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FEDERAL MINISTRY OF HEALTH**

HIV/STI INTEGRATED BIOLOGICAL AND BEHAVIOURAL SURVEILLANCE SURVEY (IBBSS) 2007



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UNAIDS
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SOCIETY FOR FAMILY HEALTH



**HIV/STI
Integrated Biological and Behavioural
Surveillance Survey (IBBSS)
2007**

I. FOREWORD

The HIV/AIDS pandemic constitutes one of the greatest health challenges of our time. By the end of 2005, Nigeria was adjudged to have the third highest burden of HIV in the world after South Africa and India.

Since the first reported case of HIV and AIDS in Nigeria in 1986, the epidemic has continued to unleash a huge blow on the national with an estimated 2.86 million Nigerians infected in 2005. To respond to this epidemic, the Federal Government of Nigeria put in place various programmes aimed at controlling and mitigating its impact. One of the key strategies to inform these programmes is the continuous monitoring of the HIV epidemic through repeated sentinel surveys, including biennial sentinel surveys among pregnant women attending antenatal clinics in Nigeria.

In the African region, active HIV sero-surveillance using pregnant women attending antenatal clinics as the survey population is employed in line with the World Health Organization (WHO) and the Joint United Nations Programme on HIV and AIDS (UNAIDS) recommendation on HIV surveillance for generalized epidemic settings (where HIV prevalence is over 1% in the general population). HIV prevalence among the general population in Nigeria increased steadily from 1.8% in 1991 to 5.8% in 2001, before declining to 5% in 2003 and 4.4% in 2005.

Recognizing that the HIV epidemic affects some groups within society more than others, the Federal Ministry of Health began implementation of behavioral surveillance surveys (BSS) among groups at higher risk of HIV in 2000. The 2007 Integrated Biological and Behavioral Surveillance Survey (IBBSS) carries on this important task of monitoring potential sources and modes of new HIV transmission among groups at higher risk of HIV. For the first time this year, HIV and Syphilis prevalence were included in the survey, and two new groups, MSM and IDU, were added. The results provide evidence that certain sub-population groups in Nigeria are more affected by HIV/AIDS than others, and that behavioural linkages exist between these groups and the general population that have the potential to facilitate further HIV transmission.

This technical report is recommended for perusal and further analysis, as well as for developing relevant strategies based on findings therein.



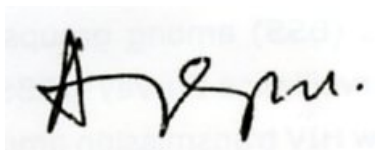
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II. ACKNOWLEDGEMENTS

The Federal Ministry of Health acknowledges the efforts of all that contributed to the successful conduct of the 2007 Integrated Bio-Behavioural Surveillance Survey (IBBSS) among selected high-risk groups in Nigeria. Our special appreciation goes to the members of the survey technical committee whose technical oversight functions guided the survey. The contributions of the six participating State Ministries of Health and the National Population Commission (NPC) are highly appreciated. Also worthy of commendation are the contributions of the State HIV/AIDS Programme Coordinators (SAPCs) and the NPC staff in the states where the survey was conducted, as well as the roles played by the survey team members including the supervisors, interviewers and counsellor-testers in the generation of high quality data. Justice would not have been done to this section of the report if we fail to recognize the technical contribution and the facilitatory roles of **Dr. Mike Merrigan**, Director of M&E, FHI and **Dr. Bolatito Aiyenigba**, consultant to the IBBSS. Finally, we appreciate the cooperation of members of the high-risk groups included in the survey and the priceless contributions of the representatives of the high-risk groups studied, one of whom passed on during the course of this survey.

It is hoped that the findings in this report will assist in advocacy and programme planning towards appropriate and improved interventions among these groups.



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III. TABLE OF CONTENTS

I. FOREWORD	1
II. ACKNOWLEDGEMENTS	2
III. TABLE OF CONTENTS	3
IV. LIST OF FIGURES AND TABLES	4
V. ACRONYMS/ABBREVIATIONS	6
VI. EXECUTIVE SUMMARY	7
1. INTRODUCTION	11
2. GOAL AND OBJECTIVES	14
3. METHODS	15
3.1. Study sites and target population	15
3.2. Sample sizes	16
3.3. Sampling procedures	16
3.4. Refusal to participate	19
3.5. Key indicators in the IBBSS	19
3.6. Pilot Study	20
3.7. Training of personnel	20
3.8. Data collection	21
3.9. Laboratory procedure	22
3.10. Data management and analysis	23
3.11. Ethical considerations	24
4. RESULTS	26
4.1. Characteristics of target groups	26
4.2. HIV Prevalence	30
4.3. Syphilis prevalence	32
4.4. HIV/STI knowledge and risk perception	33
4.5. HIV/STI risk behaviour and self-reported STI symptoms	39
4.6. Attitudes towards PLWHA	58
4.7. Exposure to HIV interventions	60
5. SELECTED BEHAVIOURAL TRENDS	68
6. STUDY LIMITATIONS	72
7. DISCUSSION	73
APPENDIX	76
Appendix 1: List of contributors	77
Appendix 2: Descriptive analysis of behavioural data	79

IV. LIST OF FIGURES AND TABLES

Figure 1. 2007 IBBSS HIV prevalence by risk group	7
Figure 2. HIV prevalence in Nigeria, 1991 - 2005	11
Figure 3. States participating in the 2007 IBBSS	15
Table 1. Sample size by sub-population and state	16
Table 2. Sampling procedures by sub-population and state	17
Table 3: Percent distribution of all respondents by demographic characteristics and risk groups, Nigeria IBBSS 2007	27
Figure 4. Percent of respondents away from home for at least 1 continuous month in the past year	28
Figure 5. Frequency of alcohol consumption, IBBSS groups, 2007	29
Figure 6. Drug use last four weeks among different groups, IBBSS 2007	30
Figure 7. HIV prevalence, brothel- and non-brothel-based FSW	31
Figure 8. HIV prevalence among MSM and IDU	31
Figure 9. HIV prevalence among TW, police and armed forces	32
Figure 10. Police HIV prevalence by gender	32
Figure 11. Syphilis prevalence by group, IBBSS 2007	33
Figure 12. Knowledge of selected HIV prevention methods by group	33
Figure 13. Percentage of FSW who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission	34
Figure 14. Percentage of MSM and IDU who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission	35
Figure 15. Percentage of armed forces, police and TW who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission	36
Figure 16. Percentage of FSW perceiving themselves at risk of HIV/AIDS	37
Figure 17. Percentage of MSM and IDU perceiving themselves at risk of HIV/AIDS	38
Figure 18. Percentage of armed forces, police and TW perceiving themselves at risk of HIV/AIDS	39
Figure 19. Duration of sex work, non-brothel-based and brothel-based FSW	39
Figure 20. Mean number of clients last week of sex work	40
Figure 21. Percentage of FSW with non-client sex partners	41
Figure 22. Brothel-based FSW – types of sexual partners in the last 12 months	41
Figure 23. Non-brothel-based FSW – types of sexual partners in the last 12 months	42
Figure 24. Percent of FSW having sex with more than one boyfriend in past 12 months	42
Figure 25. Brothel-based FSW – condom use at last sex by partner type	43
Figure 26. Non-brothel-based FSW – condom use at last sex by partner type	43
Figure 27. Brothel-based FSW consistent condom use last 30 days by partner type	44
Figure 28. Non-brothel-based FSW consistent condom use last 30 days by partner type	44
Figure 29. Self-reported STI symptoms last 12 months, brothel-based FSW	45
Figure 30. Self-reported STI symptoms last 12 months, non-brothel-based FSW	46
Figure 31. MSM – sex with different types of partners last six months (12 months for FSW)	46

Figure 32. MSM – sex with different types of female partners last 12 months	47
Figure 33. MSM condom use last sex by type of partner	47
Figure 34. MSM self-reported STI symptoms	48
Figure 35. Sex with different types of partners in last 12 months among sexually active IDU	48
Figure 36. Female IDU selling sex, male IDU reporting buying and selling sex with other men	49
Figure 37. IDU condom use last sex by type of partner	50
Figure 38. IDU – self reported STI symptoms last 12 months	50
Figure 39. IDU – drugs injected last 4 weeks	51
Figure 40. Injecting drug use behaviours	51
Figure 41. Different types of sexual partnerships last 12 months: armed forces	52
Figure 42. Different types of sexual partnerships last 12 months: police	53
Figure 43. Different types of sexual partnerships last 12 months: TW	53
Figure 44. Predominantly male groups sex with more than one partner (any kind) in past 12 months.	54
Figure 45. Condom use at last sex by type of partner – armed forces	54
Figure 46. Condom use at last sex by type of partner – police	55
Figure 47. Condom use last sex by type of partner – TW	55
Figure 48. Armed forces – self reported STI symptoms last 12 months	56
Figure 49. Police – self reported STI symptoms last 12 months	56
Figure 50. TW – self reported STI symptoms last 12 months	57
Table 3. Attitudes towards PLWHA: FSW	58
Table 4. Attitudes towards PLWHA: MSM and IDU	59
Table 5. Attitudes towards PLWHA: Predominantly male occupational groups	59
Figure 51. Percentage of each group receiving any HIV/AIDS information or education in past 12 months	60
Figure 52. Percent of all groups ever receiving HIV testing and results	61
Figure 53. Percent of HIV positive FSW who know their status	62
Figure 54. Exposure to HIV/AIDS outreach or peer education services: Brothel-based FSW	63
Figure 55. Exposure to HIV/AIDS outreach or peer education services: Non-brothel-based FSW	63
Figure 56. Exposure to HIV/AIDS outreach or peer education services: MSM	64
Figure 57. Exposure to HIV/AIDS outreach or peer education services: IDU	64
Figure 58. Exposure to HIV/AIDS outreach or peer education services: Armed forces	65
Figure 59. Exposure to HIV/AIDS outreach or peer education services: Police	66
Figure 60. Exposure to HIV/AIDS outreach or peer education services: TW	66
Figure 61. Lagos FSW condom use and self-reported STI trends 2000 - 2007	68
Figure 62. Lagos FSW knowledge and HIV testing trends 2000 - 2007	69
Figure 63. Anambra TW behavioural trends 2000 - 2007	70
Figure 64. Anambra TW knowledge and HIV testing trends 2000 - 2007	70

V. ACRONYMS/ABBREVIATIONS

AFPAC	Armed Forces Program on AIDS Control
AIDS	Acquired immunodeficiency syndrome
ANC	Ante-natal care
BSS	Behavioural surveillance survey
CDC	US Centers for Disease Control and Prevention
FCT	Federal Capital Territory
FHI	Family Health International
FMoH	Federal Ministry of Health
FSW	Female sex worker(s)
HCT	HIV Counselling and testing
HIV	Human immunodeficiency virus
IBBSS	Integrated Biological and Behavioural Surveillance Survey
IDU	Injecting drug user(s)
IEC	Information, education and communication
IRB	Institutional Review Board
MSM	Men who have sex with men
NACA	National Agency for the Control of AIDS
NARHS	National HIV/AIDS and Reproductive Health Survey
NASCP	National AIDS/STI Control Program
NGO	Non-governmental organization
NIMR	Nigerian Institute for Medical Research
NPC	National Population Commission
PACC	Police AIDS Control Program
PHSC	Protection of Human Subjects Committee
PLWHA	People living with HIV/AIDS
PPS	Probability proportionate to size
RDS	Respondent-driven sampling
SACA	State Action Committee on AIDS
SAPC	State AIDS Control Program Coordinator
SFH	Society for Family Health
SRS	Simple random sampling
STD	Sexually transmitted disease
STI	Sexually transmitted infection
TC	Technical Committee
TLS	Time-location sampling
TW	Transport worker(s)
UNAIDS	Joint United Nations Program on HIV/AIDS
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization

III. EXECUTIVE SUMMARY

This report highlights the findings of an integrated biological and behavioural surveillance survey (IBBSS) in Nigeria among groups whose behaviours or occupations often place them at higher risk of contracting sexually transmitted infections (STI), including HIV. In the 2007 IBBSS these groups included female sex workers (FSW), both brothel- and non-brothel-based, men who have sex with men (MSM), injecting drug users (IDU), transport workers (TW) and men and women in the uniformed services (armed forces and the police). The study took place in five states (Anambra, Cross River, Edo, Kano, and Lagos) and the Federal Capital Territory (FCT). The main objectives of the study were to assess the knowledge and beliefs of high-risk groups about STI and HIV, determine the prevalence of HIV infection and syphilis among these groups and obtain baseline data that will permit comparisons of risk behaviours, HIV infection and syphilis over time. In line with international best practices, different sampling methods were used for different groups, based on factors including the ability to map or obtain lists of group members, peak times and locations where they can be found and interviewed, and other visibility and accessibility considerations. A sample of 11,175 was achieved, which yielded reliable state-level estimates for most variables of interest.

Figure 1 below shows the HIV prevalence of all groups included in the survey. The higher HIV prevalence among certain groups in the study compared to Nigeria's 2005 general population estimate indicates that while Nigeria's HIV epidemic may be classified as 'generalized', the unequal distribution of HIV among different sub-population groups means that the Nigerian epidemic shares characteristics with the 'concentrated' epidemics of other countries.

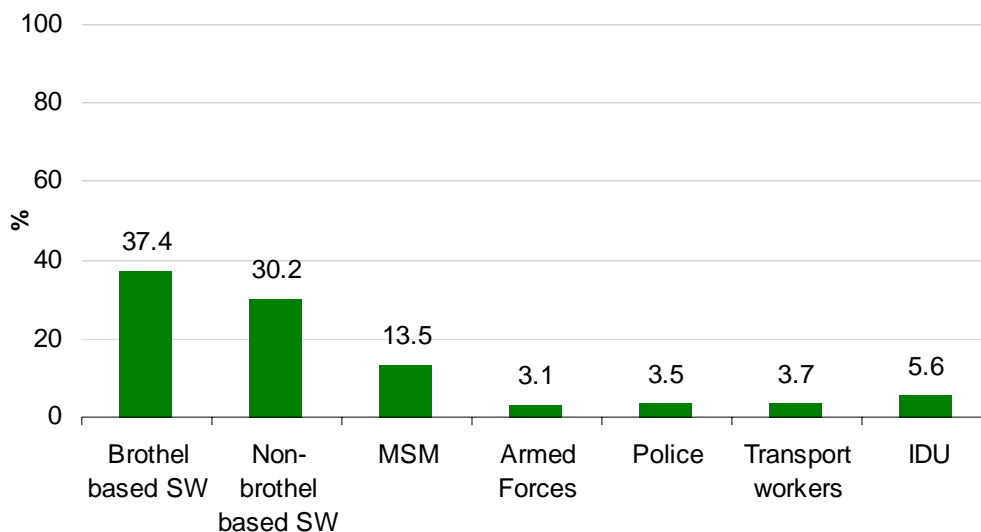


Figure 1. 2007 IBBSS HIV prevalence by risk group

Female Sex Workers

With over 30% of all FSW infected with HIV, the 2007 IBBSS has identified FSW as the sub-population most affected by HIV/AIDS in Nigeria. At state-level, the worst affected FSW were those working in FCT and Kano, where FSW on average had been selling sex for longer than in other states and prevalence levels approached 50% in three of the four groups surveyed. Lagos non-brothel-based FSW had considerably lower HIV prevalence levels, possibly explained by their high condom use with clients and casual partners, lower average number of clients in a week, and fewer reports of STI symptoms. Brothel-based FSW had up to 50 clients per week and had been practicing sex work for an average of four years. Alcohol abuse was rife within the sex worker community with one quarter or more FSW consuming alcohol on a daily basis, more so than any other group surveyed. Drug use, with the exception of marijuana, was reportedly at a very low level and unlikely to contribute considerably to HIV transmission among this group. Most FSW did not perceive themselves as being at risk of HIV and the proportions of FSW receiving HIV counselling and testing, and education from peer or outreach workers was quite low, particularly among the FSW of Lagos. Syphilis prevalence was uniformly low, less than 2% among both brothel- and non-brothel-based FSW. However about 20% of FSW reported experiencing an unusual genital discharge in the past 12 months. Condom use in commercial partnerships was very high, though lower in Kano among both types of FSW. FSW also reported higher levels of condom use in commercial sex than their clients, suggesting possible over-reporting of condom use by FSW. Condom use with boyfriends and casual partners is considerably lower, and FSW have enough of these types of sexual partnerships to identify this as a potentially significant bridge for HIV to move from these networks to the general population.

Men who have sex with men (MSM)

After FSW, MSM recorded the next highest HIV prevalence with 13.5%. On average they were much younger than other groups with around three quarters under the age of 25. There was considerable variation between HIV prevalence in the three states surveyed, with HIV prevalence highest among MSM in Lagos (25%) followed by Kano (10%), and Cross River (3%). The MSM surveyed in Cross River were a younger and slightly better educated group, particularly compared to those in Kano. Most MSM sexual partnerships with other men in the past six months were non-paying, though up to 50% in each state also had sex with women and around one third had also sold sex to other men. A smaller proportion had purchased sex from other men, and less than 10% had sex with FSW. Knowledge of HIV prevention was also high among MSM, however most did not feel personally at risk of HIV. Although syphilis was non-existent in the MSM surveyed, around five percent reported experiencing STI symptoms in the past year. Consistent condom use in different sexual partnerships was considerably lower among MSM than FSW, never exceeding 50%, even with commercial partners. Exposure to interventions among MSM was reportedly very low, with only around one quarter receiving safe sex education from peer or outreach workers. Given the higher biological risk of HIV transmission associated with unprotected anal sex, there is considerable risk of worsening HIV prevalence among this group.

Injecting drug users (IDU)

The IDU group had the third highest HIV prevalence (5.6%) after FSW and MSM among groups surveyed. There was considerable variation between the three states, with 10% of IDU in Kano testing HIV positive

compared to around three percent in Cross River and Lagos. There was also considerable difference between the Cross River IDU and those of Kano and Lagos. Nearly all IDU in Cross River were sexually active compared to about 60% in Kano and Lagos. They were also younger, injected drugs much less frequently and were much more sexually active with commercial and non-commercial partners than IDU in other cities. However of highest concern among the IDU group were those in Kano, most of whom were injecting drugs more than once a day, and slightly less than 40% used sterilized injecting equipment consistently during the month prior to the survey, compared to around 80% in Cross River and Lagos. It is also worth noting that although around 20% of IDU reported sex with commercial FSW, condom use during these encounters was considerably lower than that reported by FSW themselves when asked about paying clients. While syphilis prevalence was similarly low, over five percent of IDU reported symptoms consistent with STI in the last 12 months. In general very low proportions of IDU had received HIV counselling and testing (HCT), or had received HIV interpersonal communication or services in the past 12 months. Only around 60% of IDU had received HIV/STI education from any source in the past 12 months.

Predominantly Male Occupational Groups – Armed Forces, Police, Transport Workers

The lowest HIV prevalence in this survey was found in the three predominantly male occupational groups, with all three groups in the range of 3.1 – 3.7%. This should be interpreted with cautious optimism in light of the 2005 Nigerian ANC survey that yielded an HIV prevalence estimate of 4.4%. Once again the utility of obtaining state-level estimates is quite clear, as certain groups at state-level returned results considerably higher than 4.4%, including police in FCT (7.3%), TW in FCT (7.2%), and the armed forces in Anambra (7.6%). It is not easy to link these higher prevalence figures in FCT to the high HIV prevalence among FSW, especially because the proportion of male occupational groups reporting sex with FSW remained under five percent in nearly all cases, with the exception of 9.2% of armed forces personnel in Lagos and 8.7% of TW in Cross River. Among the minority that patronized FSW, consistent condom use was generally high, though low numbers of respondents made these comparisons uncertain at state-level. With the police sample composed of 25% females, a sub analysis was conducted on HIV prevalence among female and male police. In all cases, HIV prevalence among female police was higher than among males, particularly in FCT where 12.7% of female police were HIV positive as against 5.6% of males.

Multiple partnerships are quite common among the armed forces, police and TW. 37.3% of armed forces, 29.4% of police and 37.9% of TW reported sex with more than one partner in the previous 12 months. This varied considerably at state-level. In Kano and Lagos, around 20% of TW reported sex with four or more partners in the past 12 months. Four or more sexual partners in the past 12 months were also reported by 15.5% of the armed forces in Lagos and 11% of police in Anambra. After regular partners, girlfriends were the next most common type of sexual partner reported. Condom use at last sex with girlfriends was higher among the armed forces (64.7%) than the police and TW (45.4% and 45% respectively). This fact combined with higher reported condom use with commercial partners likely contributed to the armed forces returning the lowest HIV prevalence among the three groups.

Although syphilis levels were very low across the board (0.8% overall), TW returned the highest syphilis prevalence in the 2007 IBBSS among all groups at 1.7%. With the exception of Kano, police returned higher

levels of self-reported STI symptoms than the armed forces, exceeding the reports of TW also, except for Cross River where around 10% of TW reported experiencing an unusual genital discharge in the past 12 months. Overall, less than 40% of armed forces personnel, police and TW considered themselves at risk of HIV. With the exception of FCT and Lagos, over half of the armed forces personnel surveyed received safe sex information and/or condoms in the past 12 months. This was considerably lower among the police and TW. A similar relationship was seen with utilization of HIV counselling and testing services, at 68.9% among the armed forces, followed by police at 35.8%, and lastly TW at around 22%.

Although limited trend data was available, results from long distance TW in Anambra and FSW in Lagos surveyed in 2000, 2005 and 2007 are encouraging. FSW have maintained high levels of condom use in commercial sex over this period and self-reported STI symptoms are stable. Among TW in Anambra, condom use in commercial sex has improved significantly, while over the same time period fewer TW reported sex with FSW and STI symptoms. Improvements were also evident in HIV/AIDS knowledge and access to HCT among both groups, though most improvements occurred between 2000 and 2005 rounds. There was little change in the majority of variables examined for trends between 2005 and 2007. Overall, there is considerable room for expansion of access to HIV information and services among these and other groups included in the IBBSS, particularly based on an examination of state-level data.

1. INTRODUCTION

HIV/AIDS in Nigeria

HIV/AIDS, one of the most serious health problems throughout the world led to an estimated 2.1 million deaths in 2007, while 33.2 million adults and 2.5 million children continue to live with the virus¹. Sub Saharan Africa is the worst affected region accounting for an estimated 1.6 million deaths in 2007, and 22.5 million individuals currently living with HIV/AIDS.

In Nigeria with a population of approximately 140 million people, the adult HIV prevalence increased from 1.8%

in 1991 to 5.8% in 2001, before dropping to 5.0% in 2003 and 4.4% in 2005 (figure 2). These prevalence rates translate to an estimated 2.86 million individuals living with HIV in Nigeria in 2005². Over the last two decades, the HIV epidemic in Nigeria has gone from affecting only a few populations with higher-risk behaviours ('concentrated' epidemic), to a 'generalized' epidemic in all states. HIV has added to the burden of the already over-stretched health care infrastructure in Nigeria as well as increased the number of orphans and other vulnerable children, placing additional strain on family and community support structures.

Rationale

The HIV pandemic has received unprecedented support from donor agencies and it has become imperative to monitor and evaluate the various interventions aimed at controlling the spread of HIV infection. WHO/UNAIDS advocate for the use of second generation surveillance systems to monitor changes in the epidemic in each country. Second generation surveillance systems include HIV and STI biological and risk behaviour surveillance, using resulting data to warn of or explain changes in the levels of infection. WHO classifies HIV epidemics into three broad categories. Appropriate surveillance systems based on the epidemic type are as follows³:

- In *generalized* epidemics where HIV is over one percent in the general population, surveillance systems concentrate on monitoring HIV infection and risk behaviour in the general population.
- In *concentrated* epidemics where HIV is over five percent in any sub-population at higher risk of infection (such as drug injectors, FSW, men who have sex with men), surveillance systems monitor infection in those groups and pay particular attention to behavioural links between

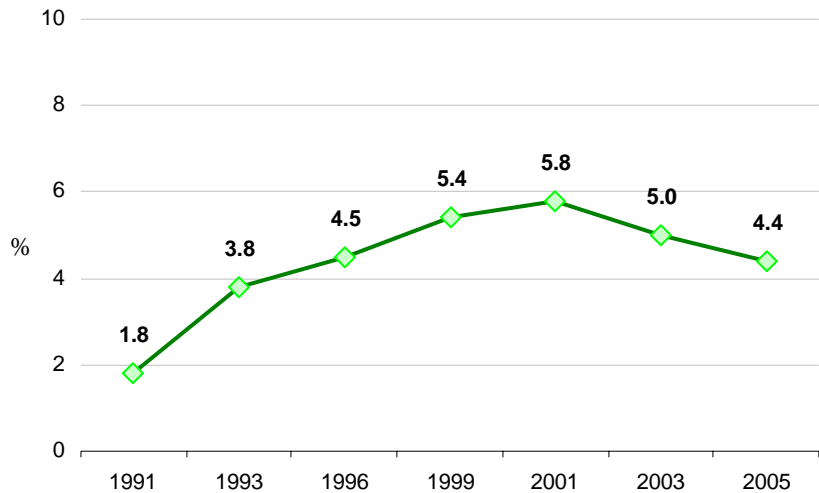


Figure 2. HIV Prevalence in Nigeria, 1991 - 2005

¹ UNAIDS 2007

² FMOH 2005

³ WHO 2008

them and the general population. They might ask, for example, whether male FSW have wives or girlfriends, or whether drug users finance their habit through sex work. In these situations, surveillance systems also monitor the general population for high-risk sexual behaviour that might lead to rapid spread of the virus if it were introduced.

- In *low-level* epidemics where relatively little HIV is measured in any group, surveillance systems focus largely on high-risk behaviours, looking for changes in behaviour which may lead to a burst of infection. Such changes have recently been recorded in several Eastern European countries, for example, where a surge in injecting drug use was followed by very rapid growth in HIV infection.

To date, Nigeria's HIV sero-surveys have adhered to the WHO guidelines for generalized epidemics, with seven rounds of repeated ANC sentinel surveillance, while data on risk behaviours have been available through the general population-based National HIV/AIDS and Reproductive Health Surveys (NARHS). Even in generalized epidemic settings, some population sub-groups contribute disproportionately to STI and HIV epidemics. Recognizing both the limitations of the ANC sentinel surveillance system and the importance of behavioural data in acquiring a better understanding of the HIV epidemic in Nigeria, the National AIDS/STI Control Program (NASCP) initiated national behavioural surveillance surveys (BSS) in 2000, with subsequent rounds conducted in 2003 and 2005. Past BSS rounds have been targeted at groups perceived at higher risk of HIV infection, including: FSW (both brothel- and non-brothel-based), transport workers (TW), armed forces, police and youth.

Considerable gaps remain in the quantity and quality of information available in Nigeria on HIV/AIDS to help understand the underlying dynamics of the HIV epidemic and its likely future course. In particular, data that provide insights into the following questions are urgently needed:

- *Where are new HIV infections coming from?* In which populations are new infections occurring and in what proportion? Are there geographic patterns that should influence the response? What are the determinants of new HIV infections in the various at-risk populations?
- *How well is the current response addressing new HIV infections?* Is the coverage adequate? Has the response had an impact over time, both in terms of behaviour change and HIV/STI biological markers?
- *Where is the HIV/AIDS epidemic likely to go?* How has the epidemic changed over time? Does the response need to be adapted to fit evolving patterns of risk and incidence? What are the relative benefits of alternative prevention and care resource allocations in terms of averted infections and costs? What are the long-term impacts of the epidemic?

This study was planned and implemented to fill a gap in the current understanding of the HIV epidemic in Nigeria, by collecting biological data from five groups previously assessed only for behaviours, by adding two additional risk groups (MSM and IDU), and by generating reliable state-level estimates. As such, this is a baseline integrated biological and behavioural survey among these groups in Nigeria. These developments will help assess if 'generalized' is an appropriate description of HIV transmission patterns, and whether monitoring

HIV prevalence and risk behaviours among sub-population groups in different states will make an important contribution to the future of the Nigerian disease surveillance system.

2. GOAL AND OBJECTIVES

Goal

The main goal of this study was to obtain serological and behavioural information on population groups considered at higher risk of HIV with a view to supporting HIV prevention, treatment, care and support programs among them. Over time, with repeated surveys, the surveillance system will yield data to track changes in HIV and syphilis prevalence levels and in the behavioural practices that make people susceptible to HIV infection.

Objectives

1. Generate behavioural data to:

- Assess knowledge and beliefs of high-risk groups about STI and HIV/AIDS; and
- Serve as the baseline against which future levels of risk behaviours among the high risk groups are compared (with a view to determining changes over time).

2. Generate biological data to:

- Determine the prevalence of HIV infection and syphilis among the high risk groups; and
- Serve as the baseline against which future levels of HIV infection and syphilis among the high risk groups are compared (with a view to determining changes over time).

3. Design and implement a surveillance system that:

- Obtains data in a standardized format to permit comparison with other behavioural surveillance studies carried out in Nigeria and other countries; and
- Provides information to guide advocacy and future program planning.

3. METHODS

3.1. Study Sites and Target Populations

The IBBSS was conducted among seven sub-populations at risk of HIV in six selected states of Nigeria, namely FSW (both brothel- and non-brothel-based), men who have sex with men (MSM), injecting drug users (IDU), members of the armed forces, police, and transport workers (TW).

Female sex workers (FSW)

For the purposes of this survey, a FSW, both brothel and non-brothel-based was defined as any female 15 years and above who receives money or other valuable gifts/incentives in exchange for sexual favours in areas such as brothels, bars, restaurants, night clubs, hotels, or on the street. Because sex work involves multiple partner exchange and FSW often have limited power in negotiating safe sex, FSW are considered to be at a higher risk of contracting and transmitting HIV.

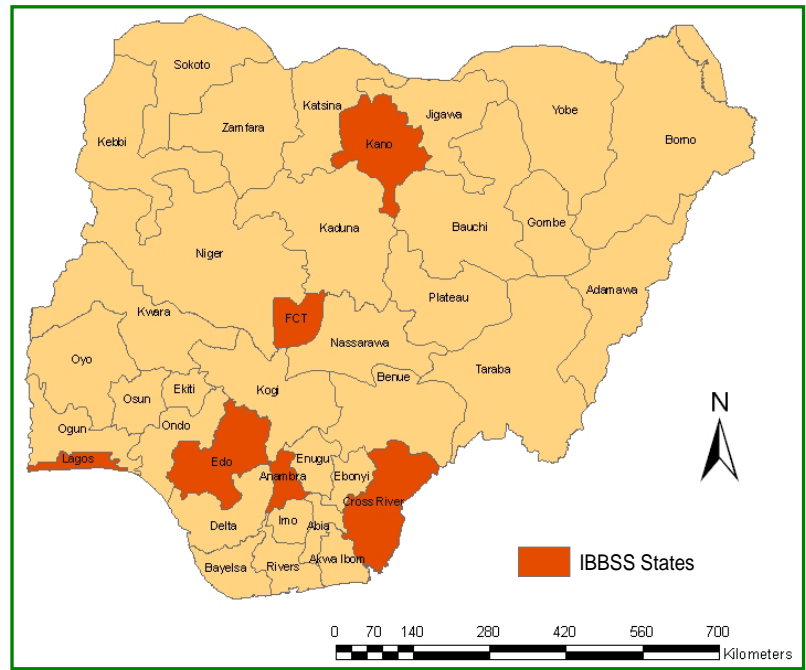


Figure 3. States participating in the 2007 IBBSS

Men who have sex with men (MSM)

For the purposes of this survey, an MSM is defined as any male 18 years and above who has engaged in sexual activities with other men in the six months preceding the survey. This target group is considered to be at a higher risk of contracting and transmitting HIV because of the elevated biological risk of HIV transmission through unprotected anal sex, multiple partnerships, and the potential for riskier sexual behaviour due to the stigma and discrimination attached to male-to-male sex. Little is known about MSM in Nigeria, so only three states were chosen for inclusion of MSM in the survey, namely: Lagos, Kano and Cross River.

Injecting drug users (IDU)

For the purpose of this survey, an IDU is defined as any person 18 years and above who has injected drugs recreationally at least once in the past month. This group is considered at higher risk of contracting and spreading HIV primarily through the sharing of needles and syringes, as well as practicing unsafe sex. Little is known about IDU in Nigeria, so only three states were chosen for inclusion of IDU in the survey, namely: Lagos, Kano and Cross River.

Transport Workers (TW), Armed Forces (Army, Navy & Air force) and the Police

These groups are considered to be at higher risk of contracting and transmitting HIV because of their job-related mobility which in many countries leads to increased patronage of FSW and casual sex partners. Police and the armed forces were eligible for inclusion in the study if they were based at barracks/stations in and around each state's urban centre, regardless of rank. With respect to TW, four categories of workers were identified: (i) long distance drivers/assistants of heavy duty vehicles (e.g. trailers) that spend more than one day on the road before reaching their final destinations; (ii) inter-state commercial bus and taxi drivers who travel relatively long and medium distances, the majority of whom sleep in the destination towns and not along the routes; (iii) intra-state commercial bus and taxi drivers who operate within a city or between relatively short distances and return to their usual place of residence at the end of each day; and (iv) commercial motorcyclists who transport persons from one place to another within a city for a fee. Of the total sample obtained, 37.4% were long distance transport workers (categories i and ii), while 61.7% were intra-state transport workers and motorcyclists (categories iii and iv).

3.2. Sample Size

The sample size for each target population was calculated to detect differences of 15% in key behaviours such as consistency of condom use and commercial sex, and to provide reliable estimates for each variable at state-level. The table below shows the final sample sizes achieved in this study for each group and state.

Table 1. Sample size by sub-population and state⁴

	BBSW	NBBSW	MSM	IDU	ARMED FORCES	POLICE	TW
Anambra	264	294	*	*	198	307	345
Cross River	111	210	293	198	292	297	376
Edo	286	304	*	*	499	541	387
FCT	312	380	*	*	275	308	385
Kano	284	257	293	269	282	287	354
Lagos	283	289	293	223	292	498	386
	1,539	1,735	879	690	1,861	2,238	2,233

3.3. Sampling Procedures

In order to reach a representative sample of all groups involved in the 2007 IBBSS, a number of different sampling techniques were used depending on the group in question, including simple random sampling (SRS), cluster sampling (probability proportionate to size (PPS) for fixed populations), time-location sampling (TLS)⁵

⁴ * IDU and MSM included in 3 states only

⁵ TLS is a form of cluster sampling that contains both time and location dimensions. TLS provides the opportunity to reach members of a target population who access certain locations at any point in time. The process starts by creating time * location PSU (PSU that have both a time and a location dimensions) from which a random sample is selected. At the second stage all or a sub-sample of randomly selected population members who appear at the site during a designated time interval of fixed length, for example 4 hours, are interviewed. To the extent that all members of a target population access the locations at some point in time, TLS is a probability sampling method because: (i) all population members have a non-zero chance of selection as long as the TLS frame is complete; and (ii) the selection probabilities can be calculated by taking the time dimension as well as the space dimension into account.

and respondent-driven sampling (RDS)⁶. For MSM and IDU, the RDS method was used, while a TLS technique was used to select non-brothel-based FSW and TW. The brothel-based FSW, armed forces, and police were selected using a two-stage cluster sampling technique. The take all (TA) sampling method was used when the desired sample size was not attainable based on the results of target population mapping.

Table 2. Sampling procedures by sub-population and state

	BBSW	NBBSW	MSM	IDU	FORCES	POLICE	TW
Anambra	PPS	TA			TA	SRS	TLS
Cross River	TA	TA	RDS	RDS	SRS	SRS	TLS
Edo	PPS	TA			SRS	PPS	TLS
FCT	PPS	TA			SRS	SRS	TLS
Kano	PPS	TLS	RDS	RDS	SRS	SRS	TLS
Lagos	PPS	TLS	RDS	RDS	SRS	PPS	TLS

The real challenges of the study pertained to locating and convincing eligible participants to participate given the often clandestine and socially unacceptable behaviours of some of the target groups (FSW, MSM, IDU), as well as the nature of the biomarkers being tested – STI, including HIV. These challenges were addressed by:

- Involving the target populations in the design and recruitment of study participants;
- Working with community leaders, authorities and NGOs to ensure that everyone was informed about the study and that data release is handled in such a manner as to minimize risk and stigma;
- Ensuring strict confidentiality of survey participants through non-recording of names;
- Adequate training of staff in study procedures, protection of participants and monitoring procedures; and
- Supervision and quality assurance (QA) for laboratories.

Prior to the commencement of the survey, members of the communities, NGOs working with the target populations, NASCP Officials, State AIDS Program Coordinators (SAPC) and key informants (for each target group) assisted in the identification of various places where the target groups can be found. A list of sites where the population groups at higher risk of HIV infection were located and how and when they can be reached for information and services, and the essential distinguishing characteristics of these sites was prepared.

