



## HIV KNOWLEDGE AND PREVENTION PRACTICES AMONG FEMALE SEX WORKERS IN CALABAR METROPOLIS, CROSS RIVER STATE OF NIGERIA: IMPLICATION FOR HIV/AIDS ELIMINATION IN NIGERIA

Ofem, Margaret Eteng and \*Bassey, Philip Etabee

Public Health Department, University of Calabar, Calabar, Cross River State, Nigeria

Received 13<sup>th</sup> November 2020; Accepted 20<sup>th</sup> December 2020; Published online 29<sup>th</sup> January 2021

### Abstract

**Introduction:** The HIV prevalence in Nigeria has dropped significantly from 5.8% in 2001 to 1.4% in 2017. The HIV/AIDS epidemic in Nigeria has been fueled through heterosexual relationships. Sex workers are pivotal in the spread of the HIV virus, because they are susceptible to engage in risky sex for pecuniary reasons thereby increasing the pool of new HIV infections and by extension the national prevalence. **Objective:** This study was conducted to determine the knowledge of brothel-based female sex workers in Calabar metropolis, Cross River State, Nigeria about HIV and its prevention. **Method:** A cross-sectional study was conducted using an investigator administered questionnaire to elicit responses from 200 FSWs on their KAP about HIV and its prevention. The data was analysed using SPSS. **Result:** The knowledge of HIV and infection prevention practices was high among the respondents. They were abreast with the health and occupational hazard associated with their work. Majority (95%) of the respondents used condoms consistently with their clients to protect themselves from sexually transmitted infections. On their perceived risk of contracting HIV, 69.5% of the respondents said using condoms consistently with their clients guaranteed protection from contracting the virus; 15.0% had a contrary opinion. **Conclusion:** Consistent condom use by sex workers is critical in preventing the spread of HIV. The failure of 5.0% of the respondents to achieve consistent use of condoms with their clients is therefore worrisome. Capacity building to improve their condom-negotiation competencies is vital. All sex workers should be actively engaged in the response, and should have access to other preventive interventions like PrEP and PEP

**Keywords:** Female sex workers, HIV, Condom, Prevention..

### INTRODUCTION

The global HIV/AIDS pandemic has declined progressively over the past two decade in terms of prevalence and associated mortality (UNAIDS, 2008). Nigeria has also experienced a significant decline in its HIV/AIDS epidemic. The national HIV prevalence for Nigeria that witnessed an increase from 1.8% in 1991 to 5.8% in 2001, dropped to 4.1% in 2010 (NACA), with a further drop in 2018 (Nigeria HIV/AIDS Indicator and Impact Survey, 2018). Regardless of the decrease in HIV prevalence, HIV/ AIDS remains a global and national public health threat (CDC). The result of the first ever population-based Nigeria HIV/AIDS Indicator and Impact Survey conducted in 2018, showed that the overall prevalence of HIV among adults age 15-49 and 15-64 years were 1.4% and 1.5% respectively. Although the national HIV prevalence is 1.4% among the adult population aged 15-49 years, by gender, the rate is twice as high among women 15-49 years (1.9%) compared with men (0.9%). Moreover, females, age 35-39 years recorded the highest HIV prevalence of 3.3%. The 1.4% prevalence rate for Nigeria also translates to 1,900,000 people living with HIV (PLHIV) in the country. The HIV/AIDS Indicator and Impact Survey report also highlighted the variations in the HIV prevalence rates across the geopolitical zones and the constituent states of the country. The South-South zone of the country had the highest prevalence of 3.1% compared with 0.6% for the North-West zone. The HIV prevalence among adult females 15-49 years was 4.0% and 2.0% for men in the same age category. HIV prevalence for females age 35-39 years in the zone was 5.8%; which was the highest among all females.

The report also indicated that six states including Akwa Ibom, Benue, Lagos, Kaduna, Katsina, Oyo, and Kano accounted for 41% of people living with HIV in Nigeria (Nigeria HIV/AIDS Indicator and Impact Survey, 2018). Nigeria has a mixed HIV epidemic that is characterized by a high HIV prevalence among the general population, which accounts for 80% of new HIV infections in Nigeria as a result of unprotected heterosexual sex; while the majority of the remaining HIV infections occur among the high risk groups: particularly female sex workers (FSWs), men who have sex with men (MSM) and people who inject drugs (PWID) (NACA, 2019-2021). Moreover, there is a significant overlap with casual sexual networks in urban locations; while HIV risk in the rural towns and villages, is driven largely by differences in sexual behaviors such as casual or transactional sex work (Nigeria HIV/AIDS Indicator and Impact Survey, 2018). The 2018 UNAIDS report (UNAIDS, 2018), has alluded to the fact that the combination HIV prevention and treatment programmes have not had sufficient impact on the HIV epidemic in Western and Central Africa. This is predicated on the fact that since 2010, there has only been a 13% decline in annual new HIV infections, from an estimated 320 000 [210 000–480 000] to 280 000 [180 000–420 000] in 2018; and that the incidence-prevalence ratio of the region which of 5.5% [3.7–8.3%] for the region was nearly double the epidemic transition target of 3.0%. The 2018 UNAIDS report highlighted the fact that three countries namely: Cameroon, Côte d'Ivoire and Nigeria account for about 60% of new HIV infections and 54% of AIDS-related deaths yearly in the Western and Central African region (1). The HIV/ AIDS estimates in the UNAIDS report, took cognizance of the 2018 NAIIS findings, that recorded lower HIV prevalence compared to the earlier surveys, resulting in the down-ward review of the country's HIV

