# RISK FACTORS FOR HIV AND HIV PREVALENCE AMONG CURRENTLY MARRIED AND UNMARRIED FEMALE SEX WORKERS IN NIGERIA: A SECONDARY DATA ANALYSIS OF 2007 IBBSS

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## ABSTRACT

Female sex workers constitute an important high risk group for Human Immunodeficiency Virus (HIV) evidenced by a high prevalence of the disease in this group. The interactions between marriage and Human Immunodeficiency Virus (HIV) infection has been investigated in the general population but few studies have examined the role of marriage on HIV among female sex workers. The objective of this study was to compare risk factors for HIV and HIV prevalence between female sex workers that are married and those that are not married.

The study is a reanalysis of the data on female sex workers from the 2007 Integrated Biological and Behavioural Surveillance Surveys (IBBSS), a cross sectional survey of high risk groups for HIV in six States in Nigeria. Data on 2889 female sex workers was analysed using SPSS version 16.0. The differences in socio demographic variables were first evaluated between the three marital categories using the chi square test. The differences in the proportion of selected risk factors between marital categories was also tested using the chi square test. Then, for each dependent variable, a logistic regression analysis was performed on marital status as the main independent variable and other variables that were significant at 5% p.value were included. Odds ratio and 95% CI were reported.

The mean age of the sex workers was 26.1 years and ranged between 15-49 years. Prevalence of HIV was high among FSWs that are currently married living with spouse /partner and those married not living with spouse/partner (47.1%) & 42.8% respectively). After adjusting for other variables, those that are currently married living with spouse were about 3 times more likely to be HIV positive than those not married at OR=2.518, 95%CI=1.766-3.589 and those currently married not living with spouse were 2 times more likely than those not married to be HIV positive at OR=2.114, 95%CI=1.660-2.692 and those that are currently married living with spouse were about twice less likely to have used alcohol than those not married (OR=0.487, 95%CI=0.351-0.676) and those currently married not living with spouse were less likely than those not married to have taken alcohol. (OR=0.762, 95%CI=0.600-0.967).

The study showed that married FSWs are a major bridge in the transmission of HIV/AIDS to the general population and sensitization efforts among high risk groups especially FSWs should be targeted at those that are married. Voluntary counseling and testing should also be promoted for couples, as should other evidence-based interventions that target heterosexual couples.



**Key words: Human Immunodeficiency Virus, Female sex worker, Risk factors, Nigeria**

**Word count: 405**

# DEDICATION

This work is dedicated to Almighty God who was, who is and who is to come. May your name be praised forever.

Also to my wonderful husband Eyitayo Adara and my lovely children for their support, encouragement, prayers and love toward me.

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# CERTIFICATION

I certify that this work was carried out by Oluwatoyin Temitope Adara in the Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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## LIST OF ABBREVATION

| | |
|---|---|
| **AIDS** | Acquired Immune Deficiency Syndrome |
| **CI** | Confidence Interval |
| **CDC** | Centers for Disease Control |
| **FCT** | Federal Capital Territory |
| **FMoH** | Federal Ministry of Health |
| **FSWs** | Female Sex Workers |
| **HIV** | Human Immunodeficiency Virus |
| **IBBSS** | Integrated Biological and Behavioural Surveillance Survey |
| **NM** | Not Married |
| **MLS** | Married living with spouse |
| **MNS** | Married not living with spouse |
| **NARHS** | National HIV/AIDS and Reproductive Health Survey |
| **NDHS** | National Demographic and Health Survey |
| **PLWHA** | People Living with HIV and AIDS |
| **PMTCT** | Prevention of Mother to Child Transmission |
| **PPS** | Probability Proportionate to Size |
| **SES** | Socio Economic Status |
| **TLS** | Time Location Sampling |
| **UNAIDS** | Joint United Nations Program on HIV/AIDS |
| **UNFPA** | United Nation Fund for Population Activities |
| **UNICEF** | United Nations Children's Fund |
| **USAID** | United State Agency for International Development |
| **VCT** | Voluntary Counseling and Testing |
| **W.H.O.** | World Health Organization |

# CHAPTER ONE

# INTRODUCTION

## 1.1 BACKGROUND

Nigeria is one of the countries hardest hit by HIV/AIDS in the world, with about 3.5 million people currently living with HIV infection (oyefara, 2007) and the age group 20-24 years having the highest National prevalence of 5.6% (USAID, 2008). Based on this fact, Nigeria is placed fourth among countries worldwide with the highest number of HIV infected persons (Nwokoji & Ajuwon, 2004).The National HIV/AIDS and Reproductive Health Survey (NARHS) estimates the national adult HIV prevalence rate was 3.6 percent in 2007. According to the 2010 UNGASS report, 2,980,000 people are living with HIV/AIDS. After South Africa, Nigeria has the largest number of people living with HIV/AIDS in Africa. Nigeria's first case of AIDS was diagnosed in 1986, and the national prevalence soon rose rapidly, from 1.8 percent in 1991 to a peak of 5.1 percent in 2001. (UNGASS, 2010).

The prevalence of HIV has been shown to be higher among some groups compared to the general population. These groups include female sex workers, men who have sex with men, transport workers and uniformed services men. A survey of these groups in 6 Nigerian states found the highest prevalence among female sex workers (IBBSS 2007). Also, HIV prevalence among sex workers has remained high over the past decades (Ankomah, et al., 2011). According to surveys for example, it was 17.5% in 1991, 22.5% in1993, and 35.6% in 1995 (*Avert.Org*). This stresses the importance of this group in the control of HIV in Nigeria and the need for interventions to reduce HIV among them.

The term 'sex worker' refers to a wide array of people who sell sex, and who work in a variety of environments. They include women, men and people who may work either full time or part time, in brothels, or bars, on the street or from home. Sex workers are individuals whose reasons for engaging in sex and living on it are personal, economical and social to them and are often labeled a 'high risk group' in the context of HIV and AIDS and their clients and sex partners serve as bridge populations for the spread of HIV to the general population, meaning that they act as a link between high risk groups and the general population (Lowndes, et al 2000). Surveys conducted among female sex workers involve selection of brothel based sex workers, those who reside in a brothel and non-brothel based FSWs- those who hang in bars, night clubs etc. (IBBSS 2007).

The interactions between marriage and Human Immunodeficiency Virus (HIV) infection has been in focus in public health discussions. Marriage is a nearly-universal and highly diversified institution. In the context of the spread of HIV infection among women, marriage has evolved to have a dual impact (Jacubowski 2008, Boileau et al 2009).

Emerging evidences suggest that on one hand, marriage may help reduce the spread of HIV infection by curtailing high risk behaviours if partners remain sexually exclusive to each other (Jacubowski 2008, Boileau et al 2009). On the other hand marriage can increase a woman's risk via increased frequency of sexual intercourse that ensues. This is more likely if the partner was previously infected, or has unprotected extra-marital sexual relationships. The entire sequelae of events from spouse selection to spouse demise, widowhood and selection of a new spouse pose varying risks for acquisition of HIV infection (Jacubowski 2008, Boileau et al 2009, Clark et al 2007).

The role that a female sex worker's marital status could play in the practice of risky sexual behaviours has not been explored. There are two possible ways by which marital status could influence risky sexual behaviour. Being married could translate to a lower or higher occurrence of HIV risk behaviour. There are also implications for public health for spouses of married sex workers as regular sexual intercourse is likely to be unprotected and portends great danger for the spouse. This study explored the possible role that marital status may play in the prevalence of HIV risk behaviours and HIV infection among the female sex workers.

## 1.2 PROBLEM STATEMENT

Nigeria is the 2nd most affected country in the sub-Saharan Africa with HIV disease, with the prevalence of 14% in the region. (Essien, et al., 2010).Research evidence has shown that HIV prevalence is high and it is geographically and socially distributed. For example, a report by Esu-Willians et al., showed that out of the sample of 2,300 persons from five states in Nigeria, HIV-1appeared in over 60% of commercial sex workers and 8% of their male clients (Essien, et al., 2010). In a study carried out in the southern part of Nigeria, by Orobuloye, et al., it was noted that 60% of married urban women 33% of rural women have extra marital sex for their own pleasure, while 34% of married rural women and 14% of married urban women had sex as a means of economic benefits. Unprotected sex is a norm among married couples in Nigeria, yet many married men and women engage in unprotected extra marital sexual relationships, thereby increasing the risk of their spouse being infected with HIV infection. Thus the level of high risk sexual behavior within and outside marriage in Nigeria tend to expose a larger part of the population to the risk of HIV and other sexually transmitted infections (Essien, et al., 2010).

## 1.3 JUSTIFICATION/RATIONALE

HIV is one of the most urgent public health problems facing both developing and developed nations. Even though it affects all the social sectors of the population, the epidemic among female sex workers is the fastest growing, partly because of the risky behavior such as age at first sex, several sexual partners, unprotected sex, irregular condom use and oral sex (Khan et al., 2011). FSWs, partners and clients are considered to play an important role in spreading HIV infection as result of risky behavior they engage in bringing about high HIV prevalence among them (Audrey et al.,2010). Therefore this study tried to explore the sexual behavior, attitude to condom use and HIV prevalence of Female Sex Workers (FSWs) in Nigeria, comparing those that were married with those that were not. The findings from this study will guide public health programme planners to take decisions about considering marital status of FSWs in planning interventions.

## 1.4 OBJECTIVES

### MAIN OBJECTIVE:

- To compare risk factors for HIV and HIV prevalence between married and unmarried FSWs using data from 2007 Integrated Biological Behavioral Surveillance Survey (IBBSS).

### SPECIFIC OBJECTIVE:

- To assess and compare HIV prevalence between currently married female sex workers and those that are not married.
- To compare the attitude to condom use between currently married FSWs and those not married.
- To assess and compare the sexual behavior of currently married FSWs and unmarried FSWs.
- To determine the knowledge of FSWs about HIV infection and other sexually transmitted infections.
- To compare HIV testing pattern between the two groups of FSWs.

## 1.5 RESEARCH QUESTIONS:

- What are the differences in the risk factors for HIV among FSWs that are married and those that are not married?
- What are the differences in the HIV prevalence among FSWs that are married and those that are not married?
- What are the differences in the knowledge of FSWs to HIV infection & other sexually transmitted infection among FSWs that are married and those that are not married?
- What are the differences in HIV testing among FSWs that are currently married and those that are not married?

## 1.6 HYPOTHESES

The hypotheses of this study are as follow……

- There is no significant difference in the risk factor for HIV among FSWs that are married and those that are not married.
- There is no difference in the HIV prevalence among FSWs that are married and those that are not married.
- There is no significant difference in the knowledge of FSWs to HIV infection & other sexually transmitted infection among FSWs that are married and those that are not married?
- There is no significant effect of marital status of FSWs on HIV testing.

# CHAPTER TWO

# LITERATURE REVIEW

Nigeria epidemic pattern is characterized by one of the most rapidly increasing rates of new HIV/AIDS cases in West Africa (UNAIDS, 2006). Adult HIV prevalence has increased from1.8 percent in 1991 to 5.1 in 2001, but dropped to 4.4 percent in 2005 and 4.1 in 2008. This infection rate, although lower than that of the neighboring Africa countries should be considered in the context of Nigeria relatively large population of approximately 117 million (UNAIDS, 2006). This chapter shall be divided into the following sections:

1. Epidemic pattern of HIV among FSWs

2. Sociodemographic characteristics of female sex workers (FSWs)

3. Prevalence of HIV and sexually transmitted infections among FSWs

4. Risk factors for HIV among the FSWs

5. Risk perception and knowledge of HIV/STIs among FSWs

6. Other high risk groups for HIV

7. Interventions carried out among FSWs

## 2.1 EPIDEMIC PATTERNS OF HIV INFECTION

This can be divided into generalized epidemic and concentrated epidemic.

### 2.1.1 GENERALIZED EPIDEMIC

In generalized epidemics where HIV is over one percent in the general population, surveillance systems concentrate on monitoring HIV infection and risk behavior in the general population (IBBSS, 2007).

After South Africa, Nigeria has the second highest number of people living with HIV in the world. Out of the 33.4 million people living with HIV in 2008, Nigeria accounts for about 2.98 million of people living with HIV resulting in 9 percent of the global burden (UNAIDS,

2009). There is gender inequality in the distribution with female accounting for 1.72 million and males, 1.23 million in the HIV estimate in 2008 (UNGASS, 2010). In Nigeria, heterosexual sex remain the primary mode of transmitting HIV and accounts for 80-90percent of infection in the country (Adeyi et al., 2006). Based on the sentinel survey carried out in the 36 states of Nigeria and Federal capital territory by UNAIDS/WHO working group in 2008, Nigeria has HIV generalized epidemic with the prevalence of above 1percent with Ekiti ( southwest zone) having the lowest prevalence of 1percent while Benue in the North central had the highest prevalence of 10.6 %.

In North America, western and central Europe the total number of people living with HIV grew from an estimated 1.8 million in 2001 to 2.3 million in 2009, an increase of 30% (UNAIDS, 2010). In 2009, an estimated 4.9 million people in Asia were living with HIV, including 360 000 who became newly infected that year. The overall trends in this region hide important variation in the epidemics, both between and within countries. The HIV epidemic in the Pacific region is small, but the number of people living with HIV in this region nearly doubled between 2001 and 2009, from 28 000 to 57 000. (UNAIDS, 2010)

### 2.1.2 CONCENTRATED EPIDEMIC PATTERNS OF HIV INFECTION

In concentrated epidemics where HIV is over five percent in any sub-population at higher risk of infection (such as drug injectors, FSWs, men who have sex with men), surveillance systems monitor infection in those groups and pay particular attention to behavioral links between. The IBBSS (2007) showed a different picture of Nigeria's epidemic with certain most at risk populations more adversely affected by HIV than others. FSWs, MSM, IDUs carried the greatest burden of HIV with prevalence rates significantly higher than those reported in the general population. On the other hand, armed forces, and transport workers, showed prevalence rates lower than the national average in some cases, suggesting success in reaching out to these populations through previous prevention efforts. With high prevalence rates of more than 30% for FSW across all states surveyed and 13.5 % among MSM, the risk of transmission through bridge populations into the general population could easily explode into an exponential growth of the epidemic across all states. (UNGASS, 2007).

## 2.2 SOCIODEMOGRAPHIC CHARACTERISTICS OF FEMALE SEX WORKERS

Female sex workers are typically women who define themselves as sex workers and earn their living by selling sex. Sex work is an occupation where a sex worker is hired to provide sexual services for monetary considerations (Adler, et al., 1996). In general, the commercial sex interaction involves the short-term exchange of information, funds, social symbols, and meanings. These interactions are shaped by sociodemographic characteristics, work experiences, norms, knowledge, and other psychosocial factors (Behets, et al. 1999).

Sex work remains an important contributor to HIV transmission within early, advanced and regressing epidemics in sub-Saharan Africa, but its social and behavioral underpinnings remain poorly understood, limiting the impact of HIV prevention initiatives. FSW commonly have limited economic options, many dependents, marital disruption, and low education. (Scorgie, et al.2011).

In sub Saharan Africa, the average age of sex workers mostly fell between 24 and 31 years, with estimates lower among urban sex workers in East African countries such as Ethiopia and Kenya (Aklilu, et al 2001) and higher averages recorded in Senegal (Wang C, et al., 2007), and some studies in Ghana (median 37 years (Deceuninck, et al., 2000)) and Kenya (mean 35 and 41.1 years (Odek, et al., 2009)). Several studies documented the existence of very young sex workers, for example in the Congo, 28% of FSW in a cross-sectional study were between 14 and 18years and 33% had entered the sex industry before 14years of age (Ntumbanzondo, et al., 2006).