⁶ RDS is a method that combines “snowball sampling” with a mathematical model that weights the sample to compensate for the fact that the sample was collected in a non-random way. Characterized by long referral chains (to ensure that all members of the target population can be reached) and a statistical theory of the sampling process which controls for bias including the effects of choice of seeds and differences in network size, RDS overcomes the shortcomings of institutional sampling (coverage) and snowball type methods (statistical validity). By making chain-referral into a probability sampling method and consequently resolving the dilemma of a choice between coverage and statistical validity, RDS has become the most appropriate method for reaching the hard-to-reach population groups. The RDS process starts with the recruitment of the initial seeds each of whom recruits a maximum of two to three members from their population group.

Armed Forces and Police

The armed forces respondents were selected using a two-stage cluster sampling procedure from the armed forces units in urban centres. Clusters were selected using PPS with a fixed number of armed forces participants recruited from each cluster. Where lists of personnel at each site could be obtained, simple random sampling was used. The police respondents were stratified into males and females and 25% of the sample was female. For the armed forces, only males were sampled.

FSW (Brothel-based)

The brothel-based FSW were selected using a two-stage cluster sampling procedure (PPS). Working with the field officers of the Society for Family Health (SFH), an organization that has done considerable work among the FSW, and the State AIDS Control Program Coordinators (SAPC), the list of brothels where FSW work based on the 2005 BSS was first updated. For each brothel listed, information was collected on the approximate number of FSW present to permit an estimate of cumulative measure of size. The information on measure of size was used to allocate the sample by PPS. Clusters were selected using PPS with a fixed number of FSW recruited from each cluster. The cluster size of the Brothel-based FSW was six and 48 clusters were selected in each state where available. Individual participants were selected from the total number of FSW in the site. When the estimated number of brothel-based FSW in the state was less than the sample size of 288, a “take-all” approach was used in which all of the FSW in the state’s urban centre were recruited for the survey.

FSW (Non-brothel-based)

The non-brothel-based FSW were recruited using the TLS approach. The TLS is a form of cluster sampling that contains both time and location dimensions. Working through relevant NGOs and SAPC in different cities/towns, a list of streets, bars, night clubs and hotels where non-brothel based FSW usually congregate was generated (including information on the time of the day when they congregate there and the estimated number at each four-hour time segment). TLS clusters were selected using PPS with a fixed number of FSW recruited from each cluster. The cluster size of the non-brothel-based FSW was six and 48 clusters were selected in each state in order to reach the sample size of 288. When the estimated number of non-brothel-based FSW in the state was less than the sample size of 288, a “take-all” approach was used where all of the FSW in the state’s urban centre were recruited for the survey.

MSM and IDU

The respondent-driven sampling (RDS) method was adopted for the selection of MSM and IDU, because it offers several advantages for hard to reach populations, about whom little is known. RDS not only serves to achieve the desired sample size, it permits the identification of networks and characteristics within those networks. The RDS methodology starts with the recruitment of ‘seeds’ from the members of the target group, who then recruit other members of their personal networks who are also either MSM or IDU.

For the MSM component, Alliance Rights Nigeria (AR), a non-governmental organization that has worked to address HIV/AIDS/STI issues among MSM, participated in the technical committee and collaborated with the study team to identify the seeds. Ten seeds were recruited initially and the number of seeds was increased

when it was discovered that some of the initial seeds were not recruiting efficiently. These seeds were the first MSM to be contacted and the objectives of the survey and expectations were explained to them. Once a seed completed all parts of the study (behavioural and biological), he was given three vouchers to recruit his peers into the study. Vouchers were numbered to include the identification number (serial number) of the original recruiter. The number of vouchers given to each recruiter was limited to three. This was to ensure that a broad array of subjects had an opportunity to recruit, to prevent the emergence of semi-professional recruiters, and to preclude turf battles over recruitment rights. A total 879 MSM were recruited for this study (293 in each of Cross River, Kano and Lagos).

For the IDU component, the services of experienced national researchers in this field helped with the recruitment of seeds and coordinating the survey activities. A total of 670 IDU were recruited for this study (198, 269 and 223 in Cross River, Kano and Lagos respectively).

Transport Workers (TW)

The TLS procedure was also adopted among the male TW. All types of transport workers were included in the sampling frame. TLS clusters were chosen using PPS, so the proportion of each different transport worker sub-type in the survey reflected the actual proportion in the TW population. In collaboration with the TW union and NGOs that have worked with TW, a list of major parks for each category of TW was compiled. For the long distance truckers, truck parking spots were identified along major routes. For other categories of TW, parks were identified in the major cities/towns of destination/operation. The list contained information on the high- and low-peak day and time-periods, and the estimated number of TW onsite during each period. TLS clusters were defined as the location where TW congregate, the day(s) of the week that constitute peak times, and the number of TW present at each four hour interval. TLS clusters were selected using PPS with a fixed number of transport workers recruited from each cluster. The cluster size of the transport workers was nine and a total of 43 total clusters were selected in each state in order to reach the sample size. Individual participants were selected from the total number of workers in the site on the day and specified time period through a simple randomization exercise. A total of 2,233 TW were recruited for the study.

3.4. Refusal to participate

There were 11,175 individuals selected for this study out of whom 0.8% and 8.1% refused to participate in behavioural and biological components of the study respectively. Non-brothel based FSW had the highest refusal rate of 2.7% and 19.4% for behavioural and biological components respectively, followed by brothel-based FSW at 2.2% and 13.1% respectively. Refusal rates for the behavioural component were less than 0.5% for other groups. For the biological component, refusal rates were 3% for police, 0.8% for the armed forces, 11.2% for TW, 4.6% for MSM, and 3.3% for IDU.

3.5. Key Indicators in the IBBSS

Following are a selection of key analysis variables selected by the Technical Committee (TC) as part of the survey data analysis plan:

- HIV prevalence
- Syphilis prevalence
- Knowledge about HIV/STI (individual components and UNGASS knowledge indicator for most-at-risk populations)
- Self-reported STI symptoms
- Sex with non-marital partners by type
- Duration of sex work and injecting drug use
- Condom use at last sex in commercial sex
- Condom use at last sex with non-commercial partners by type
- Consistent condom use with commercial and non-commercial partners
- Sharing of injecting equipment among IDU
- Receiving HIV testing and results
- Condom use in anal sex among MSM by type of partner (commercial and non-commercial)
- Attitudes towards PLWHA
- Exposure to interventions

3.6. Pilot Study

Prior to commencement of the study, a one-week pilot test was held in a non-IBBSS state, Kaduna. This involved testing various parts of the survey process, including the study protocol, the methodology, training and data collection. Members of the TC, Kaduna SAPC, and SFH, participated in the pilot study and following the pilot a TC meeting was held to discuss improvements to the survey process, methodology and instrument based on the outcome of the pilot.

3.7. Training of Personnel

Two levels of training were implemented: a central training of trainers/supervisors, followed by state-level trainings in each state where the survey was conducted. The valuable experience gained from the one-week pilot exercise was used to feed into the central-level training of supervisors. At this training members of the TC guided all supervisors through in-depth sessions on the survey objectives and methodology, enhancing their understanding of their roles in the survey, the survey process, and the need for good quality data. The supervisors used were experienced supervisors, many of whom had been involved in past BSS rounds. They spent one week in the central-level training in Abuja, then had the opportunity to participate in the first week of data collection in the FCT, where members of the TC were able to observe and correct common mistakes and areas of weakness prior to teams departing for their respective state-level training. At both central- and state-level trainings, each question in the questionnaire was reviewed and role-played, and possible challenges were identified and addressed. Following the central training a four-day state-level training was conducted for the interviewers in each of the states prior to commencement of data collection. Three

additional interviewers per state were invited to participate in the training than were required and a screening process overseen by members of the TC ensured that only the most capable interviewers were invited to continue in the main study. Some of the additional interviewers trained were also used as replacements as the need arose.

3.8. Data Collection

During the data collection phase, target populations fell into two categories based on whether respondents were interviewed and tested in central locations (for RDS) or in different locations (for cluster sampling and TLS). Irrespective of this, the data collection flow was consistent across target populations, and included the following steps:

- Interviewer introduced and explained the study to the participant;
- Interviewer obtained consent for behavioural component from the participant;
- Interviewer conducted the behavioural interview;
- Interviewer obtained consent for the biological component from the participant and accompanied participant to counselor-tester;
- Counselor-tester conducted pre-test counselling;
- Counselor-tester obtained blood sample from the participant, and labeled the vacutainer with the participant's study ID;
- Counselor-tester provided client with a copy of their participant ID, the place and the date on which the participant could obtain the results of their HIV and syphilis tests (if desired);
- Blood samples with corresponding code numbers were then stored in a cooler box and later that day sent to designated site for testing;
- Results of the biological tests were sent back to designated HCT sites accessible by survey participants, marked with the code numbers of the participants; and
- Irrespective of where and when the results of the tests were obtained, counselors provided the participants with post-test counselling during which the results were provided.

The survey was administered for all target groups through one-on-one face-to-face interviews in private settings that guaranteed the confidentiality of information provided by the respondent. The survey team for each group in each state consisted of three or four interviewers, one supervisor and one counselor-tester. The respondents were assured that all information and discussions remained confidential, that no personal identifiers would be recorded, and that their participation was voluntary. They were informed that they may refuse to answer any questions and that they may opt out of the study at any time. They were also told that their decision to participate or to not to participate did not affect any benefit that they would normally receive.

All study related biological specimens and questionnaires were labeled with a study number. The respondent's identity was not asked nor entered onto the survey forms. Signed/witnessed consent was obtained for each respondent prior to conducting the interview. Witnessed consent was obtained by a counselor or supervisor who acknowledged that all necessary information was provided and understood. Interviewers ensured that

respondents were not interviewed twice by asking respondents if they were interviewed earlier on in the survey, and using a single team member for screening RDS participants. Test results were kept on file at nearby HCT centres for at least 3 months to enable mobile populations to return for their results.

Interviews and testing with brothel-based FSW were carried out at the selected brothels. Adequate preparations were made to ensure that each brothel was visited at the time determined to be most suitable to conduct the interviews and testing during the pre-surveillance mapping exercise. Shortly before data collection commenced, members of the survey team updated the data on the selected brothels, established rapport with the gatekeepers and confirmed the best time to conduct interviews. Similar advocacy was paid to gatekeepers of non-brothel-based SW. Survey teams conducting interviews in street and bar locations traveled in official SAPC vehicles and received security support from plain clothes police as required.

Interviews and testing with the armed forces personnel were conducted in the selected units/barracks. The survey team was guided by members of the armed forces Program on AIDS Control (AFPAC) serving on the TC, and following due consultation with the unit commanders. Interviewing and testing with police was guided by members of the Police AIDS Control Committee (PACC) serving on the TC, following due consultation with the commanders of each police station. The interviews and testing for TW were conducted in the selected time-location sites (parks). Adequate preparations were made to ensure that each site was visited once and that interviews and testing were conducted at the time determined through the TLS exercise based on results from the pre-surveillance mapping. Because the TW are very mobile, the chances of appearing in two or more study locations during the period of the study are high. Therefore, before an interview was conducted the interviewers first screened respondents for whether they had been interviewed in the past one week.

With respect to the RDS component among MSM and IDU, respondents presented to a designated location to participate in the study. The seed participants recruited and referred additional participants to the study location. Each recruit was also asked to recruit and refer up to three other members of the group they know to the study location until the desired sample size was attained.

3.9. Laboratory Procedures

Laboratory testing for this survey was centralized within each state. Blood was drawn at the interview locations. Samples collected within a state were sent to tertiary hospital laboratories. These facilities were selected because of the extensive infrastructure development and staff training that have occurred within their laboratories over the past two or more years.

All survey specimens were tested for HIV and syphilis using standard diagnostic algorithms currently in place in Nigeria. Ten ml of blood was collected into a vacutainer tube by appropriately trained counselors under supervision of the TC. Vacutainer tubes were labeled with the participant's study number and date of collection. As specimens were collected throughout the day they were stored in a cold box (with ice packs) or a refrigerator at 4°C. At the end of each day (or the following morning, in the case of night-time data collection) specimens were transported to a designated testing site. Plasma was extracted from blood

specimens by centrifugation and transferred by pipette to 3 ml cryotubes. The HIV diagnostic algorithm used was follows: Determine, Stat-pak in parallel for screening, and Genie II for confirmation with Capillus as a tie breaker. The syphilis status was determined using the following tests: Rapid Plasma Reagin test (RPR) for screening; and Treponema Pallidum Haemagglutination Assay (TPHA) for confirmation. Once samples were processed and all testing completed, specimens were stored frozen.

Samples arriving at testing laboratories were logged into a register and examined for quality. Poor quality specimens that were improperly labeled, haemolysed, of inadequate volume, and those transported without cold packs were documented and rejected. As part of quality assurance (QA) for the laboratory testing, all the testing sites had adequate infrastructure and trained staff. Supervisory visits before and during testing were conducted. All positives, all discordants and 10% of negatives were retested at the state laboratory. Test controls were provided for each testing site. Universal precautions were observed by all during handling of blood and blood products. Personal protective equipment (PPE) (laboratory coats, gloves and eye protectors) were provided to all laboratorians and counselors handling specimens.

This study used linked anonymous methods so that all study participants had the option of receiving their test results and were provided with information on where and when test results could be obtained. The test result turnaround time (between sample collection and return of test results back to clients) was one week. Results were delivered by professional counselors, with ensured confidentiality. Participants returning for results presented their referral card with their participant ID number, which was then matched with the ID number returned with results from the laboratory.

3.10. Data Management and Analysis

Field Supervision

Every field team had one supervisor. The supervisors reviewed each completed questionnaire immediately after the interview session ended and identified mistakes which were corrected before the respondent left the site. The completed questionnaires were also further reviewed by the State AIDS Program Coordinator and the TC members supervising the teams in each state. At least two TC members were assigned to each state. They visited each site several times to provide guidance and oversight to supervisors where necessary. They also supervised the sampling techniques to ensure that the teams adhered to the sampling methods described for the different groups.

Data Entry

Data was entered using CS Pro version 3.2. A template for the questionnaire was designed with pre-programmed consistency checks for cross-checking answers, including skips and eligibility criteria. Laboratory data forms were collected on a periodic basis from the central laboratories and brought to the same centralized location for data entry. At least 25% of the questionnaires entered daily by each data entry clerk had the behavioural and other non-biological data re-entered, while 100% double-data entry was achieved for the biological data for quality control purposes. The data entry clerks were supervised by three supervisors who reviewed and validated all questionnaires entered.

Data Cleaning

After data entry, the data was cleaned using STATA 10. Frequency counts were carried out to check consistency and assess cleanness of the database. The data cleaning also included the following:

- Searching for ages outside the age range criteria;
- Cross-checking all corresponding skips to the questionnaire;
- Reviewing the cluster allocations;
- Cross-checking the questionnaire completion responses from the interviewers in the database with the records in the supervisors log to ensure they matched;
- Tallying the supervisors log of blood samples collected to ensure that recorded numbers of samples collected matched the results recorded in the database; and
- Consistency checks involving cross-checking answers to related questions.

Data Management and Coding

Variables were recoded using standard recodes according to the indicators to be measured. Denominators were standardized and composite indicators created. A clean database was used to generate the necessary tables in accordance with the pre-approved analysis plan.

Data Analysis

Data was analyzed using STATA 10. The data analysis focused on highlighting HIV and risk factor prevalence rates at state- and national-levels. Prevalence rates were calculated as the percentages of the blood samples that were positive and 95% confidence intervals were determined for the prevalence rates. During data analysis, considerable inconsistencies were noted in the data from non-brothel-based sex workers in Anambra. Following consultation with the survey management committee, it was decided to omit this data from the report.

3.11. Ethical Issues

Participation of all respondents in the survey was strictly voluntary. Measures were taken to ensure the respect, dignity and freedom of each individual participating in the study. In order to guarantee the anonymity of each participant, the names of respondents, their addresses or other identifying information were not included in the questionnaires or on any biomarker tracking forms. The questionnaires were identified with a code. Stickers with numbered codes were used: on the questionnaire, on the blood samples, on the lab reports, and on the HCT referral forms. Informed consent was attained from each participant by reading a short paragraph that summarized the study and the role of the participant and assured confidentiality. After witnessing verbal informed consent, the form was signed by the supervisor or counselor. During the interview, basic information was provided about HIV/AIDS, diagnostic testing, condom use, and specific risks for each population. All respondents tested for HIV were referred to the nearest HCT centre for HIV post-test counselling and results. Those testing positive were referred from the HCT centre to a site offering HIV treatment services at no cost to the respondents. Respondents found to be reactive to syphilis

antibody screening received antibiotic treatment in the form of doxycycline 100mg for non-pregnant respondents, and Erythromycin 500mg for pregnant respondents. Respondents were provided with a similar and free drug treatment for their regular sexual partners. The SAPC and the field supervisors ensured that the ethical regulations of the project that guarantee voluntary participation and confidential data management were met and that interviews were conducted in settings that guaranteed auditory, and wherever possible, visual privacy. The protocol, consent forms and draft questionnaires were approved by the Nigerian Institute for Medical Research's (NIMR) Institutional Review Board (IRB) in Nigeria, by Family Health International's (FHI) Protection of Human Subjects Committee, and also by the US Centers for Disease Control and Prevention (CDC).

4. RESULTS

In addition to the results presented below, detailed group characteristics and behavioural data is contained in appendix 2.

4.1 Characteristics of respondents

Age

Table 3 contains a summary of the key socio-demographic characteristics of respondents. The overall mean age of respondents was 30.5 years. The MSM group was the youngest with three quarters less than 25 years of age, and around 13% were below the age of 20. The next youngest group was FSW, though slightly over half of both brothel- and non-brothel-based groups were over 25 years of age, and less than 10% were under 20 years. Among the armed forces, 89% were over the age of 25, and the remainder between 20 and 24 years old. This distribution is similar for the police, of whom only 10% were less than 25 years old. The TW had a slightly younger age profile with 17.1% less than 25 years, including 3.1% below the age of 20. TW in Kano were the youngest with around 25% less than 25 years of age. In contrast, the IDU were generally the oldest with a mean age of 34.1 years. However the IDU in Cross River were considerably younger than those in other states with nearly half under the age of 25.

Sex

Only two groups, police and IDU, had representatives from both sexes. About 25% of the police were females compared to only 5% of IDU. Thus the female IDU were too few for any statistically meaningful disaggregation of data by sex.

Marital status

Around 20% of FSW were married, with similar proportions in both brothel- and non-brothel-based groups. However non-brothel-based FSW were more likely to be living with a spouse or sexual partner (11%) than brothel-based FSW (4.2%). Only about 3% of MSM were currently married with 2.2% living with a spouse. The overwhelming majority (92.5%) were neither married nor living with a sex partner. Among the male dominated occupational groups, 54.8% of the armed forces, 56% of the police and 61.7% of TW were currently married and lived with their spouse. Among the armed forces, police and TW, about one third were neither married nor living with a sexual partner. Nearly 15% of IDU were currently married and living with a spouse while 48% were neither married nor living with a sex partner. IDU also had the highest proportion of respondents who were not married but lived with sex partners (10.6%) and the second highest proportion of those married but living with a different sex partner (6.5%), while TW were the least likely to be unmarried and living with a sex partner (2.2%).

Education

Only around 30% of brothel-based FSW and 54% of non-brothel-based FSW had completed secondary school. Cross River brothel-based FSW had the highest educational attainment among this group with around two

thirds completing secondary school. In contrast, Lagos brothel-based FSW were the lowest with 21% completing secondary school. The highest proportion of non-brothel-based FSW that had completed secondary education was in the FCT (72%) and the lowest in Kano (37%). The majority of MSM completed secondary education (79%), among whom 15.5% had completed tertiary education. A smaller proportion of IDU had completed secondary education (64%) but a higher proportion (32.5%) completed tertiary education. All the armed forces respondents had some form of education with 58.3% completing secondary school and a further 35.1% obtaining a tertiary education. Around the same proportion of police completed secondary school or higher, though they were slightly less likely to hold tertiary qualifications than the armed forces. TW had the lowest levels of educational attainment after brothel-based FSW, with only 36% completing secondary school and above.

Table 3: Percent distribution of all respondents by demographic characteristics and risk groups, Nigeria IBBSS 2007

Characteristics	FSW		MSM	Armed forces	Police	TW	IDU
	Brothel-based	Non brothel					
Age in years							
15-19	7.5	9.0	12.7	0.3	0.2	3.1	0.6
20-24	38.4	39.8	60.9	11	10.2	14	15.6
25-49	54.1	51.2	26.4	88.6	89.7	82.9	83.8
Sex							
Male	0.0	0.0	100.0	100	77	100.0	94.8
Female	100.0	100.0	0.0	0.0	23	0.0	5.2
Marital status							
Current married, live with spouse	1.2	1.3	2.2	54.8	56	61.7	14.8
Current married, live with other sex partner	3	9.7	0.1	1.8	0.6	1.7	6.5
Current married, not living with spouse or other sex partner	16.8	10.3	0.6	7.7	9.7	3.5	17.2
Not married live with sex partner	4.5	3.2	3.7	5.2	3	2.2	10.6
Not married, don't live with sex partner	57.3	70.3	92.5	29.4	30.2	29.9	48.3
Highest level of Education							
Never attended school	9.3	3.1	0.6	0.0	0.0	4.4	2.0
Quar'anic educ. only	2.4	2.3	1.1	0.5	0.2	5.6	5.4
Some primary	7.2	4	0.3	0.7	0.1	7.7	3.8
Completed primary	16.3	9.8	10.9	3	4.7	26.1	8.7
Some secondary	36.5	27	8.4	2.5	2.2	19.8	16.0
Completed secondary	24.5	39.2	63.3	58.3	68.5	28.9	31.6
Tertiary education	3.9	14.7	15.5	35.1	24.3	7.5	32.5

Mobility

The mobility status of respondents was assessed by asking whether they had been continuously away from their home for one month or more in the 12 months prior to the survey date. Figure 4 below shows that all groups are highly mobile. Based on this measure of mobility, the least mobile group are the TW. Out of those surveyed, FSW were the most likely to have spent a month or more away from home. There were quite large differences at state-level in the mobility of FSW, particularly comparing the highly mobile non-brothel and brothel-based FSW of Kano State (80.9% and 79.7% respectively) with the much more stable population of Edo state (34% and 29.9% respectively).

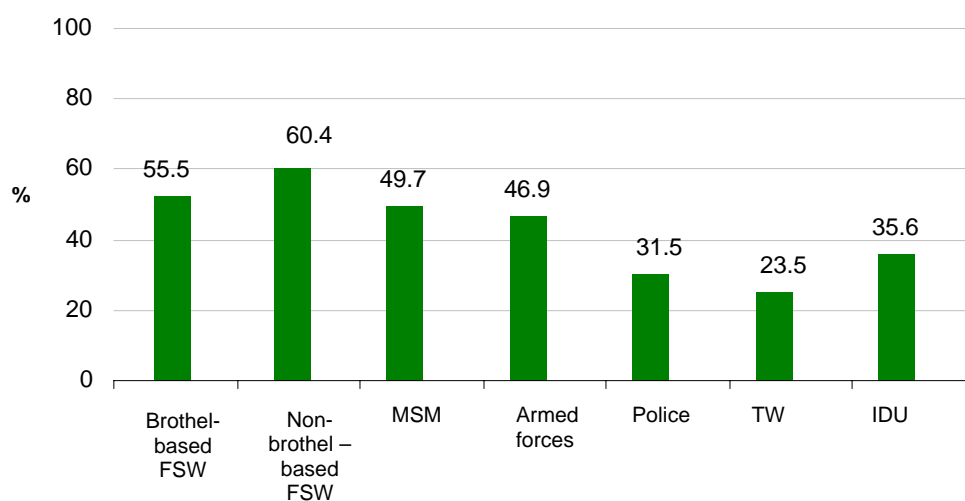


Figure 4. Percent of respondents away from home for at least 1 continuous month in the past year

Roughly 30% of the police, 47% of the armed forces and 25% of TW had been away from home continuously for at least one month in the last 12 months. At state-level, the armed forces as well as TW in Cross River state (63% and 40.6% respectively), and the police based in Lagos (40.9%) were the most mobile in each of the male-dominated occupational groups. IDU in Cross River were also more mobile than in other states, with 54.3% spending at least one full month out of the last 12 months away from home. MSM were also highly mobile, with nearly 50% having been away from home continuously for at least one month. Results were quite similar for MSM in each of the three states.

Use of Alcohol

Linkages between risk behaviour and excessive alcohol consumption have been well documented. In the 2007 IBBSS, each respondent was asked whether they consume alcohol and how regularly. The results are presented in Figure 5 below.

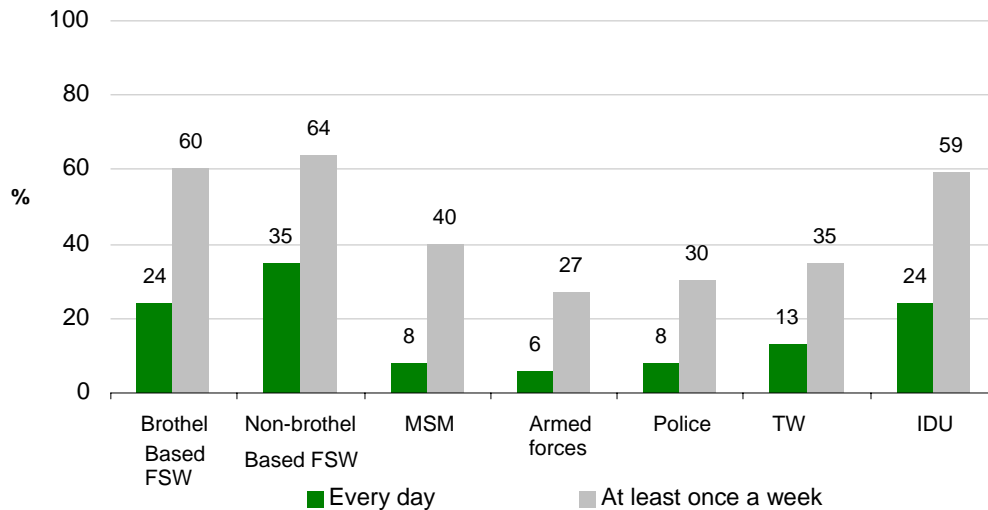


Figure 5. Frequency of alcohol consumption, IBBSS groups, 2007

A significant proportion of each group is consuming alcohol at least once a week. The most frequent consumers of alcohol are FSW with approximately one quarter of brothel-based and one third of non-brothel-based FSW consuming alcohol on a daily basis. Daily alcohol consumption was highest among the FSW of Cross River, particularly non-brothel-based (54%), and lowest among those in Kano. The only other group with similar alcohol intake patterns is IDU, with around one quarter consuming alcohol on a daily basis and 59% at least once a week. Among IDU, those in the 20-25 year age group were the most likely to drink every day and at least once a week. MSM showed considerably less tendency to drink every day (8%), though drinking at least once a week is quite common (40%).

Alcohol consumption patterns were more moderate among the predominantly male occupational groups. Highest among the three were TW with 13% consuming alcohol on a daily basis and one third at least once a week. Police and the armed forces showed similar patterns of alcohol consumption with less than 10% drinking on a daily basis, increasing up to around 30% drinking once a week or more. Higher proportions of armed forces and police consumed alcohol on a daily basis in Anambra (14% and 13% respectively) than other states, although results from the police in Lagos were also relatively high (12%).

Drug and substance abuse

Respondents were asked what types of recreational drugs and other substances they had tried in the last four weeks prior to the survey. Figure 6 shows the percentage of respondent's reporting use of cocaine, heroin or marijuana during this time period.

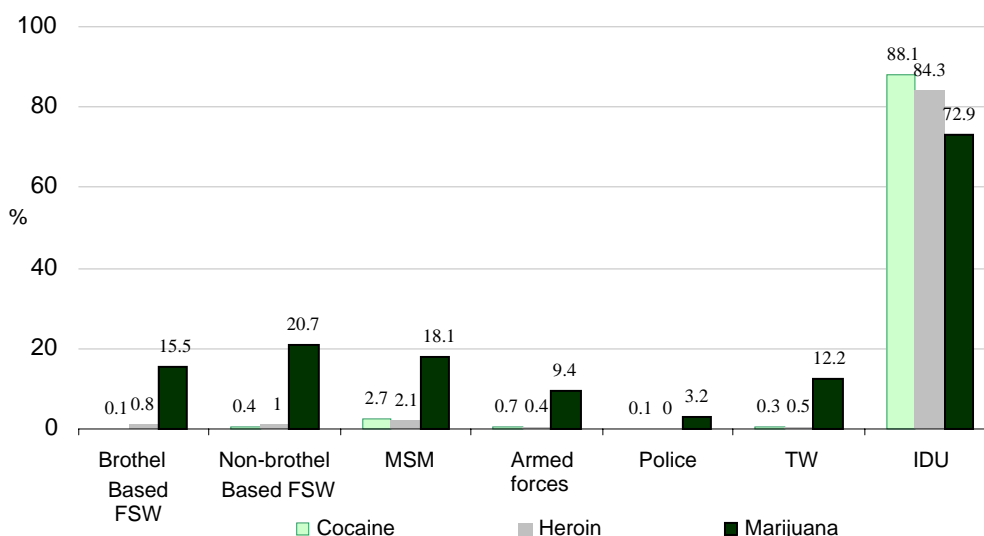


Figure 6. Drug use last four weeks among different groups, IBBSS 2007

As expected, drug use was very high among IDU. The significant majority of IDU reported using heroin (84.3%), as well as cocaine (88.1%) and marijuana (72.9%) during the four weeks leading up to the survey. In addition to these drugs, 7.6% reported sniffing glue, 8.2% consuming Chinese capsules and 4.2% taking amphetamines. After IDU, MSM were the group with the next highest reported use of a variety of drugs, with 18.1% consuming marijuana, 2.7% using cocaine and 2.1% using heroin in the four weeks prior to the survey. A fair proportion of FSW, both brothel and non-brothel-based, reported using marijuana in the four weeks prior to the survey (15.5% and 20.7% respectively), and apart from the one percent who had used heroin, their reported use of other drugs was negligible. Marijuana was also the only drug reportedly used by more than one percent of the male occupational groups in the four weeks prior to the survey, with use reported from around 10% of armed forces personnel and TW, and only three percent of police. Apart from marijuana, 0.7% of armed forces personnel reported use of cocaine.

4.2. HIV Prevalence

FSW

The findings in Figure 7 indicate that HIV prevalence among FSW varies dramatically between states. The highest HIV prevalence was among the brothel-based FSW in FCT (49.2%) and Kano state (49.1%), closely followed by the non-brothel-based FSW in Kano (44.1%). FSW in Lagos had the lowest HIV prevalence, with less than a quarter of brothel-based FSW testing HIV positive and 12.9% of non-brothel-based FSW.

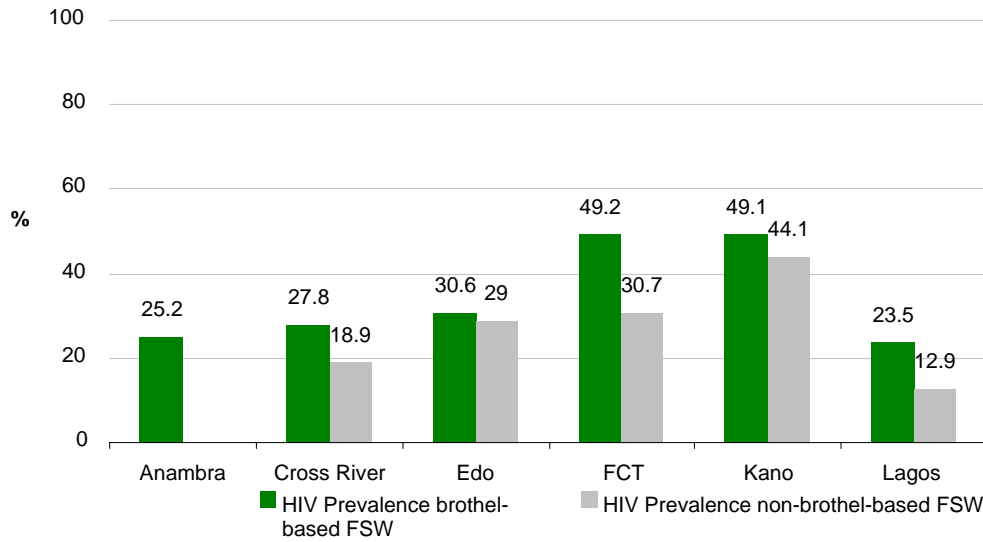


Figure 7. HIV prevalence, brothel- and non-brothel-based FSW

MSM/IDU

HIV prevalence among MSM was considerably higher in Lagos (25.4%) than Kano (11.7%) and Cross River states (2.8%). Among the IDU surveyed, HIV prevalence was lower than MSM in each state, except Cross River (3.1% among IDU compared to 2.8% among MSM). The highest prevalence rate of HIV among IDU came from Kano state (10%), whereas HIV prevalence among IDU in Cross River (3.1%) and Lagos (3.2%) were considerably lower.

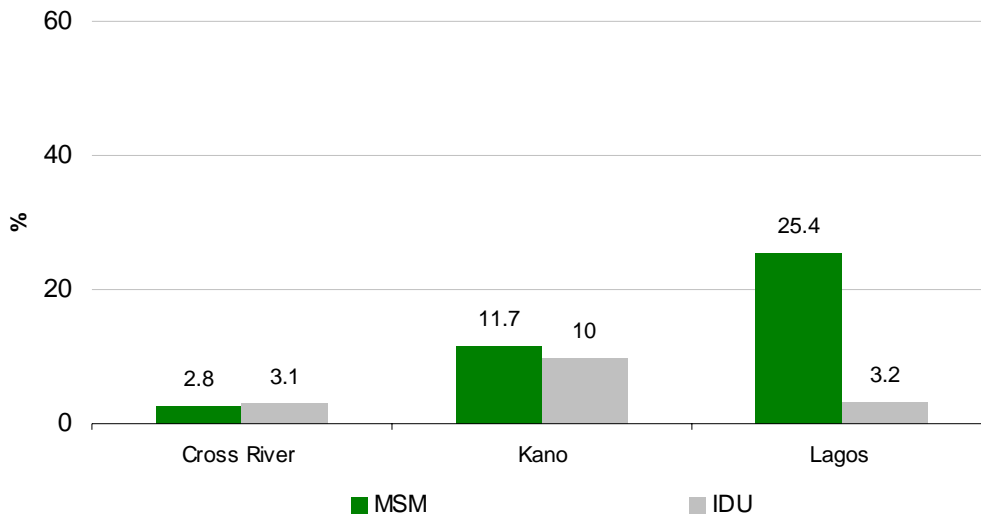


Figure 8. HIV prevalence among MSM and IDU

Armed Forces/Police/TW

Figure 9 shows that HIV prevalence among the predominantly male occupational groups also varied considerably at state-level. Anambra returned higher than average HIV prevalence for all three groups, particularly the armed forces (7.6%) and TW (5.8%). TW and police in the FCT (7.2% and 7.3% respectively) were much more likely to be HIV positive than their armed forces counterparts (1.1%). This very low result from the armed forces in FCT contributed to this occupational group achieving the lowest overall HIV

prevalence in the 2007 IBBSS. In Lagos, HIV prevalence was below average for all groups. It was also very low among Kano and Edo based TW (1.4% and 2.3% respectively) and Edo police (2%).

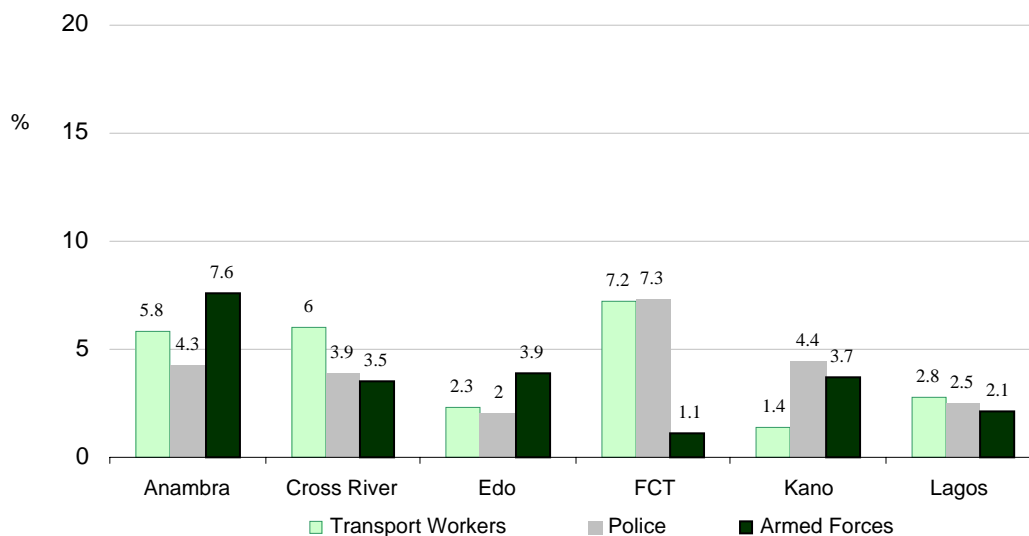


Figure 9. HIV prevalence among TW, police and armed forces

A sub-analysis of HIV prevalence in the police by gender shows that in all states, HIV prevalence was higher among females than males, with a particularly high prevalence level registered among the female police of FCT. Both men and women had lived in the state they were interviewed in for an average of 5 years. Kano female police are not shown (n=14, so confidence interval wide).

