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Integrated Biological Behavioural Surveillance Survey of Vulnerable Groups

**The Gambia 2018
Final Report**

Coordination

Bai Cham

Fatou Ndow

Oumie Mbye

Principal Investigator

Daouda Diouf

International Technical Assistance

Stefan Baral

Benjamin Liestman

Carrie Lyons

Sosthenes Ketende

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Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral treatment
ARV	Antiretroviral
AUDIT-C	Alcohol Use Disorders Identification Test
DHS	Demographic Health Survey
FSW	Female Sex Worker
HIV	Human Immunodeficiency Virus
JHU	Johns Hopkins University
KAP	Key Affected Population
KI	Key Informant
MSM	Men who have sex with men
PHQ-9	Patient Health Questionnaire- 9
PLACE	Priorities for Local AIDS Control Efforts
PLWHIV	People Living with HIV
RDS	Respondent Driven Sampling
STI	Sexually Transmitted Infection
SVS	Sustained viral suppression
VL	Viral Load

Introduction

Background

The Gambia has a generalized Human Immunodeficiency Virus (HIV) epidemic with an estimated HIV prevalence of 1.9% in 2013 (DHS, 2013) and 1.6% (1.3 - 2.0) in 2016 among reproductive age adults. (UNAIDS, 2016) As in much of West Africa, the burden of HIV disproportionately affects key populations including female sex workers (FSW) and men who have sex with men (MSM) in the Gambia.

There have been three behavioural surveillance surveys among key populations that have been completed in the Gambia in 2010, 2012 and 2014. These surveys indicate that sexually transmitted infection (STI) symptoms and HIV risk in key populations are higher than adults of reproductive age in the broader population. Disproportionate HIV risk observed among key populations included concurrent partnerships, low condom use, and higher rates of transactional and commercial sex.

The study conducted in 2010 found that 25% of FSW in The Gambia reported ulcers, sores, or genital discharge characteristic of a sexually transmitted infection (STI) in the past year. (Jallow, 2011) Sexual violence affecting FSW in The Gambia is also prevalent with 29% of study participants reporting a client forced them to have sex in their lifetime. In this study, violence was found to be associated with STI symptoms. (Sherwood, 2015)

While these groups have been found to have a high-risk status, there has been only one biological assessment specifically targeting these

populations known to the authors. A 2013 systematic review found a pooled HIV prevalence of all FSW studies since 1987 in the region to be 34.9% (95% CI 34.4-35.4) (Papworth, et al., 2013). The most recent Integrated Biological Behavioural Surveillance Study (IBBS) showed that prevalence among FSW and other KPs groups is 15.9% and 9.8 % respectively. FSW and MSM represent important targets for HIV prevention efforts not only because of their increased risk of HIV infection and transmission but also because, through their clients through bisexual concurrency that may act as conduits to lower-risk groups in the population.

The aim of evaluating these components of key populations is to inform service development and delivery for key populations in The Gambia.

Justification

The objectives of this study were to:

- i. Estimate the size of the FSW and MSM populations in the Greater Banjul Area
- ii. Estimate the prevalence of HIV and Syphilis among FSW and MSM in the Greater Banjul Area;
- iii. Understand the barriers and facilitators to prevention, treatment, and care services for FSW and MSM as well as HIV risk and prevention behaviours; and
- iv. To map sites frequented by FSW and MSM to find sexual partners and seek healthcare services.

Methodology

This study was conducted in four phases:

- i. Population size estimates were generated through the triangulation of several size estimation methods including the unique object method, wisdom of the masses, the service multiple method, the social event method, and capture-recapture.
- ii. Quantitative phase to include population size estimates as well as the behavioural and biological assessment;
- iii. Respondent Driven Sampling (RDS) was used to recruit participants to the bio-behavioural phase of this study.
- iv. Programmatic mapping was conducted using the Priorities in Local AIDS Control Efforts (PLACE) method

Population

The populations for the study were men who have sex with men (MSM) and female sex workers (FSW) living in the Greater Banjul Area. For the purposes of this study, MSM were defined as individuals assigned male sex at birth; and having had insertive or receptive anal sex within the past 12 months with another man, regardless of gender identity or sexual orientation. FSW were defined individuals assigned female sex at birth; and who had earned the majority of their revenues over the past 12 months from selling sex. Participation in this study was limited to those 18 years of age or older.

Integrated Biological and Behavioural Survey

Respondent Driven Sampling (RDS)

In the Greater Banjul area, the study used the Respondent Driven Sampling (RDS) method to recruit MSM and FSW participants. RDS is a sampling method designed to provide rigorous and more representative data on hidden populations. For this method, recruitment starts from a small sample of eligible MSM and FSW selected by the research team (called the "seeds"). The seeds participate in the study and receive three coupons

each to recruit their peers. These people who have received a coupon participate in the study and receive three coupons in turn. This recruitment chain continues until the sample size is reached. With each successive wave, the sample becomes increasingly diverse and more representative of the true population of MSM and FSW.

i. Population Size

We assumed that MSM with HIV prevalence in Banjul is of similar levels to those observed elsewhere in the region such as in Senegal where HIV prevalence among MSM is 23.5% and FSW is 20.1% (Lyons, 2016). From Salganik (2006), the sample size for an RDS HIV prevalence study can be estimated using following formula:

$$n = deff \cdot \frac{P_A(1 - P_A)}{(se(\hat{P}_A))^2}$$

Where n = sample size, $deff$ = design effect and P = assumed prevalence.

We estimated the required sample size to detect HIV prevalence no less than 23.5% for MSM and 20.1% for FSW. Thus, we used HIV prevalence of 23.5% for MSM and 21% for FSW, design effect of 2 and standard error no greater than 0.03. The resulting sample size estimate is 400 MSM and 356 FSW.

ii. Seed Selection

The first participants in the study (called the "seeds") were a convenience sample selected by the research team in consultation with community representatives. As with any participant, these seeds had to meet the eligibility criteria of the study (described below) in order to be considered. In addition, the seeds had to represent a range of sociodemographic characteristics (age, level of education, HIV status, city of residence, participation in a community activity, etc.) and be willing to promote the study within their network. After participating in the study (behavioural questionnaire and HIV testing), each seed received 3 coupons to recruit peers to study. This process continued until the sample size in each city was reached. In total, this study has launched 11 seeds MSM and 09 seeds FSW.

iii. Eligibility Criteria

The eligibility of a potential participant was assessed by study staff members with the consent process. However, inclusion of the individual in the study depended solely on obtaining consent. The choice of survey sites for the RDS method was the result of discussions with members of the MSM and FSW communities. The following eligibility criteria were defined and applied to all the activities of the study.

In order to be considered eligible for the RDS component of this study, a participant had to fulfil the following eligibility criteria:

Inclusion criteria for MSM:

- Biological sex male
- 18 years of age or older
- Reports having sex with a male partner at least once within the past 12 months
- Has lived primarily in the Greater Banjul area for at least the past 3 months
- Must come to the site with a valid coupon
- Is mentally sound and capable of giving consent
- Has provided informed consent to participate in the study

- Consents to blood draw and HIV testing

Inclusion criteria for FSW:

- Biological sex female
- 18 years of age or older
- Reports having sex as primary form of income at least once within the past 12 months
- Has lived primarily in the Greater Banjul area for at least the past 3 months
- Must come to the site with a valid coupon
- Is mentally sound and capable of giving consent
- Has provided informed consent to participate in the study
- Consents to blood draw and HIV testing

There were no ethnic, nationality or gender restrictions to the eligibility of the participants and they were not asked to provide a piece of identification or proof of residence. A qualified staff member was responsible for assessing the eligibility of individuals who came to the site with a coupon prior to inclusion in the study.

iv. Ethical Considerations

This study received the approval of the Scientific Coordination Committee (SCC) in the Gambia before the implementation of research activities. Procedures have been put in place to protect the privacy, security and privacy of participants. The interviews were conducted in a private room on site where a third party could not hear the conversation. No identifiable information (e.g. last name, first name, telephone number, etc.) to link data to an individual was collected from the participants. At inclusion in the study, participants created an anonymous code that served as their identifier for this study and linked their behavioural and biological data. To minimize the physical risk, all samples were taken by an on-site laboratory technician. All research staff were trained in awareness and ethics in human research and were required to pass an assessment test prior to the implementation of the study. All electronic

data was saved on a password-protected computer or tablet and all paper data was stored in an on-site locked cabinet and then transferred to the ActionAid office.

Participants were asked to provide verbal consent. In addition, participants had to give their consent for both the behavioural questionnaire and the HIV test. Additionally, participants were asked for their consent to store their samples for future research. Participants were informed that receipt of screening results were not required.

Each participant received D175, male condoms and lubricant in both visits to reimburse the transportation and their time. In addition, they received D100 for each eligible person they recruited to study. This amount was increased to D150 upon review.

v. Data Collection

After giving informed consent, participants completed a behavioural questionnaire administered by an investigator in a private room. The questionnaires were designed to be able to characterize the dimensions of the Modified Social-Ecological Model theoretical framework and the questions covered the following areas:

- Socio-demographic characteristics
- Experiences of stigma, discrimination and violence
- Social Network size and population size estimation
- Mental Health
- Sexual behaviour
- Alcohol and Drug use
- Access and utilisation of HIV and STI prevention services
- Reproductive Health (FSW only)
- Quality of life

The participants' responses to the behavioural questionnaire were captured by an interviewer directly in a tablet using the SurveyCTO software. The completed questionnaires were sent to a

server and automatically removed from the tablets at the end of the interview. Biological data was noted on paper by the laboratory technician and later entered onto a tablet using SurveyCTO.

vi. Biological Procedures

HIV counselling and testing was conducted in accordance with The Gambia's national guidelines. HIV testing was done with 2 rapid tests (First Test: Determine® HIV Ag / Ab ½; Confirmation Test: HIV Bispot ImmunoComb II). A qualified member of the research team was responsible for blood sampling and testing. The participant's anonymous unique ID linked the biological results to the behavioural data.

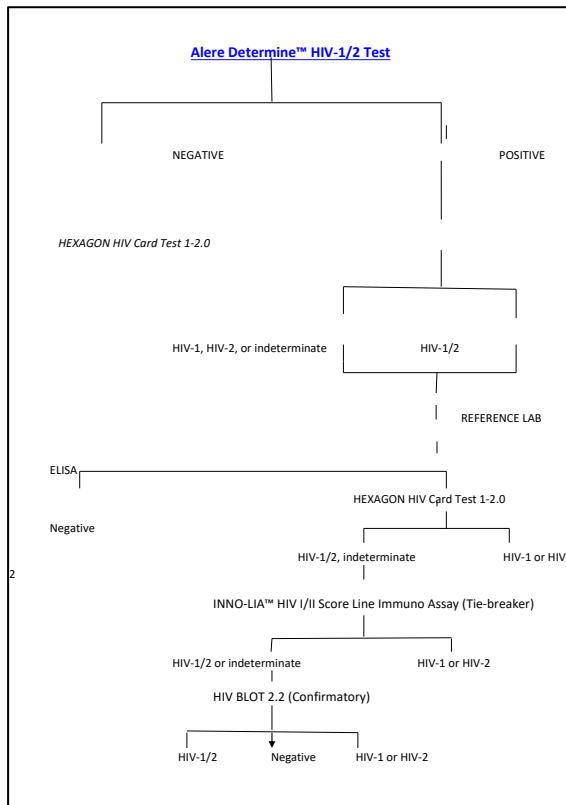
vii. Quality Management

a. Quality Control and Assurance

All screening tests used for the detection of infectious HIV markers have an internal quality control system that ensures the validity of the results obtained. In addition, all blood samples were subjected to external quality control at the National Public Health Laboratory (NPHL) in Kotu. An unbroken cold chain was maintained in order to control temperature of blood samples from blood collection to delivery at the NPHL. Banked samples were kept at -80°C until needed. A chain of custody record was kept to keep track of samples at all times, during pick-up, transport and delivery.

b. HIV Testing Algorithm

The national HIV testing algorithm for serum was used in the study with the guidance of the NPHL as follows:



viii. Data Cleaning and Analysis

The data was cleaning and analysis was carried out, missing information was filled in using the paper version. The data analysis was carried out with SPSS 23 and STATA 13. It focused on the description of the different variables of the study. For the qualitative variables, the frequencies were calculated and the trend characteristics allowed to analyse the quantitative variables.

Population Size Estimates

Overview

The following methods were used to conduct population size estimates for FSW and MSM in the Greater Banjul Area:

- **Unique object multiplier method:** Before beginning RDS recruitment to the IBBS component of this study, a unique and memorable keychain selected by community representatives was distributed to FSW and MSM by community leaders. During the behavioural survey, participants were asked if they had received the object.
- **Wisdom of the masses:** During the behavioural survey, participants were asked to estimate the number of FSW or MSM they believed lived in the Greater Banjul Area.
- **Service multiplier Method:** During the behavioural survey, participants were asked if they had received various healthcare services.
- **Social event multiplier method:** Before recruitment began, community leaders, in collaboration with partner organisations, organised a workshop on sensitizing about HIV. FSW and MSM living in the Greater Banjul Area were invited to participate in this even. During the behavioural survey, participants were asked if they had participated in the workshop.
- **Capture-recapture:** This method was only used for FSW.

For all multiplier methods, the size estimation was calculated by multiplying the proportion of study participants who received the object by the number of objects that were distributed. The variance of the formula will be calculated as follows:

$$V(s) \approx \frac{n_1^2(1 - n_2/m)}{m(n_2/m)^3} + r^2 n_1$$

$V(s)$ =Variance of the population size estimate
 n_1 =number of objects distributed
 n_2 =total number of study participants
 m =number of participants who received an object
 r =ratio of m to n_2

This method should be excluded from the triangulation of results if more than 90% of the people who received an object participate in the

study as this would indicate that the 2 samples were not independent.

Procedures

Various methods were used to estimate the population size of FSW and MSM. Population size estimation was calculated by an averaging triangulation of the various methods.

i. Capture-Recapture

Capture-recapture method is a probability-based technique, well suited for closed populations, and ideal for rapid size estimation of the FSW population. The capture/recapture method was used for FSW, but not MSM. Known venues where women sell sex in the study cities, this method is feasible for estimating the size of the FSW population.

For the capture/recapture method, population size estimates are possible through taking a count of the FSW present at a sex work venue (during the “capture”) and then returning to the same site one to one week later (for the “recapture”). At the recapture, another count of individuals was made, recording the proportion of individuals who were also present at the initial “capture” visit for use in estimating population size.

Staff approached all women present at the venue within a predetermined 1-hour period and determine if they are FSW. They first pulled the women aside one by one in privacy and read the brief consent script. Only those individuals who gave consent were asked the question. This is the “capture”. They were given a memorable item, a pack of female condoms and lubricants. At minimum of one and at maximum of two weeks later, a second visit took place by the same staff members at the same venue. This is the “recapture.” At the recapture, the population of FSW will be counted, and each were asked if they were approached by one of the staff members at the first visit and asked what the memorable item given to them was, to confirm.

The capture/recapture method was not used to estimate the size of the MSM population due to the

lack of known MSM venues and the political context of the country.

ii. Unique object method

For population size estimation using the unique object technique, the proportion of RDS participants who received the object is multiplied by the number of objects that were distributed. The unique object method requires a question in the RDS quantitative questionnaire as well as additional field operations. In the two weeks prior to the study unique objects were distributed among the MSM and FSW populations. Local organizations and local collaborators conducted unique object distribution and ensured that any person who received a unique object was in the target population and met the eligibility criteria.

iii. Wisdom of the masses

The wisdom of the masses method was implemented as part of the RDS quantitative questionnaire for FSW and MSM. The method did not require any additional field operations. The size estimation is based on participant responses to questions regarding their knowledge of MSM and FSW living in the Greater Banjul Area.

iv. Social Event

The social event method was used for both MSM and FSW. The three weeks prior to the study the social event was carried out with local organisations and collaborators and ensured that any person who attended the social event was in the target population and met the eligibility criteria. The enumeration of the number of people at the event was then carried out. In the RDS questionnaire, a question was asked about the participants attending the event.

