

Risk factors of HIV/AIDS among Women who have sex with Women in Akwa-Ibom State, Nigeria

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Abstract—

Background: Human immunodeficiency syndrome is a stretch of conditions caused by infection with the human immunodeficiency virus.

Objectives: The study assessed the risk factors of HIV/AIDS among women who have sex with women in Akwa-Ibom State, Nigeria.

Methods: This study was a cross sectional study of Four hundred women who have sex with women selected from three cities in Akwa-Ibom State. Statistical package for service solution version 23 was used to analyze the data. Descriptive statistics, Relative risk and Binary logistic regression were used to compare proportions between risk factors and HIV/AIDS among the women.

Results: About 51.5% of the respondents preferred more of women than men as their sex partners. One third (38.3%) of the respondents said they got initiated into lesbianism between the ages of 16-20 years. A quarter (46.0%) of the respondents said their mode of initiation into lesbianism was through peer pressure. More than half of the respondents had sex with women and men to get something in return. More than half (63.5%) of the respondents said they have had more than two sex partners in the last 3 and 12 months. Some (18.0%) said they have been forced to have sex with men and women. This study also revealed that 48.0% of the respondents occasionally used protections during sex. More than half of the respondents tested negative for HIV, while 17.8% tested positive for HIV. There was significant association between risk factors and HIV in the respondents studied.

Conclusion: The study observed unsafe sex practices among the women.

Keywords — HIV/AIDS; Risk factors; Women who have sex with Women; Akwa-Ibom State; Nigeria.

1. Introduction

Human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS) is a stretch of conditions caused by infection with the human immunodeficiency virus (HIV) (Krämer *et al.*, 2010). HIV/AIDS is considered a pandemic—a disease outbreak which is present over a large area and is actively spreading. Of all people living with HIV globally, 9% of them live in Nigeria. Nigeria has the second largest HIV epidemic in the World. UNAIDS estimates that around two-thirds of new HIV infections in West and Central Africa in 2018 occur in Nigeria. Akwa-Ibom, State in Nigeria account for the highest prevalence of HIV which stands at 5.5% (USAID/FMOH/NACA, 2019). Many people living with HIV in Nigeria are unaware of their status. Notwithstanding the progress in institutional reforms and political commitment to tackle the disease, the country has seen more citizens placed on life saving medication of active antiretroviral therapy (AART) to increase the survival of such HIV seropositive individuals (Nigeria National Agency for the Control of AIDS, 2012). The HIV prevalence in Nigeria is complex and varies widely by

region. In some States, the epidemic is more concentrated and driven by high-risk behaviors, while other states have more generalized epidemics that are sustained primarily by multiple sexual partnerships in the general population. As of 2019 in Nigeria, the HIV prevalence rate among adults ages 15–49 was 1.4 percent. Youth and young adults in Nigeria are particularly vulnerable to HIV, with young women at higher risk than young men (USAID/FMOH/NACA, 2019). There are many risk factors that contribute to the spread of HIV, including prostitution, high-risk practices among itinerant workers, high prevalence of sexually transmitted infections (STI), clandestine high-risk heterosexual and homosexual practices, international trafficking of women, and irregular blood screening (USAID/FMOH/NACA, 2019). HIV is spread primarily by unprotected sex (including anal and oral sex), contaminated blood transfusions, hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding. Some bodily fluids, such as saliva and tears, do not transmit HIV. (USAID/FMOH/NACA, 2019). There is no cure or vaccine; however, antiretroviral treatment can slow the course of the disease and may lead to a near-normal life expectancy (USAID/FMOH/NACA, 2019). A lesbian is a