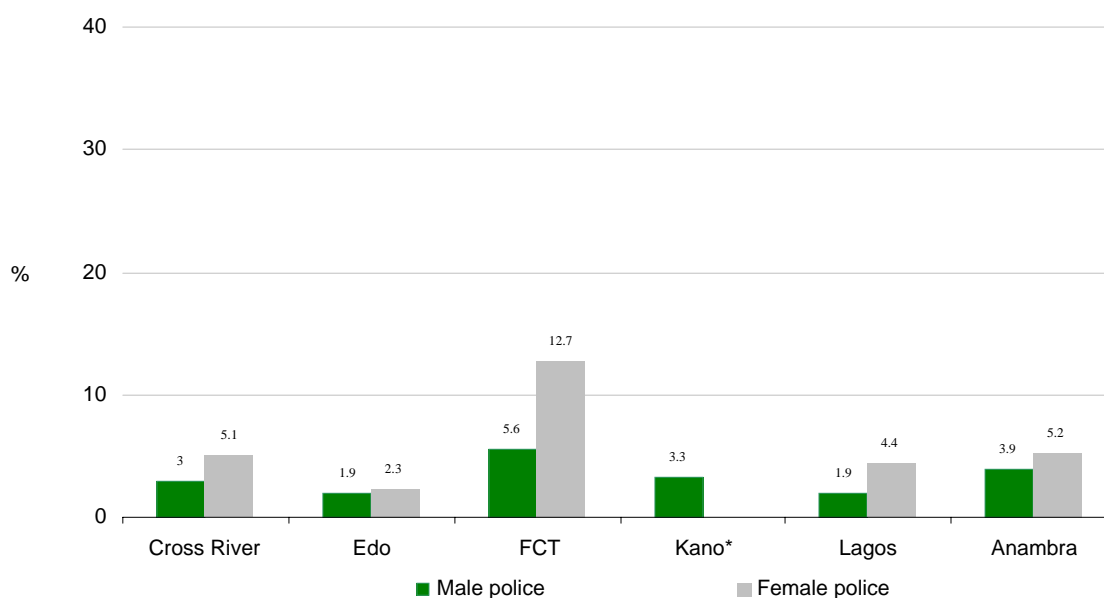


Figure 10. Police HIV prevalence by gender

4.3. Syphilis Prevalence

The proportion of all respondents positive for syphilis was very low at 0.8%. No syphilis was detected among MSM and syphilis prevalence was one percent or less among non-brothel-based FSW, armed forces and police.

Among all unmarried respondents, those who did not live with any sex partner had lower syphilis prevalence (0.4%) than those who were living with sex-partners (1.7%). Prevalence was low among all male populations in the survey, with the highest syphilis prevalence detected among the armed forces in FCT (2.7%).

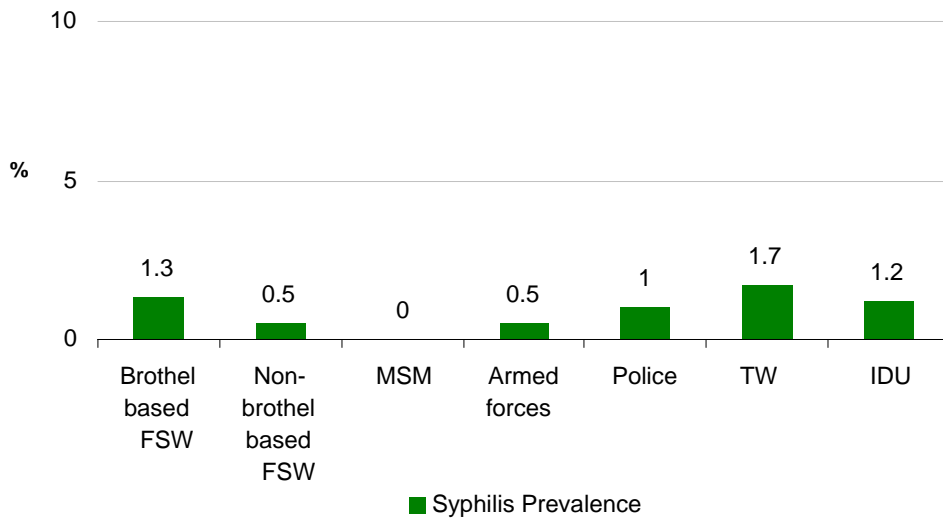


Figure 11. Syphilis prevalence by group, IBBSS 2007

4.4. HIV/STI Knowledge and Risk Perception

HIV/STI Knowledge

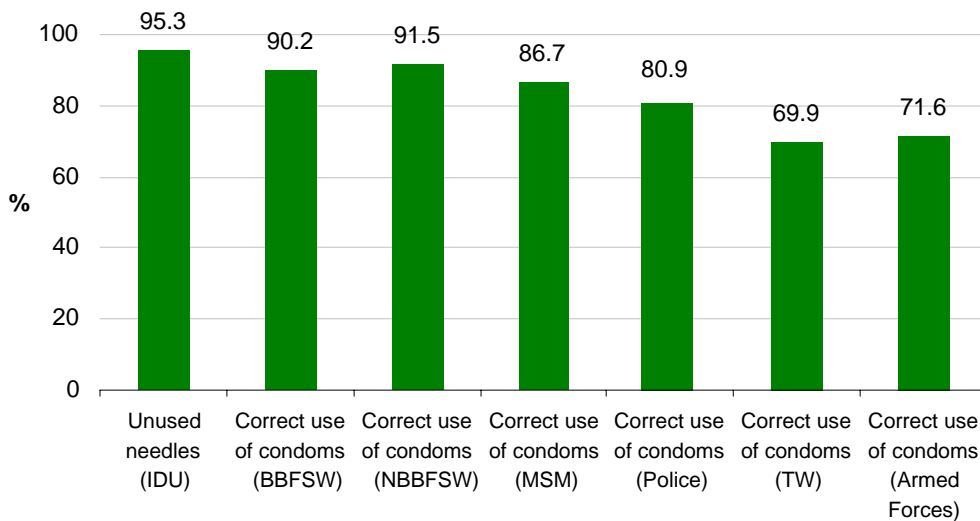


Figure 12. Knowledge of selected HIV prevention methods by group

While nearly all respondents were aware of HIV and condoms, knowledge of different means of HIV transmission and how to protect oneself from HIV varied considerably among the groups at state-level.

Figure 12 illustrates that knowledge of correct and consistent use of condoms as a means of preventing HIV was very high among all groups at risk of sexual transmission, with the exception of TW and the armed forces, at around 70%. Nearly all IDU knew the importance of using sterilized injecting equipment for preventing HIV.

In the section following, each group was assessed in relation to the UNGASS national program knowledge indicator 14 for most-at-risk populations. To score positively in the numerator of this indicator, respondents had to supply correct answers to all of the following questions:

- Can having sex with only one faithful, uninfected partner reduce the risk of HIV transmission?
- Can using condoms reduce the risk of HIV transmission?
- Can a healthy-looking person have HIV?
- Can a person get HIV from mosquito bites?
- Can a person get HIV by sharing a meal with someone who is infected?

The results are presented in figures 13 to 15 below.

FSW

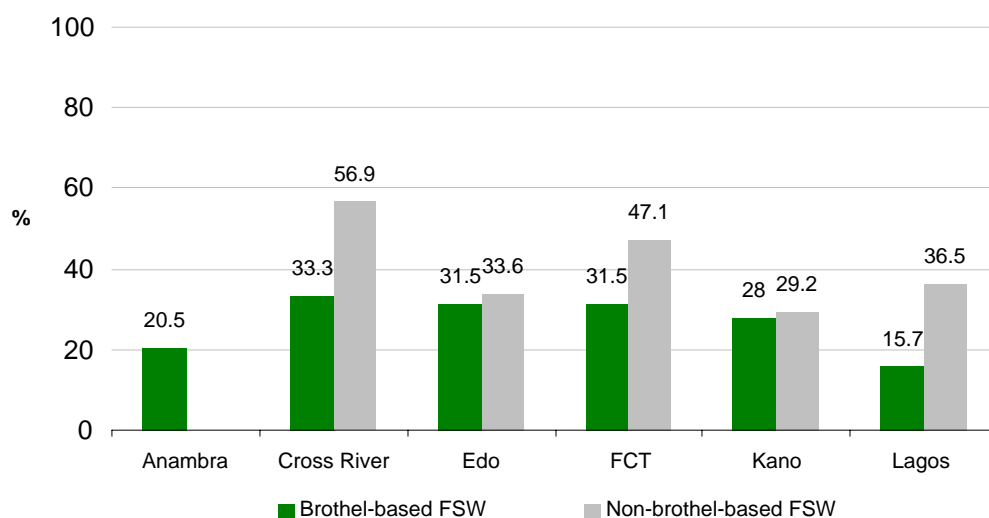


Figure 13. Percentage of FSW who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission

The proportion of correct answers to UNGASS indicator 14 was higher among non-brothel-based FSW than brothel-based FSW, with scores ranging from 29.2% in Kano to 56.9% in Cross River state. Brothel-based FSW generally scored lower, with only 15.7% of those in Lagos answering all questions correctly. The highest score achieved by brothel-based FSW was 33.3% in Cross River. Of the components in this composite indicator, around three quarters of FSW reported that being faithful to one uninfected partner could decrease their chance of contracting HIV. The low scores for the UNGASS indicator are strongly related to the fact that

nearly half of both brothel- and non-brothel-based FSW answered that it was possible to be infected with HIV by sharing meals with PLWHA. In addition, knowledge that HIV can be transmitted from an HIV positive mother to her unborn child was quite low, at around 63% among both categories of FSW. Another common misconception reported by around one third of brothel-based FSW and 17% of non-brothel-based FSW was that a person can get HIV from mosquito bites. Slightly over a quarter of FSW knew someone who had died from AIDS. This was highest among brothel-based FSW in Kano (45%) followed by FCT (38%), and also highest among non-brothel-based FSW in Kano (43%) and FCT (46%).

MSM/IDU

Over 50% of MSM in Cross River answered the five UNGASS questions correctly, which was similar to the score achieved by non-brothel-based FSW in the same state. MSM and IDU in Kano achieved the lowest scores with 36.5% and 24.2% respectively. Once again the low scores are related to misconceptions about mosquito bites and sharing meals with PLWHA. The proportion of respondents with misconceptions about mosquito bites and sharing of meals with HIV infected persons as routes of HIV transmission was highest among MSM in Kano State at about 35% and 23% respectively. Around 18% and 13% of MSM respectively were not able to correctly identify that faithfulness to an uninfected partner and the consistent and correct use of condoms could prevent HIV. The highest proportion (25%) of MSM who did not indicate faithfulness to an uninfected partner could prevent HIV infection was in Lagos State.

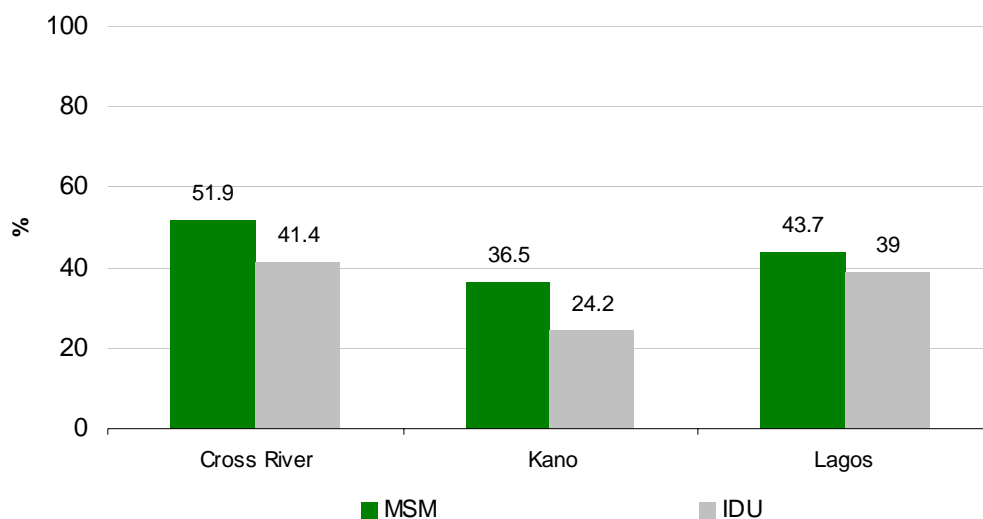


Figure 14. Percentage of MSM and IDU who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission

The misconception of mosquitoes as a means of transmitting HIV was higher among IDU (31%) than MSM in general. It was also quite common for IDU to believe that sharing a toilet with an HIV infected person can lead to HIV transmission (26%). Across all three states, almost equal proportions of IDU (83%) knew that HIV can be prevented by the consistent use of condoms and abstinence from sex, though slightly lower proportions in Kano knew this to be the case with consistent condom use (75.6%). 37% of MSM as against 59% of IDU knew someone who had died of AIDS, with MSM and IDU in Kano reporting the highest percentages (47% and 79% respectively).

Predominantly male occupational groups

Among the three groups, the ability of TW to answer the five knowledge-related questions correctly was the lowest in every state, particularly in Kano (11.4%) and Lagos (14.3%).

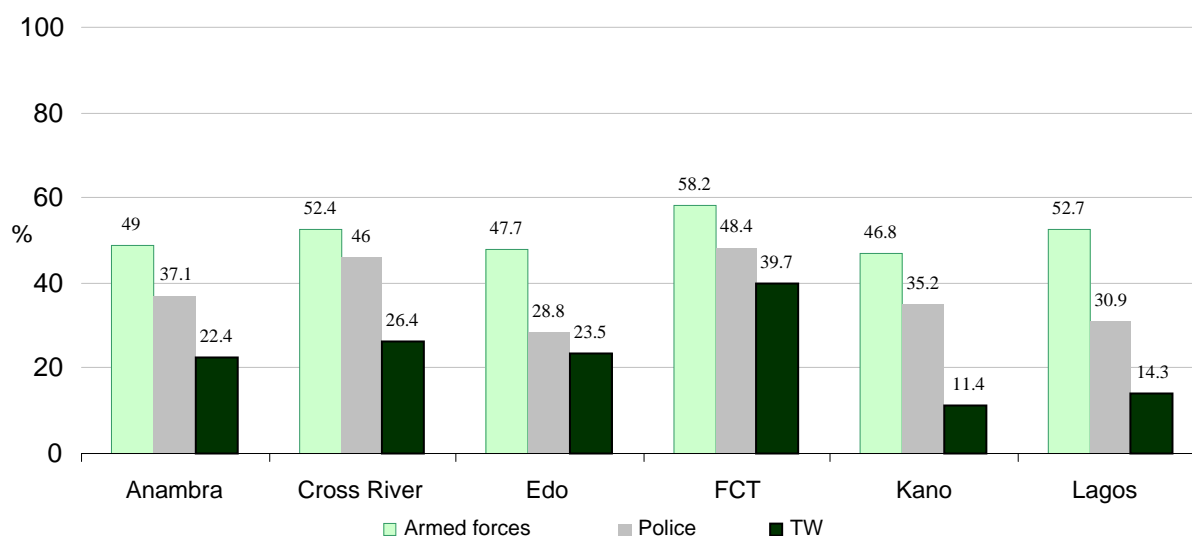


Figure 15. Percentage of armed forces, police and TW who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission

Armed forces achieved the highest scores of the three occupational categories in each state, usually with scores 10 or more percent higher than either of the other groups in that state. The three groups in FCT scored the highest compared to their colleagues in other states.

Among the armed forces, the knowledge of the use of condoms as an effective method of protection was lowest in Edo State (75%) and highest in Kano State (87%). Similar to the armed forces, knowledge of the use of condoms as a way of preventing HIV was lower among the police (71%) than sexual abstinence (83%) and faithfulness to an uninfected partner (92%). The proportion of police citing sexual abstinence as an HIV prevention method was lowest in Lagos (74%) while the use of condoms scored lowest among police in Edo (58%). There seemed to be no gender difference in the proportion of those correctly identifying prevention methods by gender in the police.

About 25% of the TW did not know the correct use of condoms can prevent HIV transmission. The group scoring lowest on this question were TW in Anambra while those in Lagos were the least likely to cite abstinence as an effective prevention method. Nearly all of the armed forces and police knew that a healthy looking person could be HIV positive (95% and 92% respectively). The lowest proportion of respondents who answered this correctly was among the TW (74%). The highest proportions who knew a healthy looking person can be infected with HIV were among the respondents from Cross River regardless of occupational group and the lowest were those from Kano State.

The armed forces returned similar results to police in terms of believing that sharing a meal (11% for both groups) or toilet with PLWHA (13% and 16% respectively) can pass on HIV infection. However the misconception of HIV transmission through mosquito bites was lower among the armed forces (14%) than

police (23%). TW had the highest level of misconception regarding HIV transmission through mosquito bites (33%), particularly in Lagos (49%), and about 32% also believed that sharing toilets with HIV infected persons can transmit HIV, a view held by around half of the Lagos based TW.

The IDU had the highest proportion who knew someone who had died of AIDS while the least was among brothel-based FSW. While 46% of the armed forces, 32% of the police and 43% of TW knew someone who had died of AIDS, a lower proportion (23%, 15% and 17% respectively) reported having a close friend or relative infected with HIV. The highest proportions of respondents who knew someone dying from AIDS-related complications were the armed forces in the FCT (60%), followed by police and TW in Kano (54% and 61% respectively). The pattern was similar for proportions with a close relative infected with HIV as the highest were the armed forces in Kano (32%) followed by 27% of police in FCT and 19% of TW in Kano.

Risk Perception

All respondents were asked whether they felt themselves to be at risk of HIV infection. The results for each group are reported below. For those who answered affirmatively, they were prompted further for the reason why they felt at risk.

FSW

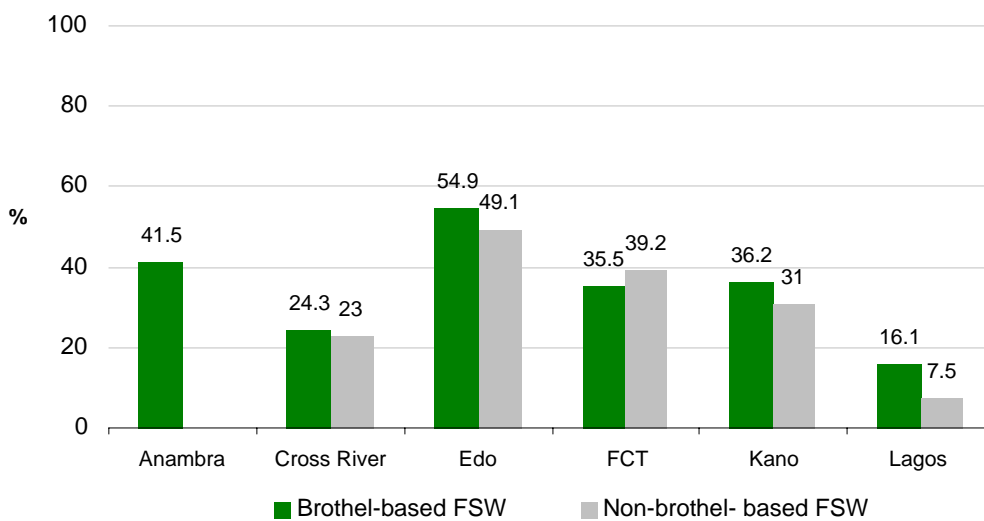


Figure 16. Percentage of FSW perceiving themselves at risk of HIV/AIDS

Risk perception is generally low among FSW, particularly considering the high HIV prevalence among this group. Only in Edo did more than 50% of brothel-based FSW identify themselves as being at risk of HIV infection, followed by 49.1% of non-brothel-based FSW in the same state. Only around 30-40% of FSW in Anambra, FCT and Kano reported feeling at risk of HIV, while the percentage in Lagos and Cross River was substantially lower.

When prompted further, more than two thirds of those FSW who did feel at risk of HIV said they felt this way because of the frequency at which they changed sex partners. The second major reason was that they did not

use condoms every time they had sex, which was expressed by slightly under 20% of FSW (including 46% of FSW in the FCT).

MSM and IDU

Both MSM and IDU in Cross River had very low levels of risk perception (under 20% of respondents), around half what was reported by their counterparts in Kano and Lagos. The highest levels of HIV risk perception were reported in the states in which the two groups (i.e. MSM in Lagos and IDU in Kano) had the highest HIV prevalence. Overall less than 50% of either of the two groups in any state identified themselves as being at risk of HIV infection.

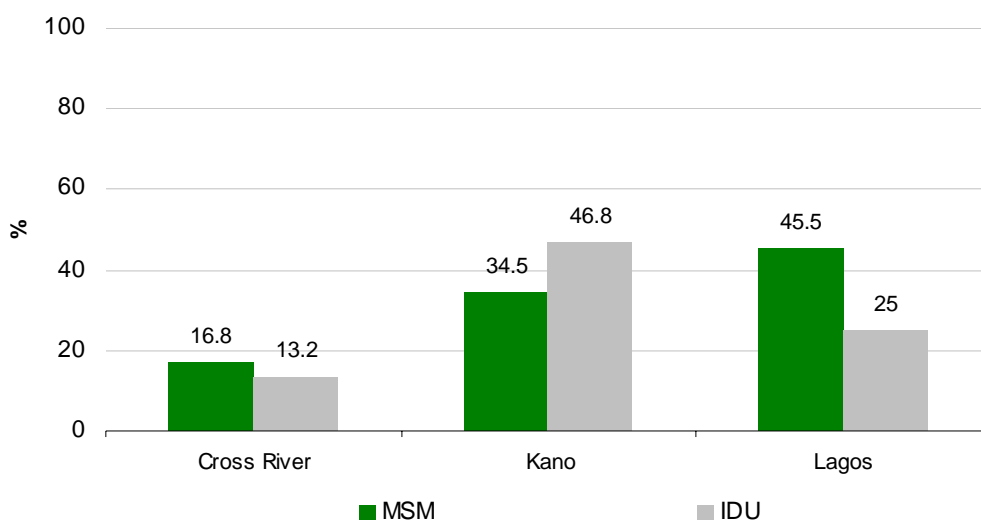


Figure 17. Percentage of MSM and IDU perceiving themselves at risk of HIV/AIDS

Among those who reported feeling at risk, about 43% of MSM and 23% of IDU also reported that their HIV-related risk resulted from the fact that they did not use condoms always. This was higher than the 37% of MSM and 18% of IDU who attributed their risk of HIV to their frequent change of sex partners. Among IDU feeling at risk, the dominant reason (60%) was due to their drug injecting behaviours.

Predominantly Male Occupational Groups

Figure 18 illustrates that all three of the predominantly male occupational groups returned generally lower levels of risk perception than the other risk groups surveyed. This was true in most cases, except the armed forces in Edo, and armed forces and police in FCT, where more than one third of respondents identified themselves as being at risk of HIV infection. Apart from these groups, only around 20% of police and armed forces respondents identified themselves as at risk of HIV infection, compared to slightly fewer TW. Group averages for TW and police were dragged down by very low risk perception levels from police in Lagos (4.1%) and TW in Kano (9.8%).

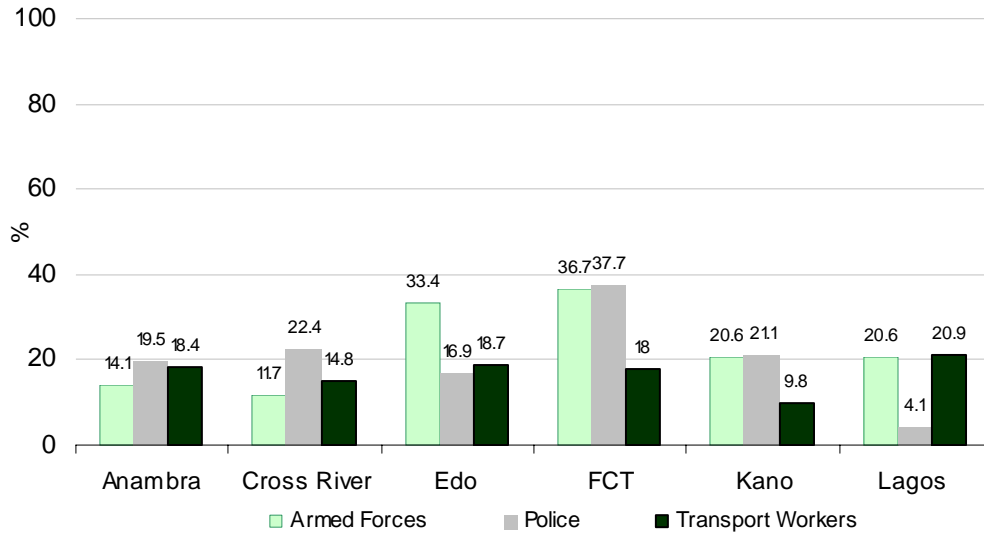


Figure 18. Percentage of armed forces, police and TW perceiving themselves at risk of HIV/AIDS

Among those who felt at risk, a higher percentage of the police (25%) compared to armed forces (18%) and TW (18%) felt at risk of HIV because of their inconsistent use of condoms. This was highest among TW in Cross River (37%). The second major reason was their frequent change of sex partners, which was slightly more common among the TW (18%) and armed forces (17%) than the police (14%).

4.5. HIV/STI Risk Behaviours

FSW

Sexual partnerships

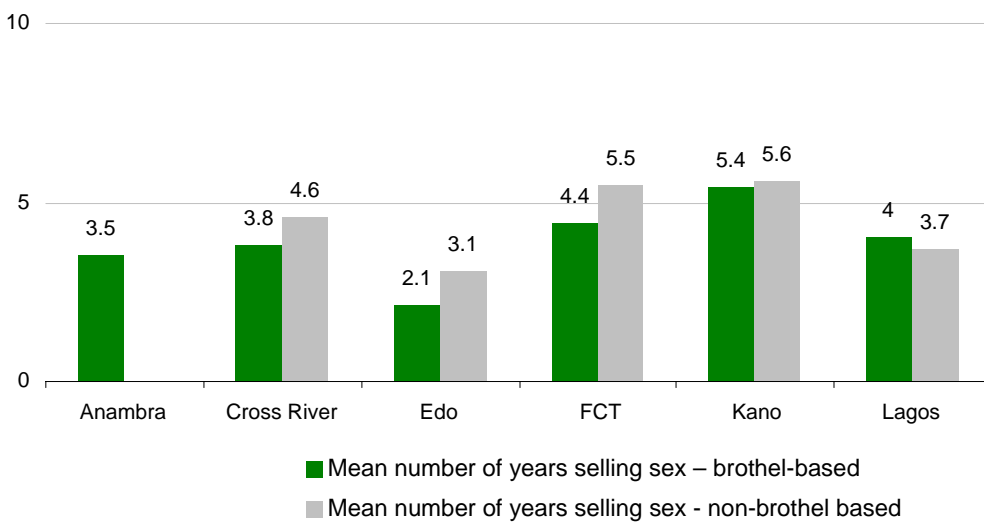


Figure 19. Duration of sex work, non-brothel-based and brothel-based FSW

The mean age of brothel- and non-brothel-based FSW was 27 and 25 years respectively, and their mean duration of selling sex varied from two years among brothel-based FSW in Edo state to over five years among non-brothel-based FSW in FCT and Kano (figure 19). Fifty percent of all FSW reported that the first time they had sex was with a man who was older by five or more years and only 14% used condoms the first time they had sex. Eleven percent reported that the first time they had sex it was because they were forced or under pressure. Six percent of brothel-based and seven percent of non-brothel-based FSW reported they were forced to have sex in the past 12 months, a majority of them by their clients. The police were also cited in 29% of the cases reported by non-brothel-based FSW in the FCT. Three percent of brothel-based FSW and seven percent of non-brothel based FSW had anal sex with a client in the past 12 months.

As seen in figure 20, brothel-based FSW had on average more commercial sex partners than non-brothel-based FSW. The FSW of Lagos and Cross River had the lowest number of clients in the past week, with brothel-based FSW in Anambra reporting the highest average, at 51 clients. Both categories of FSW in the FCT had around twice as many clients in the week preceding the survey than the FSW of Lagos.

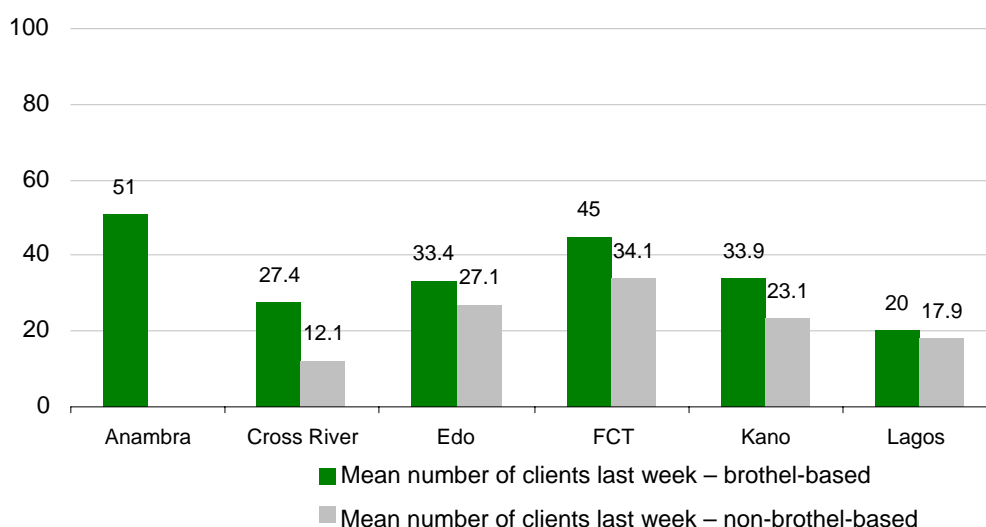


Figure 20. Mean number of clients last week of sex work

Overall brothel-based FSW had an average of 34.1 clients and 1.3 non-paying partners in the week prior to the survey. This compares with an average of 25.1 clients and 0.9 non-paying partners in the week prior to the survey for non-brothel based FSW.

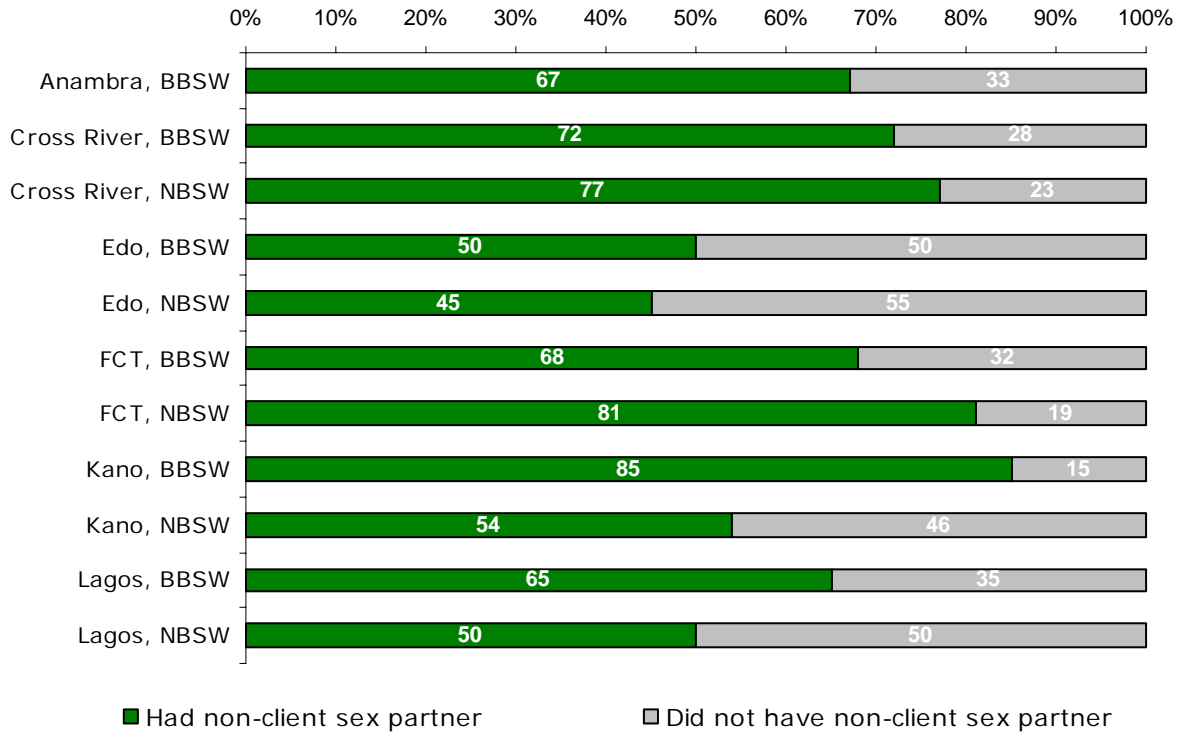


Figure 21. Percentage of FSW with non-client sex partners

Figure 21 shows that between 50% and 85% of all FSW reported a non-client sex partner in the past 12 months. FSW reported having sex with non-client partners an average of four times a month. Figures 22 and 23 below provide a breakdown of their non-paying partners over the past 12 months by type.

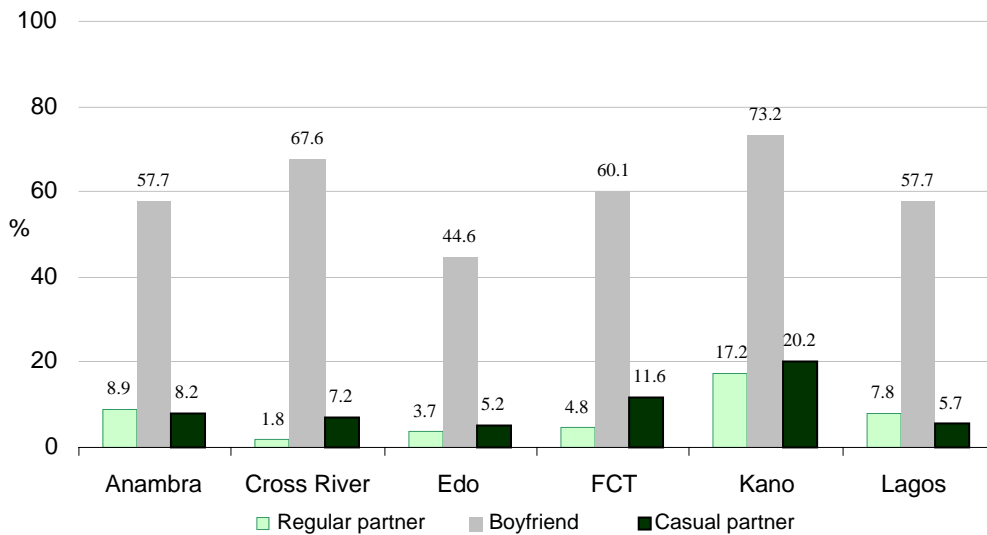


Figure 22. Brothel-based FSW – types of sexual partners in the last 12 months

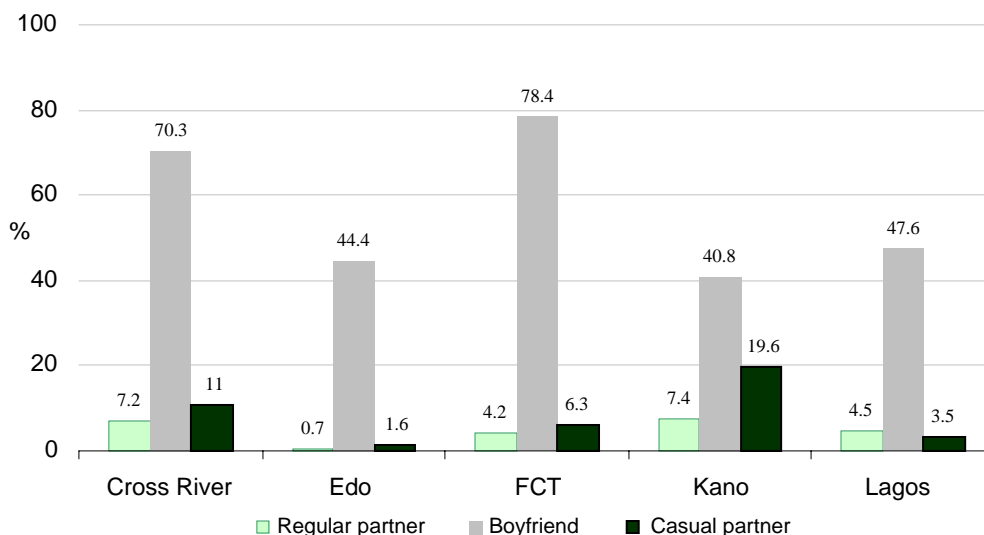


Figure 23. Non-brothel-based FSW – types of sexual partners in the last 12 months

In addition to sex with clients, figures 22 and 23 show that both brothel- and non-brothel-based FSW have regular partners, boyfriends and casual partners. Regular partners were defined as spouses and cohabitating partners, boyfriends as non-cohabitating sexual partners, and casual partners as partners that did not fit into any of the other categories. Both types of FSW are highly likely to have had sex with boyfriends in the past year (61% of brothel-based FSW and 56% of non-brothel-based FSW), particularly in the FCT and Cross River. Sex with casual partners in the past 12 months was reported by 10% and 8% of brothel- and non-brothel-based FSW respectively. This type of partnership was common for both types of FSW in Kano, and brothel-based FSW in Kano also had the highest percentage of regular partners (17.2%).

