FINAL REPORT

Key Population Geographic Mapping and Size Estimation-Nigeria 2018

MARCH 2019

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ABBREVIATIONS

- AIDS- Acquired Immune Deficiency Syndrome
- CBO- Community Based Organization
- FCT- Federal Capital Territory
- FGD/s- Focused Group Discussion/s
- FMoH- Federal Ministry of Health
- FSW/s- Female Sex Worker/s
- GP- General Population
- HIV- Human Immunodeficiency Virus
- INGO/s- International Non-Governmental Organization/s
- KI/s- Key Informant/s
- KP- Key Population
- KPSE – Key Population Size Estimation
- L1- Level One
- L2- Level Two
- LGA- Local Government Area
- MSM- Men who have Sex with Men
- MSW- Male Sex Workers
- NGO- Non-Governmental Organization
- NHREC-National Health Research Ethics Committee
- NTT- National Technical Team
- PWID- People Who Inject Drug
- SACA- State Agency for the Control of AIDS
- SFH- Society for Family Health
- STI- Sexually Transmitted Infection
- STT- State Technical Team
- ToT- Training of Trainers
- UoM CGPH- University of Manitoba Centre for Global Public Health
- USG- United States Government
- VM- Virtual Mappers

1.0 EXECUTIVE SUMMARY

Background

The Society for Family Health (SFH), a principal recipient of the Global Fund 'Investing for Impact against Tuberculosis and HIV Project', contracted University of Manitoba (UoM) to provide technical support for the 2018 Programmatic Mapping (PM) and Key Population (KP) size estimation in 10 selected states in Nigeria. This report provides insight on the programmatic mapping and Key populations estimates in the selected states.

The Purpose of Study

Nigeria, with the support of the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) or Global Fund and the USG-CDC, conducted a KP size estimation in response to the need to provide critical information for planning and targeting HIV prevention programs, based on the mixed and heterogeneous nature of Nigeria's HIV epidemic.

Target Estimation Size

The size estimation was conducted in 10 states supported by GF through Society for Family Health (SFH) and 6+1 USG supported states through CDC/PEPFAR Funding.

The size estimation was conducted in Abia, Anambra, Edo Enugu, Imo, Kano, Kaduna, Gombe, Oyo and Taraba states. A total of 226 Local Government Areas (LGAs) in the states were mapped geographically for all KP groups and Men who have sex with other Men (MSM) populations were also mapped virtually.

The programmatic mapping and size estimation main purpose was to provide reliable data and obtain an accurate estimate of (MSM), Female Sex Workers (FSW) and People Who Inject Drugs (PWIDs) in the ten (10) selected states. This programmatic mapping profiled venues (both physical and virtual) where sexual networking and injecting drug use occurred and also revealed gaps in HIV Prevention services provided for KPs.

Mapping methodology

Mapping methodology was based on a geographic approach which identifies the key locations including virtual locations where key population members can be found and quantified. The basic approach includes two sequential steps:

• Level 1 – Systematic information gathering from primary and secondary key informants (KI) regarding the locations ("hot spots") where key population members congregate and/or meet casual or paying sexual partners or injecting drug purposes. This is also called geographical mapping of KPs.

• Level 2 – validation and profiling of identified "hotspots" to characterize and estimate the size of the key populations. This is also termed "estimation of the size of key populations

Virtual mapping conducted for the MSM group only had its objectives as:

• To estimate the number of MSM who operate virtually

• To understand the extent of overlap between virtual sites and physical locations

The broad conceptual approach adopted is sequential listing of Virtual sites and exploring MSM size estimates of those who operate virtually.

Field implementation was conducted using Technical and Field teams. National Technical Team (NTT) supervised field operations across the 10 states while each State Technical Team (STT) supervised field operations in each of their respective states. Field data collection exercise lasted for a total of 45 days (L1, 25 days and L2 data validation 20 days).

- A total of 34,379 interviews were conducted with key informants to identify locations where KPs congregate. Kano State with 6,435 interviews had the highest number of interviews while Gombe state with 1,682 had the least number of interviews.
- Across the 10 states, the exercise covered all LGAs in the states a total of 226 LGAs (Tsanyawa LGA in Kano was not mapped as gatekeepers did not allow the data collectors in) and identified a total of 16,563 active Hotspots. Kano state had the highest number of hot spots for all typologies with 4,020 while Taraba state had the least number with 574 active hotspots.

Key findings

- There were wide variations in locations and numbers of KP existing between and within states and in the LGAs.
- Total number of FSWs estimated across the 10 states stood at 118,171 (Minimum estimate 99,264 and Maximum estimate 136,932). Anambra state had the highest number of FSWs with 36,607 and Enugu state had the least estimated FSWs with 3,824.
- Total number of MSM estimated at physical locations was 44,355 across the 10 states (minimum estimate 35,537 and Maximum estimate 53,137). Kano state had the highest number of MSM with 20,144. Total estimated number of MSM using virtual sites across 9 states were 69,337 (minimum 62,504; maximum 78,689). Virtual mapping did not take place in Taraba state as virtual mappers were not found in the state.
- The number of MSM using virtual sites compared to those seen at physical locations could be highlighting the hidden nature of this KP group.
- A good majority of MSM seen at physical locations across all states sell sex highlighting the increased risk of this sub-typology of MSM in all states.
- Total number of PWID estimated at 49,876 across the 10 states (minimum estimate 38,089; Maximum estimate 61,656). Oyo state had the highest number of PWIDs with 14,741. About 22% (11,031) of the total estimated PWIDs were females.
- The rising number of estimated PWIDs especially female PWIDS underscores the need for appropriate 'Harm reduction programs' for these KPs especially as they are of a higher risk status for HIV transmission and acquisition.
- Total number of KPs across all typologies estimated at 212,402 across the 10 states (range minimum 169,889 maximum 251,761) in all physical locations.
- There was poor access and availability of HIV Prevention programs for KPs across all 10 states in the last 6 months preceding exercise except for Gombe state where some services were provided for KPs.

Conclusion from the Findings

The results shows that size estimation survey findings can be utilized to plan, prioritize and set targets for HIV prevention efforts for key population and build requisite capacity to better characterize the drivers of the HIV epidemic and further assist in local planning for HIV prevention programs and services.

Finally, HIV Prevention programs need to be more innovative to ensure reach and coverage including utilization of services by KPs of all typologies with special emphasis paid to virtual space/platforms programming. This also calls for the review of current MPPI service delivery within the national HIV Prevention response.

2.0 BACKGROUND

The HIV epidemic in Nigeria is complex with substantial heterogeneity in its distribution across different regions and diverse factors drive the epidemic. Nigeria's National Agency for the Control of AIDS (NACA) is coordinating a large-scale initiative to rebase the epidemic and conduct appraisals, including the mapping and size estimates of KP across the country.

Nigeria with general population HIV prevalence rate of 3.4 percent (FMOH, 2012), recognizes a number of KPs such as PWID, FSW and MSM that are considered to be at higher risk of infection and transmission due to certain behaviors and practices that increase their vulnerability to the virus. The 2014 Integrated and Bio-Behavior Surveillance Survey (IBBSS) reveals that the HIV prevalence is high amongst these groups with prevalence rate highest (22.9%) amongst MSM, 19.4% amongst brothel-based FSW, 8.6% amongst the non-brothel based FSW while PWIDs have a prevalence rate of 3.4%. A 'Mode of Transmission Study' (NACA, 2009) revealed that 38% of new infections in Nigeria are attributable to these KPs. The global desire to reduce the HIV burden and stem the continuing spread of HIV especially among KPs informed the urgent need to address HIV prevention services and programs. Therefore, it is critical that HIV prevention programs and strategies match the local context and that resource is allocated to interventions that have the greatest impact. The HIV/AIDS programs implemented to reduce HIV transmission and minimize spread in Nigeria include the Global Fund HIV Project currently implemented in 10 states of the country and it aims to reduce HIV transmission among KPs by increasing their access to prevention, treatment and care services.

Reliable data is a major requirement for effective program efforts. To ensure that persons who are at higher risk are reached with interventions, there is a need to appropriately determine the characteristics and the size of all at-risk populations. These size estimates are important for locating and prioritizing HIV service delivery, measuring coverage, monitoring and evaluating interventions, documenting progress in HIV prevention scale-up and supporting funding request proposals for various services. Also, identifying KPs has been made more difficult especially with MSMs because of evolving strict-policy environment in Nigeria. Recent evidence shows emerging patterns of sexual networking and practices among KP groups, it is therefore important to conduct a study that will provide further insight and understanding into current high-risk sexual networking and use of injectable drugs that will help in designing targeted HIV interventions for KP groups in Nigeria.

3.0 METHODOLOGY

The main purpose of the mapping and size estimation exercise in Nigeria was to provide critical information for planning and targeting HIV prevention programs. This programmatic mapping profiled venues (both physical and virtual) where sexual networking and injecting drug use occurred. These venues were assessed to estimate the size of key populations in 10 selected states.

Programmatic mapping documents where key population can be reached, whether services are available and accessible to key populations in these locations and where there are gaps in services.

Goal of Programmatic Mapping

The goal of programmatic mapping and KP size estimation was to obtain an accurate estimate of MSM, FSW, and PWID in the 10 selected states, in an effort to provide a reliable denominator and critical information for planning targeted prevention, care, and treatment programs for KP groups and improve interventions in Nigeria on HIV/AIDS.

Purpose of the study

1. Provide a reliable denominator to be used in planning KP program interventions in the selected states.
2. Provide information to funders and program implementers on KP program needs and gaps.
3. Provide very specific information at a sub –national level that could help planners at state and local government levels to target and roll out programs in a cost effective, informed and coordinated manner.

Methodology Objectives

The specific objectives of this study were:

1. To obtain a reliable size estimation of FSW, MSM and PWID in the 10 selected states in Nigeria from programmatic mapping.
2. To identify and characterize venues where key populations congregate.
3. To determine the availability of HIV services within the venue where key populations congregate.

The Targeted Populations

The Targeted populations characterized and size estimated from the mapping exercise are as follows:

Female Sex Workers (FSW) -This includes any female 18 years and above who undertakes sexual activity in return for money or other valuable gifts or incentives irrespective of site of operation which may include streets, bars, home, hotel, office, salons, brothels, bars, restaurants, nightclubs, internets cafes, cinemas, malls and so on at least once in the last 12 months preceding the study. (UNAIDS: Guidance notes on HIV and Sex work). Several typologies of sex workers, e.g. Street-based FSW, Hotel-based FSWs, Bar/Casino/Nightclub/Massage parlor-based FSWs among others have been identified in the previous studies, and all of these typologies will be mapped.

Men who have Sex with Men (MSM) -This includes any males, 18 years and above, who currently engage in anal sex (receptive or inserted) or oral sex with other men. The proposed

mapping aimed at determining the hotspots or locations where the MSM congregate and find their sexual partners. The term "men who have sex with men" is used to denote all men who have sex with other men as a matter of preference or practice, regardless of their sexual identity or sexual orientation and irrespective of whether they also have sex with women or not. Men who sell sex for money or gifts will also be included in the study. While early studies have suggested that these MSM can be found mostly at the bar and night parties (NACA 2015), recent programming reveals increased use of internet and social media as a means of communication and meeting partners. Venues were, therefore, not only physical but also virtual.

People Who Inject Drugs (PWIDs) is defined as any person (male of female) 18 years and above who currently injects drugs (illicit, non-prescribed or illegal) recreationally irrespective of the type of drug injected any time within the past 12 months. The mapping study determined and estimated current injectors only: previous injectors were not included. Those who have self-injected medicines for medical purposes only are excluded.

3.1 LOCATION OF KEY POPULATION PROGRAMMATIC MAPPING AND SIZE ESTIMATION

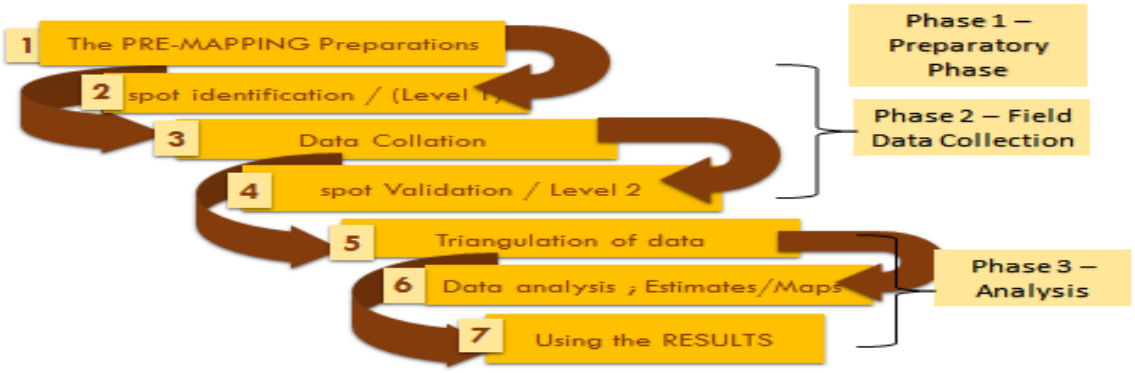
The mapping and size estimation exercise was carried out in Abia, Anambra, Edo Enugu, Imo, Kano, Kaduna, Gombe, Oyo and Taraba states. All Local Government Areas (LGAs) in the states (except for 1 LGA in Kano state) were mapped geographically for all KP groups and MSM populations were also mapped virtually. The States were selected based on a number of considerations. These included:

•States where Global Fund KP programmes had been implemented and was planned to be implemented in future funding requests
•States that are traditionally used for the conduct of the IBBSS for high-risk populations in Nigeria.
•States with others source of funding for the size estimation exercises were excluded. For instance, the United States Government (USG) PEPFAR is conducting a similar size estimation exercise for states where the USG/PEPFAR is focusing their KP programming. These states include Lagos, Akwa-Ibom, Rivers, Cross River, Benue, Nassarawa and the Federal Capital Territory (FCT) and so they were excluded from this study.
Preparatory procedures followed in this mapping exercise were in consonance with established guidelines on Mapping Readiness Assessments for use with key populations.

Figure 1 Selected States for KP Mapping and Size Estimation

3.2 PROGRAMMATIC MAPPING

Figure 2: The Approach



Mapping methodology was based on a geographic approach which identified the key locations including virtual locations where KP members are found and quantified. Programmatic Mapping involved 3 phase approach:

(1) Preparatory Phase (Pre-mapping preparations and field implementation plans)

(2) Field Data Collection -The basic approach included two sequential steps:

• Level 1 – Systematic information gathering from primary and secondary key informants (KI) regarding the locations ("hot spots") where key population members congregate and/or meet casual or paying sexual partners or injecting drug purposes. This is also called geographical mapping of Key populations

• Level 2 – validation and profiling of identified "hotspots" to characterize and estimate the size of the key populations. This is also termed "estimation of the size of key populations.

(3) Data Analysis

Field Implementation plans for L1 and L2 phase of data collection were guides to numbers of planned interviews to be conducted per state and expected minimum limit of number of hotspots to be validated in the state given the number of each state team and based on population size of the state to ensure robust size estimates from each state.

Table 1: L1 Field Implementation Plan

State	Population(2018)	# of LGAs	# of Teams	# of Supervisor	# of Interviews Planned
Abia	3951084	17	4	1	2550
Anambra	5830414	21	5	1	3150
Edo	4489890	18	4	1	2700
Enugu	4606363	17	4	1	2550
Gombe	3367266	11	3	1	1650
Imo	5591889	27	6	1	4050
Kaduna	8617623	23	15	3	3450
Kano	13452320	44	11	2	6600
Oyo	8025798	33	8	2	4950
Taraba	3218642	16	4	1	2400

Table 2: L2 Field Implementation Plan

State	Population (2018)	# of LGAs	# of Teams	# of Supervisor	Expected # of spots	# of spots to be validated at L2
Abia	3951084	17	4	1	395	558
Anambra	5830414	21	5	1	583	690
Edo	4489890	18	4	1	449	591
Enugu	4606363	17	4	1	461	558
Gombe	3367266	11	3	1	337	361
Imo	5591889	27	6	1	559	887
Kaduna	8617623	23	15	3	2200	2100
Kano	13452320	44	11	2	1345	1445
Oyo	8025798	33	8	2	803	1084
Taraba	3218642	16	4	1	322	525
TOTAL		**227**	**64**	**14**	**7454**	**8799**

3.3 PRE-MAPPING EXERCISE

The pre-mapping phase were preparatory activities that established necessary logistical and conceptual foundations for data collection. Key aspects of the pre-mapping exercise included stakeholders engagements and advocacy, formative assessment, acquisition and review of detailed maps of the target states with segmentation of each state by LGAs. Local field team members were recruited based on their experience working with KP and field research experience. Recruited field staffs were trained in two phases –Central level training- a TOT for state study coordinators and supervisors who then stepped down training at state level to the field data collectors, data entry clerks and virtual mapping personnel. Stakeholders meeting also occurred at national and state levels with the constitution of technical teams for supportive supervision and monitoring of the entire exercise.

Pre-Mapping checklist: A pre-mapping checklist was developed to ensure improved preparatory phase activities and used at all levels to ensure adequate and appropriate preparations.

PRE-MAPPING CHECKLIST

- Develop research protocol and conduct ethical review
- Gather and review existing information
- Inform all stakeholders and secure willingness to cooperate and work in the team

 Procure necessary permission letters from relevant authorities

 Finalize KP definitions and key terms

 Define geographic area

 Obtain maps and divide zones clearly

 Finalize list of places to be visited and number of interviews in each place

 Finalize list of key informants for each group

 Finalize formats

 Recruit and train all required staff

 Assign roles of all team members

 Organize field teams and develop daily plans

 Finalize monitoring system and quality assurance plan

Central Level Training and Stakeholders Engagement

A ToT was conducted at the national level involving state study coordinators and supervisors. These persons stepped down the training to their various state/field team members in each state. A one-day stakeholders meeting was held following the TOT to get 'buy in' from relevant stakeholders for the exercise and discuss the role of the stakeholders in the exercise. Details -SEE ANNEX

State Level Trainings and Engagement

State Technical Teams (STTs) were inaugurated and field team recruitment was done by the STT for data collectors/interviewers, data entry managers, virtual mappers and social mobilizers. Field teams were then trained for two days on the L1 exercise prior to going into the field to collect L1 data. The field teams were constituted to include KP members especially for the L2 exercise. 2-day training was conducted preceding the L2 exercise. Each field team developed a field monitoring process and a detailed work plan for the local mapping exercise with daily routine and plans; types and names of key informants were finalized for each KP group; locations to be visited finalized along with the number of interviews to be conducted in each LGA and towns/villages in each LGA. The role of all team members was well defined and assigned and the state study coordinators and supervisors trained at central TOT, supported by UoM state monitors conducted state level trainings for the field work teams in each state. All field teams had comprehensive training for 4 days (2 days for L1 and 2 days for L2) on all aspects of mapping.

3.4 FIELD DATA COLLECTION –Physical locations

The field data collection in mapping was in two sequential steps:

•Level 1 – Systematic information-gathering from key informants (KI) regarding the locations (sites) where key population members congregate and/or meet casual or paying sexual partners.

These included geographic locations for all three KP typology and virtual locations in addition for MSM only.

•Level 2 – Site validation and in-depth profiling of sites identified in Level 1.

Level 1 Data Collection

Level 1 data collection focused on collecting information from key informants about the geographic locations where KP members congregate. For each mentioned location, key informants (KIs) were asked a small set of more specific questions about the characteristics of the spot (public place, brothel, lodge, among others) and an estimate of the number of KP members who can be found there (minimum, maximum and usual). This information was gathered in a pre-designed format finalized during the pre-mapping exercise. Each day, the field team for each state convened to collate the data collected in the field. Data were manually edited and the information was further sorted into various tables which served as a foundation for level 2 activities. Based on the information gathered in Level 1, spots were identified for detailed spot profiling in Level 2 data collection.

Level 1 mapping entailed listing all physical spots within the LGA, where KP members (FSWs, MSM, and PWIDs) go to meet clients, sexual partners, or to procure or inject drugs. Informants (primary or secondary key informants) were asked where KPs congregate/gather and at the end of this stage, a list of hotspots where KPs could be found in the LGA was generated. The Level 1 interview was conducted at various major markets, parks, streets, recreational gardens, malls, *okada* rider's parks, popular streets etc. within a specified LGA and informants asked about high-risk activities within the zone/LGA.

All KIs were more than 18 years of age.

Level 1 Data Collation

At Level 1, the team assembled and collated the data collected daily. Data assembled was sorted into various spot lists and spot codes generated for each spot with spot names and addresses finalized. Validations of these spots were undertaken at the next step for L2. The primary outcome of the L1 phase was the development of a comprehensive list of spots where KP congregate. Each spot list contained the following information:

- Spot name and address
- Spot Code
- Frequency of mention (each time a spot is mentioned by a KI)
- Spot timing (hours of operation)
- Minimum estimates (average of all minimum values provided by various KIs)
- Maximum estimates (average of all maximum values provided by various KIs)
- Typologies of the populations

The L1 data collection exercise lasted for 25 days.

Level 2 Activity: Site Verification/Validation Phase

The final step in data collection involved conducting primary key informant interviews at the identified hotspots within each LGA. These L2 interviews involved primary key informants (key population members and those closely related; FSWs, IDUs, MSM, pimps, madams, brokers, among others) and it focused on validating the information collected and collated in the previous L1 exercise. Field teams went to the identified hotspots and verified the location, described the type of spot, and got more specific information on the size of the KP that existed (minimum, maximum and median estimates).

The information generated from L2 activity covered the following:

1. Type of Spot
2. Determined KPs that can be found in the spot
3. Determined the number of KPs usually seen at the spot
4. Determined time of operation/activity of KPs at the spot
5. Determined level of access of FSWs, MSMs, PWID in the spot to HIV/STI prevention and care services in the last six months.
6. Identified other spots that were not captured during L1

100% validation was done for identified spots during L2. All respondents were more than 18 years of age and L2 data collection exercise lasted for 20 days.

3.5 MAPPING VIRTUAL/INTERNET SITES FOR MSM

While physical hotspots were being mapped to estimate MSM, it was important to map the virtual sites to estimate and profile MSMs who meet partners in these virtual spaces.

Virtual mapping objectives were:

• To estimate the number of MSM who operate virtually

• To understand the extent of overlap between virtual sites and physical locations

The broad conceptual approach adopted is sequential listing of Virtual sites, exploring its size estimates and these involved three stages:

Stage 1: Listing of Virtual Sites

The procedure employed includes:

• Listing of virtual sites by MSM using Focus Group discussions.

• All sites known to be used in each state were listed except for Taraba state where data collectors could not get virtual mappers and no virtual mapping was done in the state.

• A comprehensive list of websites/mobile apps was developed at the end of listing.

• Then, the frequently used sites were selected and trimmed down to maximum of 15 most frequently used for virtual mapping in the state.

Stage 2: Virtual Sites Profiling and MSM Size Estimation

Sampling frame used in size estimation was the initial list of sites generated from FGDs which include:

1) Global sites
2) State specific sites

3) Facebook
4) WhatsApp groups specific to the state
• Virtual mappers (VMs) moved from LGA to LGA.
• Each site and App were observed virtually during scheduled days and times daily for a period of days.
• The VMs estimated the number of KPs using the various sites in the LGAs.
• Number of persons registered; number of persons active at point in time were estimated and recorded. This then generated estimates for MSM using virtual space to reach their partners in each state. For virtual mapping, duplications (multiple user profiles) and possible overlaps between virtual and physical sites, were accounted for in the analysis stage.

Stage 3: Sampling – MSM Quantitative Interviews with a Sample of MSMs Selected from Virtual Sites

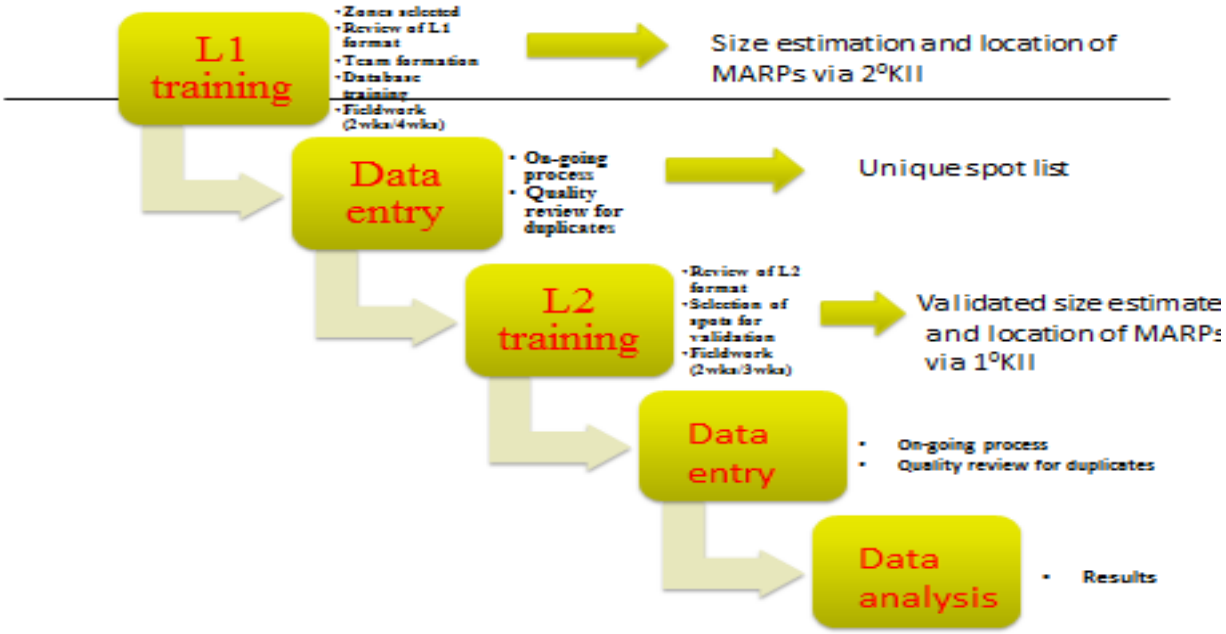
- Interviews included 150 KPs (10 per virtual site used in each state).
- Interview aimed at understanding their use of Virtual and physical sites.
- Information areas during the interview also included the following:

1. Characteristics of MSMs
2. All the websites/apps that the MSM registered with
3. Multiple registrations
4. Number of friends on each website
5. HIV services exposure / testing practices
6. Unmet need
7. Preferred service delivery approach

3.6 DATA MANAGEMENT & ANALYSIS

A database with in-built quality checks was used for all data capturing tools and for ease of operations, the database was developed in MS Excel. The study team coordinators, UoM state monitors and the state data mangers carried out quality and consistency checks on the data and data entry in a computerized database was done on a daily basis. To ensure optimal data security, the databases were password protected and kept in safe custody.

Figure 3: Data Collection and Entry Process



3.7 PROTOCOL & ETHICAL APPROVAL

The KP size estimation protocol and methodology was approved by National Health Research Ethics Committee (NHREC) following a request by SFH. The ethical principles that guided the programmatic mapping covered areas of confidentiality, protection and rights of the KP and research team safety.

4.0 FIELD IMPLEMENTATION

Field implementation structures were set up as follows:

- Technical teams
- Field teams

Technical Teams

The field operations were supervised by the National Technical Team (NTT) across the 10 states and a State Technical Team (STT) in each of the states.

Field Teams - Composition and Functions

The field implementation process entailed the field team recruitment, training, logistics and field operations, monitoring activities and quality assurance. State Technical Teams recruited the state field team comprising of data collectors/interviewers, data entry managers, virtual mappers and social mobilizers. The STT also selected the number of persons required for L1 and L2 data collection.

Each state field team, data managers and virtual mappers worked closely with the UoM state monitors and SFH personnel. The SACA were responsible for the entire data management process including data editing and inputting the data in the database while state study coordinators and

assisting supervisors were responsible for daily logistics and field management supervision, human resources management and quality assurance of field work, data collation, editing and spot coding.

Field teams per state differed based on the amount of work for specific states and comprised of two interviewers per team working in the field to collect L1 data. At Level 2, Field teams were more specialized working with a specific key population. In addition, social mobilizers (KP community members) paired up with field interviewers to provide in-roads to the target community. Virtual and network mapping for MSM used the community members (MSM) in a state to focus on this specific task.

4.1 LOGISTICS AND FIELD OPERATIONS

A field office was established in SACA office in each state as data entry center for the exercise. Transportation and other logistics were made available for the field teams (from field office) to all sites where data was collected. The daily schedules of proposed field visits were prepared by state study coordinators and finalized by the STT in concurrence with the field teams. All field staff gathered in the field office every day, prior to going to the field. Data collection was regularly monitored on a daily basis by the state study coordinator and UoM state monitors. Periodic meetings were held as needed to discuss the field work, data editing and any difficulties encountered.

In level 2, the timings of data collection were largely driven by the timings of the spots.
Measure were undertaken to ensure safety of field team and KP persons with informed consent sought before interviews. Community involvement and leadership ensured enabling environment for the conduct of the exercise.