homosexual woman, or women who have sexual desire and relationships with other women (Brittain *et al.*, 2003). Portrayals of lesbians in the media suggest that society at large has been simultaneously intrigued and threatened by women who challenge feminine gender roles, as well as fascinated and appalled with women who are romantically involved with other women. The vulnerability of women who have sex with women (WSW) to HIV infection is a complicated public health issue that is perplexing to some and ignored by many. While WSW are at relatively low risk of HIV infection, lesbian sex is not risk free (CDC, 2006). Confirmed cases of female-to-female transmission of HIV via sexual contact are rare. However, possible modes of female-to-female transmission during sex include exposure to vaginal or other body fluids, blood from menstruation, or blood from damage sustained during rougher sex. High sexual risk-taking behavior, including sex without condoms or other barrier methods such as dental dams, finger condoms, and gloves, has also been reported among Lesbians (Baral *et al.*, 2007). Women who have sex with women face a unique, yet under-researched set of HIV/AIDS-related risks in Sub-Saharan Africa. Research on female-to-female transmission of HIV has been virtually absent and continues to constitute a gap in the scientific literature on HIV transmission. The objective of this research is not to argue that WSW are at the same risk as their heterosexual counterparts, but to acknowledge that there is significant risk of HIV for lesbians. Hence this study aims to assess the risk factors of HIV/AIDS among women who have sex with women in Akwa-Ibom State.

2. Materials and methods

2.1 Study Design

This study was across sectional study carried out in Akwa-Ibom State.

2.2 Population of the Study

The study comprised of only women who have sex with women in Akwa-Ibom State. Eligibility criteria for study participation included being biologically female and 18 years or older, who identified as lesbian having had sex with a woman in the preceding year, and currently living in Akwa-Ibom State.

2.3 Study Area

The study was carried out in Akwa-Ibom State. It is located in the South-South geopolitical zone, lying between Latitudes 4° 32N and 5° 33North and Longitudes 7°25E and 8° 25 East. The State covers a total land area of 7,081kilometer square. It is currently the highest oil and gas producing State in the country. TheState capital is Uyo, with over 500,000 inhabitants. Akwa-Ibomhas an airport

and two major seaports. Akwa-Ibom State consists of thirty-one local government areas and 13 major cities. The main spoken languages are English, Ibibio, Annang, Eket and Oron. The people of Akwa-Ibom thrives in fishing, Oil and Gas business, crafts, sales of goods and services, palm oil production and fishing farming.

3. Sample Size Calculation

The sample size was determined using the formula for calculating sample size for an unknown population.

$$\text{Sample size (n)} = \frac{Z^2 \times Pq}{d^2}$$

n = sample size

Z² = confidence interval (95%)= 1.96

P = proportion of the population having the characteristics(unknown use 0.5)

d = degree of accuracy desired (5%)= 0.05

q = estimate of the true proportion of factor of interest in the population (1-P)

$$n = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.05^2}$$

$$n = \frac{3.8416 \times 0.25}{0.0025} = \frac{0.9604}{0.0025} = 384.16$$

$$n = 384.16 \sim 400$$

The sample size was rounded up to 400women to make room for drop outs.

4. Sampling Procedure

There are 15 cities in Akwa-Ibom State out of which 3 cities were selected for the study using simple random sampling. The cities selected were Uyo, Eket and Ikot Ekpene. A total of 400 Women were recruited for the study; One hundred and fifty were selected from Uyo, one hundred and twenty five each were selected from Eket and Ikot Ekpene. The women were selected using simple random sampling. First, Lesbian associations, community, groups and hotspots were identified through interviews with knowledgeable community informants and through focus group discussion conducted with lesbians and bisexual women. The venues of the lesbian-based associations in Akwa-Ibom State were visited during their meetings to determine the number of women who frequent. Potential participants were furthermore recruited by text messages, cell-phone and email. Additional participants were recruited through referral. Women were surveyed from different locations including street corners, bars, cafes, and Lesbian community-organized social events that were attended by lesbians and bisexual women. Simple random sampling was used to select the respondents.

5. Informed Consent and Ethical Clearance

Prior to the survey, a preliminary visit was paid to the gate keepers and head of the Lesbian community and associations in Akwa-Ibom State to solicit for their consent and support. Ethical approval was obtained from the State ministry of health. The participants were briefed on the objectives of the study, and their consent was obtained before the commencement of the study.

6. Data Collection

Data was collected using a validated structured questionnaire. Information on socio-economic, demographic characteristics, medical and HIV testing history of the participants was obtained using self-administered questionnaires with the help of the research assistance. The frequency of injection drug use, sexual behaviors, and condom/latex use with male and female partners and other risk factors of HIV/AIDS among the lesbians were solicited. A face-to-face interview and pre-test counselling was carried out on the respondents.