In Nigeria, majority of FSWs are young women and they can be classified into two groups which are brothel-based and non-brothel based. FSWs are usually between the ages of 15-42years (Ladipo & Ankomah, 2011) and mostly in their productive ages of 16-47, with a mean age of 26.9 years (Onyeneho NG, 2009). According to a national study in 2001, the mean age of brothel-based FSWs was 26 years (SFH, 2001). FSWs always move from one place to the other within days depending on their major market based (FHI, 2008). Also, results from a study in Ibadan showed that over half (53.2%) of the respondents were in the 20-29 year age group and most (71.5%) had been in the profession for less than a year. Sixty-five (22.0%) had no formal education, 29.8 % had some secondary education whilst 22.4 % had completed secondary school (Umar et al, 2001). Some studies had shown that FSWs are mostly poorly educated (Onwuliri & Jolayemi, 2007), but some in Urban areas have shown that about 51.7 % of FSWs have at least some secondary education (Lawan et al., 2012). Also, various studies had shown that a higher proportion of FSWs had been married at one

point or the other in their lives (IBBSS, 2007). According to a study by Bakare et al., in 2002, 52.1% of sex worker were not married, 21.8% were separated, 16.6% were divorced, 5.9% widowed and only 3.6% were married. In support of this fact is another study in Nigeria by Oyefara in 2007 and in Mexico by Uribe-Salas et al in 2003 which showed that majority of the FSWs were unmarried. In agreement with this is a study in Cambodia (Oshige et al., 2000). A study in Pakistan in 2011 was against this which reported that 91% of the FSWs were married (Khan et al., 2011). Some FSWs especially those of the brothel-based group are usually full time sex workers who do not engage in any other income generating activities and are always available for their clients any time. While the non-brothel based group of FSWs engage in other income generating activities such as plaiting of hair, tailoring, knitting etc. (Elmore-Morgan et al., 2004).

Based on Community based participatory research conducted by public health researchers from the University of Otago, Christchurch in partnership with New Zealand prostitutes' collectives, the majority of participants were New Zealand European. Females, between the ages of 22 and 45 years, had entered the industry after the age of 18 years and had education levels of at least three to five years at the secondary school level, with many indicating they have tertiary level education. Nearly half of the participants reported having children. Most participants (67.1%) had been in the industry for longer than two years (Pepin, et al., 2005)

A study in Kenya also associated marital status with HIV among women and showed that widowed women were more likely to have HIV compared to those that were never married (Oluoch et al. 2011).

## 2.3 PREVALENCE OF SEXUALLY TRANSMITTED INFECTION AMONG FEMALE SEX WORKERS

Sexually transmitted diseases (STDs) are infections that you are contracted from having sex with someone who has the infection. The causes of STDs are bacteria, parasites and viruses. There are more than 20 types of STDs, including chlamydia, HIV/AIDS, gonorrhea, genital herpes, HPV, syphilis, trichomoniasis (Coughlan et al., 2001). Sex workers are considered a high-risk group for sexually transmitted infections, including human immunodeficiency virus (HIV), and are often targeted by prevention interventions with safer sex messages (UNAIDS,2006). Sex workers constitute the high risk groups for sexually transmitted infections (STIs) and human immune deficiency virus infection (HIV/AIDS) acquisition and transmission. (Lawan et al., 2012). This is perhaps because sex workers have numerous sex partners and they engage in unprotected sex and other forms of sex that cause contact with body fluids of a partner who may be infected with sexually transmitted diseases. (Izugbara, 2007). Talbott in 2007 argued that the number of HIV-infected sex workers in an individual country is highly significant for explaining the HIV prevalence levels across countries. Female sex workers are at risk of HIV and sexually transmitted infections not because they lack knowledge or preventive measures about it, but have misconception about treatment and symptoms and believe that those unable to take care of themselves get infected (Ankomah et al., 2011).

In Sub-Saharan Africa, HIV prevalence varies between 21% and 75% (Morison et al., 2001) and sex work is assumed to have had a significant impact on the spread of the infection in this area (Cote et al., 2004). Although the impact of sex work on rate of new HIV infections varies widely in sub-Saharan Africa, it impacts significantly on the HIV/AIDS epidemics of a number of countries in this region. In Ghana, for example, female sex workers, their clients and the sexual partners of clients made up a third of all new HIV infections in 2009, 10% of all new HIV infections in Uganda, and 14% of HIV infections in Kenya in the same year (UNAIDS 2010).

In Nigeria, HIV prevalence among sex workers has been high over the past decades with the prevalence of 30 percent in 2007 (Ankomah et al., 2011). Another study in Nigeria showed Sixty four (25.6%) of the subjects were positive for HIV-1 while seven (2.8%) had dual HIV-1/2 infection. Analysis of the STIs showed that 49 (19.6%) of the CSWs had GUDs. Herpes genitalis was the commonest GUDs as it occurred in 25 (10%) of the subjects. Other STIs

identified were chancroid (5.6%), syphilis (4.0%) and lymphogranuloma venerum (LGV) (4%) (Fayemiwo et al, 2011). Another Nigerian study reported vaginal candidiasis as the most common STD diagnosed in both CSWs and the control group. The other STDs in their order of frequency were HIV infection 34.3%, non-specific vaginosis 24.9%, trichomoniasis 21.9% and gonorrhoea and "genital ulcers" had an incidence of 16.6% each. Other important conditions were tinea cruris 18.9%, scabies 7.7% genital warts 6.5% and 4.1% of them had syphilis sero-positivity (Bakare et al, 2002). According to the Nigeria's 2007 HIV/STI Integrated Biological and Behavioral Surveillance survey, it was shown that FSWs are most affected by HIV/AIDS. Brothel-based sex workers have HIV prevalence rates of 37.4 percent and non-brothel-based sex workers have prevalence rates of 30.2percent. A prevalence rate of 49% was found in Federal capital territory and Kano State. Lagos State had the lowest rate of HIV infection among brothel-based and non-brothel-based sex workers with prevalence rate of 23.5% and 12.9% respectively (IBBSS, 2007).

In Western Europe, the prevalence of HIV in FSW is generally below 2%, except for those who are injecting drug users (IDU) (Eurohiv, 2002). Historically, the AIDS epidemic in India was first identified amongst sex workers and their clients, before other sections of society became affected (Kakar, 2001). High HIV infection rates among sex workers continue to be detected in India. The government estimates that 5% of sex workers nationally are infected with HIV, which is fifteen times higher than the overall HIV prevalence.(UNGASS, 2010).In Thailand, HIV prevalence among female sex workers isnow2.8percent (NAPAC, Thailand, 2010).

## 2.4 RISKS FACTORS FOR HIV AMONG FEMALE SEX WORKERS

Several factors have contributed to the spread of HIV; they include several sexual partners, unprotected sex (consistence condom use), untreated sexually transmitted infections (Caceres, 2008).

### 2.4.1 NUMBER OF SEXUAL PARTNERS

Female sex workers are known to have several sexual partners due to nature of their job. Multiple sexual partners is the most crucial driver of HIV and sexually transmitted infections in Nigeria and across other countries (UNAIDS, 2006). Studies have shown that FSWs have at least more than one sexual partner per day. (IBBSS, 2007). According its report, high numbers of sexual partners was reported for FSWs and other most-at-risk populations. Studies have also established a link between number of clients and prevalence of HIV. Some include a study in Kenya where a higher number of lifetime sex partners was associated with HIV among women. (Oluoch et al, 2011).

### 2.4.2 POOR UTILIZATION OF HIV/STI SERVICES

Sexually transmitted infections increases the risk of HIV/AIDS among FSWs and the awareness is high with 89.5percent in 2000 and 92.7percent in 2004 (NACA, 2008). Despite the high reporting of genital discharge and ulcer among sex workers, most of them assess STI services for proper treatments and they are unlikely to notify their partners of their need to be treated as untreated STI increases the risk of HIV transmission (NACA, 2008).

### 2.4.3 INCONSISTENT CONDOM USE

A condom is a barrier device most commonly used during sexual intercourse to reduce the probability of pregnancy and spreading sexually transmitted diseases (STDs such as gonorrhea, syphilis, and HIV).There are two types of condoms: male and female. A male latex condom have the advantage of being easy to use, reduces the risk of STIs, can be easily obtained and does not require a prescription, inexpensive and does not have side effects. Laboratory studies show that the male latex condom are impermeable to infectious agents contained in genital secretions (WHO/UNAIDS: 2001).

The female condom is also available, and it is a thin sheath or pouch worn by a woman during sex. It entirely lines the vagina and helps to prevent pregnancy and sexually transmitted diseases (STDs) including HIV (UNAIDS 2010).

Female sex workers (FSWs) and their clients are both at risk of acquiring sexually transmitted infections (STIs) including HIV/AIDS. Since there is no complete cure for HIV/AIDS, preventive measures are important reducing the prevalence of the infections.

Consistent condom use (CCU) is one of the preventive measures that can effectively control the spread of such diseases among FSWs.

According to evidences, studies have shown that in Sub-Saharan Africa, the risk for HIV infection is lower among sex workers who use condoms consistently. In Nigeria, awareness about condom use among FSWs is very high with the proportion of 98.4percent for brothel-based group and 99percent for non-brothel based and still, rate of condom use is very low (FMOH, 2005). According BSS 2000, out of the 87.3percent of FSWs was aware of where to purchase condom, 37percent had used condom consistently during their last sexual activity. FSWs also reported higher levels of condom use in commercial sex than their clients, suggesting possible over-reporting of condom use by FSWs (IBBSS, 2007). 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 (IBBSS, 2007). A study in Nigeria showed that only three percent of FSW do not use condom at all. Others use unorthodox methods (e.g. douching with salt solution immediately after sex). if a client refuses to use condom. It also identified condom use as being dependent on the client's choice (Onyenebo N.G., 2009).

Studies in Ethiopia show that sex workers who were using condoms for contraception were, compared with others, more likely to use condoms consistently (65 versus 24%, respectively; P. value < 0.001), and less likely to be HIV-infected (55 versus 86%, respectively; P. value < 0.001) (Akililu et al.2001). Another study in Ghana showed that level of condom education was very low (14%); however consistent condom use (all the time) with clients was relatively high (49.6%). Two hundred seventy-seven of the participants did not use condoms all the time (Adu-Oppong, 2007). Condom use has also been associated with other factors as shown by a study in the democratic Republic of Congo where consistent condom use was associated with age, those aged 20-44 years were more likely to be consistent users (OR 1.34, 95% CI 1.06 to 1.69), having cited it as a prevention means for HIV (OR 2.88, 95% CI 2.09 to 3.96), less time in commercial sex work, higher number of clients (OR 3.83, 95% CI 2.95 to 4.96), exposure to voluntary counseling and testing (VCT: OR 2.02, 95% CI 1.70 to 2.42), and access to condoms (OR 1.51, 95% CI 1.25 to 1.82) (Kayembe et al, 2008). Another study in Gambia found no association between condom use and socio demographic factors, however it found that condom use with clients varied according to location (from 91% in high-class bars to 59% in rural markets), decreased from 91% with the first client of the evening to 37% with

the tenth client, and from 75% with clients paying higher charges (> D19) to 52% with those paying lower charges (< D20) (Pickering et al, 1993).

In a study carried out in China, it was shown that 63.4% of the FSWs used condoms consistently. A previous Australian study which reported that 66.8% of FSWs consistently used condoms found that several factors were associated with CCU. These included alcohol consumption, knowledge regarding the advantages of condoms, perceived reduction in pleasure with condom use and condom use skills (Coughlan, et al, 2001).

## 2.5 RISK PERCEPTION AND KNOWLEDGE OF HIV/STI

Studies have shown that CSW generally have a low risk perception for HIV, a study in Nigeria found that sex workers underestimated their risk of infection and rationalized, defended, or justified their behaviors, a typical psychological response to worry, threat, and anxiety arising from the apparent discrepancies between beliefs and behaviors. This low risk perception was usually associated with a strong belief in fatalism, predestination, and faith-based invulnerability to HIV infection. Many believed that one will not die of acquired immune deficiency syndrome if it is not ordained by God (Ankomah et al, 2011). Knowledge of HIV among FSWs is generally good as shown by a study in Lagos where all the respondents had knowledge about the existence of HIV/AIDS, 82.0% of them identified sexual intercourse as a major route of HIV transmission (Oyefara, 2007).

## 2.6. OTHER HIGH RISK GROUP FOR HIV INFECTION

Populations that are at high risk of HIV infections are those people that have higher chance of contracting or transmitting HIV because of their higher risk behavior such as unprotected sexual intercourse, several sexual partners, unprotected anal sex, oral sex and injecting drugs with shared instruments. They include female sex workers, injection drug users, men who have sex with men, and people having unprotected heterosexual activity (UNAIDS 2007). The risk of contracting HIV infection can be described as the probability of an individual becoming infected with HIV either unknown or intentionally through his/her action or another person's action (UNAIDS, 2007).

Female sex workers are one the most at risk group because of the fact that they have frequent sex partner and have a high burden of STIs, they often engage in unprotected sex and other risky behaviors such as substance abuse (Onwuliri et al., 2003). Other high risk groups include Men who have sex with men (MSM), and injection drug users (IDUs).

### 2.6.1 MEN WHO HAVE SEX WITH MEN

Sex between men is significant because it involves anal sex, a practice that, when no protection is used, carries a higher risk of HIV transmission than unprotected vaginal sex. In many countries however, men who have sex with men are less visible. Sex between men is stigmatized, officially denied and criminalized in various parts of the world. Worldwide, it's estimated that sex between men accounts for between 5 and 10% of HIV infections. The situation varies between countries however, and in much of the developed world, including the USA, Canada, Australia, New Zealand and many parts of Western Europe, more people have become infected with HIV through male-male sex than through any other transmission route (UNAIDS, 2010 ).

Africa is a region not commonly associated with male-male HIV transmission but there is growing evidence that transmission through this route is a very important problem (Smith et al 2009).Studies have shown that, of African men who have sex with men, unprotected anal sex is commonplace, and HIV prevalence among men who have sex with men is as high as 25.3% in some West African countries (Ahuchoga, 2008). In Africa, men who have sex with men are almost 4 times more likely to be HIV positive than the general population (Baral et al. 2007).

In Nigeria, many of MSM are not openly gay, their activities and manner of lifestyle increases their risk of transmitting HIV to their female partners such as spouses (UNAIDS, 2007). The number of MSM in the country is currently not known because homosexuality is illegal (FHI, 2000). In Nigeria, the prevalence of HIV among men who have sex with men is higher in Lagos (25.4%) than Kano (11.7%) and Cross River states (2.8%) (IBBSS, 2007). Based on a five-group discussion with some MSM, it was found that the mean age was 27 years and they are highly educated persons (FHI, 2000).Researchers have shown that MSM

are bisexual and often involve in unprotected anal sex which is more riskier than unprotected vaginal sex as regarding HIV transmission (UNAIDS, 2006). According to Odumuye, HIV infection rate is higher among MSM than in the general population as a result of several sexual partners, anal and oral sex they practice (UNAIDS, 2007).

In Kenya, a country where homosexuality is illegal, HIV prevalence has reached as high as 43% among some groups of men who have sex with men. Also, in South Africa where sex between men is legal, HIV prevalence is between 20% and 40% in some places (UNAIDS, 2010). However, small studies among MSM reflect HIV prevalence of up to 5% among MSM in Georgia, 6% in Russia and in Odessa, Ukraine HIV prevalence among MSM is 23%. In Asia, HIV prevalence levels among men who have sex with men have reached as high as 18% in parts of India; 29% in Myanmar and 31% in Bangkok, Thailand (UNAIDS, 2010).

### 2.6.2 INJECTION DRUG USERS

Globally, the increase of injecting drug users and the availability and affordability of drugs has paralleled the increase in HIV infections. Up to 10percent of all HIV infections worldwide are contracted from contaminated needles (Chin, 2007). Once HIV infection penetrates a network of injecting drug users who share needles, it is possible to infect 50 percent of a network of users within a few months. Although injecting drug use has long been an issue in developed nations, 78 percent of the world's estimated 13 million injecting drug users live in developing countries. Ten percent of global infections and 30 percent of infections outside of sub-Saharan Africa can be attributed to injecting drug use. As literatures have shown, HIV prevalence among IDUs can rise from 1 percent-2 percent to 60 percent-70 percent in a few years (GNP+, 2005) and it has been stated that the prevalence can even go from 0 percent to 50 percent among IDUs within the space of six months in some cases which is as a result of blood transmission through contaminated needles and syringes being used by several people (WHO).