4.2 QUALITY ASSURANCE STRATEGIES AND FIELD MONITORING

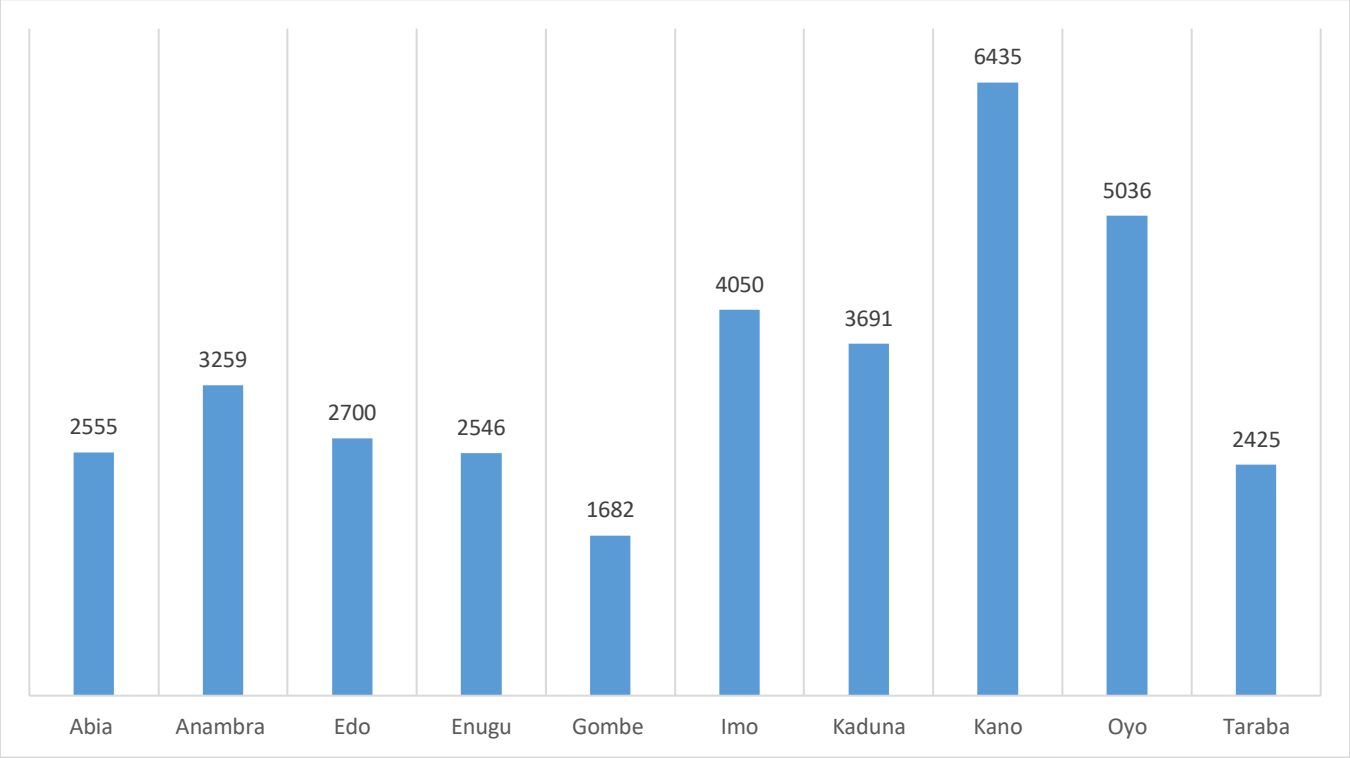
Quality assurance strategies were layered in approach from (1) National; (2) State and (3) Field levels. It involved a well thought out process and procedures with an aim to ensure a successful outcome. The monitoring and quality assurance system was designed with a timeline to complete the data collection activities within delineated time frames. Monitoring and Quality Assurance plans utilized relevant checklists as part of quality assurance measures with monitoring activities occurring at various levels - **National technical team, State technical team and UoM State monitors. Measures were taken to ensure field team and key population group's safety throughout the exercise.**
Field monitoring system used spelt out supportive monitoring strategies to support less experienced members and included daily plans set out in ways that took care of': (1) daily activity plans; (2) weekly activity and (3) updates dash boards. A quality assurance plan was developed and implemented taking cognizance of state specificities. The state study coordinators were responsible for ensuring quality of data (selection of KIs, selection of key spots, quality of interviews, filling of field forms among others).

4.3 STUDY LIMITATIONS

- A technical limitation of Programmatic mapping is that it captures only the segment of the KP who meets their clients or partners at publicly accessible venues. People who meet their clients/partners exclusively by other means (e.g. through the internet, phone, or through friends) or who look for clients/partners infrequently (e.g. less than once or twice a month) will be less likely to be counted during the mapping exercise.
- Programmatic mapping methodology relies on numeric estimates rather than a count of KPs at the spots identified, which may lead to variability in the estimates derived. The methodology addresses this limitation through averaging estimates for spots identified by a large number of secondary key informants, and validating estimates for spots identified by the least number of secondary key informants through interviews with the KPs themselves, it is possible that some secondary and primary key informants may still over- or under-estimate KP numbers.
- Programmatic mapping methodology is not individually based, it could overestimate the size of KP, if KP frequent multiple locations. For example, if a KP works/cruise in multiple bars/spots, it is possible that the same KP could contribute to estimated numbers at multiple spots, thereby inflating the estimates. However, since the methodology is rapid and focuses on the minimum and maximum number of KP at a spot on a given day, the range of estimates (minimum to maximum) is unlikely to be skewed substantially. Moreover, the final population size estimates derived are adjusted for mobility of KPs, based on information provided by the KP themselves.
- Another limitation of this approach is that the tools used for Programmatic mapping and size estimation are kept short to enhance response rates among both secondary and primary key informants. Consequently, detailed data on HIV-risk behavior is not looked for. Programmatic mapping data, however, provide a valid sampling frame of spots frequented by KPs, which can be used to design and undertake behavioral surveys.
- Field work implementation challenges bordering on budget adequacy, data entry and management at state level and overall time limitations.

RESULTS:

Graph 1: Interviews conducted in L1 across the 10 States



This is a diagrammatic representation of the number of interviews conducted in each state at L1 Phase. All state teams surpassed the number of interviews allotted to the state except for Imo and Edo where they conducted the number of interviews stipulated during the design mission. Kano state had a shortfall of 165 interviews that were not conducted in one LGA (1LGA-Tsanyawa LGA). However, this shortfall will not affect estimates for the state.

Table 3: Number of Spots Across the 10-States by KP Typology

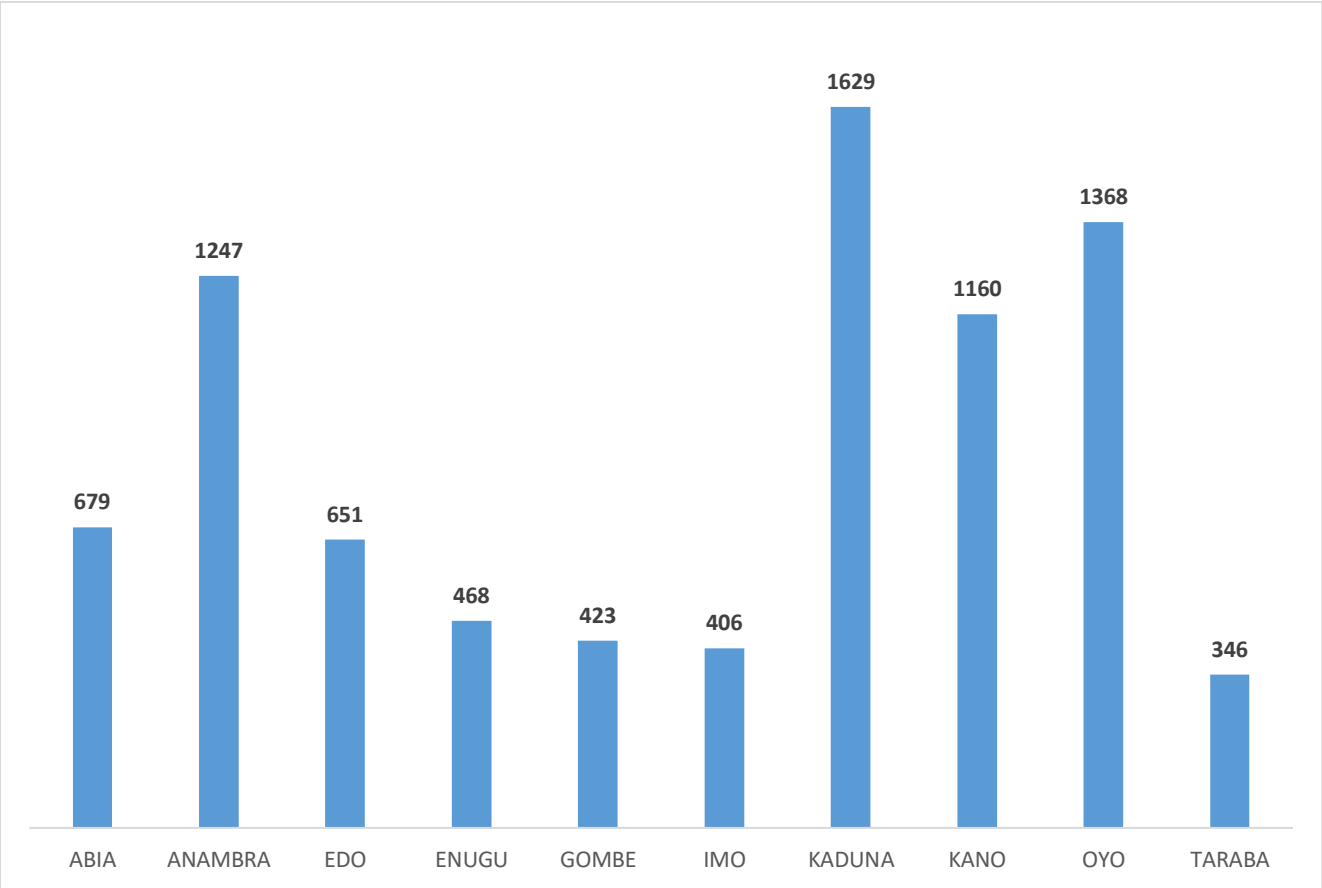
State	FSW	MSM	PWID	Total
ABIA	679	103	354	1136
ANAMBRA	1247	321	176	1744
EDO	651	101	45	797
ENUGU	468	169	135	772
GOMBE	423	144	690	1257
IMO	406	56	119	581
KADUNA	1629	635	857	3121
KANO	1160	2012	848	4020
OYO	1368	710	483	2561
TARABA	346	98	130	574
Total	8377	4349	3837	**16563**

Across all KP typologies Kano state with 4,020 hotspots had the highest number of active hotspots, followed by Kaduna 3,121 and Oyo state with 2,561.

FSW RESULTS SECTION

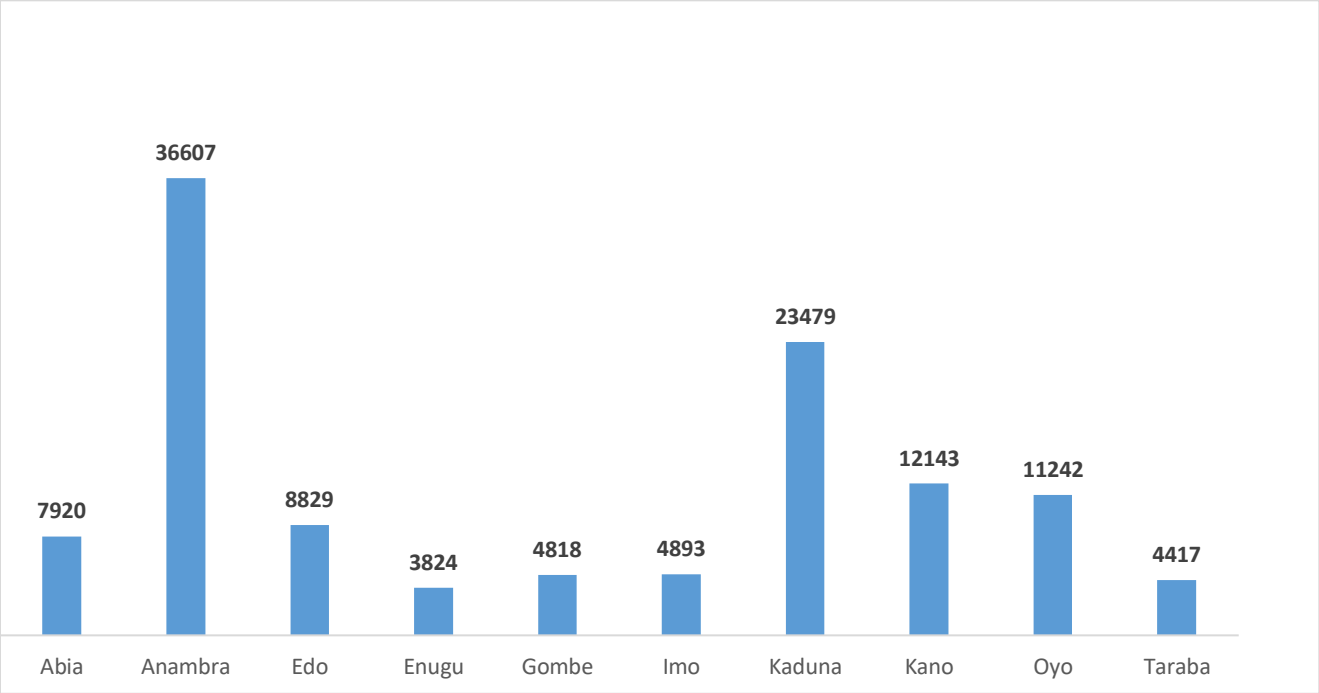
Female Sex Workers size estimation result Across All 10 selected States.

Graph 2: FSW Active Hotspots by State



Kaduna state had the highest number of FSWs spots with an estimate of 1,629, followed by Oyo state 1,368 and Anambra state with 1,247 hotspots. Taraba state had the least number of hotspots with 346.

Graph 3: Estimated number of FSW by State

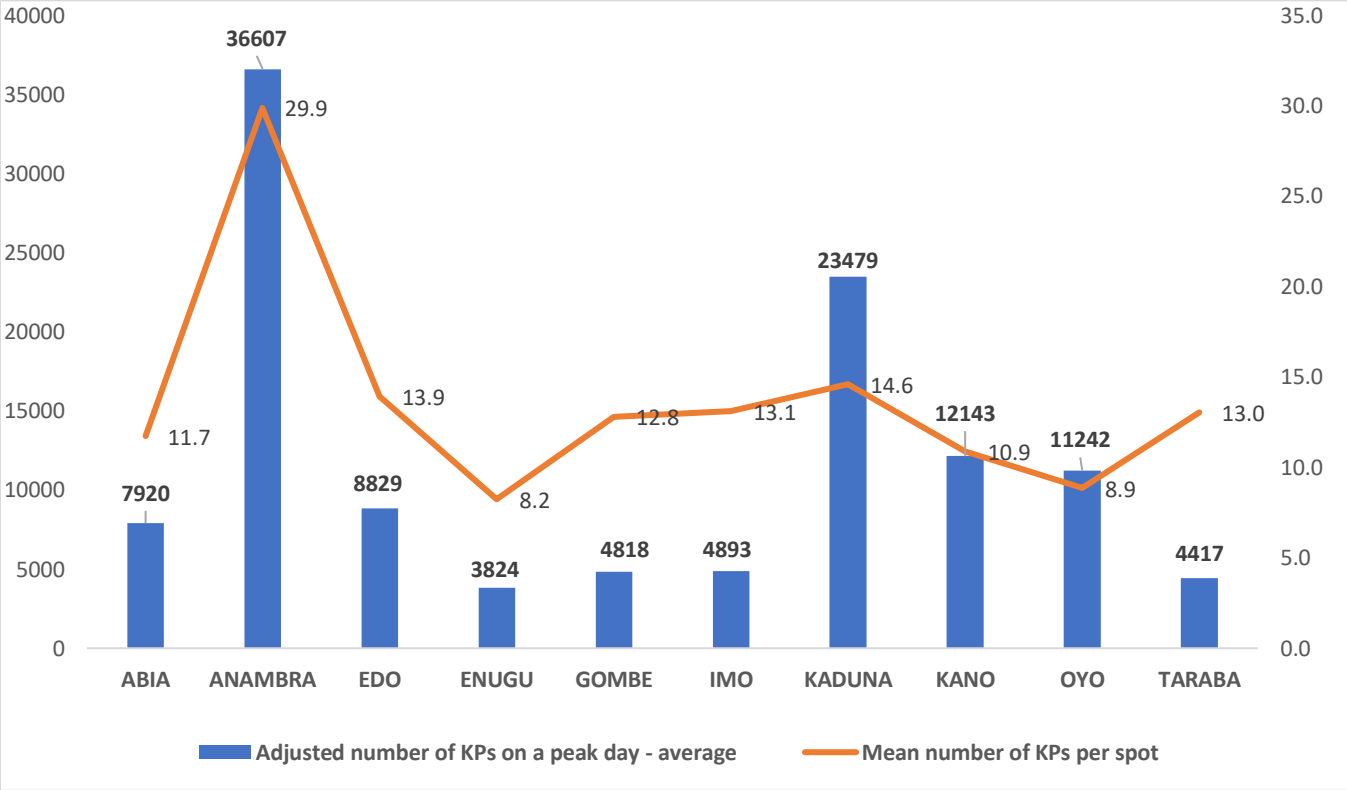


Anambra state had the highest number of mean estimated FSWs on a peak day with **36,607**, followed by Kaduna state **23,479** and Kano **12,143**. Enugu state had the least mean estimated number of FSWs **3,824**.

Table 4: Estimated number of FSW at spots on peak days by State

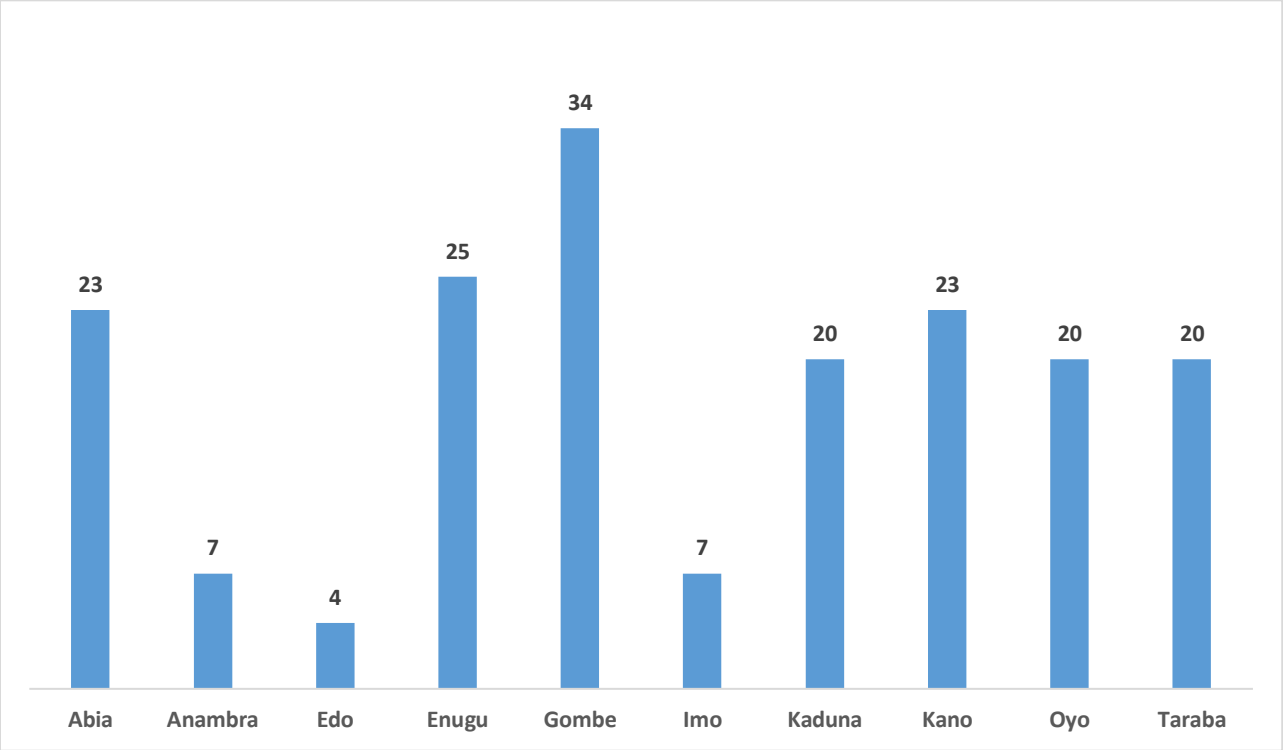
FSW/State	Adjusted number of KPs on a peak day - low	Adjusted number of KPs on a peak day - high	Adjusted number of KPs on a peak day - average
Abia	6970	8869	7920
Anambra	32289	40894	36607
Edo	7065	10592	8829
Enugu	2559	5089	3824
Gombe	3978	5657	4818
Imo	4097	5690	4893
Kaduna	19081	27770	23479
Kano	9904	14372	12143
Oyo	9555	12929	11242
Taraba	3765	5069	4417

Graph 4: Estimated number of FSWs on a peak day vs Mean number of FSW per spot by state



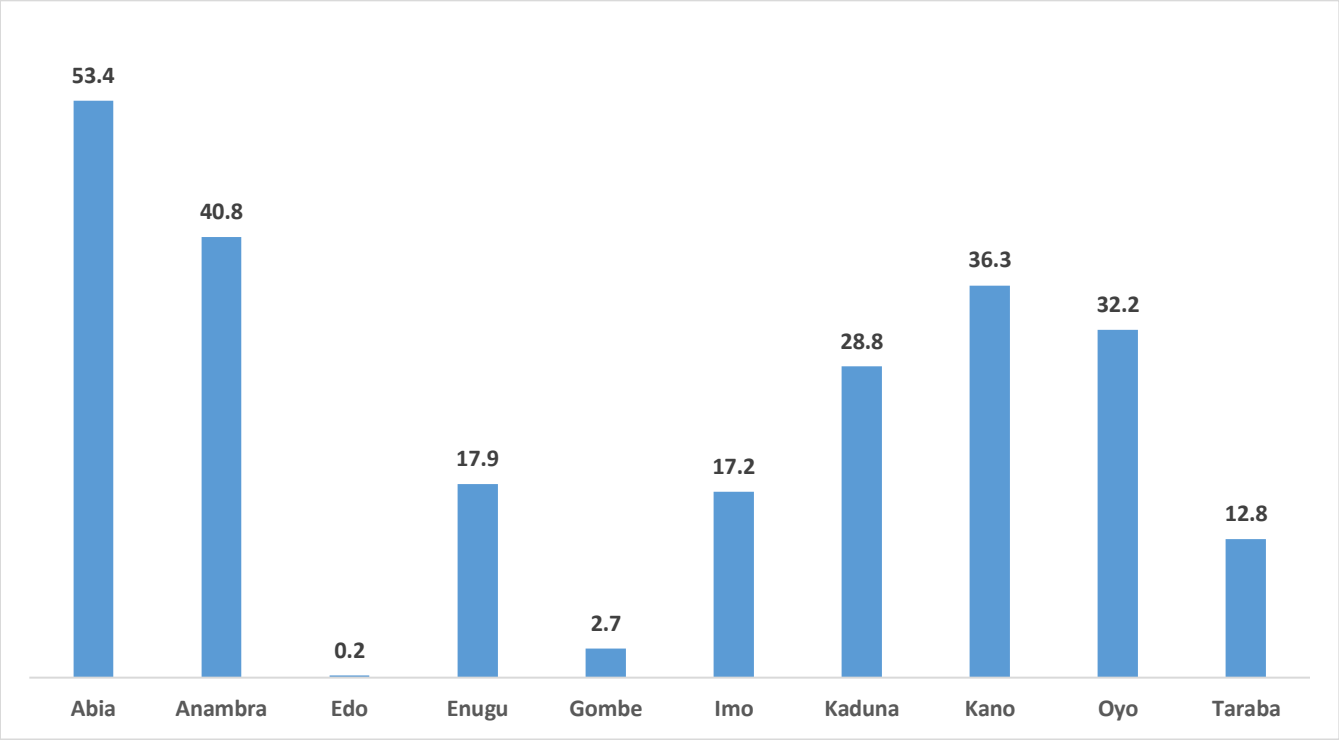
Mean number of FSW per spot was highest in Anambra state with approximately 30 FSWs/spot, Kaduna 15 FSWs/spot and Edo 14 FSWs/spot. Enugu had the least with 8 FSWs/spot

Graph 5: Percentage of FSWs that do not visit spots by State



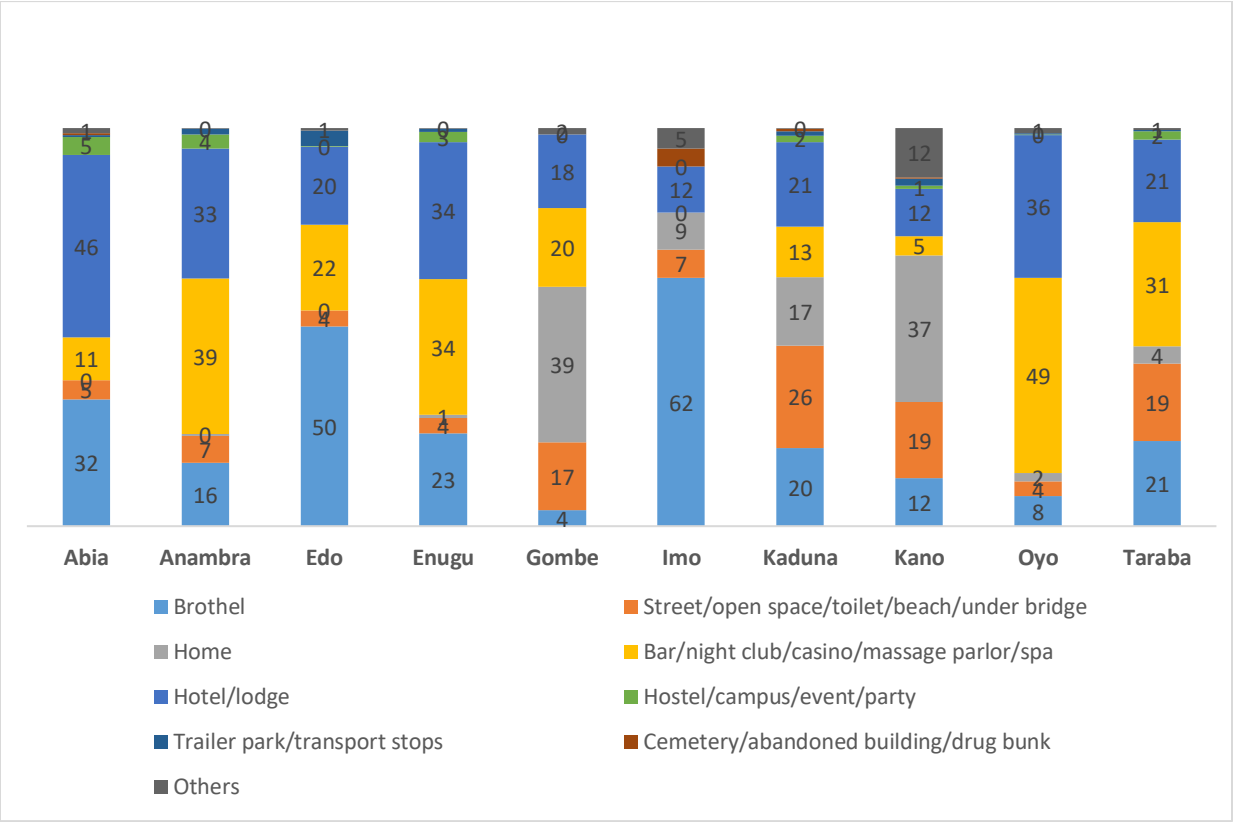
Highest numbers of known FSWs (more than 20%) who do not visit physical spots were found in Gombe, Enugu, Kano and Abia states.

