.8 (00.0, 12.2)

Less than once a month	6	15.4 (03.7, 27.8)
At least once a month	17	55.9 (37.2, 73.5)
Weekly or more	8	23.9 (07.3, 41.4)
Organization that organizes the support group	**33**	
IntraHealth	4	17.8 (12.7, 25.7)
Other	15	47.7 (0.0, 100.0)
Don't know	14	34.6 (0.0, 100.0)

4.17.3 Access to care among the HIV positive FSW

Most women living with HIV (82%) had received HIV care. Of those who did not receive care, not knowing where to get care was the main reason (63%) while 17% indicated the facility was too far away.

4.17.4 Care

Most women had received HIV care in the past six months (71%). The main reasons for not receiving care during that time were distance to facility (32%) and not knowing where to get care (38%). In terms of care received, over 80% of women had ever taken cotrimoxazole, and almost all who had started were still taking it (91%). Of those who were no longer taking cotrimoxazole, the main reason reported was that the medication was not available at the clinic (80%). Sixty-five percent of women with HIV had had their CD4 count measured.

Table 18: Access to care by FSW including CD4 testing

Variable	Frequency	Population Proportion % (95% CI)
When last seen doctor, clinical officer, or nurse for HIV care	**203**	
Previous six months	140	71.4 (63.7, 78.8)
Between six months and 1 year	19	09.6 (04.6, 14.6)
Between 1 and 2 years ago	14	06.6 (02.8, 10.4)
Over 2 years ago	20	08.4 (04.6, 12.4)
Don't know	10	04.0 (00.8, 07.3)
Main reason for not seeing health care provider for HIV care in the past 6 months	**60**	
Facility is too far away	18	32.0 (19.5, 44.5)
I don't know where to get HIV medical care	23	37.7 (24.9, 50.6)
Cost of transportation	11	19.9 (08.9, 30.4)

Other	8	10.5 (03.8, 17.4)
Cotrimoxazole		
Ever taken cotrimoxazole	**204**	
Yes	169	82.7 (76.3, 88.9)
Currently taking cotrimoxazole	169	
Yes	158	91.3 (85.2, 96.6)
Reason for not taking cotrimoxazole	**35**	
Not offered by clinic	28	79.9 (73.7, 85.9)
CD4+ T cell count		
Ever had CD4 count test done	**202**	
Yes	131	65.5 (57.7, 73.4)

4.17.5 Treatment

About three-quarters of women with HIV had ever taken ART. Nearly all (97%) of these women were still on treatment. Among women who have never taken ART, 53% had never been prescribed them.

Of the 834 FSW 665 (78.7%) who knew their HIV status, 204 (30.7%) were HIV positive, 169 (82.7%) were in care and 149 (75.3%) were on treatment. Testing for viral load suppression has yet to occur. A supplemental report with these data will be released when they are available.

Number of day in the last 30 days (I month) that missed taking ARV pill

The median number of days in a month that the HIV positive FSW missed taking ART was zero (IQR 0-0) and the mean was one day (SD 5 days).

Table 19: Access to ART by FSW

Variable	Frequency	Population Proportion % (95% CI)
Ever taken ARVs	**204**	
Yes	149	75.3 (68.1, 83.0)
Main reason for never taking ARVs	**55**	
Not eligible for treatment	19	35.5 (00.0, 77.2)
Health care provider did not prescribe	27	52.6 (22.4, 85.6)
Other	9	
Currently taking ARVs	**149**	
Yes	145	97.6 (94.8, 100.0)

4.17.6 Access to TB services, screening and treatment among FSW with HIV

About 35% of women with HIV had been asked about TB symptoms at their last HIV care visit, and 30% reported experiencing any TB symptoms in the past 12 months. Most women (82%) did not receive a chest x-ray or sputum test in the past 12 months. Sixteen percent of HIV-infected women had ever visited a TB clinic, only 15% of whom were tested for HIV at the clinic. About 15% of FSW had ever been treated for TB, and almost all (88%) completed treatment within six months. Most had received TB treatment after their HIV diagnosis (70%).