In Nigeria, injection drug use is common among population like street youth (area boys), and sex workers. Based on the IBBSS 2007 report, HIV prevalence among IDUs was lower as compared to MSM in each state, except for Cross River State and Lagos with prevalence of 3.1% and 3.2% respectively. The highest prevalence rate among IDUs was in Kano State with the prevalence of 10% (IBBSS, 2007).

## 2.7 HIV/AIDS INTERVENTIONS CARRIED OUT AMONG FSWs

There are interventions carried out among female sex workers: peer education/condom promotion, HIV testing and results. empowerment strategy.

### 2.7.1 PEER EDUCATION SERVICES

A program tagged safer sex behavior organized by information education communication was centered on health talk with the purpose of increasing the knowledge of HIV/AIDS among FSWs as basis of stimulating adoption of safer sexual behavior. For example, condom promotion is to ensure consistent and correct use of it for all clients including partners (Onwuliri et al., 2004). Based on the IBBSS 2007 reporting Nigeria, FSWs, reported receiving 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.

### 2.7.2 HIV TESTING AND RESULTS

Counseling and testing are important intervention in the prevention and control of HIV infection among FSWs and other vulnerable groups. Despite acknowledging this fact, there has been a low report of HIV testing among sex workers (Adeyi et al., 2005). It was reported that only 24 percent of sex workers in Nigeria had received voluntary testing. This could be as a result of socio-economic and psychological implication that a positive diagnosis might have for individual FSWs and the brothel from where they operate (Adeyi, et al 2005). Another barrier could be confidentiality i.e when manner of testing and disclosure of result do not guarantee the privacy that is important to FSWs. they will not be willing to utilize such services.

According to IBBSS report 2007 in Nigeria, brothel-based FSW of Anambra, were those most likely to have received testing for HIV, 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 (14%).

### 2.7.3 EMPOWERMENT PROGRAMS

This is another intervention that is important in the control of HIV infection among FSWs. Sex workers can be empowered through provision of information and education; improving knowledge of HIV status; increasing skills that make sex work safer; addressing gender-based violence; and building sex worker networks. A program was initiated by Society for women against AIDS in Africa, Nigeria (SWAAN) in Jos with the support of AIDS prevention initiative in Nigeria with the aim to reduce HIV transmission among FSWs, to other alternative source of income other than sex work, to negotiate and practice safer sex where vocational training in areas like hair dressing, tailoring, tie and dye, soap and pomade making, knitting and computer training was organized (FHI, 2005).

# CHAPTER THREE

# METHODOLOGY

## 3.1 STUDY DESIGN

The study is a reanalysis of the data on female sex workers from the 2007 Integrated Biological and Behavioural Surveillance Surveys (IBBSS), a survey of high risk groups for HIV. A comparison of HIV status, sexual behaviours, HIV counseling and testing was carried out between FSWs of different categories.

## 3.2 DESCRIPTION OF THE 2007 IBBSS

The survey was a cross-sectional survey of high risk groups for sexually transmitted infections (including HIV). The IBBSS was conducted among seven sub-populations that their occupations and behaviour placed them at higher risk of sexually transmitted infections (including HIV) in five selected states of Nigeria. These groups included FSW (i.e brothel and non-brothel based), men who have sex with men (MSM), IDU, members of the armed forces, police, transport workers. The study took place in 5 states (Anambra, Edo, Kano, Cross river and Lagos state) and the federal capital territory (FCT).

It cuts across all the targeted populations in different locations through interviews (one on one, face to face) in a private way that guaranteed the confidentiality of information provided by the participants (IBBSS, 2007).FSWs were considered to be at higher risk of contracting and transmitting sexually transmitted infections including HIV because they have limited powers in negotiating safe sex with partners.

The sample size was calculated to detect differences of 15% in key behaviors such as alcohol use and condom use consistency to provide reliable estimates for each variable at state level.

Different sampling techniques were used depending on the group in question. The brothel-based FSWs were selected using a two-stage cluster sampling procedure (PPS).

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 samples by PPS. Clusters were selected using PPS with a fixed number of FSW recruited from each cluster. The cluster size of brothel-based FSW was six and 24 clusters were selected in each state where available. Individual participants selected from the total number of FSWs 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.

The non-brothel based FSW were recruited using the time location sampling approach (TLS). The TLS is a form of cluster sampling that contains both time and location dimensions. Working through relevant NGOs and State AIDS control program coordinator (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). 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. The number of FSWs studied in the 2007 IBBSS was 2889.

## 3.3 OPERATIONAL DEFINITION OF TERMS.

- FSW is refer to as any female 15yrs and above who receives money or other valuable gifts in exchange for sexual favours or services and they can be brothel-based or non-brothel based sex workers (IBBSS, 2007).
- Brothel-based FSW is any female sex worker found in places such as brothels and hotels.
- Non-brothel based FSW is any female sex worker found in restaurants, bars, and night clubs and even on the streets.

## 3.4 VARIABLES USED IN THE ANALYSIS

The variables used in this analysis can be divided into two main sections; the dependent and the independent variables

### 3.4.1 THE DEPENDENT VARIABLES

This consisted of variables that assessed HIV status and risky sexual behaviours such as unprotected genital sex, unprotected anal and oral sex, psychoactive drug use/alcohol use and HIV counseling and testing. The questions eliciting some these variables are as follows:

- During the last 4 weeks, how often would you say you drank alcohol? (●901) – Everyday, at least once a week, less than once a week, never and don't know/no response.

- During the last 30 days, how often did you use condom? (SW11) – Every time, almost every time, sometimes, never and don't know/no response.

- Have you ever had oral sex with any of your clients in the last 12 months? (SW19) – Yes, no, don't remember/no response.

- Have you ever had anal sex with any of your clients in the last 12 months? (SW18) - Yes, no, don't remember/no response.

### 3.4.2 THE INDEPENDENT VARIABLES

The main independent variable in this study is the marital status. It was classified into five groups, they are:

- Currently married with spouse
- Currently married live with other sex partner
- Currently married not living with spouse
- Not married live with sex partner

- Not married don't live with spouse

This was recoded into three groups which include female sex workers that were

- currently married and living with your spouse /partner
- currently married but not living with spouse /partner
- Not married.

Variables such as sociodemographic characteristics, sexual history, knowledge of STI and HIV were other independent or confounding variables which will be adjusted for in the association between marital status and HIV status.

The Sociodemographic variables were age, level of education, State of origin and other source of income.

Variables related to sexual history included: type of sexual partners, types of sex work, periods in sex work, and number of clients.

The variables used to asses FSWs knowledge of STIs include symptoms of STIs in men and women, ever had genital discharge and genital ulcer/sore, information about STIs from radio and television and treatment obtained.

The variables used to asses FSWs knowledge of HIV were: mode of HIV transmission, HIV prevention and HIV misconception.

## 3.5 DATA MANAGEMENT AND ANALYSIS

Data was analysed using SPSS version 16.0. Descriptive statistics like frequency was used to describe the data, chi square was used to test for the association between the independent and key dependent variable. The differences in sociodemographic variable were first evaluated between the three marital categories using the chi square test. Association between each dependent variable and marital status was also tested using the chi square test. Then, for each dependent variable, a logistic regression analysis was performed on marital status as the main independent variable and other variables that were significant at 5% p.value were included. Odds ratio and 95% CI was obtained for the different categories of the outcome variable with adjustments for the different independent variables.

Knowledge of STI was also assessed on a scale of 26 by using 13 items in which the questions were selected from the STI section of the questionnaire (Q1201- Q1205) and they included:

- Have you ever heard of diseases that can be transmitted through sexual intercourse?
- Can you describe any symptoms of STI in women and men ( like abdominal pain, genital discharge, foul smelling discharge, burning pain on urination, genital ulcer/sore, swelling in groin area and itching of the genitals)

Correct answers were scored two while incorrect answers were scored one and zero, this represent 'yes, 'no and don't know respectively. Scores were totalled and classified into three categories. Respondents who scored 19 and above were classified as having good knowledge, those who scored between 10 and 18 were classified as having fair knowledge, while those who scored below 10 were classified as having poor knowledge of STI.

Knowledge of HIV/AIDS was assessed on a scale of 26 using 13 items and the questions were selected from the knowledge, opinions, and attitudes towards HIV/ AIDS section of the questionnaire (Q1306-Q1316). These questions included:

- Have heard of HIV or disease called AIDS?
- Can people protect themselves from the HIV virus that causes AIDS by using condom correctly every time?
- Can person get HIV from mosquito bites?
- Can people protect themselves from HIV by abstaining from sexual intercourse?
- Can people protect themselves from HIV by having one uninfected faithful sex partner?
- Can person get HIV by sharing meal with someone who is infected?
- Can person get HIV by getting injections with needles that was already used by someone else?
- Do you think that healthy looking person can be infected with HIV?
- Is it possible for someone to get HIV by sharing a toilet used by someone who has HIV?
- Is it possible for someone to get HIV through with unscreened blood?

- Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child?
- What can an HIV positive pregnant woman do to reduce the risk of transmission of HIV to her unborn child?

Correct answers were scored two while incorrect answers were scored one and zero, this represent 'yes. 'no and don't know respectively. Scores were totalled and classified into three categories. Respondents who scored 19 and above were classified as having good knowledge, those who scored between 10 and 18 were classified as having fair knowledge, while those who scored below 10 were classified as having poor knowledge of HIV/AIDS.

## 3.6 LIMITATIONS OF THE STUDY

- There may be inaccuracy in the true representation of the FSWs across the country as a result of the participants selected from different states.
- Based on the cross-sectional nature of the study, temporality of the outcome cannot be ascertained.
- There may be insincerity in the response of the participants due to the sensitivity of the issues on sex and sexual behavior in our society.
- Based on self-reporting associated with the outcome variables like unprotected sex, there may be inaccuracy in the measurement of risk factors.
- Recall bias may occur with respect to many of the respondent not been able to remember issues about their sexual life in the past years.

# CHAPTER FOUR

# RESULTS

## 4. 1 SOCIO DEMOGRAPHIC CHARACTERISTICS OF FSWs

Table 4.1 shows the socio demographic characteristics of the female sex workers for each State where recruitment took place. In Lagos, FCT, Cross River, Kano, Anambra and Edo State, 42.4%, 42.6%, 37.8%, 37.6%, 35.1% and 31.0% respectively fell between the age ranges between 20-24years.

The highest level of education reported was completed secondary education in which FCT had the highest percentage of 43.5, followed by Cross River and Edo State; 38.4% and 33.6%.

Lagos State had the highest proportion (79.3%) of the female sex workers that are unmarried and not living with sex partner, followed by Cross River and Anambra with the proportion of 78.0% and 70.6% respectively.

**Table 4.1: Sociodemographic characteristics of female sex workers for each state where recruitment was conducted**

| Characteristics | Anambra (%) | Cross river (%) | Edo (%) | FCT (%) | Kano (%) | Lagos (%) | Total |
|---|---|---|---|---|---|---|---|
| **Age** | | | | | | | |
| 15-19 | 18 (7.3) | 32 (10.0) | 31 (5.3) | 35 (5.2) | 48 (9.5) | 66 (11.6) | 230 |
| 20-24 | 87 (35.1) | 121(37.8) | 180(31.0) | 284(42.6) | 190(37.6) | 241(42.4) | 1103 |
| 25-29 | 85 (34.3) | 89 (27.8) | 179(30.9) | 208(31.2) | 170(33.7) | 159(27.9) | 890 |
| 30-34 | 35 (14.1) | 44 (13.8) | 99 (17.1) | 91 (13.6) | 56 (11.1) | 73 (12.8) | 398 |
| 35-39 | 10 (4.0) | 29 (9.1) | 48 (8.3) | 35 (5.2) | 28 (5.5) | 17 (3.0) | 167 |
| 40-44 | 9 (3.6) | 2 (0.6) | 34 (5.9) | 8 (1.2) | 10 (2.0) | 6 (1.1) | 69 |
| 45-49 | 4 (1.6) | 3 (0.9) | 9 (1.6) | 6 (0.9) | 3 (0.6) | 7 (1.2) | 32 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |
| **Level of education** | | | | | | | |
| Never attended school | 12 (4.8) | 5 (1.6) | 19 (3.3) | 34 (5.1) | 51 (10.1) | 41 (7.2) | 162 |
| Quranic only | 0 (0.0) | 1 (0.3) | 3 (0.5) | 3 (0.4) | 40 (7.9) | 3 (0.5) | 50 |
| Some primary | 15 (6.0) | 18 (5.6) | 34 (5.9) | 30 (4.5) | 35 (6.9) | 34 (6.0) | 166 |
| Completed primary | 47 (19.0) | 40 (12.5) | 87 (15.0) | 65 (9.7) | 59 (11.7) | 96 (16.9) | 394 |
| Some secondary | 109 (44.0) | 61 (19.1) | 194(33.4) | 177(26.5) | 157(13.1) | 203(35.7) | 901 |
| Completed secon | 55 (22.2) | 123(38.4) | 195(33.6) | 290(43.5) | 123(24.4) | 154(27.1) | 940 |
| Tertiary | 10 (4.0) | 72 (22.5) | 48 (8.3) | 68 (10.2) | 40 (7.9) | 38 (6.7) | 276 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |
| **Religion** | | | | | | | |
| Christianity | 243 (98.0) | 318(99.4) | 553(95.3) | 613(91.9) | 283(56.0) | 540(94.9) | 2550 |
| Islam | 2 (0.8) | 1 (0.3) | 13 (2.2) | 53 (7.9) | 220(43.6) | 25 (4.4) | 314 |
| Others | 3 (1.2) | 1 (0.3) | 6 (1.0) | 0 (0.0) | 1 (0.2) | 0 (0.0) | 11 |
| No response/Missing | 0 (0) | 0 | 8 (1.4) | 1 (0.1) | 1 (0.2) | 4 (0.7) | 14 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |
| **Marital status** | | | | | | | |
| Curr married living with spouse | 5 (2.0) | 8 (2.5) | 1 (0.2) | 8 (1.8) | 7 (1.4) | 5 (0.9) | 34 |
| Curr married live with sex partner | 13 (5.2) | 2 (0.6) | 8 (1.4) | 21(3.1) | 96 (19.0) | 2 (0.4) | 142 |
| Curr married not living with spouse/sex partner | 43 (17.3) | 19 (5.9) | 194(33.4) | 108(16.2) | 22 (4.4) | 57 (10.0) | 443 |
| Not married live with sex partner | 10 (4.0) | 10 (3.1) | 5 (0.9) | 28 (4.2) | 24 (4.8) | 23 (4.0) | 100 |
| Not married don't live with sex Partner | 175 (70.6) | 252(78.0) | 360(62.1) | 383(57.4) | 254(50.3) | 451(79.3) | 1875 |
| No response | 2 (0.8) | 29 (9.1) | 12 (2.1) | 119(17.8) | 102(20.2) | 31 (5.4) | 295 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Other source of income** | | | | | | | |
| Yes | 76 (30.6) | 75 (23.4) | 83 (14.3) | 138(20.7) | 82 (16.2) | 73 (12.8) | 527 |
| No | 169 (68.1) | 229(71.6) | 473(81.6) | 522(78.3) | 373(73.9) | 485(85.2) | 2251 |
| No response /Missing | 3 (1.2) | 16 (5.0) | 24 (4.1) | 7 (1.0) | 50 (9.9) | 11 (1.9) | 111 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |
| **Oral sex with clients** | | | | | | | |
| Yes | 8 (3.3) | 90 (29.8) | 65 (12.1) | 192(29.1) | 117(25.8) | 46 (8.3) | 518 |
| No | 236 (97.7) | 212(70.2) | 474(89.9) | 468(70.9) | 336(74.2) | 509(91.7) | 2225 |
| **Drug use** | | | | | | | |
| Yes | 46 (18.5) | 62 (19.4) | 53 (9.1) | 76 (11.4) | 154(30.5) | 148(26.0) | 539 |
| No | 202 (81.5) | 258(80.6) | 527(90.9) | 591(88.6) | 351(69.5) | 421(74.0) | 2350 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |
| **Alcohol use in 4weeks** | | | | | | | |
| Everyday | 71 (28.6) | 146(45.6) | 159(27.4) | 202(30.3) | 133(26.3) | 166(29.2) | 877 |
| At least once a week | 86 (34.7) | 125(39.1) | 223(38.4) | 223(33.4) | 118(23.4) | 195(34.3) | 970 |
| Less than once a week | 38 (15.3) | 11 (3.4) | 51 (8.8) | 65 (9.7) | 40 (7.9) | 69 (12.1) | 274 |
| Never | 52 (21.0) | 37 (11.6) | 117(20.2) | 174(21.6) | 203(40.2) | 129(22.7) | 712 |
| No response/ Missing | 1 (0.4) | 1 (0.3) | 30 (5.2) | 3 (0.4) | 11 (2.2) | 10 (1.8) | 56 |
| Total | 248 | 320 | 580 | 667 | 505 | 569 | 2889 |

## 4.2 OTHER VARIABLES RELATED TO SEX WORK

Table 4.2 shows other variables related to sex work, in which 6.9% of FSWs were reported to have ever being forced to have sex while 51.8% were brothel-based sex workers and the remainder, non-brothel based sex workers. Half of the FSWs had been in sex work for over 2years and 53.3% of them charge #500 or less. Majority of the respondents (77%) had between 0-5 clients.