Priorities in Local AIDS Control Efforts (PLACE)

The PLACE method was the method used. The goal of this method was to map and evaluate sites where FSWs and MSMs are looking for male clients or sex partners (known as “hot spots”) as well as health facilities where these populations seek

health care. The PLACE component did not include HIV testing.

The PLACE methodology has several stages:

1. Site Identification

Interviews with key informants provided a preliminary list of hot spots and health facilities frequented by MSMs and/or FSWs. Key informants were people with specialized knowledge of MSM and/or FSW communities in study area (e.g. NGO staff, community leaders, field workers, etc.)

2. Verification and Site Evaluation

After developing a preliminary list of sites, the research team visited these sites to confirm that they exist and that they are frequented by MSMs and/or FSWs. If relevant, the site was retained in the final list of sites and the research team assessed the site including its location, peak hours, site customer characteristics, past experiences and with HIV prevention and care, etc.

3. Eligibility Criteria

In order to be considered eligible for the PLACE part of this study, a participant had to fulfil the following eligibility criteria:

Criteria for eligibility of key informants:

- Age \geq 18 years old
- Have specialist knowledge of where MSMs and/or FSWs are located in the city concerned
- Able to provide informed written consent (mentally healthy, not under the influence of alcohol or drugs)
- Provide written informed consent

There were no ethnic, nationality or gender restrictions to the eligibility of the participants and they were not asked to provide a piece of identification or proof of residence. A qualified staff member was responsible for assessing the eligibility of individuals.

i. Ethical considerations

This study received the approval of the Scientific Coordination Committee (SCC) in the Gambia

before the implementation of research activities. Procedures have been put in place to protect the privacy, security and privacy of participants. The interviews were conducted in a private room where a third party could not hear the conversation. No identifiable information (e.g. last name, first name, telephone number, etc.) to link data to an individual was collected from the participants. At inclusion in the study, participants created an anonymous code that served as their identifier for this study. All research staff were trained in awareness and ethics in human research and were required to pass an assessment test prior to the implementation of the study. All electronic data was saved on a password-protected or tablet and all paper data was stored in a locked cabinet was transferred to the ActionAid office. Participants were asked to provide verbal consent.

ii. Data collection

After giving informed consent, participants completed a behavioural questionnaire administered by an investigator in a private room. The areas evaluated in the various tools are detailed below:

Identification of sites:

- Characteristics of the key informant
- Characteristics of sites
 - Type of site
 - Location
 - Days and hours of operation
 - Attendance of MSM and/or FSW

Validation and evaluation of sites:

- Site GPS coordinates
- Site characteristics
 - Owner
 - Staff composition
 - Peak hours
 - Available health services and associated costs
 - Availability and distribution of condoms
 - Experiences with prevention activities and management of HIV

Characteristics of MSM and/or FSW on site

- Hours of attendance
- Sociodemographic characteristics

and automatically removed from the tablets at the end of the interview.

The participants' responses to the questionnaire were captured by the investigator directly in a tablet using the SurveyCTO software. The completed questionnaires were sent to a server

Results

Population Size Estimates

Estimate Use Disclaimer

The population size estimates presented in this document are not only for the cities but inclusive of neighbouring areas represented in the study sample. This is in recognition of the fact that the networks of MSM and FSW are not limited to city limits and they access services in these cities. Data users are strongly advised to include “and neighbouring areas” when citing these numbers for a specific location e.g. “MSM population size estimate for the Greater Banjul Area and its neighbouring areas is 1685 [Interval: 1045 - 4338]”.

Based on the triangulation of results from the size estimation methods, we estimate the size of the FSW population in the Greater Banjul Area to be 2038 [Interval: 1698 - 2547] . In addition, we estimate the size of the MSM population in the Greater Banjul Area to be 1685 [Interval: 1045 - 4338].

Final population size estimates

Table 1. Size Estimation of FSW population in the Greater Banjul Area

Location	FSW Size Estimate	Credible limits		Female Population 15-49	Size estimate Percent	Credible limits	
		Lower	Upper			Lower	Upper
Greater Banjul Area	2038	1698	2547	121,907	1.67%	1.39%	3.65%

Table 2. Size Estimation of MSM population in the Greater Banjul Area

Location	MSM Size Estimate	Credible limits		Male Population 15-49	Size estimate Percent	Credible limits	
		Lower	Upper			Lower	Upper
Greater Banjul Area	1685	1045	4338	118,584	1.42%	0.88%	6.97%

Challenges and sources of error

- 1 Measurement error in each method:
 - a. Unique object method: If the sample of FSW/MSM who receive the unique object are more likely to participate in the study, the resulting estimate is lower than the actual population.
 - b. Special event multiplier: If the sample of FSW/MSM who participated in the event were more likely to participate in the study, the resulting estimate is lower than the actual population. The special event estimate in each city was probably an underestimate as the FSW/MSM who received the unique object were also probably more likely to be recruited in the study.
- 2 Lack of appropriate census data for study area: It is important to have recent, accurate census information for the study area. We used 2013 population projections from the report referenced above for these estimations. Additionally, the census areas might be larger than the study coverage area and used urbanization rates specific for each city to estimate urban populations.
- 3 Assuming that the proportion of FSW/MSM is the same in the entire 15-49 age range. We estimate the number of FSW/MSM from 15-49 to match the reproductive age women. It is possible that the proportion of FSW/MSM is different from 15-17 or from 30/31/35-49.
- 4 The wide credible limits of the estimates are indicative of the imprecise nature of the methods used for size estimation

Conclusion

- Our approach of estimating the proportion of men who have sex with men in the total population using multiple size estimation methods minimizes errors/biases from individual methods.
- The estimated percent of the population in each city could be applied to others cities or urban centers with similar characteristics as the study area to estimate the size of the population in that city/urban center.
- Those using these estimates to provide or plan for service portions, the upper credible limits should be used

Integrated Biological and Behavioural Study

Number of participants

In this study, 354 FSW and 147 MSM were recruited between May 2017 to May 2018 in the Greater Banjul Area.



Figure 1. Number of participants by sample size and actual sample.

1. Recruitment Networks

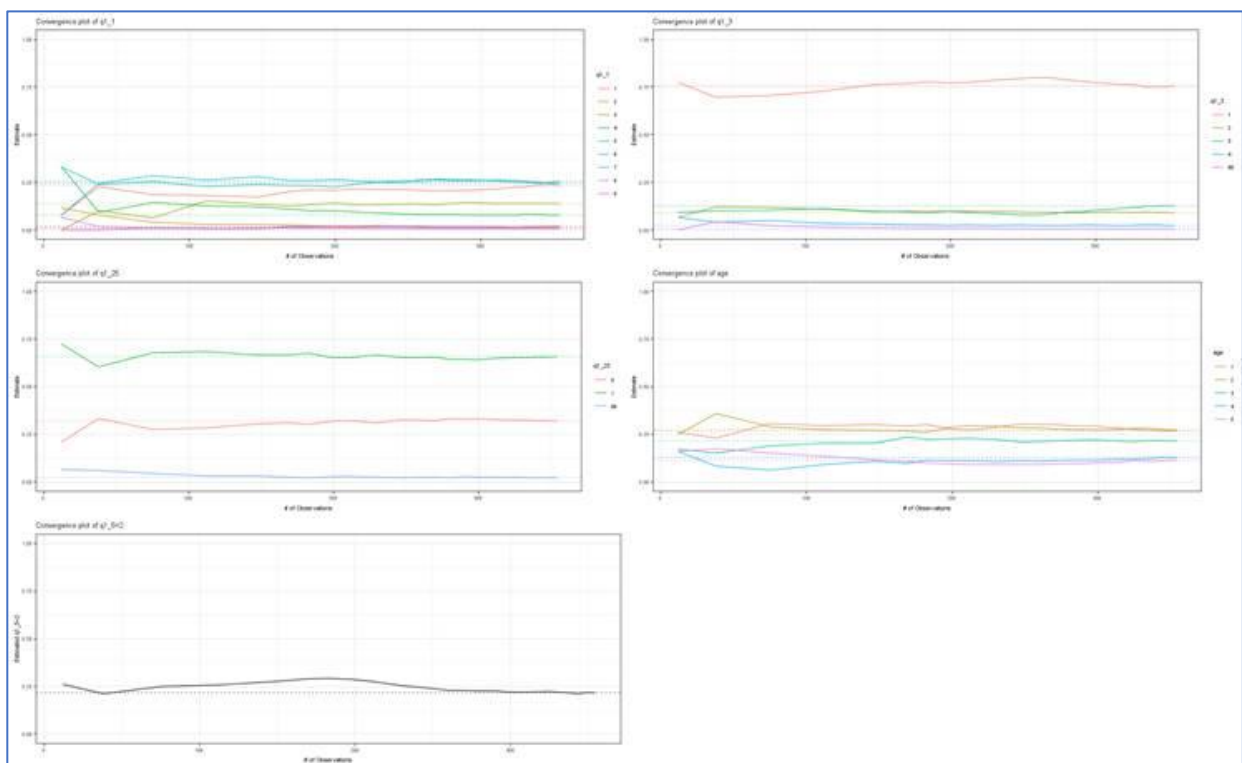
RDS was used to recruit participants to this study. Purposive sampling was used to select seeds, who each received up to three (3) coupons in order to recruit their peers to the study. If they chose to participate, these peers each received up to 3 coupons in turn. The recruitment chains have been illustrated in figures 2 and 3 below.

2. Equilibrium

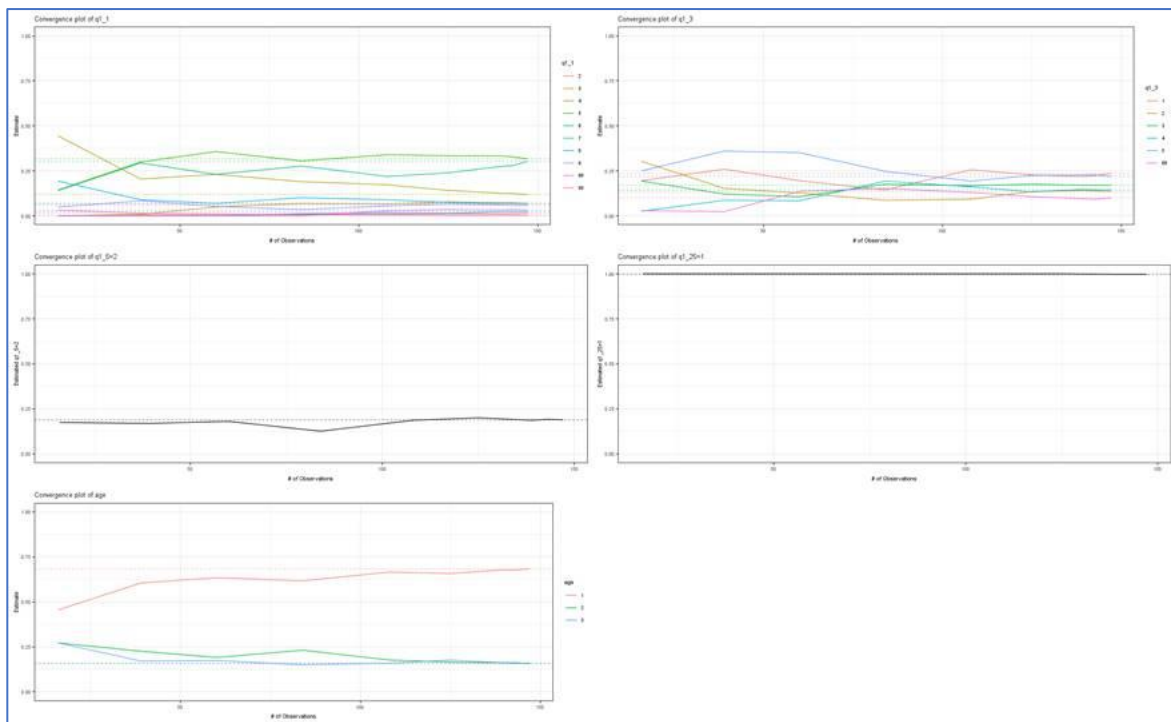
Equilibrium is the point at which the RDS sample proportions for each variable no longer change (or change very minimally) regardless of how many more individuals are recruited. Ensuring the diversity of the selected seeds was the key risk reduction strategy used to ensure that waves reach equilibrium. Ten seed were released for the FSW seeds, and among them they recruited a minimum of one wave and a maximum of 23 waves. Thirteen seeds were released for the MSM study, and among them two did not recruit anyone, and maximum of eight waves were completed.

Equilibrium was reached for stable demographic characteristics which are outline below.

FSW data convergence plots for highest level of education[q1_1], circumcision/cut[q1_25], Urban/rural during childhood [q1_5], employment status [q1_3] and age are outlined below.



MSM data convergence plots for highest level of education[q1_1], circumcision/cut[q1_25], Urban/rural during childhood [q1_5], employment status [q1_3] and age