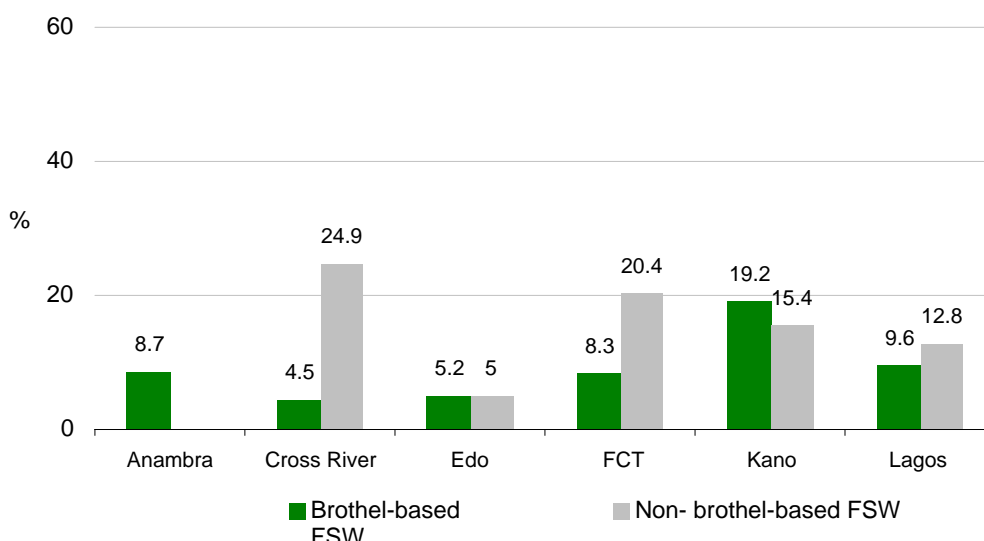


Figure 24. Percent of FSW having sex with more than one boyfriend in past 12 months

With boyfriends being the most common form of sexual partner for FSW outside of paying clients, attention turned towards examining whether FSW were likely to have sex with more than one boyfriend over the course of the last year. Figure 24 shows that around one quarter of non-brothel-based FSW in Cross River had sex

with more than one boyfriend in the last year, compared to about 20% of those in the FCT, as well as 20% of brothel-based FSW in Kano. Overall, most FSW did not have sex with more than one boyfriend in the past year. To understand the potential for HIV transmission beyond FSW and their immediate partners, it is also important to understand condom use and multiple partnerships from the perspective of these different types of partners.

Condom use

FSW were asked about condom use with different types of partners, both consistently over the last 30 days, as well as at last sex. While consistent condom use is the more important indicator for HIV prevention (figures 27 and 28), condom use at last sex is considered less prone to recall bias (figures 25 and 26 below).

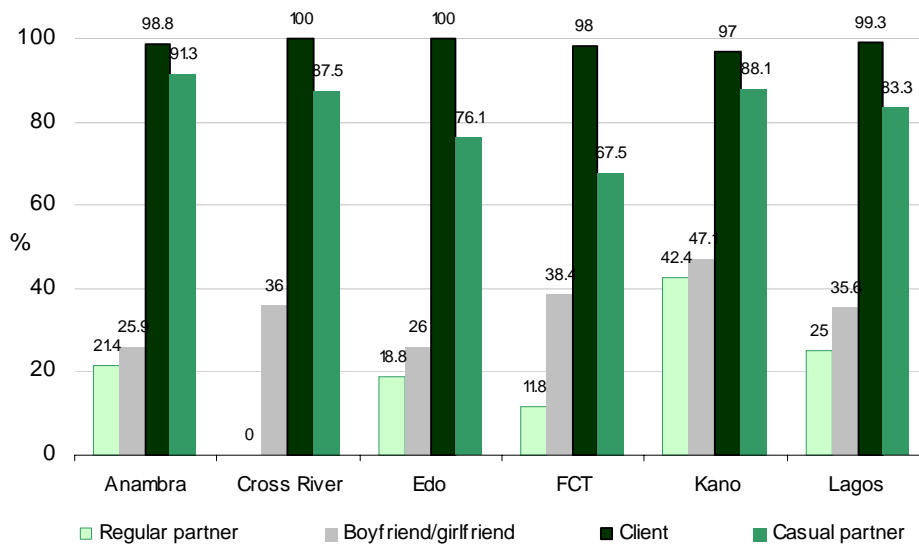


Figure 25. Brothel-based FSW – condom use at last sex by partner type

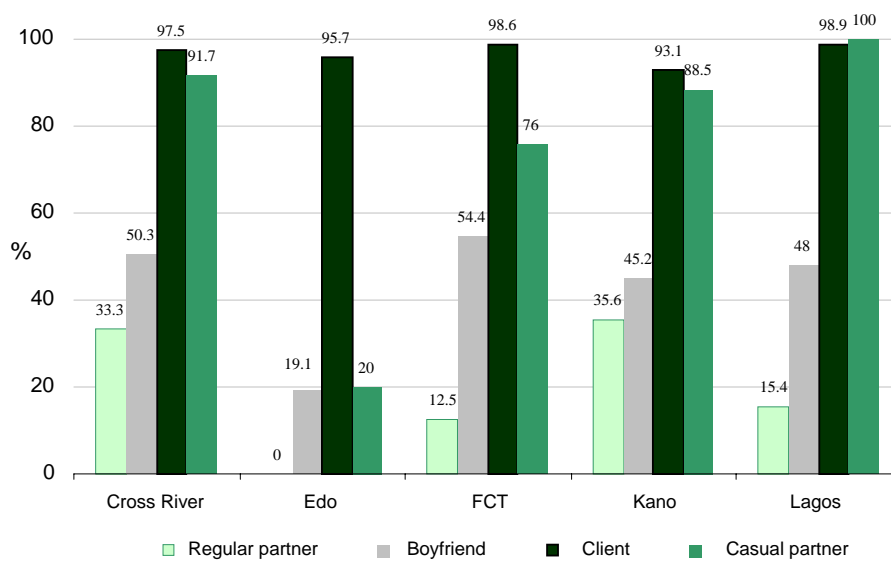


Figure 26. Non-brothel-based FSW – condom use at last sex by partner type

Condom use at last sex was over 95% in all commercial sex transactions reported by brothel- and non-brothel-based FSW, with the exception of non-brothel-based FSW in Kano (93.1%). Last time condom use in casual sexual partnerships was next highest at 83% and 85% among brothel- and non-brothel-based FSW respectively, with the lowest percentages observed in Edo (wide confidence interval) and FCT. Condom use with regular partners is low; however except for non-brothel-based FSW in Kano, less than 10% of FSW had sex with a regular partner in the past year. Low condom use at last sex with boyfriends was observed both among brothel-based FSW (38%) and non-brothel-based FSW (46%).

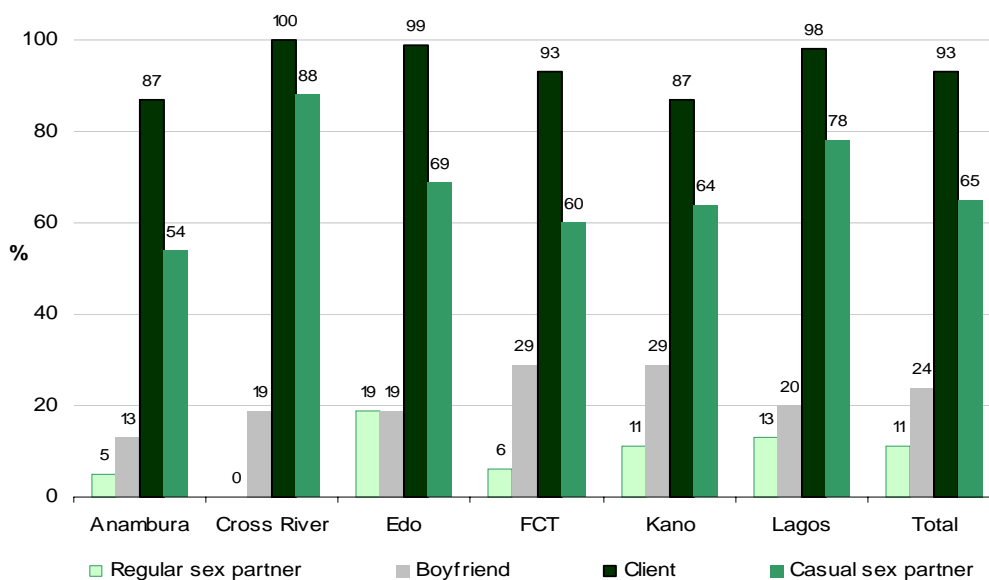


Figure 27. Brothel-based FSW consistent condom use last 30 days by partner type

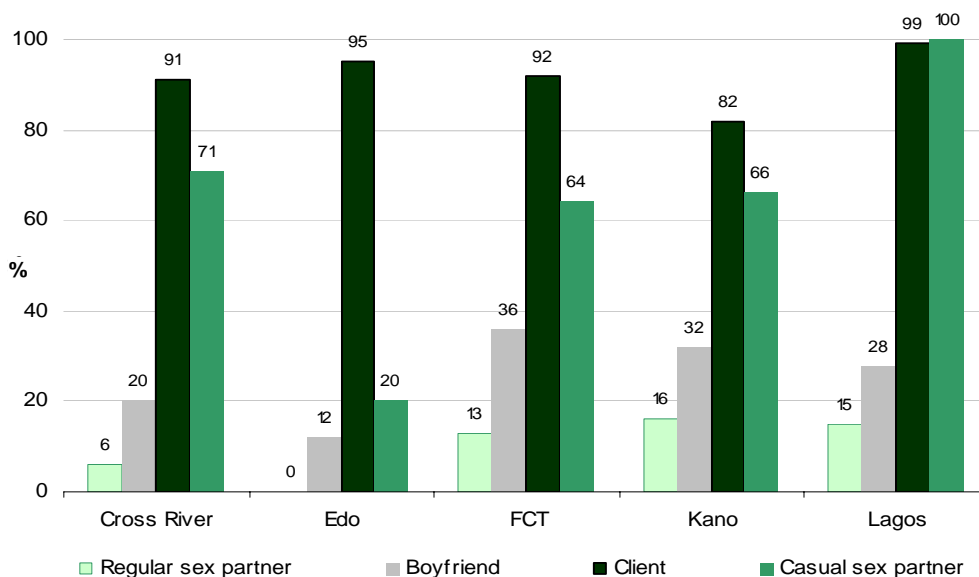


Figure 28. Non-brothel-based FSW consistent condom use last 30 days by partner type

Similar patterns of consistent condom use were observed compared to condom use at last sex, though somewhat lower. 92.8% of brothel-based FSW reported consistently using condoms with all clients in the past 30 days. While consistent condom use with casual sex partners in the past 12 months was also high, it was significantly lower with boyfriends (23.9%) and regular partners (10.5%). Like brothel-based FSW, non-

brothel-based FSW reported very high consistent condom use in the past 30 days with all clients (91.6%). With the exception of Edo⁷, two thirds or more of non-brothel-based FSW reported using condoms with all casual sex partners. 28.4% of non-brothel-based FSW used condoms with boyfriends consistently, and even fewer with regular partners (12.8%).

Self-reported STI symptoms

Although syphilis prevalence was low in all groups included in the IBBSS, a considerable proportion of brothel- as well as non-brothel-based FSW reported symptoms associated with sexually transmitted infections. The presence of ulcerative STIs is known to increase the potential for HIV transmission substantially. Self-reported STI symptoms included in the results presented below are not as valid or reliable as biological indicators of STI prevalence, and are subject to bias based on symptoms not resulting from STIs as well as the ability of sub-populations to recognize STI symptoms.

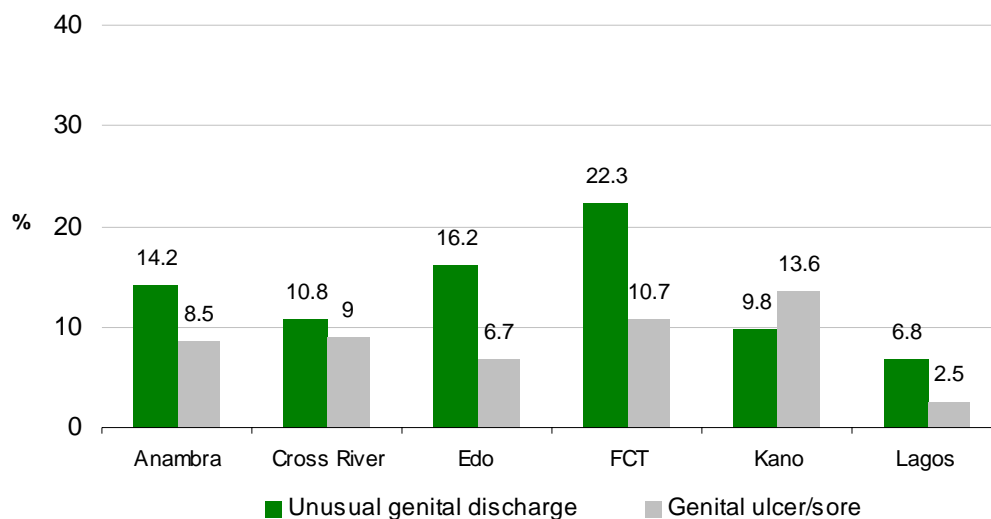


Figure 29. Self-reported STI symptoms last 12 months, brothel-based FSW

Among all groups included in the 2007 IBBSS, FSW were considerably more likely to report unusual genital discharge and genital ulcers/sores than other groups (figure 29 and 30). Unusual genital discharge was particularly high among the FSW of FCT, being reported by close to a quarter of FSW in both groups. Non-brothel-based FSW in Cross River were the most likely to have experienced a genital ulcer/sore in the past 12 months (16.8%), and they were also among the most affected by unusual genital discharge. Both groups of FSW in Lagos were considerably less likely to have experienced unusual genital discharge and genital ulcers/sores compared to FSW in other states. Around three quarters of both brothel- and non-brothel based FSW who reported experiencing STI symptoms sought treatment. Among those seeking treatment, around half went first to a public, private or NGO hospital or clinic. A further 30% sought treatment first at a pharmacy or chemist.

⁷ n=5

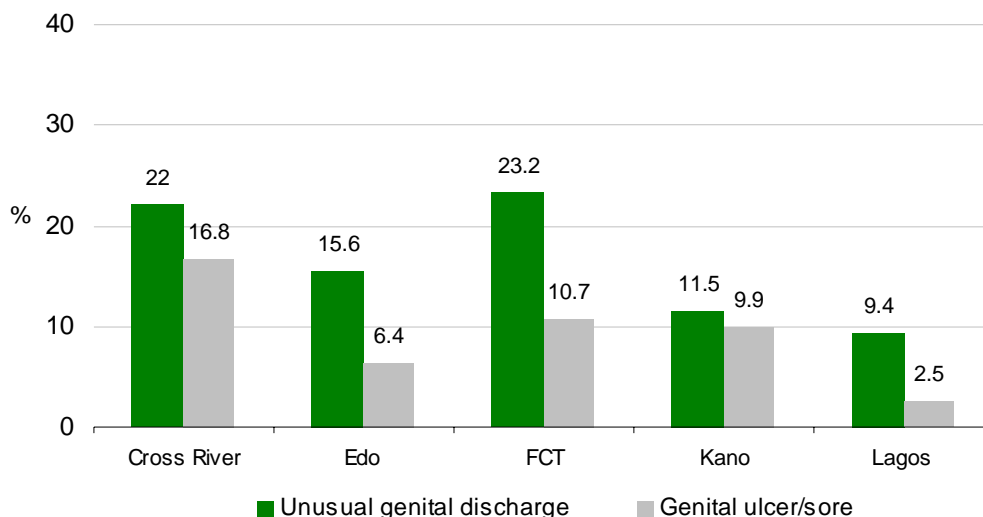


Figure 30. Self-reported STI symptoms last 12 months, non-brothel-based FSW

Men who have sex with men (MSM)

Sexual partnerships

The sexual risk of HIV transmission was also assessed for MSM by examining types of sexual partnerships in the past six months and the rates of condom use in these partnerships (figures 31 to 33).

86.5% of MSM reported engaging in anal sex with non-paying male partners in the past six months. Around one third of the sample had received money for anal sex, while 14.3% had paid for sex with male partners during the same time period. Sexual relations were also reported with FSW to a lesser extent (5.6%), ranging from only 2.4% of MSM in Cross River to 9.6% of MSM in Kano.

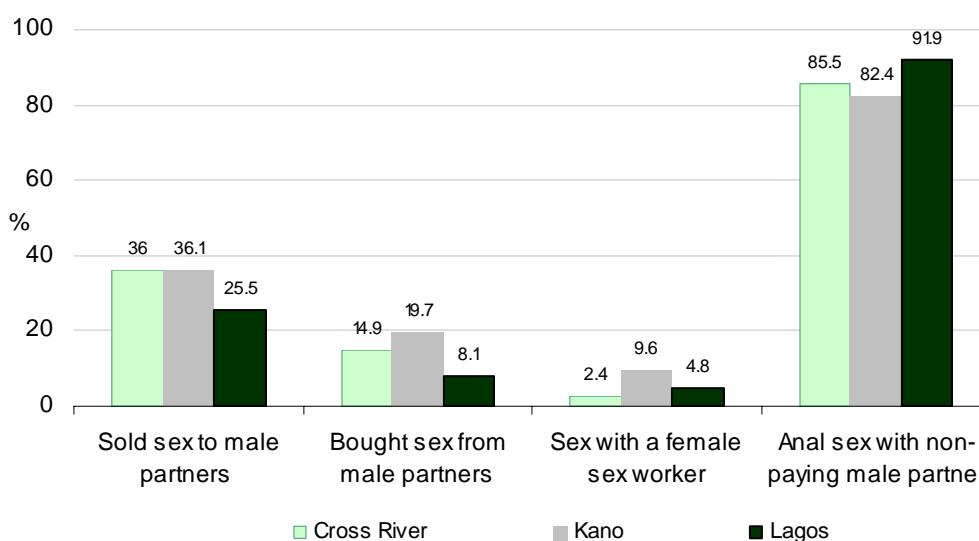


Figure 31. MSM – sex with different types of partners last six months (12 months for FSW)

MSM were also asked about their sexual relationships with females apart from and including FSW (figure 32). A large proportion of MSM, particularly in Lagos and Kano, reported sex with a female sex partner in the past 12 months. Among MSM with a female partner, they had sex with a woman on average five times a month in Kano, three times in Cross River and two times in Lagos.

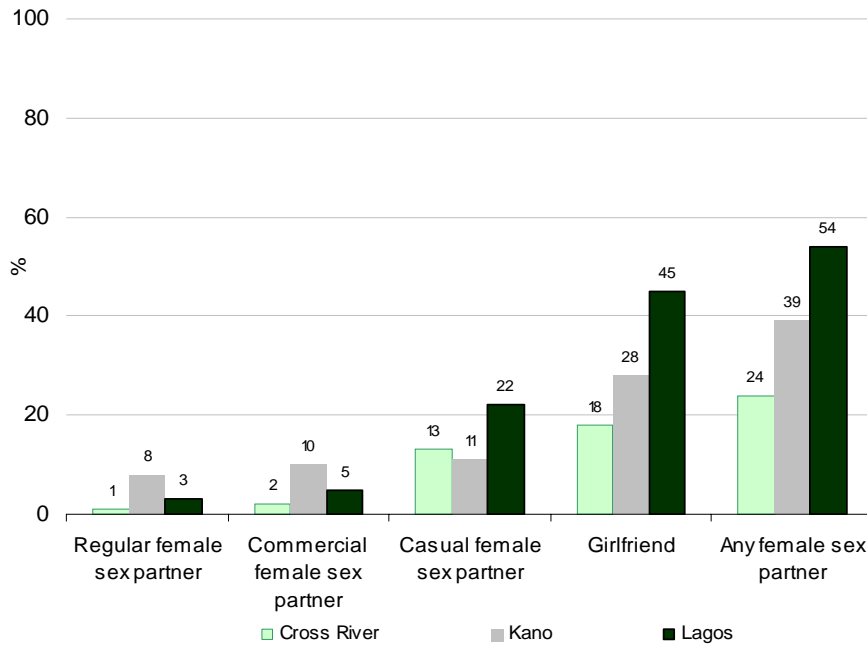


Figure 32. MSM – sex with different types of female partners last 12 months

Condom use

Condom use among MSM is generally low, particularly in anal sex with male partners. Condom use at last sex is higher between MSM and FSW (83.7% overall), which may be related to the higher tendency of FSW to use condoms in commercial partnerships. Of concern is that MSM were not significantly more likely to have used condoms at last commercial sex with a man (58%) compared to non-commercial male partners (53%). MSM in Lagos had generally higher condom use in all types of partnerships than MSM in Cross River and Kano states.

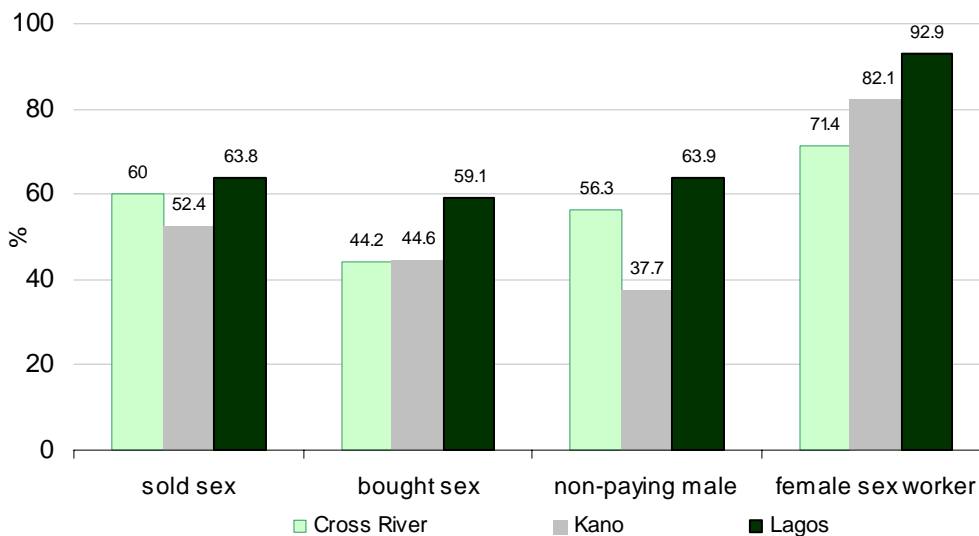


Figure 33. MSM condom use last sex by type of partner

Self-reported STI symptoms

The prevalence of self-reported STI symptoms is highest among the MSM populations of Cross River and Lagos, with about three times as many MSM in Cross River reporting genital ulcers/sores than MSM in Lagos. Reports of unusual genital discharges among MSM in Lagos were also low (2.1%) compared with respondents in Kano (5.5%) and Cross River (5.8%). In general, reports of unusual genital discharge and genital ulcers/sores among MSM were at levels comparable to the predominantly male occupational groups.

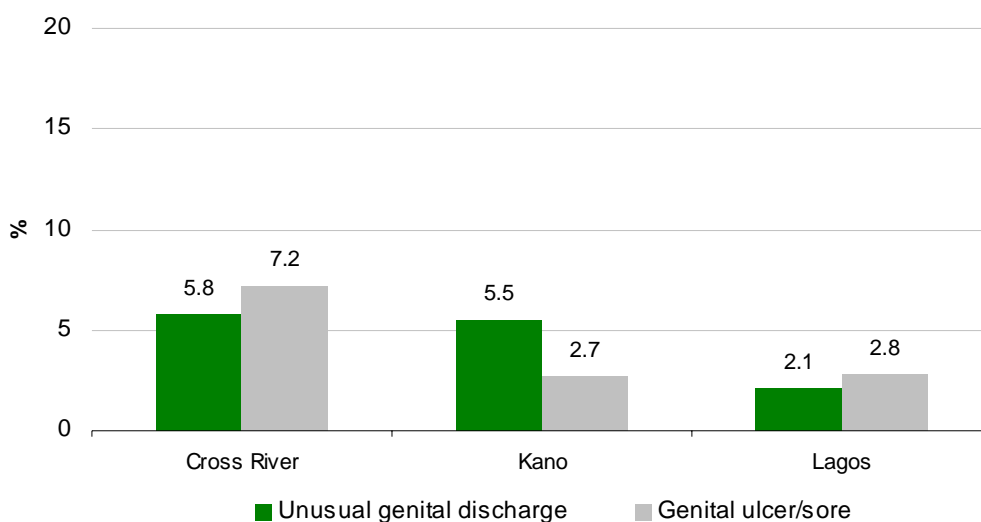


Figure 34. MSM self-reported STI symptoms

IDU

Sexual partnerships and condom use

IDU were the least sexually active of all groups surveyed. Only about 60% of IDU in Kano and Lagos reported having any sex in the past 12 months, in contrast to 96% of those in Cross River.

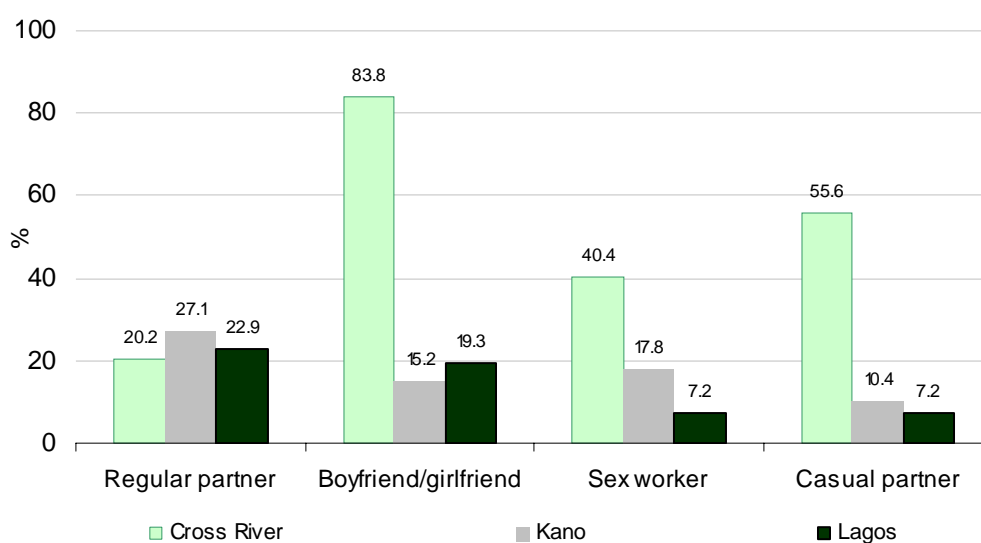


Figure 35. Sex with different types of partners in last 12 months among sexually active IDU

There were substantial differences in sexual activity reported between the Cross River IDU and IDU in other states. A considerable percentage of Cross River IDU reported sex with FSW (40%), as did those in Kano (17.8%), particularly when compared with much lower figures from the predominantly male occupational groups.

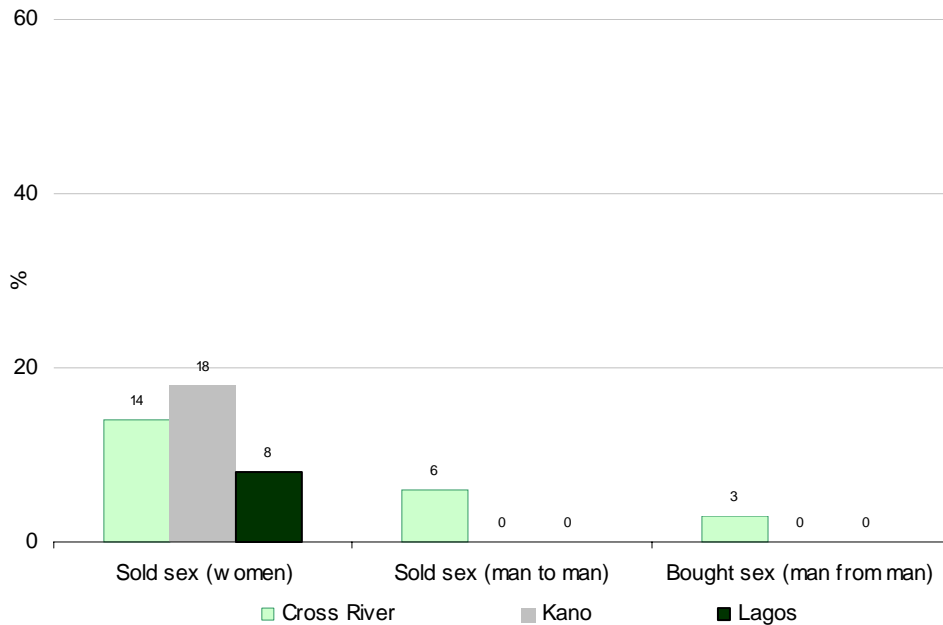


Figure 36. Female IDU selling sex, male IDU reporting buying and selling sex with other men

With regards to commercial sex behaviour, a gender analysis among IDU (figure 36) indicates that while only five percent of the IDU sample were women, among this group, 14%, 18% and eight percent of female IDU in Cross River, Kano and Lagos respectively sold sex in the past 12 months. Only in Cross River did male IDU report buying or selling sex to a man. These figures indicate that there does not appear to be strong potential for HIV transmission between MSM and IDU networks.

Condom use

Figure 37 shows condom use at last sex reported by IDU for different partner types. Low condom use coupled with high partner exchange or commercial sex could signal the potential for HIV to move between sexual and injecting drug use networks and vice versa. The sharing of injecting equipment within IDU networks is one of the most efficient ways to spread HIV.

Condom use at last commercial sex ranged from 53.3% in Kano to 82.5% in Cross River. Kano and Cross River states, where 18% and 40% of IDU respectively had purchased sex in the past 12 months (including 12%-15% reporting four or more commercial partners) are states where there may be a higher potential for HIV to be transmitted between sex work and injecting drug use networks. The potential for HIV transmission between FSW and IDU is particularly relevant for Kano where condom use at last sex was reportedly low and HIV prevalence among IDU is higher.

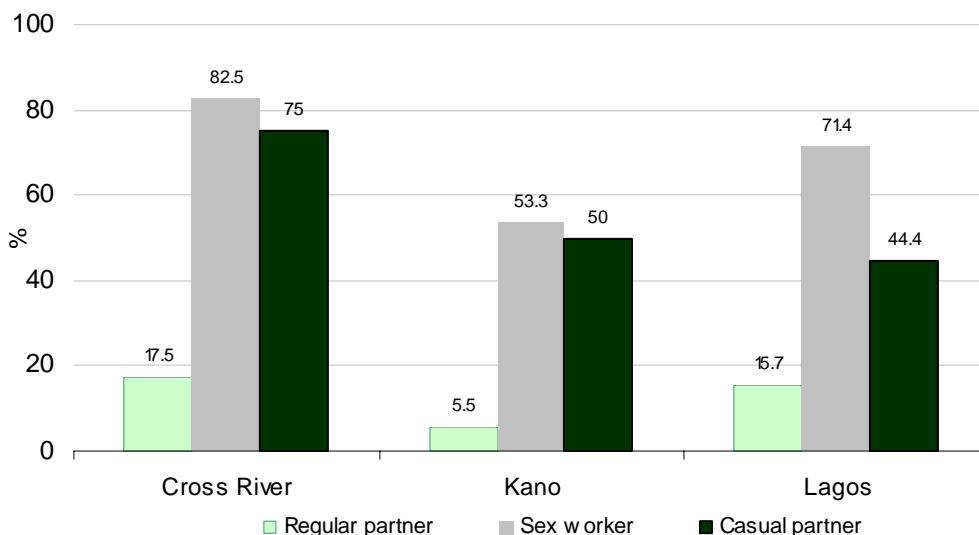


Figure 37. IDU condom use last sex by type of partner

HIV also has the potential to become established among female IDU injecting networks due to the link with sex work, though the size of the female IDU population, linkages between them, and thus potential for wider spread throughout this particular network and to others is unknown. Condom use at last commercial sex was much lower when reported by IDU than when reported by FSW themselves.

Self-reported STI symptoms

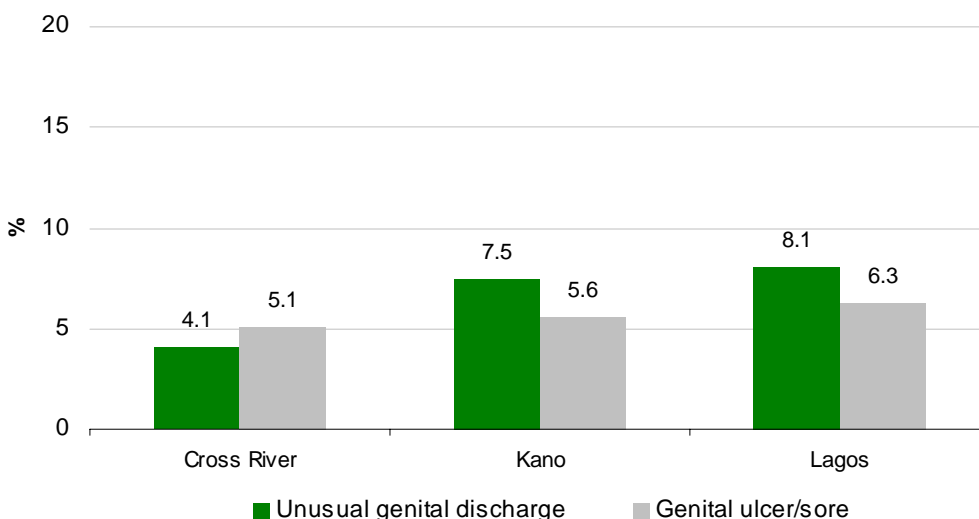


Figure 38. IDU – self reported STI symptoms last 12 months

In comparison to MSM, about the same percentage of IDU reported STI symptoms. In Lagos, however, a higher proportion of IDU reported experiencing unusual genital discharge or genital ulcers/sores in the past 12 months.

Injection Drug Use

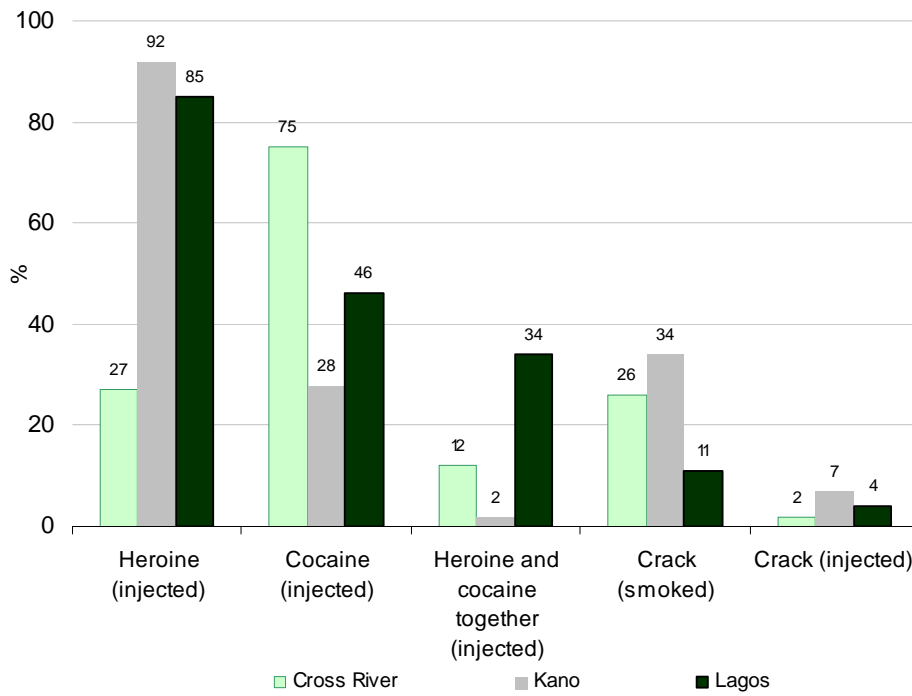


Figure 39. IDU – drugs injected last 4 weeks

Heroin was the drug most commonly injected in Kano and Lagos in the past month (92% and 85% respectively), while a large proportion of IDU in Cross River injected cocaine in the past month. Although crack was smoked by IDU in all states, it was not frequently injected. Approximately one quarter of IDU injected both cocaine and heroin.