7. Blood Collection and HIV Testing

Blood was drawn by venepuncture, and prevention counseling also took place by the trained research assistants in the sampling venue. HIV Results, post-test counseling and referral was subsequently provided. HIV-1 and HIV-2 antibody testing was performed by enzyme immunoassay, with confirmation of positive test results by indirect immunofluorescent assay and Western blot.

8. Data Analysis

Statistical package for service solution (SPSS version 23) was used to analyze the data. Descriptive statistics (frequency and percentage) was used to obtain information on the socio-economic characteristics, mean and risk the factors of HIV/AIDS among women who have sex with women in Akwa-Ibom State, Nigeria. Cross tabulation was used to compare proportions between the exposure and the outcome. Pearson correlation was used to find association between the exposure and outcome; significant was established at $p < 0.05$. Relative risk and binary regression logistic was used to check the relationship between risk factors/behaviors and HIV/AIDS among the respondents.

9. Results

Table 1 shows the socio-economic characteristics of the respondents. About 32.0% of the respondents were between the age ranges of 26 – 30 years, 28.5% were within 21 – 25 years, 17.3% were within 31 – 35 years, while few (5.5%) were above 41 years. A quarter (44%) of the respondents had university education, 23.0% had

polytechnic education, and 20.5% had secondary education. While 1.0% had primary education, a few of them (4.8%) had no formal education. About 44.0% of the women were into business/trading, 21.0% were students, 20.3% were civil servants and 13.5% were unemployed. The table also showed that 32.3% of the respondents monthly income were less than ₦30,000, 33.5% received between ₦30,000-₦60,000 per month, (21.3%) received between ₦61,000-₦90,000 per month. Only a few (13.0%) received between ₦91,000 and above per month. About half (50.3%) of the respondents said they did not depend on their monthly income, while 43.8% said they depended on their monthly income. Majority (65.8%) of the respondents were single, 9.0% were currently married, 7.5% were cohabiting and 8.8% were divorced. The table also showed that more than half (61.8%) of the respondents had no children, 19.0% had only one child, 10.0% had two children, 5.8% had three children, while few (1.3%) had four children.

Table 1: Socio-Economic Characteristics of Respondents

Variable	Frequency (N=400)	Percentage (%)
Age group (years)		
17-20	35	8.8
21-25	114	28.5
26-30	128	32.0
31-35	69	17.3
36-40	32	8.0
Above 41years	22	5.5
Educational status		
No formal education	19	4.8
Primary	8	2.0
Secondary	106	20.5
University	177	44.3
Polytechnic	87	21.8
Others	3	8
Occupation		
Trader/Business	175	44.0
Civil servants	81	20.3
Student	84	21.0
Not employed	52	13.0
Others	8	2.0
Monthly income		
Less than ₦30,000	129	32.3
₦30,000-₦60,000	134	33.5
₦61000-₦90000	85	21.3
₦91000 and above	52	13.0
Dependent on income		
Yes	175	43.8
No	225	50.3
Marital status		
Currently married	36	9.0
Divorce/Once married	70	17.6
Single	63	65.8
Cohabiting	30	7.5
Others	1	3
No of Children		
0	247	61.8
1	76	19.0
2	40	10.0
3	23	5.8
4	5	1.3
Others	9	2.3

Table 2 shows the sexual history and orientation of the respondents studied. Half (51.5%) of the respondents said they preferred more of women than men as their sex partners, 20% said they preferred only women as their sex partners, 10.8% said they preferred more of men than women as their sex partners. About 70% said they preferred women and men equally. More than half of the respondents said they sexually identified as lesbians, 37.5% said they identified as bisexual, 0.5% identified as straight, while only 1.0% identified as heterosexual. About 12.3% of the respondents perceived themselves as masculine, 61.3% perceived themselves as feminine, while 24.3% said they have no perception of themselves. One third (38.3%) of the respondents said they got initiated into lesbianism between the ages of 16-20 years, 19.5% said they started lesbianism between 21-25 years, 18.3% said between 11-15 years, 10.3% said between 6-10 years, while 7.8% said less than 6 years. A quarter (46.0%) of the respondents said their mode of initiation into lesbianism was through peer pressure, 27.8% said it was biological/natural, while 8.3% said they were raped. More than half (69.5%) of the respondents said the age difference between them and their partner was between 1-5 years, 23.3% said the age difference between them was 6-10 years, while 2.3% said between 11-15 years and 2.3% said above 21 years.