Recruitment Chains

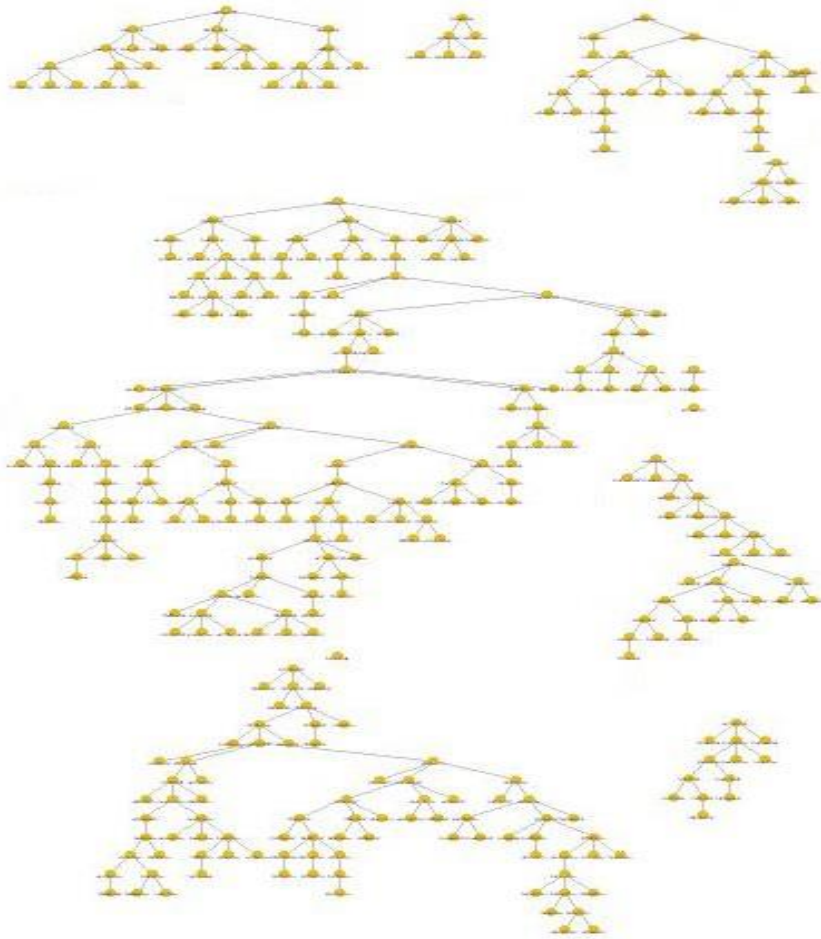


Figure 2. Recruitment chain for FSW

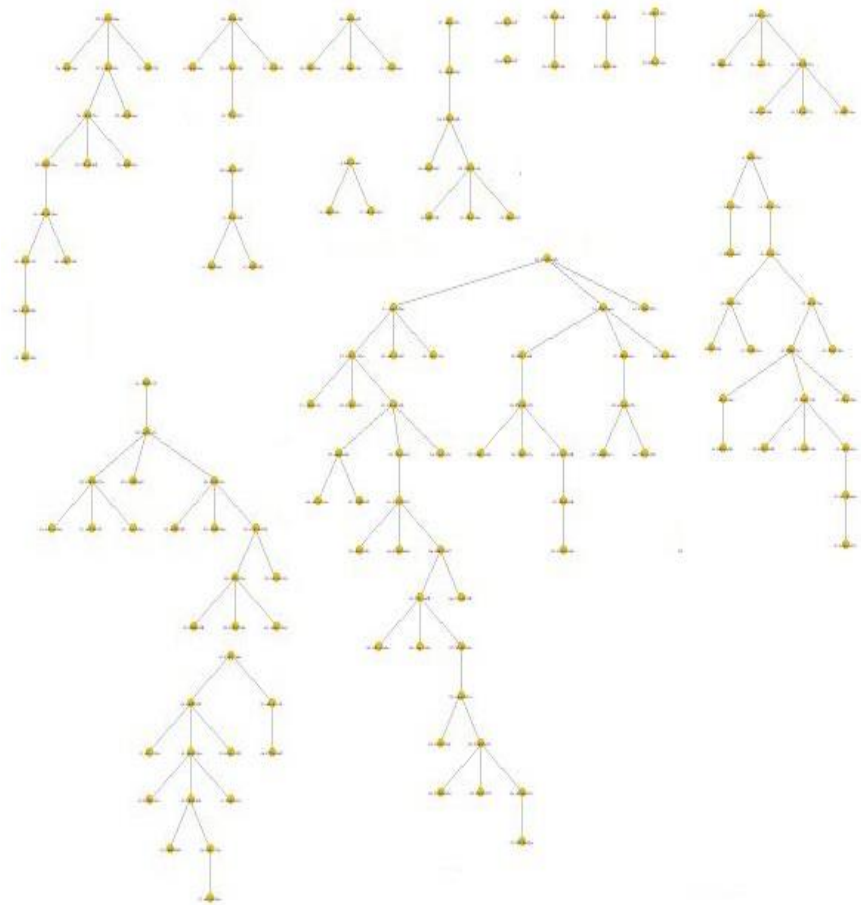


Figure 3. Recruitment chain for MSM

Socio-demographic Characteristics

Country of Birth

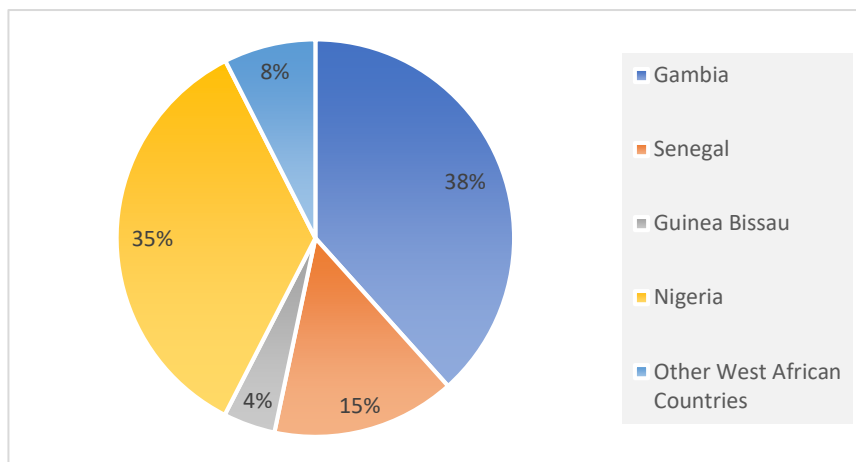


Figure 4. Distribution by country of birth among FSW

While women born in Gambia were the largest group sampled, less than the half of FSW participants were of Gambian origin (38%). The rest of the FSW sample originated from other West African countries, primarily Nigeria (35%) and Senegal (15%).

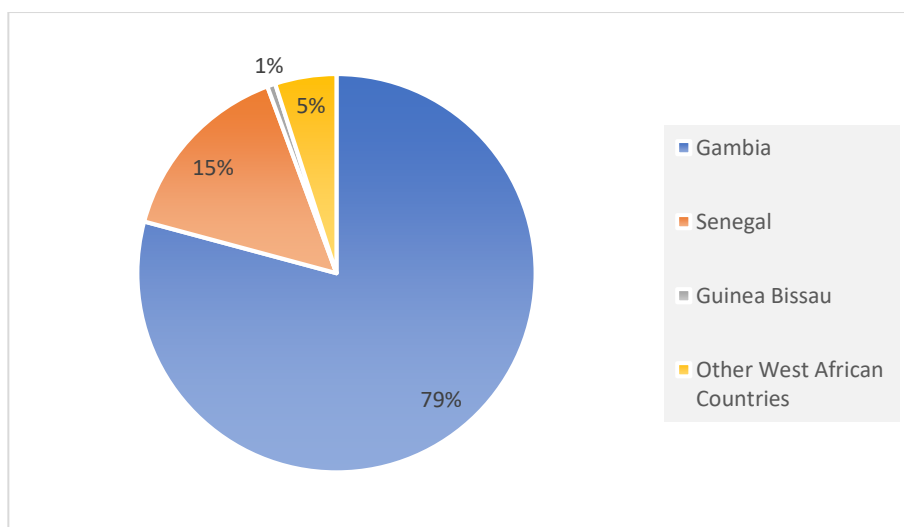


Figure 5. Distribution by country of birth among MSM

The majority of MSM participants originate from The Gambia (79%). The remainder of the MSM sample was made up primarily of men from other West African nations, namely the neighbouring country of Senegal (15%).

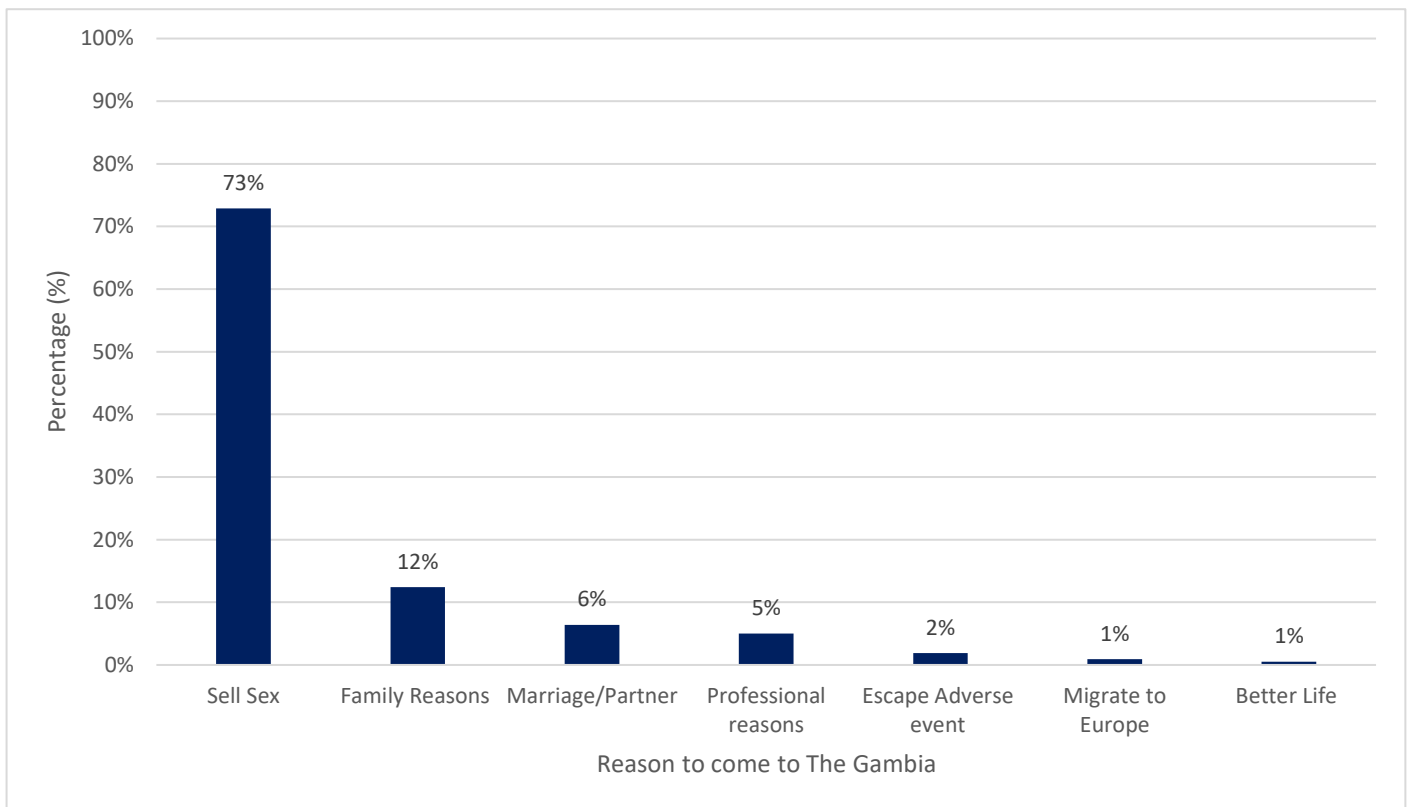


Figure 6. Migration to Gambia: Reason for FSW coming to the Gambia

FSW who were not born in the Gambia were asked about the primary reason they migrated to the Gambia. The majority, 73% said they came to sell sex, 12% came for family reasons, 6% for professional reasons.

Age

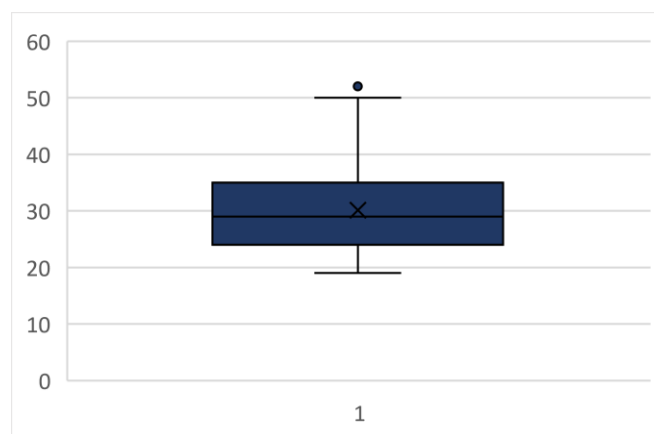


Figure 7. Box plot and whisker of the median values and inter-quartile range of ages of FSW participants

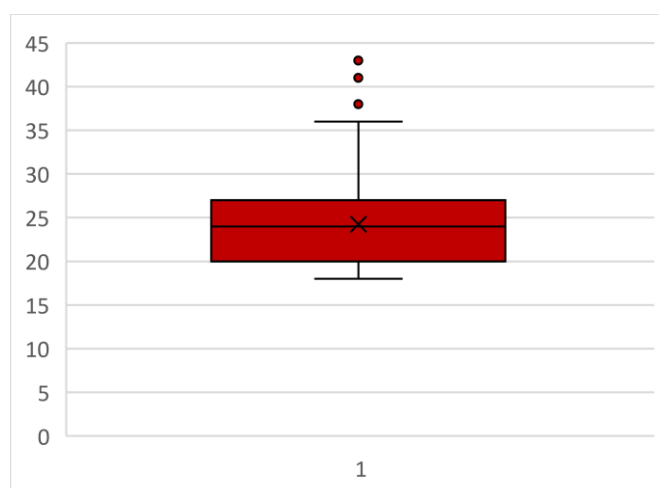


Figure 8. Box plot and whisker of the median values and inter-quartile range of ages of MSM participants

The majority of participant in this study were young, with the median age of MSM being 24 years old (20 to 27 Interquartile Range [IQR]) and 29 years old (24 to 35 IQR) for FSW. Participants' ages ranged from 19-53 for FSW and 18-43 for MSM.

Table 3. Breakdown by age group of FSW

Age FSW (years)	Frequency (n)	Percentage (%)
18-24	93	26.3
25-29	97	27.4
30-34	73	20.6
35-39	64	18.1
40-44	21	5.9
45+	6	1.7
Total	354	100

The largest age group of FSW sampled was 25-29 years old (27.4%), followed by FSW aged between 18-24 years old. Participants 45 years or older accounted for only 1.7% of FSW surveyed.

Table 4. Breakdown by age group of MSM

Age MSM (years)	Frequency (n)	Percentage (%)
18-24	88	59.9
25-29	37	25.2
30-34	15	10.2
40-44	5	3.4
45+	2	1.4
Total	147	100

Within the MSM participants the majority (59.8%) of participants were between 18-24 years old. Those aged between 25-29 years old accounted for 25.2% of the MSM who participated. Only 1.4% of the sample was 45 years or older.

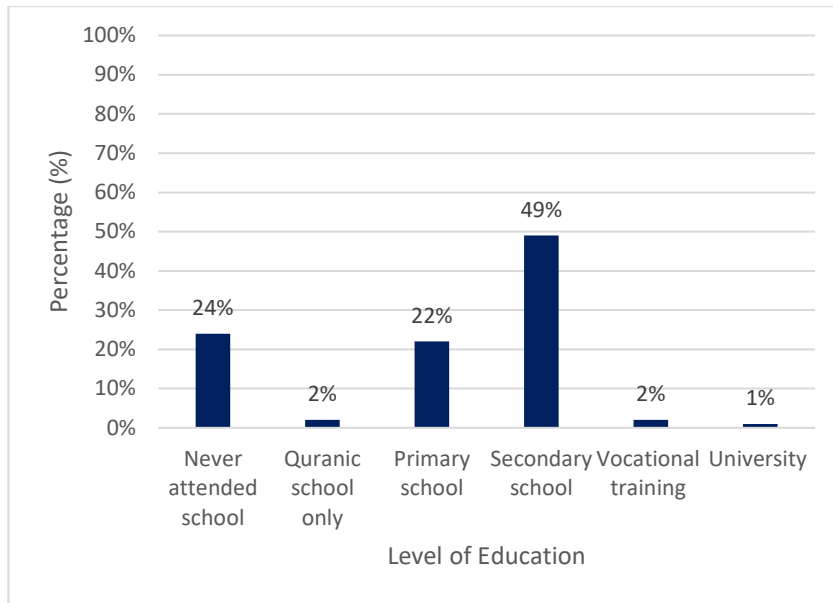


Figure 9. Level of education in FSW participants

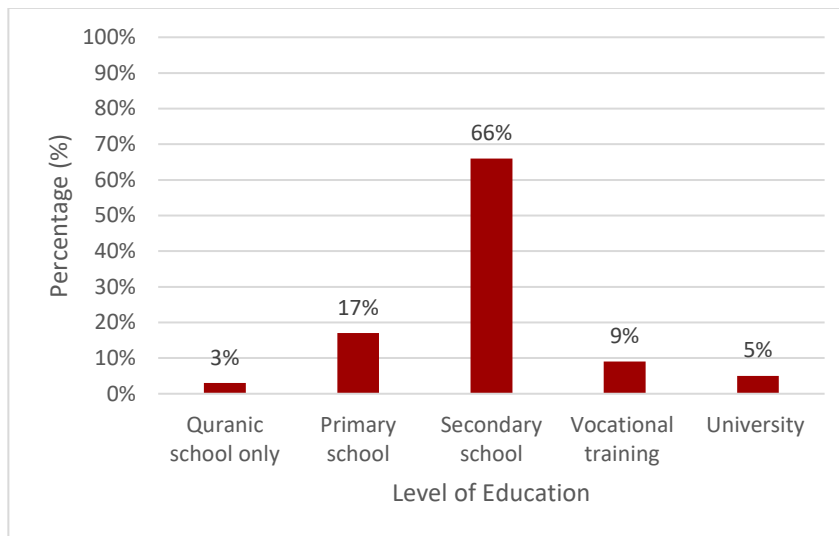


Figure 10. Level of education in MSM participants

In the FSW group, 24% state that they have never attended school, whereas reported 76% having some level of education, whether complete or incomplete. Overall, 49% has attended secondary school, and 3% attended post-secondary school.

Regarding the level of education in the study population groups, 99% of MSM stated that they have had some level of education, whether complete or incomplete. Overall, 66% has attended secondary school, and 14% attended post-secondary school.