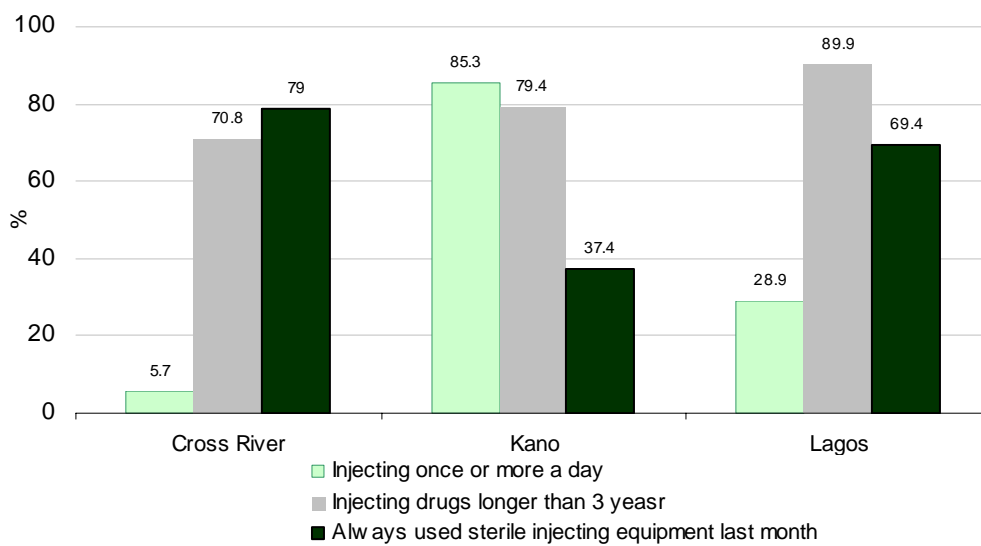


Figure 40. Injecting drug use behaviours

IDU were also asked about the duration of their injecting drug use habit, how often on average they inject drugs, and whether they always used sterilized injecting equipment in the last month. Sharing of injecting

equipment among IDU, if common practice, can be responsible for the explosive growth of HIV prevalence among this sub-population group. Figure 40 illustrates some of the key differences between Cross River IDU and those in Kano and Lagos. 5.7% of IDU in Cross River inject once or more a day compared to around a quarter in Lagos and over 80% in Kano. In addition to being the most frequent drug injectors, Kano IDU were had the lowest percentage of respondents who always used sterile injecting equipment in the past month (37.4%). Both Cross River and Lagos IDU were around twice as likely to have always used sterilized injecting equipment in the past month, though even in these states, between 20-30% shared needles/syringes once or more during this period.

Predominantly male occupational groups

Sexual partnerships

All three predominantly male occupational groups, the armed forces, police, and TW, were asked about their different types of sexual partners in the past 12 months. The results by state are outlined in figures 41 through 43.

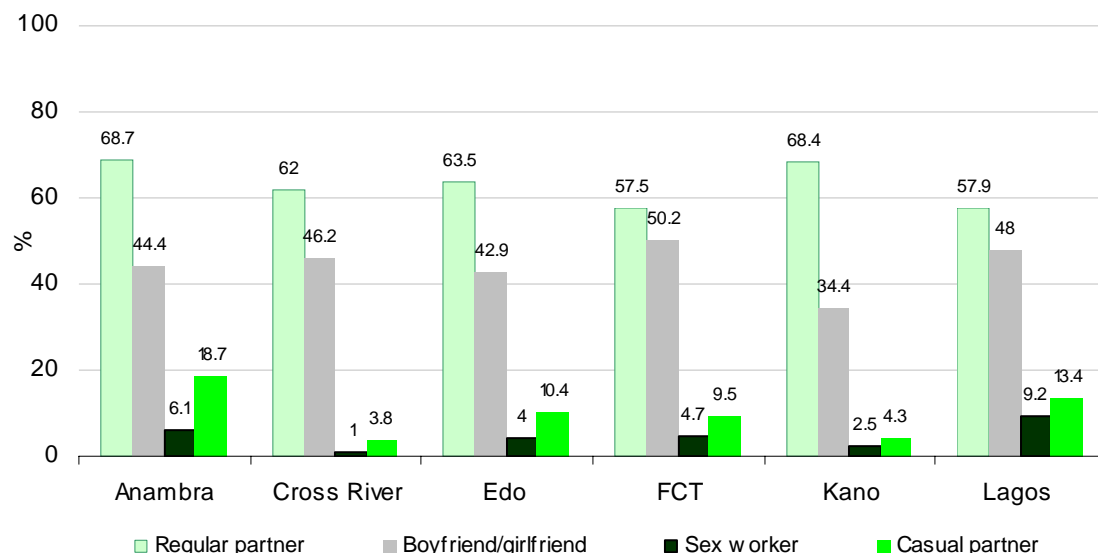


Figure 41. Different types of sexual partnerships last 12 months: armed forces

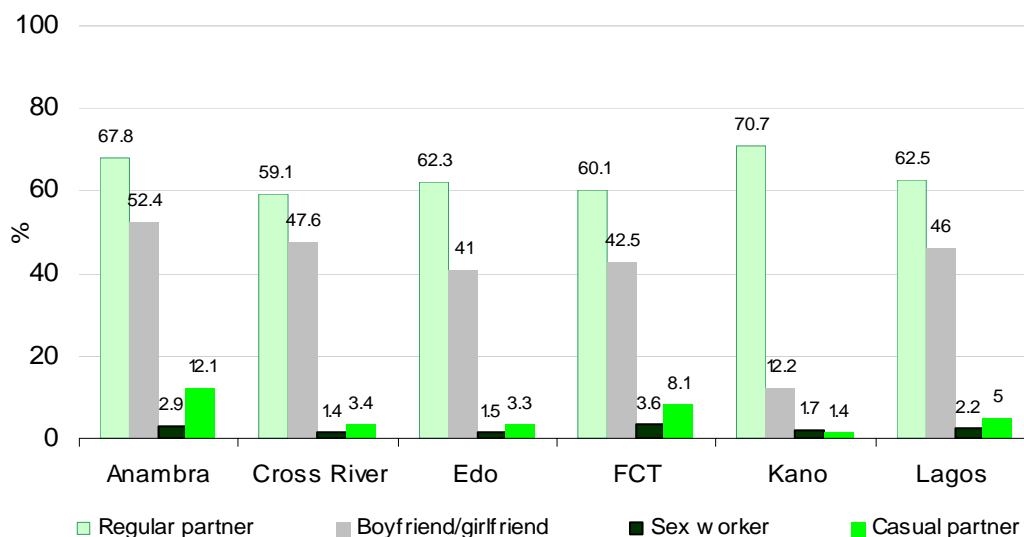


Figure 42. Different types of sexual partnerships last 12 months: police

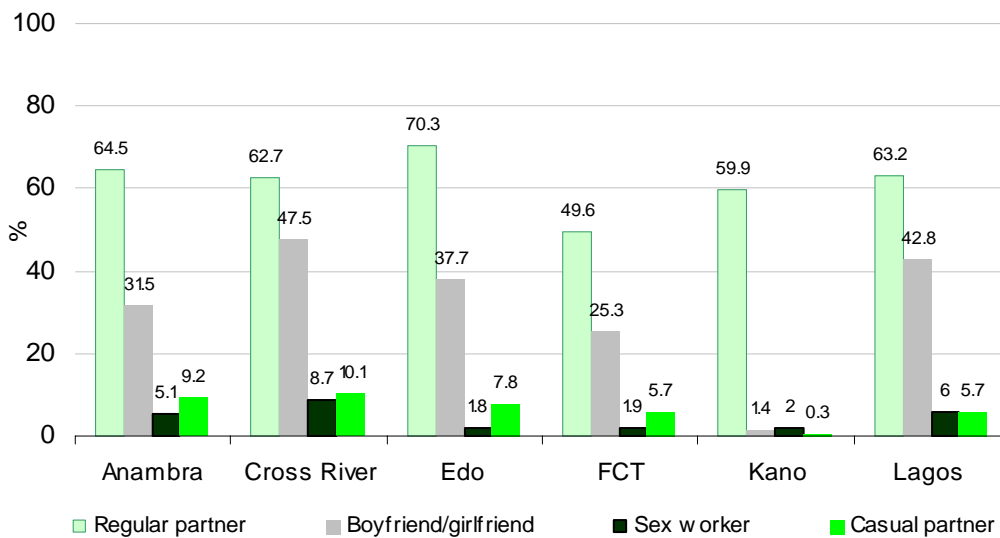


Figure 43. Different types of sexual partnerships last 12 months: TW

When comparing the three groups, around 60-70% of all groups in all states had sex with regular partners in the previous 12 months, with the exception of TW in FCT (50%). The percentage reporting sex with boyfriends or girlfriends varied more substantially, with most groups reporting in the 40-50% range, though considerably fewer police in Kano, as well as TW in Kano, Anambra and FCT reported such relationships. Both the armed forces and police in Anambra reported the highest rate of casual partnerships (18.7% and 12.1% respectively), compared to others in their occupation, whereas TW in Cross River were slightly more likely to have had casual sex partnerships (10.1%) than those in Anambra.

In general, the police reported the lowest percentage of commercial sex partners among the three groups, which was likely influenced by the inclusion of female police in the sample. In the armed forces, those based in Lagos were most likely to have patronized commercial FSW (9.2%). Anambra was next highest with 6.1%, considerably more than the 3.6% of police in FCT, which was the highest percentage for commercial sex in this occupational category. TW in Cross River (8.7%), Lagos (6%) and Anambra (5.1%) were more than twice as likely to visit commercial FSW as their counterparts in the other states.

TW were slightly less likely than the other groups to have had sex with girlfriends in the 12 months prior to the survey, and reported similar patronage of FSW as armed forces men. Kano state was the only state where less than 3% of all three groups reported sex with commercial FSW, with Edo state results at similarly low levels. Kano TW reported surprisingly low levels of sexual partnerships with all but regular partners and with one of the lowest HIV prevalence levels in all groups surveyed (1.4%), these reports do not seem out of place. The lowest HIV prevalence among all groups surveyed came from the armed forces in FCT with 1.1% HIV prevalence. In their case, the percentage of armed forces based in FCT with commercial, casual and non-cohabitating partnerships was at similar levels to other states, and generally higher than what was reported by the police.

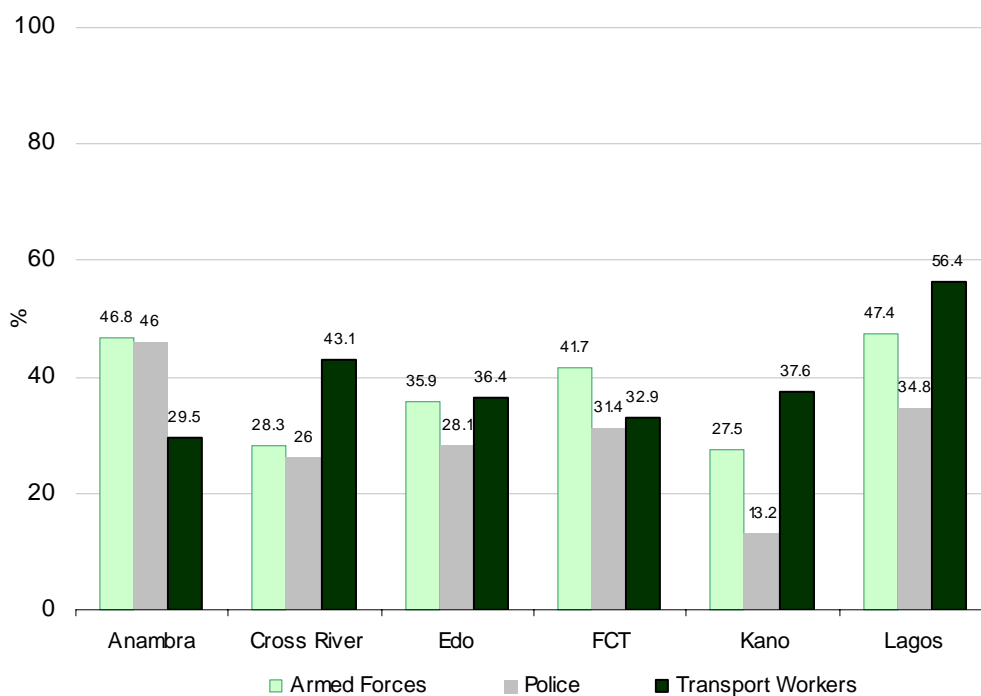


Figure 44. Predominantly male groups sex with more than one partner (any kind) in past 12 months.

Figure 44 examines the percentage of each predominantly male occupational group reporting sex with more than one partner in the 12 months prior to the survey. Overall 37.3% of armed forces, 29.4% of police and 37.9% of TW reported sex with more than one partner in the year prior to the survey. Results are above average in Lagos for all three groups, and also high among the armed forces and police of Anambra. The figure is lowest among the police in Kano (13.2%). While sex with more than one partner was quite common among the predominantly male groups, only a minority of respondents reported sex with four or more partners (10% of armed forces, 4.9% of police and 12.2% of TW). To better understand the potential for HIV transmission among these groups, it is necessary to examine condom use with different types of partners (figures 45 to 47 below).

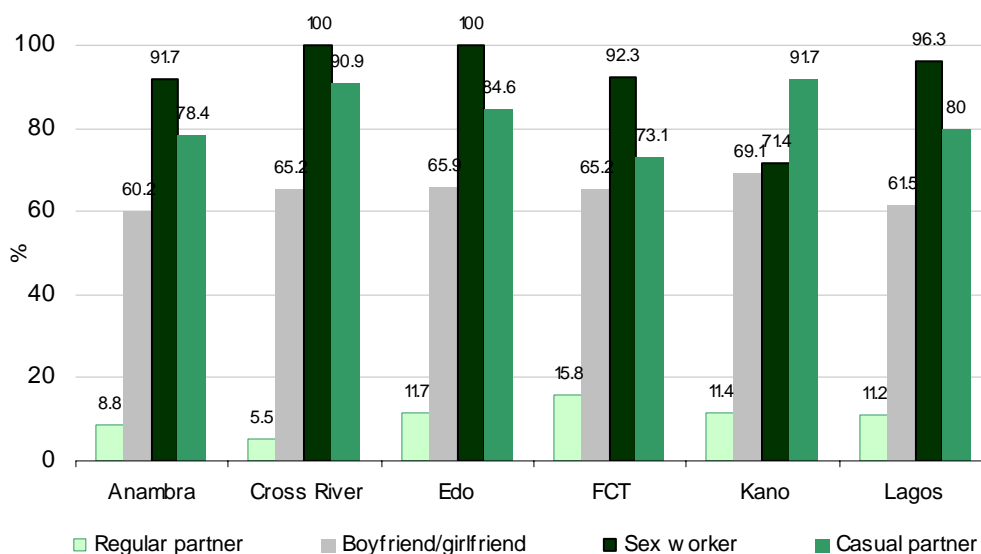


Figure 45. Condom use at last sex by type of partner – armed forces

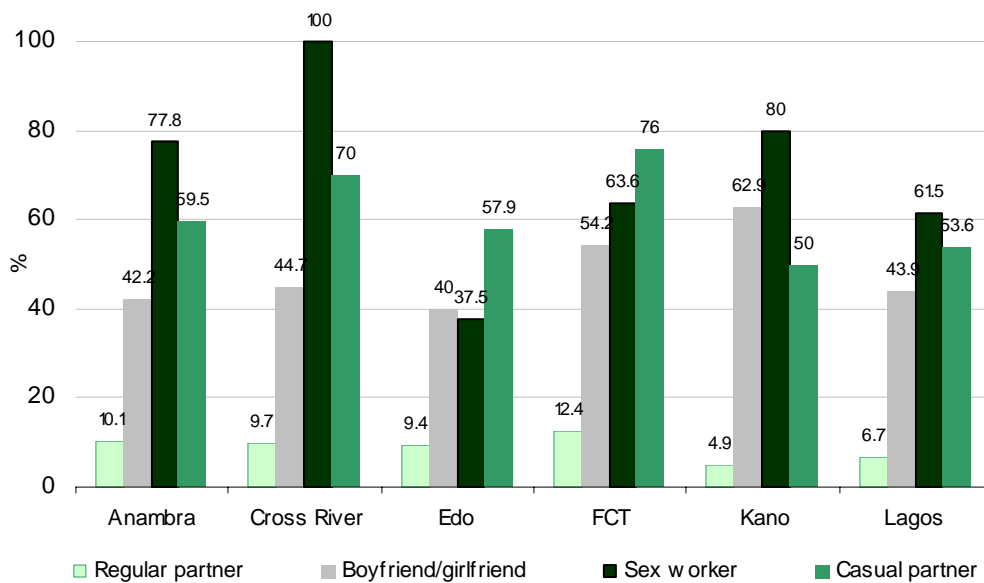


Figure 46. Condom use at last sex by type of partner – police

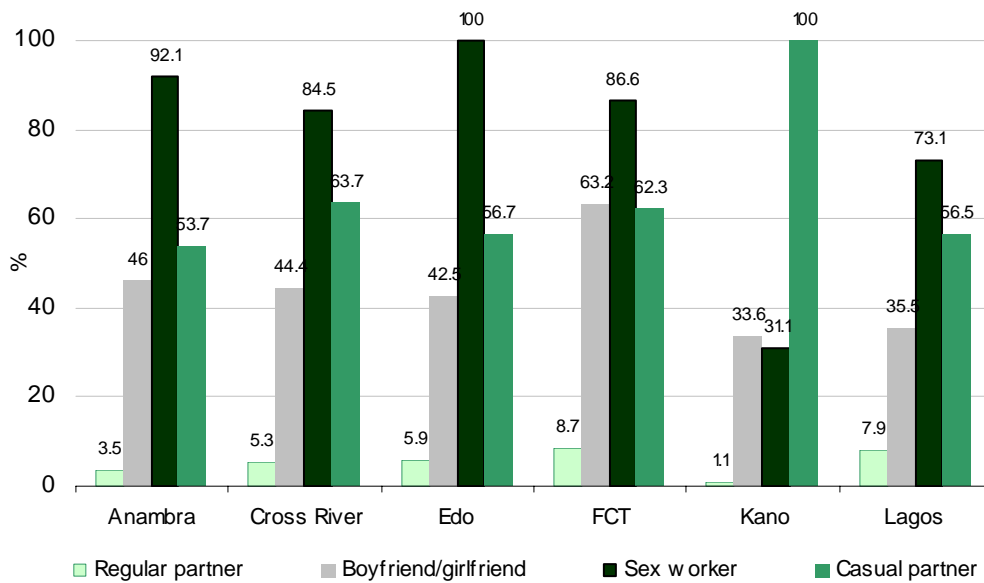


Figure 47. Condom use last sex by type of partner – TW

Condom use at last commercial sex was generally high, though results lower than 80% were observed among TW in Lagos; police in Anambra, Edo, FCT and Lagos; and TW in Kano and Lagos. This indicator was over 90% for the armed forces in all states except Kano, whereas it only exceeded 90% for the police in Anambra, and for TW in Edo and Anambra. The highest last time condom use in commercial sex for all three groups was returned from Cross River, with only TW recording less than 100% (84.5%). Across all three groups, percentages from Kano were generally the lowest (with the exception of the Kano police).

In terms of condom use with casual partners, over 70% of armed forces groups in all states reported using condoms in the last sex act, whereas percentages lower by 10 or more percent were reported by police and

TW in most states. A similar scenario was evident in sexual relations with boyfriends/girlfriends, with condoms used by armed forces personnel in around two thirds of the last sexual encounters with girlfriends/boyfriends compared to less than 50% of last sex acts with this type of partner among police and TW. Last time condom use with regular partners, including spouses, was low among all groups surveyed, averaging slightly higher than 10% for armed forces, slightly lower for police, and close to 6% for TW surveyed.

Despite the armed forces reporting comparable if not higher rates of sex with more than one partner, including girlfriends, casual and commercial sexual relations, reported condom use at last sex is higher with all types of partners. This may go some way towards explaining the lower HIV prevalence of the armed forces compared to police and TW.

Self-reported STI symptoms

Like other groups included in the 2007 IBBSS, armed forces, police and TW were asked whether they had experienced an unusual genital discharge or a genital ulcer/sore in the past 12 months. The results are presented in figures 48 to 50 below.

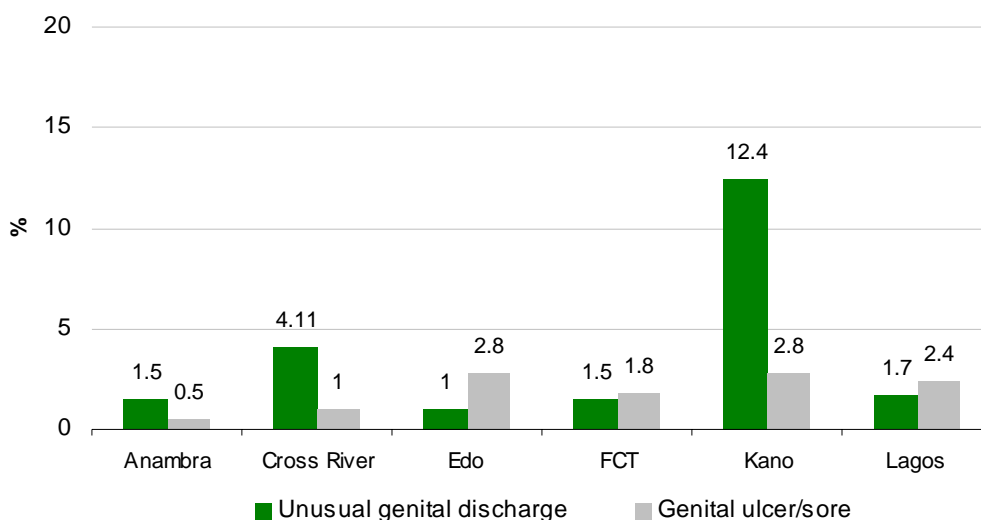


Figure 48. Armed forces – self reported STI symptoms last 12 months

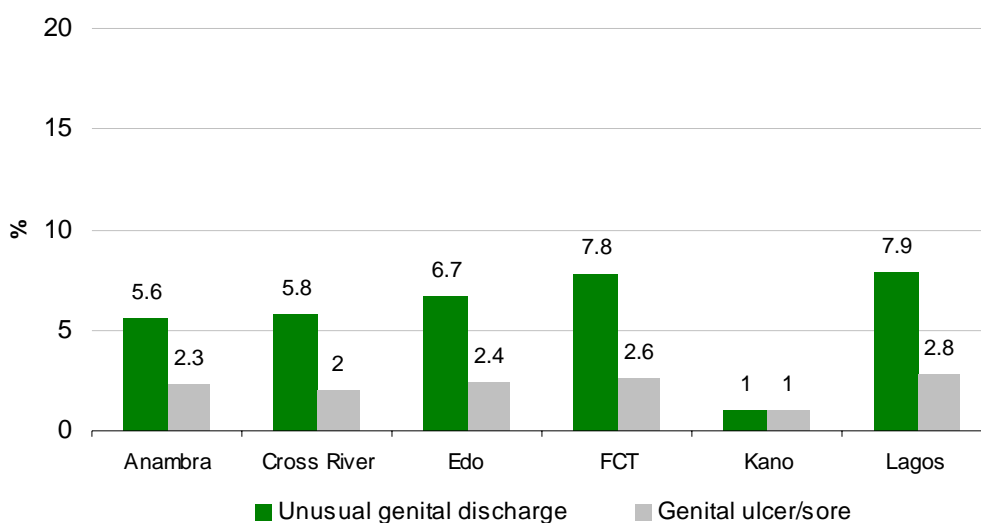


Figure 49. Police – self reported STI symptoms last 12 months

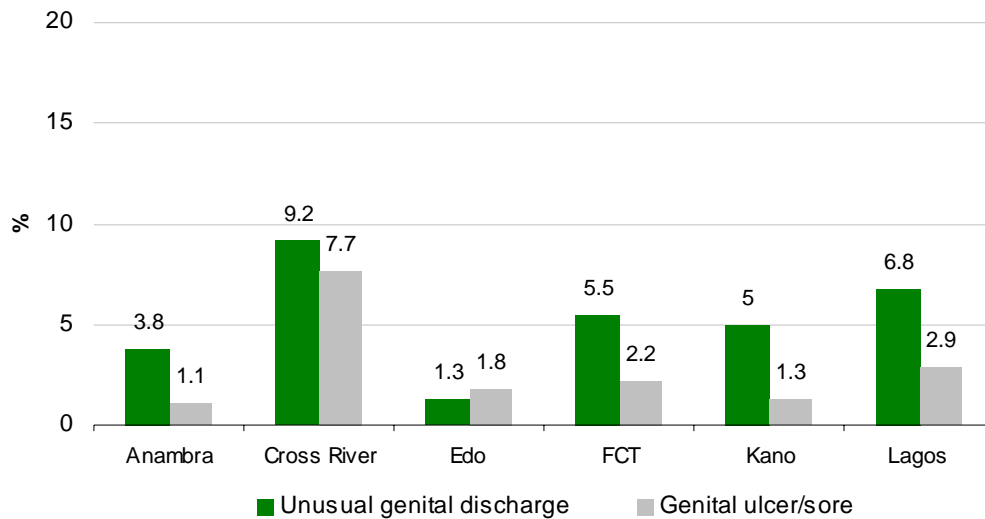


Figure 50. TW – self reported STI symptoms last 12 months

Reports of unusual genital discharge were lower among the armed forces than both police and TW, with the exception of Kano state, which recorded a higher value than any of the other predominantly male occupational groups. No state returned higher reports of STI symptoms than any other, though the highest percentage of respondents reporting both STI symptoms among TW were those in Cross River, where the armed forces also returned relatively high reports of unusual genital discharge for this particular occupational group (4.1%). With respect to police, both types of symptoms were more commonly reported by police in Lagos than police in any other state.

For all groups of police, and for the most part of TW, unusual genital discharge featured more prominently than genital ulcers/sores as STI symptoms experienced in the past 12 months. STI symptoms were quite rare among Edo state-based armed forces and TW, as well as among the armed forces of FCT, in accordance with low HIV prevalence among this particular group.

Apart from Kano, where 12.4% of armed forces personnel reported an unusual genital discharge, armed forces men are the only group included in the 2007 IBBSS where the percentage of respondents reporting one or other of the STI symptoms listed is in most cases lower than HIV prevalence in that group. Anambra is a particularly striking example, where 7.6% of personnel tested positive for HIV, only 1.3% tested positive for syphilis, and 1.5% and 0.5% reported unusual genital discharge or genital ulcers/sores respectively. TW in Cross River on the other hand, with the highest self-reported STI symptoms among this group, also had the second highest HIV prevalence among TW (6%), while the FCT based TW with the highest HIV prevalence (7.2%), reported only the third highest prevalence of STI symptoms and had the same syphilis prevalence (1.9%) as those in Lagos, who had a much lower HIV prevalence (2.8%).

These results underscore the complex and often inconsistent relationship between the prevalence of syphilis, self-reported STI symptoms and HIV prevalence. While self-reported STI symptoms were generally higher

than HIV prevalence and significantly higher than syphilis prevalence, in many cases, the relationship was reversed. This reinforces the need to interpret the significance of self-reported STI symptoms with care.

4.6. Attitudes towards people living with HIV/AIDS

All groups were asked a number of hypothetical questions to assess levels of stigma and discrimination against people living with HIV/AIDS. Tables 3, 4 and 5 below show the percentage of responses to each question by group and state.

The majority of both brothel- and non-brothel-based FSW indicated that they would be willing to care for a relative living with HIV, particularly both categories of FSW in Cross River state. Lagos FSW were the least likely to express willingness to care for a relative living with HIV/AIDS, and tended towards higher levels of stigma and discrimination than FSW in other states.

Table 3. Attitudes towards PLWHA: FSW

Brothel-based FSW							
State	Willing to Care for PLWHA relative	HIV+ student allowed to attend school	PLWHA should be allowed to teach	Would buy food from PLWHA	Would eat with PLWHA	Would work with PLWHA	PLWHA should be quarantined
Anambra	76.2	58.5	57.6	24.1	39.3	47.7	45.7
Cross River	92.8	87.4	85.6	53.2	55	77.5	24.3
Edo	70.2	67.3	67.2	29.5	38.6	59.7	24.3
FCT	80.3	73.9	68.2	40.8	51.5	67.2	14.7
Kano	84.2	77.1	74	64.5	61.4	72.2	31
Lagos	56.8	56.8	55.4	25.4	32.5	45	40.7
Total	73.8	68	65.6	40.6	46.4	59.9	31.3
Non-brothel-based FSW							
Cross River	92.8	89.5	88.5	22	23.4	87.1	14.4
Edo	64.2	73.8	71	28.3	34.8	64.2	20.4
FCT	92.6	88.5	78.9	40.8	49.3	77	7.7
Kano	75.1	70.3	67.4	50.4	56.1	67.4	28.9
Lagos	58.6	66.4	71.3	19.8	41.4	53.7	29.1
Total	76.7	77.3	74.1	35.1	44.5	68.8	19.9

The overwhelming majority of both MSM and IDU indicated they would be willing to care for family members living with HIV/AIDS, and that HIV+ students should be allowed to attend school. Kano IDU reported some of the highest levels of stigma and discrimination, with only around half intimating that HIV+ students should be allowed to attend school, and more than half suggesting that PLWHA should be quarantined.

Table 4. Attitudes towards PLWHA: MSM and IDU

MSM							
State	Willing to Care for PLWHA relative	HIV+ student allowed to attend school	PLWHA should be allowed to teach	Would buy food from PLWHA	Would eat with PLWHA	Would work with PLWHA	PLWHA should be quarantined
Cross River	84.9	89.4	84.9	47.8	74.6	91.4	20.3
Kano	95.1	76.1	80.6	39.8	77.5	81.3	25.7
Lagos	93.8	81.9	83	38.9	71.5	86.5	18.4
Total	91.2	82.5	82.9	42.2	74.5	86.4	21.4
IDU							
Cross River	82.7	81.2	77.7	43.7	59.9	79.7	17.8
Kano	89.7	51.7	49.8	34.6	39.9	68.1	61.2
Lagos	81.4	66.4	60.5	25.5	37.7	64.1	39.1
Total	85	65	61.3	34.3	45	70.2	41.5

Table 5. Attitudes towards PLWHA: Predominantly male occupational groups

Armed Forces							
State	Willing to Care for PLWHA relative	HIV+ student allowed to attend school	PLWHA should be allowed to teach	Would buy food from PLWHA	Would eat with PLWHA	Would work with PLWHA	PLWHA should be quarantined
Anambra	90.9	85.9	84.9	53.5	73.2	91.9	13.6
Cross River	93.5	85.6	87.3	55	77.3	92.4	6.5
Edo	92.4	90.1	90.7	57.1	75.7	94	17.9
FCT	92	88.4	87.3	51.6	78.9	94.9	10.9
Kano	96.1	90.4	92.6	62.4	80.1	95.7	12.4
Lagos	89	85.3	83.6	45.2	71.9	89.4	12.7
Total	92.4	88	88.2	54.3	76.2	93	12.9
Police							
Anambra	89.1	88.1	87.1	36	70.6	90.1	10.9
Cross River	89.9	87.5	87.8	50.9	63.4	87.8	13.2
Edo	77.1	78.8	80.3	35.3	61.2	82.2	24
FCT	89.6	80.8	81.5	35.7	68.2	89.9	17.5
Kano	94.7	77.2	81.8	58.3	73.3	90.2	13.7
Lagos	86.4	75.8	77.8	34.2	60.3	88.6	20.2
Total	87.2	79	80.9	40.7	64.8	88	18
TW							
Anambra	66.2	65.3	64.4	25.8	42.7	60.1	46.4
Cross River	78.2	63.1	64.5	29.9	38.8	62.1	31.7
Edo	69.1	63.9	63.1	28.8	39.3	69.7	53
FCT	82.5	71.3	67.2	27.3	46	74.2	28.8
Kano	84.8	82	75.1	58.7	63.5	73.6	39.6
Lagos	56.6	51.2	47.2	17.1	29	48.8	54.7
Total	74.5	69.2	65.9	36	29	66.7	42.9

Levels of compassion among predominantly male occupational groups varied, with over 90% of armed forces personnel reporting they would be willing to care for a relative living with HIV, compared to 87% of police and three quarters of TW. TW reacted strongly against working and eating with PLWHA, with only 66.7% and 29% agreeing to do so respectively, compared to armed forces (93.2% and 76.2%) and police (88% and 64.8%). While armed forces were the most compassionate among the three groups, only slightly over half reported they would buy food from PLWHA, which was still higher than police (40.7%) and TW (36%). The responses to these questions, especially those from the better educated groups, indicate that while compassion towards PLWHA is generally high, there appear to be high levels of misconceptions related to the potential for HIV transmission when in close proximity to PLWHA.

4.7 Exposure to HIV/AIDS Interventions

Each group in the survey was asked about their exposure to different types of HIV/AIDS-related information and services in the past 12 months. The main results for each group are presented here.

Groups receiving any HIV/AIDS information/education

Among the FSW, around three quarters reported receiving any HIV/AIDS information or education in the past 12 months. Both brothel- and non-brothel-based FSW in Kano were the least likely to have received any HIV/AIDS-related information in the past year (57% and 56% respectively), while those in Anambra and Cross River were the most likely to have received HIV-related information. IDU were also underserved (61.5%), particularly those in Lagos (37%) and Kano (52%). While the exposure of police overall was quite high (80%), HIV/AIDS information reached slightly less than two thirds of police in Edo state in the past year. Exposure to any HIV/AIDS-related information included TV and radio programs. The program 'One thing at a Time' was reported more commonly by all respondents (24%), particularly by Cross River-based armed forces and police (52.4% and 59.8% respectively). The program 'Gari Muna Fata' was most popular among TW (20.2%) and IDU (12.8%). The TW (10.8%) and brothel-based FSW (6.3%) were the major viewers of the program 'Odejinjin'.

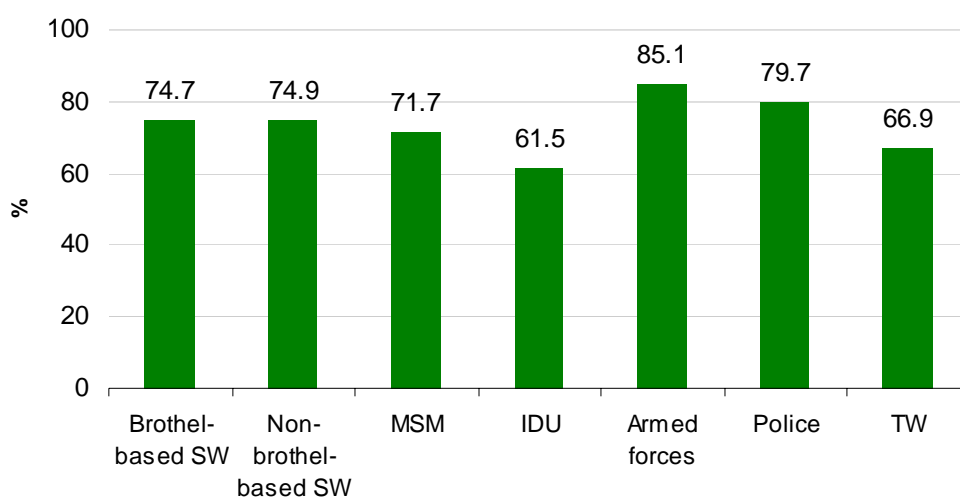


Figure 51. Percentage of each group receiving any HIV/AIDS information or education in past 12 months

Received HIV Testing and Results

Figure 52 shows that for UNGASS national program indicator 8 (HIV testing in most-at-risk populations), higher percentages of armed forces personnel had ever received HIV testing and results (68.9% overall) than other groups, enabling them to know their HIV status and to receive information on care and treatment services if testing positive. This was highest among the armed forces of Anambra (85%), who were also the most affected by HIV among this occupational group.

Overall brothel-based FSW were the next most likely to have received HIV testing and results, though the national average remains below half (44%). Out of this group, those most likely to have received testing for HIV and their results were the brothel-based FSW of Anambra, where nearly two thirds had accessed this service at least once. Access, however, was quite low in Edo, Kano and Lagos states, with around 40% ever accessing HIV testing. Overall only 31% of non-brothel-based FSW had ever received HIV testing and results, which was lowest in Lagos and Edo states (around 20%) and highest in the FCT (48%). Access to HIV testing and results among the police followed a similar pattern to brothel-based FSW, being highest in Anambra (51.1%), and lowest in Kano and Lagos (23% and 33% respectively). TW had the lowest access to testing for HIV, with less than one quarter accessing the service in all states except Anambra (39.1%). Results from TW in Edo and Lagos indicated the lowest access of all groups, at 11% and 13% respectively.

