Original Research Article

Predictors of sexual risk practices among women of childbearing age in sub-urban communities of Rivers State, Nigeria

ABSTRACT

Aim:
The study was carried out to explore the sexual risk practices of women of childbearing age in sub-urban communities of Rivers State, Nigeria in order to redirect programme interventions.

Study design:
The study utilized a quantitative household-based cross sectional design to generate information among women of childbearing age.

Place and Duration of Study:
The study was conducted in five sub-urban communities in Obio/Akpor Local Government Area of Rivers State, Nigeria between December 2012 and February 2013.

Methodology:
Study participants were recruited through the cluster sampling method and data analyzed using the SPSS version 20. Bivariate and multivariate analysis, using unconditional logistic regression was done with dependent and independent variables. A $p \leq .05$ was considered statistically significant.

Results:
The majority of the women, 658 (85.6%) were sexually exposed, out of which 245 (37.2%) were involved in sexual risks: early sexual initiation (before 15 years), 110 (16.7%), participation in multiple sexual relationships, 85(12.9%), consumption of alcohol 195 (29.6%) or recreational drugs 39 (5.9%) before sex, and inconsistent use of condoms with casual sexual partners, 55 (22.4%). Logistic regression analysis confirmed that women in the age bracket (15-24 years) were 2.2 times more prone to sexual risk behaviours compared to women in (25-49 years) age bracket, *[O.R (95% C.I) = 1.57 (1.11-2.23)], p= .01.* Similarly, women currently unmarried: singles, widowed, separated, and divorced were 2.5 times more predisposed to sexual risks than currently married, *[O.R (95% C.I) = 1.71 (1.19-2.47)], p= .00*. Furthermore, adequate knowledge of HIV was protective against sexual risk behaviors, *[A.O.R (95% C.I) = 0.68 (0.47 -0.95)], p= .02.*

Conclusion:
The study brings into focus the high prevalence of sexual risk behaviours among women in non-marital relationships and underscores the need to intensify HIV prevention education, condom programming and entrepreneurial skills at the community level for this vulnerable group.

Keywords: HIV/AIDS, sexual risk behaviors, Rivers State, Nigeria

1. INTRODUCTION

HIV/AIDS is an important cause of infectious disease deaths among childbearing women [1]. Each year, 55% of deaths occurring among women and girls are caused by AIDS [2]. The epidemic has taken a devastating toll on the lives of women, who account for 50% of the epidemic globally, 60% in sub-Saharan Africa and 58% in Nigeria [3]. In recent years, however, considerable accomplishments have

been made in the prevention and management of HIV and AIDS with visible signs of decline in prevalence rates in many developed and developing countries, including Nigeria [1],[4]. In spite of the noteworthy progress in the global HIV response on various fronts, the burden persists commonly in many settings in sub-Saharan Africa [5]. Nigeria remains one of such places with a high burden of the infection with 3.5 million people living with the virus and 300,000 new infections annually [4]. At present, Nigeria with a 3.6% prevalence rate of HIV is only second to South Africa among countries with the highest burden of HIV in the world [4]. In the context, the HIV prevalence of 15.2% in Rivers State is one of the highest in Nigeria [6].

Sexual risk behaviors have been fingered as some of the key factors responsible for the rapid spread of the HIV epidemic in Nigeria, as heterosexual transmission accounts for between 80% and 95% of the infection [7]. Several studies have regrettably linked women in Nigeria with sexual risk behaviors. These risky behaviors include an early sexual debut, multiple sex partnerships, unprotected sexual intercourse, alcohol or drug use before sex [8-11]. Others are unprotected receptive anal intercourse, transactional sex, wife inheritance, sex exchange for gift/cash etc. [12-14] Women in Nigeria are necessarily affected, accounting for 31% of all new infections and with prevalence rates or more times higher compared to men [4]. This is of course with severe implication for the transmission of the virus to their unborn babies, especially in the face of a prevailing weak health system. The maternal transmission of HIV is responsible for about 90% of HIV infection in children [15], [16], while only a third, 30.1% of pregnant women with HIV in Nigeria received antiretroviral treatment in 2013 [4]. Although, most studies have necessarily focused on the sexual risks of adolescents and unmarried youths because of their high level of risk behaviors and exposures [8], [9]. Nevertheless, it is on record that, women of childbearing age, especially those ever married: the widowed, divorced, or separated were many more times unduly exposed to the HIV infection when compared with those in stable martial relationships [17, 18, 6].

This study therefore aimed to explore the sexual risk practices of women of childbearing age residing in suburban communities in Rivers State. This is because identifying the prevailing sexual risk pattern among this category of women will provide evidence to inform HIV prevention policies and interventions [11]. This is because preventing HIV infection among pregnant is a key strategy of preventing HIV transmission to unborn babies [19].