Graph 6: Percentage of FSWs ever used internet or web page to advertise services



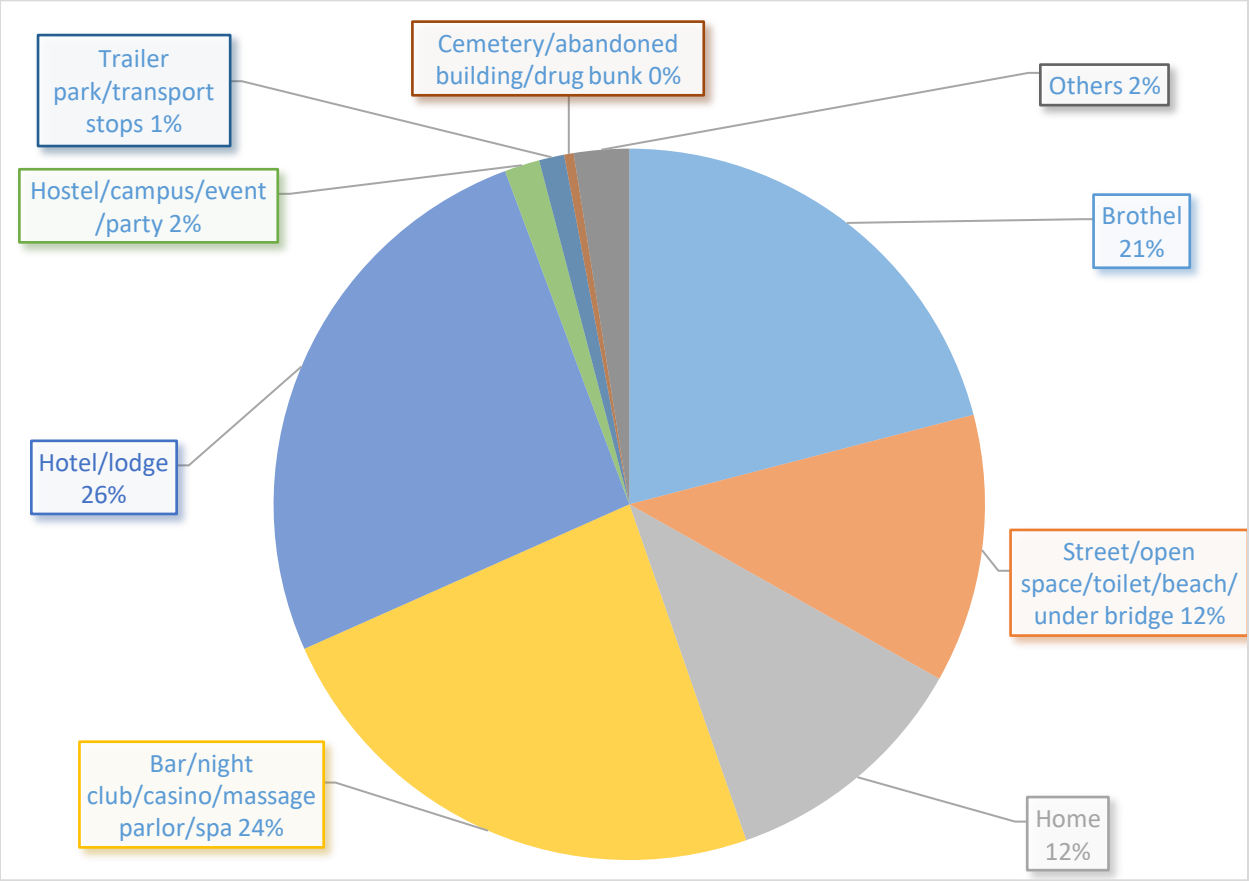
FSWs in Abia and Anambra, states were more likely to use website/internet to advertise for partners/sexual networking than other FSWs across all the 10 states. Edo states FSWs were the least likely to use internet/websites for sexual networking

Graph 7: Percentage of FSW spots by state and typology



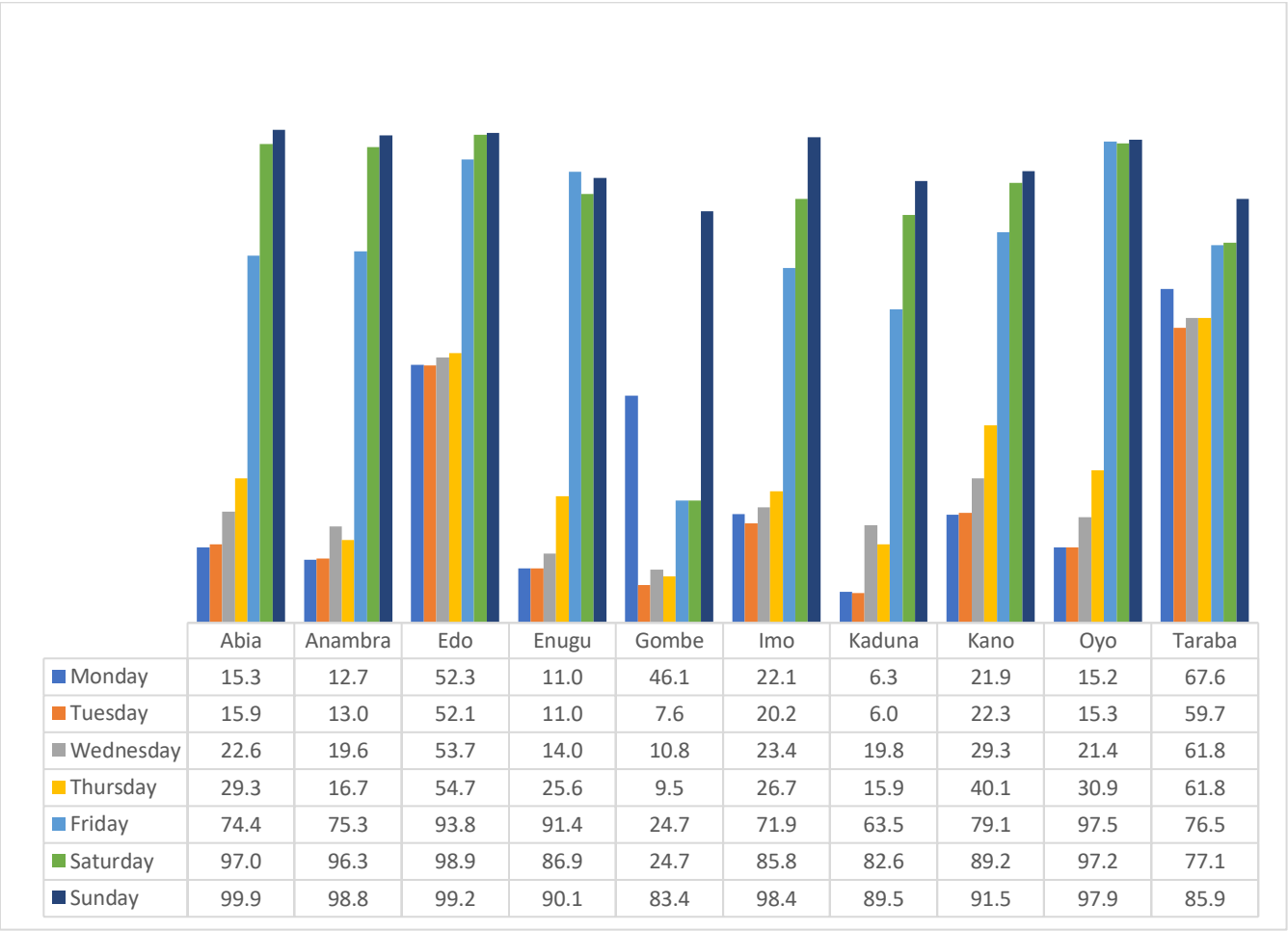
Homes and open spaces/streets were most popular spots where FSWs congregate in Kano, Gombe and in other Northern states. Bars/night clubs/casinos and Brothels were most popular spots in the Southern states.

Graph 8: Percentage of ALL FSW spots by typology



Most popular type of spot for FSWs across the states were Hotel/Lodge 26%, Bars/night clubs/casino/massage parlors followed with 24%.

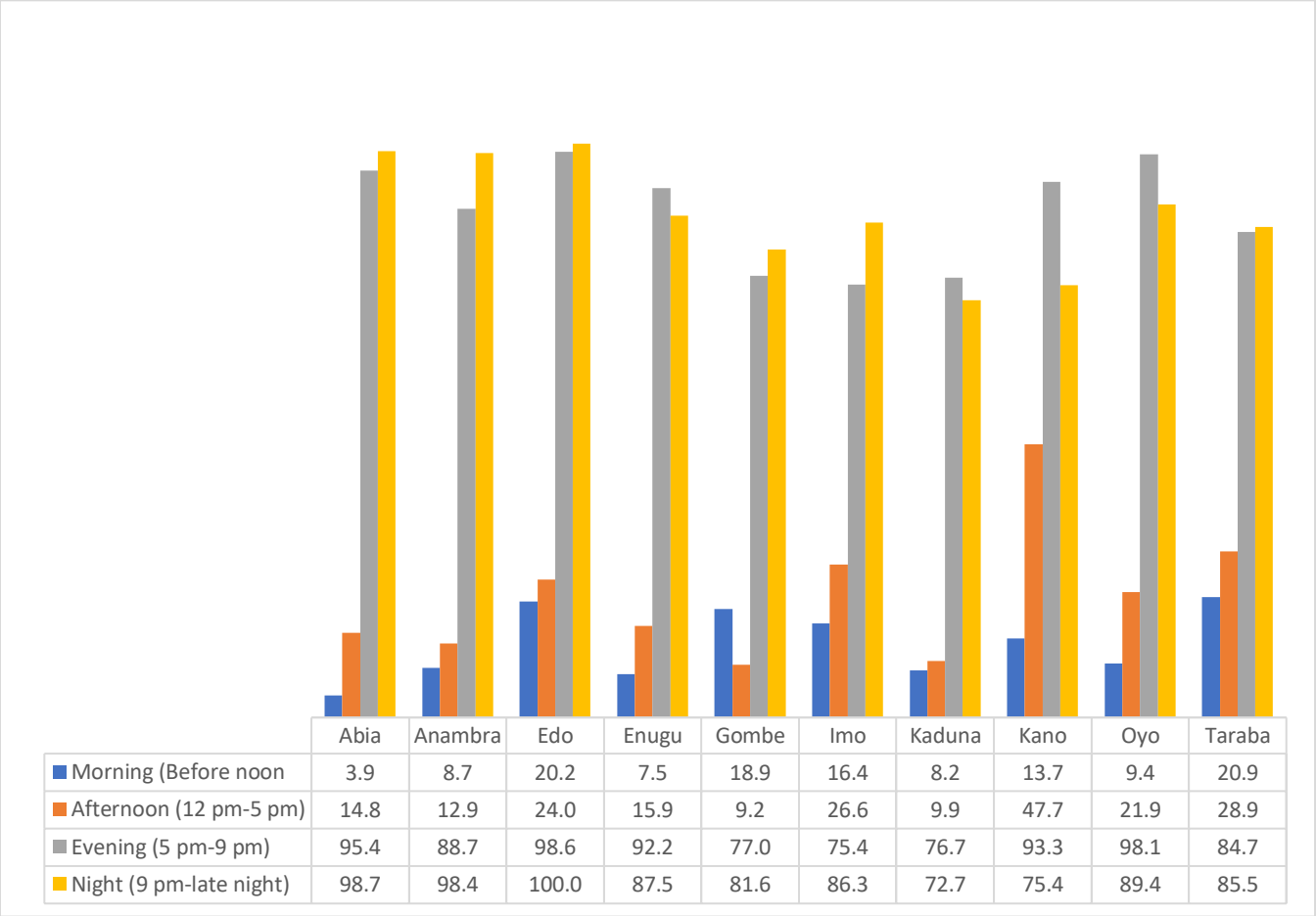
Graph 9: Peak Day of Spot – FSW (%)



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Monday	15.3	12.7	52.3	11.0	46.1	22.1	6.3	21.9	15.2	67.6
Tuesday	15.9	13.0	52.1	11.0	7.6	20.2	6.0	22.3	15.3	59.7
Wednesday	22.6	19.6	53.7	14.0	10.8	23.4	19.8	29.3	21.4	61.8
Thursday	29.3	16.7	54.7	25.6	9.5	26.7	15.9	40.1	30.9	61.8
Friday	74.4	75.3	93.8	91.4	24.7	71.9	63.5	79.1	97.5	76.5
Saturday	97.0	96.3	98.9	86.9	24.7	85.8	82.6	89.2	97.2	77.1
Sunday	99.9	98.8	99.2	90.1	83.4	98.4	89.5	91.5	97.9	85.9

Peak days of operation of spots for FSWs activities were at weekends from Friday through Sunday across most states. In Gombe state most FSWs congregate at spots on Mondays and Sundays. In Edo and Taraba states, FSW activities at spots were consistently high throughout all the days of the week with peak activity on Sundays.

Graph 10: Peak Time of Spot- FSW (%)



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Morning (Before noon	3.9	8.7	20.2	7.5	18.9	16.4	8.2	13.7	9.4	20.9
Afternoon (12 pm-5 pm)	14.8	12.9	24.0	15.9	9.2	26.6	9.9	47.7	21.9	28.9
Evening (5 pm-9 pm)	95.4	88.7	98.6	92.2	77.0	75.4	76.7	93.3	98.1	84.7
Night (9 pm-late night)	98.7	98.4	100.0	87.5	81.6	86.3	72.7	75.4	89.4	85.5

Peak time of FSW activities at the spots were evening (5pm-9pm) night times across all 10 states. In Kano afternoon periods (12-5pm) were relatively busy periods at FSW spots.

Table 5: FSWs Access To HIV Prevention Services Six Months Prior to KPSE Exercise

Type KP	State	Service - Condom		Service - Lubricant		Service - Treatment for STI		Service - HIV testing		Service - HIV Treatment		Service - HIV peer education	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
FSW	ABIA	4.4	95.6	0.6	99.4	0.0	100.0	1.6	98.4	0.0	100.0	0.7	99.3
	ANAMBRA	1.9	98.1	0.5	99.5	0.4	99.6	1.8	98.2	0.1	99.9	0.1	99.9
	EDO	0.0	100.0	0.0	100.0	0.3	99.7	0.3	99.7	0.0	100.0	0.0	100.0
	ENUGU	3.0	97.0	0.2	99.8	0.4	99.6	1.1	98.9	0.7	99.3	0.4	99.6
	GOMBE	21.6	78.4	4.5	95.5	6.9	93.1	42.7	57.3	30.2	69.8	7.4	92.6
	IMO	16.1	83.9	8.0	92.0	8.8	91.2	9.9	90.1	3.4	96.6	8.3	91.7
	KADUNA	19.7	80.3	12.4	87.6	1.7	98.3	9.5	90.5	1.7	98.3	0.5	99.5
	KANO	6.0	94.0	3.3	96.7	2.2	97.8	2.4	97.6	1.1	98.9	0.5	99.5
	OYO	30.8	69.2	19.8	80.2	9.1	90.9	13.2	86.8	2.5	97.5	16.0	84.0
	TARABA	0.6	99.4	0.3	99.7	0.3	99.7	1.3	98.7	0.6	99.4	0.6	99.4

HIV prevention services which includes condoms distribution; lubricants distribution; STIs treatment, HIV testing services, HIV treatment and HIV peer education services **were scarcely available** at FSW spots across all the 10 states. Edo state fared worst a**s NONE** of the services were available in the state.

Condom services were available in 31% of spots in Oyo; 20% of FSW spots in Gombe and Kaduna states.

Lubricants were only available in about 20% of spots in Oyo and 12% spots in Kaduna state. STI treatment services were available in less than 10% of the FSW spots in Imo, Gombe and Oyo states while HIV treatment services were available in about 30% of FSW spots in Gombe state.

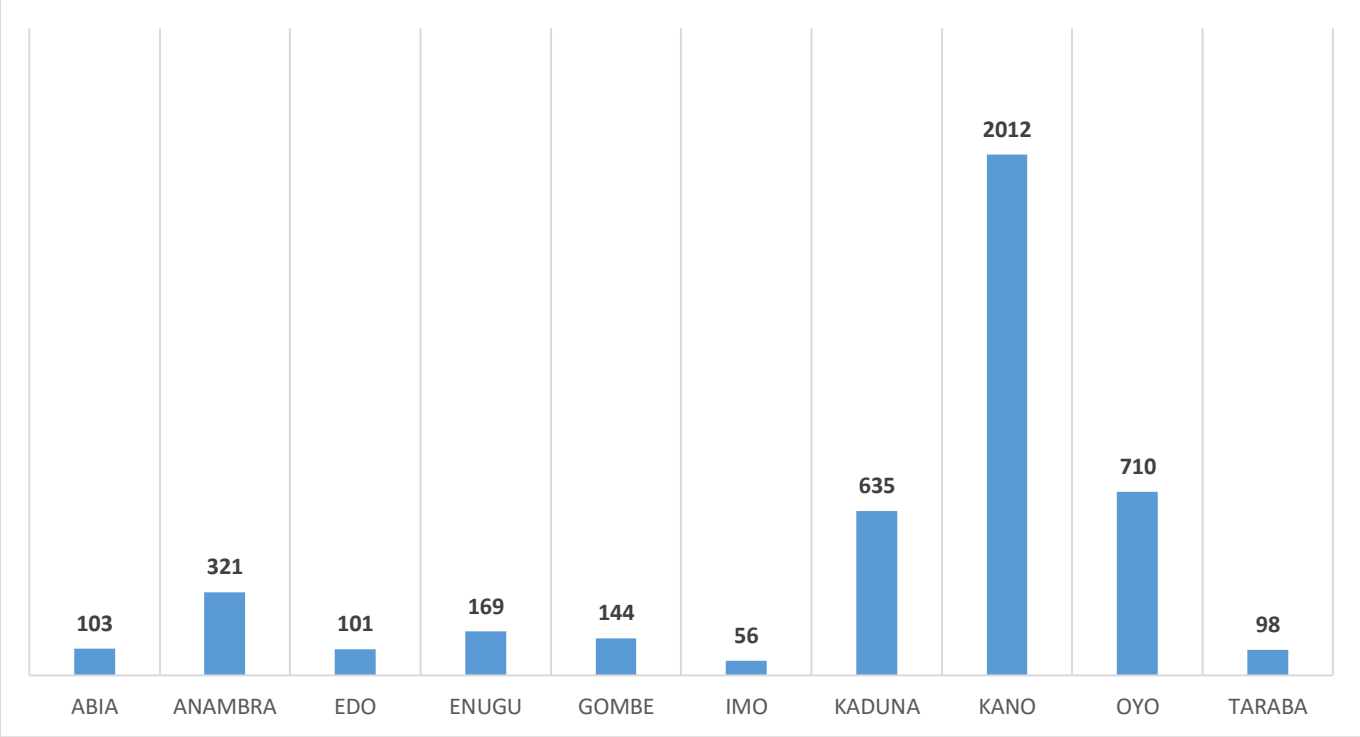
HIV peer education services were available in 16% spots in Oyo and less than 10% of spots in Gombe and Imo states.

HIV testing services were available in over 40% of spots in Gombe state only.

MEN who have SEX with MEN (MSM) RESULTS SECTION

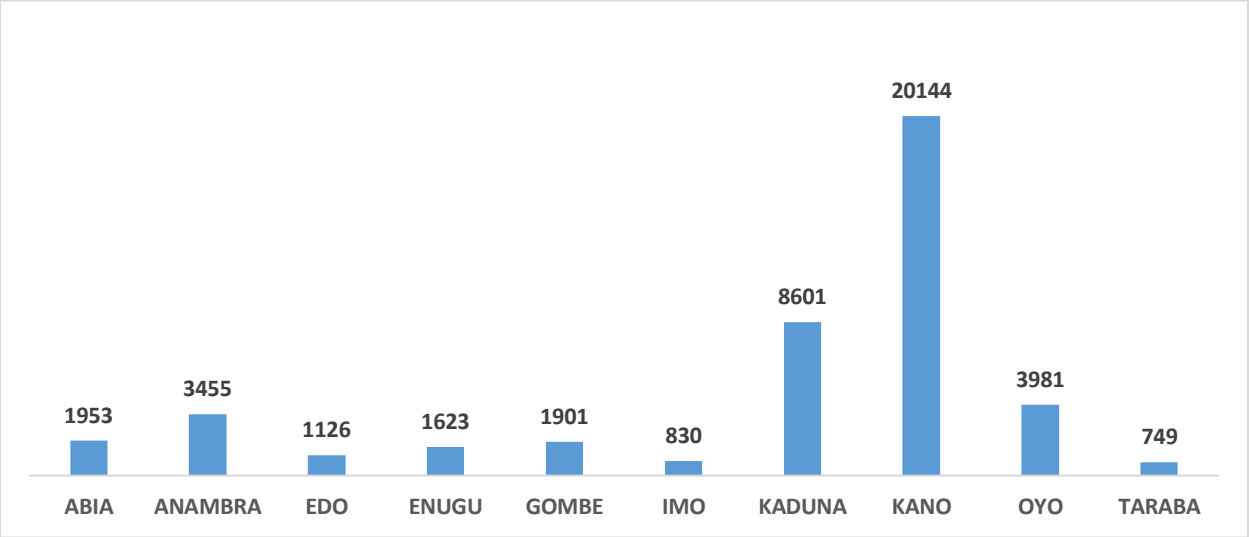
MSM size estimation results across all 10 States

Graph 11: MSM active hotspots by states



Highest number of MSM active spots were found in Kano with 2,012, followed by Oyo 710 and Kaduna 635 active spots. Imo state had the least number of active MSM spots with only 56.

Graph 12: Estimate number of MSM by state

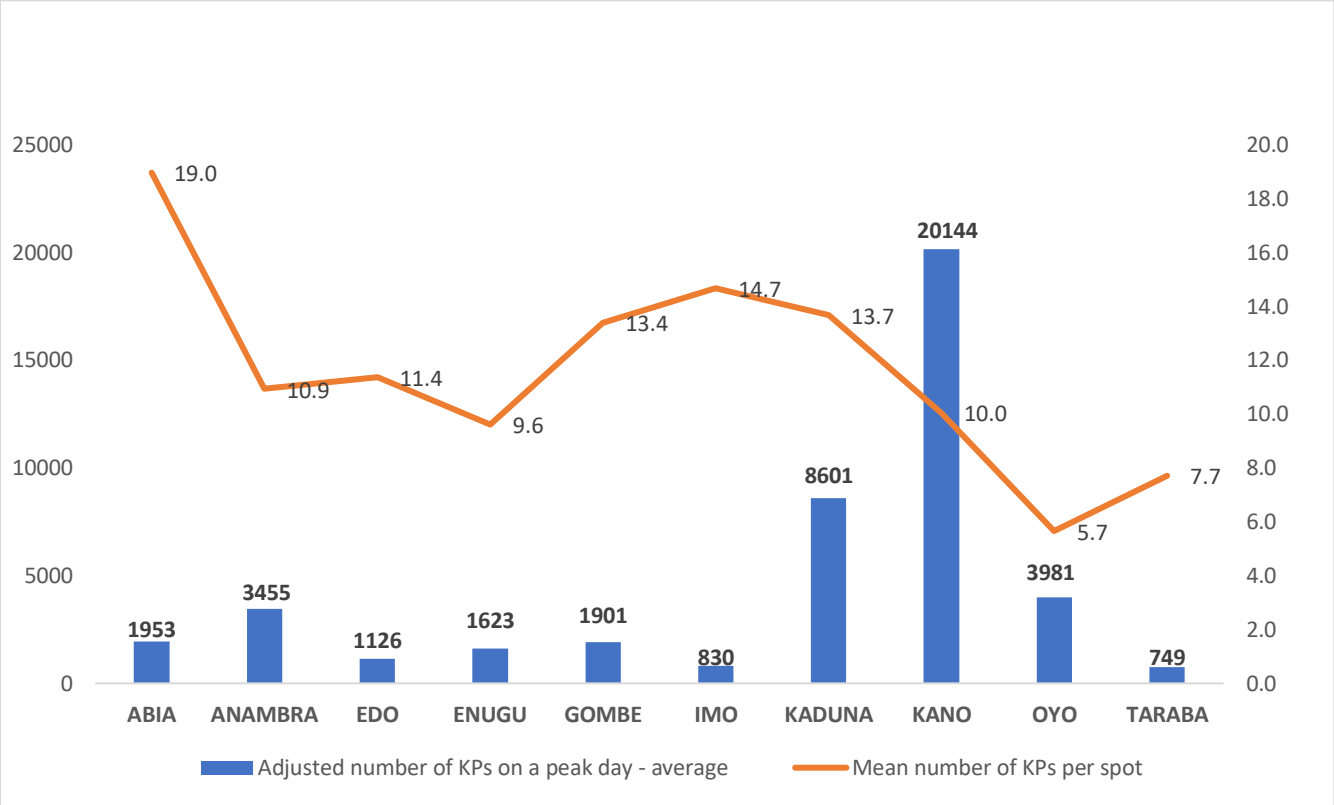


Kano state had the highest number of MSM at physical locations with an estimate of 20,144, followed by Kaduna state 8,601 and Oyo 3,981, Anambra 3,455 MSM. Taraba state had the least estimated MSM with 749.

Table 6: Estimate number of MSM at on peak days by state

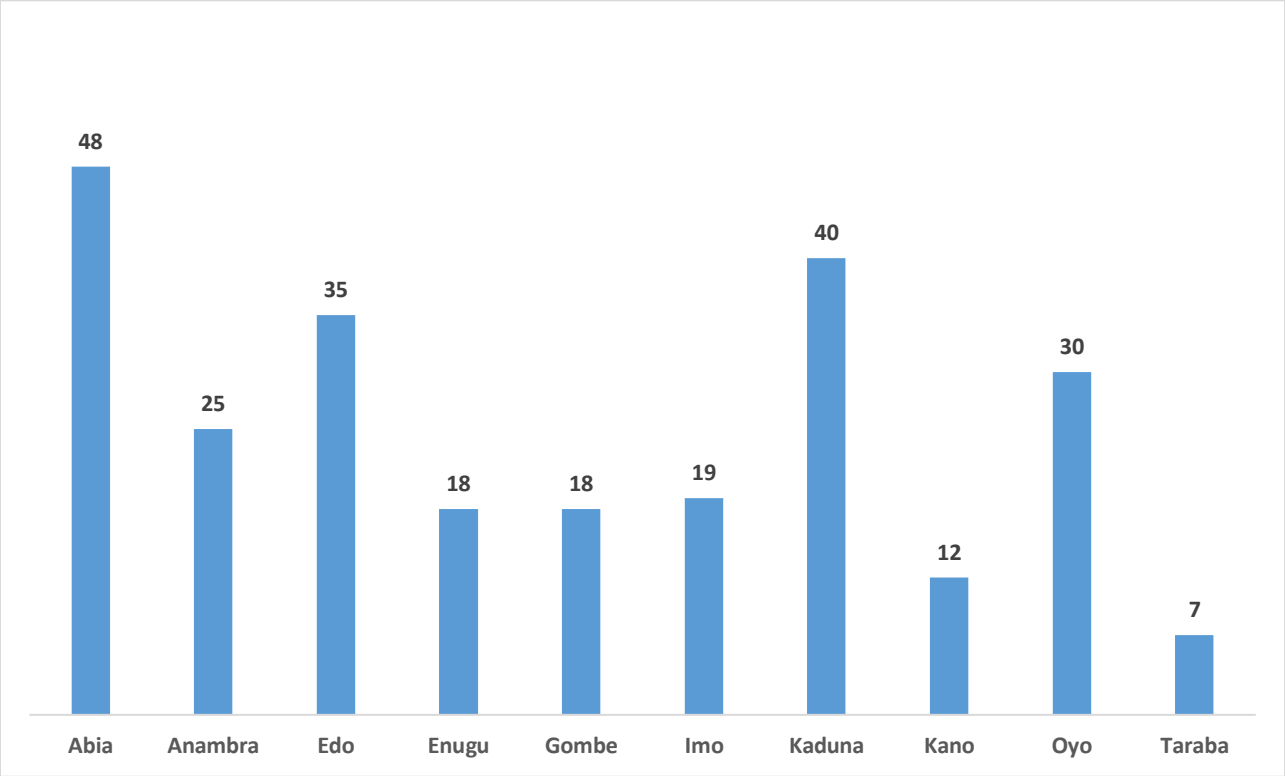
MSM/State	Adjusted number of KPs on a peak day - low	Adjusted number of KPs on a peak day - high	Adjusted number of KPs on a peak day - average
Abia	1625	2282	1953
Anambra	2576	4333	3455
Edo	876	1377	1126
Enugu	1214	2032	1623
Gombe	1602	2200	1901
Imo	697	963	830
Kaduna	7086	10117	8601
Kano	16169	24119	20144
Oyo	3073	4889	3981
Taraba	648	849	749

Graph 13: Estimated number of MSM on peak day vs Mean number of MSM per spot by state



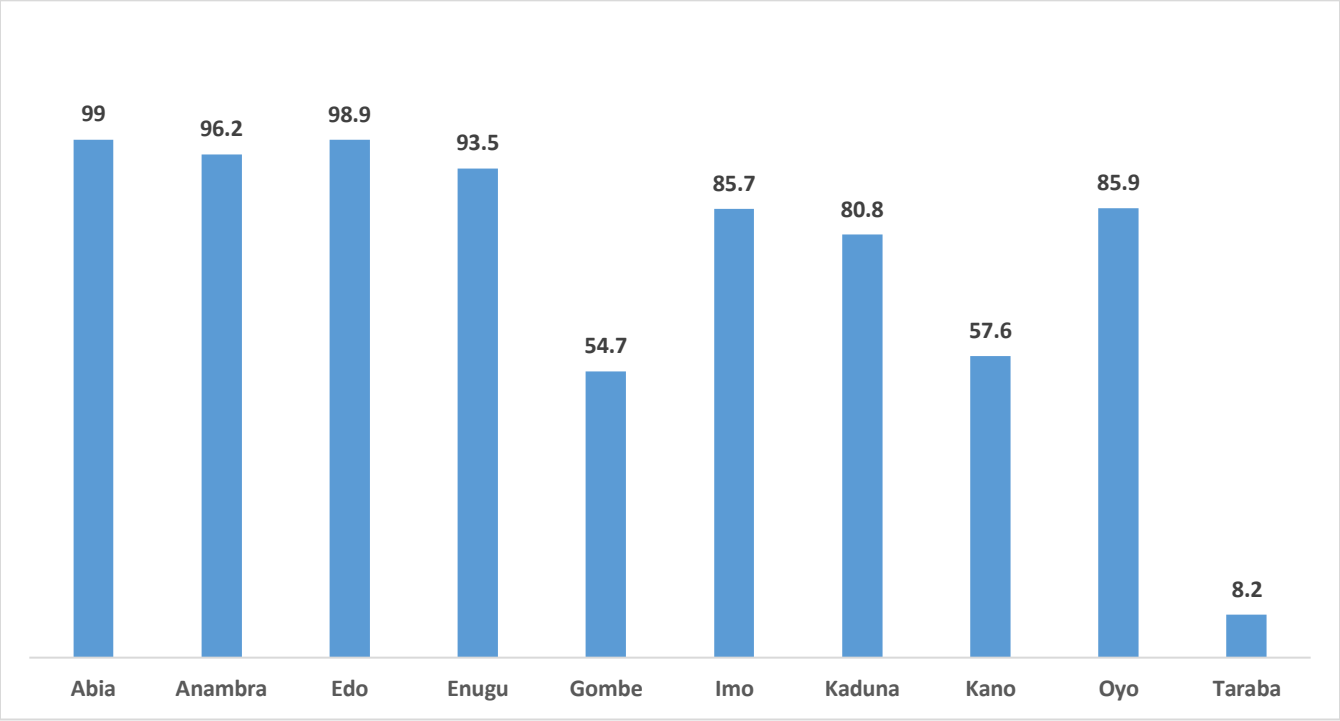
Mean number of MSM per spot was highest in Abia state with 19.0 MSM/spot, Imo 15.0 MSM/spot and Kaduna 14 MSM/spot.