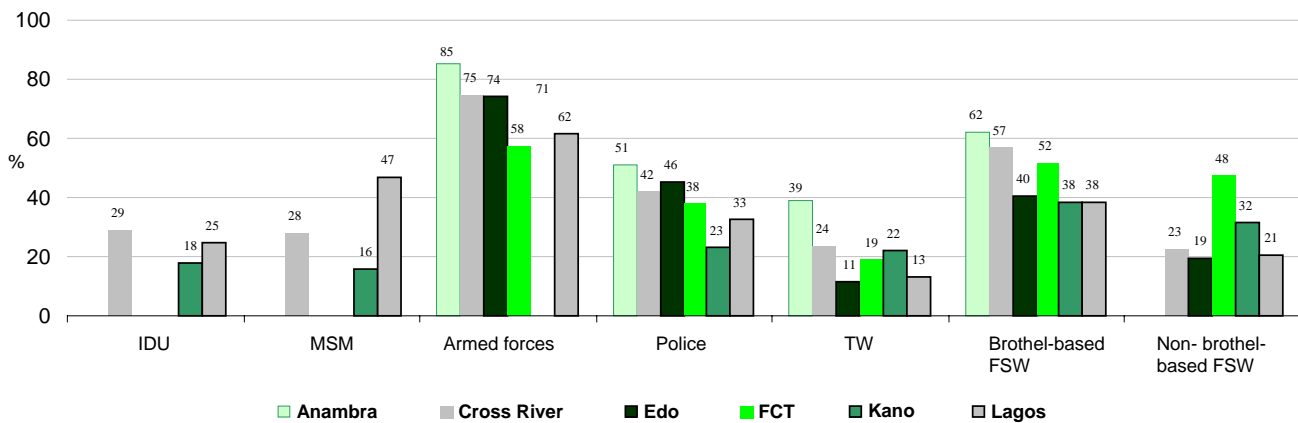


Figure 52. Percent of all groups ever receiving HIV testing and results

MSM in Lagos had the highest access to HIV testing and results out of MSM and IDU groups, with around half ever receiving the service. Outside of this group, results for both MSM and IDU were very low, with 30% or less accessing HIV testing in other states, including only 18% of IDU and 16% of MSM in Kano. Overall, the exposure of target groups to HIV testing and receiving results was highest in Anambra for all four groups surveyed there, suggesting that strategies to mobilize IBBSS target groups to know their status have been more successful in this state.

Additional questions were added to determine the proportion of each group receiving counselling along with HIV testing and results, as well as the percentage that received HCT in the last 12 months. Whereas 44% and

31% of brothel- and non-brothel-based FSW respectively had ever received HIV testing and their results, the percentage utilizing HCT in the past 12 months dropped to 33.4% and 18.2% respectively. Similar relationships were observed with other groups. 24% of MSM and 14.6% of IDU surveyed had an HIV test in the last year, compared to 34% and 22.2% ever having an HIV test respectively. 68.9% of armed forces, 35.8% of police, and 25% of TW had received an HIV test along with the results. In the last year, this service was utilized by 51%, 20.5%, and 13.2% of each group respectively. For all groups, half to three quarters of those ever accessing HIV testing also reported receiving the service in the past year.

Data presented in appendix 1 also indicates that lower percentages of all groups reported ever receiving voluntary HIV counselling and testing compared to ever receiving HIV testing and results. It is unclear whether this is due to a perceived lack of counselling or voluntary testing practices, or some form of reporting bias.

Figure 53 below outlines the results of a sub-analysis among FSW to examine the percentage of HIV positive FSW that know their HIV status in each state.

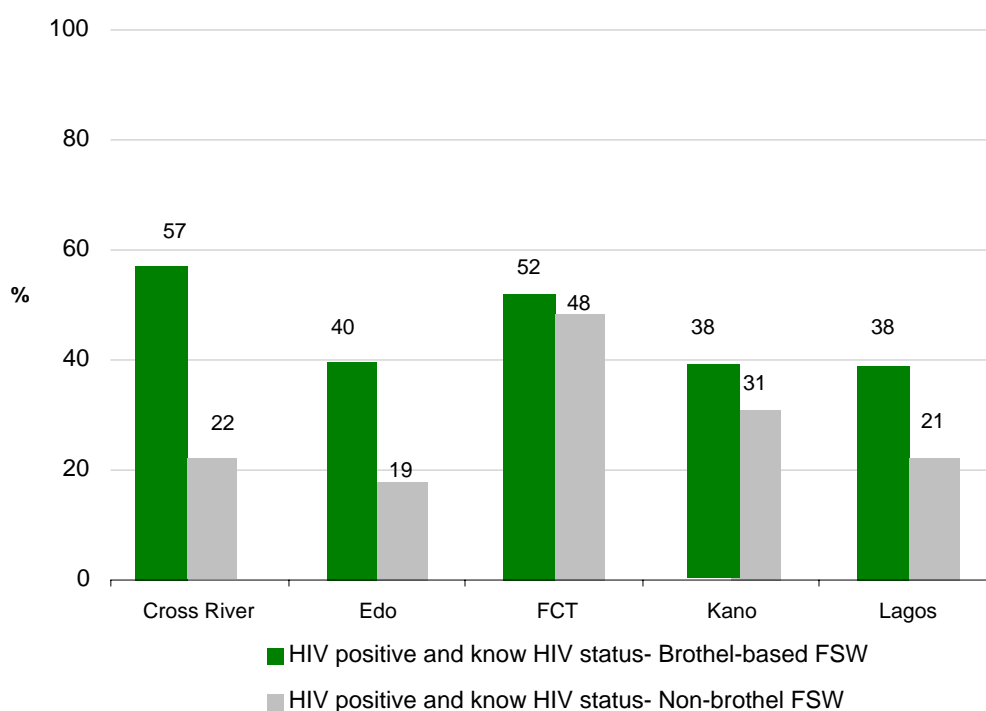


Figure 53. Percent of HIV positive FSW who know their status

Approximately 40% of HIV positive brothel-based FSW in Edo, Kano and Lagos knew their HIV status, as did 52% of their peers in FCT and 57% in Cross River. In Cross River, Edo and Lagos, it was less common for HIV positive non-brothel-based FSW to have been tested for HIV and received their results than brothel-based FSW in those states. Also in Cross River, HIV positive brothel-based FSW were more likely to know their HIV status than brothel-based FSW in Cross River overall (HIV positive and negative combined). This relationship was not apparent for other groups of FSW in other states. Edo brothel-based HIV positive FSW were slightly less likely to know their HIV status than brothel-based FSW in Edo overall.

Exposure to HIV/AIDS outreach or peer education services

FSW

All sub-population groups in the IBBSS were asked about whether they had been contacted by a peer educator or outreach worker in the past 12 months with HIV/AIDS-related information or services. They were also asked what kinds of messages or services they received during these interactions. The results are reported in figures 54 to 60 below.

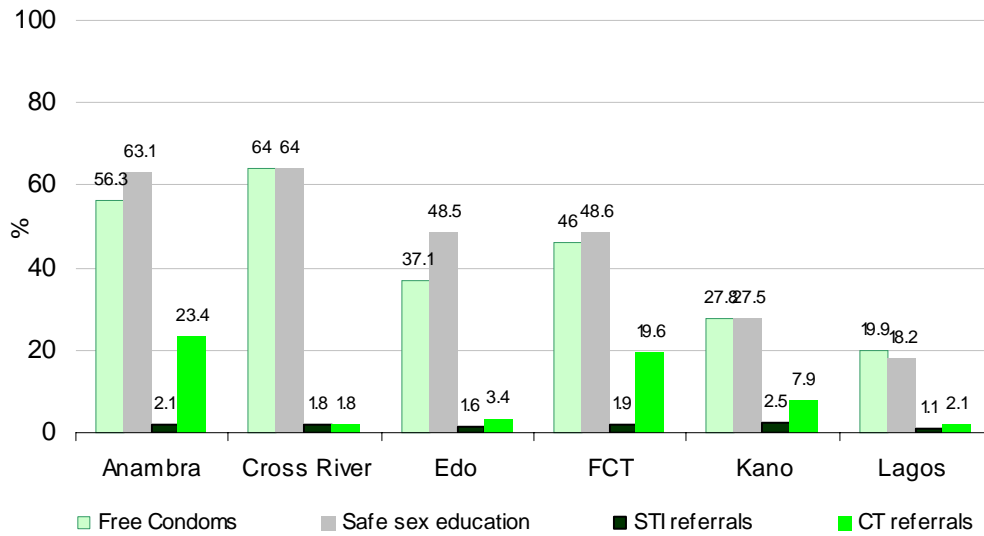


Figure 54. Exposure to HIV/AIDS outreach or peer education services: Brothel-based FSW

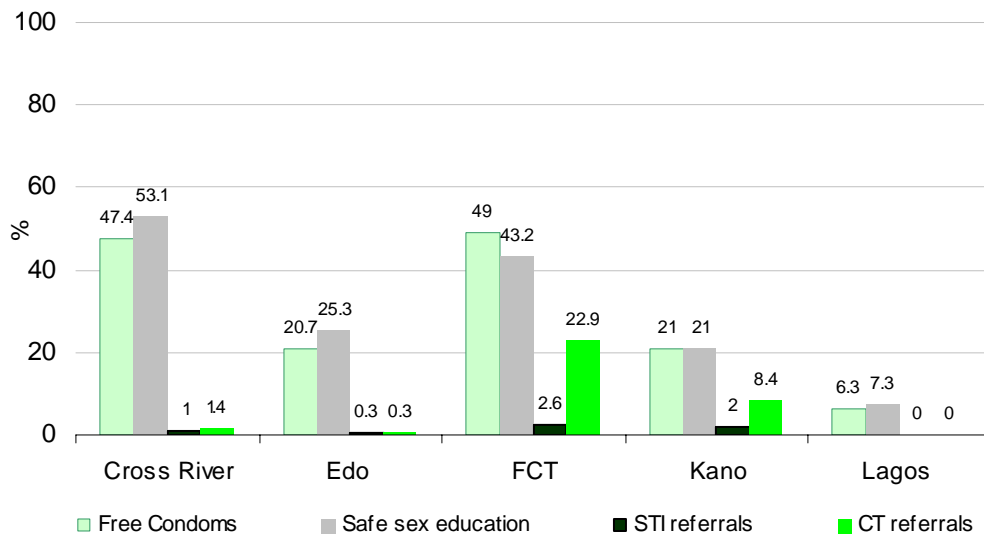


Figure 55. Exposure to HIV/AIDS outreach or peer education services: Non-brothel-based FSW

Results from FSW groups indicate that around two thirds of brothel-based FSW in Anambra and Cross River had received free condoms and safe sex education in the past 12 months, which is the highest reported coverage of these services among this group. Slightly less than 50% of brothel-based FSW in Edo and FCT had received the same services, while less than 30% of those in Kano and less than 20% of those in Lagos reported receiving this kind of intervention. Non-brothel-based FSW were less likely to have received free

condoms or safe sex education than brothel-based FSW. The highest proportions of this group receiving these services in the last 12 months were in Cross River and FCT (around 50%). After this, the percentage drops to between 20-25% for Edo and Kano, and only 6-7% in Lagos. Lagos non-brothel-based FSW had the lowest exposure to all of the four interpersonal communication services listed.

Referrals to HIV counselling and testing services were not generally associated with these outreach and peer education contacts. Overall less than 10% of FSW reported receiving referrals to HCT services. The best results came from the FCT (brothel- and non-brothel-based) and non-brothel-based FSW in Anambra where 20-25% of FSW received such referrals in the past year. It is important for FSW to receive regular STI check-ups, yet referrals for STI services were reported by under 3% of FSW as part of outreach and peer education communication in IBBSS states. It is not possible to determine whether this is a communication gap or primarily related to the availability of affordable and good quality STI services.

MSM and IDU

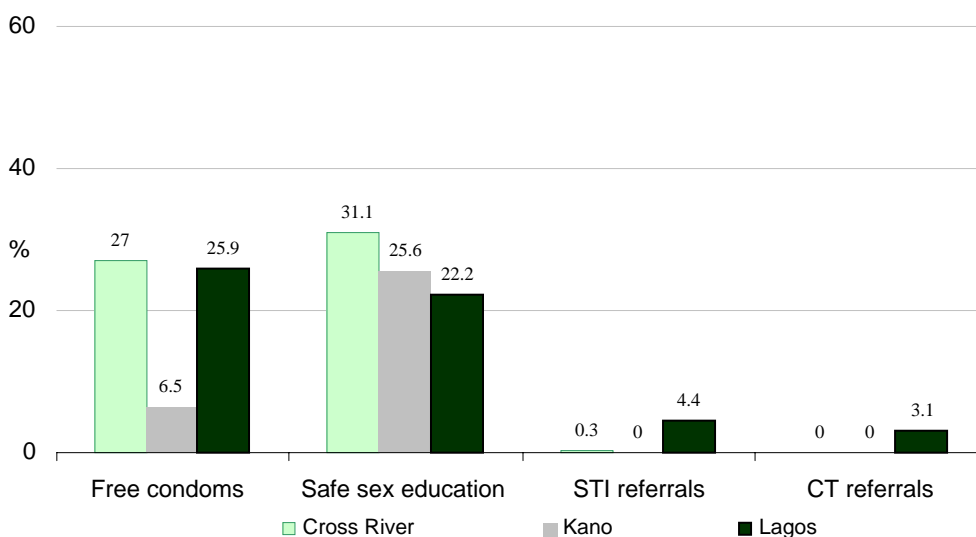


Figure 56. Exposure to HIV/AIDS outreach or peer education services: MSM

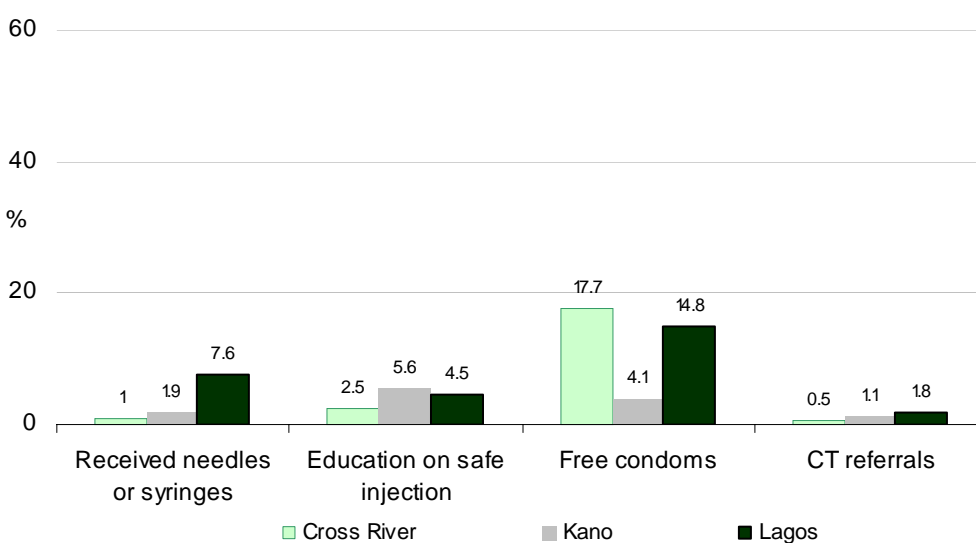


Figure 57. Exposure to HIV/AIDS outreach or peer education services: IDU

MSM were asked whether they had received similar outreach and peer education services as FSW, including condom distribution and education regarding condom use, as well as referrals to STI and HCT services. IDU were also assessed as to whether they received education on safe injection practices and clean needles or syringes to reduce the likelihood of injecting with previously used equipment.

The proportion of MSM who reported receiving free condoms or safer sex education was quite low, at around 20-30% in all states, and was slightly higher in Cross River than Lagos and Kano states. STI and HCT referrals for MSM were only evident in Lagos, with no sign of these services reaching MSM in Cross River and Kano.

IDU in Lagos and Cross River were significantly more likely to get free condoms than education or services related to preventing HIV through safer injecting practices. HCT referrals were uniformly low, reaching less than two percent of the IDU population in all states. Lagos was the only state where around eight percent of IDU had received sterile injecting equipment from peer educators or outreach workers. In Kano and Cross River the service was received by fewer than two percent of respondents. Except for Lagos, IDU were more likely to receive education on safer injection practices than receive sterile injecting equipment, though access to this service was also uniformly low, ranging from 2.5% in Cross River to 5.6% in Kano.

Predominantly Male Occupational Groups

Members of the predominantly male occupational groups were asked the same questions as FSW regarding their sources of HIV/AIDS information and the nature of contacts by peer educators or outreach workers. The armed forces had generally the highest proportion of its members receiving free condoms or safe sex education, with approximately two thirds receiving safe sex education in all states except FCT and Lagos, where the percentage was much lower (less than 30%). The receipt of condoms was generally less common than safer sex education, reaching 50% only in Edo state, and lower than 30% in FCT and Lagos.

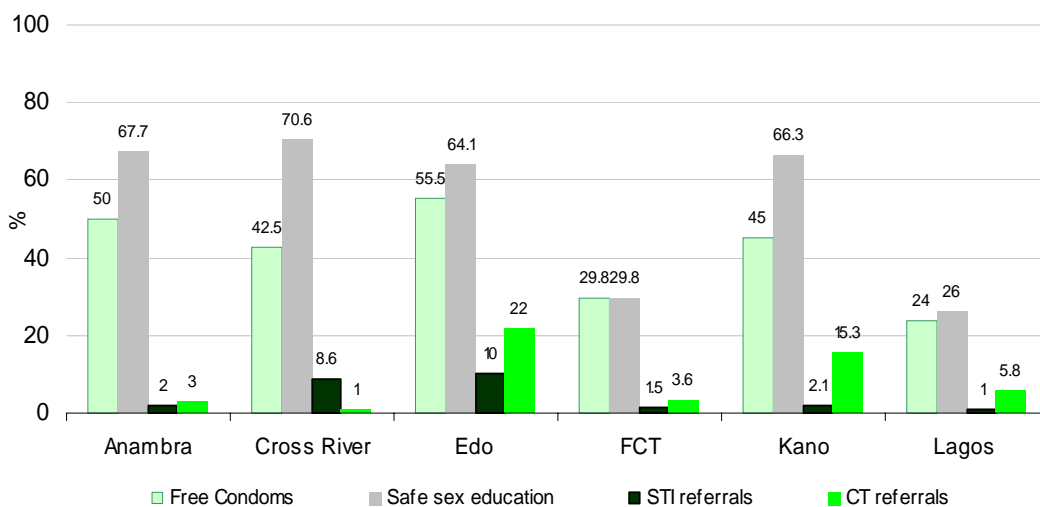


Figure 58. Exposure to HIV/AIDS outreach or peer education services: Armed forces

Both police and TW groups were considerably less exposed to HIV prevention education than the armed forces, with the exception of FCT where service coverage was nearly the same between the police and armed forces.

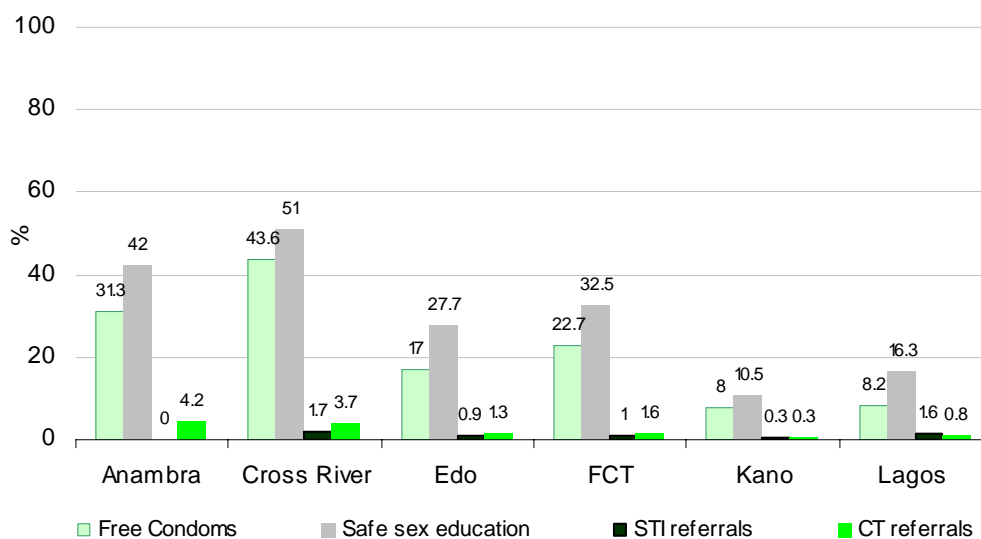


Figure 59. Exposure to HIV/AIDS outreach or peer education services: Police

Police in Anambra and Cross River were the most likely to have received safe sex education (42% and 51% respectively), closely followed by FCT. Police in Kano and Lagos were the least likely to have been exposed to any one of these information or service components, with 10% or less of police in Kano receiving condoms or safer sex education messages through interpersonal communication, and 16% or less in Lagos.

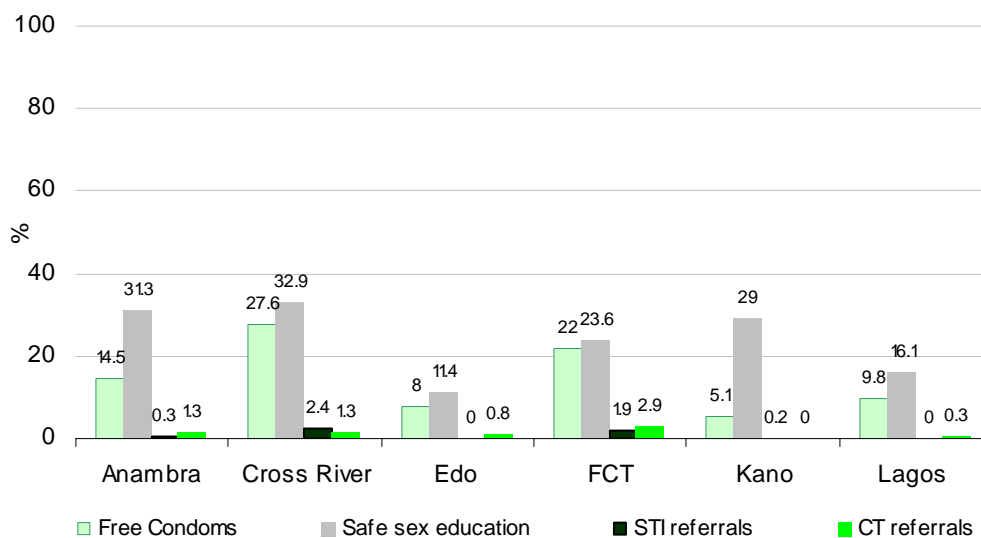


Figure 60. Exposure to HIV/AIDS outreach or peer education services: TW

There were no states included in the survey where more than one third of TW had received exposure to one or more of the HIV-related services delivered by outreach workers or peer educators. TW in Cross River were the most likely to have received free condoms and safe sex education (27.6% and 32.9% respectively), while those in Edo were the least likely (8% and 11.4% respectively). Condom distribution to TW in Kano was also uncommon (5.1%) compared to safe sex education (29%), and a similar relationship was apparent in Anambra (14.5% receiving free condoms, 31.3% receiving safe sex education).

Referrals to HCT services were considerably lower than the receipt of HIV prevention-related information through interpersonal communication channels. The only groups where a sizeable part of the population received referrals for HCT services were the armed forces in Edo and Kano states (22% and 15.3% respectively). STI referrals were also highest among this occupational group, particularly for the armed forces in Cross River and Edo states (8.6% and 10% respectively). Outside of the armed forces in these two states, less than 3% of any other predominantly male occupational group received STI referrals.

5. Selected Behavioural Trends

Presented below are selected trends using data from two previous BSS rounds (2000 and 2005) together with results from the 2007 IBBSS. The population groups analyzed for trends are FSW (brothel- and non-brothel-based combined) in Lagos and long distance TW in Anambra (23% of the total sample of Anambra TW included in this survey). These are the only two groups included in each of the three rounds of behavioural surveillance. There are more consistencies in the selection of groups and geographical areas between the 2005 BSS and this survey, paving the way for an expanded trend analysis in the future

Female Sex Workers in Lagos

Figure 61 shows that among FSW in Lagos, reported condom use in commercial sex has remained very high since 2000. Almost all FSW surveyed in each BSS round reported using a condom at their last commercial sex act (94% in 2000, 99% in 2005 and 97% in 2007). There was little or no evidence of a change (either an increase or a decrease) in this behaviour.

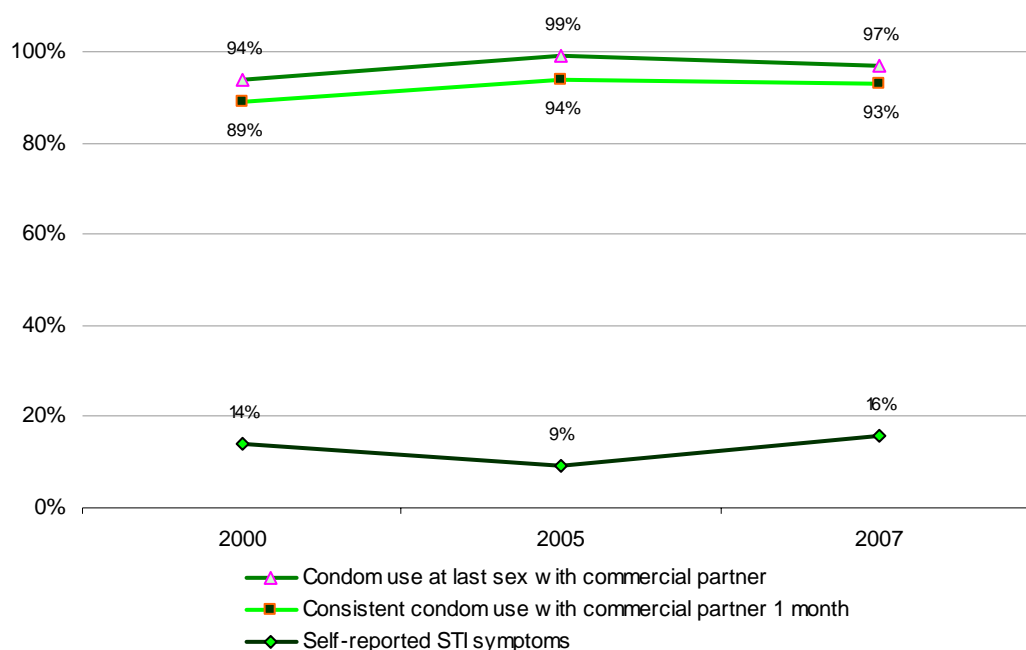


Figure 61. Lagos FSW condom use and self-reported STI trends 2000 - 2007

Reported consistency of condom use (use of condoms every time) with commercial partners in the last month also followed a similar trend. About nine out of every ten FSW surveyed across the three BSS rounds reported using condoms every time they had sex with a commercial partner in the last one month. In the 2007 IBBSS, this pattern was also observed among FSW surveyed in other states. Self-reported STI symptoms among sex workers declined between 2000 (14%) and 2005 (9%), before rising again in 2007 (16%). The increase between 2005 and 2007 is significant, though care needs to be taken when interpreting this trend, as health

education leading to improved awareness of STI symptoms also influences symptom recognition. Overall there was no change in self-reported STI symptoms among FSW in Lagos when comparing results in 2000 with those in 2007.

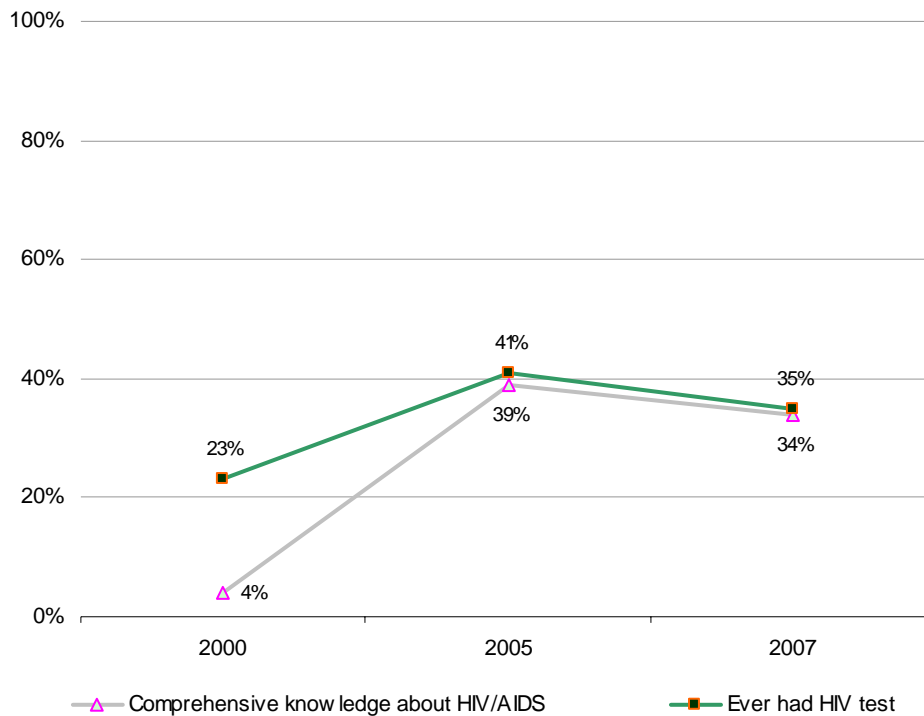


Figure 62. Lagos FSW knowledge and HIV testing trends 2000 - 2007

While there was no change in condom use or self-reported STI symptoms, a significant increase in comprehensive HIV/AIDS knowledge (ability to correctly identify two methods of preventing HIV infection and reject three major misconceptions of HIV transmission) and access to HIV testing among FSW in Lagos was reported between the 2000 and 2005 rounds of the BSS (figure 62). The proportion of FSW in Lagos with comprehensive HIV/AIDS knowledge rose significantly from a low of 4% in 2000 to 39% in 2005. During the same time, those that were ever tested for HIV also climbed from 23% in 2000 to 41% in 2005. No significant changes in comprehensive HIV/AIDS knowledge or the proportion of FSW in Lagos ever receiving an HIV test were noted between the 2005 and 2007 rounds of surveillance.

Transport workers in Anambra

In contrast to the FSW of Lagos, significant changes in behavioural indicators of long distance TW in Anambra occurred in between BSS rounds and the 2007 IBBSS. While condom use during commercial sex (both last time and consistent) was stable between 2000 and 2005, significant improvements were noted between 2005 and 2007, with both indicators increasing from 60% to 86% over the two-year period. Compared to FSW, a smaller proportion of TW reported using condoms at last commercial sex (particularly in 2000 and 2005). The same relationship was evident for consistent condom use during commercial sex however the time period for recalling whether condoms were used consistently differed between the two groups (one month for FSW and one year for TW).

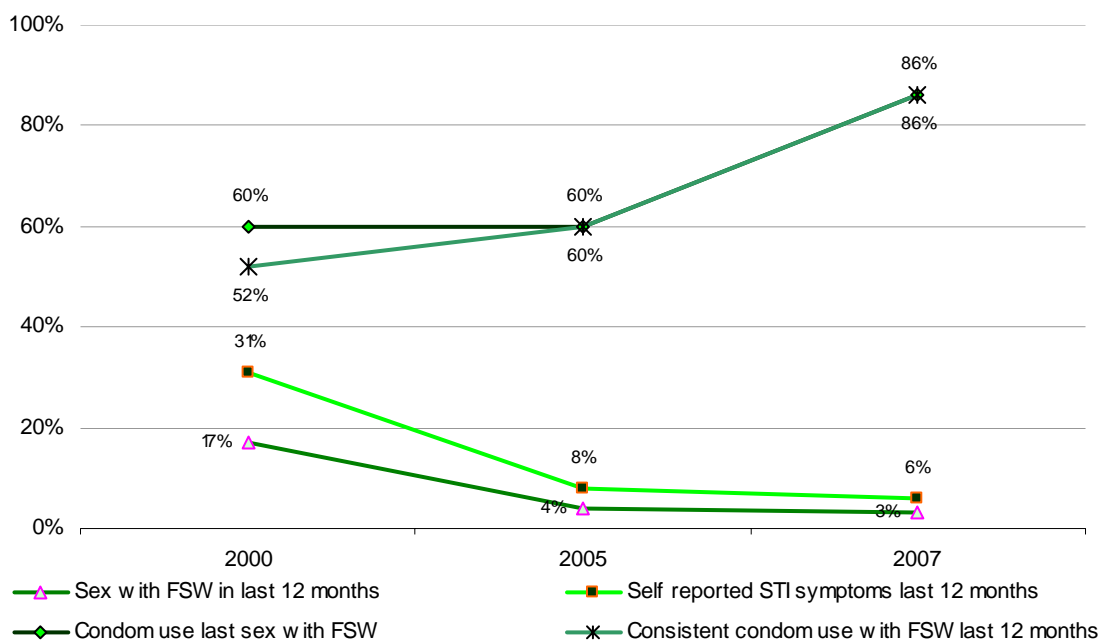


Figure 63. Anambra TW behavioural trends 2000 - 2007

Declines in self-reported STI symptoms and the proportion of TW reporting sex with FSW were evident between the 2000 and 2005 BSS rounds, with both indicators remaining low and stable between 2005 and 2007. Between 2000 and 2007, reported STI symptoms in the last year dropped from 17% to 3%. TW that reported having sex with at least one commercial sex partner in the last year dropped from 31% in 2000 to 8% in 2005 and 6% in 2007.

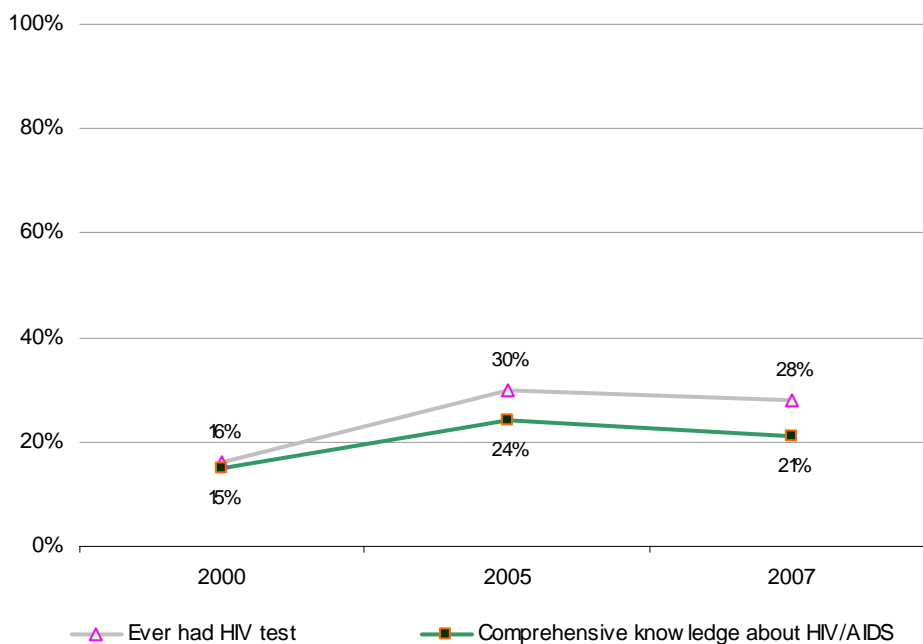


Figure 64. Anambra TW knowledge and HIV testing trends 2000 - 2007

The proportion of long distance TW with comprehensive HIV/AIDS knowledge increased significantly from 15% in 2000 to 24% in 2005 and declined slightly to 21% in 2007. A similar trend was observed with respect to TW ever having an HIV test, climbing from 16% in 2000 to 30% in 2005, and decreasing slightly but not significantly to 28% in 2007.

6. Study Limitations

The following are limitations of this survey:

- **Reporting bias:** Like in most other behavioural surveys, the issue of under-reporting risk behaviours among participants of this study must be considered. Due to social stigma, some behaviours, such as condom use, drug injection or needle sharing may be under-reported by respondents. For example, the figure of condom use at last sex among FSW was over 90% in most states, higher than what was reported by male groups surveyed, and this needs to be viewed with caution. Many efforts were made to limit this bias. All interviews were conducted in private places, surveys were anonymous, and there was no identifying information, and respondents were encouraged to provide accurate responses. Still, some indicators of risk behaviours are likely conservative estimates.
- **Incomplete sampling frames:** Cluster samples were chosen randomly based on sampling frames developed through the mapping process. This process was to identify places where potential subjects could be reached and sampled. Fieldwork for the mapping exercise was performed over one week by staff from the NPC with previous experience from the 2005 BSS. Due to the limited period and type of stakeholders involved in the mapping, some hidden populations may not be adequately represented in sampling frames.
- **Location of RDS study centres:** For the MSM component, RDS study centre locations were chosen together with members of the technical committee and the NGO, Alliance Rights Nigeria. For the IDU component, interview locations included psychiatric hospitals, and although efforts were made to provide a supportive environment for target populations in all locations, potential study subjects may have felt more comfortable going to a non-medical location or one nearer their residences.
- **The Respondent Driven Sampling method is being evaluated:** One advantage of the RDS method is that the sampling frame is built up during the recruitment process and this helps to avoid incomplete sampling frames, as happens in the cluster sampling method. However, there are several key assumptions and operational issues under evaluation. These include the influence of non-response bias, selection of seeds, an assumption of random selection within a network of target populations, and others. Until these issues are clarified, unknown biases may affect estimates generated from samples using RDS.

7. Discussion

The 2007 IBBSS provided several new insights into the current state and potential future direction of the HIV epidemic in Nigeria. It was an ambitious study in scale as well as scope, by investigating biological and behavioural parameters among seven sub-population groups, including those that are difficult to access and subject to stigma, discrimination and often persecution. It employed a range of different sampling methods, and was designed to produce reliable state-level data for groups surveyed. As such it achieved a number of 'firsts' in Nigerian HIV surveillance history.