Professional Situation

Among MSM, 25% reported some form of employment and 18% reported currently being a student with 29% currently being unemployed. However, the majority of the participants in the FSW target group reported no employment other than sex work (76%). Only 25% of FSW reported some form of employment other than sex work.

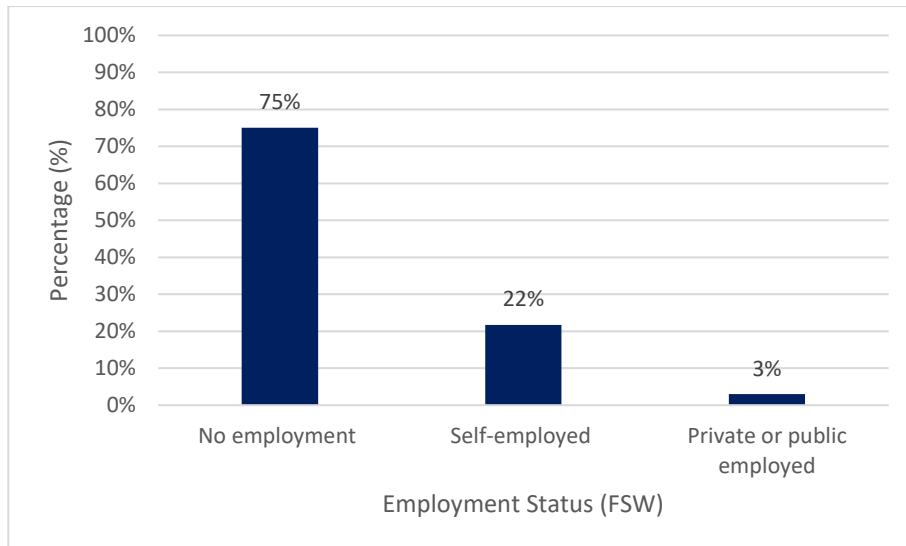


Figure 11. Employment status of FSW

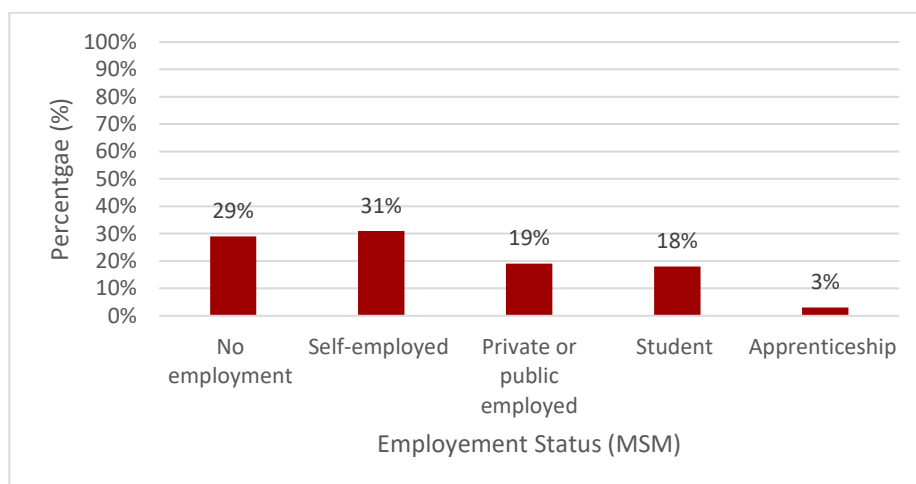


Figure 12. Employment status of MSM

Marital Status

Nearly half of FSW recruited were single and never married (49%). A similarly high proportion of FSW reported being divorced, separated from their partner, or widowed (49%). Only 3% of recruited FSW reported currently being married or having a stable partner.

The majority of MSM who participated in this study reported currently being single and never married (56%). However, a significant proportion of MSM reported currently being married or having a stable partner (37%).

Table 5. Distribution of marital status frequency and percentage of MSM and FSW

Marital Status	FSW		MSM	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Single/never married	172	48.5	81	55
Married or stable partner*	10	3	56	38
Divorced/separated/widowed	172	48.5	10	7

*Other than a husband, such as boyfriend/girlfriend

Weekly Income

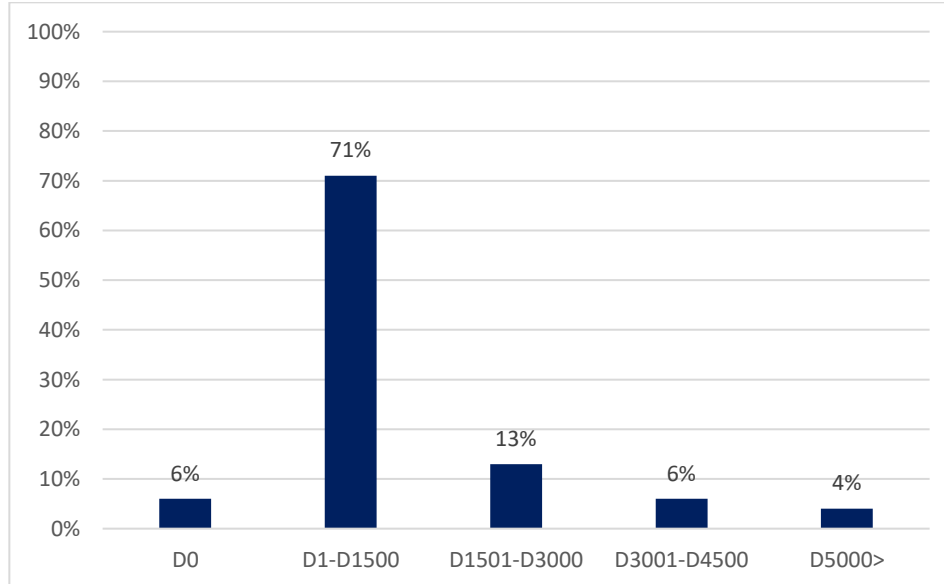


Figure 13. Percentage of weekly Income for FSW

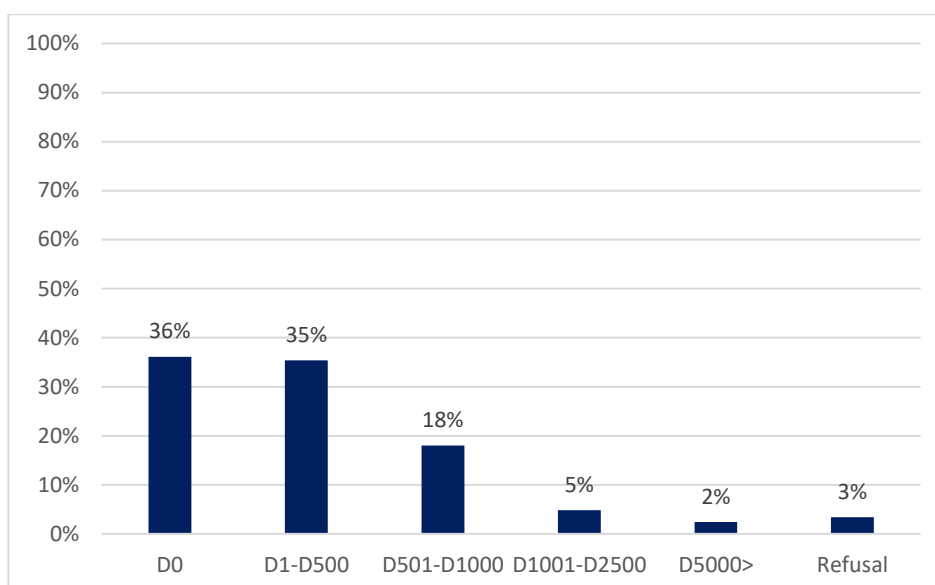


Figure 14. Percentage of weekly Income for MSM

Participants were asked to state their average weekly income from both formal and informal work. Nearly half (49%) of FSW reported living below the poverty line with 6% their average weekly income was D0. Among MSM, 58% reported earning an average of less that D2500 per week, with 36% reporting no weekly income.

Biological Children

Table 6. Distribution of number for biological children of FSW and MSM in the Greater Banjul Area

No. Biological Children	FSW		MSM	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
0	101	28	120	82
1-2	162	46	15	10
3-4	71	20	2	1
5-6	18	5	1	1
7+	2	1	-	-
Refusal	-	-	9	6
Total	354	100	147	100

The majority of FSW who participated in this study reported having biological children (72%). In contrast, the majority of MSM (82%) reported having no biological children.

i. Gender identification

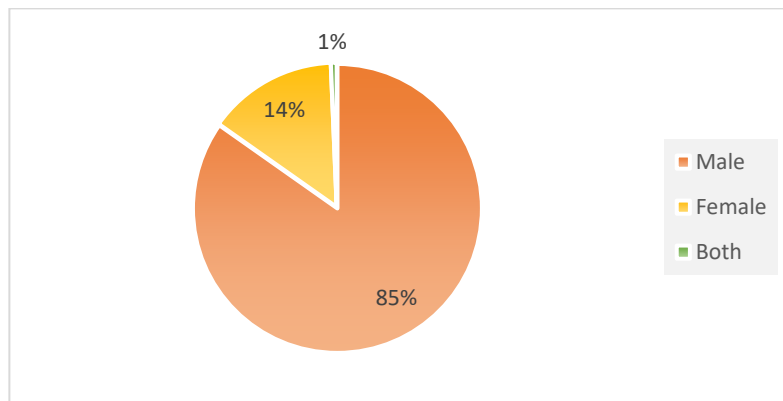


Figure 15. Distribution of Gender Identification amongst participants

We used the two-step gender assessment method to determine participants’ gender identity, asking 1) what sex they were assigned at birth and 2) what gender they consider themselves currently. In our sample, 14% of participants were determined to be transgender women, reporting male sex assigned at birth and identified as female. Overall, 1% of participants reported identifying as both male and female.

ii. Sexual Orientation

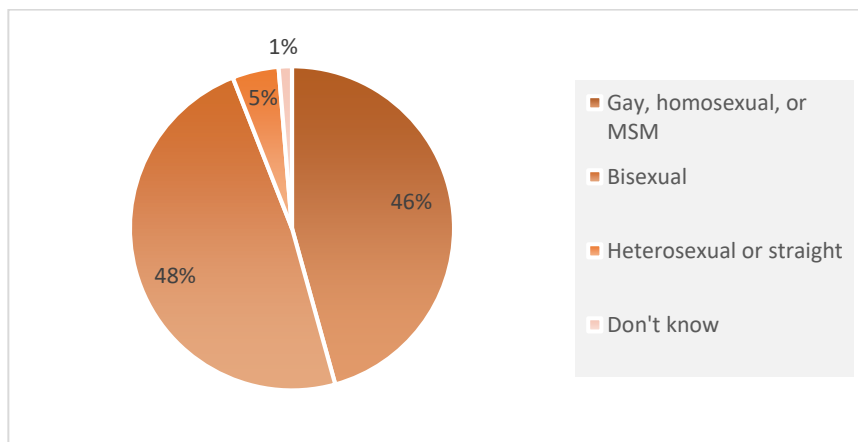


Figure 16. Distribution of Sexual Orientation Amongst Participants

The participants were asked to report their sexual orientation. The results show that 48% of MSM who participated in this study considered themselves to be bisexual, 46% homosexual, 5% heterosexual and 1% did not know.

Mental Health

Depression

The PHQ-9 (patient health questionnaire 9) was used to assess mental health among the participants. The PHQ-9 is a tool whose diagnostic validity has been established by previous studies. It evaluates the nine (9) criteria for depression according to the DSM-IV to calculate a depression severity score.

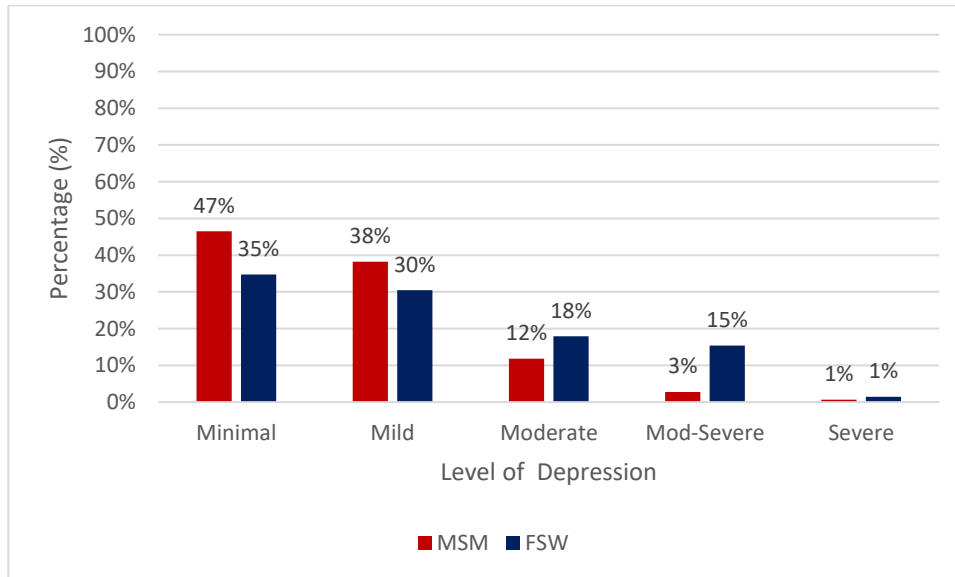


Figure 17. Patient Health Questionnaire 9 Depression Chart

Rates of depression were high among both populations. More than half (54%) of the MSM sample showed signs of clinical depression, with over 38% receiving a score that classed them as mild depression and 12% as moderately. Among FSW, 64% showed signs of clinical depression and 33% with moderately severe or severe depression.

Quality of Life

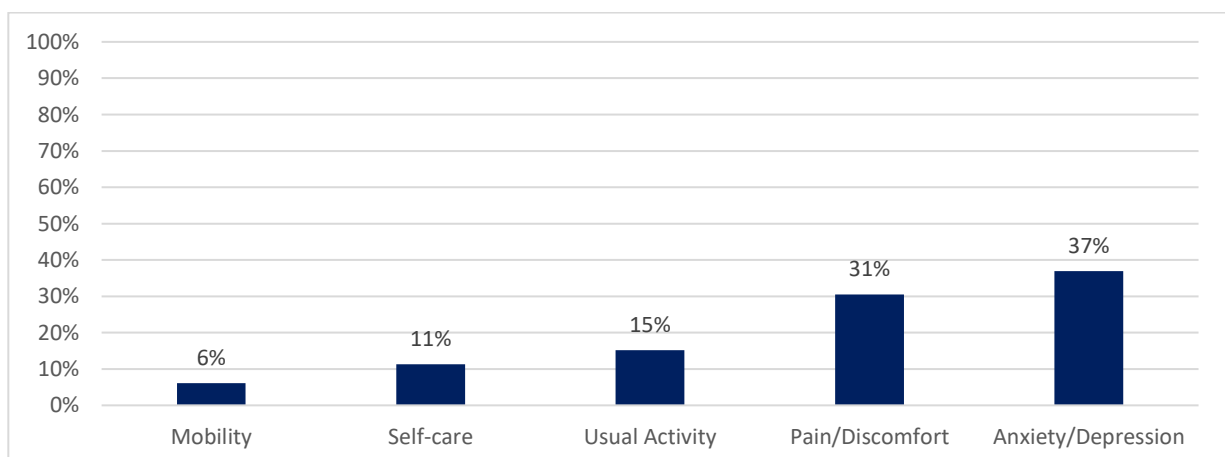


Figure 18. Percentage of EQ-5D levels for FSW participants

Quality of life was measured using EQ-5D which is standardise measure of health status developed a measure of health. 37% FSW said they felt like they had anxiety and depression, 31% FSW said they felt pain and discomfort and 15% FSW said they have problems doing their usual activities, 11% FSW claimed they have problems with self-care and 6% FSW have problems with mobility.