Graph 14: Percentage of MSM that do not visit spots as reported by state



Known MSM who never visit hotspots are highest in Abia, Kaduna, Edo, and Oyo states.

Graph 15: Percentage of ever used internet or web page to advertise your services - MSM



MSM key populations were more likely to use website/internet to advertise for partners/sexual networking across all the states except in Taraba state.

Graph 16: Estimated number of MSMs sell sex by state

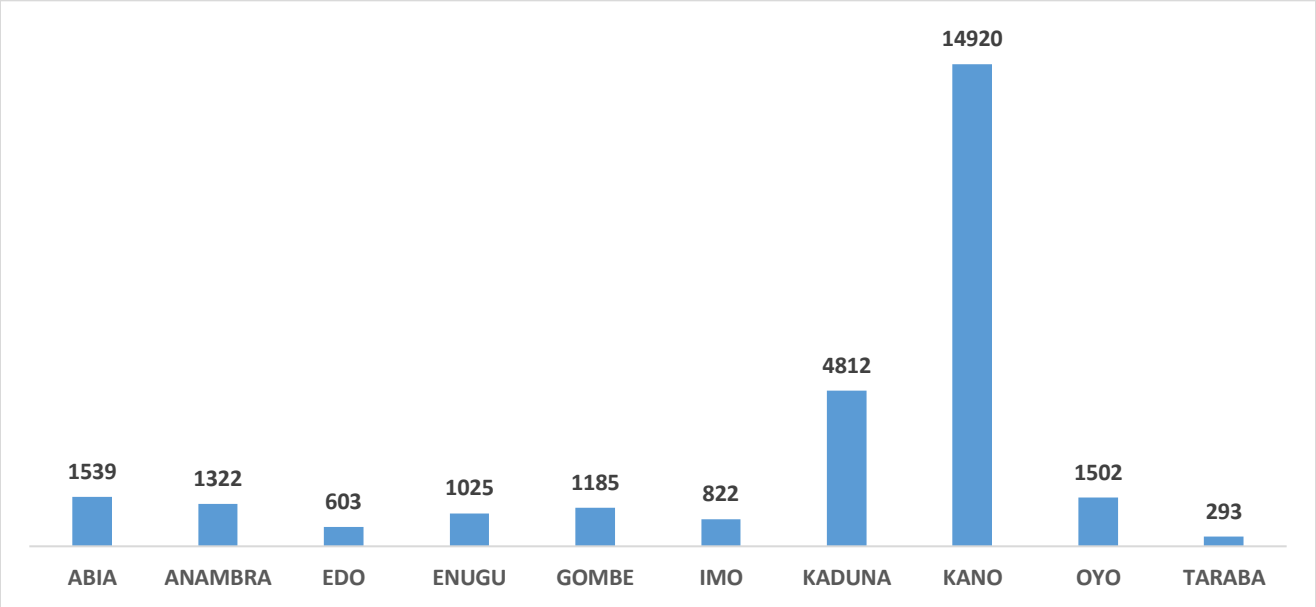
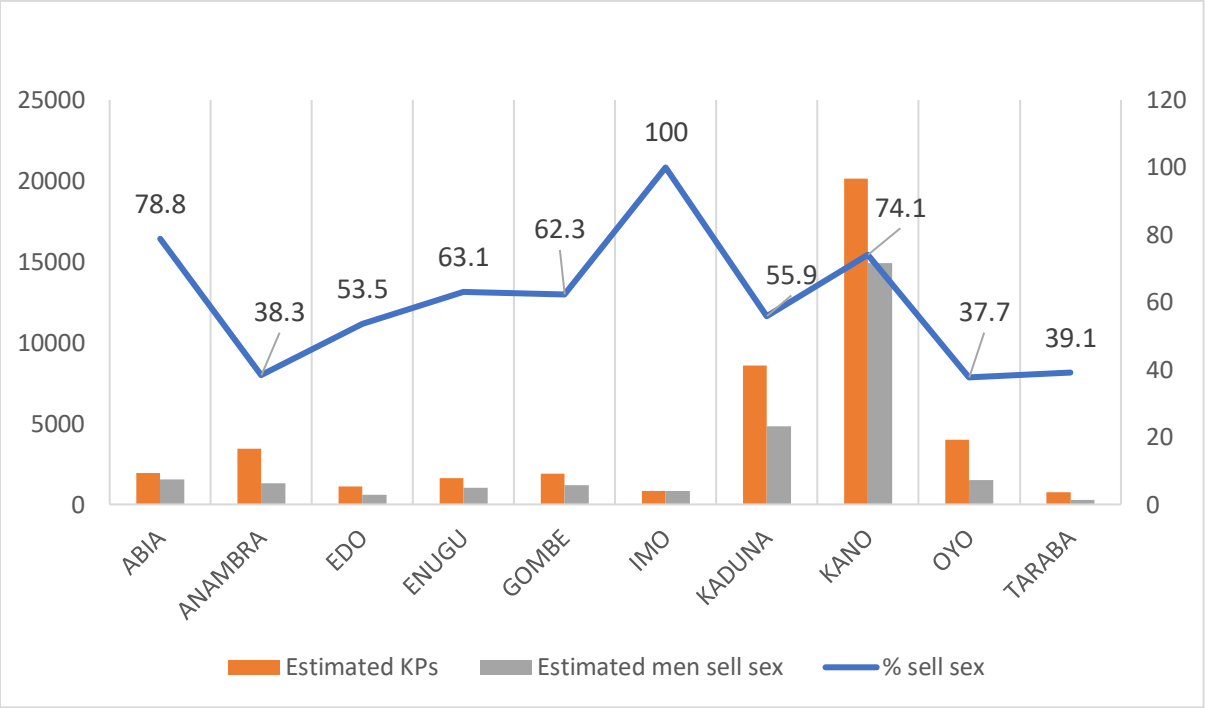


Table 7: Estimated MSM who sell sex per State

State	Estimated MSM who sell sex-low	Estimated MSM who sell sex-high	Estimated MSM who sell sex-Average
Abia	1301	1777	1539
Anambra	1204	1440	1322
Edo	422	781	603
Enugu	780	1269	1025
Gombe	859	1511	1185
Imo	668	976	822
Kaduna	3695	5923	4812
Kano	11561	18278	14920
Oyo	1091	1913	1502
Taraba	234	351	293

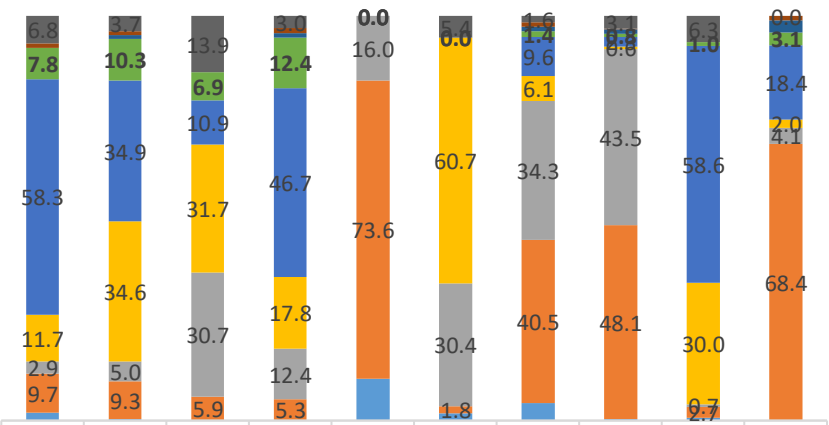
Highest estimated number of MSM who sell sex were found in Kano state with estimate of **14,920** MSM (range **11,561** – **18,278**) followed by Kaduna state with estimated number of **4,812** MSM (range **3,695** MSM- **5,923** MSM).

Graph 17: Percentage MSM in hotspots that sell Sex by State



In Imo state, all the estimated MSM identified at the physical locations sell sex. In Abia, Kano, Enugu and Gombe states over 60% of estimated MSM sell sex. Across 7 out of the 10 states, over 50% of estimated MSM sell sex.

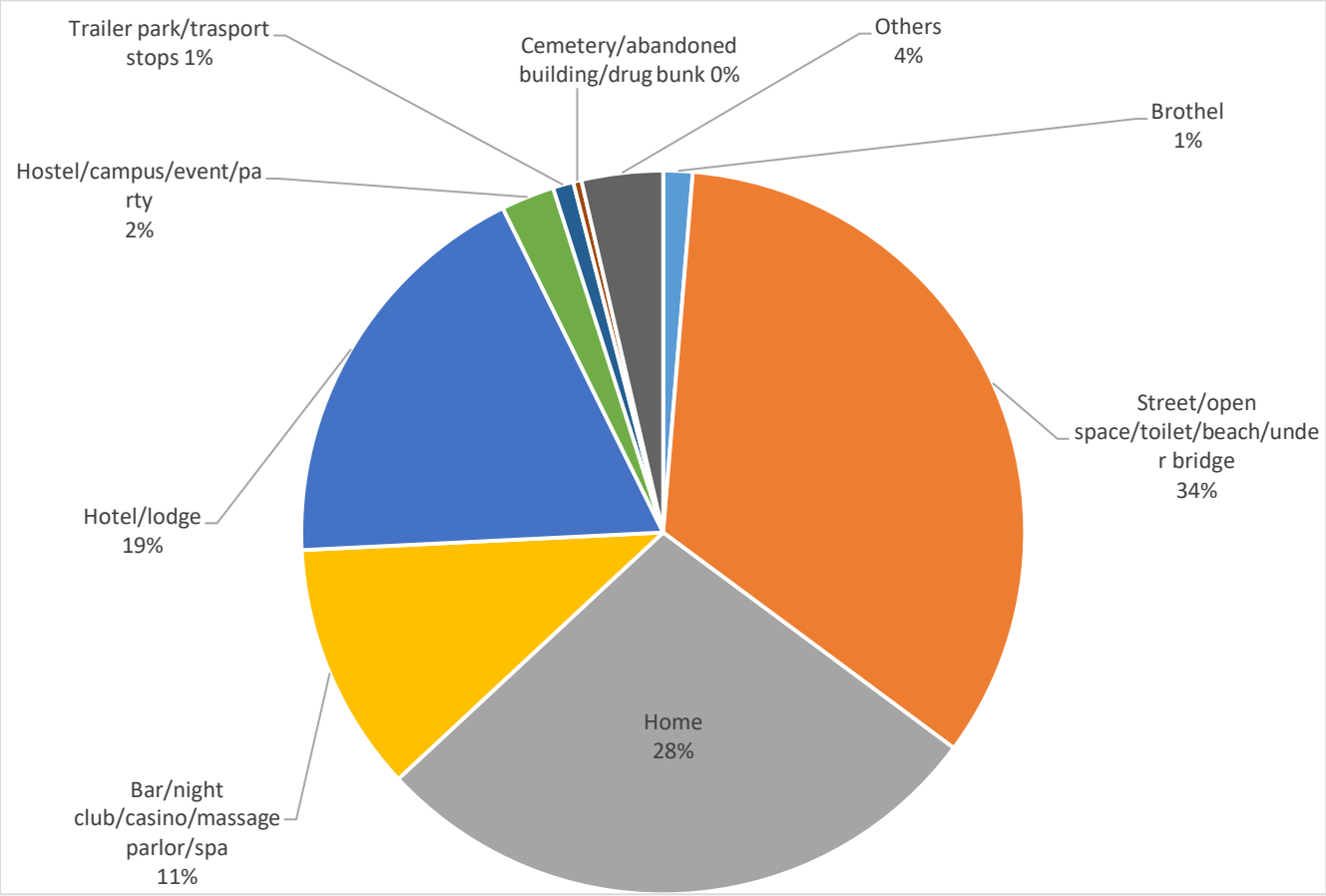
Graph 18: Percentage of MSM spots by State and spot typology



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Others	6.8	3.7	13.9	3.0	0.0	5.4	1.6	3.1	6.3	0.0
Cemetery/abandoned building/drug bunk	1.0	0.9	0.0	1.2	0.0	0.0	1.1	0.1	0.0	1.0
Trailer park/trasport stops	0.0	0.9	0.0	1.2	0.0	0.0	1.1	1.2	0.0	3.1
Hostel/campus/event/party	7.8	10.3	6.9	12.4	0.0	0.0	1.4	0.8	1.0	3.1
Hotel/lodge	58.3	34.9	10.9	46.7	0.0	0.0	9.6	2.3	58.6	18.4
Bar/night club/casino/massage parlor/spa	11.7	34.6	31.7	17.8	0.0	60.7	6.1	0.6	30.0	2.0
Home	2.9	5.0	30.7	12.4	16.0	30.4	34.3	43.5	0.7	4.1
Street/open space/toilet/beach/under bridge	9.7	9.3	5.9	5.3	73.6	1.8	40.5	48.1	2.7	68.4
Brothel	1.9	0.3	0.0	0.0	10.4	1.8	4.3	0.3	0.7	0.0

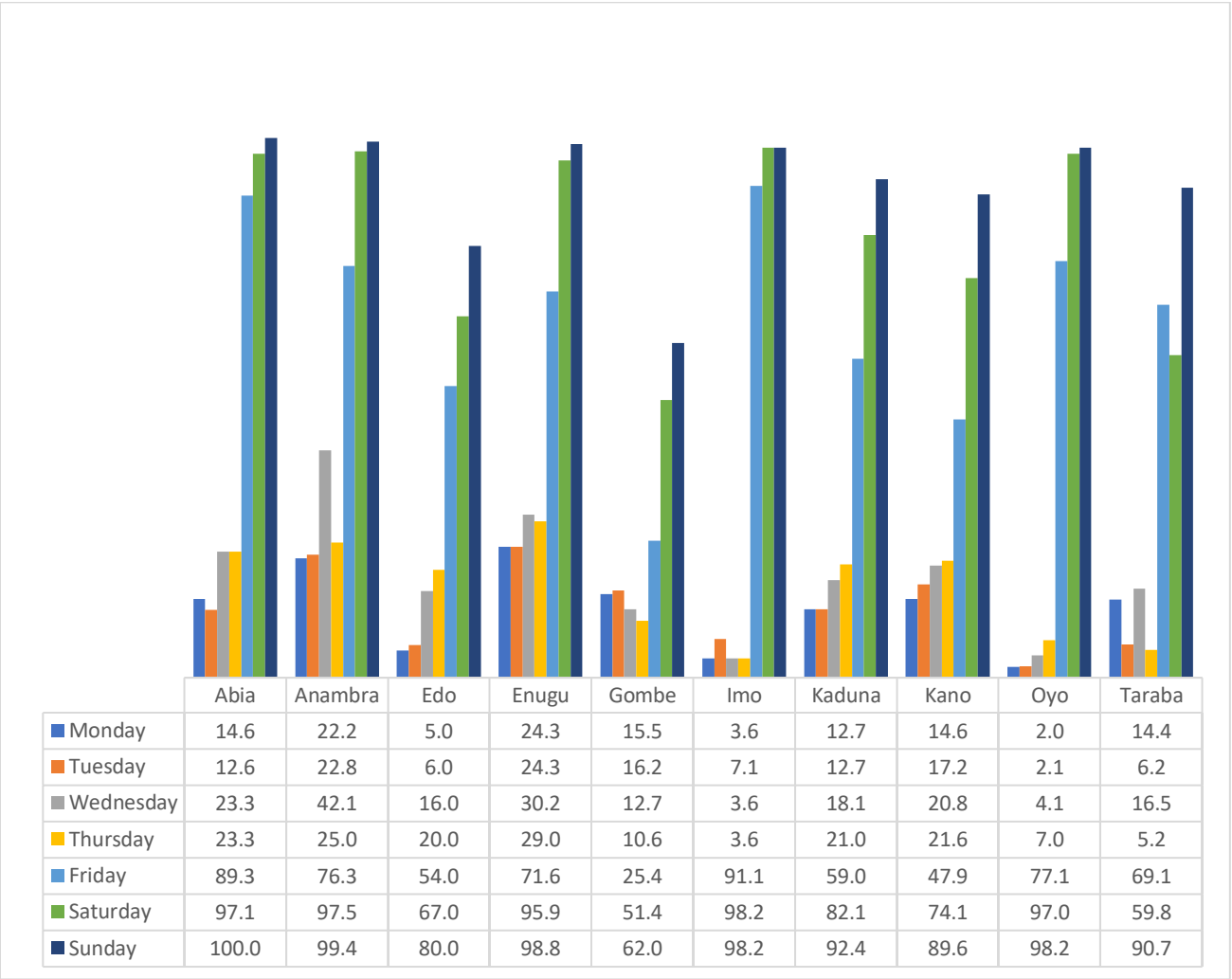
In the Northern states, (Gombe, Kaduna, Kano and Taraba) most popular MSM spots were street corners/open spaces/under bridges while in most southern states popular spots for MSM were Brothels, Hotel/Lodges and Bars/night clubs/casinos.

Graph 19: Percentage of ALL MSM spots by Spot Typology



Most pool of spots (location) where MSM can be found includes streets/open spaces/under bridges representing 34% of all spots, Homes representing 28% of all spots was the next popular hangout spots for MSM.

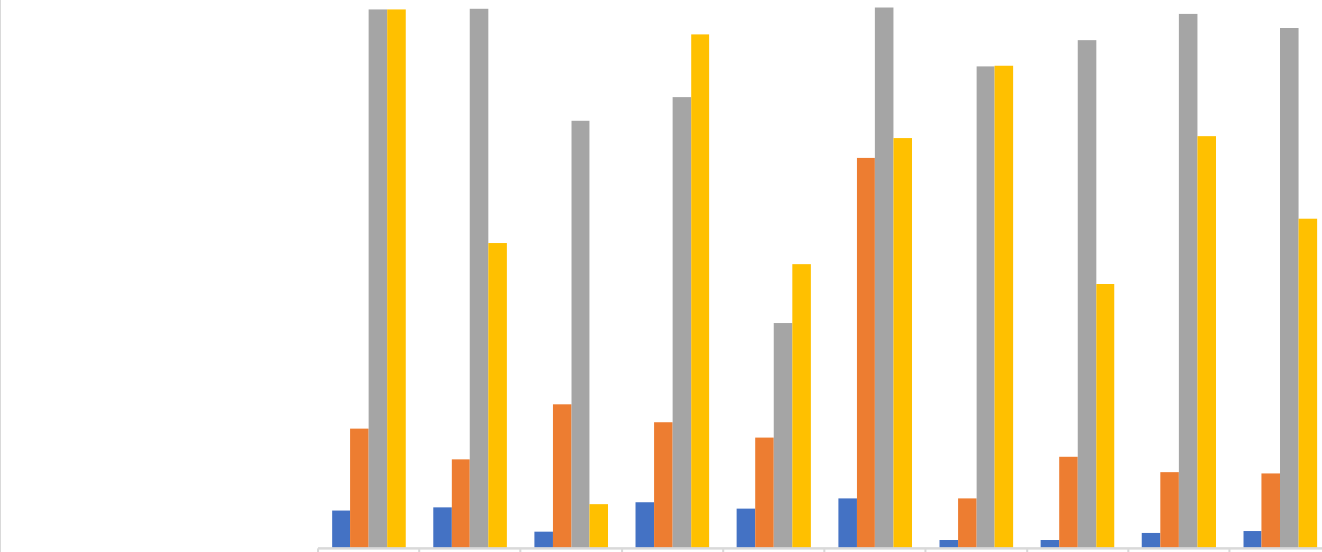
Graph 20: Peak Day at Spot by States MSM (%)



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Monday	14.6	22.2	5.0	24.3	15.5	3.6	12.7	14.6	2.0	14.4
Tuesday	12.6	22.8	6.0	24.3	16.2	7.1	12.7	17.2	2.1	6.2
Wednesday	23.3	42.1	16.0	30.2	12.7	3.6	18.1	20.8	4.1	16.5
Thursday	23.3	25.0	20.0	29.0	10.6	3.6	21.0	21.6	7.0	5.2
Friday	89.3	76.3	54.0	71.6	25.4	91.1	59.0	47.9	77.1	69.1
Saturday	97.1	97.5	67.0	95.9	51.4	98.2	82.1	74.1	97.0	59.8
Sunday	100.0	99.4	80.0	98.8	62.0	98.2	92.4	89.6	98.2	90.7

Peak days of operation of spots for MSM activities were at weekends from Friday through Sunday across most states. In Gombe state, Saturdays and Sundays were the peak days most MSM congregate at spots.

Graph 21: Peak Time at Spot by States MSM (%)



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Morning (Before noon	6.8	7.3	3.0	8.3	7.0	8.9	1.5	1.4	2.7	3.1
Afternoon (12 pm-5 pm)	21.4	15.8	25.7	22.5	19.7	69.6	8.9	16.3	13.6	13.4
Evening (5 pm-9 pm)	96.1	96.2	76.2	80.5	40.1	96.4	86.0	90.7	95.3	92.8
Night (9 pm-late night)	96.1	54.4	7.9	91.7	50.7	73.2	86.1	47.2	73.6	58.8

Peak time of MSM activities at physical locations were in the evenings (5pm-9pm) for MSM across all the states except for Gombe. Night time (9pm – till late) was also peak time for MSM activities in all the states except Edo, Kano, Anambra and Taraba states. Afternoon (12pm -5pm) Periods were relatively busy times too for MSM activities in Imo state.

VIRTUAL MAPPING findings for MSM

Virtual Mapping was conducted amongst MSM in 9 states only, as virtual mappers were not found in Taraba state.

Graph 22: MSM Registered on Virtual Sites by States

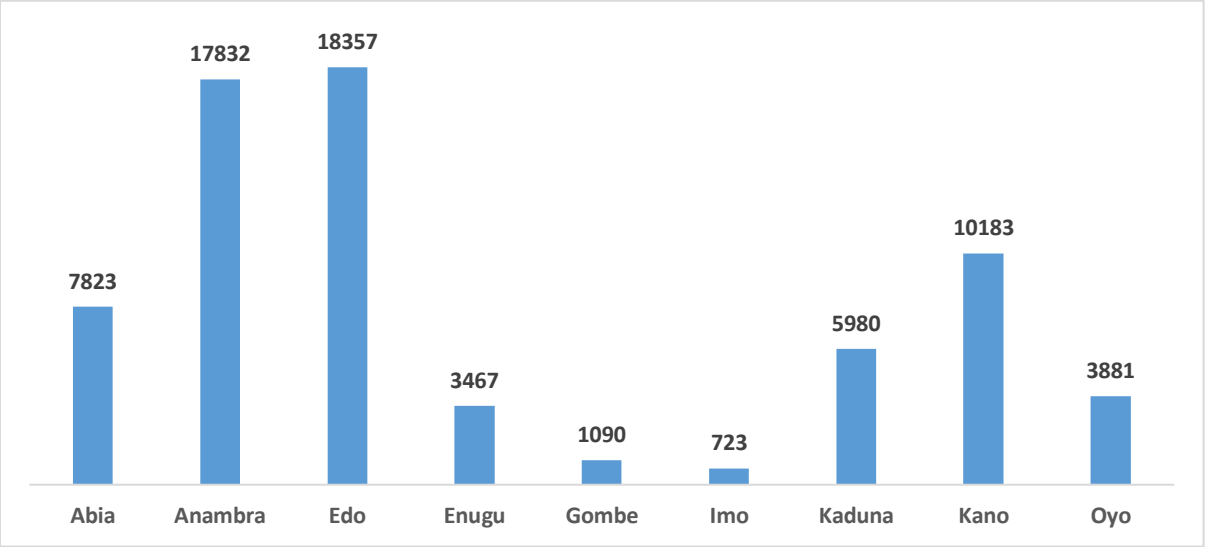


Table 8: MSM registered on Virtual Sites

Virtual Mapping MSM	Adjusted number of KPs - low	Adjusted number of KPs - high	Adjusted number of KPs - average
Abia	7149	8639	7823
Anambra	16326	19645	17832
Edo	16355	20918	18357
Enugu	3190	3795	3467
Gombe	706	2396	1090
Imo	670	786	723
Kaduna	5254	6940	5980
Kano	9109	11544	10183
Oyo	3745	4027	3881

Estimated mean total number of MSM on virtual sites across the 9 states was **69,337** (range minimum **62,504**-maximum **78,689**).

Edo state had the highest estimated mean number of MSM on the virtual sites with **18,357** (range minimum 16,355 – maximum 20,918), followed by Anambra state with estimate of **17,832** (range 16,326- maximum 19,645). Imo state had the least number of MSMs on the virtual sites with only **723** (range minimum 670-maximum 786).

Graph 23: MSM on FACEBOOK by States

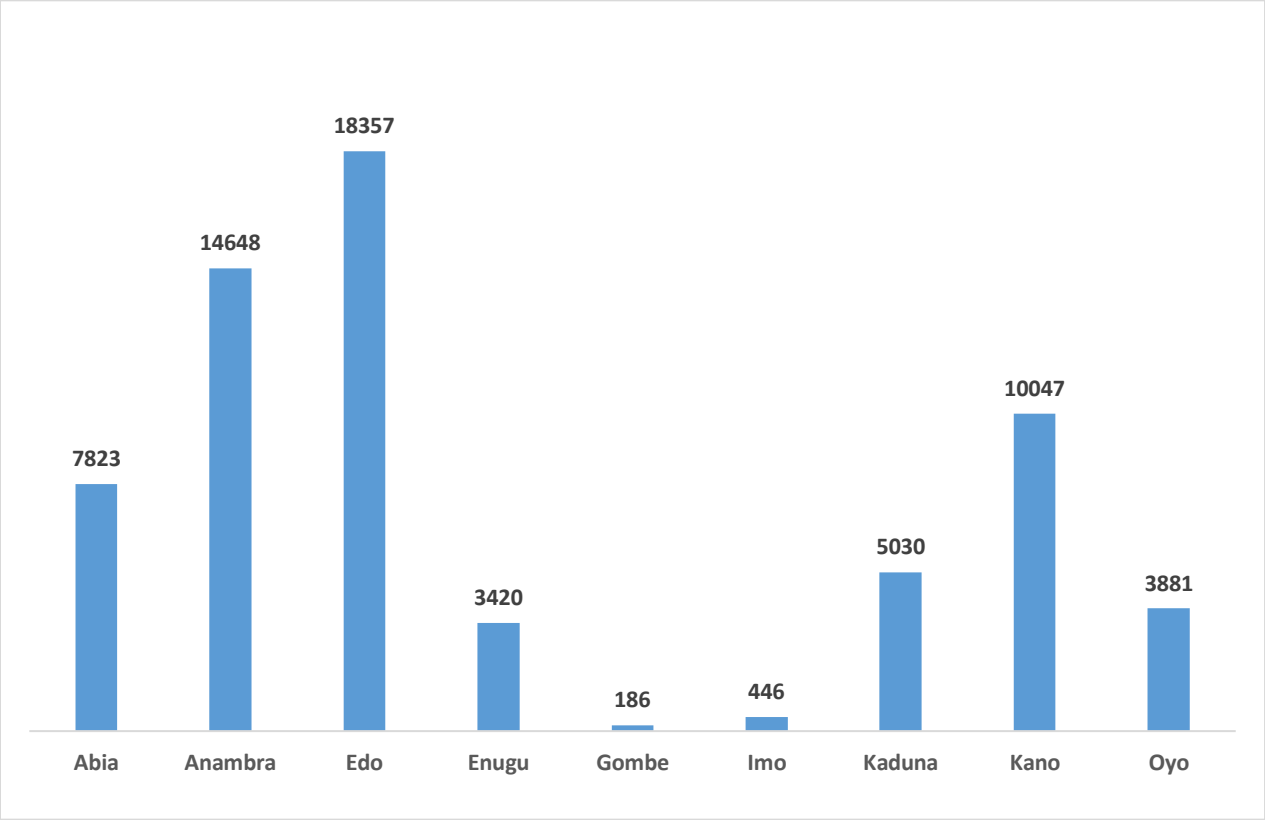


Table 9: MSM using FACEBOOK

Virtual Mapping MSM (Facebook)	Adjusted number of KPs - low	Adjusted number of KPs - high	Adjusted number of KPs - average
Abia	7149	8639	7823
Anambra	13411	16137	14648
Edo	16355	20918	18357
Enugu	3148	3745	3420
Gombe	121	410	186
Imo	413	484	446
Kaduna	4419	5837	5030
Kano	8987	11390	10047
Oyo	3745	4027	3881

Highest estimated numbers of MSM who use Facebook were in Edo, Anambra, Kano and Abia states.