Perhaps most important among the contributions are the new insights into HIV prevalence in groups other than pregnant women and STI clinic attendees. There is now concrete evidence of the unequal distribution of the burden of HIV in Nigeria, including among groups about whom little is known (MSM and IDU). FSW bear the brunt of the HIV epidemic in Nigeria, with HIV prevalence levels rising as high as 50% in states surveyed. MSM in Lagos are also severely affected, with one out of four respondents in the IBBSS testing positive for HIV, which is particularly concerning as most of those sampled in this group were under the age of 25. At the other end of the spectrum, all three predominantly male occupational groups returned HIV prevalence levels considerably lower than the 2005 general population estimates. The armed forces HIV prevalence of 3.1% is particularly encouraging. Although a limited number of states were sampled, these results may be indicative of a decline in overall general population HIV prevalence from the 2005 levels, or at least signify the need to rethink the classification of 'high-risk' groups in Nigeria. Much will depend on the results from forthcoming general population-based HIV surveillance.

Another encouraging sign from the 2007 IBBSS was the very low levels of syphilis detected. The highest syphilis prevalence among any group at state-level was 2.7% among the FCT-based armed forces, and no syphilis at all was detected among MSM. Genital ulcerative STIs can considerably facilitate HIV transmission, and though low levels of syphilis were detected, reports of STI symptoms including genital ulcers/sores and unusual genital discharge were higher than HIV prevalence in most groups.

Insights resulting from the sampling design that achieved reliable state-level data highlighted another important contribution of the 2007 IBBSS. While the armed forces HIV prevalence was lowest overall, it reached as high as 7.6% in Anambra. The demographic and behavioural differences between IDU in Cross River and other states, and further results coming from a single state that dramatically differ from national group averages, give policy-makers and program managers the opportunity to target prevention and care resources to different groups and geographic areas more effectively.

Considerable knowledge, behavioural and intervention exposure-related data was accumulated to provide insights into current and future HIV transmission routes. Only a selection of this data was included in the report, highlighting the need for further and ongoing analyses. Results show that misconceptions about HIV transmission are generally high, especially in relation to the average levels of education achieved by many of

the groups included. These misconceptions contribute to riskier behaviours in some cases, and to stigma and discrimination against PLWHA in others. Many of the misconceptions and gaps in service access were most prevalent in the larger cities of Lagos and Kano. In many cases, knowledge of HIV, even where present, was failing to be internalized at the individual level in the form of risk perception.

Data on risk behaviours and trends presented in relation to previous BSS rounds suggest that condom use in commercial sex transactions is generally high. The discrepancies between responses of FSW and the male groups surveyed regarding condom use in commercial sex may merit further investigation. Multiple sexual partnerships were reported by 30-40% of predominantly male occupational groups in the 12 months leading up to the survey. Condom use was far less likely in boyfriend/girlfriend relationships, and the data indicate that these relationships are quite common both for FSW and predominantly male occupational groups. Multiple partnerships of this nature and with casual partners coupled with low condom use act as facilitators for HIV transmission. MSM reported highly risky sexual behaviour, as condom use in anal sex was low, relatively the same for both paying and non-paying partners, and one third of the sample had sold sex in the past six months. IDU, particularly those in Kano, reported highly risky injecting behaviour, and were more likely to share needles/syringes than IDU in other states. This may go some way towards explaining the higher HIV prevalence among this group (10%) than other IDU.

There were limited signs of behavioural interactions between IDU, MSM and FSW, linkages which are believed to be responsible for accelerating HIV epidemics in certain concentrated epidemic settings. The exception here are the IDU in Cross River and to a lesser extent Kano, who reported being very sexually active, with girlfriends and FSW, and the female IDU, a good proportion of who reported selling sex. MSM had limited contact with other groups, such as FSW and IDU, though a sizeable proportion reported having sex with any female partner in recent months. Care must be taken when interpreting behavioural data together with HIV prevalence, because HIV prevalence changes only in the long-term, and risk behaviours which lead to HIV infection, may have occurred many years in the past. Behaviours and the prevalence of certain STIs are better indicators of current vulnerability to HIV.

To better understand the potential for the wider spread of HIV, more reliable population size estimates of FSW, MSM and IDU are needed. These estimates need to be viewed together with results of this report to help target limited prevention and care resources. Future rounds of surveillance should consider expanding IDU, MSM and female sex worker surveillance outside of the states surveyed in 2007, and increase the role of former IDU and sex work stakeholders in design and implementation issues, in the same manner that an organization with strong linkages to the MSM community helped identify locations for interviewing, as well as screen and manage recruitment of participants.

The need to remain vigilant to reduce further HIV transmission and keep HIV prevalence low is paramount. For risk groups in a mature epidemic setting, all involved in the 2007 IBBSS are generally under-served with HIV prevention information/education and referrals to important services. When comparing HIV prevalence differences between the two male occupational groups, armed forces and TW, the results in this report profile the armed forces personnel as demonstrating higher HIV/AIDS knowledge, safer behaviours and better access

to information and services than TW. While this does not prove a causal link between interventions and outcomes, it does highlight the fact that there is considerable scope for the expansion of services and further reductions in HIV prevalence levels within the groups included in the 2007 IBBSS, and the wider Nigerian population.

8. Appendix

Appendix 1: List of Contributors

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Appendix 2: Descriptive analysis of behavioural data

Characteristics of IDU

Characteristics	Cross River	Kano	Lagos	Overall
Age group (n)	197	269	222	688
15 - 24	47.7	6.3	0	16.1
25 - 49	52.3	93.7	100	83.9
Highest level of Education (n)	197	268	222	687
Never attended school	0	4.5	0.9	2
Quaranic education only	0	13.1	0.9	5.4
Some primary	0.5	7.8	1.8	3.8
Completed primary	2	8.6	14.7	8.7
Some secondary	10.2	18.7	18	16
Completed secondary	43.7	23.9	30.2	31.6
Tertiary education	43.7	23.5	33.3	32.5
Duration of drug injection (n)	192	265	221	678
1 year or less	4.2	0.4	0	1.3
>1 year	95.8	99.6	100	98.7

Characteristics of Brothel-based FSW

Characteristics	Anambra	Cross River	Edo	FCT	Kano	Lagos
Age group (n)	263	111	284	311	282	281
15 - 19	7.8	12.6	3.5	3	8.1	11.7
20 - 24	34.9	33.3	34.3	35.7	40.2	42.7
25 - 49	57.3	54.1	62.2	61.3	51.7	45.6
Duration of selling sex (n)	263	111	284	311	282	281
Mean	3.5	3.8	2.1	4.4	5.4	4
Marital status (n)	248	111	283	300	275	281
Currently married, living with spouse	2.4	0	0	1.7	0.9	1.4
Currently married, living with other sex partner	5.5	0.9	1.4	2.7	5.4	0.4
Currently married, not living with spouse or other sex partner	17.2	8.1	40.1	25.3	3.5	13.2
Not married, live with other sex partner	4.3	1.8	1.8	4.3	6.2	4.6
Not married, don't live with other sex partner	69.9	83.8	55.4	36.7	49.2	74.7
Highest level of Education (n)	248	111	283	300	274	281
Never attended school	5	3.6	5.6	10	11.6	10.7
Quaranic education only	0	0	1.2	0.7	6.3	1.1
Some primary	5.5	11.7	7	6.7	6.9	8.5
Completed primary	18.5	17.1	16.5	17	10.2	21.7
Some secondary	46.5	18	37.7	34	33.4	37.4
Completed secondary	21	46.9	28.6	28.7	25.2	18.5
Tertiary education	3.6	2.7	3.4	3	6.3	2.1

Characteristics of Non-brothel-based FSW

Characteristics	Anambra	Cross River	Edo	FCT	Kano	Lagos
Age group (n)	-	209	298	367	231	288
15 - 19	-	8.6	7	7.1	11.5	11.5
20 - 24	-	40.2	29.2	48.2	37	42

25 – 49	-	51.2	63.8	44.7	51.6	46.5
Duration of selling sex (n)	-	209	298	367	231	288
Mean	-	4.6	3.1	5.5	5.6	3.7
Marital status (n)	-	209	297	367	231	288
Currently married, living with spouse	-	3.8	0.3	0.8	2.6	0.3
Currently married, living with other sex partner	-	0.5	1.3	3.5	34.6	0.3
Currently married, not living with spouse or other sex partner	-	4.8	26.9	8.7	4.2	6.9
Not married, live with other sex partner	-	3.8	0	4.1	4.2	3.5
Not married, don't live with other sex partner	-	76.1	68.7	74.4	53.7	83.7
Highest level of Education (n)	-	209	297	367	231	288
Never attended school	-	0.5	1	1.1	7.3	3.8
Quaranic education only	-	0.5	0	0.3	9	0
Some primary	-	2.4	4.7	2.7	5.8	3.5
Completed primary	-	10.1	13.8	3.8	11.9	12.2
Some secondary	-	19.6	30	20.4	29.2	34
Completed secondary	-	34	37.7	55.6	26	35.4
Tertiary education	-	33	12.8	16	10.7	11.1

Characteristics of MSM

Characteristics	Cross River	Kano	Lagos	Overall
Age group (n)	293	293	293	879
15 - 24	81.6	68.9	70.7	73.7
25 - 49	18.4	31.1	29.4	26.3
Highest level of Education (n)	292	293	289	874
Never attended school	0	1.4	0.3	0.6
Quaranic education only	0	3.4	0	1.1
Some primary	0.3	0.3	0.3	0.3
Completed primary	0.3	28.7	3.5	10.9
Some secondary	7.2	12.3	5.5	8.4
Completed secondary	67.5	46.1	76.5	63.3
Tertiary education	24.7	7.9	13.8	15.5
Duration of residence in state (n)	292	293	288	873
<5 years	16.4	5.8	10.9	10.9
5 years or more	83.6	94.2	89.6	89.1

Characteristics of Armed Forces, Police and Transport Workers

Characteristics	Transport Workers	Police	Armed Forces
Age group (n)	59	4	5
15 – 19	3.1	0.2	0.3
20 – 24	14	10.2	11
25 – 49	82.9	89.7	88.6
Sex (n)	2230	1670	1838
Male	100	77	100
Female	0	23	0
Marital status (n)	2227	2229	1838
Currently married, living with spouse	61.7	56	54.8
Currently married, living with other sex partner	1.7	0.6	1.8

Currently married, not living with spouse or other sex partner	3.5	9.7	7.7
Not married, live with other sex partner	2.2	3	5.2
Not married, don't live with other sex partner	29.9	30.2	29.4
Highest level of Education (n)	2227	2227	1838
Never attended school	4.4	0	0
Quaranic education only	5.6	0.2	0.5
Some primary	7.7	0.1	0.7
Completed primary	26.1	4.7	3
Some secondary	19.8	2.2	2.5
Completed secondary	28.9	68.5	58.3
Tertiary education	7.5	24.3	35.1

Number of sexual partners of brothel-based FSW

Characteristics	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Number of clients in the last week of sex work (n)	244	103	278	295	267	278	1466
Mean	51	27.4	33.4	45	33.9	20	34.1
Number of clients on the last day of sex work (n)	244	103	278	295	268	279	1467
Mean	8	4.4	4.7	7.7	6.4	4.2	6
Number of non-commercial sex partners in the last week of sex work (n)	243	103	276	296	268	279	1465
Mean	1.2	0.4	0.2	0.4	1.1	3	1.3

Number of sexual partners of Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Number of clients in the last week of sex work (n)	-	202	279	366	193	267	1319
Mean	-	12.1	27.1	34.1	23.1	17.9	25.1
Number of clients on the last day of sex work (n)	-	202	280	366	193	279	1320
Mean	-	2.5	7.4	4.5	6.2	3.6	5
Number of non-commercial sex partners in the last week of sex work (n)	-	202	273	366	193	276	1310
Mean	-	0.2	0.1	0.7	1.4	1.6	0.9

Condom use among brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Condom use with client during last sex (n)	242	103	276	290	260	277	1448
Percent	98.8	100	100	98	97	99.3	98.4
Consistent condom use with client in the past 1 month (n)	217	103	273	276	229	274	1372
Percent	87.5	100	99	93.2	86.8	98.2	92.8
Condom use with regular partner during last sex (n)	5	0	2	2	20	6	35
Percent	21.4	0	18.8	11.8	42.4	25	32.2
Consistent condom use with regular partner in the past 12 months (n)	1	0	2	1	7	3	14

Percent	4.8	0	18.8	5.6	10.9	12.5	10.5
Condom use with non commercial sex partner during last sex (n)	59	32	42	94	145	75	447
Percent	22.4	28.8	14.9	30.2	52.6	26.7	32.8
Condom use with boyfriend during last sex (n)	40	27	33	73	95	58	326
Percent	25.9	36	26	38.4	47.1	35.6	38.1
Consistent condom use with boyfriend in the last 12 months (n)	21	14	25	56	57	32	205
Percent	12.7	18.7	18.9	29.5	29.2	19.6	23.9
Condom use with casual partner during last sex (n)	19	7	11	27	53	15	132
Percent	91.3	87.5	76.1	67.5	88.1	83.3	83.2
Consistent condom use with casual partner in the last 12 months (n)	12	7	10	24	39	14	106
Percent	54.3	87.5	68.9	60	64.1	77.8	64.8

Condom use among Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Condom use with client during last sex (n)	-	197	265	361	180	276	1279
Percent	-	97.5	95.7	98.6	93.1	98.9	96.9
Consistent condom use with client in the past 1 month (n)	-	184	264	335	158	275	1216
Percent	-	91.1	95.3	91.5	81.9	98.6	91.6
Condom use with regular partner during last sex (n)	-	6	0	2	7	2	17
Percent	-	33.3	0	12.5	35.6	15.4	24.9
Consistent condom use with regular partner in the past 12 months (n)	-	1	0	2	3	2	8
Percent	-	5.6	0	12.5	15.6	15.4	12.8
Condom use with non commercial sex partner during last sex (n)	-	92	26	172	83	76	449
Percent	-	44	8.6	45.3	34.1	26.4	32
Condom use with boyfriend during last sex (n)	-	74	26	162	46	69	377
Percent	-	50.3	19.1	54.4	45.2	48	46.1
Consistent condom use with boyfriend in the last 12 months (n)	-	29	16	106	32	40	223
Percent	-	19.7	11.8	35.6	31.7	27.8	28.4
Condom use with casual partner during last sex (n)	-	22	1	19	43	10	95
Percent	-	91.7	20	76	88.5	100	84.8
Consistent condom use with casual partner in the last 12 months (n)	-	17	1	16	31	10	75
Percent	-	70.8	20	64	66	100	67.1

Self reported STI symptoms among Brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
FSWs who can mention correctly STI symptoms in women (n)	243	111	254	270	264	230	

Abdominal pain	13.8	47.8	35.5	33.1	27.6	33.2	
Genital discharge	77.4	18.9	65.4	49.5	66.7	68.1	
Foul smelling discharge	8.6	10.8	12.8	16.4	15.1	16.6	
Burning pain on urination	15.5	18.9	22.2	26.9	35.1	23.1	
Genital ulcers/Sores	4.6	10.8	8.6	13.1	10.4	3.1	
Swellings in the groin area	0.6	10.8	1.8	1.8	3.9	2.2	
Itching of the genitals	20	82	43.4	41.8	31.9	21.8	
FSW who can mention correctly STI symptoms in men (n)	243	111	254	270	264	230	
Genital discharge	28	57.7	38.2	38.8	16.2	30.4	
Burning pain on urination	32.9	75.7	54.2	40.3	45.3	53	
Genital ulcers/Sores/Rash	7.4	25.2	11.8	20.2	7.2	7.8	
Swellings in the groin area	1.3	18.9	7.8	3.7	9.5	7.4	
Itching of the genitals	6.9	55.9	22.9	25.3	18	25.7	
FSW who reported an STI symptom in the past 12 months (n)	248	111	274	298	272	279	1482
Percent	17.5	12.6	17.9	24.5	17.5	7.2	16.1
FSW who reported unusual genital discharge in the past 12 months (n)	35	12	44	67	29	19	
Percent	14.2	10.8	16.2	22.3	9.8	6.8	
FSW who reported genital ulcer/sore in the past 12 months (n)	22	10	18	32	38	7	
Percent	8.5	9	6.7	10.7	13.6	2.5	

Self reported STI symptoms among Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
FSW who can mention correctly STI symptoms in women (n)	-	205	243	349	211	228	
Abdominal pain	-	68.3	44.1	40.7	31.8	45.7	
Genital discharge	-	70.2	34.8	52.4	30.8	47.4	
Foul smelling discharge	-	31.7	17.4	26.7	13.1	20.3	
Burning pain on urination	-	43.8	15	16.1	29.3	17.7	
Genital ulcers/Sores	-	13	2.8	14	9.9	7.3	
Swellings in the groin area	-	16.8	0.4	0.9	5	2.6	
Itching of the genitals	-	74.5	46.2	35	34.5	21.1	
SW who can mention correctly STI symptoms in men (n)	-	205	243	349	211	228	
Genital discharge	-	38.2	57.5	51.9	8.4	39.2	
Burning pain on urination	-	86.5	66.8	39.3	41.8	73.7	
Genital ulcers/Sores/Rash	-	35.3	6.5	22.1	5.4	10.9	
Swellings in the groin area	-	29	5.3	3.7	5	4.7	
Itching of the genitals	-	49.3	36.8	29.8	17.5	27.6	
FSW who reported an STI symptom in the past 12 months (n)	-	209	281	364	229	277	1360
Percent	-	22.5	16.7	25.3	15.4	9.4	17.9
FSW who reported unusual genital discharge in the past 12 months (n)	-	46	44	85	26	26	
Percent	-	22	15.6	23.2	11.5	9.4	

FSW who reported genital ulcer/sore in the past 12 months (n)	-	35	18	39	21	7	
Percent	-	16.8	6.4	10.7	9.9	2.5	

HIV knowledge, risk perception and HIV testing among Brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
FSW correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	51	37	90	98	77	44	397
Percent	20.5	33.3	31.5	31.5	28	15.7	25.3
FSW who perceived their risk of HIV transmission (n)	105	27	154	106	101	45	538
Percent	41.5	24.3	54.9	35.5	36.2	16.1	34.4
FSW ever had HIV test (n)	169	66	121	182	123	117	778
Percent	66.3	59.5	42.5	58.5	45.4	41.6	49
FSW had HIV test in last year (n)	136	13	78	111	84	80	502
Percent	53.8	11.7	27.6	35.7	31.7	28.5	33.4
FSW ever had HIV test and received results(n)	158	63	115	161	103	108	708
Percent	62	56.8	40.3	51.8	38.2	38.4	44
FSW ever had voluntary HIV test with counselling	83	38	64	106	80	74	445
Percent	32.1	34.2	22.1	34.1	30.2	26.3	29

HIV knowledge and risk perception among Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
FSW correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	-	119	102	179	74	105	579
Percent	-	56.9	33.6	47.1	29.2	36.5	38.9
FSW who perceived their risk of HIV transmission (n)	-	48	137	143	72	20	420
Percent	-	23	49.1	39.2	31	7.5	31.4
FSW ever had HIV test (n)	-	49	66	187	88	62	452
Percent	-	23.4	21.7	49.2	35.7	21.5	33.2
FSW had HIV test in last year (n)		25	28	105	55	30	243
Percent		12	9.2	27.6	22.2	10.4	18.2
FSW ever had HIV test and received results (n)	-	47	59	181	78	59	424
Percent	-	22.5	19.4	47.6	31.6	20.5	31
FSW ever had voluntary HIV test with counselling		31	31	115	60	41	278
Percent		14.8	10.2	30.3	24.9	14.2	20.8

HIV knowledge, risk perception and HIV testing among MSM

	Cross River	Kano	Lagos	Overall
MSM correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	152	107	128	387
Percent	51.9	36.5	43.7	44

MSM who perceived their risk of HIV transmission (n)	49	98	131	278
Percent	16.8	34.5	45.5	32.2
MSM who ever had a HIV test (n)	90	55	154	299
Percent	30.7	18.8	52.6	34
MSM had HIV test in last year (n)	59	32	127	218
Percent	20.1	10.9	43.3	24.8
MSM who ever had HIV test and received results (n)	81	47	137	265
Percent	27.7	16	46.8	30.2
MSM ever had voluntary HIV test with counselling	42	22	108	172
Percent	14.3	7.5	36.9	19.6

HIV knowledge, risk perception and HIV testing among the Armed Forces

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Armed forces personnel correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	97	153	238	160	132	154	934
Percent	49	52.4	47.7	58.2	46.8	52.7	50.6
Armed forces personnel who perceived their risk of HIV transmission (n)	28	34	166	101	58	60	447
Percent	14.1	11.7	33.4	36.7	20.6	20.6	23.7
Armed forces personnel who ever had a HIV test (n)	180	231	400	177	221	208	1417
Percent	90.9	79.1	80.2	34.4	78.4	71.2	76.1
Armed forces personnel who had a HIV test in last year (n)	159	122	263	95	166	133	938
Percent	80.3	41.8	52.7	34.6	58.9	45.6	51
Armed forces personnel who had HIV test and received results (n)	169	218	369	158	201	180	1295
Percent	85.4	74.7	74	57.5	71.3	61.6	68.9
Armed Forces who ever had voluntary HIV test with counselling (n)	86	98	188	60	122	57	611
Percent	43.4	33.6	37.7	21.8	43.3	19.5	32.4

HIV knowledge, risk perception and HIV testing among Police

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Police correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	114	136	156	149	101	154	810
Percent	37.1	46	28.8	48.4	35.2	30.9	34.9
Police who perceived their risk of HIV transmission (n)	59	66	90	116	60	102	493
Percent	19.5	22.4	16.9	37.7	21.1	4.1	21.9
Police who ever had a HIV test (n)	166	138	261	122	71	170	928
Percent	54.1	46.6	48.2	39.6	24.7	34.1	38
Police had HIV test last year (n)	94	56	167	67	38	86	508

Percent	30.6	18.9	30.9	21.8	13.2	17.3	20.5
Police who ever had HIV test and know results (n)	157	125	246	117	66	162	873
Percent	51.1	42.2	45.5	38	23	32.5	35.8
Police who ever had voluntary HIV test with counselling (n)	66	58	180	52	35	49	440
Percent	21.5	19.6	33.3	16.9	12.2	9.8	16.9

HIV knowledge, risk perception and HIV testing among Transport Workers

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Transport Worker correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	79	102	91	152	38	55	517
Percent	22.4	26.4	23.5	39.7	11.4	14.3	21.1
Transport Worker who perceived their risk of HIV transmission (n)	57	58	71	60	35	78	359
Percent	18.4	14.8	18.7	18	9.8	20.9	15.8
Transport Worker who ever had a HIV test (n)	134	103	51	64	107	60	519
Percent	40.9	26.5	13.2	20.4	27.2	15.5	25
Transport Worker HIV tested in last year (n)	57	53	28	33	70	23	264
Percent	18.3	13.4	7.2	11.4	16.9	6	13.2
Transport Worker who ever had HIV test and received results(n)	125	90	44	58	87	50	454
Percent	39.1	23.7	11.4	18.9	22.1	13	22.1
Transport Worker who ever had voluntary HIV test with counselling (n)	51	37	30	32	73	16	239
Percent	19.1	9.4	7.8	8.7	18.4	4.1	13

HIV knowledge and risk perception and HIV testing among IDU

	Cross River	Kano	Lagos	Overall
IDU correctly identifying ways of preventing HIV infection and rejecting misconception of HIV transmission (n)	82	65	87	234
Percent	41.4	24.2	39	33.9
IDU who perceived their risk of HIV transmission (n)	26	123	55	204
Percent	13.2	46.8	25	30
IDU who did not perceive their risk of HIV infection among:				
1. IDU who reported sharing needle in the last 1 month (n)	6	12	12	30
Percent	60	35.3	66.7	48.4
2. IDU who reported inconsistency of condom use with commercial sex workers	14	6	3	23
Percent	66.7	26.1	60	46.9
IDU ever had HIV test (n)	66	51	62	179
Percent	33.3	19	27.8	25.9
IDU ever had HIV test and received results (n)	57	48	55	160

Percent	28.8	17.8	24.7	22.2
IDU had HIV test in last year (n)	52	24	25	101
Percent	26.3	8.9	11.2	14.6
IDU ever had voluntary HIV test with counselling (n)	35	17	34	86
Percent	17.7	6.3	15.3	12.5

Self reported symptoms among MSM

	Cross River	Kano	Lagos	Overall
MSM who can mention correctly STI symptoms in men (n)	263	201	276	
Genital discharge	19	55.2	39.1	
Burning pain on urination	36.9	21.9	43.1	
Genital ulcers/Sores/Rash	12.6	5.5	14.9	
Swellings in the groin area	10.3	17.9	5.8	
Itching of the genitals	22.1	17.9	25	
MSM who reported an STI symptom in the past 12 months (n)	292	291	289	872
Percent	11	5.5	4.2	6.9
MSM who reported unusual genital discharge in the past 12 months (n)	17	16	6	
Percent	5.8	5.5	2.1	
MSM who reported genital ulcer/sore in the past 12 months (n)	21	8	8	
Percent	7.2	2.7	2.8	

Self reported STI symptoms among the Armed Forces

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Armed Forces who can mention correctly STI symptoms in women (n)	195	271	487	251	269	287	
Abdominal pain	10.3	19.2	14.6	8.7	5.9	9.4	
Genital discharge	19	42.4	20.9	16.7	40.9	19.5	
Foul smelling discharge	2.6	14.8	6.1	6	7.8	6.3	
Burning pain on urination	13.3	14.8	5.9	8.7	22.7	5.6	
Genital ulcers/Sores	2.6	4.4	6.4	8.7	14.5	10.5	
FSWelling in the groin area	4.6	3	3.1	10.7	8.9	3.5	
Itching of the genitals	13.9	39.9	11.3	12.7	21.6	16.4	
Armed Forces who can mention correctly STI symptoms in men (n)	195	271	487	251	269	287	
Genital discharge	40	44.7	60.1	38.1	56.5	50.5	
Burning pain on urination	40	55.7	57.3	42.9	51.3	50.5	
Genital ulcers/Sores/Rash	11.8	15.1	21.7	25	26.8	24	
FSWelling in the groin area	5.6	12.9	9.6	22.6	17.1	9.8	
Itching of the genitals	16.9	41.3	17.4	16.7	28.3	19.5	
Armed Forces who reported an STI symptom in the past 12 months (n)	198	292	499	274	280	292	1835
Percent	1.5	4.5	3.6	2.6	14.3	3.1	6

Armed Forces who reported unusual genital discharge in the past 12 months (n)	3	12	5	4	35	5	
Percent	1.5	4.11	1	1.5	12.4	1.7	
Armed Forces who reported genital ulcer/sore in the past 12 months (n)	1	3	14	5	8	7	
Percent	0.5	1	2.8	1.8	2.8	2.4	

Self reported STI symptoms among the Police

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Police who can mention correctly STI symptoms in women (n)	298	284	485	294	279	462	
Abdominal pain	12.4	25.7	4.5	26.4	12.5	4.9	
Genital discharge	28.5	32	11.3	33.8	13.2	21.2	
Foul smelling discharge	5.4	7.4	1	8.1	8.2	0.8	
Burning pain on urination	6.7	25.4	2.5	19.9	3.9	13.4	
Genital ulcers/Sores	5.4	6	2.1	5.1	5.4	3.2	
Swellings in the groin area	0	4.6	1	4.1	0.4	1.5	
Itching of the genitals	19.1	39.4	7.4	29.1	11.1	11.7	
Police who can mention correctly STI symptoms in men (n)	298	284	485	294	279	462	
Genital discharge	45.3	36.3	15.8	44.4	28.6	28.8	
Burning pain on urination	55.7	47.5	20.3	48.2	30.4	37.1	
Genital ulcers/Sores/Rash	14.4	8.5	3.7	10.8	17.9	4.9	
Swellings in the groin area	2.3	11.6	1.4	8.8	1.8	3.4	
Itching of the genitals	16.8	36.3	6.8	24.2	7.1	11.9	
Police who reported an STI symptom in the past 12 months (n)	303	295	526	307	287	496	2214
Percent	6.3	6.8	7.4	8.5	2.1	7.9	6.5
Police who reported unusual genital discharge in the past 12 months (n)	17	17	36	24	3	39	
Percent	5.6	5.8	6.7	7.8	1	7.9	
Police who reported genital ulcer/sore in the past 12 months (n)	7	6	13	8	3	14	
Percent	2.3	2	2.4	2.6	1	2.8	

Self reported STI symptoms among the Transport Workers

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Transport Workers who can mention correctly STI symptoms in women (n)	342	354	352	311	232	362	
Abdominal pain	25.8	16.8	6.9	27.7	19.2	8.4	
Genital discharge	18.5	24.2	8.6	14	20.1	10.6	
Foul smelling discharge	4.7	5.2	1.1	11.7	18.9	2.7	
Burning pain on urination	23.5	12.3	6	45.6	24.2	7.1	
Genital ulcers/Sores	3.9	6	0.9	3.5	37.3	3	
Swellings in the groin area	1.3	3	0.6	2.8	11.3	1.4	
Itching of the genitals	20.9	15.1	7.4	40	2.4	7.6	

Transport Workers who can mention correctly STI symptoms in men (n)	342	354	352	311	232	362	
Genital discharge	50	32.9	31	27.7	15.3	33.8	
Burning pain on urination	72.6	59.1	47.2	71.2	25.5	44.4	
Genital ulcers/Sores/Rash	8.7	22.4	1.7	11.2	41.7	9	
Swellings in the groin area	4.2	12.2	3.1	9.1	15.3	4.6	
Itching of the genitals	16.8	19.2	11.9	44.4	7.1	8.2	
Transport Workers who reported an STI symptom in the past 12 months (n)	344	376	383	384	352	378	2217
Percent	4.3	11.7	2.4	5.7	6	8.7	5.7
Transport workers who reported unusual genital discharge in the past 12 months (n)	344	376	384	385	352	380	
Percent	3.8	9.2	1.3	5.5	5	6.8	
Transport Workers who reported genital ulcer/sore in the past 12 months (n)	4	30	7	9	5	11	
Percent	1.1	7.7	1.8	2.2	1.3	2.9	

Self reported symptoms among IDU

	Cross River	Kano	Lagos	Overall
IDU who can mention correctly STI symptoms in women (n)	194	231	209	634
Abdominal pain	9.3	12.5	10.8	11
Genital discharge	11.3	28.5	35.2	25.5
Foul smelling discharge	3.1	5.6	10.3	6.4
Burning pain on urination	2.6	3.4	35.7	13.9
Genital ulcers/Sores	2.6	6	8.9	5.9
swellings in the groin area	2.6	3.9	2.8	3.1
Itching of the genitals	11.3	7.8	11.7	10.2
IDU who can mention correctly STI symptoms in men (n)	194	232	213	639
Genital discharge	35.6	78	68.5	62
Burning pain on urination	40.2	44.8	77.5	54.3
Genital ulcers/Sores/Rash	10.8	14.2	16	13.8
Swellings in the groin area	5.2	16	7.5	9.9
Itching of the genitals	8.2	12.1	19.7	13.5
IDU who reported unusual genital discharge in the past 12 months (n)	8	20	18	46
Percent	4.1	7.5	8.1	6.7
IDU who reported genital ulcer/sore in the past 12 months (n)	10	15	14	39
Percent	5.1	5.6	6.3	5.7

Condom use among the Armed Forces

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Condom use with commercial sex partner during last sex (n)	11	3	20	12	5	26	77
Percent	91.7	100	100	92.3	71.4	96.3	93

Consistent condom use with commercial partner in the past 12 months (n)	11	3	18	12	4	25	73
Percent	91.7	100	90	92.3	57.1	92.6	87.6
Condom use with regular partner during last sex (n)	12	10	37	25	22	19	125
Percent	8.8	5.5	11.7	15.8	11.4	11.2	11.1
Consistent condom use with regular partner in the past 12 months (n)	4	1	17	2	5	5	34
Percent	2.9	0.6	5.4	1.3	2.6	2.9	2.9
Condom use with girlfriend during last sex (n)	53	88	141	90	67	88	527
Percent	60.2	65.2	65.9	65.2	69.1	61.5	64.7
Consistent condom use with girlfriend in the last 12 months (n)	41	70	97	65	47	66	386
Percent	46.6	51.9	45.3	47.1	48.5	46.2	47.2
Condom use with casual partner during last sex (n)	29	10	44	19	11	32	145
Percent	78.4	90.9	84.6	73.1	91.7	80	81.8
Consistent condom use with casual partner in the last 12 months (n)	25	10	38	18	9	29	129
Percent	67.6	90.9	73.1	69.2	75	72.5	72.7

Condom use among the Police

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Condom use with commercial sex during last sex (n)	7	4	3	7	4	8	33
Percent	77.8	100	37.5	63.6	80	61.5	65.4
Consistent condom use with commercial sex partner in the past 12 months (n)	7	4	3	7	2	7	30
Percent	77.8	100	37.5	63.6	40	53.9	56.2
Condom use with regular partner during last sex (n)	21	17	32	23	10	21	124
Percent	10.1	9.7	9.4	12.4	4.9	6.7	7.8
Consistent condom use with regular partner in the past 12 months (n)	2	0	6	5	1	6	20
Percent	1	0	1.8	2.7	0.5	1.9	1.4
Condom use with boy/girlfriend during last sex (n)	68	63	90	71	22	101	415
Percent	42.2	44.7	40	54.2	62.9	43.9	45.4
Consistent condom use with boy/girlfriend in the last 12 months (n)	38	39	56	52	15	61	261
Percent	23.6	27.7	24.9	39.7	42.9	26.5	28.5
Condom use with casual partner during last sex (n)	22	7	11	19	2	15	76
Percent	59.5	70	57.9	76	50	53.6	59.7
Consistent condom use with casual partner in the last 12 months (n)	20	6	6	18	2	13	65
Percent	54.1	60	31.6	72	50	46.4	51.2

Condom use among the Transport Workers

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Condom use with commercial sex partner during last sex (n)	15	30	7	5	4	19	80
Percent	92.1	84.5	100	86.6	31.1	73.1	73.4
Consistent condom use with commercial sex partner in the past 12 months (n)	14	28	4	5	3	19	73
Percent	85	79.7	57.1	86.6	16.7	73.1	64.2
Condom use with regular partner during last sex (n)	9	15	16	12	3	20	75
Percent	3.5	5.3	5.9	8.7	1.1	7.9	4.5
Consistent condom use with regular partner in the past 12 months (n)	4	4	5	3	2	11	29
Percent	1.6	0.8	1.8	1.8	0.7	4.3	1.7
Condom use with boy/girlfriend during last sex (n)	47	86	62	53	2	61	311
Percent	46	44.4	42.5	63.2	33.6	35.5	45
Consistent condom use with boy/girlfriend in the last 12 months (n)	34	41	46	35	0	48	204
Percent	35.2	21.1	31.5	43.8	0	27.9	31.4
Condom use with casual partner during last sex (n)	19	26	17	15	1	13	91
Percent	53.7	63.7	56.7	62.3	100	56.5	58.4
Consistent condom use with casual partner in the last 12 months (n)	16	19	14	14	0	11	74
Percent	46	41.9	46.7	56.6	0	47.8	46.6

Condom use among IDU

	Cross River	Kano	Lagos	Overall
Condom use during last sex with regular partners in the last 12 months (n)	7	4	8	19
Percent	17.5	5.5	15.7	11.6
Consistent condom use with regular partners in the past 12 months (n)	4	5	3	12
Percent	10	6.8	5.9	7.3
Condom use during last sex with commercial sex workers in the past 12 months (n)	66	24	10	100
Percent	82.5	53.3	71.4	71.9
Consistent condom use with commercial sex workers in the past 12 months (n)	59	21	7	87
Percent	73.8	46.7	50	62.6
Condom use during last sex with boy/girlfriend in the past 12 months (n)	88	22	22	132
Percent	53	50	48.9	51.8
Consistent condom use with boy/girlfriend in the past 12 months (n)	49	13	17	79
Percent	29.5	29.6	37.8	31

Condom use during last sex with casual partners in the past 12 months (n)	84	14	8	106
Percent	75	50	44.4	67.1
Consistent condom use with casual sex partners in the past 12 months (n)	68	9	5	82
Percent	60.7	32.1	27.8	51.9

Exposure to HIV/AIDS interventions among MSM

	Cross River	Kano	Lagos	Overall
MSM who obtained cheap/free condoms in the last 12 months among sexually active MSM (n)	79	19	76	174
Percent	27	6.5	25.9	19.8
MSM who received education on safe injection in the past 12 months (n)	10	9	18	37
Percent	3.4	3.1	6.1	4.2
MSM who received safe sex education in the past 12 months (n)	91	75	65	231
Percent	31.1	25.6	22.2	26.3
MSM who received referral for STI services in the past 12 months (n)	1	0	13	14
Percent	0.3	0	4.4	1.6
MSM who received referral for HCT services in the past 12 months (n)	0	0	9	9
Percent	0	0	3.1	1
MSM who received HIV/AIDS, STI or condom education from television in the past 12 months (n)	171	135	132	438
Percent	58.6	46.4	45.7	50.2
MSM who received HIV/AIDS, STI or condom education from radio in the past 12 months (n)	163	148	119	430
Percent	55.8	50.9	41.2	49.3
MSM who received HIV/AIDS, STI or condom education from newspaper in the past 12 months (n)	38	26	23	87
Percent	13	8.9	8	10
MSM who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)	211	221	193	625
Percent	72.3	76.0	66.8	71.7