Table 4.2: Other variables related to sex work

| Characteristics | Frequency (Percentage) |
|---|---|
| **Ever being forced to have sex** | |
| **Yes** | 189 (6.54) |
| No | 2563 (88.72) |
| Missing | 137 (4.74) |
| Total | 2889 (100) |
| **How often have you been arrested in the last 6 months** | |
| Very often | 412 (14.26) |
| Often | 817 (28.29) |
| Only once | 736 (25.48) |
| Never | 726 (25.13) |
| Missing | 198 (6.84) |
| Total | 2889 (100) |
| **Type of sex work** | |
| Brothel-based | 1497 (51.8) |
| Non-Brothel based | 1392 (48.2) |
| Total | 2889 (100) |
| **Period in sex work** | |
| < 1yr | 813 (228.14) |
| 1-2yrs | 546 (18.90) |
| 2yrs & above | 1360 (47.08) |
| Missing | 170 (5.88) |
| Total | 2889 (100) |
| **Amount charged** | |
| <=500 | 1425 (49.33) |
| 501-1000 | 439 (15.20) |
| 1001-2500 | 470 (16.27) |
| 2500 & above | 342 (11.84) |
| Missing | 213 (7.36) |
| Total | 2889 (100) |
| **Number of clients** | |
| 0-5 | 2042 (70.68) |
| 6-10 | 535 (18.52) |
| 11-40 | 74 (2.56) |
| Missing | 238 (8.24) |
| Total | 2889 (100) |

## 4.3 KNOWLEDGE ABOUT HIV

Table 4.3 shows the knowledge of FSWs about HIV. Table 4.3a shows that almost all the respondents (88.7%) knew that HIV can be prevented by using condom regularly, also 73.1% of the FSWs knew that HIV can be prevented by staying faithfully with uninfected partner. Table 4.3b shows that 72.7% of respondents knew that HIV can't be transmitted through sharing of meal and 91.9% of FSWs knew that HIV can be gotten through blood transfusion. Table 4.3c shows that only 29.1% of respondents knew that pregnant woman can prevent HIV transmission to child by taking medication and 8.4% of FSWs responded that pregnant woman can transmit HIV to child by exclusive breast feeding. Majority of the respondents (67.9%) were reported to have a good knowledge about HIV.

**Table 4.3 a: Female sex worker's knowledge about mode of prevention**

| Characteristics | Frequency(Percentage) |
|---|---|
| **HIV can be prevented by using condom regularly** | |
| Yes | 2562 (88.7) |
| No | 245 (8.5) |
| Don't know | 35 (1.2) |
| No response | 47 (1.6) |
| Total | 2889 (100) |
| **One can get HIV from mosquito bites** | |
| Yes | 677 (23.4) |
| No | 1700 (58.8) |
| Don't know | 407 (14.1) |
| No response/missing | 105 (3.63) |
| Total | 2889 (100) |
| **HIV can be prevented by staying faithfully with uninfected partner** | |
| Yes | 2111 (73.1) |
| No | 598 (20.7) |
| Don't know | 151 (5.2) |
| No response | 29 (1.0) |
| Total | 2889 (100) |
| **HIV can be prevented by abstaining from sex** | |
| Yes | 1967 (68.1) |
| No | 740 (25.6) |
| Don't know | 145 (5.0) |
| No response | 37 (1.3) |
| Total | 2889 (100) |

**Table 4.3b: Female sex worker's knowledge about mode of HIV transmission**

| Characteristics | Frequency (Percentage) |
|---|---|
| **HIV can be acquired by sharing meal with HIV person** | |
| Yes | 500 (17.3) |
| No | 2110 (72.7) |
| Don't know | 201 (7.0) |
| No response/missing | 87 (3.0) |
| Total | 2889 (100) |
| **HIV can be acquired by injection with used needles** | |
| Yes | 2666 (92.3) |
| No | 158 (5.5) |
| Don't know | 45 (1.6) |
| No response | 20 (0.7) |
| Total | 2889 (100) |
| **Healthy looking person can have HIV** | |
| Yes | 2528 (87.5) |
| No | 152 (5.3) |
| Don't know | 123 (4.3) |
| No response/missing | 86 (2.98) |
| Total | 2889 (100) |
| **One can get HIV by sharing toilets** | |
| Yes | 652 (22.6) |
| No | 1761 (61.0) |
| Don't know | 392 (13.5) |
| No response/missing | 84 (2.9) |
| Total | 2889 (100) |
| **One can get HIV through blood transfusion** | |
| Yes | 2656 (91.9) |
| No | 140 (4.8) |
| Don't know | 62 (2.1) |
| No response | 31 (1.1) |
| Total | 2889 (100) |

**Table 4.3c Female sex worker's knowledge about mother to child transmission**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Pregnant woman can prevent HIV transmission by taking medication** | |
| Yes | 842 (29.1) |
| No | 1405 (48.6) |
| Missing | 642 (22.2) |
| Total | 2889 (100) |
| **Pregnant woman can transmit HIV by exclusive breastfeeding** | |
| Yes | 243 (8.4) |
| No | 2003 (69.3) |
| Missing | 643 (22.3) |
| Total | 2889 (100) |
| **Pregnant woman can prevent HIV transmission by using only breast milk substitute** | |
| Yes | 435 (15.1) |
| No | 1812 (62.7) |
| Missing | 642 (22.2) |
| Total | 2889 (100) |

**Knowledge Score about HIV among FSWs**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Knowledge score about HIV** | |
| Poor | 97 (3.4) |
| Fair | 830 (28.7) |
| Good | 1962 (67.9) |
| Total | 2889 (100) |

## 4.4 KNOWLEDGE ABOUT STIs

Table 4.4a shows FSW's knowledge about symptoms of STIs in men. Only 12.8% responded that genital ulcers/sores is a symptom of STIs in men and also few of the FSWs (7.1%) knew that swelling in groin area is a symptom of STIs in men. A table 4.4b show that only 34.3% of FSWs responded that lower abdominal pain is one of the STIs symptoms in women and 39.0% of the respondents knew that genital discharge is a STIs symptom in women. Table 4.4c is the table showing the knowledge score of FSWs about STIs. Almost all the respondents (66.6%) had a fair knowledge of STIs, while 82.4% of the respondent claimed not to have had genital discharge/ulcersore.

**Table 4.4a: Female sex worker's knowledge about symptoms of STIs in men**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Genital discharge** | |
| Yes | 960 (33.2) |
| No | 1666 (57.7) |
| Missing | 263 (9.1) |
| Total | 2889 (100) |
| **Burning pain on urination** | |
| Yes | 1396 (48.3) |
| No | 1230 (42.6) |
| Missing | 263 (9.1) |
| Total | 2889 (100) |
| **Genital ulcers/sores** | |
| Yes | 370 (12.8) |
| No | 2256 (78.1) |
| Missing | 263 (9.1) |
| Total | 2889 (100) |
| **Swelling in groin area** | |
| Yes | 205 (7.1) |
| No | 2421 (83.8) |
| Missing | 263 (9.1) |
| Total | 2889 (100) |
| **Itching** | |
| Yes | 709 (24.5) |
| No | 1917 (66.4) |
| Missing | 263 (9.1) |
| Total | 2889 (100) |

**Table 4.4b: Female sex worker's knowledge about symptoms of HIV in women**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Lower abdominal pain** | |
| Yes | 990 (34.3) |
| No | 1638 (56.7) |
| Missing | 261 (9.0) |
| Total | 2889 (100) |
| **Genital discharge** | |
| Yes | 1128 (39.0) |
| No | 1501 (52.0) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Foul smell discharge** | |
| Yes | 473 (16.4) |
| No | 2156 (74.6) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Burning pain on urination** | |
| Yes | 622 (21.5) |
| No | 2007 (69.5) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Genital ulcers/sores** | |
| Yes | 238 (8.2) |
| No | 2391 (82.8) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Swelling in groin area** | |
| Yes | 98 (3.4) |
| No | 2531 (87.6) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Itching** | |
| Yes | 1007 (34.9) |
| No | 1622 (56.1) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |

**Table 4.4b: Female sex worker's knowledge about symptoms of HIV in women**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Lower abdominal pain** | |
| Yes | 990 (34.3) |
| No | 1638 (56.7) |
| Missing | 261 (9.0) |
| Total | 2889 (100) |
| **Genital discharge** | |
| Yes | 1128 (39.0) |
| No | 1501 (52.0) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Foul smell discharge** | |
| Yes | 473 (16.4) |
| No | 2156 (74.6) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Burning pain on urination** | |
| Yes | 622 (21.5) |
| No | 2007 (69.5) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Genital ulcers/sores** | |
| Yes | 238 (8.2) |
| No | 2391 (82.8) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Swelling in groin area** | |
| Yes | 98 (3.4) |
| No | 2531 (87.6) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |
| **Itching** | |
| Yes | 1007 (34.9) |
| No | 1622 (56.1) |
| Missing | 260 (9.0) |
| Total | 2889 (100) |

**Table 4.4 c: Female sex worker's knowledge about STIs**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Knowledge score about STIs** | |
| Poor | 260 (9.0) |
| Fair | 1923 (66.6) |
| Good | 706 (24.4). |
| Total | 2889 (100) |
| **Ever had genital discharge** | |
| Yes | 433 (14.99) |
| No | 2383 (82.49) |
| Missing | 73 (2.52) |
| Total | 2889 (100) |
| **Ever had genital ulcers/sores** | |
| Yes | 247(8.55) |
| No | 2566 (88.82) |
| Missing | 76 (2.63) |
| Total | 2889 (100) |

## 4.5 SEXUAL BEHAVIOURAL CHARACTERISTICS OF FEMALE SEX WORKERS

Table 4.5 shows the sexual behavioural characteristics of FSWs. From the total population of 2,889, a proportion of the respondent reported to have I boyfriend partner were 47.63% while majority of the respondent without casual partners were reported to be 87.1%. Out of the total population of respondents, majority of them (90.42%) didn't have anal clients in 12 months while 77.36% of the total population didn't have oral clients in the last 12 months.

## 4.5 SEXUAL BEHAVIOURAL CHARACTERISTICS OF FEMALE SEX WORKERS

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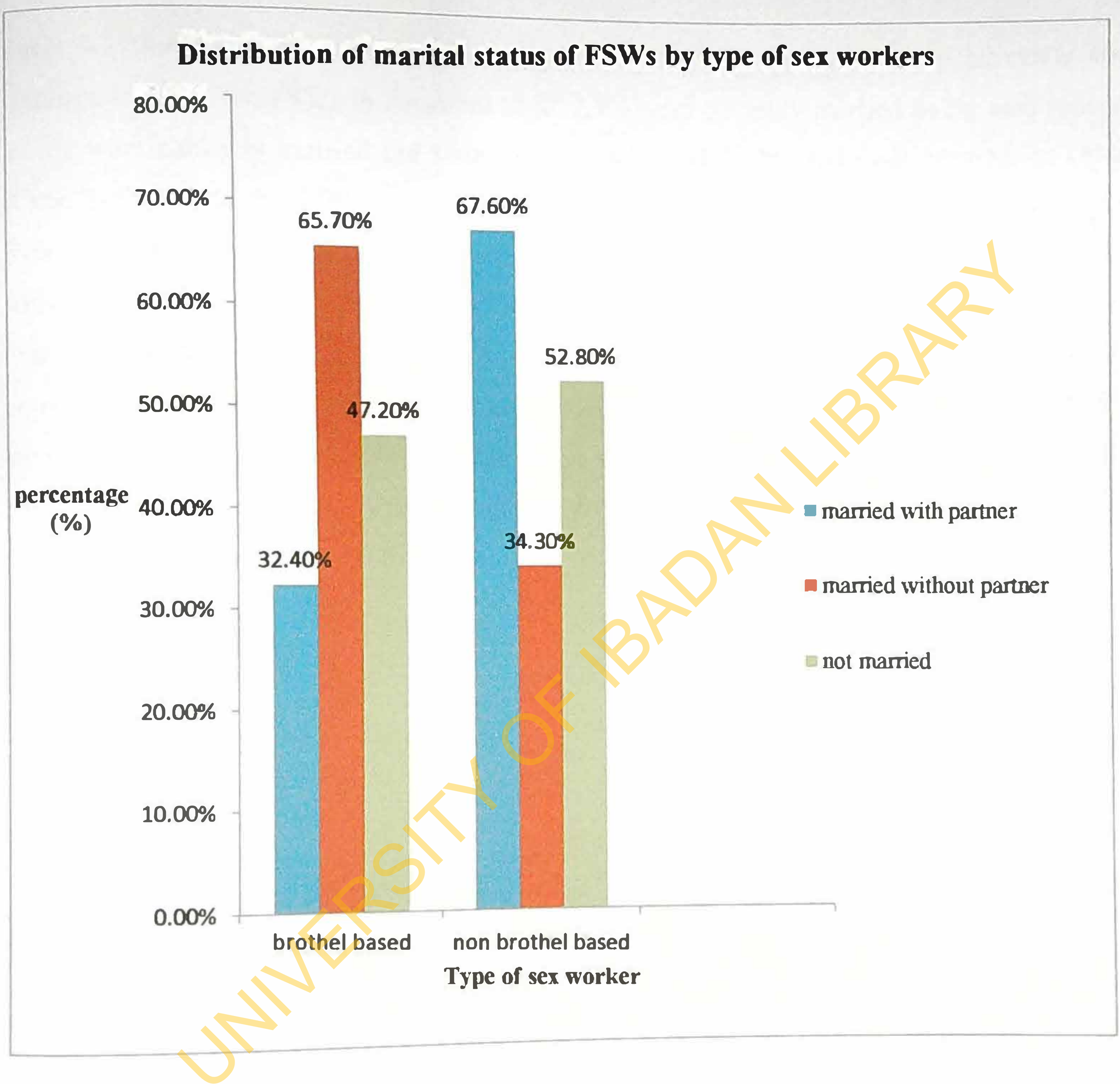
**Table 4.5: Sexual behavioural characteristics of female sex workers**

| Characteristics | Frequency (Percentage) |
|---|---|
| **Number of boyfriend partners in 12months** | |
| None | 1144 (39.60) |
| 1 | 1376 (47.63) |
| 2+ | 351 (12.15) |
| No response/Missing | 18 (0.62) |
| Total | 2889 (100) |
| **Number of casual partners in 12months** | |
| None | 2516 (87.1) |
| 1 | 94 (3.25) |
| 2+ | 138 (4.78) |
| No response/Missing | 141 (4.87) |
| Total | 2889 (100) |
| **Number of regular partner in 12months** | |
| None | 2654 (91.87) |
| 1 | 177 (6.13) |
| 2+ | 10 (0.35) |
| No response/Missing | 41 (1.65) |
| Total | 2889 (100) |
| **Anal clients in 12months** | |
| Yes | 143 (4.95) |
| No | 2612 (90.42) |
| No response/Missing | 134 (4.63) |
| Total | 2889 (100) |
| **Oral clients in 12months** | |
| Yes | 518 (17.93) |
| No | 2235 (77.36) |
| No response/Missing | 136 (4.71) |
| Total | 2889 (100) |

## 4.6 DISRIBUTION OF MARITAL STATUS OF FSWs BY TYPE OF SEX WORKER

Table 4.6 shows the distribution of marital status of FSWs by type of sex worker. Out of the total population, 32.4%, 65.7% and 47.2% of Brothel-based sex worker were currently married living with spouse/partner, currently married not living with spouse/partner and not married respectively, while 67.6%, 34.3% and 52.8% of Non-brothel based sex worker were currently married living with spouse/partner, currently married not living with spouse/partner and not married respectively.