\*Corresponding Author: *Bassey, Philip Etabee*

Public Health Department, University of Calabar, Calabar, Cross River State, Nigeria

estimates (AVERT, 2018). The report however recommended that there was need for decisive improvements in the national HIV response, particularly in stemming new HIV infections. The key population groups accounted for 64% of all new HIV infections within the Western and Central African region in 2018 according to the UNAIDS report. The groups identified included sex workers, people who inject drugs (PWIDs), gay men as well as other men who have sex with men (MSM), including their sexual partners. However, globally, sex workers were at a 21% higher risk of acquiring new HIV infection compared to the general population and female sex workers were 13.5% more likely to be living with HIV than other women of reproductive age (UNAIDS, 2008). In 2013 it was estimated that the prevalence of HIV among female sex workers in Nigeria was 24.5% compared to 18.6% among male sex workers. Moreover, brothel-based sex workers had the highest prevalence of 27.4% (National Agency for the Control of AIDS, 2015). By 2018, the estimated prevalence of HIV among sex workers in Nigeria dropped to 14%. (Nigeria HIV/AIDS Indicator and Impact Survey, 2018) Although this lower HIV prevalence rate represents a significant drop in HIV prevalence among sex workers, it is still about ten times higher than that of the general population. Moreover, female sex workers (FSWs) in Nigeria bear a disproportionately higher burden of HIV and are one of the major drivers of the HIV epidemic in Nigeria (NACA, 2019-2020).

### Rationale for the study

Globally, sex workers play a vital role in the epidemiology of HIV, because they are quite mobile (Wang *et al.*, 2010; Davey *et al.*, 2019); and increased mobility has been associated with risky sexual behavior (National HIV/AIDS & STIs Control Programme, 2014); Moreover, sex workers have a higher risk of acquiring HIV infection (Manopaiboon *et al.*, 2013; Longo *et al.*, 2017), and can also rapidly spread the infection. The involvement of sex workers in the HIV elimination programme imperative for attaining success in the fight against HIV. It was therefore in the light of this critical role of FSWs, that we decided to explore the knowledge about HIV and the corresponding HIV prevention practices of brothel-based females who sell sex (FWSS) in Calabar metropolis.

To guide our study, we formulated the following research questions:

- What is the knowledge base of HIV among brothel-based females who sell sex in Calabar metropolis?
- What is the perception of brothel-based female who sell sex in Calabar metropolis about their vulnerability to HIV infection?
- What are the factors that could aid the spread of HIV among brothel-based females who sell sex in Calabar metropolis?
- What are the HIV preventive practices among brothel-based females who sell sex in Calabar metropolis.

## METHODOLOGY

A cross sectional questionnaire-based study was conducted among brothel-based females who sell (BBFWSS) otherwise known as commercial sex workers (CSWs) resident in Calabar metropolis, the capital city of Cross River state, located in the South-South geopolitical region of Nigeria. The metropolis comprises Calabar Municipality and Calabar South local Government Areas (LGAs) of Cross River State, Nigeria.

### Sample size determination

The sample size for this study was determined using the Bluman (2004) formula (Bluman, 2012), given below.

$$n = \frac{Z^2 (pq)}{d^2}$$

Where:

n = required sample size

Z = confidence interval (90%=1.645)

p = proportion of HIV risk perception by FWSS, (32.9%  $\approx$  0.33%)

q = proportion of non HIV risk perception by FWSS;

(1-p; i.e. 1- 0.33 = 0.67)

d = precision required (5.5%=0.055)

Substituting the values into the formula above;

$$n = \frac{(1.645)^2 \times 0.33 \times 0.67}{(0.055)^2} = \frac{2.706 \times 0.221}{0.003} = 197.7$$

n was rounded off to 200

### Sampling procedure

A multi-stage proportionate to size sampling method was applied in selecting the brothels and the FSWs from the two LGAs in the metropolis.

**Stage 1:** The names of the brothels within the metropolis were written out on pieces of paper, which were numbered and put into a small box. Seven (7) brothels were then randomly selected without replacement from the pieces of paper in the box.

**Stage 2:** The occupants in each of the selected brothels were determined and a proportionate to size allocation technique was applied in selecting 200 brothel-based female commercial sex workers.

### Research ethics

The aim, significance and benefit of the study was explained to the FSWs who opted to participate in the study and verbal informed consent was obtained from the willing respondents. All the respondents were assured of their confidentiality.

### Data collection

Data was collected using a pretested and validated semi-structured questionnaire comprising the following four sections: (a) information on socio-demographic characteristic, (b) knowledge about HIV /AIDS, (c) beliefs, behaviour and attitude toward HIV/AIDS prevention (d) HIV prevention practices engaged in by the respondents. The data collected were entered into a spread sheet and was analysed using the Statistical Package for Social Science software (SPSS Version 20) and the results were presented as frequencies and percentages.

## RESULTS

### Socio-demographic characteristics of respondents

As shown in Table 1, majority 75 (37.5%), of the respondents were age 20 – 24 years, followed by 43 FSWs aged 15 – 19 years (21.5%); those age 25 – 29 years were 33 (16.5%), 30 –

34 years were 19 (9.5%), 35 – 39 years were 21 (10.5%), and those age 40 – 44 years were 7 (3.5%). Majority, 123 (61.5%) of them were single, 42 (21.0%) were cohabiting, 15 (7.5%) were divorced/separated, 11 (5.5%) were widowed, while 9 (4.5%) were married. 75 (37.5%) respondents had completed their tertiary education, 11 (5.5%) were students of tertiary institutions, 86 (43.0%) respondents had secondary education, 12 (6.0%) had primary education, while 16 (8.0%) had no formal education.