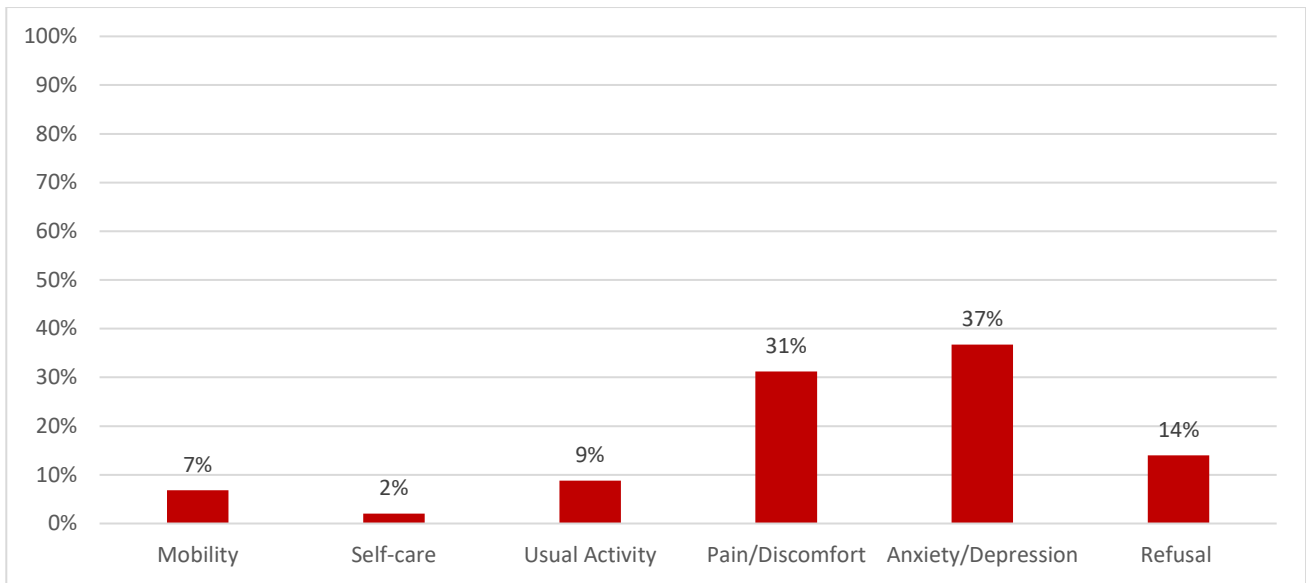


Figure 19. Percentage of EQ-5D levels for MSM participants

For MSM participants the biggest problems encountered are with anxiety or depression (37%) and pain and discomfort (31%). 7% MSM reported having problems with mobility and 9% MSM had problems with carrying out their usual activity.

Social Capital and Participation

Social Capital

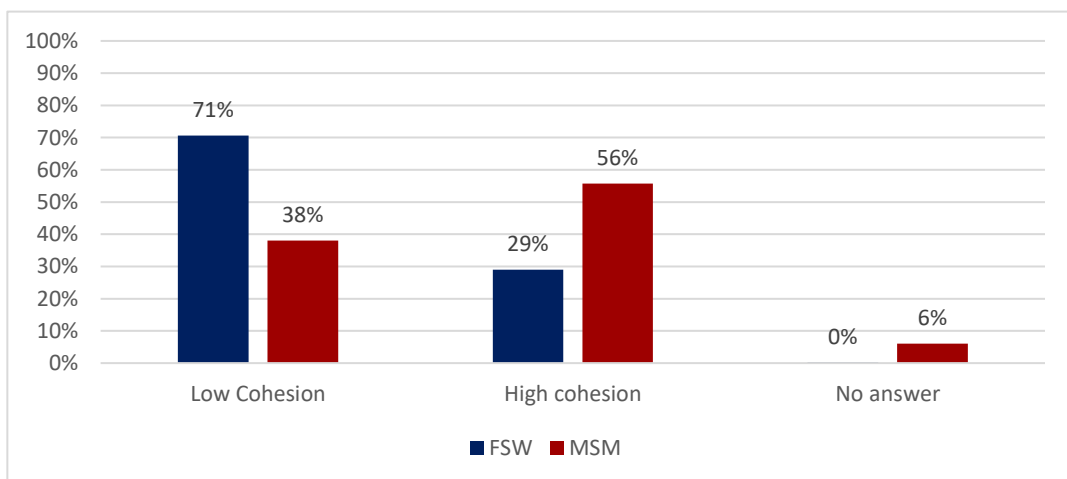


Figure 18. Social cohesion in MSM and FSW participants

Social capital was explored using two key social capital constructs; social cohesion and social participation of sex workers. Social cohesion was scored on a scale from 0 to 27. Social cohesion scores were dichotomized, with low social cohesion signalled when a participant scored between 0 to 16 and high social cohesion signalled when a participant scored between 17 to 27. As shown on Figure 18, 250/354 (71%) FSW participants had low social cohesion and 103/354 (29%) showed high social cohesion. For MSM 56/147 (38%) showed low social cohesion and 82/147(56%) showed high social cohesion.

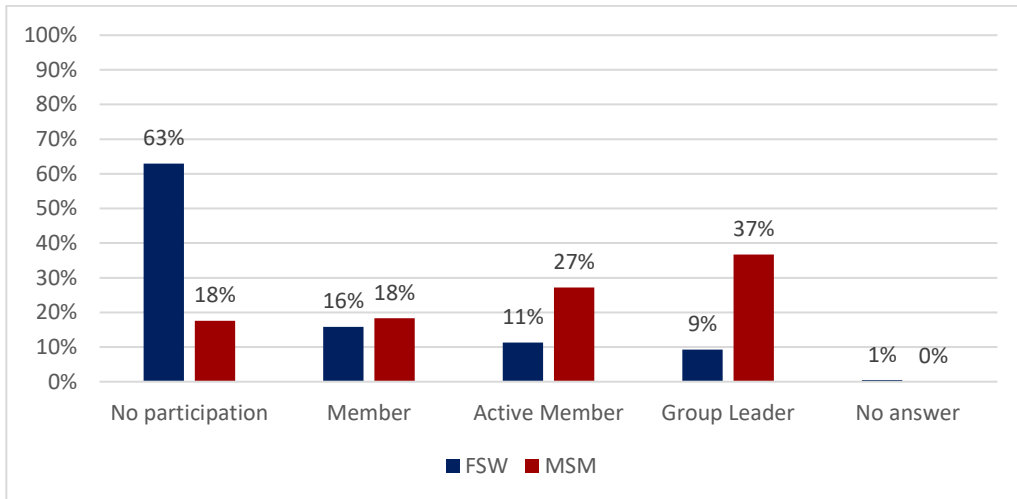


Figure 19. Social participation in MSM and FSW participants

Social participation was scored based on intensity of their involvement, an individual participation was scored as member, active member or group leader being the highest intensity. 36% FSW participants showed some form of social participation, of which 9% said they were a group leader. For MSM, 82% of participants showed some form of social participation and 18% showed no form of social participation.

Stigma and Discrimination

Table 7. Frequencies of Stigma items in FSW in the Greater Banjul Area

Social Stigma	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Family excluded	354	96.0	2.3	1.7	100
Family gossiped	354	93.5	3.1	3.4	100
Family rejected	354	94.4	2.3	3.3	100
Stigma in Healthcare Environments	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Afraid to seek healthcare services	354	98.0	0.8	1.2	100
Avoiding seeking health services	354	98.9	0.3	0.8	100
Denied care	354	98.9	0.3	0.8	100
Healthcare workers gossiped	354	99.2	0.0	0.8	100
Not treated well	354	100	0.0	0.0	100
Community Stigma	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Verbally harassed	354	88.1	5.1	6.8	100
Physically harassed or hurt	42	38.1	38.1	0.0	100
Arrested for sex work	127	7.1	33.9	59.0	100
Forced Sex	42	14.3	14.3	0.0	100
Stigma related to uniformed officer	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Avoid carrying condoms	354	92.7	3.7	3.6	100
Police confiscated condoms	354	92.4	3.6	4.0	100
Police refused to protect	354	96.9	2.3	0.9	100

Many of the FSW who were interviewed reported being stigmatized as a result of selling sex. Four areas were assessed these include 1) Stigma from friends and family 2) Stigma in healthcare environments 3) Enacted Healthcare Stigma, 4) Community Stigma and 5) Stigma from uniformed officers.

When asked about experiencing perceived, anticipated, and enacted stigma and discrimination from friends and family a small percentage of FSW reported experiencing this type of stigma, however gossip was more predominant than being excluded or rejected by family for being a sex worker. More FSW reported higher amounts of enacted stigma, whether it was being verbally harassed (5.1%), arrested because of sex work (33.9%) or forced sex (14.3%) in the last 6 months. There were also reports of experienced stigma with uniformed officers, most FSW who experienced this stigma had police confiscate their condoms (3.6%) and police refusing to protect them because they were sex workers (2.3%).

Table 8. Frequencies of Stigma Items for MSM in the Greater Banjul Area

Stigma from Friends and Family	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Family excluded	147	85.0	6.8	8.2	100
Family gossiped	147	77.6	9.5	12.9	100
Family rejected	147	86.4	4.2	8.4	100
Stigma in Healthcare Environments	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Afraid to seek healthcare services	25/147	83.0	8.8	8.2	83.0
Avoiding seeking health services	18/147	87.8	8.2	4.0	87.8
Denied care	147	98.0	2.0	0.0	100
Healthcare workers gossiped	147	96.6	2.0	1.4	100
Not treated well	147	96.6	1.4	2.0	100
Enacted Stigma	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Verbally harassed	49/147	66.7	15.6	17.7	100
Blackmailed	36/147	75.5	11.6	12.9	100
Physically harassed or hurt	147	87.1	6.1	6.8	100
Arrested for sex work	18/147	44.4	5.6	50.0	100
Forced Sex	62/147	57.8	15.0	27.2	100
Experiences with Stigma uniformed officer	Frequency (n)	No (%)	Yes Last 6 months (%)	Yes Not last 6 months (%)	Total (%)
Avoid carrying condoms	354	92.7	3.7	3.6	100
Police confiscated condoms	354	92.4	3.6	4.0	100
Police refused to protect	354	96.9	2.3	0.9	100

Similarly, MSM participants encountered five different types of stigma. The result showed that MSM participants reported to have had experienced stigma, including forced sex (62/147), being verbally harassed (49/147) and blackmailed (36/147) for having sex with men. There was a total of 13 participants who experienced healthcare stigma. Perceived healthcare stigma affected a larger number of participants; it included being afraid to seek healthcare (25/147) and avoided care (18/147).

Access to Services

i. Condoms and Lubricants

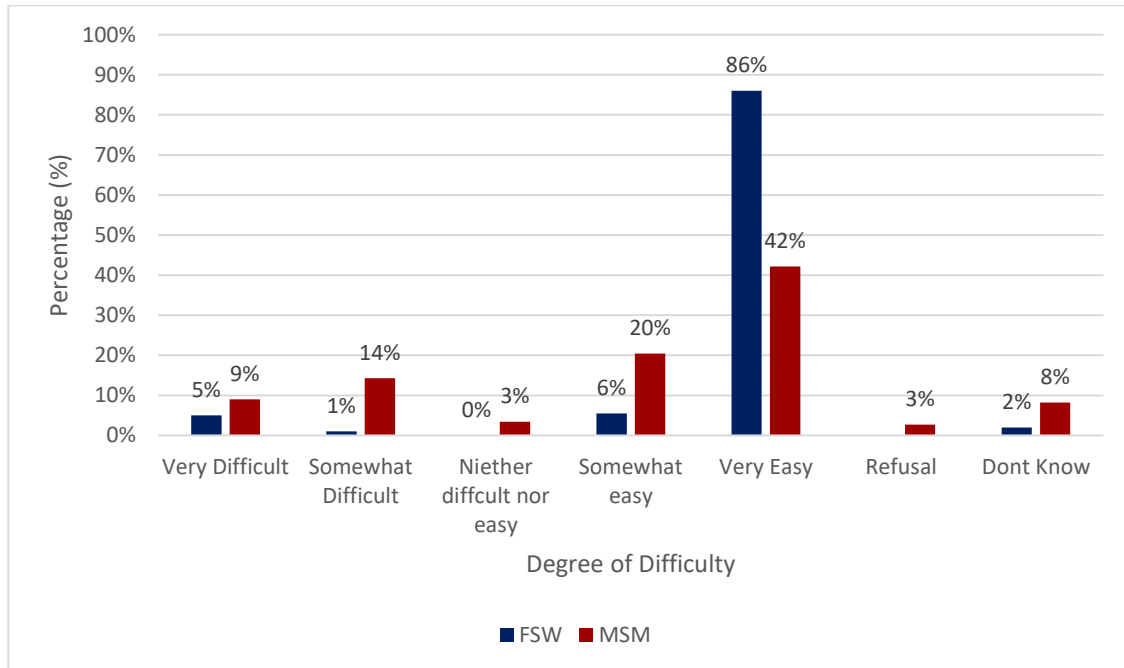


Figure 20. Degree of Difficulty of Obtaining Condoms for FSW and MSM Chart

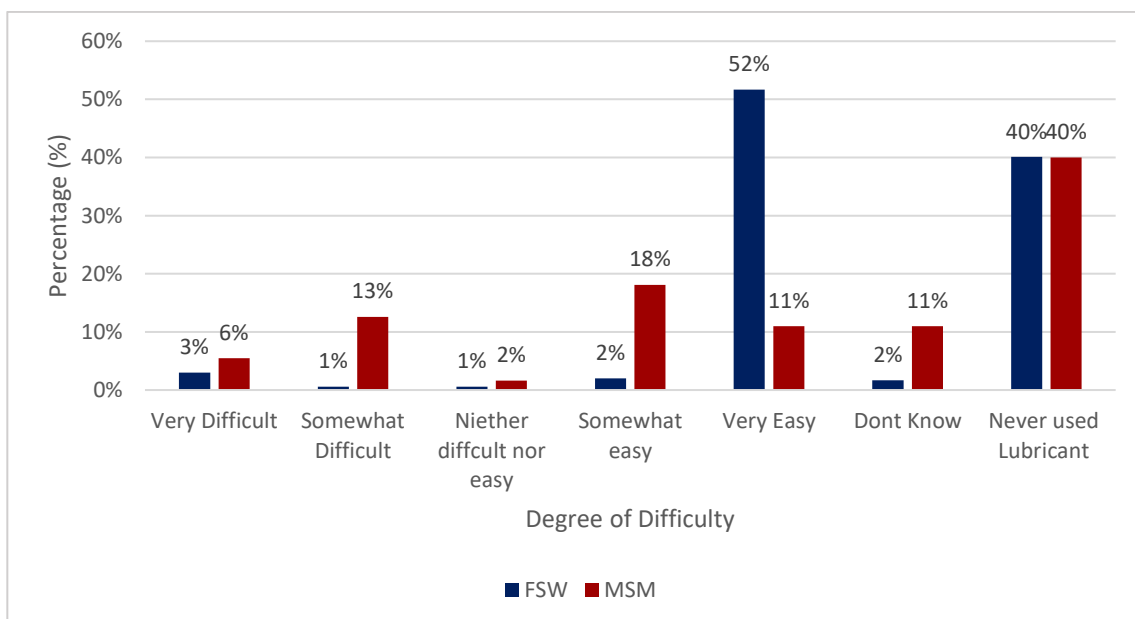


Figure 21. Degree of Difficulty for Obtaining Lubricants for FSW and MSM

When asked about access to risk reduction services, 6% of recruited FSW reported difficulty accessing condoms while 91% reported easy access. Similarly, 7% of FSW said they had difficulty accessing lubricant and 89% said they had easy access. However, among MSM, nearly one-fourth (23%) of participants reported difficulty accessing condoms and only 62% reported easy access. In addition, 30% of MSM reported difficulty accessing lubricant, while less than half (48%) said they had easy access to lubricant. Interestingly, in both groups 40% of participants respectively FSW and MSM never used lubricants.