Table 20: Access to TB services-Screening and treatment by FSW

Variable	Frequency	Population Proportion % (95% CI)
Asked if had symptoms of TB at the last HIV medical care visit	**203**	
Yes	79	34.7 (27.5, 42.1)
Experiences any of the TB symptoms in the last 12 months	**203**	
Yes	63	29.6 (22.8, 36.2)
Received chest x-ray or sputum test for TB in past 12 months	**203**	
Chest X-ray	29	14.3 (08.3, 20.2)
Sputum test	8	04.2 (01.2, 07.1)
None of these	166	81.5 (75.1, 88.0)
Ever visited a TB clinic for TB diagnosis	**202**	
Yes	29	15.6 (9.7, 21.5)
Tested for HIV in the TB Clinic	**203**	
Yes	24	15.2 (09.2, 21.2)
No, was not tested for HIV	95	48.0 (40.1, 56.0)
No, already HIV positive	84	36.8 (29.5, 44.0)
Ever Treated for TB	**204**	
Yes	28	14.9 (09.2, 21.2)
Complete 6 months treatment last time treated for TB	**28**	
Yes	24	87.7 (79.8, 96.2)
When the TB treatment was taken	**27**	
Before I tested HIV-positive	8	22.9 (08.9, 38.3)
After I tested HIV positive	16	70.4 (53.8, 85.6)
Both before and after I tested HIV positive	3	06.7 (00.0, 13.8)

4.18 Sexually transmitted infections

4.18.1 STI syndromes

Nearly half of FSW reported having either abnormal discharge from their vagina (28%) and/or an ulcer or sore near their vagina (21%) in the last 12 months. Among those who experienced either condition, 52% went to a pharmacy for treatment and 38% went to a healthcare provider. For the FSW who experienced these symptoms, more than half (51%) had taken less than one week to seek health care, 27% sought treatment after one week to less than one month of these symptoms while 23% had taken more than one month after appearance of these symptoms before seeking health care. Over half (56%) of those who sought care for their symptoms were formally diagnosed with a sexually transmitted infection and 93% got treatment for the STI.

4.19 Physical violence, coercion and abuse

4.19.1 Physical violence

Twenty-two percent of FSW had ever experienced physical violence. However, 5% experienced more than 10 incidents of violence. Of those experiencing violence, 64% believed that first incident was related to their involvement in sex work. Most incidents (80%) occurred in the past 12 months, and were related to involvement in sex work (83%). Over half of sex workers (59%) did not seek professional help after experiencing violence. Those who did (16%) most commonly sought help from health care professionals or the police. The most common reasons for not seeking help were fear of getting into trouble (37%) and not being able to afford services (15%).

Table 21: Physical violence among FSW

Variable	Frequency	Population Proportion % (95% CI)
Experienced physical violence in lifetime	**833**	
Never	627	77.9 (74.7, 81.1)
Once	55	05.7 (04.1, 07.3)
2 – 5 times	94	10.9 (08.5, 13.3)
6 – 10 times	8	00.8 (00.3, 01.3)
More than 10 times	49	04.7 (03.4, 06.1)
Reason being because of selling or exchanging sex, first time	**202**	
Yes	134	64.4 (57.4, 71.5)
Experienced physical violence in past 12 months	**205**	

Yes	164	79.4 (73.7, 85.1)
Reason being because of selling or exchanging sex, past 12 months	**161**	
Yes	133	83.4 (77.3, 89.3)
Following physical violence sought professional help from [1]	**206**	
No one	117	59.0 (50.4, 68.2)
Healthcare professional	37	16.3 (09.2, 22.8)
Police or other security personnel	36	15.8 (09.8, 21.3)
Other	19	10.3 (04.8, 16.0)
Main reason for not seeking professional help or services	**114**	
Afraid of getting in trouble	42	39.8 (28.2, 51.2)
Could not afford services	17	14.3 (07.4, 20.9)
Other	55	45.9 (35.3, 57.0)

[1] *Multiple response questions*

4.19.2 Sexual violence /coercion

About 20% of women have experienced sexual violence. The median age for first experience of sexual violence was 18 years (IQR: 15-27). The most common perpetrator was a stranger (32%). Among those who have experienced sexual violence, less than half of the events took place during the past 12 months (48%) or were due to involvement in sex work (42%). The most recent perpetrator was a stranger (28%) or client (28%). Similarly to experiences of physical violence, 72% of women did not seek help after the event.