Graph 24: MSM on Whatsapp by States

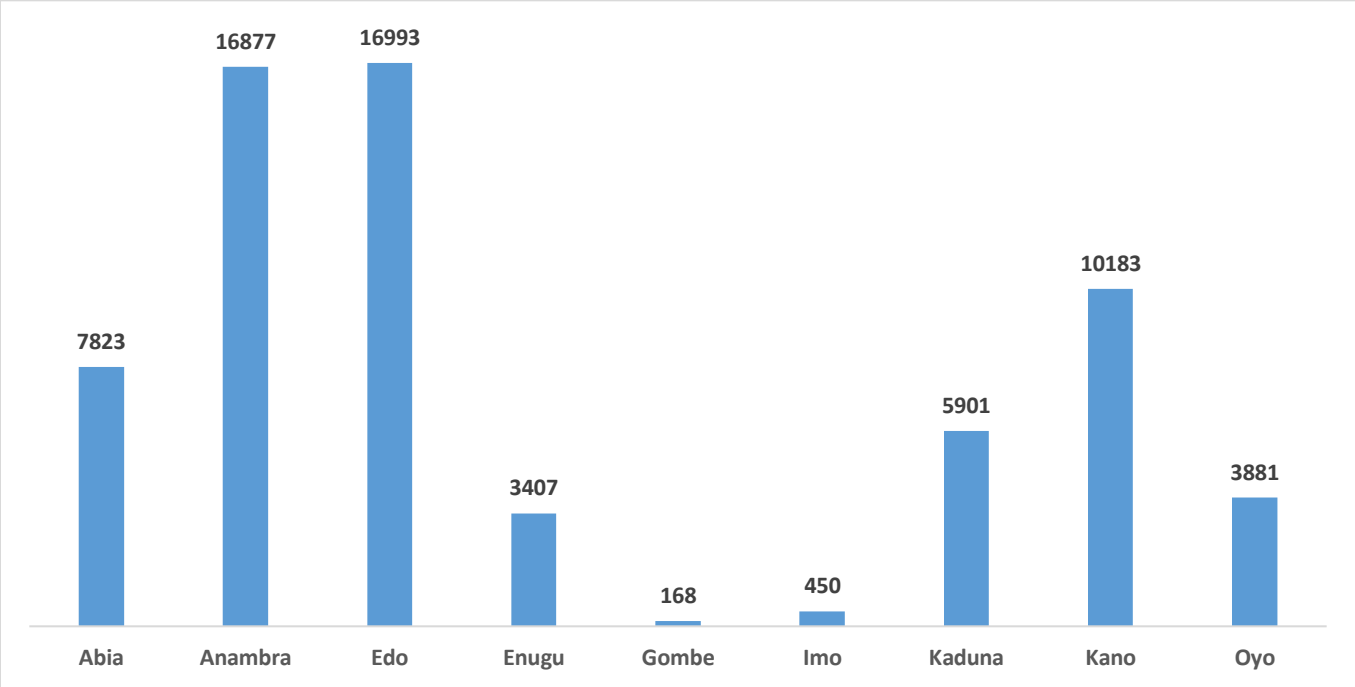


Table 10: MSM on WhatsApp by States

Virtual Mapping MSM (WhatsApp)	Adjusted number of KPs - low	Adjusted number of KPs - high	Adjusted number of KPs - average
Abia	7149	8639	7823
Anambra	15452	18592	16877
Edo	15139	19363	16993
Enugu	3190	3795	3407
Gombe	109	369	168
Imo	417	489	450
Kaduna	5184	6848	5901
Kano	9109	11544	10183
Oyo	3745	4027	3881

An estimated mean total number of MSM using WhatsApp across the 9 states was **65,743** (range minimum 59,494 – maximum 73,666). Highest estimated mean number of MSM using WhatsApp were in Edo (16,993), Anambra (16,877), Kano (10,183), Abia (7,823) and Kaduna (5,901) states.

Graph 25: Estimated MSM online users by States

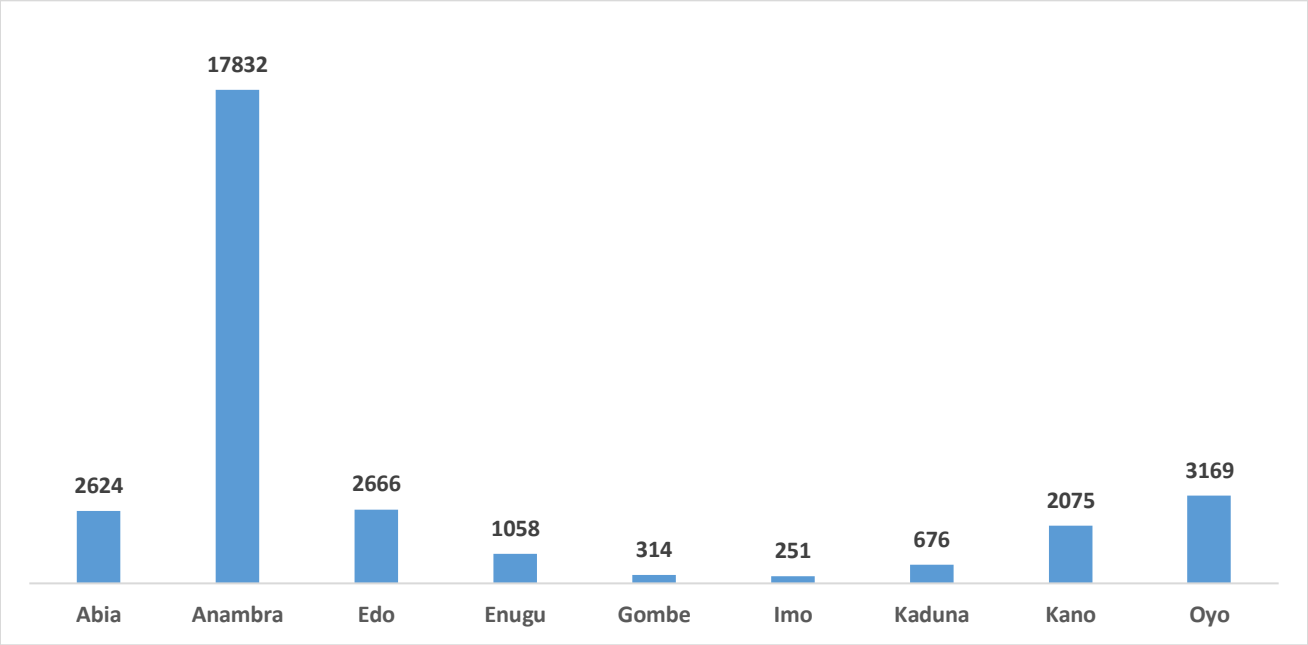
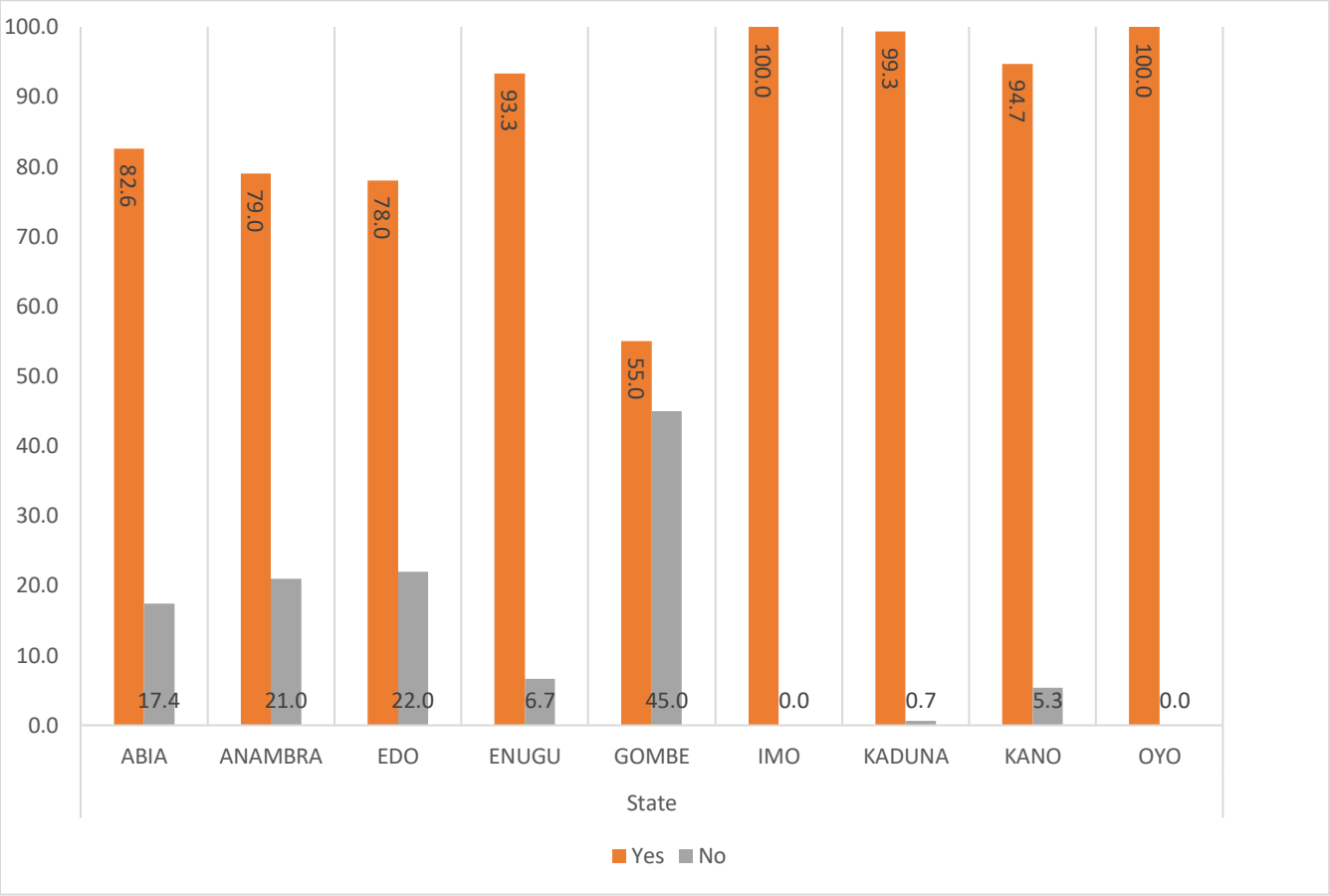


Table 11: Estimated MSM online users by States

Virtual Mapping MSM (Online Users)	Adjusted number of KPs - low	Adjusted number of KPs - high	Adjusted number of KPs - average
Abia	2398	2898	2624
Anambra	16326	19645	17832
Edo	2376	3038	2666
Enugu	974	1158	1058
Gombe	203	690	314
Imo	232	272	251
Kaduna	594	785	676
Kano	1856	2352	2075
Oyo	3058	3289	3169

Total estimated mean number of MSM active online were highest in Anambra state with 17,832 MSM compared to other states with relatively uniform estimates of online users ranging between 1,000 and 3,000 users in Enugu, Kano, Abia, Edo and Oyo states.

Graph 26: Ever visited a physical location in the past one month to meet male sexual partners



Among sampled population of MSM who use virtual space for networking that were interviewed during the KPSE in all states, a high proportion of them visited physical location to meet sexual partners. Gombe had the least MSM Virtual sites user who visited physical location to meet sexual partners in the past one month prior to the study.

Table 12: MSM access to HIV Prevention Services Six Months Prior to KPSE Exercise

Type KP	State	Service - Condom		Service - Lubricant		Service - Treatment for STI		Service - HIV testing		Service - HIV Treatment		Service - HIV peer education	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
MSM	ABIA	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
	ANAMBRA	3.5	96.5	1.9	98.1	0.3	99.7	0.3	99.7	0.3	99.7	0.3	99.7
	EDO	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
	ENUGU	9.2	90.8	9.1	90.9	1.8	98.2	3.6	96.4	0.0	100.0	6.1	93.9
	GOMBE	95.1	4.9	88.7	11.3	96.5	3.5	97.9	2.1	79.6	20.4	31.0	69.0
	IMO	1.9	98.1	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	1.9	98.1
	KADUNA	1.7	98.3	0.2	99.8	0.0	100.0	1.7	98.3	0.0	100.0	0.0	100.0
	KANO	3.2	96.8	2.6	97.4	0.1	99.9	0.2	99.8	0.2	99.8	0.0	100.0
	OYO	22.2	77.8	21.9	78.1	1.1	98.9	4.8	95.2	2.8	97.2	3.1	96.9
	TARABA	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0

Condom and lubricant services were available in about 95%, 22% and 9% spots of spots in Gombe, Oyo and Enugu states respectively for MSM. Across the remaining 7 states, condom and lubricant services were **largely unavailable**.

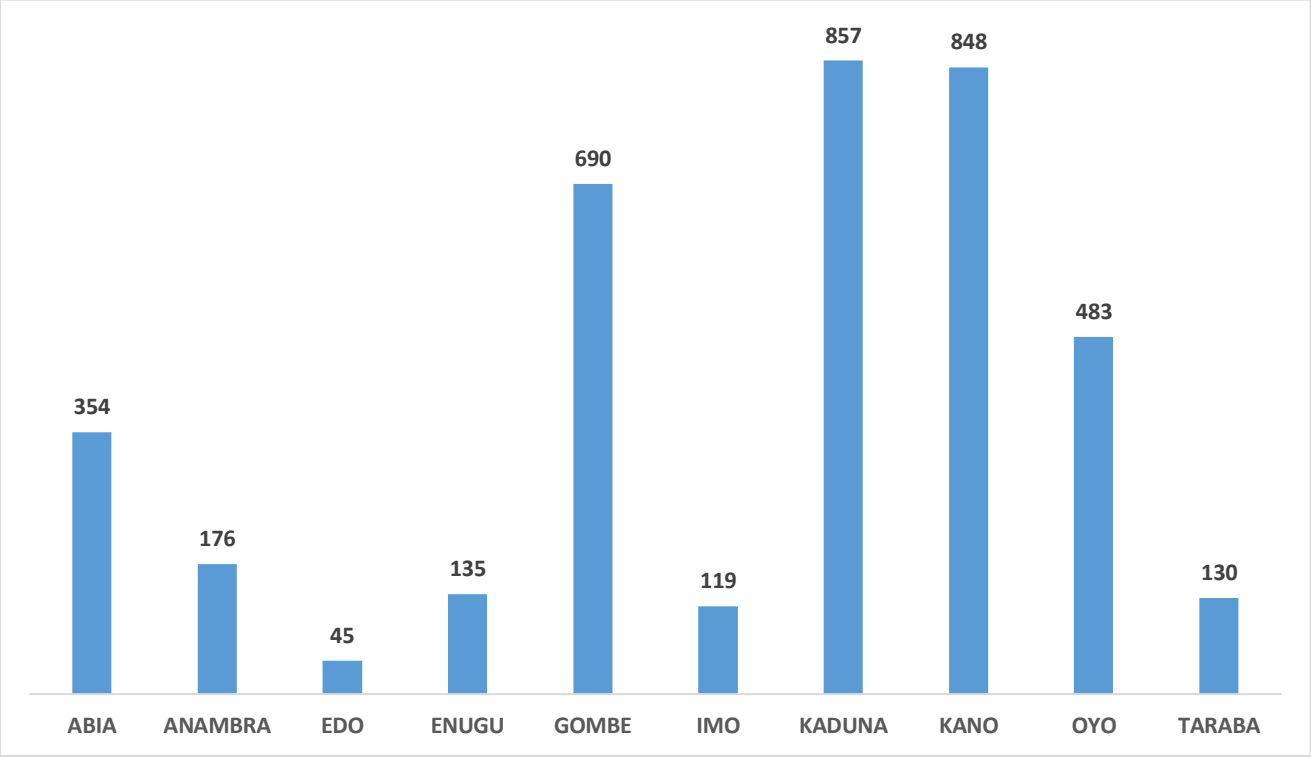
STI and HIV treatment services were available for MSM in Gombe state (STI >95% availability and HIV >75% availability). In the other 9 states these services were **NOT AVAILABLE** to MSM.

HIV testing and HIV peer education services were largely available in Gombe state but was **not available** to MSM in the other 9 states.

PEOPLE WHO INJECT DRUGS (PWIDs) Results Across All 10 States

Kaduna has the highest number of PWID spots estimated at 857 spots, followed by Kano state 848 spots, Gombe 690 spots and Oyo 483 spots.

Graph 27: PWID active hotspots by state



Graph 28: Estimate number of PWIDs by State

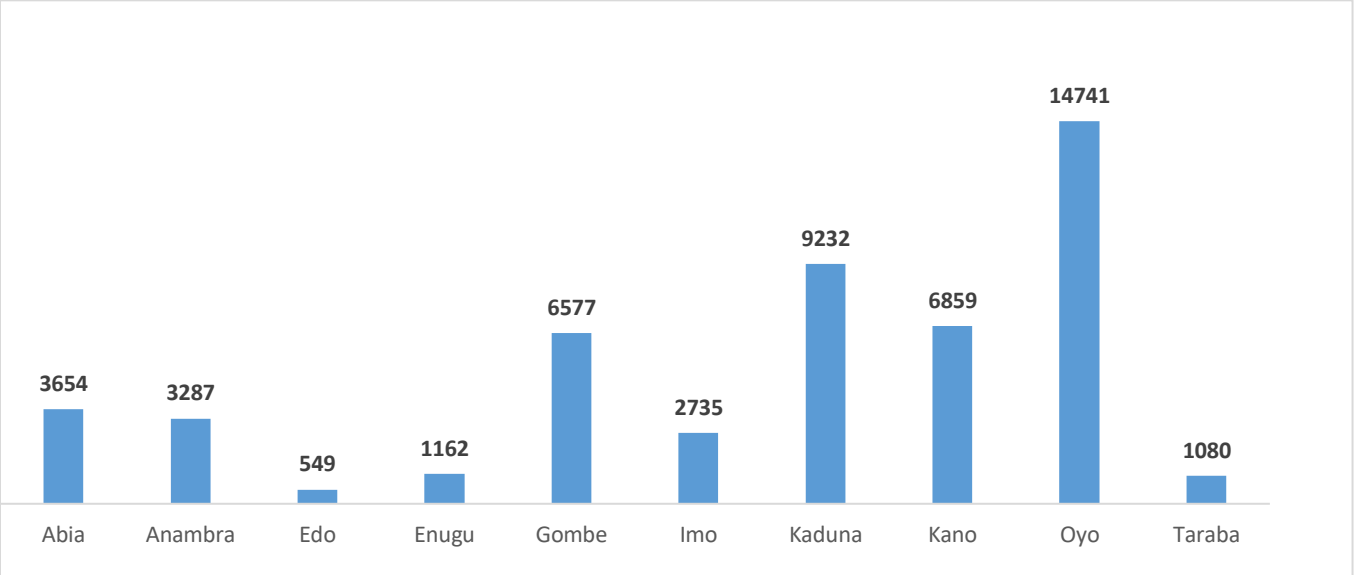
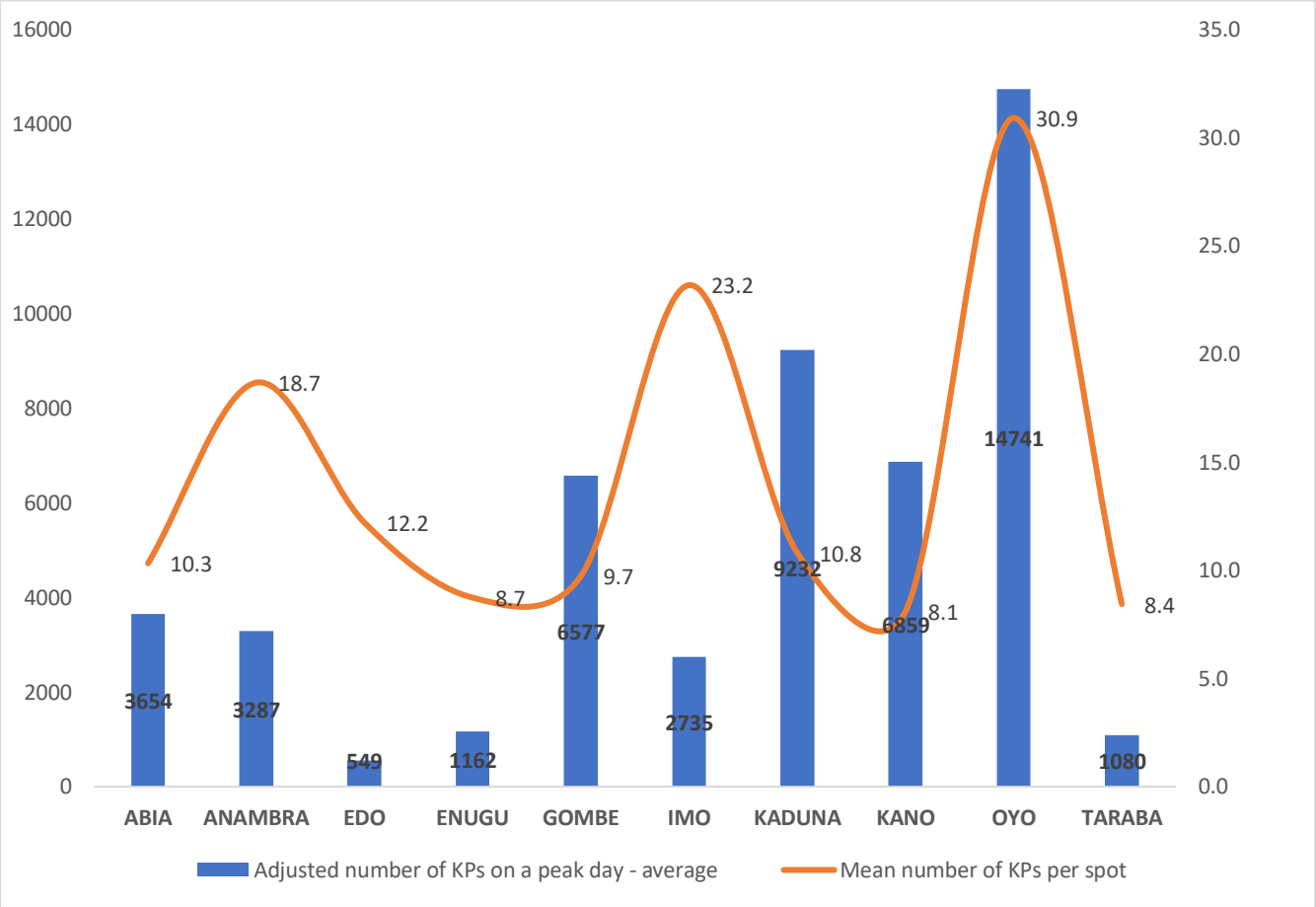


Table 13: Estimate number of PWIDs by State

PWID/State	Adjusted number of KPs on a peak day - low	Adjusted number of KPs on a peak day - high	Adjusted number of KPs on a peak day - average
Abia	2911	4398	3654
Anambra	2561	4012	3287
Edo	371	727	549
Enugu	929	1395	1162
Gombe	4886	8268	6577
Imo	2061	3409	2735
Kaduna	7113	11343	9232
Kano	4838	8880	6859
Oyo	11600	17882	14741
Taraba	819	1342	1080

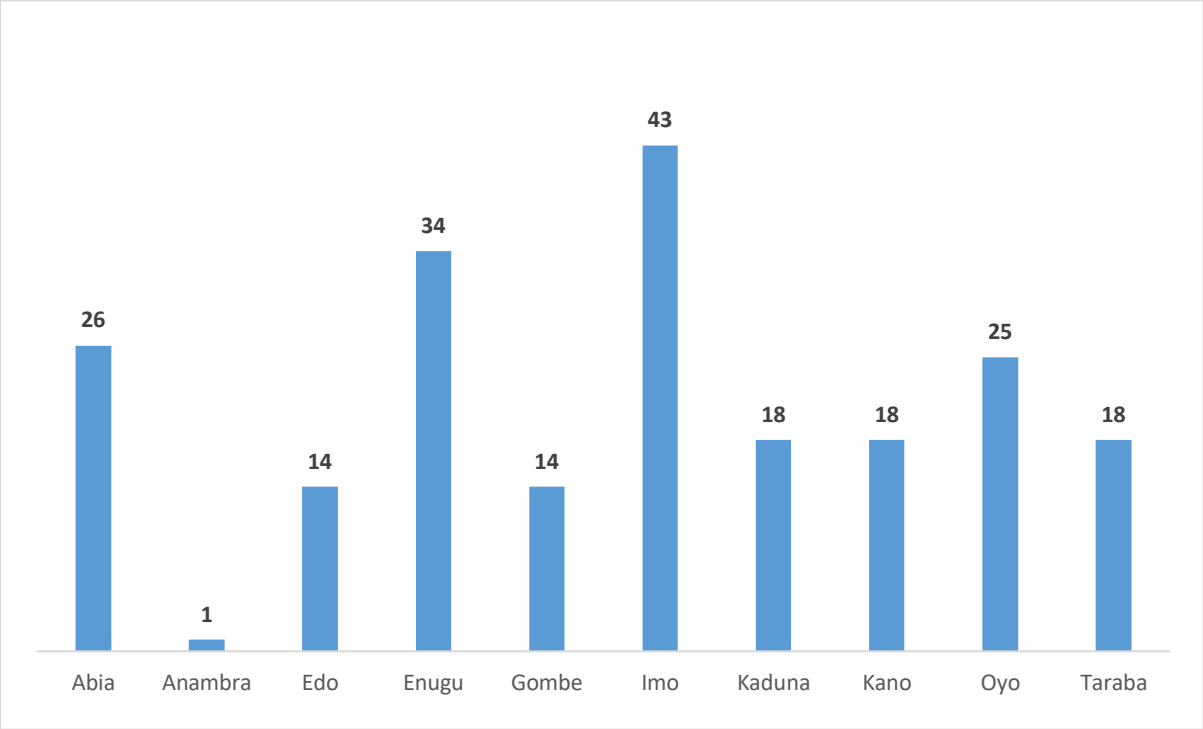
Oyo state had the highest number of PWIDs with a mean estimate of 14,741, followed by Kaduna state 9,232, Kano 6,859 and Gombe 6,577 PWIDs. Edo state had the least estimated PWIDs with 549.

Graph 29 Estimated PWIDs on a peak day vs Mean number of PWIDs per spot by State



Mean number of PWIDs per spot by State was highest in Oyo state with approximately 31 PWIDs/spot, Imo 23 PWIDs/spot and Anambra 19 PWIDs/spot.

Graph 30: Estimate of Percentage of PWIDs that do not visit spots as reported by State



High proportions of known PWIDs in Imo, Abia and Enugu states and about a quarter of PWIDs in Oyo states do not visit spots.