**Table 1. Socio-demographic characteristics of the respondents (n=200)**

Variables	Frequency	Percentage (%)
<b>Age</b>		
15-19 years	43	21.5
20-24 years	75	37.5
25-29 years	33	16.5
30-34 years	19	9.5
35-39 years	21	10.5
40-44 years	7	3.5
45-49 years	2	1.0
<b>Marital status</b>		
Single	123	61.5
Married	9	4.5
Divorced / Separated	15	7.5
Widowed	11	5.5
Cohabiting	42	21.0
<b>Educational qualification</b>		
No formal education	16	8.0
Primary	12	6.0
Secondary	86	43.0
Tertiary	86	43.0

### Knowledge and source of information of HIV

All the 200 (100%) respondents admitted that they have heard about HIV and were able to explain what HIV meant. 77 (38.5%) of the respondents got their information from the mass media: 50 (25%) and 27 (13.5%) from the Radio and Television, respectively. 40 (20.0%) of them obtained their information from health workers, 38 (19.0%) from family members, 35 (17.5%) from friends and 10 (5.0%) from the Internet, see Table 2.

**Table 2. Respondents knowledge about HIV (n=200)**

Variables	Frequency	Percentage
<b>Respondents knowledge about HIV</b>		
Yes	200	100
No	0	0
<b>Respondents comprehension about HIV</b>		
Good comprehension of HIV	200	200
Poor Comprehension	0	0
<b>Source of information about HIV</b>		
Friends	35	17.5
Family members	38	19.0
Health workers	40	20.0
Radio	10	5.0
Television	50	25.0
Internet	27	13.5

### HIV risk perception by the respondents

Table 3 shows the risk perception of the respondents. 30 (15.0%) of them admitted that sex work predisposed them to the risk of being infected with HIV infection. 139 (69.5%) of the FSWs indicated that they were not at risk of being infected by HIV since they used condoms consistently with their clients. 31 (15.5%) respondents were unsure of their susceptibility or otherwise to the risk of HIV infection. None

of the respondents admitted the knowledge of anyone who has been infected with the HIV virus.

**Table 3. Respondents beliefs and perceptions about HIV risk (n=200)**

Variables	Frequency	Percentage (%)
<b>Respondents perception of HIV infection risk</b>		
Yes	30	15.0
No	139	69.5
Not sure	31	15.5
<b>Respondents reasons for perceived risk of HIV infection</b>		
No reason	1	0.5
The nature of the job	29	14.5
<b>Respondents reasons for believing they are not at risk of HIV infection</b>		
I use condom and I am protected	139	69.5
<b>Respondents knowledge of anyone infected with HIV</b>		
Yes	1	0.0
No	200	100

### Respondents knowledge of HIV prevention practices

The respondents' responses on how HIV infection can be prevented were as follows majority 114 (57.0%) said having multiple sex partners should be avoided; 56 (28.0%) subjects indicated avoidance of unprotected sex. 20 (10%) respondents observed that sharp instruments should not be shared; while 10 (5.0%) respondents said transfusion with unscreened blood should be avoided. See Table 4

**Table 4. Respondents knowledge and practice about HIV prevention (n=200)**

Variable	Frequency	Percentage (%)
<b>Respondents knowledge of how to prevent HIV infection</b>		
Avoidance of multiple sex partners	114	57.0
Having protected sex	56	28.0
Non-sharing of sharp objects	20	10.0
Avoidance of unscreened blood	10	5.0
<b>Preventive measures used by respondents with clients</b>		
Use of condom	200	100
<b>Respondents who admitted using condoms consistently with their clients</b>		
Yes	190	95.0
No	10	5.0

**Safer sex measures employed by the respondents adopted to prevent HIV infection:** As shown in Table 4, all 200 (100%) respondents subscribed to the use of condoms as a way of preventing HIV infection, however only 190 (95%) of the BBFSWs were consistent in their use of condom with their clients.

### DISCUSSION

This study was conducted among brothel-based females sex workers (BBFSWs) resident in Calabar metropolis to determine their knowledge about HIV and their practices in relation to HIV prevention.

#### Age of the sex workers

The data showed that 43 (21.5%) of the BBFSWs were aged 15 to 19 years, while majority 75 (37.5%), of them were in the

20 – 24 years' age bracket. This high number of teenagers among the sex workers is in contrast to the findings of the 2014 National Integrated Biological and Behavioural Surveillance Survey (IBBSS) in which the proportion of the brothel-based female sex workers (BBFSWs) aged 15-19 years and 20-24 years were 5%, and 24.5% respectively. (National HIV/AIDS & STIs Control Programme, 2014) According to the 2018, UNAIDS Global HIV Update report, sex workers globally, have a 21% higher risk of acquiring new HIV infection compared to the general population (UNAIDS, 2008). The large proportion of teenage BBFSWs (21.5%) among our respondents is worrisome because FSWs aged 15-19 years are quite young and majority of them specially those who have recently joined the profession may be naïve and inexperienced. These teenagers are vulnerable to coercion, sexual abuse or even physical violence; moreover, they may not be able to negotiate safer sex with their older clients, thereby increasing their risk of HIV infection.

### Marital status of the sex workers

On the marital status of the respondents most (61.5%) of the BBFSWs, were single which is lower than the 87.7% obtained in the 2014 IBBSS survey (National HIV/AIDS & STIs Control Programme, 2014), which may not be a true reflection of the finding that single women constitutes the highest population of females involved in commercial sex work in Nigeria. A study by Abdel *et al.* (2007) in Egypt found that 37.8% of the FSWs were unmarried; 25.6% were divorced while 17.8% of their respondents were currently married. Worldwide people with different marital status are involved in sex work, however generally, single FSWs are predominant in sex work compared to their married or divorced counterparts.