Table 22: Sexual violence among FSW

Variable	Frequency	Population Proportion % (95% CI)
Experiences of sexual violence in lifetime	**836**	
Never	672	80.6 (77.3, 83.8)
One time	84	11.7 (08.9, 14.5)
Two times	22	02.6 (01.4, 03.7)
Three or more times	58	05.2 (03.5, 06.9)
Relationship with the person	**163**	

Stranger	52	31.8 (23.7, 39.4)
Client	28	21.3 (12.0, 31.6)
Boyfriend/girlfriend/live-in partner/spouse	27	16.9 (10.4, 23.1)
Police/security officer/military	14	08.4 (03.9, 12.7)
Neighbor	13	06.0 (02.6, 09.4)
Friend	13	09.3 (03.8, 14.6)
Other	16	06.4 (02.6, 10.3)
Physically forced to have sex in last 12 months	**164**	
Yes	76	47.7 (37.2, 58.5)
Reason being because of selling or exchanging sex	**162**	
Yes	67	41.6 (31.9, 51.5)
Relationship with the most recent perpetrator	**163**	
Boyfriend/girlfriend/live-in partner/spouse	22	13.9 (08.1, 19.8)
Police/security officer/military	17	10.8 (05.7, 16.1)
Neighbor	11	05.5 (02.2, 09.0)
Friend	11	08.8 (03.7, 14.0)
Stranger	48	27.9 (19.8, 35.4)
Client	41	27.9 (20.0, 35.5)
Other	13	05.3 (02.1, 08.7)
Sought professional help or services after unwanted sexual experiences [1]	**164**	
I did not try to seek help	110	71.5 (63.8, 79.1)
Healthcare professional	29	16.7 (10.6, 22.9)
Police or other security personnel	17	07.8 (04.3, 11.2)
Other	11	06.3 (01.8-10.7)
Main reason for not seeking professional help or services	**157**	
Did not know services were available	14	11.0 (05.1, 16.8)
Afraid of getting in trouble	33	27.4 (17.5, 37.9)
Ashamed for self/family	17	08.7 (04.5, 12.8)
Could not afford services	22	13.8 (07.1, 20.4)
Other	71	39.1 (30.0, 47.8)

[1] *Multiple responses Question*

4.19.3 Abuse by clients in last six months

About 34% of women had been abused by a client in the past six months. Nearly 48% of women were forced to have sex, and 13% were threatened by a client in the past six months.

4.20 HIV and syphilis prevalence

4.20.1 HIV prevalence

Results from on-site testing of participants were used to estimate the prevalence of HIV in the FSW population in Juba. HIV prevalence among sex workers was 38%, and 37% of those with HIV were unaware of their status. Sixty-five percent of HIV-infected FSW had a CD4 count below 500 cells/mm^3 which is the MOH South Sudan ART Guideline reference CD4 cut off point for starting on ART. Most FSW were eligible to start on treatment based on these guidelines.

Table 23: HIV prevalence among FSW

Variable	Frequency	Population Proportion %	(95% CI)
Estimated HIV prevalence (HIV)	**835**		
Positive	333	37.9	(33.6, 42.2)
Awareness of positive status	**333**		
Unaware	131	37.1	(29.7, 43.8)
CD4 Count (CD4_500) among HIV+	**333**		
<500	210	64.8	(58.5, 71.6)

4.20.2 Syphilis prevalence

Twelve percent of FSW had ever been infected with syphilis and 7.3% had active syphilis by the time of the survey.

Table 24: Syphilis prevalence among FSW

Variable	Frequency	Population Proportion %	(95% CI)
Ever infected	**835**		
Yes	106	12.0	(09.7, 14.4)
Active syphilis infection	**832**		
Yes	65	07.3	(05.5, 09.1)

5.0 Discussion

The Eagle survey was effective in reaching the FSW in the various locations in Juba with 98% of those participating in the study accepting HIV and syphilis testing.