Table 2: Sexual History and Orientation of Respondents

Variable	Frequency (N=400)	Percentage (%)
Sex partner preference		
Only women	80	20.0
More of women than to men	206	51.5
To women and men equality	71	17.8
More to men than to women	43	10.8
Sexual identification		
Lesbian	244	61.0
Bisexual	150	37.5
Heterosexual	4	1.0
Straight	2	0.5
Perception of self		
Masculine	49	12.3
Feminine	245	61.3
None	97	24.3
Other	9	2.3
Age of initiation		
Less than 6yrs	31	7.8
6-10 yrs	41	10.3
11-15yrs	73	18.3
16-20yrs	153	38.3
21-25yrs	78	19.5
26-30yrs	18	4.5
Above 31	6	1.5
Mode of initiation		
Forced	58	14.5
Biological /natural	111	27.8
Peer pressure	184	46.0
Raped	33	8.3
Threatened/blackmailed	10	2.5
Others	4	1.0
Age btw sex partner		
1-5yrs	278	69.5

6-10yrs	94	23.5
11-15yrs	9	2.3
16-20yrs	10	2.5
above 21yrs	9	2.3

Table 3 shows the sexual behaviour of respondents the respondents. Majority (56.0%) of the respondents had sex with women to get something in return while 44.0% did not have sex with women in order to get something in return. The respondent's reasons for having sex with women were because of money (40.5%), surrendering to an authority (2%), and 2% said for drugs. Most (78.0%) of the respondents had sex with men to get something in return while 22.0% did not have sex with men to get something in return. The respondent's reasons for having sex with men were because of money (69.5%), food (3%), and 2.5% said for a place to sleep. About 54.5% of the respondents said they had sex with women for emotional needs, while 45.5% said they did not have sex with women for emotional needs. About 34.05% of the respondents said they had sex with men for emotional needs, while 66.0% said they did not have sex with men for emotional needs. About 13.0% of the respondents said they had sex often, 28.9% said they had sex occasionally, and 18.0% said they rarely had sex.

Table 3: Sexual behaviour of respondents

Variables	Frequency(N=400)	Percentage (%)
Reward for sex with		
women	224	56.0
Yes	176	44.0
No		
If yes why		
Food	13	3.3
A place to sleep	18	4.5
Money	162	40.5
Drugs	8	2.0
Surrender to an authority	20	5.0
Others	3	0.8
Reward for sex with		
men	312	78.0
Yes	88	22.0
No		
If yes why		
Food	12	3.0
A place to sleep	10	2.5
Money	278	69.5
Drugs	5	1.3
Surrender to an authority	7	1.8
Sex for emotion with		
women	218	54.5
Yes	182	45.5
No		
Sex for emotion with		
men	136	34.0
Yes	264	66.0
No		

Frequency of sex		
Every time	52	13.0
Never	158	39.5
Occasionally	115	28.8
Rarely	72	18.0
Other	3	0.8

Table 4 shows the risk factors/behaviours of respondents. One third (33.5%) respondents said they have had two female partners in the last 3 and 12 months, 30.0 % of the respondents said they have had three female partners in the last 3 and 12 months. About 18% said they have had one female partner in the last 3 and 12 months. However, few (2%) of the respondents said they have not had female partner in the last 3 and 12 months. Furthermore, the study showed that majority (31.3%) of the respondents had one male partner in the last 3 and 12 months, 19.8% had two male partners, and 17.8% had three male partners in the last 3 and 12 months. However 24.0% said they have not had male partners partner in the last 3 and 12 months. Furthermore, most (82.3%) respondents said they have never been forced to have sex with a man while some (17.8%) said they have been forced to have sex with men. About 82.0% of the respondents said they have never been forced to have sex with a woman while some (18.0%) said they have been forced to have sex with women. This study also revealed that one quarter (48.0%) of the respondents occasionally used protection like condom during vaginal sex, 21.5% said they used protection every time they had vaginal sex, while 13.5% said they never used protection. One third (35.8%) of the respondents occasionally used protection during oral sex, 27.0% said they used protection every time they had oral sex, while 27.8% said they never used protection. About 55.8% of the respondents use sex toys, while less than half 44.3% did not make use of sex toys. More so, 28.5% of those who used sex toys said they occasionally shared it, 14.0% said they never shared their sex toys, while 8.5% said they shared their sex toys every time. This study also show that 32.0% of respondents have anal sex, while more than half (68.0%) did not have anal sex. 15.3% of those who had anal sex said they occasionally had unprotected anal sex, 80.0% said they never had unprotected anal. However, few (5.3%) engaged in unprotected anal sex every time. The study also shows that a quarter (47.5.8%) of the respondents engaged in a group sex, while 52.5% said they did not have a group sex. Furthermore, 25.3% of those who engaged in group sex said they occasionally had unprotected group sex, 8.5% said they never engaged in unprotected group sex, while 5.8% said they had unprotected group sex every time.