Exposure to HIV/AIDS interventions among brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
FSWs who obtained cheap/free condoms in the last 12 months among sexually active FSW (n)	142	71	104	143	77	56	593
Percent	56.3	64	37.1	46	27.8	19.9	34.3
FSWs who received education on safe injection in the past 12 months (n)	14	24	26	34	10	3	111
Percent	5.8	21.6	9	10.9	3.3	1.1	5.5

FSWs who received safe sex education in the past 12 months (n)	161	71	136	151	78	51	648
Percent	63.1	64	48.5	48.6	27.5	18.2	36.8
FSWs who received referral for STI services in the past 12 months (n)	5	2	5	6	7	3	28
Percent	2.1	1.8	1.6	1.9	2.5	1.1	1.9
FSWs who received referral for VCT services in the past 12 months (n)	55	2	10	61	25	6	159
Percent	23.4	1.8	3.4	19.6	7.9	2.1	9.6
FSWs who received HIV/AIDS, STI or condom education from Television in the past 12 months (n)	148	92	145	139	48	159	731
Percent	60.4	82.9	52.5	46.5	17.5	57.2	43.5
FSW who received HIV/AIDS, STI or condom education from radio in the past 12 months (n)	185	95	110	192	114	122	818
Percent	75.7	85.6	39.6	64.2	42.3	43.9	50.6
FSW who received HIV/AIDS, STI or condom education from newspaper in the past 12 months (n)	7	34	8	55	2	24	130
Percent	3	30.6	2.9	18.4	0.8	8.6	6.7
FSW who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)	242	98	209	238	155	193	1135
Percent	97.6	88.3	75.5	79.3	56.8	68.7	71.7

Exposure to HIV/AIDS interventions among Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
FSWs who obtained cheap/free condoms in the last 12 months (n)	-	99	63	186	53	18	419
Percent	-	47.4	20.7	49	21	6.3	28.3
FSWs who received education on safe injection in the past 12 months (n)	-	69	49	38	7	0	163
Percent	-	33	16.1	10	2.9	0	9.4
FSWs who received safe sex education in the past 12 months (n)	-	111	77	164	52	21	425
Percent	-	53.1	25.3	43.2	21	7.3	28.2
FSWs who received referral for STI services in the past 12 months (n)	-	2	1	10	5	0	18
Percent	-	1	0.3	2.6	2	0	1.4
FSWs who received referral for VCT services in the past 12 months (n)	-	3	1	87	22	0	113
Percent	-	1.4	0.3	22.9	8.4	0	8.8
FSW who received HIV/AIDS, STI or condom education from television in the past 12 months (n)	-	182	164	253	42	184	825
Percent	-	87.1	61.9	69.3	17.8	68.7	56.7
FSW who received HIV/AIDS, STI or condom education from radio in the past 12 months (n)	-	187	130	293	93	137	840

Percent	-	89.5	49.1	80.3	40	51.1	60.1
FSW who received HIV/AIDS, STI or condom education from newspaper in the past 12 months (n)	-	43	9	74	8	31	165
Percent	-	20.6	3.4	20.3	3.7	11.6	11.6
FSW who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)		195	204	321	130	195	1045
Percent		93.3	73.1	87.7	56.1	72.8	74.9

Exposure to HIV/AIDS interventions among the Armed Forces

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Armed Forces personnel who obtained cheap/free condoms in the last 12 months among sexually active personnel (n)	99	124	277	82	127	70	779
Percent	50	42.5	55.5	29.8	45	24	39.9
Armed Forces personnel who received education on safe injection in the past 12 months (n)	49	71	173	19	153	20	485
Percent	24.8	24.3	34.7	6.9	54.3	6.8	27.5
Armed Forces personnel who received safe sex education in the past 12 months (n)	134	206	320	82	187	76	1005
Percent	67.7	70.6	64.1	29.8	66.3	26	51.5
Armed Forces personnel who received referral for STI services in the past 12 months (n)	4	25	50	4	6	3	92
Percent	2	8.6	10	1.5	2.1	1	4
Armed Forces personnel who received referral for VCT services in the past 12 months (n)	6	3	110	10	43	17	189
Percent	3	1	22	3.6	15.3	5.8	10.6
Armed Forces who received HIV/AIDS, STI or condom education from television in the past 12 months (n)	150	187	343	149	160	165	1154
Percent	75.8	64	68.7	54.2	56.7	56.5	60.7
Armed Forces who received HIV/AIDS, STI or condom education from radio in the past 12 months (n)	149	182	299	128	194	136	1088
Percent	75.3	62.3	60	46.6	68.8	46.6	58.3
Armed Forces who received HIV/AIDS, STI or condom education from newspaper in the past 12 months (n)	78	65	201	46	114	68	572
Percent	39.4	22.3	40.3	16.7	40.4	23.3	31.3
Armed Forces who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)	190	268	459	221	238	226	1602
Percent	96	91.8	92	80.4	84.4	77.4	85.1

Exposure to HIV/AIDS interventions among the Police

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
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Police who obtained cheap/free condoms in the last 12 months among sexually active police (n)	96	129	92	70	23	41	451
Percent	31.3	43.6	17	22.7	8	8.2	15.9
Police who received education on safe injection in the past 12 months (n)	2	45	41	64	4	12	168
Percent	0.7	15.2	7.6	20.8	1.4	2.4	5.9
Police who received safe sex education in the past 12 months (n)	129	151	150	100	30	81	641
Percent	42	51	27.7	32.5	10.5	16.3	23.7
Police who received referral for STI services in the past 12 months (n)	0	5	5	3	1	8	22
Percent	0	1.7	0.9	1	0.3	1.6	1.1
Police who received referral for VCT services in the past 12 months (n)	13	11	7	5	1	4	41
Percent	4.2	3.7	1.3	1.6	0.3	0.8	1.4
Police who received HIV/AIDS, STI or condom education from television in the past 12 months (n)	212	179	290	232	149	300	1362
Percent	70	60.7	54.2	75.3	51.9	60.6	60.1
Police who received HIV/AIDS, STI or condom education from radio in the past 12 months (n)	281	196	216	220	242	255	1410
Percent	92.7	66.4	40.4	71.4	84.3	51.5	62.4
Police who received HIV/AIDS, STI or condom education from newspaper in the past 12 months (n)	90	64	95	74	101	155	579
Percent	29.7	21.7	17.8	24	35.2	31.3	28
Police who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)	299	240	342	271	271	361	1784
Percent	98.7	81.4	63.8	88	94.4	72.9	79.7

Exposure to HIV/AIDS interventions among IDU

	Cross River	Kano	Lagos	Overall
IDU who received syringes in the last 12 months (n)	2	5	17	24
Percent	1	1.9	7.6	3.5
IDU who obtained cheap/free condoms in the last 12 months among sexually active IDU (n)	35	11	33	79
Percent	17.7	4.1	14.8	11.5
IDU who received education on safe injection in the past 12 months (n)	5	15	10	30
Percent	2.5	5.6	4.5	4.3
IDU who received safe sex education in the past 12 months (n)	61	35	31	127
Percent	30.8	13	13.9	18.4
IDU who received referral for STI services in the past 12 months (n)	0	1	1	2
Percent	0	0.4	0.4	0.3

IDU who received referral for VCT services in the past 12 months (n)	1	3	4	8
Percent	0.5	1.1	1.8	1.2
IDU who received HIV/AIDS, STI or condom education from television in the past 12 months (n)	86	35	136	257
Percent	43.7	13.1	61.3	37.5
IDU who received HIV/AIDS, STI or condom education from radio in the past 12 months (n)	92	99	129	320
Percent	46.7	37.1	58.1	46.7
IDU who received HIV/AIDS, STI or condom education from newspaper in the past 12 months (n)	22	21	94	137
Percent	11.2	7.9	42.3	20
IDU who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)	153	129	140	422
Percent	77.7	48.3	63.1	61.5

Exposure to HIV/AIDS interventions among Transport Workers

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Transport Workers who obtained cheap/free condoms in the last 12 months among sexually active TW (n)	33	107	31	72	18	38	299
Percent	14.5	27.6	8	22	5.1	9.8	12
Transport Workers who received education on safe injection in the past 12 months (n)	37	27	7	61	14	5	151
Percent	13.3	7.5	1.8	17.1	3.7	1.3	7.2
Transport Workers who received safe sex education in the past 12 months (n)	86	128	44	85	107	62	512
Percent	31.3	32.9	11.4	23.6	29	16.1	24.5
Transport Workers who received referral for STI services in the past 12 months (n)	1	8	0	3	1	0	13
Percent	0.3	2.4	0	1.9	0.2	0	0.6
Transport Workers who received referral for VCT services in the past 12 months (n)	3	6	3	7	0	1	20
Percent	1.3	1.3	0.8	2.9	0	0.3	0.9
Transport Workers who received HIV/AIDS, STI or condom education from television (n)	252	128	161	113	92	92	885
Percent	73.3	34.1	41.9	32.1	24	24	39.7
Transport Workers who received HIV/AIDS, STI or condom education from radio (n)	307	204	126	137	211	211	1169
Percent	90.6	52.4	32.8	39.3	58.9	58.9	56
Transport Workers who received HIV/AIDS, STI or condom education from newspaper (n)	83	47	48	39	36	36	288
Percent	25.9	12.2	12.5	11.4	9.1	9.1	13.4
Transport Workers who received HIV/AIDS, STI or condom education from any source in the past 12 months (n)	333	270	204	162	242	232	1443

Percent	97.6	69.5	53.1	45	67.3	61.2	66.9
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Sexual contacts with male partners among MSM

	Cross River	Kano	Lagos	Overall
Number of insertive male partners in the past 6 months (n)	289	291	277	
0	14.9	25.1	25.3	
1	14.5	10.7	20.6	
2	17.3	15.1	20.9	
3	18	18.9	12.6	
>=4	35.3	30.2	20.6	
Mean	3.4	3.1	2.5	3
Number of receptive male partners in the past 6 months (n)	288	291	277	
0	15.3	15.5	39	
1	18.8	15.1	14.8	
2	16.7	17.2	15.5	
3	14.2	13.1	9	
>=4	35.1	39.2	21.7	
Mean	3	4.2	2.9	3.4
MSM who sold sex (anal) to male partners in the past 6 months (n)	104	103	69	276
Percent	36	36.1	25.5	32.7
MSM who paid for anal sex with a male partner in the past 6 months (n)	43	56	22	121
Percent	14.9	19.7	8.1	14.3
MSM who had anal sex with a non-paying partner in the past 6 months (n)	247	239	249	735
Percent	85.5	82.4	91.9	86.5
MSM who had sex with a female sex worker in the last 12 months (n)	7	28	14	49
Percent	2.4	9.6	4.8	5.6

Condom Use with male and female partners among MSM

	Cross River	Kano	Lagos	Overall
MSM who reported using condom the last time they sold sex to a male partner (n)	63	54	44	161
Percent	60	52.4	63.8	58
MSM who reported using condom during last anal sex when buying sex from male sex worker (n)	19	25	13	57
Percent	44.2	44.6	59.1	47.1
MSM who reported using condom the last time they had anal sex with a non-paying partner (n)	139	90	159	388
Percent	56.3	37.7	63.9	52.8

MSM who reported using condom the last time they had sex with a female sex worker (n)	5	23	13	41
Percent	71.4	82.1	92.9	83.7
MSM who reported using condom consistently when they sold sex in the past 6 months (n)	33	34	28	95
Percent	31.7	33	40.6	34.4
MSM who reported using condom consistently with a male sex worker in the past 6 months (n)	12	19	11	42
Percent	27.9	33.9	50	34.7
MSM who reported using condom consistently when they had sex with a non-paying partner in the last 6 months (n)	74	55	107	236
Percent	30	23	43	32.1
MSM who reported using condom consistently with a female sex worker in the last 12 months (n)	2	18	11	31
Percent	28.6	64.3	78.6	63.3

Sexual History and number of sexual partners among Brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Age at first sex (n)	248	111	283	300	275	281	
15 - 19	82	81.1	85.6	73.7	84.8	76.5	
20 - 24	6.8	9.9	9	13	7.7	13.9	
25 - 49	11.2	9	5.4	13.3	7.5	9.6	
FSW who reported having sex with regular partner in the past 12 months	21	2	11	15	49	23	121
Percent	8.9	1.8	3.7	4.8	17.5	8.2	9.8
Number of regular partners in the past 12 months (n)	247	111	283	300	275	280	
0	90.7	98.2	95.6	90.7	81.6	91.4	
1	9.4	1.8	3.7	5	18	7.1	
2	0	0	0	0	0	0.4	
3	0	0	0	0	0	0.4	
>=4	0	0	0.7	4.3	0.5	0.7	
Number of commercial partners in the past week (n)	244	103	278	295	267	279	
0	1.1	0	2.3	3.7	1.2	2.5	
1	1.2	1	0	1.4	1	0.4	
2	3.1	1	0.7	0.7	0	1.1	
3	3	0	0.7	0.7	2.4	1.1	
>=4	91.7	98.1	96.3	93.6	95.4	95	
FSW who reported having sex with boyfriend in the past 12 months (n)	143	75	126	187	207	162	902
Percent	57.7	67.6	44.6	60.1	73.2	57.7	61
Number of boyfriend partners in the past 12 months (n)	247	111	283	299	275	280	
0	39.1	32.4	54.6	36.5	24.9	41.8	

1	52.3	63.1	40.2	55.2	55.9	48.6	
2	7.4	3.6	4.2	6	11.8	7.5	
3	1.3	0	0	1	5.7	1.4	
>=4	0	0.9	1	1.3	1.7	0.7	
FSW who reported having sex with casual partners in the past 12 months (n)	21	8	14	36	59	16	132
Percent	8.2	7.2	5.2	11.6	20.2	5.7	10
Number of casual partners in the past 12 months (n)	247	111	283	300	271	280	
0	91.1	91.9	94.5	75.3	77.9	93	
1	1.1	0	4	2	7.6	2.9	
2	1.4	1.8	1.2	0.7	5.6	0.4	
3	1.8	1.8	0	1	0.9	0.4	
>=4	4.6	4.5	0.3	21	8.1	2.9	

Sexual History and number of sexual partners among Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Age at first sex (n)	-	209	297	367	231	288	
15 – 19	-	85.2	84.9	80.1	85.2	85.8	
20 – 24	-	11.5	10.8	12.3	3.6	7.3	
25 – 49	-	3.3	4.4	7.6	11.3	6.9	
FSW who reported having sex with regular partner in the past 12 months (n)	-	15	2	16	19	13	67
Percent	-	7.2	0.7	4.2	7.4	4.5	4.8
Number of regular partners in the past 12 months (n)	-	207	297	366	230	287	
0	-	91.3	98.7	90.4	91.2	95.5	
1	-	6.8	0.7	4.4	7.3	3.8	
2	-	0	0	0	0.4	0.7	
3	-	0.5	0	0	0	0	
>=4	-	1.5	0.7	5.2	1.1	0	
Number of commercial partners in the past week (n)	-	202	279	366	193	279	
0	-	2.5	0	7.4	0.5	1.1	
1	-	1	0.7	1.1	1	0.4	
2	-	1.5	2.5	0.5	2.7	0	
3	-	3.5	7.9	6.8	7	1.4	
>=4	-	91.6	88.9	84.2	89	97.1	
FSW who reported having sex with boyfriend in the past 12 months (n)	-	147	135	298	101	137	825
Percent	-	70.3	44.4	78.4	40.8	47.6	56.3
Number of boyfriend partners in the past 12 months (n)	-	209	297	367	230	286	
0	-	29.2	53.2	18.5	55.8	49.3	
1	-	45.9	41.8	61	28.8	37.8	
2	-	15.3	3.7	16.6	9.6	9.4	
3	-	6.7	0.3	1.9	1.4	3.1	
>=4	-	2.9	1	1.9	4.4	0.3	
FSW who reported having sex with casual partners in the past 12 months (n)	-	23	5	24	47	10	100

Percent	-	11	1.6	6.3	19.6	3.5	7.9
Number of casual partners in the past 12 months (n)	-	206	291	367	228	286	
0	-	88.4	96.9	85	75.2	96.5	
1	-	3.4	1	4.4	4.3	3.1	
2	-	3.4	0.3	0.5	5.9	0.3	
3	-	1.5	0	0	2.1	0	
>=4	-	3.4	1.7	10.1	12.5	0	

Sexual History and number of sexual partners among Armed Forces

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Armed forces personnel who had sex (n)	194	285	485	268	268	289	
Percent	98	97.6	97.2	97.5	95	99	
Age at first sex (n)	195	285	485	268	269	289	
15 – 19	35.9	55.1	50.7	50.4	27.9	49.8	
20 – 24	33.3	29.5	28	31	40.5	33.9	
25 - 49	30.8	15.4	21.2	18.7	31.6	16.3	
Armed forces personnel who reported sex in the past 12 months (n)	187	268	452	253	258	265	
Percent	95.9	94	93.2	94.4	95.9	91.7	
Armed forces personnel who reported having sex with regular partner in the past 12 months (n)	136	181	317	158	193	169	1155
Percent	68.7	62	63.5	57.5	68.4	57.9	62.9
Number of regular partners in the past 12 months (n)	186	269	455	252	258	265	
0	26.9	32.7	30.3	36.9	25.2	35.9	
1	71	66.2	66.8	61.1	71.7	61.5	
2	2.2	1.1	2.6	1.6	3.1	2.3	
3	0	0	0.2	0	0	0.4	
>=4	0	0	0	0.4	0	0	
Armed forces personnel who reported having sex with sex workers in the past 12 months (n)	12	3	20	13	7	27	77
Percent	6.1	1	4	4.7	2.5	9.2	4.7
Number of commercial partners in the past 12 months (n)	186	269	455	254	258	265	1687
0	93.6	98.9	95.6	94.1	96.9	89.8	94.4
1	3.8	0.4	1.1	2.4	2.3	3.8	2.4
2	1.1	0	0.7	0	0	1	1
3	1.6	0.4	0	0.4	0	0.3	0.3
>=4	0	0.4	2.6	3.2	0.8	1.9	1.9
Armed forces personnel who reported having sex with girlfriend in the past 12 months (n)	88	135	214	138	97	140	814
Percent	44.4	46.2	42.9	50.2	34.4	48	43.5
Number of girlfriend partners in the past 12 months (n)	186	269	455	254	258	265	
0	52.2	49.8	53	45.7	61.2	46	
1	37.6	37.6	33	34.3	27.1	28.3	
2	7.5	9.7	9.2	12.2	5.8	14	

3	1.1	0.7	2.2	3.9	2.3	6.8	
>=4	1.6	2.2	2.6	3.9	3.5	4.9	
Armed forces personnel who reported having sex with casual partners in the past 12 months (n)	37	11	52	26	12	39	175
Percent	18.7	3.8	10.4	9.5	4.3	13.4	9.3
Number of casual partners in the past 12 months (n)	186	269	454	254	258	264	
0	80.1	95.9	88.6	89.8	93.4	84.9	
1	14	3	5.1	6.7	3.9	7.2	
2	2.2	0.4	1.8	2	0.8	4.2	
3	0.5	0.4	1.1	1.2	0	2.7	
>=4	3.2	0.4	3.5	0.4	1.9	1.1	
Armed forces personnel reporting two or more sexual partners in last year (all kinds)	87	76	163	105	71	125	627
Percent	46.8	28.3	35.9	41.7	27.5	47.4	37.3
Armed forces personnel reporting four or more sexual partners in last year (all kinds)	17	10	49	19	19	41	155
Percent	9.1	3.7	10.8	7.5	7.4	15.5	10

Sexual History and number of sexual partners among Police

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Police who had sex (n)	301	292	524	300	272	487	
Percent	99	99	97.2	97.4	94.8	98.2	
Age at first sex (n)	301	292	524	300	273	487	
15 – 19	56.5	65.4	40.3	51.7	32.6	45	
20 – 24	27.2	29.5	29.2	34.3	44	33.3	
25 – 49	16.3	5.1	30.5	14	23.4	21.8	
Police who reported sex in the past 12 months (n)	289	276	482	280	250	455	
Percent	96	94.5	92	93.3	91.6	93.4	
Police who reported having sex with regular partner in the past 12 months (n)	208	175	337	185	203	311	1422
Percent	67.8	59.1	62.3	60.1	70.7	62.5	64
Number of regular partners in the past 12 months (n)	289	277	478	281	251	454	
0	28	36.8	28.7	34.2	19.9	30.6	
1	70.2	62.1	68.6	63	74.1	66.1	
2	1.7	1.1	2.5	2.5	5.2	2.4	
3	0	0	0.2	0	0.8	0.2	
>=4	0	0	0	0.4	0	0.7	
Police personnel who reported having sex with sex workers in the past 12 months (n)	9	4	8	11	5	11	52
Percent	2.9	1.4	1.5	3.6	1.7	2.2	2.3
Number of commercial sex partners in the past 12 months (n)	289	277	471	280	251	451	2019
0	96.9	97.8	98.1	96.1	98	97.1	97.4
1	1.4	0.7	0.8	2.1	1.2	1.8	1.4
2	0.3	0.7	0.4	1.4	0	0.7	0.6
3	0.3	0.4	0	0	0.4	0	0.1

>=4	1	0.4	0.6	0.4	0.4	0.4	0.5
Police personnel who reported having sex with girlfriend in the past 12 months (n)	161	141	222	131	35	229	920
Percent	52.4	47.6	41	42.5	12.2	46	38.9
Number of girlfriend partners in the past 12 months (n)	289	277	475	281	251	454	
0	44.3	49.1	52.6	54.1	86.5	49.1	
1	35.3	41.2	34.7	34.9	10.8	36.8	
2	12.5	7.9	6.9	7.8	1.6	10.1	
3	3.8	1.4	2.9	2.1	1.2	2.4	
>=4	4.2	0.4	2.7	1.1	0	1.5	
Police personnel who reported having sex with casual partners in the past 12 months (n)	37	10	18	25	4	25	121
Percent	12.1	3.4	3.3	8.1	1.4	5	5
Number of casual partners in the past 12 months (n)	289	277	472	280	251	451	
0	87.2	96.4	96	91.4	98.4	93.6	
1	6.2	2.9	2.5	4.3	1.6	4.4	
2	2.4	0.4	6.4	2.9	0	1.1	
3	1.4	0.4	0.4	0.7	0	0.7	
>=4	2.8	0	0.4	0.7	0	0.2	
Police personnel reporting two or more sexual partners in last year (all kinds)	133	72	131	88	33	157	614
Percent	46	26	28.1	31.4	13.2	34.8	29.4
Police personnel reporting four or more sexual partners in last year (all kinds)	31	7	31	14	3	23	109
Percent	10.7	2.5	6.7	5	1.2	5.1	4.9

Sexual History and number of sexual partners among Transport Workers

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Transport Workers who had sex (n)	339	371	376	330	287	359	
Percent	98.1	98.6	97.4	86.2	82	94	
Age at first sex (n)	339	371	377	330	289	361	
15 – 19	40.2	67.4	56.2	57	30.2	51.3	
20 – 24	32.4	20.2	20.4	30.7	33.8	33.2	
25 – 49	27.4	12.4	23.3	12.3	35.9	15.5	
Transport Workers who reported sex in the past 12 months (n)	306	346	347	281	236	326	
Percent	89.2	93.5	92	88	80.2	90.3	
Transport Workers who reported having sex with regular partner in the past 12 months (n)	227	236	272	195	216	244	1408
Percent	64.5	62.7	70.3	49.6	59.9	63.2	62.6
Number of regular partners in the past 12 months (n)	306	347	346	285	237	328	
0	26.3	32.1	21.4	35.2	6.1	22.6	
1	72.1	66.1	72.5	52.1	59.2	64.6	
2	1.1	1.4	5.5	10	15.5	10.4	

3	0	0.4	0.6	2.8	0.9	2.1	
>=4	0.4	0	0	0	18.3	0.3	
Transport Workers personnel who reported having sex with sex workers in the past 12 months (n)	17	34	7	7	7	23	99
Percent	5.1	8.7	1.8	1.9	2	6	3.8
Number of commercial sex partners in the past 12 months (n)	306	347	345	277	237	328	
0	94.1	90.6	98	97.3	95.8	92.1	
1	1.5	2.6	0.9	0.6	2.6	2.7	
2	1.4	1.7	0.3	1.2	0.4	1.2	
3	1.8	2.8	0	0	0	1.2	
>=4	1.2	2.3	0.9	0.9	1.2	2.7	
Transport Workers personnel who reported having sex with girlfriend in the past 12 months (n)	108	182	146	84	5	165	700
Percent	31.5	47.5	37.7	25.3	1.4	42.8	25.1
Number of girlfriend partners in the past 12 months (n)	306	347	345	277	237	328	
0	64	47.7	57.7	65.9	97.4	47.6	
1	26	29.5	32.8	26	2	24.1	
2	8.6	11	6.1	4.2	0.6	14.6	
3	0.9	6.5	2	2.1	0	5.2	
>=4	0.4	5.3	1.4	1.9	0	8.5	
Transport Workers personnel who reported having sex with casual partners in the past 12 months (n)	36	40	30	23	1	22	152
Percent	9.2	10.1	7.8	5.7	0.3	5.7	5.4
Number of casual partners in the past 12 months (n)	306	347	344	275	235	328	
0	89.5	89	91.3	92.1	99.5	92.7	
1	7.2	2.8	6.4	2.1	0	2.4	
2	1.1	3.6	1.2	2.7	0	0.9	
3	0.8	0.6	0.6	0.8	0	0.6	
>=4	1.5	4	0.6	2.2	0.5	3.4	
Transport workers reporting two or more sexual partners in last year (all kinds)	88	153	124	90	87	185	727
Percent	29.5	43.1	36.4	32.9	37.6	56.4	37.9
Transport Workers reporting four or more sexual partners in last year (all kinds)	21	59	17	23	50	63	233
Percent	6.6	17.4	5	6.2	19.9	19.2	12.2

Sexual History and number of sexual partners among IDU

	Cross River	Kano	Lagos	Overall
IDUs who had sex (n)	196	248	222	666
Percent	99.5	92.2	100	96.8
Age at first sex (n)	196	250	222	668
15 - 19	83.7	50.4	84.2	71.4
20 - 24	11.7	27.6	13.1	18.1

25 - 49	4.6	22	2.7	10.5
IDU who reported sex in the past 12 months (n)	188	150	126	464
Percent	95.9	60	56.8	69.5
IDU who reported having sex with regular partner in the past 12 months (n)	40	73	50	163
Percent	20.2	27.1	22.4	23.6
Number of regular partners in the past 12 months (n)	188	153	116	457
0	78.7	52.3	56	293
1	19.2	45.8	41.4	64.1
2	1.6	2	2.6	33.7
3	0	0	0	2
>=4	0.5	0	0	0.2
IDU who reported having sex with sex workers in the past 12 months (n)	80	45	13	138
Percent	40.4	16.7	5.8	20
Number of commercial partners in the past 12 months (n)	187	153	111	451
0	56.7	68.6	85.6	67.9
1	5.9	15	6.3	9.1
2	12.3	3.3	2.7	6.9
3	10.2	1.3	1.8	5.1
>=4	15	11.8	3.6	11.1
IDU who reported having sex with boyfriend/girlfriend in the past 12 months (n)	166	41	43	250
Percent	83.8	15.2	19.3	36.2
Number of boy/girlfriend partners in the past 12 months (n)	188	153	117	458
0	11.7	71.2	61.5	44.3
1	28.7	22.2	28.2	26.4
2	19.7	3.9	6	10.9
3	19.2	2.6	0	8.7
>=4	20.7	0	4.3	9.6
IDU who reported having sex with casual partners in the past 12 months (n)	110	28	16	154
Percent	55.6	10.4	7.2	22.3
Number of boy/girlfriend partners in the past 12 months (n)	188	153	112	453
0	40.4	81.7	83.9	65.1
1	13.3	13.1	6.3	11.5
2	13.8	2	1.8	6.8
3	10.6	2	1.8	5.5
>=4	21.8	1.3	6.3	11

MSM use of lubricant and by type of lubricant

Cross River

Kano

Lagos

Overall

MSM reporting ever using lubricant during anal sex with man (n)	238	252	270	760
Percent	83.6	96.4	96.7	92.5
Aqualube	10.6	3.7	3.8	5.7
Vaseline	78.9	81.9	70.6	76.9
Vaginal gel	15.6	16.1	16.4	16.1
Hand lotion	4	1.2	21.8	9.7
Baby Oil	13.1	9.5	20.6	14.6
Butter	0.5	0.4	0	0.3
Cooking oil	2	0	0	0.6

STI Treatment seeking behaviour – Brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Sought treatment when had STI (n)	38	13	42	56	42	15	206
Percent	77.8	86.7	83.4	72.7	82.4	57.7	76.3
First place treated for STI (n)	41	13	42	59	43	20	218
Public Hospital or clinic	5	7.7	4.5	30.5	18.2	20	17.2
Private hospital or clinic	27.7	15.4	54	20.3	35.7	30	33
NGO	0	0	0	1.7	0	0	0.4
Pharmacy or Chemist	26.6	69.2	28	35.6	33.7	15	30.3
Traditional healer	5.9	7.7	2.2	3.4	2	0	2.7
Friend or family member	0	0	2.2	0	1.5	0	0.9

STI Treatment seeking behaviour - Non-brothel-based FSW

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Sought treatment when had STI (n)	-	41	39	81	24	20	205
Percent	-	85.4	66.1	85.3	58.8	69	73.8
First place treated for STI (n)	-	46	51	83	35	24	239
Public Hospital or clinic	-	6.5	3.9	19.3	13.9	8.3	12.7
Private hospital or clinic	-	17.4	17.7	50.6	27.2	54.2	35.8
NGO	-	0	0	0	0	0	0
Pharmacy or Chemist	-	63	41.2	25.3	26.3	16.7	31.9
Traditional healer	-	4.3	9.8	4.8	3	4.2	5.2
Friend or family member	-	0	0	0	0	0	0

STI Treatment seeking behaviour - MSM

	Cross River	Kano	Lagos	Overall
Sought treatment when had STI (n)	24	14	11	49
Percent	68.6	87.5	91.7	77.8
First place treated for STI (n)	26	14	11	51
Public Hospital or clinic	11.5	21.4	0	11.8
Private hospital or clinic	11.5	21.4	72.7	27.5
NGO	0	0	0	0
Pharmacy or Chemist	57.7	35.7	27.3	45.1
Traditional healer	3.8	21.4	0	7.8
Friend or family member	7.7	0	0	2

STI Treatment seeking behaviour - Armed Forces

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Sought treatment when had STI (n)	3	10	10	4	37	6	70
Percent	60	76.2	52.6	50	88.1	66.7	77.6
First place treated for STI (n)	3	11	13	5	38	8	78
Public Hospital or clinic	0	9.1	15.4	40	68.4	62.5	56
Private hospital or clinic	0	45.5	15.4	20	18.4	0	17.3
NGO	0	0	0	0	0	0	0
Pharmacy or Chemist	33.3	36.4	15.4	20	7.9	12.5	12.2
Traditional healer	66.7	0	7.7	0	2.6	0	3.6
Friend or family member	0	0	0	0	0	0	0

STI Treatment seeking behaviour - Police

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Sought treatment when had STI (n)	16	18	26	24	5	1	27
Percent	80	85.7	41.9	88.9	62.5	84.6	71.7
First place treated for STI (n)	16	18	48	25	7	34	148
Public Hospital or clinic	12.5	22.2	20.8	44	0	2.9	14.8
Private hospital or clinic	37.5	38.9	16.7	16	42.9	61.8	39.6
NGO	0	0	0	0	0	0	0
Pharmacy or Chemist	12.5	38.9	16.7	32	14.3	20.6	21.6
Traditional healer	18.8	0	2.1	0	14.3	8.8	6.3
Friend or family member	0	0	0	0	0	0	0

STI Treatment seeking behaviour - Transport Workers

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Sought treatment when had STI (n)	16	39	4	11	10	22	102
Percent	83.2	80.4	36.4	54.5	49.4	62.9	60.7
First place treated for STI (n)	17	40	5	11	18	30	121
Public Hospital or clinic	8.6	5.3	0	43.3	24.5	16.7	18.5
Private hospital or clinic	15.5	19.6	40	23.7	12.3	10	15.9
NGO	15.3	34.2	20	10.9	3.7	23.3	15.3
Pharmacy or Chemist	0	0	0	0	0	0	0
Traditional healer	29.7	28.9	20	10.1	6.2	20	16.8
Friend or family member	0	6.2	0	0	0	0	0.9

Types of Transport Workers Surveyed

	Anambra	Cross River	Edo	FCT	Kano	Lagos	Overall
Number of transport workers surveyed (n)	345	376	387	385	352	385	2230
Long Distance Transport Workers (n)	97	126	166	183	132	225	929
Percent	22.9	28.4	42.9	40.2	36.2	58.4	37.4
Intra State Transport Workers and Motorcyclists (n)	248	250	221	202	211	160	1292
Percent	77.1	71.6	57.1	59.8	60.9	41.6	61.7

Police Ranks

	Anambra	Cross River	Edo	FCT	Kano	Lagos
Number of policemen surveyed (n)	304	295	539	308	285	496
Officers (n)	33	13	28	13	13	20
Percent	10.9	4.4	5.2	4.2	4.6	4
Non-officers (n)	271	282	511	295	272	476
Percent	89.1	95.6	94.8	95.8	95.4	96

Male Groups reporting male to male sex

	Anambra	Cross River	Edo	FCT	Kano	Lagos
Armed Forces (n)	0	0	1	2	1	1
Percent	0	0	0.2	0.8	0.4	0.4
Police (n)	0	0	0	0	0	0
Percent	0	0	0	0	0	0
Transport Workers (n)	2	1	0	0	2	2
Percent	0.4	0.3	0	0	0.8	0.6

Alcohol Use - Female Sex Workers, MSM and IDU

State	Brothel based FSW		Non Brothel based FSW		MSM	
	Every day	At least once a week	Every day	At least once a week	Every day	At least once a week
Anambra	26	62	-	-	-	-
Cross River	31	83	54	86	13	55
Edo	26	68	31	68	-	-
FCT	26	61	34	66	-	-
Kano	26	51	27	49	3	26
Lagos	19	63	40	66	6	38
Overall	24	60	35	64	8	40

Alcohol Use - Armed Forces, Police and Transport Workers

State	Armed Forces		Police		Transport Workers	
	Every day	At least once a week	Every day	At least once a week	Every day	At least once a week
Anambra	14	41	13	38	22	62
Cross river	9	32	6	34	30	66
Edo	8	32	7	27	25	59
FCT	8	25	7	23	7	25
Kano	2	21	2	12	1	4
Lagos	6	26	12	40	13	35
Overall	6	27	8	30	13	35

Armed Forces Ranks

	Anambra	Cross River	Edo	FCT	Kano	Lagos
Number of Armed Forces personnel surveyed (n)	198	292	499	275	282	292

Officers	5	18	30	22	10	37
Percent	2.5	6.2	6	8	3.5	12.7
Non-officers	193	274	469	253	272	255
Percent	97.5	93.8	94	92	96.5	87.3

History of Drug Use among IDU

	Cross River	Kano	Lagos	Overall
Age at the first drug use (n)	195	265	222	682
15 – 19	27.2	12.8	9	15.7
20 – 24	52.3	18.9	19.4	28.6
25 – 49	20	67.6	70.3	54.8
Duration of drug use (n)	192	265	221	678
1 year or less	4.2	0.4	0	1.4
More than 1 year	95.8	99.6	100	98.7
Duration of drug injection (n)	185	257	217	
1 year or less	11.4	8.6	4.1	7.9
More than 1 year	88.7	91.4	95.9	92.1
3 or more years	70.8	79.4	89.9	80.4
Frequency of drug injection in the past month (n)	195	265	222	682
Only once	19	1.5	9.9	9.2
2 - 3 times	26.7	1.1	17.1	13.6
About once a week	21	3	9.9	10.4
2 - 4 times a week	15.4	6	19.8	13.2
4 - 6 times a week	0.5	1.5	11.7	4.5
Once a day	2.6	7.5	8.6	6.5
2 - 3 times a day	3.1	60.8	18	30.4
4 or more times a day	0	17	2.3	7.3

Injecting Behaviours among IDU

	Cross River	Kano	Lagos	Overall
Injecting with needle used by someone else in the past 1 month	7	80	47	134
Percent	3.4	30.2	21.2	19.7
Giving, lending, selling or renting needle or syringe after use in the past month	16	54	23	93
Percent	8.2	20.4	10.4	13.6
Always using sterile injecting equipment in the past month	154	99	154	407
Percent	79	37.4	69.4	59.7