5.1 FSW population size

The population of FSW in Juba is estimated at about 5,306 (95% CI: 4,673-5,939). This estimate is higher than previous ones (South Sudan AIDS Commission and UNAIDS 2012) probably because previous size estimation activities utilized census and mapping methods which produce conservative results (i.e., the results are underestimates). Our use of the unique object multiplier and the service multiplier methods allow for more accurate estimates because they include hidden subpopulations like the South Sudanese that may have been missing from other estimate exercises.

5.2 Socio-demographic characteristics of FSW in Juba

Sex work in Juba, South Sudan is mainly by older women with the median age of 29 years however young and adolescent girls were also found to engage in sex work with 4% below the age of 19 years. Most of the FSW are from the neighbouring countries with Uganda and DRC contributing 40% and 22% respectively. At 34% of all FSW, South Sudanese make up a substantial proportion of the FSW population in Juba. These findings are consistent with the formative assessment that was done in Juba prior to the BBS.

Exchange of sex for money constituted the main source of income in nearly all (97%) the FSW in Juba. This is possible because most of the FSW are illiterate; cannot read nor write (66%) and half of the FSW did not attend school (50%) therefore the possibility of getting into the formal employment sector is unlikely. Education may play a crucial role in preventing engagement in sex work. Many sex workers were single or divorced/separated (26% and 53% respectively) leaving them in difficult economic circumstances.

The FSW in Juba are well established, stable with less mobility across towns and most have lived in Juba for many years (median 3 years). The social cohesion and networks are strong suggesting that health programs targeting FSW would benefit from utilizing FSW peers to reach women who are not yet accessing HIV services. Peer recruitment was successful for this survey and allowed the survey to reach women who are not engaged in health services. It can do the same as an intervention.

5.3 Sexual experience

There is early sexual debut among the FSW with the median age being 15 years. Most (78%) were younger than 18 years at sexual debut with the first male sex partners being older men predisposing FSW to early risk of HIV infection. Nearly a quarter of FSW had sex for the first time with someone that was not their boyfriend/partner. This underscores the role of early sex

education to young girls to equip them with safe sex and negotiation skills A sizable proportion (23%) was forced into their first sexual encounter. Most women start selling sex years after their sexual debut, with the median age of first sex work being 25 years.

Most of the FSW conduct sex work near their areas of residence. While sex work occurs in several neighborhoods, most sex work is conducted in Custom (32%), Jebel (23%) Gudele (14%) and Tongping (12%) calling for attention to direct FSW friendly services to these places.

Sizeable proportion FSW in Juba live with a sexual partner (34%). The FSW have a wide range of sexual clients including one time off clients. Up to (43%) of the FSW have main sexual partner with 54% having at least one casual partner. A sizable proportion of FSW (29%) have an agent that helps them meet clients. The agents may be use to access the FSW and link with the HIV services as well as encourage the clients of the FSW to use condoms and access testing and treatment.

Twenty-two percent of FSW in Juba have experienced violence. They also suffer harassment and other forms of abuse from police, pimps and clients. This is difficult to address in the absence of legislation protecting FSW however the police could be trained in basic human rights and the rights of sex workers.

5.4 Knowledge of HIV

Comprehensive knowledge of HIV among the FSW was extremely low with only 13% of FSW demonstrating a comprehensive knowledge of HIV. Majority of FSW (78%) believed that vaginal sex was the type of sex that puts one most at risk for HIV when not using a condom yet it is anal sex that puts people at risk most. It is also noted that there is complacence as 31% of the FSW noted they no longer are “as careful about HIV and sex” because there is now better treatment for HIV.

5.5 Condom and lubricant use

Reported use of condoms by the FSW was high however substantial number irregularly or inconsistently used condoms with the various sexual partners. Limited access to condoms is contributing factor to inconsistent condom use as only 45% of FSW can easily access condoms when they need them. In addition, a quarter of FSW did not know where to get male condoms and 56% did not know where to obtain female condoms. The widely known sources of condom are pharmacy/shop or NGO. There is need to improve access to free condoms with FSW peer educators, hotels, bars and lodges provided with condoms to improve condom access.