Table 4: Risk factors/Behaviours of respondents

Variable	Frequency (N=400)	Percentage(%)
No. of female partner		
None	8	2.0

One	72	18.0
Two	134	33.5
Three	120	30.0
Others	66	16.5
No. of male partner		
None	96	24.0
One	125	31.3
Two	79	19.8
Three	71	17.8
Other	29	7.3
Forced sex by men		
Yes	71	17.8
No	329	82.3
Forced sex by women		
Yes	72	18.0
No	328	82.0
Protection during vaginal sex		
Everyday	86	21.5
Never	54	13.5
Occasionally	192	48.0
Rarely	68	17.0
Protection during oral sex		
Every time	108	27.0
Never	111	27.8
Occasionally	143	35.8
Rarely	37	9.3
Others	1	0.3
Use of Sex toys		
Yes	233	55.8
No	177	44.3
Share sex toys		
Every time	34	8.5
Never	56	14.0
Occasionally	114	28.5
Rarely	19	4.8
Have anal sex		
Yes	128	32.0
No	272	68.0
If yes why		
Every time	21	5.3
Never	32	8.0
Occasionally	61	15.3
Rarely	14	3.5
Have group sex		
Yes	190	47.5
No	210	52.5
Unprotected group sex		
Every time	23	5.8
Never	34	8.5
Occasionally	101	25.3
Rarely	32	8.0

Table 5 shows drugs and alcohol use by the respondents. About half (58.0%) of the respondents did not use any drugs, (16.8%) used Marijuana, (11.0%) used tramadol, (7.8%) used cocaine (4.0%), only a few (1.8%) used heroin. About 38.3% of those who used the drugs did so without prescription, while (3.8%) used them on prescription. About 17.3% of those who took drugs took them 2-3 times weekly, 5.8% took them 4-6 times weekly, and 14.3% took them occasionally, while very few (2.5%) took them every day. The table also shows that 58.0% of the respondents did not use IV drugs, 30.0% never shared needles, (5.0%) shared needles every time, while 4.8%

shared IV needles occasionally. About 29.3% of the respondents preferred beer as their alcohol, 21.8% used liquors and spirits, 20.3% used wines, and 11.8% used *ogogoro*/local spirit, while 10.0% did not take alcohol. Of the respondents who drink alcohol, 34.8% drank 2-3 times a week, 26.5% drank alcohol occasionally, and 15.5% drank alcohol 4-6 times in a week, while 6.5% drank alcohol every day.

Table 5: Drugs and alcohol use of respondent

Variable	Frequency (N=400)	Percentage (%)
Types of drugs used		
None	232	58.0
Cocaine	31	7.8
Marijuana	67	16.8
Heroin	7	1.8
Codeine	16	4.0
Tramadol	44	11.0
Others	3	0.8
Prescribed drugs		
Yes	15	3.8
No	153	38.3
Frequency of drug use		
Every day	10	2.5
2-3times a week	69	17.3
4-6times a week	23	5.8
Occasionally	57	14.3
Rarely	8	2.0
Others	1	0.3
Use Shared needles		
I don't use IV drugs	232	58.0
Never	120	30.0
Every time	20	5.0
Occasionally	19	4.8
Rarely	8	2.0
Others	1	0.3
Types of alcohol used		
None	40	10.0
Beers	117	29.3
Wines	81	20.3
Liquors and spirit	87	21.8
Distilled beverages	23	5.8
Ogogoro/local spirit	47	11.8
Others	5	1.3
Frequency of alcohol use		
Everyday	26	6.5
2-3times in a week	139	34.8
4-6times a week	62	15.5
Occasionally	106	26.5
Rarely	21	5.3
Others	6	1.5