Graph 31: Estimated Female PWIDs by state

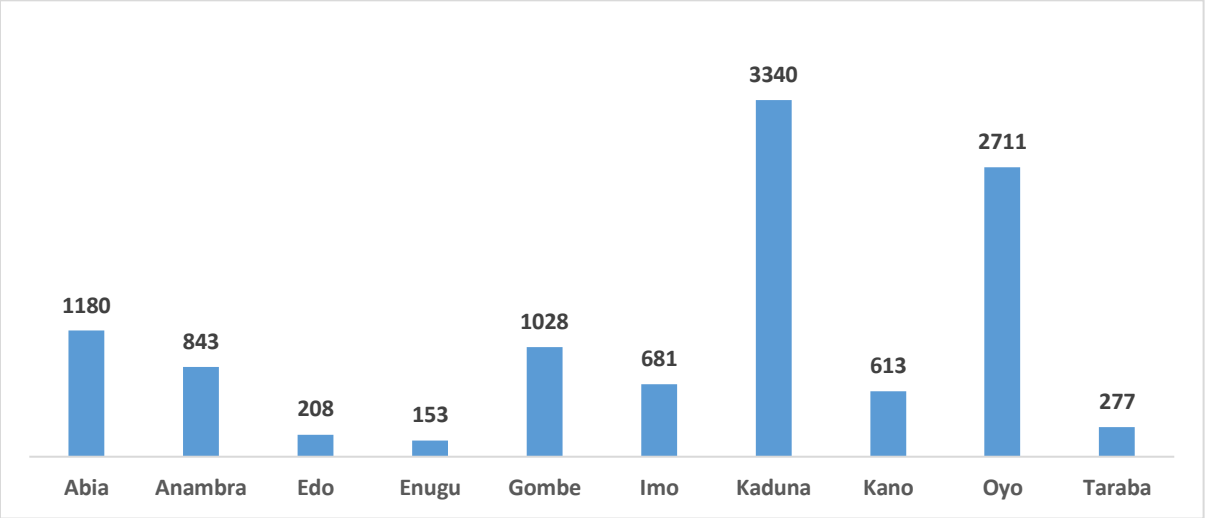
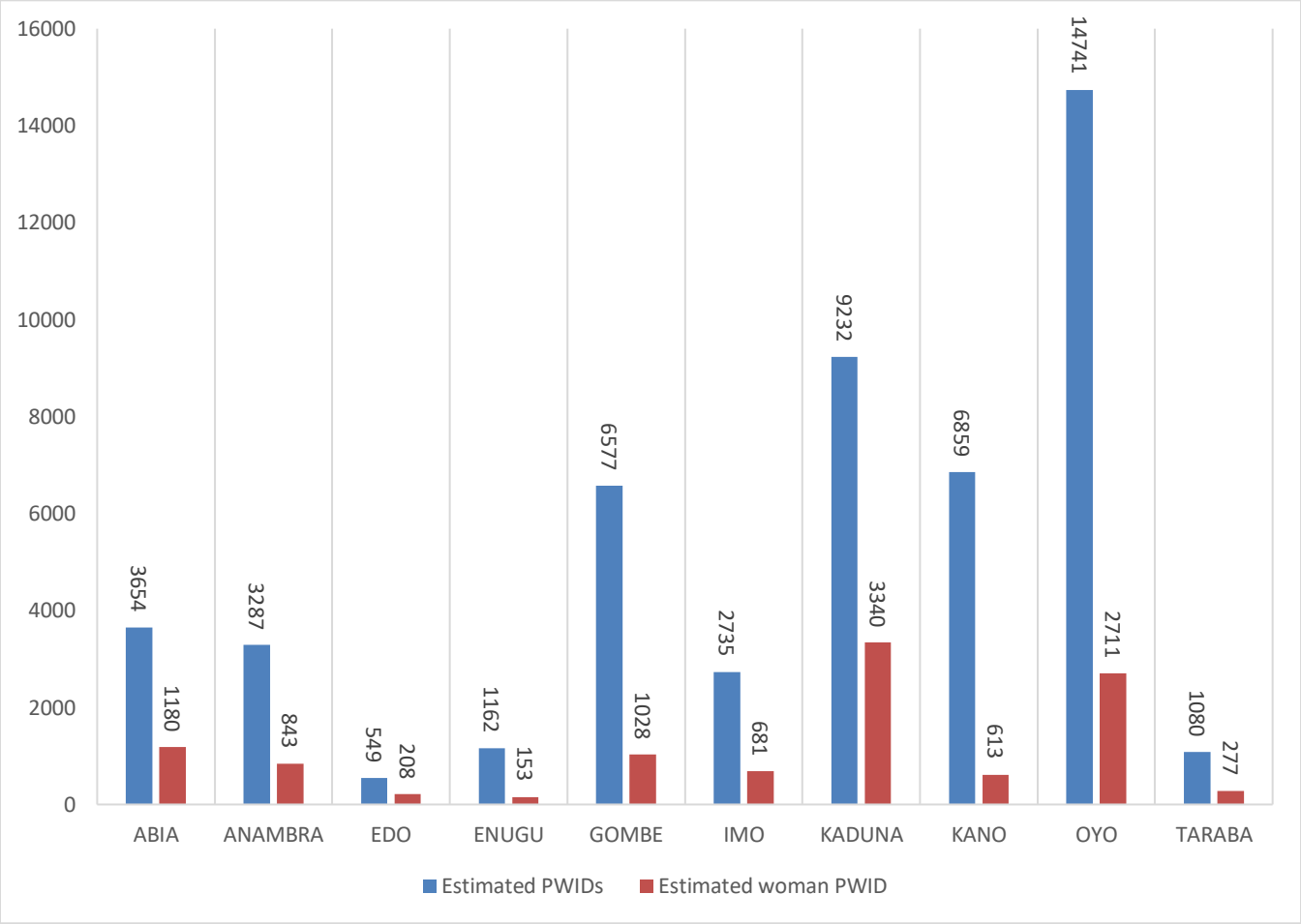


Table 14: Estimated Female PWIDs by state

State	Estimated PWIDs(females)-low	Estimated PWIDs(females)-high	Estimated PWIDs(females)
Abia	992	1367	1180
Anambra	646	1039	843
Edo	147	269	208
Enugu	127	179	153
Gombe	726	1329	1028
Imo	486	876	681
Kaduna	2557	4108	3340
Kano	436	789	613
Oyo	1940	3481	2711
Taraba	209	344	277

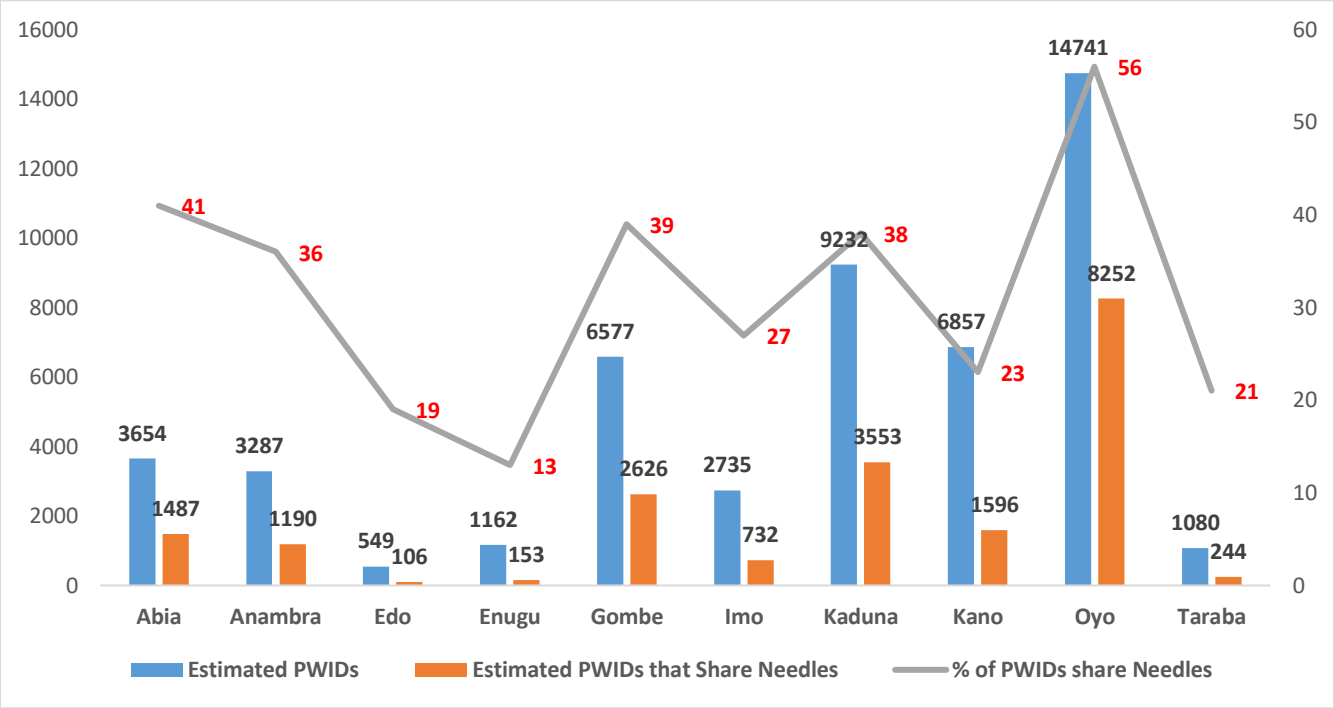
Total mean estimated number of female PWIDs across the 10 states was **11,031** with highest estimates found in Kaduna **3,340**; Oyo **2,711**, Abia **1,180** and Gombe **1,028** states. Approximately 22% of the total estimated PWIDs across the 10 states are females.

Graph 32: Estimated PWIDs by Female PWIDs



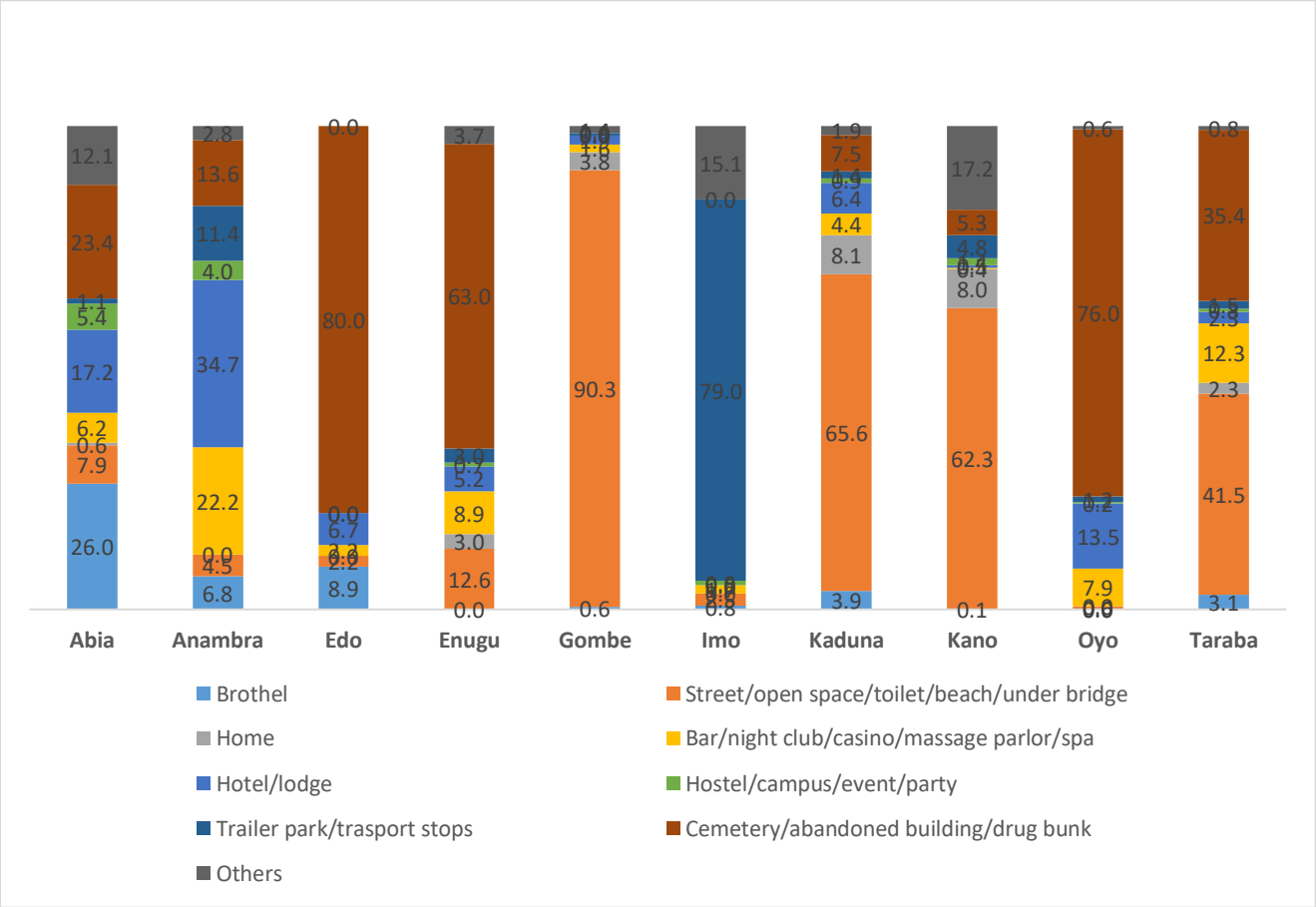
Highest proportion per state of estimated Female PWIDs compared to the total estimated number of PWIDs were seen in Edo (39%), Kaduna (38%) and Abia (32%) states. Oyo state though had the highest number of Female PWIDs per state but proportionally the female PWIDs were less than 20% of the total estimated PWIDs population in the state.

Graph 33: Rate PWIDs Share Needles by State



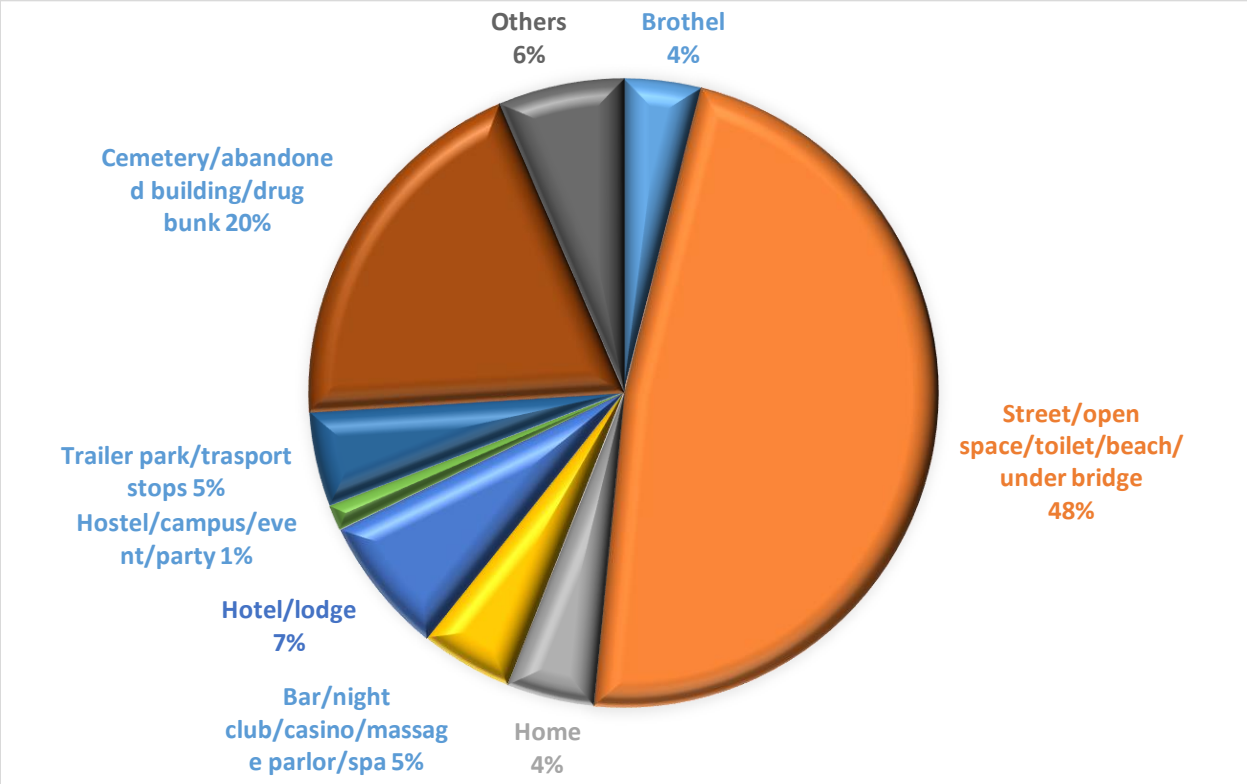
Rate of needle sharing per state is highest in Oyo with over 55% of the total estimated PWIDs in the state sharing needles. High rates were also seen in Abia, Gombe, Kaduna and Anambra states.

Graph 34: % PWID spots by typology and state



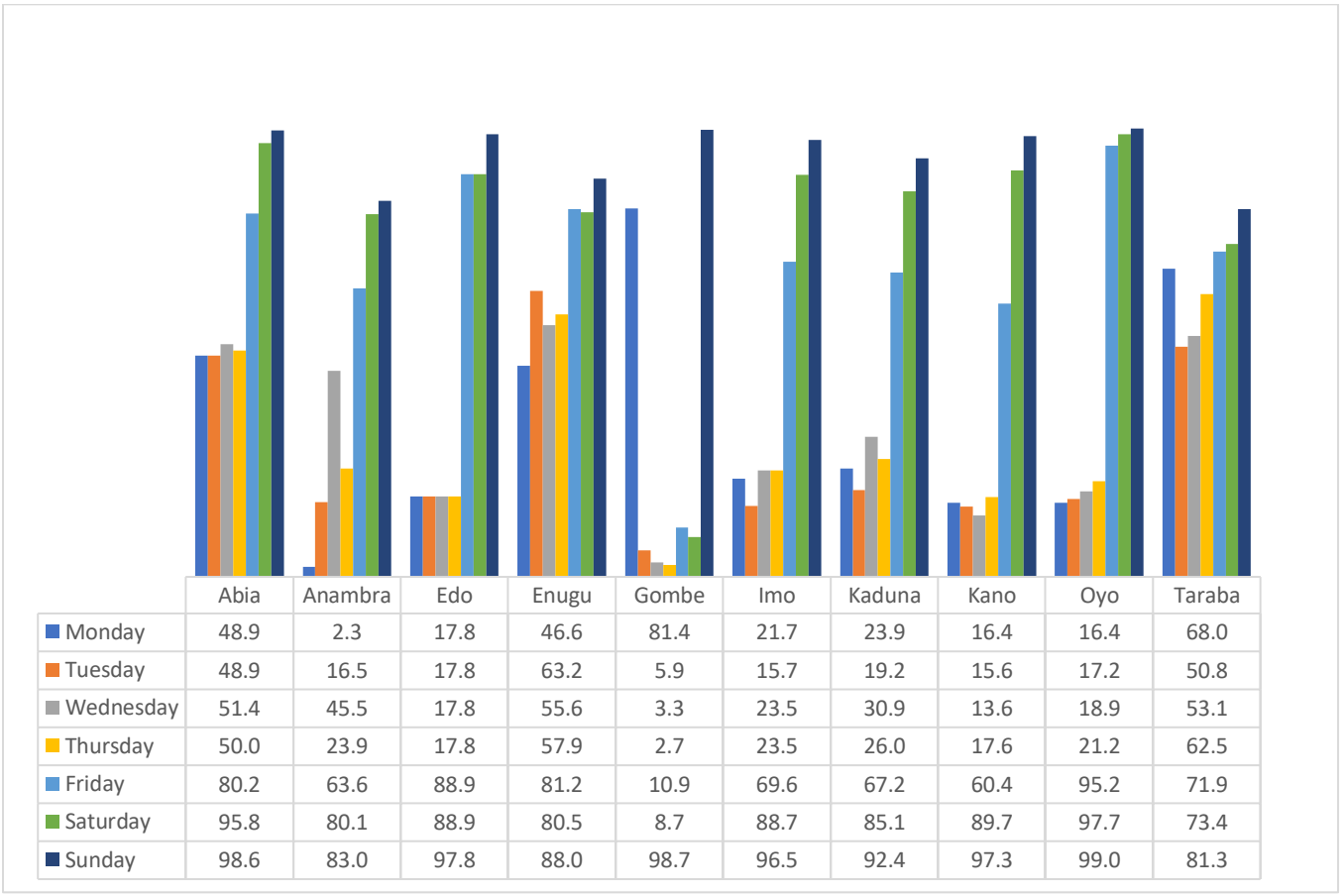
In the Northern states, most popular PWID spots were street corners/open spaces/under bridges while in most southern states popular spots for PWIDs were cemeteries/abandoned buildings and drug bunks. In Imo and Abia states Brothels and hotel/lodges were also popular spots for PWIDs.

Graph 35: percentage of all PWID Spots by Typology



Highest number of spots (location) where PWIDs can be found includes streets/open spaces/under bridges at 48% of all spots while drug bunks/abandoned buildings/cemetery followed with 20%.

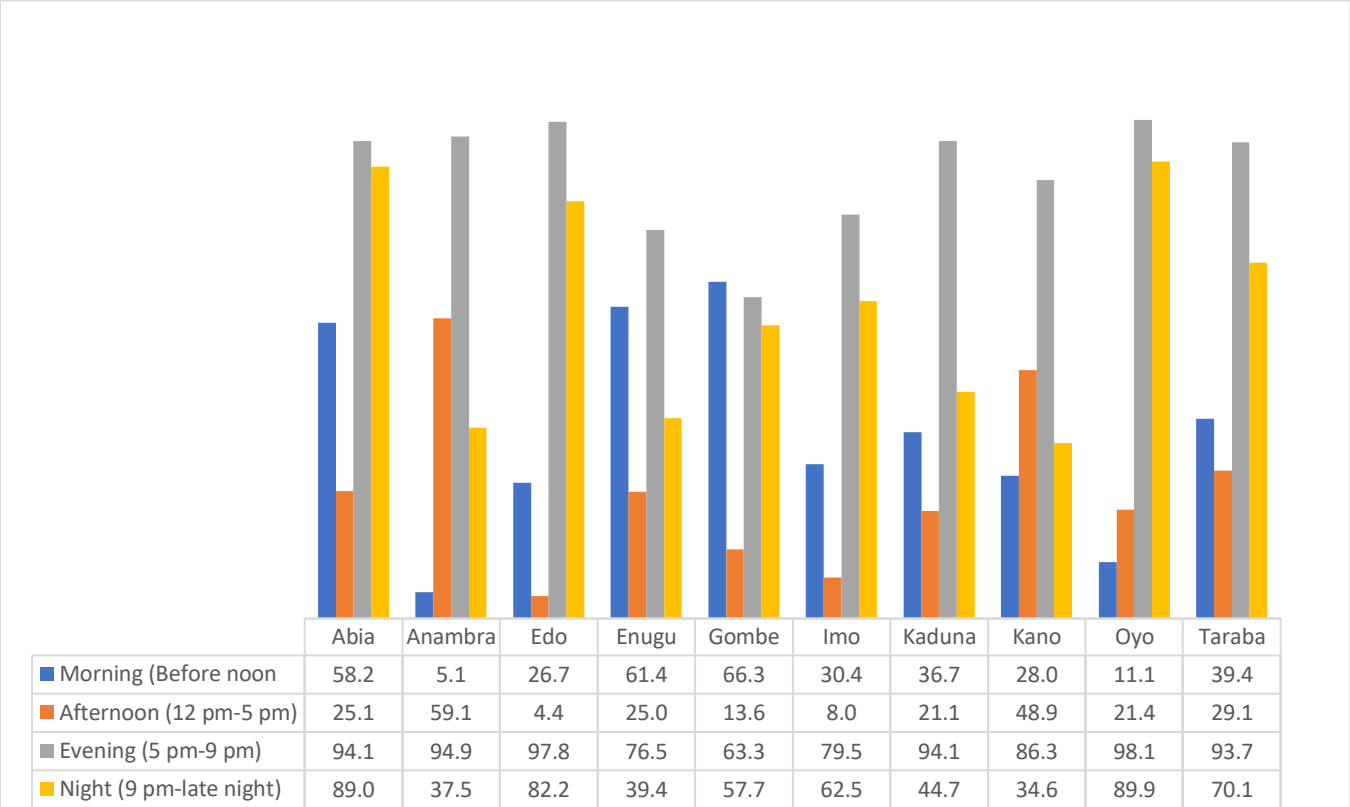
Graph 36: Peak day of Spots- PWID (%)



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Monday	48.9	2.3	17.8	46.6	81.4	21.7	23.9	16.4	16.4	68.0
Tuesday	48.9	16.5	17.8	63.2	5.9	15.7	19.2	15.6	17.2	50.8
Wednesday	51.4	45.5	17.8	55.6	3.3	23.5	30.9	13.6	18.9	53.1
Thursday	50.0	23.9	17.8	57.9	2.7	23.5	26.0	17.6	21.2	62.5
Friday	80.2	63.6	88.9	81.2	10.9	69.6	67.2	60.4	95.2	71.9
Saturday	95.8	80.1	88.9	80.5	8.7	88.7	85.1	89.7	97.7	73.4
Sunday	98.6	83.0	97.8	88.0	98.7	96.5	92.4	97.3	99.0	81.3

Peak days of operation of spots for PWIDs activities were at weekends from Friday through Sunday across most states except for Gombe state where peak days are Sundays and Mondays. In Taraba, Abia and Enugu states PWIDSs acivities are fairly consistently high through all days in the week with peak on Saturdays and Sundays.

Graph 37: Peak Time of Spot by state - PWIDs (%)



	Abia	Anambra	Edo	Enugu	Gombe	Imo	Kaduna	Kano	Oyo	Taraba
Morning (Before noon	58.2	5.1	26.7	61.4	66.3	30.4	36.7	28.0	11.1	39.4
Afternoon (12 pm-5 pm)	25.1	59.1	4.4	25.0	13.6	8.0	21.1	48.9	21.4	29.1
Evening (5 pm-9 pm)	94.1	94.9	97.8	76.5	63.3	79.5	94.1	86.3	98.1	93.7
Night (9 pm-late night)	89.0	37.5	82.2	39.4	57.7	62.5	44.7	34.6	89.9	70.1

Peak time of activities at PWIDs spots varied with Enugu and Gombe states having peak times in the morning (before noon) and evening (5pm -9pm), while most other states peak time was in the evening (5pm-9pm) and night time (9pm-late night) as shown for Abia, Edo,Imo, Kaduna, Oyo and Taraba states. Anambra and Kano states peak times were afternoon (12pm-5pm) and evening (5pm-9pm).

Table 15: PWID Access To HIV Prevention Services Six Months Prior to KPSE Exercise

Type KP	State	Service - Condom		Service - Lubricant		Service - Treatment for STI		Service - HIV testing		Service - HIV Treatment		Service - HIV peer education		Service - OST		Service - Replacement of needles		Disposal of needles safely	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
PWID	ABIA	2.8	97.2	0.3	99.7	0.0	100.0	1.1	98.9	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
	ANAMBRA	19.9	80.1	1.7	98.3	0.0	100.0	1.1	98.9	0.0	100.0	2.3	97.7	0.0	100.0	0.0	100.0	0.0	100.0
	EDO	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
	ENUGU	13.3	86.7	10.9	89.1	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2
	GOMBE	30.6	69.4	25.4	74.6	3.8	96.2	29.7	70.3	1.5	98.5	24.3	75.7	1.8	98.2	5.0	95.0	2.2	97.8
	IMO	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2	0.9	99.1	0.0	100.0	0.0	100.0	0.0	100.0
	KADUNA	14.6	85.4	2.0	98.0	1.1	98.9	12.9	87.1	0.0	100.0	0.0	100.0	0.0	100.0	0.3	99.7	0.7	99.3
	KANO	0.8	99.2	0.2	99.8	1.2	98.8	1.4	98.6	0.6	99.4	0.2	99.8	0.0	100.0	0.0	100.0	0.0	100.0
	OYO	2.5	97.5	0.0	100.0	0.3	99.7	0.6	99.4	0.0	100.0	2.8	97.2	0.0	100.0	0.0	100.0	0.0	100.0
	TARABA	4.2	95.8	0.0	100.0	0.0	100.0	3.4	96.6	0.0	100.0	5.0	95.0	0.0	100.0	0.0	100.0	0.0	100.0

Condom services were available in 30% of spots in Gombe and less than 20% of spots in Anambra, Kaduna and Enugu states.
Lubricants availability was poorer at 25% and 10% spots in Gombe and Enugu states respectively.
STI and HIV treatment services were **Not Available** in all 10 states six month prior to the KPSE.
HIV testing service was available in 30% of spots in Gombe and 13% of spots in Kaduna state.
Peer Education (PE) services were available in 24% of spots in Gombe, in the other 9 states **no** PE services were provided.
Needle replacement services were provided in only 5% of spots in Gombe state.
Safe needle disposal services were not available across all 10 states 6 months prior to the KPSE.

Estimated Key Populations

The present mapping is largely focused on physical hotspots for FSWs and PWIDs, whereas both physical hotspots and virtual sites were included for MSM population considering that MSMs more often use virtual sites to meet their sexual partners. Therefore, we present the overall estimates of MSMs using the numbers estimated from physical hotspot and virtual sites.

In the mapping of physical hotspots, one or more MSM was recruited from each hotspot and enquired about their profiles in virtual sites. This information helps to understand what percent of the MSMs in hotspots do not visit or visit the virtual sites. Similarly, a sample of MSMs were recruited from each virtual site and profiled to understand if they visit physical hotspots. Therefore, the final estimate of MSMs in the mapped states are arrived at by accounting for the unique MSMs who only visit physical hotspots and virtual sites using two sources of data of physical and virtual sites.

As far as the FSWs and PWIDs are concerned, since the mapping is conducted only in physical hotspots, the estimate size of these population groups was arrived using only physical hotspots.

Table 16: Estimated number of key populations by type of key population adjusting the overlap between physical and virtual sites

	Type of key population		
State	FSW	MSM	PWID
Abia	7920	7842	3654
Anambra	36607	17964	3287
Edo	8829	18369	549
Enugu	3824	3573	1162
Gombe	4818	2314	6577
Imo	4893	830	2735
Kaduna	23479	8657	9232
Kano	12143	20348	6859
Oyo	11242	3981	14741
Taraba	4417	749	1080
Total	**118171**	**84627**	**49876**

Estimating per capita population of key populations

In order to understand the KP density in a state, it is essential to use a measure, which can then be used to compare the density of KPs across states. We used per capita KP, which is computed using the adult male/female population (15-49 years of age) and the estimated KP size. This measure provides the number of KP per 1000 adult female/male population in the state and can be used to compare across geographies.