**Table 4.6: Distribution of marital status of FSWs by type of sex worker**

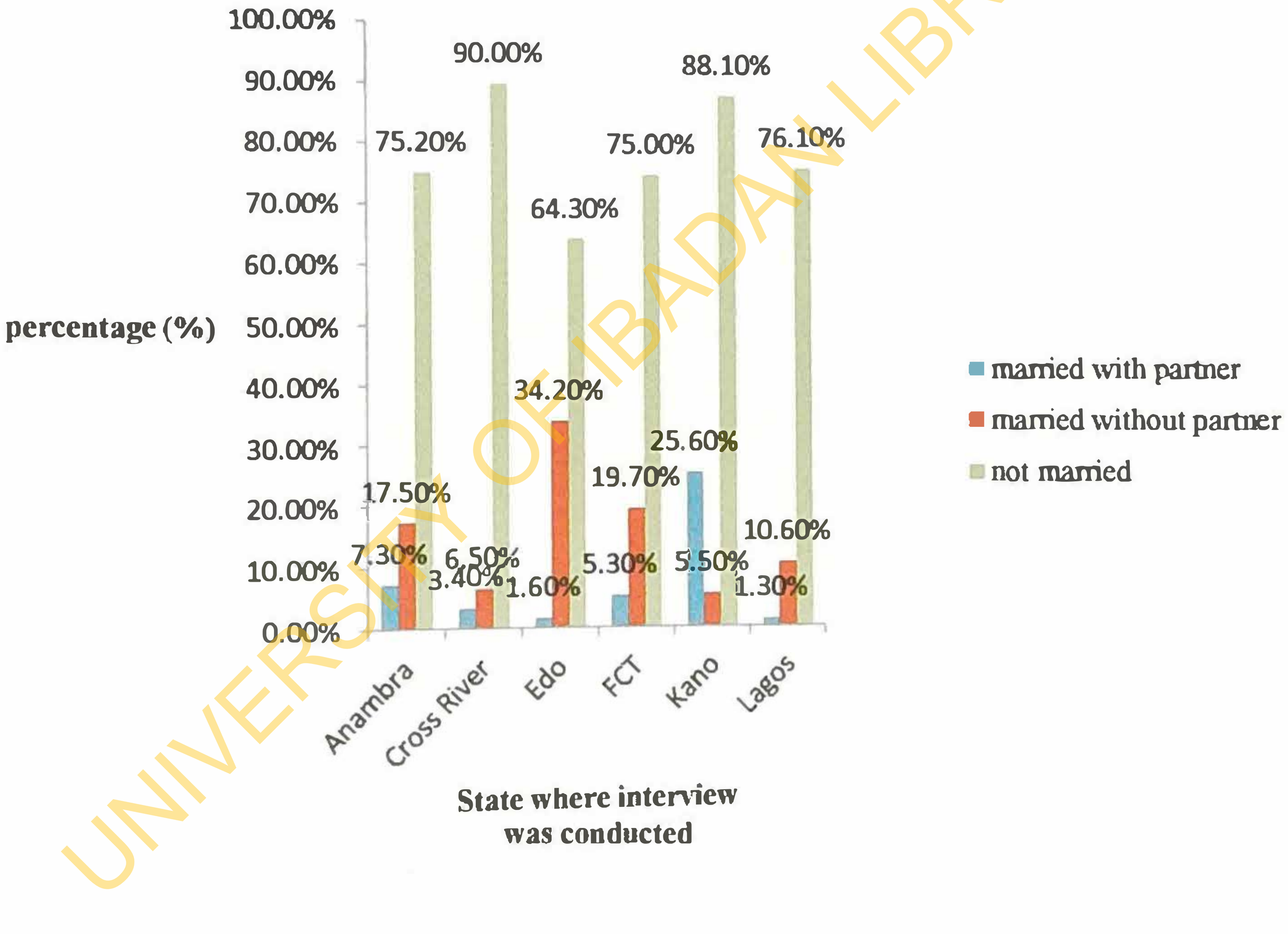


## 4.7 DISTRIBUTION OF MARITAL STATUS BY STATE WHERE INTERVIEW WAS CONDUCTED

Table 4.7 shows the distribution of marital status of FSWs by state where interview was conducted. Out of the FSWs in Anambra state, 7.3% were currently married living with spouse, 17.5% were currently married not living with spouse and 75.2% were not married. In Cross River; 3.4%, 6.5%, & 90.0% were currently married living with spouse, currently married not living with spouse and not married respectively. In Edo state, 1.6% were currently married living with spouse, 34.2% were currently married not living with spouse and 64.3% were not married. Out of the FSWs in FCT, 5.3%, 19.7%, & 75% were currently married living with spouse, currently married not living with spouse and not married respectively while in Kano State, 25.6% were currently married living with spouse, 5.5% were currently married not living with spouse and 88.1% were not married, while in Lagos State, 1.3%, 10.6% &76.1% were currently married living with spouse, currently married not living with spouse and not married respectively

**Table 4.7: Distribution of marital status by state where interview was conducted**

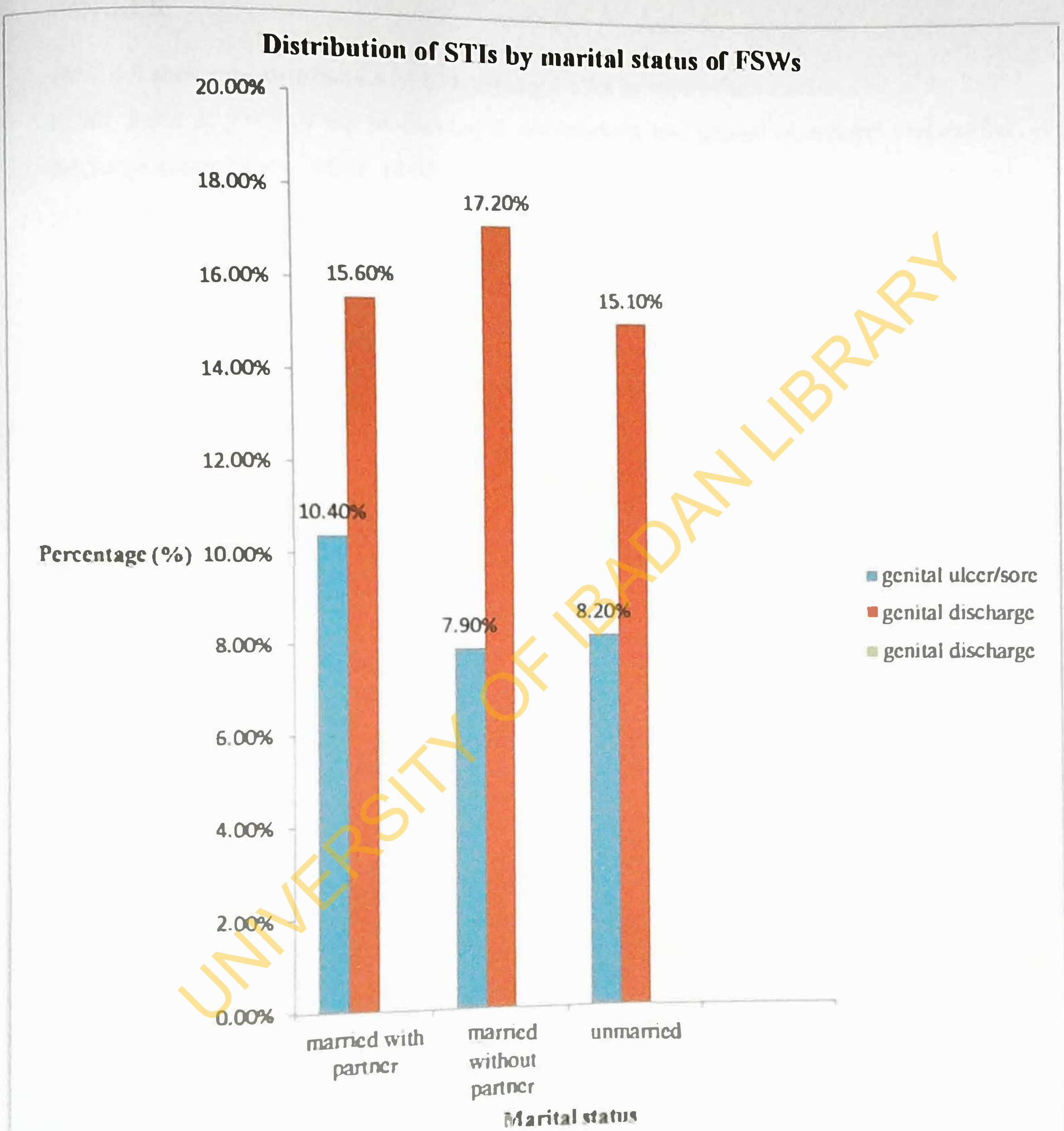
**Comparison of marital status with state where interview was conducted**



## 4.8 DISTRIBUTION OF STIs SYMPTOMS AMONG FSWs BY THEIR MARITAL STATUS

Table 4.8 shows the distribution of STIs among FSWs by their marital status. Out of the total population of 2889, 10.4% of FSWs that are currently married living spouse, 7.9% of those that are currently married not living with spouse and 8.2% of the unmarried had genital ulcer/sores while 15.6% of those that are currently married living with spouse, 17.2% of those that are currently married not living with spouse and 15.1% of the unmarried had genital discharge

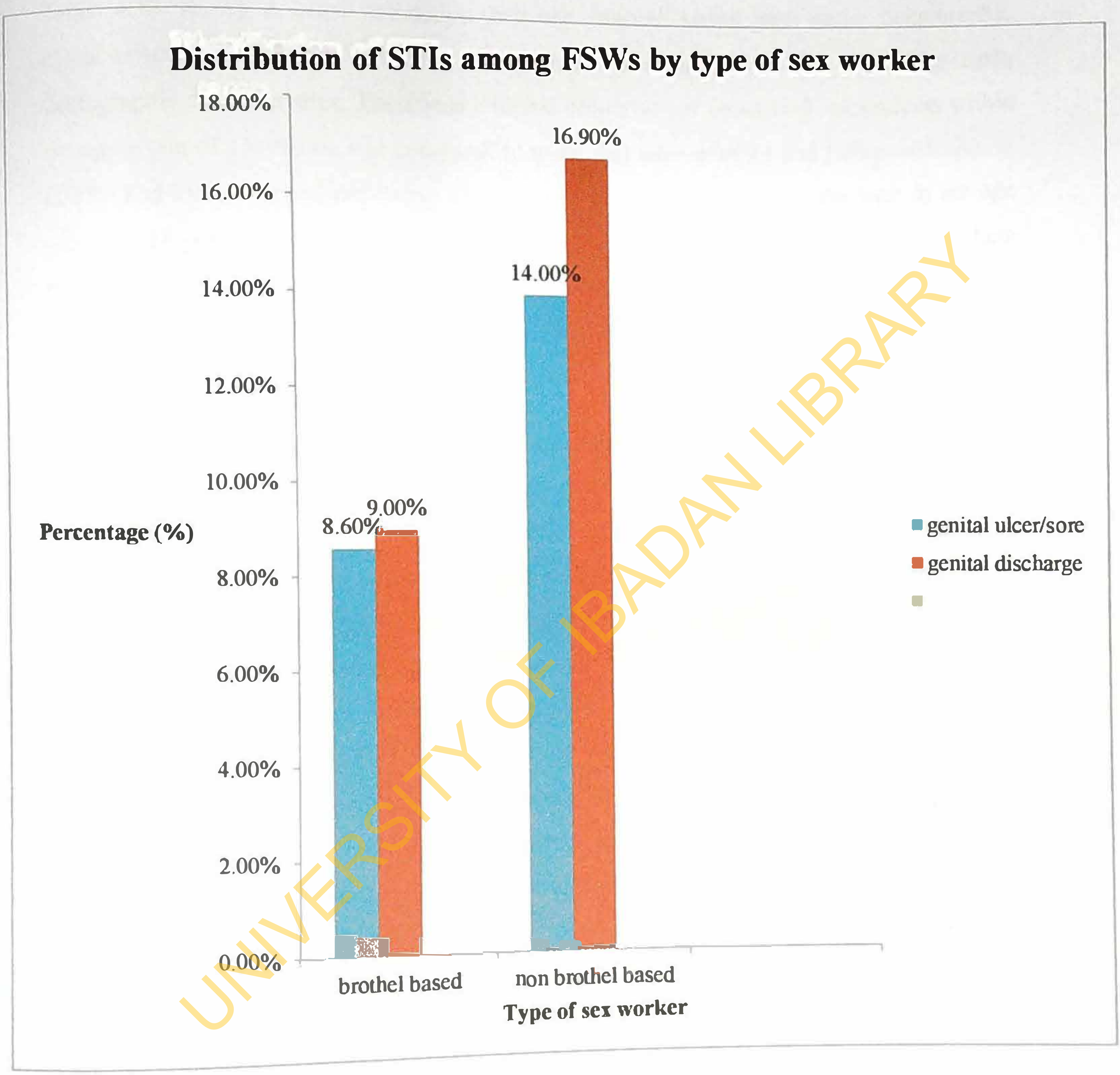
**Table 4.8: Distribution of STIs among FSWs by their marital status**



## 4.9 DISRIBUTION OF STIs SYMPTOMSAMONG FSWs BY TYPE OF SEX WORKER

Table 4.9 shows the distribution of STIs among FSWs by type of sex worker. Out of the 2889 FSWs, 8.6% & 9.0% of the brothel-based sex workers had genital ulcer/sores and genital discharge respectively, while 14.0% & 16.9% of the non-brothel based sex workers had genital ulcer/sores and genital discharge respectively.

**TABLE 4.9: DISRIBUTION OF STIs AMONG FSWs BY TYPE OF SEX WORKER**



## 4.10 BIVARIATE ANALYSIS FOR DIFFERENCES IN SOCIODEMOGRAPHIC CHARACTERISTICS BETWEEN MARITAL CATEGORIES OF FSWs.

Table 4.10 shows a cross tabulation between marital status and socio demographic characteristics of FSWs. Significant relationships were established for all of the socio demographic characteristics. There was a higher proportion of unmarried respondents within the age group of 15-19 (10.7%) compared to those that were married and living with spouse (2.3%) and those married not living with spouse (1.4%). This was also the case in the age group 20-24 years. However, this was not the same for those in 25-49 years age group where there were a higher proportion of respondents married not living with spouse (85.6%) compared to those married living with spouse (70.5%) and those not married (42.3%). These were significant at p= <0.001.