ii. Access to Testing

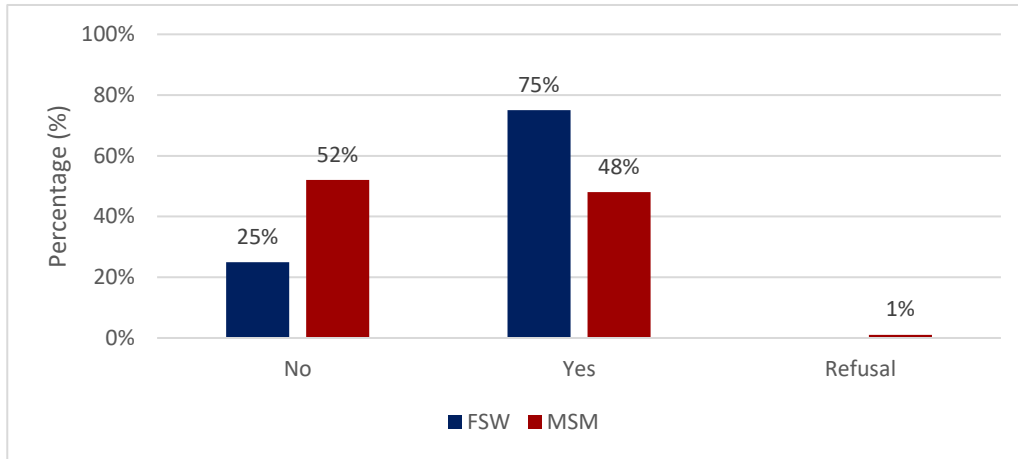


Figure 22. Percentage of FSW and MSM previously tested for HIV

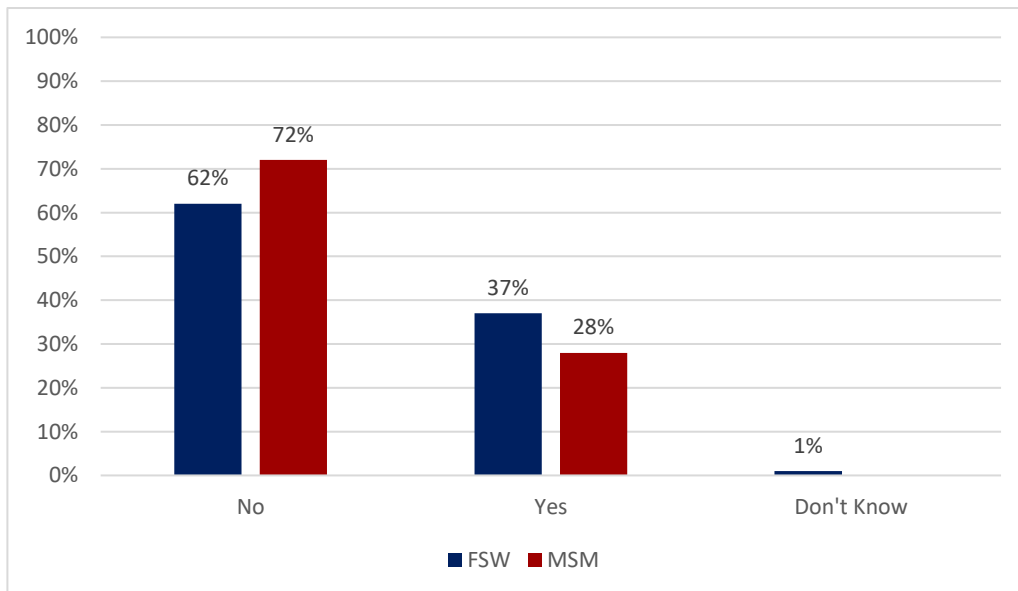


Figure 23. Percentage of FSW and MSM previously tested for STIs

When asked about previous testing behaviour, 25% of FSW reported that they had never been tested for HIV and 62% said that they had never been tested for another STI prior to their participation in this study. Among MSM, testing behaviour was even lower with over half of participants (52%) reporting that they had never received an HIV test and 72% saying they had never received a test for another STI.

Knowledge and Behaviour of Risk

Knowledge of HIV / AIDS is one of the factors that predispose to infection. Indeed, less risky behaviour necessarily requires a good knowledge of the infection even if it is not sufficient.

i. Knowledge about STI and HIV

FSW and MSM participants were asked a series of questions to assess their knowledge of HIV/AIDS. When FSW participants were asked about the type of sex that puts them most at risk 31% answered correctly. 47% FSW answered correctly when asked about the safest lubricants and 97% FSW knew that HIV could be transmitted through a contaminated needle. Overall, 6% of FSW answered all three (3) questions correctly. In total, 46% MSM participants answered correctly when asked about type of sex that puts them most at risk and also scored highly, when asked about contracting HIV from a needle. 7% of MSM had the correct score for all questions.

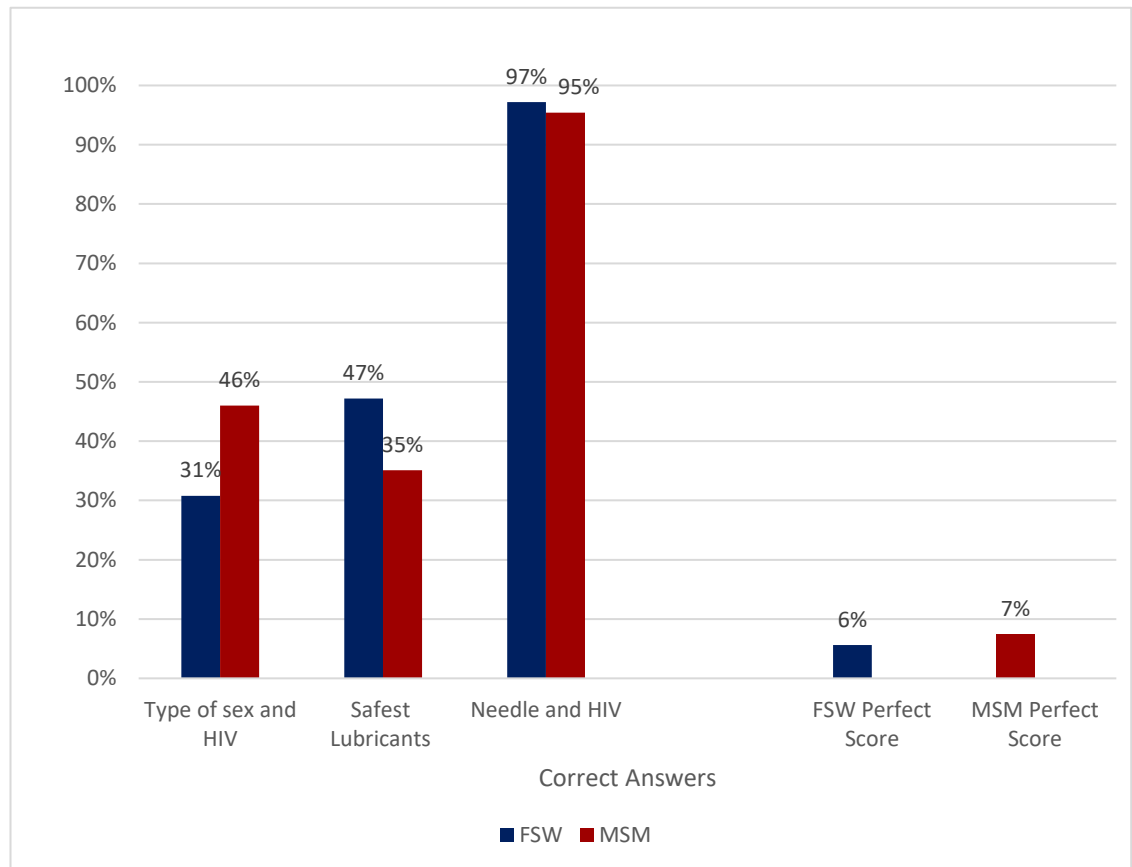


Figure 24. Knowledge of HIV/AIDS of FSW and MSM

i. Risk Behaviours

Age at which FSW and MSM initiated sexual activity

There were 43% FSW who started sexual activity under the age of 15 which makes them more likely to be exposed to HIV due to their vulnerability. 62.3% FSW started sexual activity before the age of 19. There were only 2% of participants who reported to have had anal sex.

Table 9. Age range of FSW participants' first vaginal and anal sex

Age Range	First Vaginal Sex		First Anal Sex	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
<15	43	12.1%	0	0.0%
15-19	220	62.3%	1	0.4%
20-24	72	20.3%	3	0.8%
>25	9	2.5%	3	0.8%
N/A	10	2.8%	347	98.0%
Total	354	100%	354	100%

There were 19% of MSM who said that they had their first vaginal sex before the age of 14 and 40.1% MSM had first their first vaginal sex between the age of 15 and 19 years old. When asked about the first time they had anal sex with a man, 20.3% MSM participants had had anal sex before the age of 14 and 48.3% MSM had anal sex between 15-19 years old.

Table 10. Age range of MSM participants first vaginal and anal sex

Age Range	First Vaginal Sex		First Anal Sex	
	Frequency	Percentage	Frequency	Percentage
< 9	4	2.7%	6	3.6%
10-14	24	16.3%	25	17.0%
15-19	59	40.1%	71	48.3%
20-24	21	14.3%	24	16.3%
>25	4	2.7%	13	8.8%
Refusal	35	23.8%	8	5.4%
Total	147	100%	147	100%

Age at which FSW and MSM started using condoms

Table 11. Age range of FSW starts using condom

Age Range (years)	Frequency (n)	Percentage (%)
<15	9	2.5%
15-19	55	15.5%
20-24	144	40.7%
>25	92	25.9%
Never used a condom	54	15.25
Total	354	100%

Table 12. Age range of MSM starts using condoms

Age Range (years)	Frequency (n)	Percentage (%)
10-14	6	4.0%
15-19	42	28.5%
20-24	31	21.7%
>25	4	2.7%
Never used a condom	48	32.6%
Refusal	16	10.5%
Total	147	100.0

18% of FSW stated that they used condoms during vaginal or anal intercourse when they were less than 19 years old. 40.7% between the ages 20 to 24. 41.2% over the age of 25. 15.2% said they never used a condom. For their MSM counterparts, 5.5% started using condoms between the ages of 10-14 and 50% started using condoms between the age 15-19 years old. 32.% of MSM reported to have never used a condom and 10.5% refused to answer.

Age at which FSW started having sexual relations for goods or money

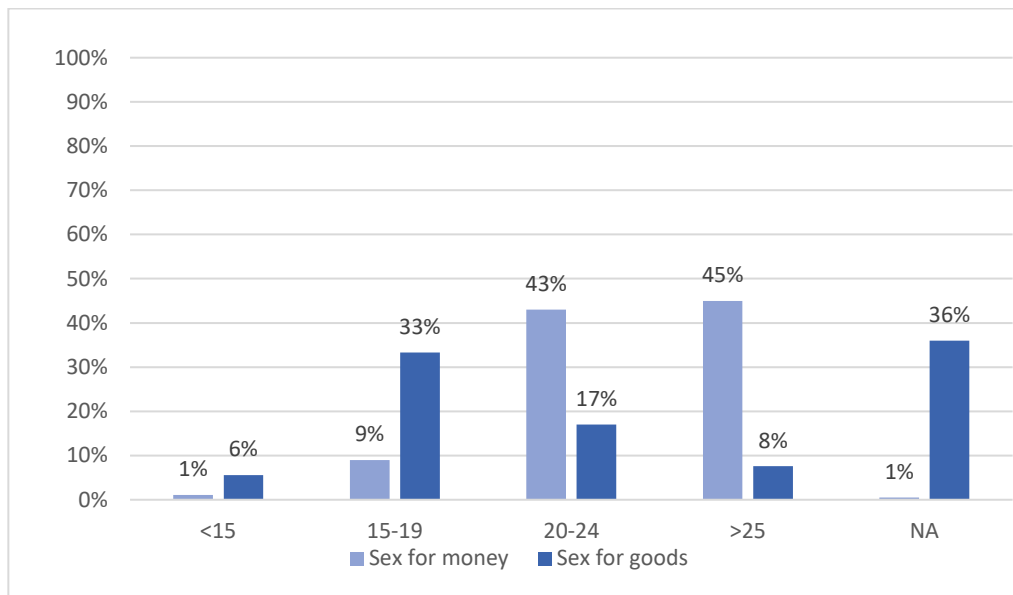
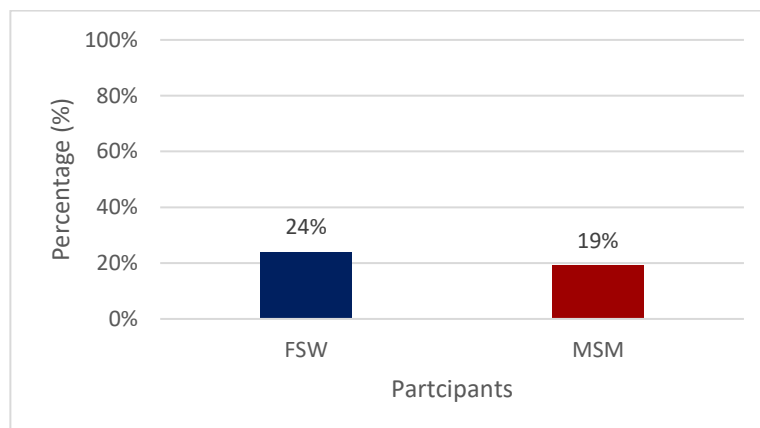


Figure 25. Percentage of FSW at age of first exchange of sexual acts for goods

FSW Participants were asked about the age at which they exchanged sexual acts for goods, but not money, 33% FSW said the first time they did this was between age 15-19, 17% FSW said between 20 and 24 years old and 8% FSW said between over 25 years old. The participants were also asked about the age they first started to provide sexual acts in exchange for money, 45% said the first time they exchanged sexual acts for money was over the age of 25, 43% FSW said it was between 20-24 years old and 6% less than 15 years old.

Alcohol consumption

The Alcohol Use Disorders Identification Test (AUDIT-C), three item alcohol use screening tools was used to identify participants who are hazardous drinkers or have active alcohol use disorders which include alcohol dependence or alcohol abuse. In FSW 86/354 participants showed positive signs of risky alcohol use. For MSM participants 29/147 participants showed signs of risky alcohol use.



*FSW: women a score of 3 or more was considered positive

*MSM: men a score of 4 or more was considered positive

Figure 26. Frequency of FSW and MSM who are at-risk drinkers

Consistent Condom Use

For purposes of this study, consistent condom use was defined as report condom use in all of the past 10 sex acts with all non-stable partners, i.e. if the participants only had one regular partner such as a husband or boyfriend, the use of a condom with this partner was excluded. The results show that, only 20% of FSW consistently used condoms with non-stable partners.

Although this study measured consistent condom use in both anal and vaginal sex, results in the analysis showed that approximately 93.5% of the FSW study population reported no engagement in anal sex.

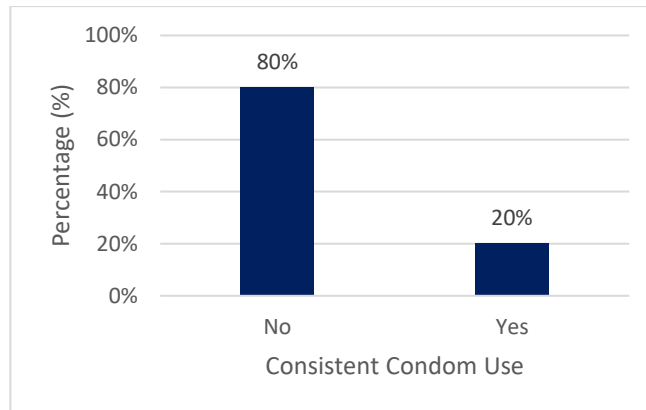


Figure 27. Percentage of FSW who use condoms consistently

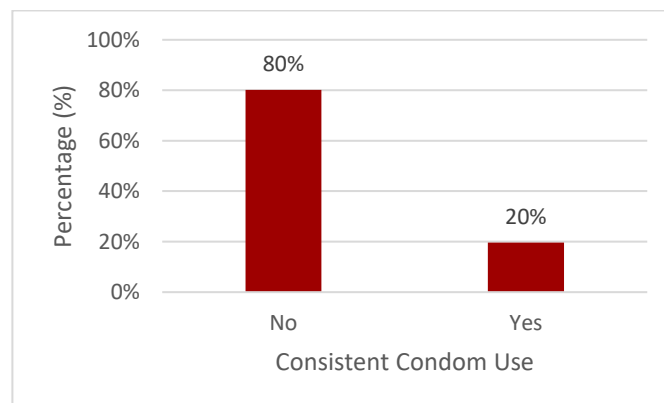


Figure 28. Percentage of MSM who use condoms consistently

Biological Results

i. HIV Prevalence

In this study, the prevalence of HIV among FSW was 11% (39/354) and 35% (52/151) among MSM.