Table 6 shows the respondents perception on HIV /AIDS. Majority (59.0%) of the respondents think being a lesbian keeps them safe from HIV/AIDS, while the 41.0% thinks being a lesbian does not keeps them safe from HIV/AIDS. Furthermore, majority (64.3%) of the said they have tested for HIV in the last three months, while, 35.8% said they have not tested for HIV in the last three months. Those who were not tested identified reasons for not getting tested as fear for the result (14.3%), they are not at

risk of HIV (12.3%), fear of stigmatization (6.3%), only a few (2.5%) of the respondents said they always used protection (2.5%).

Table 6: Respondents perception on HIV /AIDS

Variable	Frequency (N=400)	Percentage (%)
Being a lesbian keeps them safe from HIV/AIDS	236	59.0
Yes	164	41.0
No		
Tested for HIV		
Yes	257	64.3
No	143	35.8
If no why		
I don't think I am at risk	49	12.3
Fear of finding out results	57	14.3
Fear of finding out results	25	6.3
Fear of stigmatization and discrimination	2	0.5
Money cost	7	1.8
I always use protection	3	0.8

Table 7 shows the prevalence of HIV among the respondents. More than half (82.3%) of the respondents tested negative for HIV, while 17.8% tested positive for HIV.

Table 7: HIV status of respondents

Variables	Frequency (N=400)	Percentage (%)
HIV Positive	71	17.8
HIV Negative	329	82.3

Table 8a shows the relationship between risk factors and HIV /AIDS among the respondents. About 21.9% of respondents with one male partner tested positive for HIV, while 16.4% of respondents with more than one male partner tested positive for HIV. The risk analysis show that $RR > 1$ [$RR = 1.330$ (95% CI= 0.844-2.096)]. About 12.5% of respondents with one female partner tested positive for HIV, while 17.9% of respondents with more than one female partner tested positive for HIV. The risk analysis show that $RR < 1$ [$RR = 0.700$ (95% CI= 0.111-4.432)].

About 16.1% of respondents who accepted reward for sex with women tested positive for HIV, while 19.9% who did not accept reward for sex with women tested positive for HIV. The risk analysis show that $RR < 1$ [$RR = 0.808$ (95% CI= 0.530-1.232)]. About 18.3% of respondents who accepted reward for sex with men tested positive for HIV, while 15.9% who did not accept reward for sex with men tested positive for HIV. The risk analysis show that relative

risk is greater than 1[RR= 1.148 (95% CI= 0.673-1.960)]. About 19.7% of respondents who had sex for emotions with women tested positive for HIV, while 15.4% who did not have sex for emotions with women tested positive for HIV. The risk analysis show the relative risk is greater than 1[RR= 1.282 (95% CI= 0.831-1.978)]. About 19.9% of respondents who had sex for emotions with men tested positive for HIV, while 16.7% who did not have sex for emotions with men tested positive for HIV. The risk analysis show $RR > 1$ [RR= 1.191 (95% CI= 0.773-1.835)]. There was a significant association ($p < 0.05$) between risk factors (number of partners, reward for sex with men, sex for emotions) and HIV/AIDS.

Table 8a: Relationship between risk factors and HIV /AIDS

Variable	Number Examined		Positive HIV1&2		Negative HIV1&2	
	No	%	No	%	p-value	No %
Number of male partners						
One	96	100	21	21.9	75	78.1
More than one	304	100	50	16.4	245	83.6
Total	400	100	71	17.8	329	82.2
RR= 1.330, CI: 0.844-2.096						
Number of female partners						
One	8	100	1	12.5	7	85.5
More than one	392	100	70	17.9	322	82.1
Total	400	100	71	17.8	329	82.2
RR=0.700, CI: 0.111-4.432						
Reward for sex with women						
Yes	224	100	36	19.9	188	83.9
No	176	100	16.1	71	141	80.1
Total	400	100	35	17.8	329	82.2
RR= 0.808, CI: 0.530-1.232						
Reward for sex with men						
Yes	312	100	57	15.9	255	81.7
No	100	400	18.3	71	74	84.1
Total	88	100	14	17.8	329	82.2
RR= 1.148, CI: 0.673-1.960						
Sex for emotion with women						
Yes	218	100	43	15.4	175	80.3
No	100	400	19.7	71	154	84.6
Total	182	100	28	17.8	329	40.0