A slight higher proportion of FSWs who are married living with spouse (15.9%) were reported as compared to those who were not married living spouse (9.7%) and those not married had less than primary/quranic education. This was not the case for those that had some primary education in which there was a slight higher proportion of FSWs who were married not living with spouse (29.3%) as compared to those married living with spouse (27.8%) and those not married (15.6%) Those with some secondary education were different as the respondents who were not married had a higher proportion (68.6%) as compared to those were married not living with spouse (55.8%) and those married living with spouse (49.4%). This was also the same case for the respondents with tertiary education as those who were not married (11.4%) had a higher proportion as compared to married living with spouse (6.8%) and those married not living with spouse (5.2%). All were significant at p= <0.001.

A greater proportion of respondents who were married not living with spouse (65.7%) as compared to the unmarried (47.2%) and those married living with spouse (32.4%) were reported to be brothel-based sex workers. This was significant at p value <0.001.

There was a higher proportion of respondents who were married living with spouse (32.9%) as compared to those married not living with spouse (27.4%) and those not married (15.4%) were reported to have other sources of income. This was significant at p. value < 0.001.

higher proportion of respondents reported to have taken alcohol every day in the last 4 weeks were the unmarried (32.3%) as compared to the married living with spouse (30.6%) and married not living with spouse (30.3%). This was significant at p. value 0.001.

**TABLE 4.10: Differences in sociodemographic characteristics between marital categories of FSWs**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| 15-19 | 4 (2.3) | 6 (1.4) | 212 (10.7) | 222 | 302.10 | <0.001 |
| 20-24 | 48 (27.3) | 58 (13.1) | 928 (47.0) | 1034 | | |
| 25-49 | 124(70.5) | 379(85.6) | 835 (42.3) | 1338 | | |
| **State where recruitment took place** | | | | | | |
| Anambra | 18 (10.2) | 43 (9.7) | 185 (9.4) | 246 | 456.70 | <0.001 |
| Cross rivers | 10 (5.7) | 19 (4.3) | 262 (13.3) | 291 | | |
| FCT | 29 (16.5) | 108(24.4) | 411 (20.8) | 548 | | |
| Edo | 9 (5.1) | 194(43.8) | 365 (18.5) | 568 | | |
| Kano | 103(58.5) | 22 (5.0) | 278 (14.1) | 403 | | |
| Lagos | 7 (4.0) | 57 (12.9) | 477 (24.0) | 538 | | |
| **Level of education** | | | | | | |
| Less than primary/quranic | 28 (15.9) | 43 (9.7) | 86 (4.4) | 157 | 123.80 | <0.001 |
| Primary | 49 (27.8) | 130(29.3) | 309 (15.6) | 488 | | |
| Secondary | 87 (49.4) | 247(55.8) | 1355(68.6) | 1689 | | |
| Tertiary | 12 (6.8) | 23 (5.2) | 225 (11.4) | 260 | | |
| **Religion** | | | | | | |
| Christianity | 113(64.2) | 404(91.2) | 1816(92.2 | 2333 | 166.60 | <0.001 |
| Islam | 63 (35.8) | 32 (7.3) | 142 (7.3) | 237 | | |
| **Other source of income** | | | | | | |
| Yes | 52 (32.9) | 118(27.4) | 294 (15.4) | 464 | 55.918 | <0.001 |
| No | 106(67.1) | 313(84.6) | 1611(84.6) | 2030 | | |
| **Type of sex worker** | | | | | | |
| Brothel-based | 57 (32.4) | 291(65.7) | 933(47.2) | 1281 | 71.087 | <0.001 |
| Non-brothel based | 119(67.6) | 152(34.3) | 1042(52.8) | 1313 | | |
| **Alcohol use in last 4 weeks** | | | | | | |
| Every day | 53 (30.6) | 131(30.3) | 625 (32.3) | 809 | 23.957 | 0.001 |
| At least once a week | 42 (24.3) | 146(33.7) | 699 (36.1) | 887 | | |
| Less than once a week | 15 (8.7) | 40 (9.2) | 190 (9.8) | 245 | | |
| Never | 63 (36.4) | 116(26.8) | 422 (21.8) | 601 | | |
| **Oral sex with clients** | | | | | | |
| Yes | 36 (23.5) | 60 (14.1) | 373 (19.7) | 469 | 9.378 | 0.009 |
| No | 117(76.5) | 366 (85.9) | 1518(80.3) | 2001 | | |
| **Drug use** | | | | | | |
| Yes | 42 (23.9) | 52 (11.7) | 397(20.1%) | 491 | 19.489 | <0.001 |
| No | 134(76.1) | 391(88.3) | 1578(79.9%) | 2103 | | |

## 4.11 COMPARISON OF VARIABLES RELATED TO SEX WORK BETWEEN MARITAL CATEGORIES OF FSWs

Table 4.11 shows a cross tabulation between marital status and other variables related to sex work of FSWs. A slight higher proportion of those not married (7.0%) reported ever being forced to have sex as compared to those married living with spouse (6.5%) and those married not living with spouse (6.3%). Although these were not significant at p = 0.874.

A higher proportion of unmarried FSWs (71.7%) as compared to married not living with spouse (66.4%) and married living with spouse (49.0%) had been involved in sex work for the period of 0-6months. However, this was not the case for those that were in sex work for 7months-1year where there was higher proportion of respondents that were married living with (31.6%) as compared to the married not living with spouse (21.6%) and those not married (18.4%). This was also the case for involved in sex work for the period of 1year and above. These were significant at p = < 0.001.

A higher proportion of respondents with number of clients between 0-5 were reported to be married living with spouse (78.5%) as compared to those not married (77.6%) and those married living with spouse (75.4%). This was different for those respondents with number of clients between 6-10 where the proportion of those married not living with spouse (21.4%) was higher as compared to those not married (20.0%) and those married living with spouse (19.5%). These were not significant at p value 0.811.

**TABLE 4.11: Bivariate analysis for comparison of variables related to sex work between marital categories of FSWs**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **Ever been forced to have sex** | | | | | | |
| Yes | 10 (6.5) | 27 (6.3) | 132 (7.0) | 169 | 0.270 | 0.874 |
| No | 145(93.5) | 399(93.7) | 1757(93) | 2301 | | |
| **Ever being arrested** | | | | | | |
| Very often | 27 (17.9) | 68 (16.2) | 259(14.1) | 354 | 6.881 | 0.332 |
| Often | 51 (33.8) | 123(29.3) | 567(30.8) | 741 | | |
| Only once | 42 (27.8) | 106(25.2) | 511(27.7) | 659 | | |
| Never | 31 (20.5) | 123(29.3) | 505(27.4) | 659 | | |
| **Period in sex work** | | | | | | |
| 0-6months | 76 (49) | 280(66.4) | 1345 (71.7) | 1701 | 37.362 | <0.001 |
| 7months-1 yr | 49 (31.6) | 91(21.6) | 345(18.4) | 485 | | |
| 1yr and above | 30 (19.4) | 51(12.1) | 185(9.9) | 266 | | |
| **Amount charged per sex act(naira)** | | | | | | |
| 1-500 | 64 (42.1) | 285(69.5) | 885(47.9) | 1234 | 73.221 | <0.001 |
| 501-1000 | 26 (17.1) | 45 (11.0) | 336(18.2) | 407 | | |
| 1001-2500 | 42 (27.6) | 50 (12.2) | 354(19.2) | 446 | | |
| 2501 and above | 20 (13.2) | 30 (7.3) | 271(14.7) | 321 | | |
| **Number of clients** | | | | | | |
| 0-5 | 117(78.5) | 307(75.4) | 1419 (77.6) | 1843 | 1.585 | 0.811 |
| 6-10 | 29 (19.5) | 87(21.4) | 365(20.0) | 481 | | |
| 11-40 | 3 (2.0) | 13 (3.2) | 44(2.4) | 60 | | |

## 4.12 ASSOCIATION BETWEEN MARITAL STATUS AND HIV KNOWLEDGE OF FSWs

Table 4.12 shows a cross tabulation between marital status and HIV knowledge of FSWs. A higher proportion of those respondents that were not married (70.4%) had good knowledge about HIV as compared to those married not living with spouse (64.3%) and those married living with spouse (62.5%). These were significant at p = 0.028.

**Table 4.12: Bivariate analysis for reported marital living status with FSWs knowledge about HIV**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **HIV knowledge category** | | | | | | |
| Poor | 5 (2.8) | 15 (3.4) | 64 (3.2) | 84 | 10.847 | 0.028 |
| Fair | 61 (34.7) | 142(32.3) | 520 (26.3) | 724 | | |
| Good | 110(62.5) | 285(64.3) | 1391(70.4) | 1786 | | |

## 4.13 ASSOCIATION BETWEEN MARITAL STATUS AND STIs KNOWLEDGE OF FSWs

Table 4.13 shows cross tabulations between marital status and STIs knowledge of FSWs. There were a slight higher proportion of FSWs who were married living with spouse (73.9%) as compared to those married not living with spouse (66.1%) and those not married (65.2%). Although these were not significant at p = 0.246. However, there were also a slight proportion of respondents who were reported to have had genital discharge/sore where the married living with spouse (19.1%) as compared to those married not living with spouse (18.8%) and those not married (17.0%). This was also not significant at p = 0.565.

**TABLE 4.13: Bivariate analysis for reported marital status with of FSWs about STIs**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **STIs knowledge category** | | | | | | |
| Poor | 13 (7.4) | 40 (9.0) | 187(9.5) | 240 | 5.432 | 0.246 |
| Fair | 130(73.9) | 293(66.1) | 1288(65.2) | 1711 | | |
| Good | 33 (18.8) | 110(24.8) | 500(25.3) | 643 | | |
| **Ever had genital discharge/ulcersore** | | | | | | |
| Yes | 33 (19.1) | 81 (18.8) | 326 (17.0) | 440 | 1.142 | 0.565 |
| No | 140(80.9) | 351(81.2) | 1596(83.0) | 2087 | | |

## 4.14 ASSOCIATION BETWEEN MARITAL STATUS AND SEXUAL BEHAVIOURAL CHARACTERISTICS OF FSWs

Table 4.16 shows cross tabulations between marital status and sexual behavioural characteristics of FSWs. A higher proportion of respondents who were married not living with spouse (56.5%) were reported not to have boyfriends as compared to those married living with spouse (52.3%) and those not married (35.0%) whereas, a higher proportion unmarried FSWs (51.3%) were reported to have 1 boyfriend as compared to married not living with spouse (38.3%) and married living with spouse (35.6%). These were significant at p = < 0.001.

There was a greater proportion of respondents were married not living with spouse (94.4%) had no casual partner as compared to those not married (92.5%) and those married living with spouse (84.0%). Also a slight higher proportion of FSWs who had 1 casual partner were reported to be married living with spouse (4.9%) as compared to the unmarried (3.0%) and married not living with spouse (2.9%). These were significant at p = < 0.001.

**Table 4.14: Bivariate analysis for reported marital status with sexual behavioural Characteristics of FSWs**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **PARTNER TYPES** | | | | | | |
| **Boyfriend** | | | | | | |
| None | 91 (52.3) | 249(56.5) | 687 (35) | 1027 | 89.245 | <0.001 |
| 1 | 62 (35.6) | 169(38.3) | 1008(51.3) | 1239 | | |
| 2+ | 21 (12.1) | 23 (5.2) | 270 (13.7% | 314 | | |
| **Casual sex partner** | | | | | | |
| None | 137 (84) | 391(94.4) | 1746(92.5) | 2274 | 21.256 | <0.001 |
| 1 | 8 (4.9) | 12 (2.9) | 57 (3.0) | 77 | | |
| 2+ | 18 (11.0) | 11 (2.7) | 85 (4.5) | 114 | | |
| **Regular partner/spouse** | | | | | | |
| None | 121(69.5) | 407(93.8) | 1868(96.5) | 2396 | 22.133 | <0.001 |
| 1+ | 53 (30.5) | 27 (6.2) | 67 (3.5) | 147 | | |

## 4.15 ASSOCIATION BETWEEN MARITAL STATUS AND CONDOM USE AMONG FSWs WITH CLIENTS

Table 4.17 shows a cross tabulation between marital status and condom use among FSWs. A higher proportion of respondents that were married not living with spouse (99.1%) were reported to have ever used condom with clients in the last 30 days as compared to the unmarried (98.5%) and married living with spouse (94.9%). This was significant at p = 0.001.

**Table 4.15: Bivariate analysis for reported marital status with condom use of FSWs with clients**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **Condom use last 30 days with clients** | | | | | | |
| Ever | 148(94.9) | 425(99.1) | 1872(98.5) | 2445 | 13.179 | 0.001 |
| Never | 8 (5.1) | 4 (0.9) | 29 (1.5) | 41 | | |

## 4.16 ASSOCIATION BETWEEN MARITAL STATUS AND HIV TESTING AND COUNSELLIG AMONG FSWs

Table 4.16 shows a cross tabulation between marital status and HIV testing and counseling among FSWs. A higher proportion of unmarried FSWs (42.3%) had ever had HIV test as compared to those married living with spouse and the married not living with spouse (41.5%). Although, this was not significant at p.value = 0.942. A greater proportion respondent who were married not living with spouse (48.7%) felt they were at risk of HIV infection as compared to those married living with spouse (43.6%) and those not married (34.5%). This was significant at p. value less than 0.001. A slight proportion FSWs who are currently married living with spouse (36.5%) voluntarily went for HIV test as compared to the unmarried (34.5%) and those married not living with spouse (31.1%). Although this was not significant at p. value =0.322.

**Table 4.16: Bivariate analysis for reported marital status and HIV counseling and testing Among FSWs**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P value |
|---|---|---|---|---|---|---|
| **Have you ever had HIV test** | | | | | | |
| Yes | 71 (41.5) | 183 (41.5) | 826(42.3) | 1080 | 0.120 | 0.942 |
| No | 100(58.5) | 258 (58.5) | 1127(57.7) | 1485 | | |
| **Do you know a place where one can receive VCT** | | | | | | |
| Yes | 75 (43.6) | 157 (36.3) | 668 (34.8) | 900 | 5.350 | 0.069 |
| No | 97 (56.4) | 276 (63.7) | 1249(65.2) | 1622 | | |
| **Do you feel you are at risk of HIV infection** | | | | | | |
| Yes | 58 (36.7) | 189 (48.7) | 624 (34.5) | 871 | 27.632 | <0.001 |
| No | 100 (63.3) | 199 (51.3) | 1184 (65.5) | 1483 | | |
| **Did you voluntarily go for HIV test** | | | | | | |
| Yes | 62 (36.5) | 137 (31.1) | 671 (34.5) | 870 | 2.268 | 0.322 |
| No | 108 (63.5) | 303 (68.9) | 1275 (65.5) | 1686 | | |

## 4.17 ASSOCIATION BETWEEN MARITAL CATEGORIES OF FSWs AND THEIR HIV STATUS

Table 4.17 shows cross tabulations between marital categories of FSWs and their HIV status. A slight high proportion FSWs that are currently married living with spouse (47.1%) were positive to HIV test result as compared to those married not living with spouse (42.8%) and the unmarried (26.1). This was significant at p = < 0.001.

**Table 4.17: Bivariate analysis for reported marital categories of FSWs and their HIV status**

| Characteristics | Married living with spouse (%) | Married not living with spouse (%) | Not married (%) | Total | Chi square | P VALUE |
|---|---|---|---|---|---|---|
| **HIV status** | | | | | | |
| Positive | 65 (47.1) | 151 (42.8) | 371 (26.1) | 587 | 55.558 | <0.001 |
| Negative | 73 (52.9) | 202 (57.2) | 1049(73.9) | 1324 | | |

## 4.18 LOGISTIC REGRESSION OF HIV STATUS AMONG FSWs

Table 4.18 shows the logistic regression output of HIV status among FSWs. After adjusting for other variables, those that are currently married living with spouse were about 3 times more likely to be HIV positive than those not married at OR=2.518, 95%CI=1.766-3.589 and those currently married not living with spouse were 2 times more likely than those not married to be HIV positive at OR=2.114, 95%CI=1.660-2.692.