### Educational levels of the sex workers

With regards to the level of education, 86 (43%) of the BBFSWs have attained secondary and tertiary education respectively, while 8.0% had no formal education; in contrast to the finding of the 2014 IBBSS in which 67% of the BBFSWs had obtained secondary education while 6.3% had no formal education (National HIV/AIDS & STIs Control Programme, 2014). The importance of education and the ability to acquire knowledge is an important factor in health literacy and behavior change communication interventions. It would therefore be assumed that those with secondary or tertiary education should be better informed about safer sex and HIV prevention. Research evidence has however shown that although health literacy level was related to one's educational attainment (years of schooling) or one's ability to read (literacy), there was however no perfect linear correlation between educational attainment and health literacy (de Vries McClintock). Behavior change communication interventions in this regard would therefore have to be adaptive and contextualized.

### Respondents knowledge about HIV

Knowledge about HIV among our respondents was 100%, which is corroborates the 99.9% obtained in the National IBBSS survey (National HIV/AIDS & STIs Control Programme, 2014). A high level of knowledge (98%) about HIV transmission was also reported among 400 FSWs in Accra, Ghana (2013); contrastingly, Cai *et al.* (2010) in study among 324 FSWs in Shanghai, China, obtained a total correct

response rate of HIV/AIDS-related knowledge of 60.8%, with the knowledge of FSWs in urban locations significantly higher than those from suburban areas ( $P < 0.05$ ). Although, knowledge does not automatically translate into action, the knowledge about the modes of HIV transmission is important in designing and rolling out HIV prevention programs in any society and particularly among FSWs.

### Respondents sources of information about HIV

Information about HIV was obtained from several sources, however, the two principal sources were the radio (25%) and health workers (20%). Other sources included family members (19%) friends (17.5%) and television (13.5%). The finding is similar to the results obtained in the 2014 IBBSS survey, in which 61.3% of the FSWs obtained information about HIV from health workers, while 54.4% of them obtained their information from the radio. (61.3%) were the major source of information about HIV (National HIV/AIDS & STIs Control Programme, 2014). Xiao *et al.* (2015) in their study among FSWs in China also found that FSWs were exposed to HIV/AIDS prevention messages delivered by radio, street posters, and the internet. The implication is these findings are that the radio is a veritable medium for passing on health information and can be well exploited in the fight to eliminate HIV.

### HIV risk perception by the BBFSWs

About a third 30 (15%) of the BBFSWs said they were vulnerable to HIV infection; with 29 (14.5%) of them asserting that the nature of their work put them at risk. See Table 3. This proportion is lower than the figure recorded in the 2014 IBBSS study (National HIV/AIDS & STIs Control Programme, 2014) in which 32.9% of the BBFSWs reported a perceived risk of contracting HIV. In contrast to our findings and that of the national IBBSS, Jorjoran Shushtari *et al.* (2019) in their study among 170 FSWs in Teheran, Iran, found that 122 (77%) of their studied subjects reported a perception of infection HIV risk.

As shown in Table 3. majority 139 (69.5%) of our respondents felt they were not at risk of HIV infection and were convinced that their use of condom alone was protective against HIV infection. Of our 200 respondents, 190 (95%) of them reported consistent use of condom with their clients. This is contrast to the findings in the IBBSS study in which the BBFSWs reported 83% consistent condom use, mostly with casual sex partner. 10 (5%) of the BBFSWs acknowledged however that they did not use condoms consistently with their clients (National HIV/AIDS & STIs Control Programme, 2014).

### Respondents knowledge of HIV prevention practices

In our study, as shown in Table 4, majority 114 (57%) of our respondents knew that avoidance of sex with multiple sexual partners was protective against HIV infection. 56 (28.0%) of our subjects also acknowledged that avoiding unprotected sex can prevent the contracting of HIV. 20 (10.0%), of our study subjects also indicated that the avoidance of the practice of sharing sharp objects such as manicure and pedicure equipment amongst them can protect against HIV infection. It is equally worth noting that 10 (5.0%) of our respondents pointed out the fact that HIV can also be spread through the transfusion of unscreened HIV infected blood.

## HIV prevention practices among female sex workers

The consistent use of condoms during high risk sex is a proven and accepted strategy for reducing HIV transmission. With respect to their HIV prevention practices, all the 200 respondents in our study were unanimous on the use of condoms as an HIV infection prevention measure. 190 (95%) of our respondents admitted to using condoms consistently with their clients, while the remaining 10 (5%) respondents were inconsistent. This is high compared with result of the 2014 IBBSS survey (National HIV/AIDS & STIs Control Programme, 2014), in which 83% of the BBFWSS reported using condom every time they had sex with casual sex partners in the last 12 months. Andrew *et al.* (2015), in their study in Laos, located in Southeast Asia, found that consistent condom use by the FSWs was 97% with non-regular partners and 60% with regular partners. In the earlier cited study by Jorjoran Shushtari (2019), among FSWs in Teheran, Iran, although about 122 (72%) of the 170 FSWs studied subjects reported high HIV risk perception, majority 120 (70.5%) of them were not consistent in their use of condoms with their clients.

## Sex work and its implications for HIV elimination in Nigeria

**HIV prevalence among sex workers:** Globally, sex workers have a 21% higher risk of acquiring new HIV infection compared to the general population (UNAIDS, 2008). In Nigeria, an estimated 14.4% of sex workers were living with HIV in 2016, which represents a significant drop of about 10% from the 2013 estimated proportion of 24.5% of sex workers that were living with HIV (Joint United Nations Programme on AIDS, 2017). Despite this drop, compared with the general population with HIV prevalence of 1.4%, HIV prevalence among sex workers is about ten times higher (National Agency for the Control of AIDS (NACA), 2015). Moreover, HIV prevalence among female sex workers is 24.5% compared to that of 18.6% among male sex workers (NACA, 2019-2020; National Agency for the Control of AIDS (NACA), 2015). Brothel-based sex workers with a prevalence of 27.4%, face greater HIV risk in Nigeria. Considering the high HIV prevalence among FSWs in Nigeria, efforts to eliminate HIV in Nigeria must of necessity involve the full participation of FSWs.