RR= 1.282, CI: 0.831-1.978

Sex for emotion with men

Yes	136	100	27	16.7	109	80.1
No	264	100	19.9	71	220	83.3
Total	400	100	44	17.8	329	82.2

RR= 1.191, CI: 0.773-1.835

Table 9 shows the Binary Regression Logistics between risk factors and HIV /AIDS among the respondents. The interaction term is not statistically significant ($p > 0.05$) so the continuous independent variables (number of partners, reward for sex, sex for emotions, forced sex, unprotected oral, vaginal and anal sex, unprotected group sex, shared sex toy, drug and alcohol use) are linearly related to the logit of the dependent variable (HIV). This means that the risk factors are linearly related to HIV in the respondents studied. The linear assumption is fulfilled; we accept the null hypothesis which says that the model adequately fits the data.

Table 9: Binary Regression Logistics between risk factors and HIV /AIDS

Variable	p-value
Number of male partners	0.284
Number of female partners	0.553
Reward for sex with men	0.160
Sex for emotion with women	0.273
Sex for emotion with men	0.884
Forced sex with male	0.461
Forced sex with female	0.627
Protected vaginal sex	0.107
Protected oral sex	0.039
Shared sex toys	0.430
Anal sex	0.374
Unprotected anal sex	0.277
Group sex	0.885
Unprotected group	0.725
Drug use	0.616
Alcohol use	0.519

10. Discussion

In this study, more than half of the women had tertiary education, while a few of them had no formal education. Education is one of the most important aspects of social and economic development. About half of the women were into business or office work. This is in line with NDHS. (2018) which reported that 65% women in Nigeria are currently employed or involved in business. About half of the respondents said they did not depend on their monthly income. This is not surprising due to the high inflation and

economic hardship experienced in Nigeria. Majority of the respondents were single, few were currently married or have been married in the past (divorced). This result is in line with a study in South Africa that reported one in every women who sleep with women were currently married or have been married in the past (Sandfort *et al.*, 2013). Marriage can help determine the extent to which women are exposed to the risk of sexually transmitted diseases including HIV/AIDS. More than half of the respondents were from Akwa-Ibom State. This is so because the study was carried out in Akwa-Ibom State. More than half of the respondents had no children. The number of children that a woman bears depends on many factors. Women who have sex with women tend to postpone child births and extend the interval between births. A third of the women said they had biological children; this is consistent with the report of Sandfort *et al.* (2013). Half of the respondents said they preferred more of women than men as their sex partners. Majority said they preferred women and men equally. More than half of the respondents said they sexually identified as lesbians, one third said they identified as bisexual. This is in line with the study by (Sandfort *et al.* (2013). More than half of the respondents said they got initiated into lesbianism between the ages of 11-20 years and were initiated into lesbianism through peer pressure. Majority of the respondents had sex with women and men to get something in return. The respondent's reasons for having sex with women and men were because of money, food and for a place to sleep. This agrees with (Frew and Parker, 2016) who reported that to survive, many participants in their study reported that they turn to any means necessary to obtain money or food for themselves. Half of the respondents said they had sex with women for emotional needs. One third of the women said they had sex with men for emotional needs. Sandfort *et al.* (2013) reported that most of the women in their study population had consensual sex with women and men. Majority respondents said they have had multiple male and female sexual partners in the last 3 and 12 months. Multiple partnerships seem to be widely prevalent among adolescents and young adults of both sexes, with the exception of conservative (usually religious) groups. Some of the women said they have been forced to have sex with men; this report is lower than that reported by Sandfort *et al.* (2013). Some of the women said they have been forced to have sex with women. Sandfort *et al.* (2013) found that forced sex by women was reported by one of every 6 women. Rape and violence against women, another factor closely linked to women's status, could also contribute to higher risk of HIV infection among women (Maman *et al.*, 2000). Forced sex with a regular partner is also a frequent phenomena, affecting a quarter to half of women and often accompanies physical abuse (Garcia-Moreno and Watts, 2000). This study also revealed that one quarter of the respondents occasionally used protection like condom during vaginal sex, while some said they never used