Respondents between the ages of 15-19years were twice less likely than those between ages 25-49years to be HIV positive. (OR=0.431, 95%CI=0.258-0.721) and also, those between the ages 20-24years were 1 time less likely than those ages 25-49years to be HIV positive at OR=0.751, 95%CI=0.578-0.975.

FSWs that have primary education were about twice likely to be HIV positive than those with tertiary education. (OR=1.646, 95%CI=1.016-2.667)

FSWs that do not take alcohol were about 2 times more likely than those that take alcohol to be HIV positive at OR=1.526, 95%CI=1.153-2.021.

**Table 4.18: Logistic regression output of HIV prevalence among FSWs**

| Variables | Odds ratio | 95% C.I. | P. value |
|---|---|---|---|
| **Marital status** | | | |
| Currently married living with spouse | 2.518 | 1.766-3.589 | <0.001 |
| Currently married not living with spouse | 2.114 | 1.660-2.692 | <0.001 |
| Not married (ref) | 1 | | |
| **Age** | | | |
| 15-19 | 0.431 | 0.258-0721 | 0.001 |
| 20-24 | 0.751 | 0.578-0.975 | 0.031 |
| 25-49 (ref) | 1 | | |
| **Level of education** | | | |
| Less than primary/quranic | 1.804 | 0.954-3.410 | 0.069 |
| Primary | 1.646 | 1.016-2.667 | 0.043 |
| Secondary | 1.194 | 0.785-1.817 | 0.407 |
| Tertiary (ref) | 1 | | |
| **Type of sex work** | | | |
| Brothel-based | 1.133 | 0.887-1.448 | 0.316 |
| Non-brothel based (ref) | 1 | | |
| **Period in sex work** | | | |
| Less than 1 year | | | |
| 1-2 years | 0.867 | 0.656-1.145 | 0.314 |
| 2 years & above (ref) | 1.082 | 0.794-1.475 | 0.617 |
| | 1 | | |
| **Drug use** | | | |
| No | 1.108 | 0.805-1.527 | 0.529 |
| Yes (ref) | 1 | | |
| **Alcohol use** | | | |
| No | 1.526 | 1.153-2.021 | 0.003 |
| Yes (ref) | 1 | | |
| **Oral sex with clients** | | | |
| No | 0.993 | 0.736-1.341 | 0.966 |
| Yes (ref) | 1 | | |
| **HIV/STI info from radio or television** | | | |
| No | 1.388 | 0.983-1.959 | 0.063 |
| Yes (ref) | 1 | | |
| **Consistence condom use in the last 30 days** | | | |
| Never | 0.934 | 0.360-2.424 | 0.888 |
| Ever (ref) | 1 | | |

## 4.19 LOGISTIC REGRESSION OF ALCOHOL USE AMONG FSWs

Table 4.19 shows the logistic regression output of alcohol use among FSWs. After other variables had been adjusted for, those that are currently married living with spouse were about twice less likely to have used alcohol than those not married (OR=0.487, 95%CI=0.351-0.676) and those currently married not living with spouse were less likely than those not married to have taken alcohol. (OR=0.762, 95%CI=0.600-0.967)

FSWs between the ages 15-19years were 2 times less likely than those between the ages 25-49years to have used alcohol (OR=0.419, 95%CI=0.261-0.672), also respondents between the ages of 20-24 were 1 time less likely than those age between 25-49years to have taken alcohol (OR=0.725,95%CI=0.532-0.988)

The FSWs that have been in sex work for less than one year were twice less likely to have used alcohol than those that have been in work for over 2years. (OR=0.483, CI=0.355-0.658) and those respondents that have been in sex work for one to two years were almost twice less likely than those in sex work for over two years to have used alcohol. (OR=0.639, 95%CI=0.446-0.914)

The respondents that didn't have oral sex with clients were about 2 times less likely than those that have oral sex with their clients to have used alcohol with OR=0.676, 95%CI=0.470-0.970.

FSWs that never use condom with partners were about thrice less likely to have taken alcohol than those that use condom with partners. (OR=0.306, 95%CI=0.120-0.777)

The FSWs that are HIV negative were about 2 times more likely than those HIV positive to have used alcohol. (OR=1.519, 95%CI=1.147-2.013)

**Table 4.19: Logistic regression output of alcohol use among FSWS**

| Variables | Odds ratio | 95% C.I. | P. value |
|---|---|---|---|
| **Marital status** | | | |
| Currently married living with spouse | 0.487 | 0.351-0.676 | <0.001 |
| Currently married not living with spouse | 0.762 | 0.600-0.967 | 0.025 |
| Not married (ref) | 1 | | |
| **Age** | | | |
| 15-19 | 0.419 | 0.261-0.672 | <0.001 |
| 20-24 | 0.725 | 0.532-0.988 | 0.042 |
| 25-49 (ref) | 1 | | |
| **Level of education** | | | |
| Less than primary/quranic | 0.336 | 0.163-0.691 | 0.003 |
| Primary | 0.668 | 0.366-1.219 | 0.188 |
| Secondary | 0.615 | 0.363-1.040 | 0.070 |
| Tertiary (ref) | 1 | | |
| **Type of sex work** | | | |
| Brothel-based | 1.076 | 0.816-1.419 | 0.603 |
| Non-brothel based (ref) | 1 | | |
| **Period in sex work** | | | |
| Less than 1 year | 0.483 | 0.355-0.658 | <0.001 |
| 1-2 years | 0.639 | 0.446-0.914 | 0.014 |
| 2 years & above (ref) | 1 | | |
| **Drug use** | | | |
| No | 0.442 | 0.286-0.683 | <0.001 |
| Yes (ref) | 1 | | |
| **Oral sex with clients** | | | |
| No | 0.676 | 0.470-0.970 | 0.034 |
| Yes (ref) | 1 | | |
| **HIV/STI info from radio or television** | | | |
| No | 0.623 | 0.428-0.908 | 0.014 |
| Yes (ref) | 1 | | |
| **Consistence condom use in the last 30 days** | | | |
| Never | 0.306 | 0.120-0.777 | 0.013 |
| Ever (ref) | 1 | | |
| **HIV status** | | | |
| Negative | 1.519 | 1.147-2.013 | 0.004 |
| Positive (ref) | 1 | | |

## 4.20 LOGISTIC REGRESSION OF CONDOM USE AMONG FSWs

Table 4.20 shows the logistic regression output of condom use consistency in the last 30 days among FSWs. The respondents that didn't use drugs were 5 times more likely to have used condom consistently with partners in the last 30 days than those that didn't use drugs. (OR=4.534, 95%CI=1.832-11.218).

The FSWs that didn't take alcohol were 3 times less likely than those that use alcohol to have used condom consistently in the last 30 days with partners. (OR=0.305, 95%CI=0.114-0.814)

**Table 4.20: Logistic regression output of condom use among FSWS**

| Variables | Odds ratio | 95% C.I. | P. value |
|---|---|---|---|
| **Marital status** | | | |
| Currently married living with spouse | 0.944 | 0.464-1.920 | 0.873 |
| Currently married not living with spouse | 1.057 | 0.420-2.663 | 0.906 |
| Not married (ref) | 1 | | |
| **Age** | | | |
| 15-19 | 0.432 | 0.136 | 0.153 |
| 20-24 | 2.072 | 0.684 | 0.197 |
| 25-49 (ref) | 1 | | |
| **Level of education** | | | |
| Less than primary/quranic | 0.408 | 0.029-5.707 | 0.505 |
| Primary | 0.457 | 0.046-4.499 | 0.502 |
| Secondary | 0.396 | 0.050-3.153 | 0.382 |
| Tertiary (ref) | 1 | | |
| **Type of sex work** | | | |
| Brothel-based | 1.217 | 0.501-2.956 | 0.665 |
| Non-brothel based (ref) | 1 | | |
| **Period in sex work** | | | |
| Less than 1 year | 2.211 | 0.673-7.256 | 0.191 |
| 1-2 years | 1.874 | 0.511-6.873 | 0.344 |
| 2 years & above (ref) | 1 | | |
| **Drug use** | | | |
| No | 4.534 | 1.832-11.218 | 0.001 |
| Yes (ref) | 1 | | |
| **Alcohol use** | | | |
| No | 0.305 | 0.114-0.814 | 0.018 |
| Yes (ref) | 1 | | |
| **Oral sex with clients** | | | |
| No | 1.874 | 0.744-4.721 | 0.183 |
| Yes (ref) | 1 | | |
| **HIV/STI Info from radio or television** | | | |
| No | 2.027 | 0.425-9.678 | 0.376 |
| Yes (ref) | 1 | | |
| **HIV status** | | | |
| Negative | 0.990 | 0.383-2.560 | 0.984 |
| Positive (ref) | 1 | | |

# CHAPTER FIVE

## DISCUSSION

This study has examined the possible role marriage can play in the behaviour of FSWs and their HIV prevalence. It found that HIV prevalence is higher among married FSWs as compared to those that are not married which is different from the general perception that marriage should be protective against HIV infection. This study also found that condom use among FSWs with partners/spouse is higher among the unmarried as compared to the married. There are few, if any study which has looked at marital status of FSWs and its relationship with HIV status and risk factors for the disease. The focus of this work was on how a sex worker's marital status may affect behaviour and ultimately her HIV status. Even though, studies have examined factors associated with HIV status among female sex workers (Medhi et al., 2012 and Aklihu et al., 2001), none has singled out marital status of these women to study how it might influence HIV status and risky behaviour. Studies done among FSWs from part of the world reported varying proportion of FSWs who are married, for example, about 7.3% of FSWs are married in Nigeria (Lawan et al., 2012) while 8.2% are married in Mexico (Uribe-salas et al., 2003). Intervention targeting FSWs may take may take advantage of the differences, if any between the different marital categories.

The population of FSWs was relatively young with majority being between 20 to 29 years of age (mean age 26.1 years) and there was a decrease in the number of female sex workers with age, similar to the findings from an Ibadan study, where the average age of sex workers mostly fell between 20 and 34 years (Umar, et al 2001). It is also in agreement with a study in Nigeria that majority of the FSWs were in their twenties (Ankomah, et al., 2011). This may be as a result of the FSWs retiring from the trade as their body ages and they are incapable to keep up the pace with the younger ones and make a good living from the trade. It may also be as a result of them going into other trades after saving the capital from their sex trade. A study in Argentina supported this in which the mean age of the sex workers is 34.1 years (Bautista et al., 2006).

The level of education among the FSWs in Nigeria is high with more of them having at least secondary education, considering the urban location of the study sites. This is in agreement with study also carried out in Nigeria among FSWs where most of them had some secondary education (Ankomah et al., 2011). This could indicate a change in trends as regards educational status where previous studies among female sex workers in Nigeria were mostly

poorly educated (Onwuliri, 2003). The high level of secondary education may be indicative of their inability to proceed with their education and hence their indulgence in selling sex. Previous study by Onyeneho NG showed that FSWs engaged in sex work to provide their school needs and those of other dependants.

This study showed that majority of the FSWs were not married. This is in line with a study in Kano, Nigeria, which showed that few FSWs were currently married. In support of this fact is another study in Nigeria by Oyefara in 2007 and in Mexico by Uribe-Salas et al in 2003 which showed that majority of the FSWs were unmarried. Also a study in Cambodia (Oshige et al., 2000) reported a similar finding. A study in Pakistan in 2011 reported a very high proportion of 91% of the FSWs being married (Khan et al., 2011). The higher proportions of unmarried FSWs explain how they are able to practice their trade, which will be difficult in the presence of a spouse or other regular sex partners.

The higher percentage of female sex workers without other income sources, may explain their indulgence in selling sex which is usually regarded as a fast and easy means to make money. It may also be a reflection of the relatively higher number of brothel based sex workers in this sample. This is supported by studies by Elmore-morgan et al which showed that FSWs especially those of the brothel-based group are usually full time sex workers who do not engage in any other income generating activities and are always available for their clients any time and Oyeneho in his study among FSWs in Nigeria in 2009 also supported this fact and the non-brothel based group of FSWs engage in other income generating activities such as plaiting of hair, tailoring, knitting etc. (Elmore-Morgan et al., 2004).

About half of the sex workers had been in the trade for two years and above and this is supported by studies by Pepin et al which show most FSWs had been in the industry for longer than two years (Pepin, et al., 2005).

The good knowledge of HIV reported by majority of the FSWs is encouraging; however few had a good knowledge about STIs. Majority of the married FSWs had fair knowledge of STI (73.9%) as compared to the unmarried FSWs. This is lower than figures reported by another study among commercial sex workers where the overall knowledge of sexually transmitted diseases ($STD_S$) was rated as poor (20.7%), moderate (64.1%) and good (15.2%) (Umar et al, 2001). The low knowledge of STIs among the FSWs that are married is of great concern because the transmission of HIV is linked with STI transmission. Majority of FSWs had

never had genital discharges, ulcers or sores, this low prevalence of genital discharges, ulcers and sores may be due to underreporting.

Generally, knowledge of HIV was good among FSWs with those that were not married having a higher proportion with good knowledge compared to those that were married.

Female Sex Workers in this study had a fair knowledge of STI with those that were married living with sexual partner (MLS) having a higher proportion with fair knowledge compared to those that were married not living with sexual partner (MNS) and those that were unmarried. This is in line with studies by Umar et al. 2001 among which reported an overall knowledge of sexually transmitted diseases (STDs) and rated as poor (20.7%), moderate (64.1%) and good (15.2%). This poor knowledge of STIs is of great concern as the transmission of HIV is increased in the presence of STIs.

About half of the FSWs in this study had one boyfriend. Majority of the FSWs had no casual and regular partners. This was supported by study in Madagascar in 2010 that almost half of the FSWs had a boyfriend.

The proportion of anal and oral clients among FSWs in this study is relatively low, this is in line with a study in India in 2010 in which 84% of the respondents did not practice oral sex. In constrast to this study, it was reported in the same study in india that 97% of the sex worker practiced anal sex without condom with client and was also confirmed by another study by Yong chai et al., in China in 2010 in which 57% of FSWs practiced anal sex.

Alcohol was consumed by most of the FSWs which is higher than that reported among FSWs in other countries like India where over one-third (39%) of the FSWs reported consuming alcohol before meeting clients (Subadra et al. 2010). Alcohol use was however higher in unmarried FSWs compared to those that were married. Logistic regression showed those married were less likely than those not married to take alcohol. This may because marriage to some extent affects married people's health positively and also marriage ushers in a change in social and recreational activities. The high level of alcohol consumption by the FSWs increases their chances of contracting HIV as higher levels of alcohol consumption have being associated with an increased risk of HIV infection (Hargreaves JR, 2002).

The overall prevalence of drug use was low however it was higher among FSWs that were MLS compared to those that were MNS and those that were not married (NM).

A high number of FSWs used condoms with clients, but very few of them used condoms with their boyfriends or spouses. In agreement with this was a study in China which confirmed that most FSWs don't use condom with their boyfriends/spouse (Wang et al., 2009). This

level of sexual behaviour was higher among married women with fewer married women reported using condoms' in the last 30 days, compared to those that were MNS and those that were NM. Also, on the logistic regression, MLS were less likely to use condoms compared to those that were NM while those that were MNS were about two times more likely to use condoms in the last 30 days. Condom use may be infrequent among married because of their desire for children and widespread association of condom with infidelity and lack of trust and may also be due to the fact that they consider unprotected sex with boyfriend and spouse as a demonstration of love and sex with others as business. Previous multivariate model for condom use with steady partners revealed that married respondents and those with a history of STI were less likely to use condoms consistently with their main partners (Chatterjee N. 2006). This is also in agreement with a report in Nigeria by W.H.O. in 2011. Studies like National Behavioural Survey in 2004 in Nigeria reported that majority of FSWs do not use condom with their boyfriends and spouses. The current study highlights the need for HIV prevention messages among married sex workers and their spouse/partners to emphasize the use of condoms with all sex partners as the lack of condom use among married women may increase the spread of HIV from sex worker to the general population.