In general 25% of FSW did not use a condom the last time they had sex. With the high HIV prevalence in FSW, this presents a high risk of infecting and other sex partners. It also leaves FSW at risk of becoming infected themselves. Consistent condom use (always use) in past six months is also low with main male sex partners at 24% and with casual sex partners at 48%.

FSW therefore use condoms less with main sexual partners than with casual partners. Low condom use is further demonstrated by the finding that in the last 2 weeks prior to the survey, 39% FSW did not use condoms with one time client and 32% who did not use condom with regular client. FSW find it harder to ask for condom use with one time clients (70% ask) than with regular clients (76% ask).

Some of the factors responsible for low condom use programs need to address in order to promote condom include partner refusal, sex with regular partner and affordability. Information on condoms is not wide spread with 62% of FSW reporting receiving information on condoms in the last 12 months. FSW and clients of FSW should be targeted for giving free condom.

There is low use of lubricants with only 18% of FSW using lubricants in the last six months. Nearly half of FSW had a condom break in the last 6 months with two-thirds occurring in those who did not use lubricants. There is limited access to lubricants with only 6% receiving free lubricants. Nearly one-third of FSW (30%) regularly smoke or dry out their vagina before sex; possibly putting them at greater risk of HIV, especially in the absence of lubricants and condoms.

5.6 Pregnancy and family planning

Most FSW in Juba (86%) have ever been pregnant. Currently, a majority (85%) of FSW are not trying to get pregnant, yet two-thirds of this group is not using any Family Planning (FP) method. Of those FSW using FP, only 30% are using implant which is long term method while 54% are using injections. During their last pregnancy, 31% of women who accessed ANC services were last tested for HIV during the first trimester and 47% during the second yet it is important that women be encouraged to continue testing during the third trimester and after giving birth, as well. Nineteen percent of HIV-positive FSW did not take ART before giving birth during their last pregnancy this has implication in the PMTCT of HIV. Sixteen percent of HIV-positive women stopped taking their ART after stopping breastfeeding as Test and Start has not been operationalized in FSW.

5.7 STI in FSW

STI symptoms are common among FSW mostly abnormal discharge from their vagina (28%) and/or an ulcer or sore near their vagina (21%) in the last 12 months. Inconsistent condom use among this population puts them at risk of getting and transmitting STI

5.8 Access to HIV services

Over one-third (38%) of sex workers ever received HIV education through peer education or outreach. Most of the services provided are condoms and HIV testing.

The majority (79%) of FSW had previously been tested for HIV but only 53% seeking HIV testing disclosed to the counselor that they do sex work which underlies stigma associated with sex work. The main reason for never testing was that FSW did not know where to get tested. There is thus substantial opportunity to increase testing through outreach testing and letting women know where they can get HIV services. There is low disclosure of HIV status especially to spouse or sex partner at only 6%.

About three-quarters of women who are aware they have HIV had ever taken ART. Nearly all (97%) of these women were still on treatment. Among HIV-positive women who have never taken ART, 53% had never been prescribed them. The data suggest that there is better retention on ART in FSW compared to retention among the general population 70%. Viral load testing will confirm this. Findings from viral load testing will be included in a supplemental report. Only 16% of HIV positive FSW ever attended a support group demonstrating a gap in organized peer related care.

Only 35% of women with HIV had been asked about TB symptoms at their last HIV care visit, and yet 30% reported experienced any TB symptoms in the past 12 months. This underscores the need and importance of improved screening of HIV positive FSW for TB. Only 65% of HIV positive FSW had CD4 test conducted yet all needed to have CD4 test conducted given that it is a criteria for the enrolment into ART. In addition, the findings of this study indicated that a majority of the FSW had a CD4 count of below 500. So therefore most of the FSW who were not tested for CD4 were treatment eligible and would be on treatment had they had their CD4 measured.