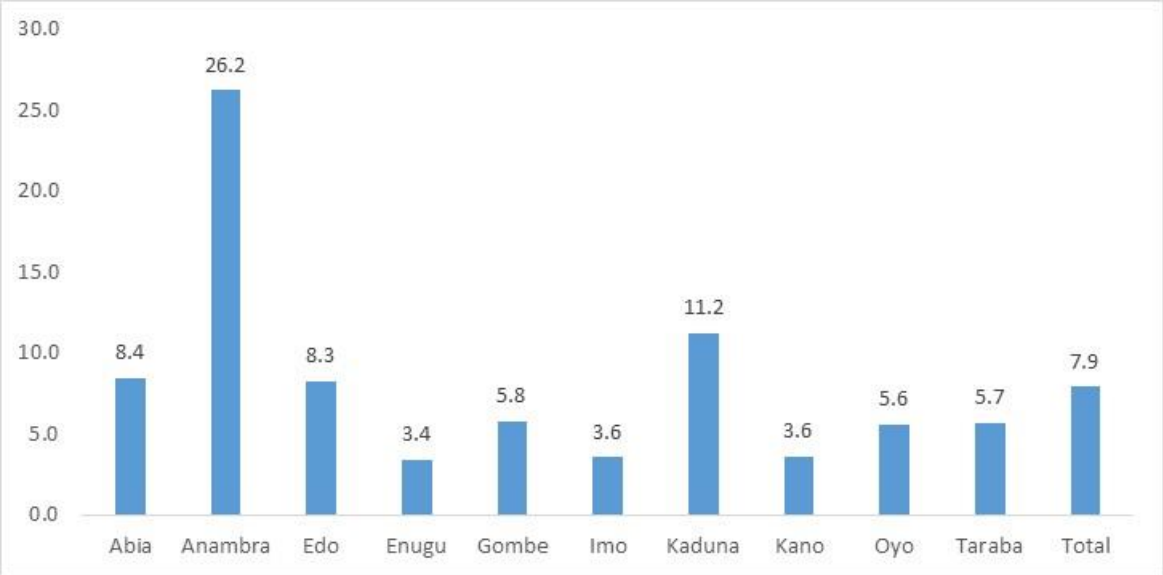
The following graphs provides the per capita size of KPs in the mapped states for the 3 KP groups, namely, FSW, MSM and PWID. Overall, it is found that there were 7.9 FSWs per 1000 adult

females in the mapped areas. The highest number is estimated in the state of Anambra (26.2 FSWs per 1000 adult females), followed by 11.2 in Kaduna and 8.4 in Abia. The lowest number of FSWs per 1000 adult females were estimated in the states of Enugu (3.4), Imo and Kano (3.6 each).

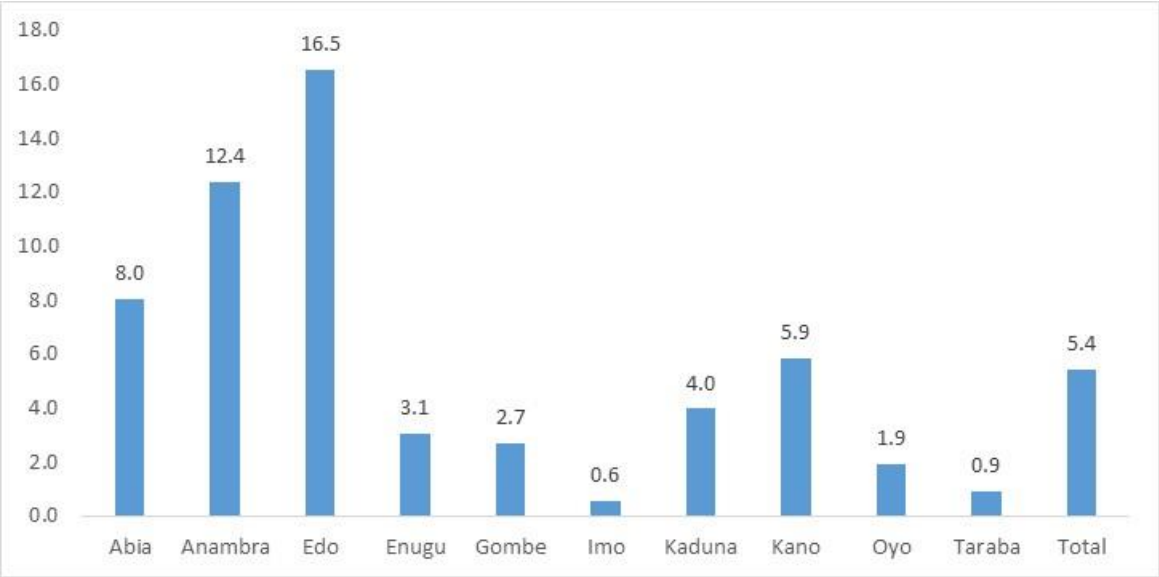
While the overall per capita MSMs per 1000 adult males are lower than that of FSWs (5.4 MSMs per 1000 adult males), it is evident that this number vary across states. It may be noted that the per capita MSMs ranges from 16.5 in Edo, 12.4 in Anambra and 8.0 in Abia to less than 1 MSMs per 1000 adult males in Imo and Taraba and 1.9 in Oyo state.

Since mapped PWIDs belongs to both males and females, we used the number of PWID per 1000 adult population instead of gender specific measures. On an average in the mapped states, there are 1.6 PWID per 1000 adult population, which ranges from the highest in 3.9 in Gombe and 3.6 in Oyo to the lowest of less than 1 PWID per 1000 adults in Edo, Enugu and Taraba states.

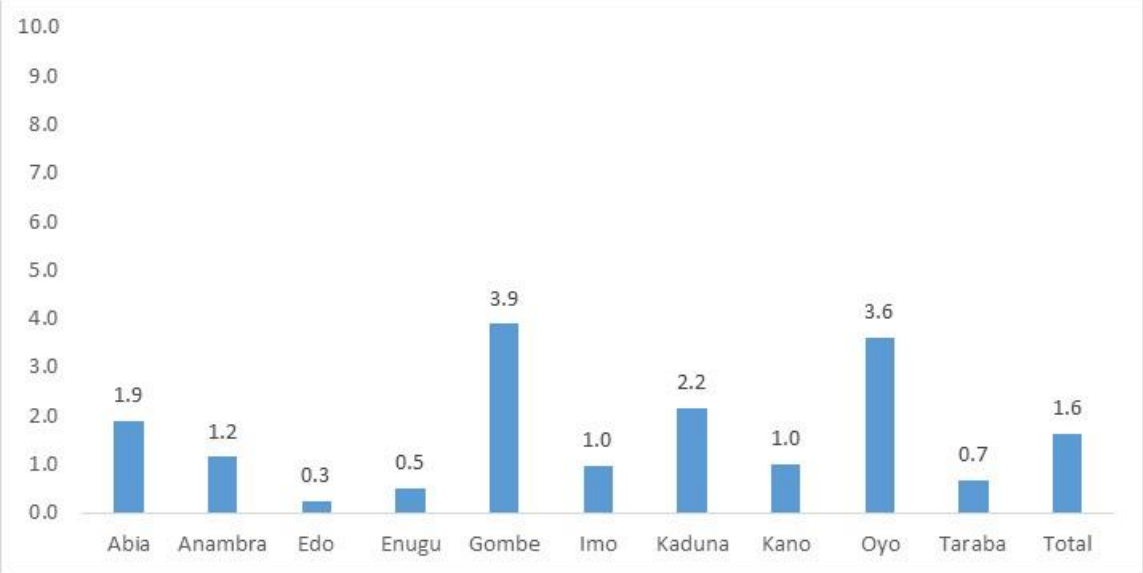
Graph 38: Number of FSW per 1000 adult females by state



Graph 39: Number of MSM per 1000 adult males by state



Graph 40: Number of PWID per 1000 adults by state



Overlap Table 0:

Table 0: Visiting other spots for risk by state

	FSW			MSM			PWID		
	Number	% solicit other spots in the past 30 days	Mean number of spots visited for risk	Number	% solicit other spots in the past 30 days	Mean number of spots visited for risk	Number	% solicit other spots in the past 30 days	Mean number of spots visited for risk
Total	7762	33.2	1.9	4326	60.1	1.9	3776	33.0	1.8
ABIA	677	69.9	1.5	103	76.7	1.3	353	80.5	1.3
ANAMBRA	1247	14.4	1.5	320	0.3	1.0	176	2.8	1.0
EDO	583	31.9	1.7	101	47.5	1.4	45	11.1	1.2
ENUGU	454	22.0	1.6	168	58.3	2.1	135	22.2	1.7
GOMBE	411	77.1	1.0	144	61.1	4.5	690	44.5	2.7
IMO	349	8.9	2.0	50	50.0	1.6	115	0.0	
KADUNA	1533	24.7	1.8	629	82.7	1.0	849	39.6	1.5
KANO	1120	34.5	2.1	2008	65.9	1.4	847	21.7	2.3
OYO	1075	48.7	2.0	708	58.9	1.1	463	7.3	1.3
TARABA	313	1.0	1.0	95	0.0		103	59.2	1.4

PROGRAMMATIC RECOMMENDATIONS

Effective and efficient programs rely on good quality data to ensure that persons that are at higher risk are reached with interventions that are appropriate and responsive to their needs. To achieve this, the characteristics and size of all at risk populations need to be determined through a data process that enables evidence-informed decision making on:

- Which specific key populations should be the focus within each local area-State/LGAs?
- Where HIV prevention programs should be placed to maximize efficiency of reach, coverage and impact?
- What are the most effective and efficient ways to reach the key populations in a particular locality?

Data is a perishable good and timely and relevant use of data to guide decision-making, though challenging, is critical, particularly for large and complex programs like Nigeria. This exercise covered all LGAs in the 10 participating states with a total of 226 LGAs across towns/villages geographically mapped and KP sizes estimated at spot level. These programmatic recommendations will be useful in planning a tailored response with emphasis on the geographies of greatest need for prioritizing scarce resources to achieve most mileage in HIV prevention in Nigeria (NACA 2013).

Female Sex Workers Program Recommendations:

1. **Location and Peak periods**

Hotels and lodges were most popular FSWs spots in the Southern Nigeria while Homes were most popular FSWs spots in the North. Peak days in the week to reach the FSWs across all the states were weekends (Friday to Sundays). **Location and peak periods information are important for planning outreaches and peer programming, thus an important consideration in citing venue-based interventions and other FSWs program activities.**

2. **Program Coverage and Geo-location Prioritization**

Female Sex Workers in Anambra, Kaduna, Kano and Oyo states account for over 70% of total estimated FSWs. **Within these states LGAs of prioritized focus will be as follows**:

STATE	LGAs
ANAMBRA	Aguata; Anambra East; Anaocha; Awka South; Dunukofia; Ekwusigo; Ihiala, Idemili North; Idemili South; Onitsha North; Onitsha South; Orumba North; Ogbaru; Nnewi North; Nnewi South; Oyi
KADUNA	Sabon Gari; Chikun; Birnin Gwari; Kaduna North; Kaduna South
KANO	Fagge; Nassarawa; Bebeji; Dala
OYO	Ibadan North; Ibadan South West; Ibadan North East; Egbeda

3. **HIV Prevention Services availability and access**

HIV prevention services includes –condoms distribution; lubricants distribution; HIV testing services STIs and HIV treatment and HIV peer education services were not available at FSW spots across all the 10 states in the last six (6) months prior to the survey. **There is need for provision of all the array of HIV prevention services across all the studied states to FSWs.**

Men having Sex with Men (MSM) Program Recommendations:

1. **Peak Periods and Peak times**

Peak days of operation of spots for MSM activities were at weekends from Friday through Sunday across most states. In Gombe state, Saturdays and Sundays were the peak days most MSM congregate at spots. Peak time of MSM activities at physical locations were in the evenings (5pm-9pm) for MSM across all the states except for Gombe. **Outreach services and improving access to basic health care services should be planned around these periods for maximum reach.**

2. **Program coverage and Geo-location Prioritization**

MSM in Kano, Kaduna, Oyo and Anambra states represent 80% of estimated of MSM and **thus these states and these LGAs should be prioritized for effective program coverage:**

STATE	LGAs
KANO	Gwale; Nassarawa; KMC; Dala
KADUNA	Kaduna North; Sabon Gari; Lere; Ikara; Birnin Gwari; Soba; Zaria
OYO	Ibadan North; Ibadan South West; Ibadan North East; Egbeda
ANAMBRA	Onitsha North; Orumba North; Awka South; Nnewi North, Idemili North; Orumba South; Aguata

3. **MSM Selling Sex and HIV Vulnerability**

Estimated numbers of MSM selling sex were 100% in Imo, while over 50% MSM in Abia, Enugu, Edo, Gombe, Kaduna and Kano states sell sex. **Program efforts around education and information needs to be increased targeting this sub-typology as they have higher risk of contracting and transmitting HIV.**

4. **Virtual sites Prevention Programs for MSM**

Data from this study on MSM using virtual sites may also be highlighting possible underestimation of MSM and this underscores the 'further hidden' nature of MSM group. This **study provides new data on MSM using virtual space and suggests the need for innovative HIV prevention programs to reach this large group of KPs.** Study results have shown that social networking websites when used for seeking sex, maybe associated with transmission of HIV and other sexually transmitted infections.

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5. **HIV Prevention Services availability and access**

Data revealed poor access and availability of HIV prevention services for MSM across majority of spots in the states, thus **HIV Prevention services should be provided in all the 10 states to MSM.**

People Who Inject Drugs (PWIDs) Program Recommendations:

1 Peak Periods and Peak times

Peak days of operation of spots for PWIDs activities were at weekends from Friday through Sunday across most states except for Gombe state where peak days are Sundays and Mondays. Peak time of activities at PWIDs spots varied with some the states peak time being in the evening (5pm-9pm) and night time (9pm-late night), some having peak times in the morning (before noon) and evening (5pm -9pm) and others in the afternoon (12pm-5pm) and evening (5pm-9pm). Outreach services and improving access to basic health care services should be planned around these periods for maximum reach.

2 Program Coverage and Geo-location Prioritization

PWIDS in Oyo, Kaduna, Kano and Gombe represent over 75% of total PWIDs across the 10 states; thus, **PWID program prioritization should focus on these states with the following LGAs prioritized**:

STATE	LGAs
OYO	Ibadan South East; Ibadan North East; Ibadan North; Ibadan South West; Akinyele; Egbeda
KADUNA	Sabon Gari; Kaduna South; Kaduna North; Chikun; Birnin Gwari
KANO	Fagge; Gwale; KMC; Kumbotsho; Nassarawa; Tarauni
GOMBE	ALL LGAs

3 Female PWIDS and HIV Vulnerability

Women who inject drugs are particularly affected with a prevalence of 13.9% compared to 2.6% among men. Female sex workers who inject drugs face the highest HIV prevalence at around 43% (UNAIDS AIDS Info). In this study about 22% (11,031) of the total estimated PWIDs were females. The **rising number of female PWIDs with highest estimates seen in Kaduna, Oyo, Abia and Gombe states need to be considered in program planning and funding for HIV prevention in Nigeria given the high prevalence rates amongst this group**.

4 PWIDs sharing needles and PWID Appropriate HIV Prevention Programming HIV transmission

Sharing needles, syringes, or other injection equipment (works) to inject drugs puts people at risk for getting or transmitting HIV and other infections. Approximately 40% of the total estimated PWIDs share needles (19,918 out of 49,874). Harm reduction services such as Opioid Substitution Therapy and clean Needle Exchanges Program are currently not available in Nigeria due to policy stipulations.

Data from this study provides evidence for **advocacy for Harm Reduction and Needle Exchange programs** as identified by the National Strategic Framework as a key PWID prevention program goal in the coming years (NACA 2017). **Needle replacement services should be provided and safe needle disposal services too.**

5 HIV Prevention Services availability and access

HIV Prevention services were scarcely available to PWIDs across the 10 states studied. **Condom services, Lubricants, HIV testing services and STI and HIV treatment services should be provided for PWIDs in all the 10 studied states.**

Research Recommendations

Building upon this geographical mapping study, we recommend research as follows:

- **Ethnographic studies** among the KP groups (MSM and FSWs) in these states to better understand the different sex work spot typologies, how sexual networks form at these spots, and the overlap between sexual networks that are mediated by financial and other material resources.
- **Behavioral surveys** to assess differences in socio-demographic and economic profiles and sexual behaviors of KPs (MSWs, FSWs, MSM selling sex) according to the type of spots from which they operate (both fixed venues and other types of spots), in order to identify unmet needs for HIV preventive services by sex work spot typology.
- **Survey on the substances** PWIDs inject as this will be important to understanding the quantum of risk and also social and economic drivers of this risk behavior including how and what service packages to be provided for them.
- **Studying how users of social networks engage other sex partners** and this will be useful for developing innovative virtual platform HIV prevention interventions for this at risk population.
- **Survey within the MSW sub-typology of MSM group** to look at the effects of homophobic attitudes relating to discrimination, bullying, harassment, family acceptance/disapproval issues and social isolation with related socio-economic issues to ascertain role of these factors as associated or driving forces to selling sex.

CONCLUSIONS:

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This KP mapping and size estimation exercise across 10 states in Nigeria provides new evidence on key populations that is an important starting point for macro- and micro-level planning of HIV programs including prioritizing states/LGAs and locations for establishing programs, determining baseline volume of services and resources (human /financial) required for start-up. The transparent, relatively cheap and simple nature of this method makes it an option for routine and regular use to monitor coverage of services and accessibility to KPs as well as use in continuous update of KP estimates.

This mapping and size estimation can be useful for organizations to monitor the change in their communities and with people that they serve, as well as for effective program planning. It will also compliment other methods of size estimation including the IBBSS used for routine surveillance and provision of national estimates of KPs.

Programmatic mapping, despite few limitations presents a rapid and efficient mechanism to identify and highlight all key locations (venues, spots, places) in a systematic and scientific manner. It is a flexible approach which can be tailored to the need of the circumstances with minimum modifications. It has proven to be remarkably successful in guiding HIV programming, advocacy and resource allocation, as well as guiding research.

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ANNEX:

Central Level Training Report and Stakeholders Engagement Meeting Report

CENTRL LEVEL KP ESTIMATES TOT Train

Revised Data Analysis Table

REVISED Tables Level 2 16.01.2019.xl

Virtual Mapping Analysis Table

Tables Virtual Mapping_Final.xlsx

Table 16: Estimated KPs by State in Nigeria

		Type of KP														
		FSW					MSM					PWID				
		Number of spots	Adjusted number of KPs on a peak day - low	Adjusted number of KPs on a peak day - high	Adjusted number of KPs on a peak day - average	Mean number of KPs per spot	Number of spots	Adjusted number of KPs on a peak day - low	Adjusted number of KPs on a peak day - high	Adjusted number of KPs on a peak day - average	Mean number of KPs per spot	Number of spots	Adjusted number of KPs on a peak day - low	Adjusted number of KPs on a peak day - high	Adjusted number of KPs on a peak day - average	Mean number of KPs per spot
State	ABIA	679	6970	8869	7920	11.7	103	1625	2282	1953	19.0	354	2911	4398	3654	10.3
	ANAMBRA	1247	32289	40894	36607	29.9	321	2576	4333	3455	10.9	176	2561	4012	3287	18.7
	EDO	651	7065	10592	8829	13.9	101	876	1377	1126	11.4	45	371	727	549	12.2
	ENUGU	468	2559	5089	3824	8.2	169	1214	2032	1623	9.6	135	929	1395	1162	8.7
	GOMBE	423	3978	5657	4818	12.8	144	1602	2200	1901	13.4	690	4886	8268	6577	9.7
	IMO	406	4097	5690	4893	13.1	56	697	963	830	14.7	119	2061	3409	2735	23.2
	KADUNA	1629	19081	27770	23479	14.6	635	7086	10117	8601	13.7	857	7113	11343	9232	10.8
	KANO	1160	9904	14372	12143	10.9	2012	16169	24119	20144	10.0	848	4838	8880	6859	8.1
	OYO	1368	9555	12929	11242	8.9	710	3073	4889	3981	5.7	483	11600	17882	14741	30.9
	TARABA	346	3765	5069	4417	13.0	98	648	849	749	7.7	130	819	1342	1080	8.4

Table 17: Estimated KPs by LGA

		Type of KP														
		FSW					MSM					PWID				
State	LGA	Number of spots	Estimated KPs-low	Estimated KPs-high	Estimated KPs	Mean number of KPs per spot	Number of spots	Estimated KP-Low	Estimated KPs-high	Mean Estimated KPs	Mean number of KP per spot	Number of spots	Estimated KPs-low	Estimated KPs-high	Estimated KPs	Mean number of KPs per spot
ABIA		679	6970	8869	7920	11.7	103	1625	2282	1953	19	354	2911	4398	3654	10.3
	ABA NORTH	101	1212	1583	1398	13.8	23	391	573	482	21	41	331	460	396	9.6
	ABA SOUTH	80	954	1185	1070	13.5	4	59	94	76	19	39	354	493	423	10.9
	AROCHUKWU	35	325	430	378	10.8	3	21	28	25	8	30	222	384	303	10.1
	BENDE	22	179	230	204	9.3	0					5	32	54	43	8.6
	IKWUANO	17	255	333	294	17.3	5	110	150	130	26	12	67	105	86	7.2
	ISIALA NGWA NORTH	17	140	179	159	9.9	4	35	46	41	10	15	174	246	210	14.0
	ISIALA NGWA SOUTH	26	265	344	304	11.7	0					20	156	245	201	10.0
	ISUIKWUATO	29	214	257	235	8.1	3	30	38	34	11	6	29	66	48	8.0
	OBINGWA	30	221	275	248	8.3	8	115	159	137	17	4	54	71	63	15.6
	OHAFIA	41	327	451	389	9.5	9	94	118	106	12	17	134	222	178	10.5
	OSISIOMA NGWA	92	980	1203	1092	12.1	13	210	296	253	19	46	435	657	546	11.9
	UGWUNAGBO	16	168	214	191	11.9	0					16	82	128	105	6.6

	UKWA EAST	16	123	162	142	8.9	1	17	20	19	19	11	87	133	110	10.0
	UKWA WEST	29	252	323	288	9.9	0					17	112	197	155	9.1
	UMUAHIA NORTH	72	932	1147	1039	14.4	26	507	706	607	23	38	275	403	339	8.9
	UMUAHIA SOUTH	28	150	199	174	6.2	1	7	14	10	10	13	169	232	201	15.4
	UMUNNEOCHI	28	275	356	315	11.3	3	29	39	34	11	24	196	302	249	10.4
ANAMBRA		1247	32289	40894	36607	29.9	321	2576	4333	3455	11	176	2561	4012	3287	18.7
	AGUATA	85	2419	3002	2710	33.5	27	148	281	215	8	12	202	330	266	22.2
	ANAMBRA EAST	46	1082	1369	1226	27.2	9	47	86	67	7	6	70	130	100	16.7
	ANAOCHA	58	1400	1797	1598	27.6	8	76	93	85	11	4	60	80	70	17.5
	ANMABRA EAST	15	368	475	422	28.1	0					0				
	AWKA NORTH	25	514	648	581	23.2	6	36	99	68	11	5	67	89	78	15.6
	AWKA SOUTH	145	3454	4382	3934	27.7	42	291	560	426	10	8	93	109	101	12.6
	AYAMELUM	26	699	938	818	31.5	0					0				
	DUNUKOFIA	36	988	1233	1111	33.7	5	86	135	111	22	5	70	116	93	18.6
	EKWUSIGO	45	1419	1737	1578	37.6	10	80	130	105	11	9	171	255	213	23.7
	IDEMILI NORTH	102	2514	3197	2855	28.0	23	177	307	242	11	18	237	424	331	18.4
	IDEMILI SOUTH	76	1823	2252	2037	27.2	7	36	89	63	9	12	165	270	218	18.1
	IHIALA	58	1294	1717	1506	26.4	10	95	121	108	11	10	118	205	162	16.2

	NJIKOKA	22	409	567	488	22.2	7	62	90	76	11	14	164	244	204	14.6
	NNEWI NORTH	82	2200	2765	2483	30.3	25	174	326	250	10	17	300	375	338	19.9
	NNEWI SOUTH	48	1031	1319	1175	25.5	6	53	93	73	12	6	70	120	95	15.8
	OGBARU	54	1766	2187	1976	36.6	10	62	103	83	9	7	106	196	151	21.6
	ONITSHA NORTH	136	3084	4108	3596	27.2	50	421	686	554	11	12	172	310	241	20.1
	ONITSHA SOUTH	59	1670	2084	1877	31.8	2	10	25	18	9	13	244	394	319	24.5
	ORUMBA NORTH	52	2467	2859	2663	51.2	42	428	665	547	13	10	150	200	175	17.5
	ORUMBA SOUTH	17	549	689	619	36.4	16	182	297	240	16	5	62	105	84	16.7
	OYI	60	1141	1570	1355	22.6	16	112	147	130	8	3	40	60	50	16.7
EDO		651	7065	10592	8829	13.9	101	876	1377	1126	11	45	371	727	549	12.2
	AKOKO EDO	16	98	135	116	7.3	0					0				
	Egor	58	631	952	791	13.9	18	144	237	191	11	7	67	130	98	14.0
	Esan Central	13	66	101	84	6.4	0					0				
	Esan NE	24	265	423	344	14.3	0					3	35	60	48	15.9
	ESAN SOUTH EAST	10	87	122	105	10.5	0					1	3	10	6	6.4
	Esan West	23	199	350	274	11.9	10	61	107	84	8	4	22	70	46	11.4
	ETSAKO CENTRAL	7	82	139	110	15.8	0					7	60	95	78	11.1
	ETSAKO EAST	34	403	564	484	14.2	2	13	25	19	9	1	10	15	12	12.3
	ETSAKO WEST	54	705	1031	868	16.1	13	101	151	126	10	2	8	26	17	8.3

	Igueben	0					0					1	6	13	9	9.3
	IKPOBA OKHA	89	993	1439	1216	14.5	13	108	177	142	11	2	21	39	30	15.0
	OREDO	70	1060	1761	1410	20.4	32	352	523	437	14	14	121	233	177	12.6
	ORHIONMWON	37	365	489	427	11.5	0					0				
	Ovia N.E	113	1274	1836	1555	13.9	9	66	105	85	9	0				
	Ovia S W	20	157	261	209	10.4	0					0				
	Owan East	14	139	171	155	11.1	0					0				
	OWAN WEST	11	84	115	100	9.1	0					0				
	Uhunmwode	58	456	705	581	12.1	4	31	53	42	10	3	20	38	29	9.7
ENUGU		468	2559	5089	3824	8.2	169	1214	2032	1623	10	135	929	1395	1162	8.7
	Aninri	11	47	124	85	7.8	2	11	18	15	7	1	9	13	11	10.9
	Awgu	7	11	33	22	3.1	4	19	33	26	6	4	26	48	37	9.3
	Enugu East	63	417	693	555	8.8	6	43	58	51	8	15	115	153	134	8.9
	Enugu North	83	602	1244	923	11.1	73	557	949	753	10	35	186	296	241	7.1
	Enugu South	41	173	361	267	6.7	16	158	268	213	13	13	41	63	52	4.3
	Eze-Agu	16	39	98	69	4.3	4	18	40	29	7	3	24	29	27	8.9
	Igbo Etiti	2	14	20	17	8.5	0					2	20	114	67	33.5
	Igbo Eze North	20	105	200	152	7.6	1	6	8	7	7	2	14	21	17	8.6
	Igbo Eze South	3	6	12	9	2.9	0					0				
	Isi-Uzo	19	72	146	109	5.7	5	25	35	30	6	8	60	83	72	8.9
	Nkanu East	16	59	106	83	5.2	0					3	23	34	28	9.4
	Nkanu West	31	157	317	237	7.6	16	133	194	163	10	8	59	88	73	9.2
	Nsukka	31	175	350	263	8.8	20	132	233	183	9	8	82	105	94	11.7