protection. The risk of HIV from unprotected vaginal sex is higher among women for a number of reasons. One third used protection during oral sex. Findings from this study are consistent with that of Frewand Parker. (2016) who reported that most participants in their study reported the lack of condom use. Evidence of sexually transmitted infection between women through vaginal secretions exists. Hughes and Evans. (2003) reported that "more than 10% of women with exclusively female partners have a history of sexually transmitted infections". Half of the women studied said they used sex toys. The sexual practices engaged in by women who have sex with women specifically, using sex toys vigorously enough to cause exchange of blood-tinged body fluids, pose a reasonable theoretical risk of HIV transmission. Vaginal sex is the predominant route of infection. When discussing HIV risk, people often try to ascertain which "type" of sex is riskier; vaginal, anal, or oral. From a physiological standpoint, anal sex is considered the highest risk activity with an almost 18-fold greater risk of infection compared to vaginal sex.

About half of the respondents used drugs. One third of those who used the drugs did so without prescription. A few of the women said they shared IV needles to inject drugs. Sandfort *et al.* (2013) also reported the use of recreational drug by half of all the women they studied with marijuana being the most frequently used drugs. Also a very small proportion of women reported to have used a needle to inject drugs into their body. About 90% of the women took alcohol. Frew and Parker. (2016) also found out that many women described a personal history of substance use, including crack, alcohol and marijuana. Consistent use of substances can render a woman vulnerable to HIV, having impaired their judgment especially with respect to sexual partners. Drinking alcohol or taking drugs can affects a person's ability to make safe choices, such as using condoms. Majority of the respondents think being a lesbian keeps them safe from HIV/AIDS. The Journal of the Gay and Lesbian Medical Association reported 84% of the 503 WSW surveyed said they were at "zero risk" for HIV or other STI exposure, despite the fact that these women engaged in sexual play that included exposure to blood and other bodily fluids and/or included a male partner (Kaiser Network, 2001). Furthermore, majority of the women said they have tested for HIV in the last three months. This is inconsistent with Sandfort *et al.* (2013) who reported that most of the women in their study had ever been tested for HIV. Those who were not tested identified reasons for not getting tested as fear, stigmatization and not feeling at risk of having HIV. This finding is in line with that of Sandfort *et al.* (2013). About 17.8% of the women studied tested positive for HIV. This result is almost in line with a survey for women who sleep with women in South Africa that reported HIV prevalence estimate of 9.6% (Sandfort *et al.*, 2013). The relative risk analysis show that the number of

male partners, reward for sex with men, sex for emotions with both men and women, forced sex with men and women, unprotected oral vaginal and anal sex, unprotected group sex and shared sex toy all had a relationship with HIV with relative risk >1 . These results are in line with the finding of George *et al.* (1999); Sandfort *et al.* (2013); Frew and Parker. (2016). The Binary Regression Logistics showed the risk factors are linearly related to HIV in the respondents studied. This is inconsistent with Sandfort *et al.* (2013).

11. Conclusion

Findings from this study observed that multiple partnerships for both male and female were widespread in the lesbian community. Poverty and financial insecurity was predominant. Majority of the women had sex with women and men to get something in return. The respondent's reasons for having sex with women and men were because of money, food and for a place to sleep. About 17.8% of the women studied tested positive for HIV. The relative risk analysis show that the number of male partners, reward for sex with men, sex for emotions with both men and women, forced sex with men and women, unprotected oral vaginal and anal sex, unprotected group sex and shared sex toy all had a relationship with HIV with relative risk >1 . The Pearson correlation show that there was a significant association ($p < 0.05$) between risk factors (number of partners, reward for sex with men, sex for emotions, forced sex, unprotected oral and vaginal sex, anal sex, shared sex toy, unprotected anal sex, group sex, unprotected group sex, drug and alcohol use and HIV/AIDS among the women studied. The study also observed unsafe sex practices among the women. This study showed the risk of HIV faced by women who have sex with women.

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