Table 13. Percentage HIV prevalence for FSW and MSM

	FSW		MSM	
	Frequency	Percentage	Frequency	Percentage
Prevalence				
	39	11%	52	35.5%
Serology				
- HIV 1	26	66.6%	42	82.6%
- HIV 2	2	2.6%	2	3.8%
- HIV 1/2	7	17.9%	7	13.4%
Viral Load				
- Suppressed*	0	0%	2	3.8%
- Undetectable †	10	25.0%	4	7.6%

*Viral loads were suppressed if they were less than <1000copies/ml

From the 39 FSW participants who were HIV positive, when asked about the results of their last HIV test (before the study) 27/39 received their results from their last HIV test.

For MSM the 52 participants who were HIV positive, when asked about the results of their last HIV test 27/52 received their results for their last HIV test.

Overall prevalence of HIV among FSW is 11.02 (39/354). The HIV prevalence among FSW 18-25 years old is 8.26% and among FSW older than 25 is 12.45%.

Table 14. Percentage HIV prevalence for FSW by age

Age	Total		Living with HIV		Not living with HIV	
	N	%	N	%	N	%
18 - 25	121	34.18	10	8.26	111	91.74
>25	233	65.82	29	12.45	204	87.55

ii. Syphilis Prevalence

The prevalence of syphilis was 7.9% (28/354) among FSW and 4.6% (7/147) among MSM.

Table 14. Percentage syphilis prevalence for FSW and MSM

Population	Prevalence (%)
FSW	28/354 (7.9%)
MSM	7/147 (4.7%)

Reproductive Health

i. Birth Control

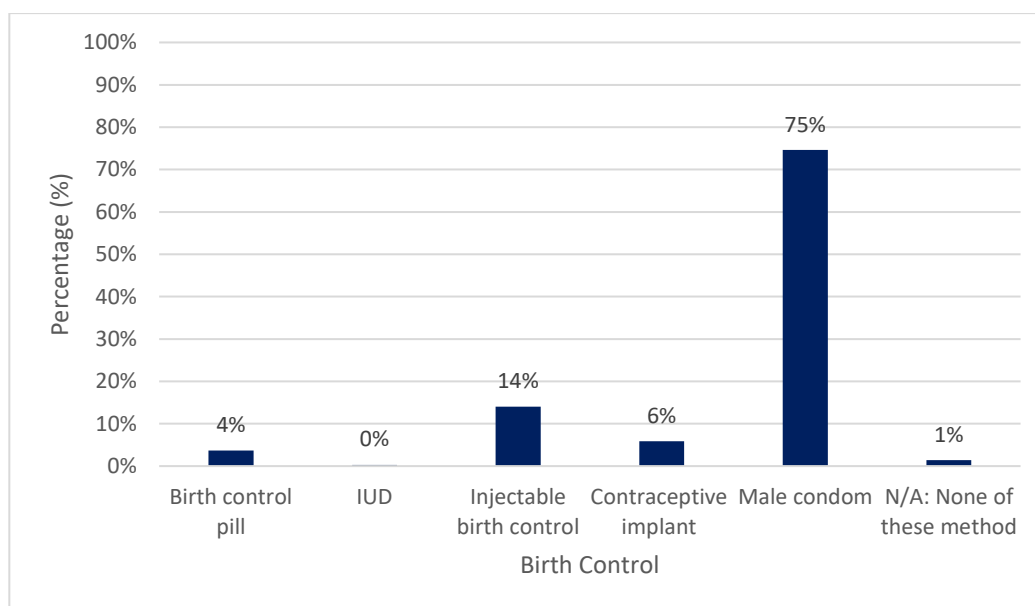


Figure 29. Birth control methods used by FSW

The FSW participants were asked about the birth control methods they regularly use. The majority of FSW participants (75%) said they use male condoms as birth control, 14% said they use injectable birth control, 6% use the contraceptive implant, 4% use the birth control pill, and 0.3% use an intrauterine contraceptive device. Approximately 1% of FSW do not use any of the above-mentioned contraceptive methods.

The FSW participants were also asked if they had ever had unplanned or unwanted pregnancies. Approximately one-fourth of FSW sampled (27%) said they had had an unplanned or unwanted pregnancy. However, when asked if they had ever taken emergency contraception, only 2 women reported that they had.

ii. Female Genital Cutting/Mutilation

Although the link between FGM/C and HIV is yet to be confirmed, participants were asked if they were cut or circumcised during the interview. Overall, nearly two-thirds (67%) of FSW said they were cut or circumcised as shown below in Figure 22.

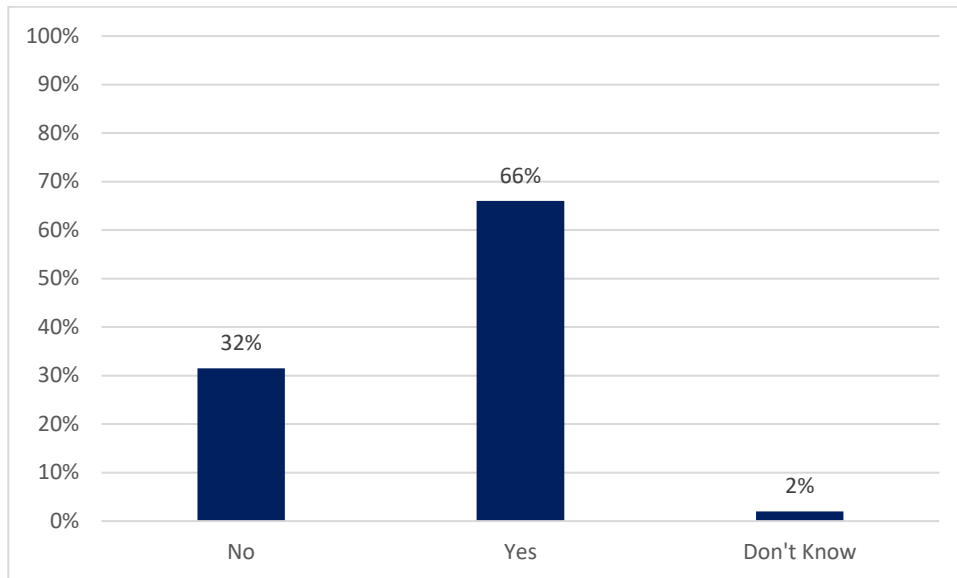


Figure 30. Percentage of FSW who have had FGM/C

When analysed FGM/C in FSW by country, it was seen that 47% FSW who said they had been cut or mutilated are from the Gambia, 32% from Nigeria, 11% from Senegal and the remaining spread across Guinea Bissau, Guinea Conakry, Sierra Leone and Ghana as shown in figure 32. All of the above countries are known to have a prevalence between 25%-75% FGM/C.

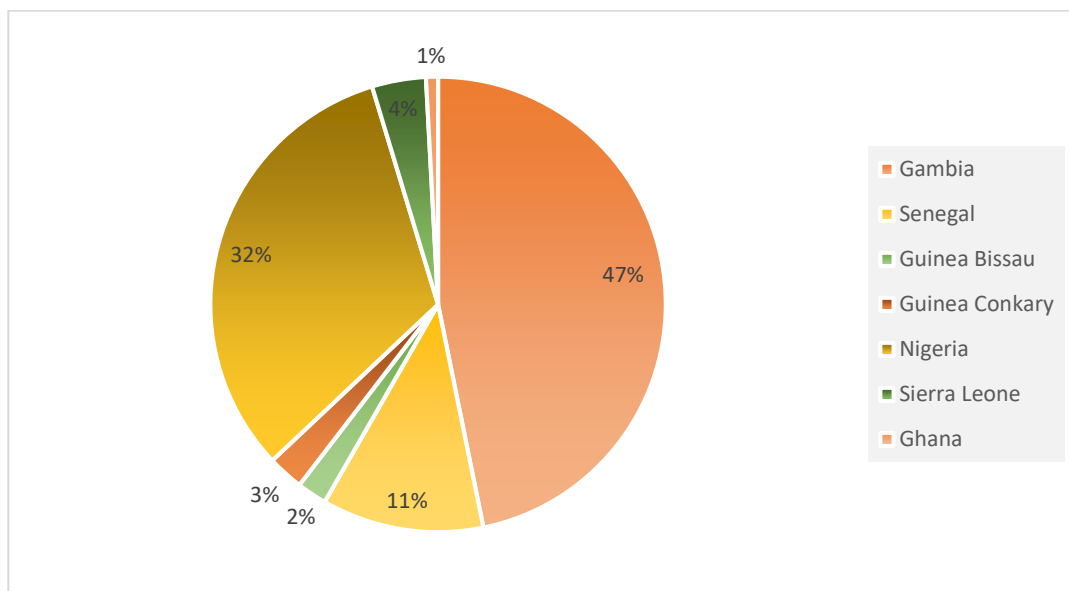


Figure 31. The percentage of women who had undergone FGM/C in each country

Mapping

Characteristics of Key Informants and Sites

i. Sites

During the identification and verification of the sites and health services which FSW and MSM use, 70 key informants were surveyed, 72 hotspot sites were cited by key informants and 43 sites were visited. The difference between the sites cited and the sites visited was due to the fact that some of them were named differently by several key informants whereas it was the same site. Also, some of the sites cited did not exist any longer. In total 28 operational hotspot sites were obtained in the Greater Banjul Area.

The key informants also identified 32 health service sites during the interviews and 29 health service sites were visited. However only 20 of those health services were operational in the Greater Banjul Area. The differences between the sites cited and the sites visited is also due to the fact that some sites have had several names over the years.

a. Site Characteristics

The step of verification of sites obtained from key informants has collected information on:

- The name of the site

Healthcare Services

Key informants identified 32 health services in the Greater Banjul Area, 29 were visited and 20 were operational. The types of sites and characteristics differed. Frequently names health care services included public and private hospitals and clinics as well as NGOs and CBOs.

All operational health facilities visited offer prevention and medical care services for HIV and STIs. These services were either free or paid and varied according to type of facility and type of service.

- The duration of existence (operation) of the site
- The types of activities that take place in the site.
- An estimate of the number of customers during busy hours
- The overall characteristics of customers as perceived by the managers (owners / employees)
- The types of meetings that can be done on the site and the frequency of new meetings of sexual partners
- The existence of prevention activities on the site including the availability of condoms on the site and the presence of posters or sensitization messages.

i. Characteristics of Key Informants

From the 70 people who were interviewed as key informants, there were 40 females and 30 males. With ages ranging from 18 years old to 65 years old. There were 22 FSW key informants and 17 MSM key informants. There were 14 NGO/CBO staff, 9 peer educators, 6 health care workers and there was 1 social worker and 1 lodge manager.

It should be noted that key informants for MSM were poorly represented in the survey.

Table 15. Site based healthcare service indicators

	Frequency	Percentage
Number of Healthcare Services Identified and Located	20	
Sites existence and popularity with Key Informants (%)		
Site located and interview completed	20	100%
Site not identified or closed	9	-
Reported by more than 3 key informants	12	60%
Site characteristics (%)		
Public Hospital	8	40%
Private Hospital	7	35%
Laboratory or Pharmacy	2	10%
NGO or CBO	3	15%
Site Staff (mean)		
Doctors	19	-
Nurses	25	-
Social Workers	13	-
Peer Educators	4	-
AIDs-prevention programme coverage (%)		
Free male condoms available in last 6 months	13	65%
Free female condoms available in the last 6 months	7	35%
Free lubricants available in the last 6 months	3	15%
Where condoms available for sale	1	5%
Where lubricants available for sale	1	5%
Sensitization on HIV Prevention	18	90%
HIV Testing	18	90%
CD4 Testing	5	25%
Viral Load Testing	2	10%
Medical care for PLHIV	11	55%
Support groups for PLHIV	1	5%
STI Testing	18	90%
STI Treatment	19	95%
Family Planning	16	80%

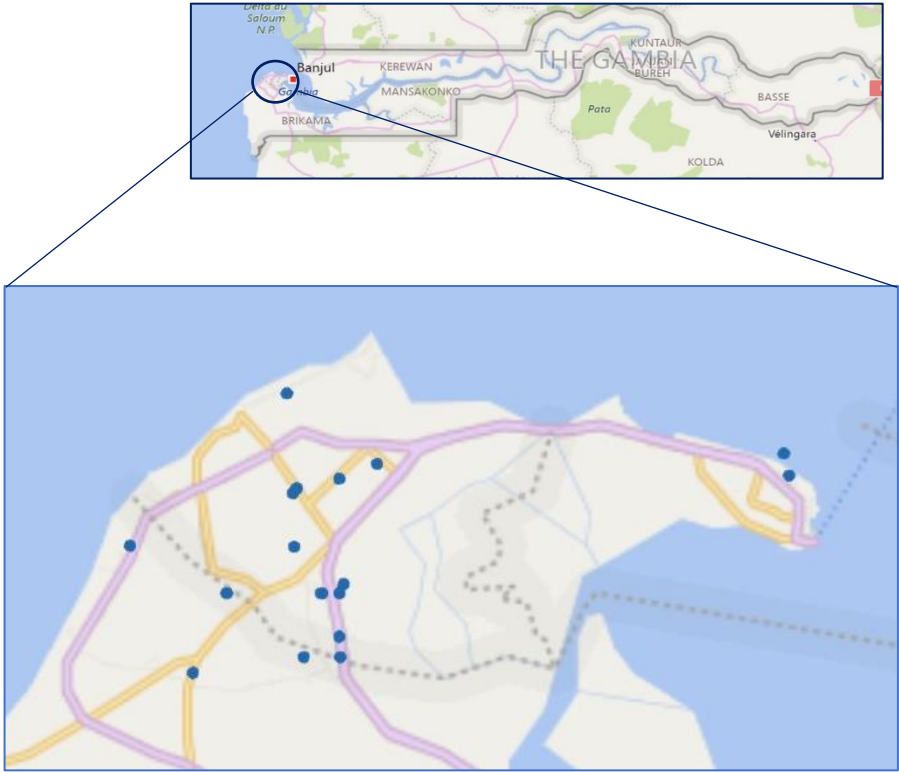


Figure 32. Verified Health Services in the Banjul Region



Figure 33. Hotspots in the Western Region (Brikama)

Hotspots

Table 16. Hotspots site-based indicators

Number of Hotspots Identified (n)	72	-
Sites existence and popularity with Key Informants (%)		
Site located and interview completed	29	100%
Site closed	44	-
Reported by more than 3 key informants	11	37.9%
Reported by only 1 key informant	24	82.7%
Site characteristics (%)		
Bar, restaurant, or night clubs	12	41.3%
Hotel or Guest House	11	37.9%
Brothel	5	17.2%
Websites or Apps	1	3.4%
Site Clientele		
More than 40 clients at sites busiest time	11	37.9%
Women meet clients here	27	93.1%
Commercial sex on site	18	62%
AIDs-prevention programme coverage (%)		
Were male condoms available in last 6 months	22	75.8%
Were female condoms available in the last 6 months	13	44.8%
Were lubricants available in the last 6 months	20	68.9%
Were condoms available for sale	4	13.7%
Were lubricants available for sale	2	6.8%
Sensitization on HIV Prevention	17	58.6%
Sensitization on HIV Prevention for FSW	17	58.6%
HIV Testing for FSW	14	48.2%

Location of Hot Spots are provided in Appendix 1: Hot Spot Locations

Summary of Findings & Conclusion

Summary

This Integrated Biological Behavioural Surveillance study was the first of its kind to use the Respondent Driven Sampling method in the Gambia. The IBBS provided recruited FSW and MSM in a major urban area of the country to estimate the prevalence of HIV and Syphilis among FSW and MSM and to estimate the population size.