**New HIV infections:** Three countries in western and central Africa; Cameroon, Côte d'Ivoire and Nigeria, account for close to 60% of new HIV infections and 54% of AIDS-related deaths annually and from 2010 to 2018, new HIV infections among the general population in Nigeria increased by 5% (UNAIDS, 2019). Key population (KP) groups such as FSW, MSM and PWID, constitute an estimated 1% of the adult population in Nigeria (NACA, 2019-2020). Although, this proportion may look small, however considering the large population of Nigeria, 1% of about 100 million adults age 15 -45 years, translates to about 1 million; which represents the population of FSWs, MSM and PWIDs in Nigeria. These key groups contribute a significant share of new HIV infections in Nigeria (Pruddena *et al.*, 2013). FSW, MSM and PWID directly contribute nearly 23% of new HIV infections. About 20% of new HIV infections may be attributed to FSWs, their clients and client partners alone, of which brothel-based FSWs could account for about 15% of the new HIV infections (NACA, 2019-2020). These most-at-risk- population groups and their partners with high risk lifestyles and behaviors are crucial in

stemming the spread of new HIV infection and should therefore be actively engaged in the fight of eliminating HIV and AIDS. Several factors including biological, behavioral, and societal/structural, have been implicated in the higher risk of HIV infection observed among sex workers particularly female sex workers. There is need therefore for a concerted key-group focused approach in stemming the tide of new HIV infections both among the sex workers and in the general population.

## Addressing factors that predispose female sex workers to higher risk of HIV infection:

**Early age of initiation into sex work:** In sub-Saharan Africa, three in four new infections are among girls aged 15–19 years and young women aged 15–24 years are twice as likely to be living with HIV than men (UNAIDS, 2020); moreover, sex workers, particularly females account for a disproportionate amount of HIV transmission (Diallo *et al.*, 1997). Biologically, women are more susceptible to infection than men; this is due to the fact that during penile penetration greater mucus area of the vagina is exposed to HIV (Mahathir *et al.*, 1997) In this regard, the use of microbicides could help to reduce this risk, however these commodities are not readily available in most developing countries, particularly in sub-Saharan Africa. Adolescents, below the age of 17 years are at even greater risk of HIV infection because they have an under-developed cervix and low vaginal mucus production (Mahathir, 1997). In view of the fact that girls below 17 years engage in sex work in Nigeria, these group of FSWs are at a higher risk of HIV infection and could readily increase the pool of new HIV infection. One practical way of addressing the early entry into sex work by female teenagers is to promote girl child education.

**Institutionalized stigma and discrimination of sex work:** Concurrent sexually transmitted diseases (STDs) is known to increase the risk of HIV transmission; however due to the institutionalized stigma and discrimination against sex work, sex workers do not feel free to access the regular public health system when they have sex-related health challenges. The fear of being stigmatized by health workers is a cause for concern because this is the main reason why sex workers with STDs often do not patronize the formal health system where they can be properly assessed and treated. Instead, they are more likely to patronize pharmacy shop or self-medicate. Inappropriate treatment of STDs can result in chronic infections which further increases their likelihood of being infected with HIV and other STDs. The 2014 IBBSS report showed that the most patronized source of treatment for sexually transmitted infections (STIs) by BBFWs in Nigeria were the pharmacy/chemist, 36%; this was followed by the private hospital/clinic, 30%. Only 22% of BBFWs obtained treatment from a public hospital/clinic (NACA, 2014). The de-stigmatization and decriminalization of sex work as well as the expansion of access to sexual health services for sex workers will enable sex workers take advantage of the better health services provided in the for treating STDs and other related services, thereby reducing their vulnerability to HIV infection.

**Addressing gender stereotypes and socio-cultural barriers:** Nigeria is predominantly a paternalistic society, where male dominance is accepted. In some cultures, the girl child is usually discriminated against and is not accorded any social status. They have poor and inequitable access to education and

employment opportunities due to these entrenched culturally-defined gender-biased social and economic inhibitions. The discriminatory and often inhuman treatments meted out against the female gender in most of the paternalistic cultures in Nigeria, is often responsible for pushing these disempowered women into sex work and thereby exposing them to the risk of HIV infection. These issues can however be addressed by improving girl child education, entrenching gender-friendly socio-cultural reforms and eliminating all forms of gender-based violence (Nnamani).

**Promotion of condom social marketing among FSWs:**

Condoms have been proven to be effective in preventing HIV infection. The promotion of condom use has therefore been considered to be the mainstay of the HIV prevention intervention programs in most developing countries, particularly in sub-Saharan Africa. Although, various condom programming initiatives for commercial sex workers have been launched and implemented in Nigeria since 1998 (Oladosu and Ladipo, 2001), the country is yet to achieve 100% total compliance by female sex workers (NACA, 2014). There is need for sustained advocacy to motivate the sex workers to use the condoms consistently for every sexual encounter both with their regular and casual/commercial clients (AVERT, 2018).