	Oji River	36	218	471	344	9.6	5	29	45	37	7	7	56	80	68	9.7
	Udenu	51	317	567	442	8.8	9	49	90	70	8	12	106	135	120	10.0
	Udi	32	117	287	202	6.5	6	24	45	35	6	8	53	69	61	7.6
	Uzo Uwani	6	30	60	45	7.5	2	10	16	13	6	6	55	64	60	10.0
GOMBE		423	3978	5657	4818	12.8	144	1602	2200	1901	13	690	4886	8268	6577	9.7
	AKKO	38	315	465	390	11.1	33	338	471	405	13	41	325	501	413	10.1
	BALANGA	38	398	580	489	15.8	2	13	21	17	8	61	447	739	593	9.7
	BILLIRI	35	369	559	464	13.3	11	97	139	118	11	62	451	802	627	10.1
	DUKKU	13	89	147	118	10.7	6	55	84	69	12	42	246	507	377	9.4
	FUNA KAYE	53	409	576	493	12.0	14	143	202	173	12	84	615	1057	836	10.5
	GOMBE	119	1252	1719	1485	13.5	62	810	1067	938	15	201	1590	2498	2044	10.3
	KALTUNGO	60	583	784	683	12.7	11	126	173	149	14	76	436	881	658	8.9
	KWAMI	9	67	98	83	9.2	3	13	25	19	6	37	274	416	345	9.3
	NAFADA	9	36	48	42	6.9	0					26	153	251	202	7.8
	SHONGOM	30	333	493	413	15.3	2	8	18	13	7	37	202	332	267	8.1
	YAMALTU DEBA	19	127	190	159	9.3	0					23	146	282	214	9.3
IMO		406	4097	5690	4893	13.1	56	668	976	822	15	119	2061	3409	2735	23.2
	ABOH MBAISE	7	57	71	64	10.7	3	31	50	41	14	0				
	AHIAZU	5	43	54	49	9.7	4	24	37	30	8	6	135	215	175	29.2
	EHIME MBANO	8	52	68	60	10.0	0					2	30	50	40	20.0
	EZINIHITTE MBAISE	4	43	54	48	12.1	0					0				
	IDEATO NORTH	11	112	140	126	11.4	0					0				

IDEATO SOUTH	6	26	40	33	6.6	1	10	15	12	12	0				
IHITTE UBOMA	5	23	29	26	6.5	0					0				
IKEDURU	13	92	126	109	9.1	2	8	11	10	5	9	100	175	138	15.3
ISIALA MBANO	11	73	116	94	11.8	0					3	65	95	80	26.7
ISU	6	66	91	78	13.1	0					0				
MBAITOLI	27	200	296	248	9.2	0					0				
NGOR OKPALA	11	88	116	102	9.3	0					4	95	140	118	29.4
NJABA	9	63	83	73	8.1	0					0				
NKWERRE	10	70	94	82	8.2	0					0				
NWANGELE	3	16	22	19	6.4	0					0				
OBOWO	9	112	139	125	15.6	0					5	52	83	68	16.9
OGUTA	13	118	171	144	11.1	4	30	46	38	10	5	78	122	100	20.0
OHAJI/EGBEMA	29	240	309	274	10.5	1	16	28	22	22	0				
OKIGWE	19	162	232	197	11.6	0					6	135	210	173	28.8
ONUIMO	5	32	42	37	7.5	0					1	10	20	15	15.0
ORLU	48	310	397	353	10.4	3	37	53	45	15	5	73	127	100	20.0
ORSU	19	155	230	193	10.1	0					2	20	35	28	13.8
ORU WEST	10	86	142	114	12.7	0					10	144	239	192	19.2
ORU-EAST	19	127	174	151	8.9	0					0				
OWERRI MUNICIPAL	53	1204	1659	1431	27.0	25	316	425	371	15	35	555	865	710	20.3
OWERRI NORTH	24	267	326	296	12.9	1	7	10	8	8	4	125	250	188	46.9

	OWERRI WEST	22	262	471	366	16.7	12	190	300	245	20	22	444	783	614	27.9
KADUNA		1629	19081	27770	23479	14.6	635	7086	10117	8601	14	857	7113	11343	9232	10.8
	BIRNIN GWARI	122	1620	2569	2094	17.2	74	492	724	608	8	68	639	938	789	11.6
	Chikun	214	2655	3768	3212	15.1	12	114	168	141	12	69	620	962	791	11.5
	Giwa	37	395	559	477	13.2	5	130	164	147	29	34	289	449	369	10.9
	Igabi	68	864	1179	1021	15.2	10	113	163	138	14	54	442	680	561	10.4
	IKARA	43	425	826	625	14.5	74	898	1330	1114	15	37	346	494	420	11.7
	Jaba	29	284	396	340	11.7	2	17	23	20	10	11	100	147	128	11.6
	Jema'a	45	490	693	591	13.1	5	122	156	139	28	5	44	69	57	11.4
	Kachia	26	219	327	273	10.5	5	53	79	66	13	13	76	162	119	9.2
	Kaduna North	162	1895	2637	2310	14.9	117	1201	1682	1441	12	134	987	1719	1353	10.1
	Kaduna South	113	1561	2529	2045	18.3	25	249	381	315	13	82	759	1263	1011	12.3
	KAJURU	14	117	175	146	10.4	3	101	116	109	36	4	52	69	61	15.2
	Kargarko	53	767	1162	964	18.9	11	118	163	141	13	32	313	477	395	12.3
	KAURA	16	133	192	163	10.2	7	43	60	52	7	4	61	78	69	17.3
	Kauru	7	67	90	78	11.2	0					1	17	22	19	19.5
	KUBAU	57	514	680	599	10.5	28	365	503	434	15	20	152	230	191	10.0
	KUDAN	36	372	582	477	13.3	0					26	149	256	202	7.8
	Lere	98	931	1318	1131	12.0	57	881	1210	1046	18	59	477	730	603	10.4
	Makarfi	82	970	1346	1158	14.1	5	106	130	118	24	31	192	316	254	8.2
	Sabon Gari	197	2640	3676	3158	16.2	96	882	1357	1120	12	106	906	1470	1188	11.2
	SANGA	18	161	228	195	10.8	3	34	53	43	14	6	8	17	13	2.1
	Soba	95	894	1275	1085	11.5	48	624	849	736	17	19	198	296	247	13.0

	Zangon kataf	27	256	350	303	11.2	2	19	24	22	11	3	10	17	13	4.5
	Zaria	70	854	1214	1034	14.8	46	520	782	651	14	39	277	481	379	9.7
KANO		1160	9904	14372	12143	10.9	2012	16169	24119	20144	10	848	4838	8880	6859	8.1
	AJINGI	9	53	81	71	10.2	30	182	302	242	8	3	10	31	20	6.7
	ALBASU	3	22	39	30	10.1	10	122	145	133	13	5	8	21	14	2.9
	BAGWAI	14	156	226	191	21.3	16	64	118	91	6	7	25	98	61	8.7
	BEBEJI	34	461	636	548	16.1	7	26	51	39	6	2	9	12	11	5.3
	BICHI	34	290	356	323	9.5	55	534	676	605	11	43	138	305	221	5.1
	BUNKURE	12	63	110	87	10.8	16	59	117	88	6	7	19	48	34	4.8
	DALA	54	271	443	357	6.6	209	1427	2524	1975	9	49	227	546	386	7.9
	DANBATTA	49	298	434	366	8.3	68	616	821	719	11	21	69	148	109	5.4
	DAWAKIN KUDU	64	544	762	653	10.2	58	282	471	376	6	23	183	284	233	10.1
	DAWAKIN TOFA	5	40	67	53	10.7	8	26	46	36	5	13	165	212	188	14.5
	DOGUWA	26	261	395	328	12.6	8	57	73	65	8	4	18	32	25	6.3
	FAGGE	177	2666	3763	3214	18.2	88	891	1245	1068	12	51	561	824	693	13.6
	GABASAWA	20	135	209	172	8.6	32	345	445	395	12	7	35	52	43	6.2
	GARKO	3	11	15	13	4.3	11	34	68	51	5	4	11	17	14	3.5
	GARUN MALAM	13	131	206	168	12.9	53	412	562	487	9	3	7	14	11	3.5
	GAYA	13	69	92	81	6.2	49	386	528	457	9	27	97	216	156	5.8
	GEZAWA	22	127	227	177	8.4	61	467	757	612	10	9	28	45	36	4.1
	GWALE	33	284	378	331	10.3	333	3222	4875	4049	12	65	324	578	451	6.9
	GWARZO	51	290	440	365	7.9	12	88	121	104	9	28	155	273	214	7.6

KABO	12	76	95	86	7.1	29	206	322	264	9	8	40	56	48	6.0
KARAYE	4	33	46	39	9.9	11	52	76	64	6	54	257	430	344	6.4
KIBIYA	10	106	155	131	13.1	18	127	207	167	9	12	54	86	70	5.8
KIRU	23	209	363	286	13.0	13	102	136	119	9	16	60	197	128	8.0
KMC	38	239	397	318	8.4	134	1504	2044	1774	13	55	353	662	507	9.2
KUMBOTSO	35	223	327	275	7.9	23	147	269	208	9	33	345	546	445	13.5
KUNCHI	2	10	21	16	7.8	6	30	50	40	7	5	25	39	32	6.3
KURA	12	73	93	83	6.9	58	230	389	309	5	19	75	159	117	6.2
MADOBI	14	105	142	124	8.8	16	123	194	159	10	15	50	92	71	4.7
MAKODA	26	137	246	191	8.0	17	70	132	101	6	14	46	163	105	7.5
MINJIBIR	9	59	81	70	7.8	23	180	281	231	10	8	39	52	45	5.7
NASSARAWA	150	1243	1803	1523	10.6	135	1263	1801	1532	11	44	426	591	509	11.6
RANO	19	115	147	131	6.9	40	364	502	433	11	19	68	186	127	6.7
RIMINGADO	4	27	35	31	7.8	41	263	422	343	9	5	14	22	18	3.6
ROGO	5	62	107	84	16.9	21	147	213	180	9	12	46	173	109	9.1
SHANONO	6	52	78	65	10.8	10	67	82	75	7	7	81	108	94	13.5
SUMAILA	14	61	106	84	7.0	26	264	327	296	11	11	34	97	65	6.0
TAKAI	7	37	49	43	6.2	9	30	56	43	5	2	13	21	17	8.6
TARAUNI	21	154	197	175	9.7	66	592	837	715	11	82	511	1049	780	9.5
TOFA	27	179	253	216	8.6	64	511	689	600	10	0				
TUDUNWADA	14	118	149	133	9.5	34	156	291	224	7	11	27	69	48	4.4
UNGOGO	39	246	376	311	8.2	15	89	155	122	8	26	112	196	154	5.9
WARAWA	11	49	66	57	6.4	40	159	291	225	6	3	6	17	11	3.8

	WUDIL	22	120	161	141	6.4	39	250	410	330	8	16	66	116	91	5.7
OYO		1368	9555	12929	11242	8.9	710	3073	4889	3981	6	483	11600	17882	14741	30.9
	AFIJIO	5	13	26	19	3.9	5	22	31	27	5	1	79	98	88	88.5
	AKINYELE	86	513	678	595	7.6	36	170	253	211	6	31	652	906	779	25.1
	ATIBA	17	106	141	123	7.3	4	16	26	21	5	0				
	EGBEDA	124	1163	1452	1308	10.7	55	271	467	369	7	33	869	1092	981	29.7
	IBADAN NORTH	205	2410	3119	2765	13.8	83	511	792	652	8	66	1886	2600	2243	35.0
	IBADAN NORTH EAST	120	901	1156	1028	8.9	93	409	654	532	6	76	1649	2740	2194	28.9
	IBADAN NORTH WEST	59	336	503	419	7.1	35	140	207	174	5	35	495	666	580	16.6
	IBADAN SOUTH EAST	46	330	520	425	9.7	16	67	99	83	5	80	2578	4603	3591	44.9
	IBADAN SOUTH WEST	103	1106	1539	1323	13.6	99	455	715	585	6	56	1830	2338	2084	37.2
	IBARAPA CENTRAL	11	8	45	26	2.6	1	3	9	6	6	3	17	64	40	13.4
	IBARAPA EAST	24	104	143	123	5.1	11	22	47	34	3	3	34	84	59	19.7
	IBARAPA NORTH	30	85	116	100	3.5	3	6	11	9	3	0				
	IDO	87	217	328	273	6.5	29	110	164	137	5	13	69	159	114	8.8
	IREPO	0					0					2	3	25	14	13.8
	ISEYIN	30	160	216	188	6.5	0					0				
	ITESIWAJU	5	24	60	42	8.5	1	29	38	33	33	2	69	177	123	61.5

	LAGELU	47	223	356	290	6.2	32	118	178	148	5	8	63	175	119	14.9
	OGBOMOSO NORTH	64	257	404	331	5.2	48	138	222	180	4	13	266	560	413	31.8
	OGBOMOSO SOUTH	44	272	323	298	7.4	11	36	69	52	5	0				
	OGO OLUWA	10	33	57	45	4.5	0					1	15	39	27	27.0
	OLORUNSOGO	11	45	64	54	4.9	0					0				
	OLUYOLE	52	206	274	240	6.0	35	113	178	145	4	21	174	400	287	15.1
	ONA ARA	48	217	336	277	5.9	30	109	191	150	5	23	396	519	458	19.9
	ORIRE	5	4	14	9	1.7	0					0				
	OYO EAST	40	267	298	282	7.6	19	77	147	112	6	5	238	287	263	52.5
	OYO WEST	8	54	68	61	7.6	25	83	136	110	4	10	169	202	185	20.6
	SAKI EAST	3	82	123	103	34.2	1	14	19	17	17	0				
	SAKI WEST	42	291	391	341	8.3	34	137	209	173	5	1	49	147	98	98.3
	SURULERE	42	129	179	154	3.8	4	18	26	22	5	0				
TARABA		346	3765	5069	4417	13.0	98	648	849	749	8	130	819	1342	1080	8.4
	ARDO KOLA	25	336	497	417	18.1	9	78	100	89	10	7	31	70	50	7.2
	BALI	20	225	295	260	13.0	5	19	25	22	4	4	27	40	34	8.4
	Donga	6	60	92	76	12.7	0					0				
	GASHAKA	13	122	147	135	10.3	8	56	72	64	8	5	13	17	15	3.7
	Gassol	59	619	781	700	12.5	9	52	74	63	7	9	71	116	94	10.4
	IBI	4	23	33	28	7.0	6	42	57	50	8	0				
	JALINGO	95	1094	1562	1328	14.1	18	149	191	170	9	46	328	535	432	9.6
	KARIM LAMIDO	15	159	208	184	12.2	4	17	26	22	5	1	4	6	5	5.0

KURMI	5	86	98	92	18.4	0					0				
LAU	12	118	148	133	11.1	3	18	22	20	7	13	44	96	70	5.4
SARDAUNA	11	91	120	106	9.6	11	67	87	77	7	7	43	57	50	7.1
TAKUM	7	124	155	140	19.9	12	65	87	76	6	8	36	69	52	6.5
USSA	9	109	135	122	13.6	0					0				
WUKARI	18	189	236	213	12.5	6	36	48	42	7	10	112	180	146	14.6
YORRO	12	108	144	126	10.5	2	7	8	8	8	14	49	74	61	4.4
ZING	35	302	418	360	10.3	5	42	52	47	9	6	60	83	72	11.9

Table 18: Estimated PWIDs share needles by state

		Type of KP														
		FSW					MSM					PWID				
State	LGA	Number of spots	Estimated KPs	Estimated men sell sex	Estimated woman PWIDs	Estimated PWIDs share needled	Number of spots	Estimated KPs	Estimated men sell sex	Estimated woman PWIDs	Estimated PWIDs share needled	Number of spots	Estimated KPs	Estimated men sell sex	Estimated woman PWIDs	Estimated PWIDs share needled
ABIA		675	7920				103	1953	1539			354	3654		1180	1487
	ABA NORTH	101	1398				23	482	363			41	396		106	139
	ABA SOUTH	79	1070				4	76	50			39	423		199	165
	AROCHUKWU	35	378				3	25	18			30	303		43	108
	BENDE	22	204				0					5	43		19	28
	IKWUANO	17	294				5	130	113			12	86		26	46
	ISIALA NGWA NORTH	16	159				4	41	36			15	210		67	62
	ISIALA NGWA SOUTH	26	304				0					20	201		67	72
	ISUIKWUATO	29	235				3	34	35			6	48		14	29
	OBINGWA	30	248				8	137	99			4	63		20	26
	OHAFIA	41	389				9	106	75			17	178		64	65
	OSISIOMA NGWA	90	1092				13	253	215			46	546		143	230

	UGWUNAGBO	16	191	0			16	105	7	52
	UKWA EAST	16	142	1	19	13	11	110	25	30
	UKWA WEST	29	288	0			17	155	91	87
	UMUAHIA NORTH	72	1039	26	607	489	38	339	94	119
	UMUAHIA SOUTH	28	174	1	10	6	13	201	68	74
	UMUNNEOCHI	28	315	3	34	29	24	249	132	157
ANAMBRA		1225	36607	316	3455	1322	176	3287	843	1190
	AGUATA	81	2710	26	215	87	12	266	95	100
	ANAMBRA EAST	45	1226	9	67	36	6	100	12	28
	ANAOCHA	58	1598	8	85	29	4	70	19	20
	ANMABRA EAST	15	422	0			0			
	AWKA NORTH	25	581	6	68	22	5	78	16	12
	AWKA SOUTH	142	3934	41	426	191	8	101	16	33
	AYAMELUM	26	818	0			0			
	DUNUKOFIA	33	1111	5	111	33	5	93	13	13
	EKWUSIGO	42	1578	10	105	29	9	213	73	104

	IDEMILI NORTH	102	2855	23	242	128	18	331	71	133
	IDEMILI SOUTH	75	2037	7	63	12	12	218	53	75
	IHIALA	57	1506	10	108	51	10	162	35	55
	NJIKOKA	22	488	7	76	34	14	204	60	101
	NNEWI NORTH	82	2483	25	250	98	17	338	120	120
	NNEWI SOUTH	46	1175	6	73	37	6	95	19	10
	OGBARU	54	1976	9	83	25	7	151	58	43
	ONITSHA NORTH	132	3596	49	554	222	12	241	49	88
	ONITSHA SOUTH	59	1877	2	18	5	13	319	80	161
	ORUMBA NORTH	52	2663	42	547	153	10	175	33	54
	ORUMBA SOUTH	17	619	15	240	84	5	84	18	30
	OYI	60	1355	16	130	49	3	50	7	15
EDO		633	8829	99	1126	603	45	549	208	106
	AKOKO EDO	16	116	0			0			
	Egor	57	791	18	191	111	7	98	15	5
	Esan Central	13	84	0			0			
	Esan NE	24	344	0			3	48	21	15
	ESAN SOUTH EAST	10	105	0			1	6	0	4

	Esan West	23	274	10	84	59	4	46	8	2
	ETSAKO CENTRAL	7	110	0			7	78	128	9
	ETSAKO EAST	34	484	2	19	0	1	12	5	3
	ETSAKO WEST	54	868	12	126	85	2	17	4	10
	Igueben	0		0			1	9	0	0
	IKPOBA OKHA	84	1216	13	142	99	2	30	6	9
	OREDO	69	1410	31	437	184	14	177	14	38
	ORHIONMWON	37	427	0			0			
	Ovia N.E	112	1555	9	85	59	0			
	Ovia S W	20	209	0			0			
	Owan East	14	155	0			0			
	OWAN WEST	11	100	0			0			
	Uhunmwode	48	581	4	42	8	3	29	9	13
ENUGU		464	3824	169	1623	1025	133	1162	153	153
	Aninri	11	85	2	15	3	1	11	3	2
	Awgu	7	22	4	26	20	4	37	0	0
	Enugu East	63	555	6	51	52	15	134	29	35
	Enugu North	83	923	73	753	436	34	241	41	19
	Enugu South	40	267	16	213	160	12	52	7	7
	Eze-Agu	16	69	4	29	7	3	27	2	8

	Igbo Etiti	2	17	0			2	67	0	6
	Igbo Eze North	20	152	1	7	4	2	17	0	0
	Igbo Eze South	3	9	0			0			
	Isi-Uzo	19	109	5	30	16	8	72	5	16
	Nkanu East	16	83	0			3	28	5	4
	Nkanu West	31	237	16	163	109	8	73	23	6
	Nsukka	30	263	20	183	94	8	94	12	20
	Oji River	36	344	5	37	44	7	68	6	0
	Udenu	50	442	9	70	38	12	120	15	16
	Udi	31	202	6	35	38	8	61	8	0
	Uzo Uwani	6	45	2	13	6	6	60	0	17
GOMBE		376	4818	142	1901	1185	676	6577	1028	2626
	AKKO	35	390	31	405	263	41	413	83	185
	BALANGA	31	489	2	17	15	61	593	93	194
	BILLIRI	35	464	11	118	92	62	627	93	248
	DUKKU	11	118	6	69	45	40	377	27	130
	FUNA KAYE	41	493	14	173	125	80	836	133	288
	GOMBE	110	1485	62	938	524	199	2044	427	838
	KALTUNGO	54	683	11	149	88	74	658	136	268
	KWAMI	9	83	3	19	20	37	345	15	156
	NAFADA	6	42	0			26	202	12	94
	SHONGOM	27	413	2	13	15	33	267	9	127

	YAMALTU DEBA	17	159	0			23	214	0	101
IMO		373	4893	56	822	830	118	2735	681	732
	ABOH MBAISE	6	64	3	41	33	0			
	AHIAZU	5	49	4	30	28	6	175	31	51
	EHIME MBANO	6	60	0			2	40	13	11
	EZINIHITTE MBAISE	4	48	0			0			
	IDEATO NORTH	11	126	0			0			
	IDEATO SOUTH	5	33	1	12	12	0			
	IHITTE UBOMA	4	26	0			0			
	IKEDURU	12	109	2	10	8	9	138	33	35
	ISIALA MBANO	8	94	0			3	80	21	25
	ISU	6	78	0			0			
	MBAITOLI	27	248	0			0			
	NGOR OKPALA	11	102	0			4	118	30	42
	NJABA	9	73	0			0			
	NKWERRE	10	82	0			0			
	NWANGELE	3	19	0			0			
	OBOWO	8	125	0			4	68	12	18

	OGUTA	13	144	4	38	36	5	100	18	25
	OHAJI/EGBEMA	26	274	1	22	25	0			
	OKIGWE	17	197	0			6	173	54	47
	ONUIMO	5	37	0			1	15	4	7
	ORLU	34	353	3	45	38	5	100	19	33
	ORSU	19	193	0			2	28	8	12
	ORU WEST	9	114	0			10	192	54	62
	ORU-EAST	17	151	0			0			
	OWERRI MUNICIPAL	53	1431	25	371	369	35	710	229	197
	OWERRI NORTH	23	296	1	8	10	4	188	22	34
	OWERRI WEST	22	366	12	245	274	22	614	137	136
KADUNA		1608	23479	629	8601	4812	854	9232	3340	3553
	BIRNIN GWARI	122	2094	73	608	408	68	789	350	291
	Chikun	212	3212	12	141	99	69	791	294	284
	Giwa	36	477	5	147	40	34	369	83	143
	Igabi	67	1021	10	138	74	54	561	186	237
	IKARA	43	625	74	1114	624	36	420	85	110
	Jaba	29	340	2	20	4	11	128	19	18
	Jema'a	45	591	5	139	71	5	57	8	30
	Kachia	26	273	5	66	33	13	119	36	65

Kaduna North	155	2310	117	1441	849	134	1353	602	580
Kaduna South	112	2045	25	315	195	82	1011	483	346
KAJURU	14	146	3	109	56	4	61	23	
Kargarko	51	964	11	141	87	32	395	237	123
KAURA	16	163	7	52	37	4	69	25	2
Kauru	7	78	0			1	19	3	3
KUBAU	57	599	28	434	200	19	191	58	71
KUDAN	36	477	0			26	202	20	118
Lere	94	1131	57	1046	552	58	603	164	263
Makarfi	82	1158	5	118	64	31	254	56	154
Sabon Gari	195	3158	95	1120	625	106	1188	413	523
SANGA	18	195	3	43	21	6	13	0	3
Soba	94	1085	44	736	360	19	247	95	24

	Zangon kataf	27	303	2	22	14	3	13	0	13
	Zaria	70	1034	46	651	405	39	379	104	160
KANO		1117	12143	2005	20144	14920	847	6859	613	1596
	AJINGI	7	71	30	242	211	3	20	0	15
	ALBASU	3	30	10	133	72	5	14	0	0
	BAGWAI	9	191	16	91	70	7	61	6	23
	BEBEJI	34	548	7	39	29	2	11	2	0
	BICHI	34	323	55	605	364	43	221	16	74
	BUNKURE	8	87	16	88	69	7	34	6	3
	DALA	54	357	208	1975	1465	49	386	11	65
	DANBATTA	44	366	68	719	381	20	109	0	45
	DAWAKIN KUDU	64	653	58	376	295	23	233	57	45
	DAWAKIN TOFA	5	53	8	36	33	13	188	24	37
	DOGUWA	26	328	8	65	37	4	25	0	5
	FAGGE	177	3214	88	1068	902	51	693	85	155
	GABASAWA	20	172	32	395	277	7	43	0	22
	GARKO	3	13	11	51	40	4	14	0	0
	GARUN MALAM	13	168	53	487	250	3	11	1	2
	GAYA	13	81	49	457	287	27	156	4	59
	GEZAWA	21	177	61	612	502	9	36	0	2
	GWALE	32	331	333	4049	2972	65	451	12	96
	GWARZO	46	365	12	104	79	28	214	8	62

KABO	12	86	29	264	212	8	48	0	0
KARAYE	4	39	11	64	53	54	344	10	75
KIBIYA	10	131	18	167	146	12	70	0	27
KIRU	22	286	13	119	99	16	128	14	42
KMC	38	318	133	1774	1390	55	507	53	131
KUMBOTSO	35	275	23	208	166	33	445	54	118
KUNCHI	2	16	6	40	32	5	32	0	0
KURA	12	83	57	309	228	19	117	0	57
MADOBI	14	124	16	159	133	15	71	0	30
MAKODA	24	191	16	101	73	14	105	22	34
MINJIBIR	9	70	23	231	193	8	45	0	0
NASSARAWA	143	1523	135	1532	1256	44	509	83	61
RANO	19	131	40	433	255	19	127	18	84
RIMIN GADO	4	31	40	343	281	5	18	0	0
ROGO	5	84	21	180	148	12	109	10	39
SHANONO	6	65	10	75	10	7	94	0	23
SUMAILA	12	84	26	296	221	11	65	5	33
TAKAI	7	43	9	43	34	2	17	0	8
TARAUNI	18	175	65	715	554	82	780	103	117
TOFA	25	216	63	600	380	0			
TUDUN WADA	14	133	34	224	174	11	48	7	4
UNGOGO	38	311	15	122	100	26	154	4	4
WARAWA	9	57	40	225	177	3	11	5	0
WUDIL	22	141	39	330	279	16	91	0	8

OYO		1270	11242	704	3981	1502	477	14741	2711	8252
	AFIJIO	5	19	5	27	11	1	88	23	45
	AKINYELE	78	595	36	211	180	31	779	133	340
	ATIBA	17	123	4	21	11	0			
	EGBEDA	122	1308	55	369	79	33	981	129	537
	IBADAN NORTH	200	2765	82	652	249	64	2243	460	1514
	IBADAN NORTH EAST	115	1028	93	532	171	76	2194	561	1012
	IBADAN NORTH WEST	59	419	34	174	46	35	580	110	358
	IBADAN SOUTH EAST	44	425	16	83	18	80	3591	602	2207
	IBADAN SOUTH WEST	97	1323	98	585	224	56	2084	318	1069
	IBARAPA CENTRAL	10	26	1	6	3	3	40	2	16
	IBARAPA EAST	24	123	11	34	20	3	59	10	44
	IBARAPA NORTH	29	100	3	9	6	0			
	IDO	42	273	29	137	32	13	114	25	38
	IREPO	0		0			1	14	3	4
	ISEYIN	29	188	0			0			
	ITESIWAJU	5	42	1	33	9	2	123	33	85
	LAGELU	47	290	30	148	71	8	119	29	51
	OGBOMOSO NORTH	64	331	47	180	67	13	413	59	254

	OGBOMOSO SOUTH	40	298	11	52	21	0			
	OGO OLUWA	10	45	0			1	27	5	10
	OLORUNSOGO	11	54	0			0			
	OLUYOLE	40	240	35	145	46	19	287	54	64
	ONA ARA	47	277	30	150	86	23	458	64	298
	ORIRE	5	9	0			0			
	OYO EAST	37	282	19	112	70	5	263	39	166
	OYO WEST	8	61	25	110	21	9	185	42	85
	SAKI EAST	3	103	1	17	0	0			
	SAKI WEST	41	341	34	173	63	1	98	15	60
	SURULERE	41	154	4	22	5	0			
TARABA		339	4417	97	749	293	128	1080	277	224
	ARDO KOLA	23	417	9	89	39	7	50	14	9
	BALI	20	260	5	22	15	4	34	0	10
	Donga	6	76	0			0			
	GASHAKA	13	135	8	64	17	4	15	0	0
	Gassol	56	700	9	63	24	9	94	20	16
	IBI	4	28	6	50	22	0			
	JALINGO	94	1328	18	170	64	45	432	141	91
	KARIM LAMIDO	15	184	4	22	12	1	5	0	2
	KURMI	5	92	0			0			
	LAU	12	133	3	20	7	13	70	0	30
	SARDAUNA	11	106	11	77	25	7	50	6	2

TAKUM	7	140		12	76	37		8	52		6	13
USSA	9	122		0				0				
WUKARI	17	213		6	42	20		10	146		46	19
YORRO	12	126		1	8			14	61		20	22
ZING	35	360		5	47	14		6	72		25	12

TABLE 18: CRUDE AND ADJUSTED ESTIMATES OF KPs IN 10 STATES IN NIGERIA

Microsoft Excel
97-2003 Worksheet