This study recruited 354 FSW between May 2017 to May 2018 in the Greater Banjul Area. Recruitment of FSW was slow at certain stages, however, was able reach and enrol a large number of FSW in Banjul. Successful enrolment of FSW in this study may be due to the level of engagement of FSW in existing programs in Banjul. However, the recruitment chains demonstrated that the study did not reach distinct FSW networks and instead reached few FSW networks.

This study recruited 147 MSM in the Greater Banjul Area. Despite the study continuation and for a year period, the sample size was not reached through recruitment. Despite consistent efforts, there were several challenges in recruitment of MSM. Many MSM declined to participate in the study. Several outreach events were held to better inform potential participants about the benefit of the research. Though fear of association, societal pressures and the nature of being MSM in the country hindered recruitment. This is further elaborated in the additional qualitative research carried out. Despite low numbers of recruitment of MSM, the recruitment chains demonstrate that the study was able to reach distinct MSM networks. This provides opportunities to understand those unique social networks and inform programming.

Overall, FSW participants were relatively young, with the majority being under 30 years of age. The majority of FSW participants were educated through secondary school, single, with at least 1 to 2 children, and their main occupation was sex work. FSW who were born in Gambia accounted for

just 38% of participants. Among FSW not from the Gambia, the remaining were from other West African countries with the majority from Nigeria (35%) and neighbouring Senegal (15%). From these migrant FSW, 75% stated that their reason to come to the Gambia was to sell sex.

For MSM, the majority were under 25 years of age, educated to secondary school, self-employed, single with no biological children. The majority of MSM were from the Gambia (79%) and the remaining were from nearby West African countries. Among MSM 48% reported sexual orientation as bisexual, and 46% reported as homosexual. Studies have shown that African MSM tend to report bisexual not only because of sexual attraction for women but also the desire to respect social conventions and to mask their sexual orientation to family and friends (Larmarange, et al., 2010). By using the two-step method to determine gender identity, most participants identified as male with a portion determined to be transgender.

HIV prevalence among FSW and MSM in the Greater Banjul Area was 11.0% and 35.5% respectively. The overall prevalence of syphilis was 7.9% among FSW and 4.7% in MSM. These prevalence estimates are comparable to those among FSW and MSM in neighbouring sub-Saharan African countries. (Papworth, et al., 2013) The prevalence of HIV in FSW was higher among participants who were aged older than 25 years of age than among participants who were between 18 and 24 years old. This could be explained by the association between increased HIV risk and cumulative exposure over time. Among MSM, HIV prevalence was higher among participants aged between 18 and 25 years old, however the distribution of age in the sample of MSM recruited was skewed towards younger participants.

Among both FSW and MSM there was underreporting of HIV status either due to not knowing or not wanting to disclose their HIV status. This may be a result of social desirability bias, which is often seen in studies that inquire about self-reported sexual behaviour data.

The biological HIV viral load results among those living with HIV provided context of those who had engaged in treatment. A portion of those reporting not being aware or previously diagnosed with HIV showed viral loads associated with treatment engagement. Therefore, we believe HIV status and engagement in treatment was underreported in this study. Due to this, the HIV treatment cascade could not be accurately determined for either population.

Similar to many other countries in Sub-Saharan Africa the main determinants of the HIV/AIDS epidemic among the key populations are influenced by factors at several levels indicated in the Modified Socio-Ecological framework (Baral, et al., 2013). The levels include biological, behavioural, network, and structural risks which are the true drivers of the HIV epidemic that put these individuals at an increased risk of infection and transmission.

Condom use is an individual level risk for HIV. Through this study, there is a high amount of unprotected anal intercourse among. Due to the transmission efficiency of HIV through unprotected anal sex, the risk of HIV is high. There has been shown to be a correlation between receptive anal sex and HIV risk (Koblin, et al., 2006).

In the study, the most commonly used birth control method by FSW was male condoms and 18% used injectable birth control or the birth control pill. The use of emergency contraception was not prevalent, and one fourth of the FSW participants had unplanned or unwanted pregnancies. In general, FSW in sub-Saharan Africa, have an unmet need for contraception (Chanda, et al., 2017), there is a lack of access to contraceptive services which may lead to unplanned pregnancies or pregnancy termination. This can contribute to increase maternal mortality and HIV transmission to children.

On a community level, the norms which exist in communities in The Gambia prompt significant barriers to HIV prevention, both MSM and FSW experience stigma on various levels. Criminalization of same sex behaviour and sex work as a public policy contributes to the global HIV epidemic. MSM and FSW in the Gambia report being discriminated by health care professionals and police officers.

As in many societies, traditional cultural values still occupy a place in daily lives, some people continue to have attitudes and behaviours that can lead to stigmatization and/or discrimination affecting key populations. This situation means that the latter often tend to adopt, in return, individual or collective attitudes that may further promote their persistence in living underground. This implicitly contributes to the spread of STIs and HIV in the community and at the same time hinders their access and uptake of services. In the Greater Banjul Area, FSW reported high levels of experienced stigma, especially being arrested for selling sex, and being verbally harassed and blackmailed for selling sex. It should be noted that as a large number of participants (62%) were migrant sex workers they often become the target of police and immigration officers. In addition, some FSW stated that they experienced stigma from their friends and family and mostly in the form of gossip and being rejected by family.

MSM participants reported high levels of being forced to have sex, 41.1%, being arrested for having sex with men 50.6% and being blackmailed 23.9%. These results indicate that there is a large amount of MSM who experience verbal and physical abuse in the Gambia and the consequences of this may impact the overall health of the community.

According to WHO, depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-esteem, sleep or appetite disorders, a feeling of fatigue and a lack of concentration. Alarmingly, the entirety of the MSM participants (100%) showed signs of clinical depression. 84% of FSW showed signs of clinical depression also. Depression can be

long-lasting or recurring, and essentially affects people's ability to function at work or school, or to cope with everyday situations. In the most severe cases, depression can lead to suicide. When mild, depression can be treated without drugs. However, when moderate or severe, patients may need medication and dialogue therapy.

Limitations

There were some inherent limitations of the study, with sampling of hard to reach populations, ensuring participation and reaching the sample size. The sample size for FSW was reached, however the sample size for MSM was not reached due to various challenges. Although there was a change in political context in the Gambia the anti-gay law still exists which promotes fear within the MSM community. The IBBS team worked with local organisation to help build trust between the research team and participants. During RDS outreach events, MSM expressed concerns of coming to the site and seeing someone they know, this was troubleshooted to some extent, where appointments were given to participants. The sites operation times were changed to when it best suited participants. The site itself was also changed twice, as MSM participants did not feel comfortable in the area. Nevertheless, there was still a general reluctancy within MSM to participate in the study, as a result the study was extended several times, however the sample size could not be reached.

Furthermore, data collection began before the month of Ramadan in 2017 and continued during the month, this may have resulted in low attendance of KP members at the IBBS sites. However, during the month of Ramadan in 2018, data collection was stopped as it was a lesson learnt.

At the beginning of the study, network size questions were not being answered completely, participants would often answer "don't know" or "refuse". This was noticed early on in the study and the interviewers were made aware that they needed to further prompt participants. This

involved training interviewers to ask questions in a way by which missing data would be limited. In addition, there were other limitations with the collecting behavioural data for FSW and MSM. Participants felt that the questionnaire was too long. The questionnaire was therefore reduced however some participants still felt it was too long. The duration of the questionnaire depended on the language the interview was being carried out.

The blood samples for participants who were living with HIV had their viral loads measured at the National Public Health lab. However due to the system in place and limitations in equipment, the viral loads for HIV 2 or HIV 1 & 2 (dual type) could not be determined. Further issues with the viral load platform, prevented us from finding out which participants were virally suppressed.

Finally, for the size estimation methods, there were some limitations encountered. For the social event method for MSM due to the political context of the Gambia a big gathering of MSM was advised against and therefore smaller events were held, and these events were invitation-only. During the interview when MSM were asked if they attended the social event, a number claimed to attend all three, however based on study staff procedures none attended all three. This may have been a result of the social event not being unique enough, or issues with recall bias. For Capture-Recapture which was a multiplier method used with only FSW, there were some security issues for the interviewers in the field. Caution had to be taken in some areas, and sites which the activity were to be held were cancelled due to security risks.

Conclusions

The results of the IBBS study for HIV in the Greater Banjul area among key populations followed similar trends of other West African countries. Overall the study found that the prevalence of HIV in the Greater Banjul in FSW and MSM is 11% and 35.3% respectively.

Although, there were multiple challenges reaching the key populations, it is clear that cost-effective

programs which aim to address biological, behavioural and structural risk factors involved in the acquisition of HIV are crucial. Prevention program strategies should be reinforced using the information learnt, and appropriate programs designed to ensure the continuum of care of KPS and address the barriers to healthcare that exist. Ultimately, this could reduce HIV transmission and community viral loads.

Recommendations

This study confirms the importance of key populations in the Gambian HIV epidemic and the need to strengthen prevention activities for these groups. Indeed, many challenges remain, in terms of improving access to condoms and lubricants for MSM, removing barriers to access health services for both and improving mental health support for MSM and FSW. In addition, efforts to mitigate stigma and violence against both populations may improve HIV risk and access to services. The information provided and the proposed recommendations will serve to improve the performance of programs deployed for these key populations.

As recommendations we suggest the following items:

Improved Knowledge of Risk Behaviours

Although improving knowledge of risk behaviours related to HIV in interventions are often directed to MSM and FSW, the current study showed there is insufficient condom consistency in participants both MSM and FSW who have multiple partners. Research should be conducted to identify the factors associated with low condoms usage in MSM and FSW in the Gambia. Interventions should also be enhanced to better improve MSM peer educator's knowledge through the provision of accurate information. This could be done through various web interventions, including prevention

messaging via mobile applications frequently used by MSM. For FSW as well as MSM it is important to reinforce the messages on the routes of transmission, particularly on anal intercourse and also the systematic and joint use of condoms and lubricants.

In the study the majority of FSW reported that they did not have anal sex, and when asked about the types of sex that puts FSW most at risk, only 31% answered correctly. Anal sex is often associated with stigma and causes methodological challenges in obtaining valid data due to underreporting. However, during prevention activities, anal sex as a mode of transmission should be incorporated.

Accessing Older MSM

The demographic characteristics for MSM in this study highlight that there is a very limited proportion of MSM over the age of 30. This has been observed in other countries, and research in similar communities have shown that older MSM are less likely to participate in research about a stigmatized topic. However, it is key to ensure HIV prevention and treatment interventions which target the older MSM population to reduce transmission to the younger age group. Future studies should also focus on older MSM to enable us to better understand their barriers in health services.

Strategies to reach young MSM and FSW

This study highlighted that a large portion of MSM and FSW engaged in sex before reaching the age of 18. Since key populations are engaging in HIV risk behaviours before reaching the age of 18, prevention efforts should be adapted to reach youth.

PMTCT Services and Family Planning for FSW

The demographic results show that most of the FSW are mothers (71%) and have at least 1-2 children. Results also showed more than one quarter of FSW had unplanned or unwanted pregnancies, which is one of the occupational risks of FSWs. In addition, there was low uptake of varied birth control methods, and the majority of FSW used male condoms for birth control. Given these results, there is a need to incorporate family planning and PMTCT to HIV prevention activities and encourage FSWs uptake in all services to ensure a comprehensive health package for these women. Additionally, adapted services for children of FSW would be valuable to support HIV prevention and improved health outcomes.

Mental Health

The high level of depression among FSW and MSM implies an urgent need to provide increased psychosocial support for FSW and MSM. It would also be beneficial to emphasize upon capacity building for psychological support especially to younger MSM. Mental health and stigma have shown to be associated in other settings. Therefore, strengthening efforts to reduce stigma and discrimination at the health care service providers level as well family and friends and the police are recommended.

Uptake of HIV testing

Innovative testing strategies to reach key populations not accessing traditional testing services is recommended. HIV self-testing has been shown to reach key populations, youth, and men who have never received an HIV test in other West Africa countries. Additionally, HIV self-

testing may be an opportunity to increase frequency of HIV testing among key populations to support early detection. It is recommended that HIV self-testing be incorporated into existing programs, leveraging current outreach effort and programmatic activities.

Access to Condoms, Lubricants and PREP

From the results, it shows that it is necessary to intensify prevention actions for the Greater Banjul Area, through a variety of means such as improving the supply, availability and accessibility of condoms and lubricants for KPs. This could be done by establishing a social marketing program to promote the use and distribution of condoms and lubricant gels. It is also advised to increase the availability of condoms, lubricants and testing in identified hotspots. In addition, the introduction of PrEP into the programme may provide an opportunity for biomedical prevention efforts.

Stigma Mitigation

Stigma among participants in the study was prevalent. In other settings stigma has been associated with access to services, depression, and other HIV related outcomes. Therefore, stigma mitigation efforts may provide an opportunity to improve access to care and health outcomes. Stigma mitigation efforts may include the supportive groups to increase social cohesion among key population groups. Additionally, trainings with health care providers and police may be conducted to support service delivery and stigma reduction by care providers and enforcement officials.

Develop Cross Borders collaborations with Senegal and Guinea Bissau

Exchange and learning between neighbouring countries provides an opportunity to leverage strategies and approaches from the region. Collaborations with Senegal and Guinea Bissau may be an opportunity share approaches that have been successful and strategize activity design and implementation based on lesson learned across these contexts.

Adapted services for transgender women

A portion of participants recruited through the MSM study were determined to be transgender women. Transgender women have shown to have increased odds of mental health, stigma, and HIV related outcomes when compared to cisgender

MSM. Furthermore, the needs to transgender women differ from cisgender MSM. Therefore, it is recommended to have programmatic activities adapted specifically for transgender women.

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Appendix 1: Hot Spot Locations

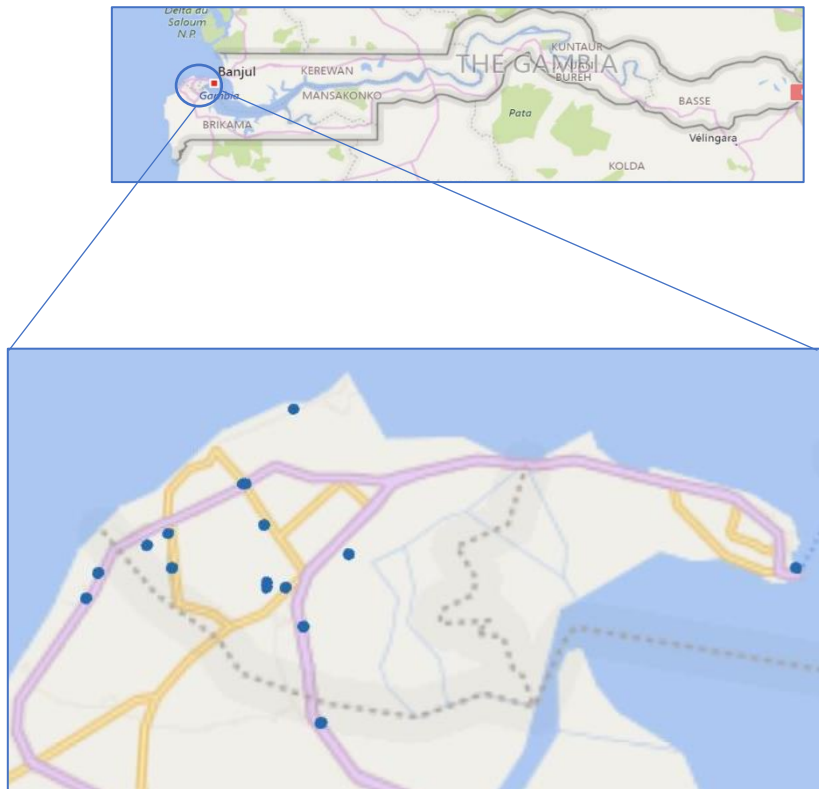


Figure 34. Verified Hotspots in the Greater Banjul Area



Figure 35. Verified Hotspots in the Western Region (Brikama)