**HIV infection prevention models for the elimination of HIV among FSWs:**

There is no single, universal strategy or model for providing prevention interventions to sex workers, their clients and partners (28); however, some models for engaging sex workers in the global HIV elimination drive have been advocated and implemented in various countries with varying degrees of success. The key elements in the intervention packages include: delivery of messages or information on behavior change, adoption of barrier methods such as condom use and the provision of sexual health services (Vuylsteke and Jana). These HIV prevention interventions were often applied as stand-alone strategies as was the case with the condom social marketing and distribution initiative and behavior change communication messaging, which were extensively promoted in the 1990's and early 2000's. The interventions were sometimes delivered as vertical, stand-alone or parallel activities with little or no integration or harmonization. Moreover, the sex-workers were usually not part of the planning and implementation processes. Usually the programme were centrally designed by the Ministry of health in collaboration with NGOs, donor agencies or collaborating partners and handed top-down to the sex workers. The failure of the earlier parallel approaches in delivering the required results gave rise to the combination interventions approach that directly engaged sex-workers in the HIV prevention drive. These approaches involve the engagement of sex workers in the prevention by the adoption of community-based outreach and mobilization strategies, targeted HIV risk reduction for sex workers, their clients and partners through peer health promotion and education, provision of free or affordable condoms, and linkage to sexual health services (Vuylsteke and Jana). It stands to reason that HIV prevention interventions targeted at sex workers should integrate or combine cultural and context-specific biomedical, behavioral, and structural components. The interventions should be tailored to local contexts, and should where feasible be led and coordinated by sex worker communities. The report of a simulated sex-worker targeted intervention model based on the heterosexual HIV epidemic of South African reported suggested that the country's condom promotion and distribution programmes was

successful in achieving a 70% reduction in HIV incidence in both the sex workers and their clients (Bekker *et al.*, 2015). By applying an optimistic model assumptions, the researchers projected that the provision oral pre-exposure prophylaxis alongside the test and treat programs over a 10 year period, could further reduce HIV incidence among sex workers and their clients in South African by up to 40%, and that by combining preventive biomedical approaches with behavioural and structural components within a community-led package, will help to reduce HIV infection in sex workers in different settings worldwide (Bekker *et al.*, 2015). Kerrigan *et al.* (2012). have also opined that in line with the comprehensive HIV prevention intervention model implemented among female sex workers in countries like Brazil, Kenya, Thailand and Ukraine between 2011–2016, the expansion of the community empowerment-based approach could avert up to 10,800 (8–12%) of new HIV infections among sex workers and up to 20,700 (1–4%) among all adults within five years. In a client-focused model adopted by Borquez *et al.* (2011) to study the pattern and effect of condom use by female sex workers and their clients in Mexico, the researchers found that HIV incidence was 15 times lower among the FSW and their clients who used condoms than among FSW who did not. They concluded that the patterns of condom use between sex workers and clients was an important but subtle determinant of epidemic spread, but however advocated for a more in-depth exploration of the clients' condom use negotiation and behavioral patterns to gain better understanding of the dynamics of HIV transmission among the clients of sex workers, and thereby be able to effectively break HIV transmission and reduce the incidence of new HIV infections among the clients of FSWs.

**Addressing structural issues within the Nigerian context:**

Socio-cultural norms and practices that entrench the low social status of women and deprive women of their basic rights to education, sexual and reproductive health services, employment and income are still rife in Nigeria. These norms are contributory factor in the spread of HIV/AIDS among women and girls. Girl child education to a large can reduce sexual debut of girls and substantially reduce the vulnerability of women to HIV infection. Generally, gaps in education, impact on girls, therefore the protective effect of promoting girl child education as part of an overall national HIV prevention programme has been found to yield dividends in countries like Lesotho in southern Africa, resulting in a drop of new infections among women and girls by 41% between 2010-2018 (UNAIDS, 2020). Botswana another southern Africa country, by instituting mandatory secondary education, found that after year 9, an additional year of schooling for girls was associated with a 12% reduction in their risk of acquiring HIV (UNAIDS, 2020). Therefore, borrowing from the models in Lesotho and Botswana, to reduce the entry of young girls in their early teens into sex work, girl-child education in Nigeria at least up to secondary school level, should be made free and mandatory. The global debate on the decriminalizing of sex work is ongoing. Some countries have adopted some liberal policies on sex work; however, most countries including Nigeria consider sex work as illegal and sex workers are discriminated against and stigmatized. To effectively engage female sex workers in reducing the incidence of new HIV infection, it might be imperative to reform some of the obstructive policies and laws that tend to exclude sex workers from being actively engaged in the preventing the spread of HIV (AVERT, 2018). The adoption of new and modern HIV prevention intervention has

also become imperative for Africa. It has been observed that the western and central African region has been slow in adopting the latest World Health Organization (WHO) guidelines and recommendation on the use of pre-exposure prophylaxis (PrEP) as the way forward to prevent new infections among groups at substantial risk of HIV infection, particularly female sex workers (World Health Organization, 2016). There is therefore an urgent need for budgetary allocation of resources by the government to the national HIV control agencies and relevant civil society organizations to accelerate the implementation of this recommendation among sex workers in Nigeria. The national PrEP rollout plan would have to be preceded first with the mapping of the sex workers' networks in the country and their clientele, as well as the identification of areas where compliance with consistent use of condoms by the FSWs has been particularly very poor. The mapping would help in tracking how effective the PrEP rollout program is and to institute corrective measures in tandem with evolving issues where necessary.

### Conclusion and recommendations

This study was conducted among 200 female brothel-based commercial sex workers in Calabar, the Capital city of Cross River State in Nigeria to determine their knowledge, risk perceptions about HIV, and their HIV prevention practices. Results from the collected data showed that majority of them had good knowledge about HIV, and were aware of the occupational health hazards associated with commercial sex work, such as: unwanted pregnancy and sexually transmitted diseases such as HIV/AIDS. Majority of the subjects used condom consistently with their clients, but 5.0% were inconsistent. A greater proportion of BBFSWs commercial sex workers felt that using condom alone guaranteed safety from HIV infection. While this assertion may be true to an extent, there are also empirical risks associated with condom use which should be communicated to them, such as the risk of condom failure resulting from the use of defective condoms, rupture or slipping off of condoms during sexual intercourse (Gabbay and Gibbs, 1996; Bradburn *et al.*, 2017). The possibility of condom failure therefore brings to the fore the need for back-up strategies for HIV prevention such as the use of PrEP or PEP. These modern interventions may ultimately be the main-stay for eliminating new HIV infections among sex workers and their clients in Nigeria. There is need for some policy reform measures to improve access of FSWs to both HIV preventive and treatment services. Moreover, FSWs should be part of the planning and implementation of HIV prevention services to them ensure ownership and meaningful participation. All these proposed initiatives would however require political will and governmental funding backing for their actualization.