5.9 HIV and syphilis prevalence

The HIV prevalence in FSW in Juba is substantially higher (37.9%) than the ANC estimate of the South Sudan population of 2.6% (MOH 2012). This is consistent with data from neighbouring countries. Recent surveys in neighboring countries estimated HIV prevalence among FSW from 23-57%. (Uganda AIDS Commission, 2012; Vandenhout HM, 2013; NASCOP, 2012). A large proportions of FSW in Juba (37%) are unaware that they have HIV. The significance of this is increased HIV transmission given the high number of sexual contacts, low access to condoms and inconsistent condom use with the various sexual partners. Active syphilis prevalence was high among FSW in Juba warranting inclusion of syphilis testing and timely treatment into the HIV programs.

6.0 Recommendations

Overall, HIV prevalence among FSW in Juba is high and the MOH with partners should urgently prioritize HIV interventions for these populations with focus on achieving the 90, 90, 90 UNAIDS targets.

6.1 Knowledge of HIV status (1st 90)

The Ministry of Health and the HIV services delivery and programs implementing partners, particularly those working with the FSW should:

- Expand testing by making it more available through targeted outreaches/mobile HIV testing services so that FSW and clients can access testing along with condom promotion and behavior change messages particularly in Custom and Jebel and other areas with FSW presence.
- Utilize peer recruitment for FSW to bring peers to the service providers for testing and treatment.
- Work with FSW peer educators to expand their reach to find FSW and link them to HIV testing and, if necessary, treatment.
- Encourage repeat HIV testing for FSW during pregnancy at first ANC visit, during 3rd trimester and immediately after giving birth.

6.2 Promotion of condom and lubricant use

- Develop and implement a coordinated plan to improve access to free quality condoms.
- Engage hotel, bar, restaurant, lodge management and boda boda riders in HIV prevention and condom promotion and ensure that condoms are available at no cost.
- Work with FSW peer educators to build skills on condom use negotiation for FSW with all types of clients especially one time and casual clients to prevent spread of HIV and other STI. Agents of FSW such as boda boda riders could also be used in distribution and promotion of condom use.
- Provide and promote lubricant use to prevent condom breakages/rupture.
- Programs through peer educators should encourage the FSW to use condoms/negotiate condom use with main and casual partners in addition to clients.

6.3 Access to HIV treatment (2nd 90), care

The Ministry of Health and the HIV services and programs implementing partners, particularly those working with the FSW should:

- Link all HIV positive FSW to friendly clinics for ART initiation, TB screening and proper follow up.
- Encourage and ensure that all HIV positive FSW are on ART throughout pregnancy and continued after birth.

- Work with health facility management to provide friendly HIV treatment and care services to FSW including the FSW from foreign countries.
- FSW should be prioritized for test and start.

6.4 Other Services

- Include STI/TB screening and treatment to all the HIV programs for FSW
- Link all STI/TB positive FSW to treatment in clinics and pharmacies
- Promote FP especially use of long term FP methods among FSW.
- Work with facilities providing treatment to FSW to integrate GBV intervention and provide more psychosocial support at clinics for FSW who have been victims of violence/abuse.
- In addition police could benefit from training in basic human rights and the rights of sex workers.

6.5 Viral load suppression (3rd 90)

- MOH and implementing partners need to ensure that all HIV positive FSW who are on ART have their viral load taken at least annually to support viral load suppression.

7.0 Study Limitations

The study limitations include:

- The exclusion criteria limited the participation of some of the FSW who could not speak English, Juba Arabic or Kiswahili especially the Ethiopians, Eritreans and some Congolese.
- Difficulty to reach some sub-populations especially South Sudanese and Congolese. This was partly overcome by reducing coupons for seed 2 from 3 to 2 at some point of the study as it was recruiting more Ugandans and keeping 3 coupons for seed 1 that was recruiting more South Sudanese.
- Some respondents did not respond to all the behavioral questions asked. Also it was not possible to eliminate respondent bias.
- The survey was not able to directly obtain number of clients for FSW per day as this was not in the questionnaire but we collected data on number of clients in the last two weeks. This information can be used to estimate the clients per day.
- Viral load has not been conducted yet this would provide a measure of HIV viral suppression important for the health of HIV infected FSW and HIV transmission risk to clients of FSW.

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