Although not statistically significant, more unmarried FSWs reported having VCT compared to those that were married. This may be as a result of a higher risk perception among unmarried FSWs. This is in contrasts to reports in other countries where Auburn et al reported that never-married individuals were less likely to be tested compared with other marital status categories. Another study in Kenya showed that married, widowed and divorced women were more likely to use VCT services than the never married. (Namazzi J. 2005) Further studies by Namazzi J in 2010 regarding marital status revealed that both the currently married and formerly married have a significantly higher probability of using VCT services than the never married. The lower level of VCT among married women may be linked to them assuming they are in a stable relationship and hence are at lower risk of contracting HIV. This is of great importance as consistent condom use is an important factor in the reduction of HIV especially among high risk groups.

Perceived vulnerability to HIV infection is a very important issue in HIV prevention (Fisher and Fisher, 2000). More than half of FSWs in this study felt they were not at risk of HIV infection and concerning the risk perception of the marital categories of the FSWs, low risk perception was higher among the unmarried as compared to the married ones. This may be

due to the fact that condom use among them is high. Low risk perception among the FSWs is supported by previous studies from Akinyemi, et al in 2002 and Lawan et al in 2012 that most of the sex workers that AIDs was real and nearly all of them perceived themselves as low risk not because of their sexual behaviour but because of their belief that God will offer them protection from HIV. This may be as result of the belief attached to culture in Nigeria in which people believe that whatever happens to one is pre-ordained by God and whatever you say, you will get. They also believe that those who will die of AIDS had been predestined to. This is also supported by a study by Ankomah, et al in 2011 in which the FSWs rejected the fact that they were at higher risk of HIV infection and they argued that the problem of HIV/AIDS was not confined to them alone but everybody's problem.

Generally looking at the prevalence of HIV among the marital categories of FSWs, one may likely think that it should be higher among the unmarried than the married because averagely, marriage should be protective against the infection. This is different looking at the outcome in this study in which the prevalence is higher among married respondents compared to those that were not married. This is of great concern because this is a viable means of HIV transmission to the general population as indicated by recent studies which suggest that most new infections take place among married individuals who were previously thought to be a low risk group (Gelmon et al. 2009; Khobotlo et al. 2009). This high HIV prevalence among the married categories of FSWs in this study may be because they had been infected with the virus before marriage or unknown to them that their husbands or steady partners do patronize partners that were already infected. Another reason for the high prevalence among the married may be due extra-marital affair being practiced by most men. Violence in marriage may be another reason for high prevalence of HIV among the married as it played an overlooked role in women's vulnerability to HIV infection. A Kenyan study was in agreement with this fact stating that closes to half of ever-married women reported physical or sexual violence from their husband (central bureau of statistics (Kenya), 2004). Previous studies in Zimbabwe indicated increased risk of HIV was associated with having ever married or lived with a man (Gavin et al.2006).On the logistic regression, married FSWs living with their spouses and those not living with their spouse were about three times more likely to be HIV positive compared to those that were not married. This is in line with reports by Clark which showed that married adolescent girls in urban centers in Kenya and Zambia have higher rates of HIV infection than do sexually active unmarried girls. Based on the

evidences of low condom use among these married FSWs with their husbands/steady partners, they may believe that condom is a transgression of loyalty and thus can cause an imbalance in a steady relationship and also based on the trust and love they have for their spouses, they do not want them to be treated like clients. The implication of this finding is great as previous studies in Africa have estimated that at least one quarter of cases of HIV infection in recently married men were acquired from extramarital partnerships, and for both men and women, less than one half of cases of HIV infection were acquired from their spouse. In these sites, many infections in married men, even in those with HIV-infected wives, may be acquired from outside the marriage (Glynn JR et al, 2003).

One of the potential limitations of this study is the generalizability to the Nigerian population as the study was conducted in six states. The cross sectional design makes the temporal sequence of marriage, and time of contracting HIV infection difficult to ascertain. Other limitations include self-reported information, which increases the possibility of inaccuracies and underreporting, particularly with regard to information about HIV/AIDS and sexual behaviour. These limitations should therefore be considered when generalizing these findings. Notwithstanding the limitations, the large sample size and the availability of HIV status as well as other behavioural variable are strengths of this study.

## CONCLUSION AND RECOMMENDATION

The study shows married FSWs could constitute a major bridge in the transmission of HIV/AIDS to the general population compared to those not married as shown by their higher HIV prevalence, increased risky sexual behaviours and low risk perception for HIV/AIDS. This is further aggravated by their lower level of knowledge about HIV/AIDS and STIs. These findings should form an important consideration for designing and enhancing HIV preventive interventions among FSWs.

Therefore, it is recommended that

1. Since most heterosexual HIV transmission for both men and women occurs within marriage or cohabitation, voluntary counseling and testing for couples should be promoted, as should other evidence-based interventions that target heterosexual couples.

2. Prevention strategies especially on condom use should be enforced among FSW especially those that are married.
3. Sensitization efforts among high risk groups especially FSWs should be targeted at those that are married as they serve as an important bridge for the transmission of HIV/AIDS to the general population.
4. The findings of this study show that the married FSWs operate mainly from brothels; therefore regulations should be put in place to ensure the availability of condoms to this group of FSWS.
5. Interventions that address both drug use and HIV risk behaviors among FSWs should be put in place. This may have a great impact in preventing the spread of HIV.
6. Some interventions may be designed to help FSWs improve the accuracy with which they perceive that they are at risk of acquiring HIV.

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6. Some interventions may be designed to help FSWs improve the accuracy with which they perceive that they are at risk of acquiring HIV.

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# FMOH/NASCP/FHI/CDC
# 2007 HIV/AIDS/STD INTEGRATED BIOLOGICAL AND BEHAVIORAL SURVEILLANCE SURVEYS (IBBSS) OF
## MALES AND FEMALES AGED 15-49

Sexually Transmitted and Blood-borne Infection Prevalence Assessment in High-Risk Populations - Nigeria – 2007

**SECTION 0: IDENTIFICATION PARTICULARS**

**FOR ALL GROUPS:**

**001** GROUP ID |__|__| / **002** STATE ID |__|__| / **003** QUEST. ID No. |__|__|__|

**FOR SEX WORKERS, TRANPORTATION WORKERS, POLICE AND ARMED FORCES:**

**004** CLUSTER NUMBER |__|__|__|

**FOR MSM AND IDU ONLY:**

**005** COUPON NUMBER |__|__|__|

**006** NUMBER OF PERSON WHO REFERRED PARTICIPANT |__|__|__|

**007** INTERVIEWER: Code [____|____] Name_____

**008** DATE OF INTERVIEW: __ __ \ __ __ \ 2007

**009** CHECKED BY SUPERVISOR: Signature _____ CODE |__|__| Date _____

**010** SIGNATURE AND CODE OF SAPC: _____ CODE |__|__| Date_____

**011** MANUAL EDITOR/CODER: |__|__|

**012** DATA ENTRY CLERK CODE: |__|__|

Interviewer visit

| | Visit 1 | Visit 2 | Visit 3 |
|---|---|---|---|
| Date | | | |
| Interviewer | | | |
| Result | | | |

**013** RESULT OF INTERVIEW: |___|

| | |
|---|---|
| **Completed interview and accepted counseling & testing** | 1 |
| **Completed interview but refused counseling and testing** | 2 |
| **Partially completed Interview** | 3 |
| **Refused interview** | 4 |
| **Others** | 5 |

# Target groups

*(Please circle the appropriate target group that <u>this PARTICULAR</u> questionnaire is meant for)*

| No. | Questions and filters | Group Codes |
|---|---|---|
| 014 | Brothel Based Female Sex Workers (FSW) Aged 15-49 | A22 |
| | Non-Brothel Based Female Sex Workers (FSW) Aged 15-49 | B33 |
| | Men who have sex with men (MSM) Aged 18-49 | C44 |
| | Males of the Armed Forces Aged 18-49 | E66 |
| | Transport Workers Aged 18-49 | F77 |
| | Male and Female Injecting Drug Users Aged 18-49 | G88 |
| | Males and Females of the Police Aged 18-49 | H99 |

## Section 1: Background characteristics

| No. | Questions and filters | Coding categories | Skip to |
|---|---|---|---|
| Q101 | [RECORD SEX OF THE RESPONDENT] | Male.....1<br>Female.....2 | |
| Q102 | In what month and year were you born? | Month [__\|__]<br>Don't know month .....88<br>Year [__\|__ [__\|__]<br>Don't know year .....8888 | |
| Q105 | How old were you as at your **last** birthday?<br>**ESTIMATE BEST ANSWERS** | Age in completed years [__\|__]<br>Don't know.....88<br>No response.....99 | |
| Q106 | What is the highest level of school you attended: primary, secondary or higher? | Never attended school .....0<br>Quranic only.....1<br>Some primary .. .....2<br>Completed primary.....3<br>Some secondary ..... 4<br>Completed secondary.....5<br>Tertiary ..... 4 | |
| Q112 | What is your religion?<br>**CIRCLE ONE** | No religion ..... 0<br>Christianity.....1<br>Islam..... 2<br>Traditional..... 3<br>Others specify.[ ]...4<br>No Response.....9 | |

## Section 2: Marriage and partnerships

| No. | Questions and filters | Coding categories | | Skip to |
|---|---|---|---|---|
| Q201 | Have you *ever* been married? | Yes.....1<br>No.....2<br>No response.....9 | [__\| | →if no Go to Q204 |
| Q203 | Are you ..... | Currently married living with spouse.....1<br>Currently married living with other sex partner....2<br>Currently married, not living with spouse or any other sexual partner.....3 | [__\| | |
| Q204 | Are you ..... | Not married, living with sexual partner.....1<br>Not married, not living with sexual partner.....2<br>No response.....9 | [__\| | |

## Section 8: Selling sex (For Female population only)

| No. | Questions and Filters | Coding categories | Skip to |
|---|---|---|---|
| SW05 | Do you have another source of income? | Yes .....1<br>No.....2<br>No response .....3 [__] | |
| SW07 | On a normal day, how many customers/clients do you have? | Number of clients<br>None.....00<br>Don't remember.....77 [__]<br>Don't know.....88<br>No response.....99 | |
| SW11 | During the last 30days, how often did you use condoms with your clients/customer? | Every time .....1<br>Almost every time .....2<br>Sometimes .....3 [__]<br>Never .....4<br>Don't know .....8<br>No response .....9 | |
| SW12 | On the average, how much money do you charge each time you have sex with a client/customer? | Amount in Naira<br>[__][__][__][__]<br>Don't remember .....77777<br>Don't know .....88888<br>No response .....99999 | |
| SW16 | Have you being forced to have sex by any person (client or non-client) in the past 12 months? | Yes .....1<br>No .....2<br>Don't remember.....7<br>No response .....9 [_] | |
| SW18 | Have you ever had anal intercourse with any of your clients/customers in the last 12 months? | Yes.....1<br>No.....2 [_]<br>Don't remember .....3<br>No Response.....9 | |
| SW19 | Have you ever had oral sex with any of your clients/customers in the last 12 months? | Yes.....1<br>No.....2 [_]<br>Don't remember ...3<br>No Response.....9 | |
| SW20 | In the past 6 months, how frequently has a law enforcement agent arrested you or threatened to arrest you in the place where you meet your clients? | Very often.....1<br>Often .....2<br>Only once or twice.....3<br>Never .....4<br>Don't know .....8<br>No response .....9 [_] | |

## Section 9: Social habit [ALL GROUPS]

| No. | Questions and filters | Coding categories | Skip to |
|---|---|---|---|
| Q901 | During the last 4 weeks how often would you say you drink alcohol? | Every day.....1<br>At least once a week ...2<br>Less than once a week...3<br>Never .....4<br>Don't know .....8<br>No response .....9<br>[__] | |
| Q902 | Have you ever used drugs? | Yes.....1<br>No..... 2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q903 | Some people have tried injecting drugs using a syringe. Have you injected drugs in the last 12 months? | Yes.....1<br>No..... 2<br>Don't know.....8<br>No response.....9<br>[__] | |

## Section 12 STIs [Ask all respondents]

| No. | Questions and filters | Coding categories | Skip to |
|---|---|---|---|
| Q1201 | Have you ever heard of diseases that can be transmitted through sexual intercourse (STIs)? | Yes.....1<br>No.....2<br>Don't know .....8<br>No response .....9 [__] | →Go to Q1204 |
| Q1202 | Can you describe any symptoms of STIs in women? .... Any others?<br><br>**DO *NOT* READ OUT THE SYMPTOMS**<br><br>**WRITE 1 FOR ALL MENTIONED**<br><br>**WRITE 2 FOR ALL NOT MENTIONED**<br><br>**MORE THAN ONE ANSWERS IS POSSIBLE** | Lower abdominal pain .....A [__]<br>Genital discharge .....B [__]<br>Foul smelling discharge .....C [__]<br>Burning pain on urination .....D [__]<br>Genital ulcers/sores .....E [__]<br>Swellings in groin area .....F [__]<br>Itching of the genitals.....G [__]<br>Others .....H [__]<br>No response .....I [__] | |
| Q906 | Can you describe any symptoms of STIs in men?<br><br>**[DO *NOT* READ OUT THE SYMPTOMS**<br><br>**MULTIPLE CODES POSSIBLE; PROBE FULLY]** | Genital discharge .....A [__]<br>Burning pain on urination .....B [__]<br>Genital ulcers/sores/rash .....C [__]<br>Swellings in groin area .....D [__]<br>Itching of the genitals .....E [__]<br>Others .....F [__]<br>No response .....G [__] | |
| Q1204 | Have you had unusual genital discharge during the past 12 months? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9 [__] | |
| Q1205 | Have you had a genital sore/ulcer during the past 12 months? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9 [__] | →If no to Q1204 AND Q1205 go to 1301 |

## Section 13: Knowledge, opinions, and attitudes about HIV/AIDS [Ask all respondents]

| No. | Questions and filters | Coding categories | Skip to |
|---|---|---|---|
| Q1301 | Have you ever heard of AIDS or HIV (the virus that causes AIDS)? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | →Go to Q1401 |
| Q1302 | Do you know someone who is infected with HIV? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1306 | Can people protect themselves from the virus that cause AIDS by using condom correctly every time they have sex? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1307 | Can a person get HIV from mosquito bites? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1308 | Can person protect themselves from HIV by having one uninfected faithful sex partner? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1309 | Can people protect themselves from HIV by abstaining from sexual intercourse? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1310 | Can a person get HIV by sharing a meal (using the same utensils) with someone who is infected? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1311 | Can a person get HIV by getting injection with needle that was already used by someone else? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |
| Q1312 | Do you think that healthy looking person can be infected with HIV, the virus that causes AIDS? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response.....9<br>[__] | |

| | | | |
|---|---|---|---|
| Q1313 | Is it possible for a person to get HIV by sharing a toilet used by someone who has HIV? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response .....9<br>[__] | |
| Q1314 | Is it possible for a person to get HIV through transfusion with unscreened blood? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response .....9<br>[__] | |
| Q1315 | Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response .....9<br>[__] | |
| Q1316 | What can an HIV positive pregnant woman do to reduce the risk of transmission of HIV to her unborn child?<br><br>**DO NOT READ LIST**<br><br>**CIRCLE ALL THAT ARE MENTIONED.** | Take medication (Antiretroviral) [__]<br>Exclusive breastfeeding [__]<br>Use of only breast milk substitute [__]<br>Other (specify)_____ [__]<br>Don't know [__]<br>No response [__] | |
| Q1317 | Do you know of any health facility or place in your conumunity where one can receive counseling and testing for HIV/AIDS? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response .....9<br>[__] | |
| Q1324 | I don't want to know the result, but have you ever had HIV test? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response .....9<br>[__] | |
| Q1325 | Did you voluntarily undergo the HIV test or were you required to have the test? | Voluntary.....1<br>Required .....2<br>Don't know .....8<br>No response .....9<br>[__] | |
| Q1330 | Do you feel you yourself are at risk for infection with HIV test? | Yes.....1<br>No.....2<br>Don't know.....8<br>No response .....9<br>[__] | |