**Limitations of the study:** This is a cross-sectional study, our findings and recommendations are therefore based on the assumption that our respondents were sincere in their responses.

**What is already known about the subject:** The adequate perception of FSWs about the risks associated with sex work, particularly their possibility of contracting HIV through unprotected sex.

**What this study adds:** Highlighting the erroneous belief and presumption that the use of condoms alone is fail-proof that

guarantees safety from HIV infection. That FSWs in Nigeria in addition to using condoms consistently with their clients should also have access to information and services on the use of pre-exposure and post exposure prophylaxis, in events of condom breakage or slip-offs during sex with clients.

**Contribution by authors:** Both authors contributed to the conceptualization of the topic, data collection, data cleaning and analysis, as well as the write up and discussion.

**Funding support:** None

**Conflict of interest:** None declared

### REFERENCES

- Abdel Maksoud N., El Safty A., Salem M. Demographic and social characteristics of female sex workers in Egypt. *Egyptian Journal of Occupational Medicine*, 2007; 31 (2): 209 – 216
- Amenundzi-Darku E., Condom Use Among Female Sex Workers in the Greater Accra Region MPH Dissertation, 2013' Retrieved from: URI: <http://197.255.68.203/handle/123456789/5274>
- Andrews CH., Faxelid E., Sychaerun V. & Phrasisombath K., Determinants of consistent condom use among female sex workers in Savannakhet, Lao PDR. *BMC Women's Health* volume 15, Article number: 63 (2015)
- AVERT: HIV and AIDS in Nigeria, 25 May 2018, Retrieved from: <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/nigeria>
- Bekker L-G., Johnson L., Cowan F., Overs C., Besada D., Hillier S., Cates W. Jr, HIV and sex workers 2 Combination HIV prevention for female sex workers: what is the evidence? *Lancet* 2015; 385: 72–87. Retrieved from: <https://www.thelancet.com/action/showPdf?pii=S0140-6736%2814%2960974-0>
- Bluman, A. G. (2004). *Elementary Statistics; A step by step Approach*, McGraw Hill Publications, New York, Fifth Edition, 811pp
- Borquez A., Hallett TB, Gomez GB., Garnett GP.. Condom use by female sex workers and their clients in Mexico: who decides and does it matter? *Sex Transm Infect.*, 2011; 87:254e256. doi:10.1136/sti.2010.048736
- Bradburn CK, Wanje G, Pfeiffer J, Jaoko W, Kurth AE, McClelland RS. Risky Business: condom failures as experienced by female sex workers in Mombasa, Kenya. *Cult Health Sex*, 2017;19(3):395-404. doi:10.1080/13691058.2016.1217565
- Cai Y., Shi R., Shen T., Pei B., Jiang X., Ye X., Xu G., Li S., Huang H., and ShangM; Research article A study of HIV/AIDS related knowledge, attitude and behaviors among female sex workers in Shanghai China. *BMC Public Health*, 2010, 10:377, pp 1-7 <http://www.biomedcentral.com/1471-2458/10/377>
- Chapter, Reducing HIV Risk in Sex Workers, Their Clients and Partners. pp 187-210. Retrieved from: [https://www.who.int/hiv/topics/vct/sw\\_toolkit/reducing\\_hiv\\_risk\\_sex\\_workers.pdf](https://www.who.int/hiv/topics/vct/sw_toolkit/reducing_hiv_risk_sex_workers.pdf)
- Davey C., Dirawo J., Mushat P., Magutshwa S., Hargreaves JR., Cowan FM. Mobility and sex work: why, where, when? A typology of female-sex-worker mobility in Zimbabwe. *Social Science and Medicine*, Volume 220, January 2019, Pages 322-330

- De Vries McClintock HF. Health Literacy: Is Educational Attainment Enough? Retrieved from: [https://aphaih.org/201708/01Health\\_Literacy:\\_Is\\_Educational\\_Attainment\\_Enough?\\_IH\\_CONNECT\(aphaih.org\)](https://aphaih.org/201708/01Health_Literacy:_Is_Educational_Attainment_Enough?_IH_CONNECT(aphaih.org))
- Diallo MO, Ghys PD, Ettiègne-Traoré V, et al. Trends in socio-demographic and behavioral characteristics, sexually transmitted diseases and HIV infections among female sex workers in Abidjan, 1992-1997. Xth International Conference on AIDS and STD in Africa. Abidjan, Côte d'Ivoire, 7-11 December 1997. Abstract B 201. \*Retrieved from: [https://horizon.documentation.ird.fr/exl-doc/pleins\\_textes/divers18-06/010072948.pdf](https://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers18-06/010072948.pdf)
- CDC. The Global HIV/AIDS Epidemic. <https://www.hiv.gov/federal-response/pepfar-global-aids/global-hivaids-overview>
- Gabbay M, Gibbs A. Does additional lubrication reduce condom failure? *Contraception*. 1996 Mar;53(3):155-8. doi: 10.1016/0010-7824(96)00001-7. PMID: 8689879
- Joint United Nations Programme on AIDS (UNAIDS): Data 2017, Retrieved from: [https://www.unaids.org/sites/default/files/media\\_asset/20170720\\_Data\\_book\\_2017\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/20170720_Data_book_2017_en.pdf)
- Joint United Nations Programme on AIDS (UNAIDS): Data 2019, Retrieved from: <https://www.aidsdatahub.org/resource/unaids-data-2019>
- Joint United Nations Programme on AIDS (UNAIDS): Global AIDS Update 2018; Retrieved from: UNAIDS: Global AIDS Update 2018 | MSF SAMU ([samumsf.org](http://samumsf.org))
- Joint United Nations Programme on AIDS (UNAIDS): Report 2020, Seizing the Moment. Retrieved from: <https://aids2020.unaids.org/report/>
- Jorjoran Shushtari Z, Hosseini SA, Sajjadi H, Salimi Y, Shahesmaeili A, Snijders TAB. HIV risk perception and sexual behaviors among female sex workers in Tehran, Iran. *Med J Islam Repub Iran*. 2019 Sep 25;33:101. doi: 10.34171/mjiri.33.101. PMID: 31934561; PMCID: PMC6946931.
- Kerrigan D., Wirtz A., Baral S., Decker M., Murray L., Poteat T., Pretorius C., Sherman S., Sweat M., Semini I., N'Jie N., Stanciole A., Butler J, Osornprasop S, Oelrichs R., Beyrer C.. HIV Prevention Interventions for Sex Workers: Modeling the Impacts. 2012. Retrieved from: [https://elibrary.worldbank.org/doi/pdf/10.1596/9780821397749\\_CH04](https://elibrary.worldbank.org/doi/pdf/10.1596/9780821397749_CH04).
- Longo JDD, Simaleko MM, Diemer HS-C, Gre'senguët G, Bru'cker G, Belec L (2017) Risk factors for HIV infection among female sex workers in Bangui, Central African Republic. *PLoS ONE* 12(11): e0187654. <https://doi.org/10.1371/journal.pone.0187654> Editor:
- Mahathir M. Women at greater risk of HIV infection. *Arrows Change*. 1997 Apr;3(1):1-2. PMID: 12292992
- NACA, Revised National HIV and AIDS Strategic Framework, 2019-2021. Retrieved from: <https://naca.gov.ng/revised-national-hiv-and-aids-strategic-framework-2019-2021/>
- Manopaiboon C, Prybylski D, Subhachaturas W, Tanpradech S, Suksripanich O, Siangphoe U, Johnston LG, Akarasewi P, Anand A, Fox KK, Whitehead SJ. Unexpectedly high HIV prevalence among female sex workers in Bangkok, Thailand in a respondent-driven sampling survey. *Int J STD AIDS*. 2013 Jan;24(1):34-8. doi: 10.1177/0956462412472300. Epub 2013 May 6. PMID: 23512512; PMCID: PMC4935540
- National Agency for the Control of AIDS (NACA), Global AIDS Response Country Progress Report, 2015. Retrieved from: [https://naca.gov.ng/wp-content/uploads/2016/11/Nigeria\\_GARPR\\_2015\\_Report\\_0.pdf](https://naca.gov.ng/wp-content/uploads/2016/11/Nigeria_GARPR_2015_Report_0.pdf)
- National HIV/AIDS & STIs Control Programme (NACA), Federal Ministry of Health (FMOH), Nigeria National Integrated Biological and Behavioural Surveillance Survey (IBSS), 2014. Retrieved from: <https://naca.gov.ng/wp-content/uploads/2016/11/Final-Nigeria-IBSS-2014-report.pdf>
- Nigeria HIV/AIDS Indicator and Impact Survey, March 2019. Retrieved from: <https://naca.gov.ng/wp-content/uploads/2019/03/NAIIS-PA-NATIONAL-FACTSHEET-FINAL.pdf>
- Nnamani A. Gender based violence in Nigeria: why are women still suffering? Retrieved from: <https://www.legit.ng/1116666-gender-based-violence-nigeria-women-suffering.html>
- Oladosu, M. and Ladipo, A. O. (2001) Consistent Condom Use among Sex Workers in Nigeria. Research Division Population Services International, Working Paper No. 39. Retrieved from: <http://eprints.covenantuniversity.edu.ng/7927/1/WP39.pdf>
- Pruddena HJ., Wattsa CH., Vickermana P., Bobrovaa N., Heisea L., Ogungbemib MK., Momahc A., Blanchardc JF. and Fossa AM., Can the UNAI#DS Modes of Transmission model be improved? *AIDS* 2013, 27:2623–2635. Retrieved from: [https://journals.lww.com/.../Can\\_the\\_UNAIDS\\_modes\\_of\\_transmission\\_model\\_be.14.a.s](https://journals.lww.com/.../Can_the_UNAIDS_modes_of_transmission_model_be.14.a.s)
- Vuylsteke B., Jana S., HIV / AIDS Prevention and Care in Resource-Constrained Settings
- Wang, H., Chen, R.Y., Sharp, G.B., Brown K., Smith K., Ding D., Jin X., Xu J., Deng R., and Wang N. Mobility, risk behavior and HIV/STI rates among female sex workers in Kaiyuan City, Yunnan Province, China. *BMC Infect Dis* 10, 198 (2010). <https://doi.org/10.1186/1471-2334-10-198>,
- World Health Organization: Global AIDS Update, 2016. Retrieved from: [https://www.who.int/hiv/pub/arv/global-AIDS-update-2016\\_en.pdf?ua=1](https://www.who.int/hiv/pub/arv/global-AIDS-update-2016_en.pdf?ua=1)
- Xiao Z., Li X., Lin D. & Tam CC. (2015) Mass Media and HIV/AIDS Prevention Among Female Sex Workers in Beijing, China, *Journal of Health Communication*, 20:9, 1095-1106, DOI: 10.1080/10810730.2015.1018575

\*\*\*\*\*