2. METHODS

Study Area:

The study was conducted in five sub-urban communities in Obio/Akpor Local Government Area of Rivers State, Nigeria between December 2012 and February 2013. The communities are Rumuosi, Rumuekini, Ozuoba, Rumualogu and Rumuokparali. These communities are in close proximity to the University of Port Harcourt and the University of Port Harcourt Teaching Hospital. Rivers State is in the south-south geopolitical region of Nigeria, also referred to as the Niger Delta region. The area is notable for its huge oil and gas deposits and oil and gas exploration activities. The natives are of the Ikwerre ethnic extraction. However, the communities have over the years, gradually metamorphosed into multiethnic societies, with several cultural diversities. This is as a result of the influx of people of diverse backgrounds in search of economic opportunities. Health service delivery in the area is anchored on both public and private facilities, with health care financing predominately based on user-fees for service.

Study Design and Population:

The study was part of a baseline conducted for the establishment of a Centre of Excellence for Infectious and Zoonotic Diseases by the Universities of Calabar and Port Harcourt. It utilized data generated from eligible women who were normally resident in these communities. The simple random method was used to select one Local Government Area (LGA), the Obio/Akpor LGA from the 23 that make up the State. Thereafter, five communities were selected from the 58 that make up the LGA, also by a simple random method. Five communities were selected in order to broaden the spread of the sample. Visitors and residents who were less than six months in the communities were excluded.

Sampling size and procedure:

The sample size was calculated with the formula for descriptive studies; n= Z^2pq/d^2 [20]. It was determined based on 95% confidence level, 5% margin of error, 64.2% (women of reproductive age involved in high-risk sexual intercourse 12 months preceding the study in south-south region of Nigeria [21]. A minimum sample of 706 was determined adequate for the study after multiplying the sample size by 2 to control for the clustering effect of the design. However, a total of 769 women consented, and participated in the study. A central location was identified in each of the communities, from where the first house and first household with eligible participant was identified and interviewed. The next participant was selected from the consecutive households. This process was continued until the required sample size was reached and exceeded.

Data Collection:

A validated questionnaire, uploaded into mobile data capture devices (smartphones) and fed into a central server, was used to gather information on socio-demographic variables, HIV knowledge and perception and sexual risk behaviors of respondents. Socio-demographic variables considered were age, marital status, educational level, religion, parity and employment status. Assessment of HIV knowledge centered on knowledge of HIV transmission, unprotected sex with HIV/AIDS infected persons, blood transfusion, mother-to-child transmission of HIV and risks in sharing of sharp objects and instruments. Information collected on HIV perception focused on myths and misconceptions about HIV infection. Finally, information on sexual risk practices were assessed based on admission of multiple sexual relationships, sexual debut before age 15 or the use of alcohol or recreational drugs before sexual intercourse. These sexual risk variables were used to form the composite indicator of sexual risk practices among the respondents. An indulgence in any of the aforementioned practices was considered a sexual risk practice. Condom use was defined by use at last sexual exposure.

Data Analysis:

The data was analyzed using the Statistical Package for Social Sciences (SPSS) Version 20. Bivariate analysis was performed using Chi-square and Fisher's Exact statistical tests. Multivariate analysis using unconditional logistic regression was done with sexual risk behaviors of participants as dependent variable, and their socio-demographic characteristics, HIV knowledge and perception constituting the independent variables. Plausible variables and statistically significant variables were entered into the logistic regression model using a non-stepwise approach. $P \leq .05$ was assumed to be statistically significant.

3. RESULTS

Socio-demographic Profile of respondents:

Altogether 769 women of childbearing age took part in the study. Most of them 354 (46%), were within the age bracket, 15-24 years, were single, 399 (51.9%) and had completed secondary level education 531 (69.1%). Details of demographic profile are documented in Table 1.

Table 1: Socio-demographic profile of study population

Variable	Frequency (N=769)	Percentage (%)
Age group		
15-24	354	46.0
25-34	309	40.2

35-44	86	11.2
45-49	20	2.6
Marital Status		
Single	399	51.9
Married	347	45.1
Divorced/Separated	7	0.9
Widowed	16	2.1
Level of education		
None	24	3.1
Primary	58	7.5
Secondary	531	69.1
Tertiary	156	20.3
Religion		
Christianity	757	98.4
Islam	12	1.6
Employment Status		
Employed	340	44.2
Unemployed	429	55.8
Parity		
Para 0	418	54.4
Para1-4	296	38.5
Para ≥ 5	55	7.2

Factors Associated with sexual risk practices

The majority of the women, 658 (85.6%) were sexually exposed. Of these, 245 (37.2%) had ever engaged in sexual risk behaviors: 110 (16.7%) had an early sexual debut, 85(12.9%) were involved in multiple sexual relationships, 195(29.6%) used alcohol before sex, and 39(5.9%) used recreational drugs before sex, while only 55 out of 245 (22.4%) used condoms with casual sexual partners. (Table 2).

Table 2: Sexual risk behaviors among women of childbearing age (*multiple responses*)

Variable	Frequency (n=658)	Percentage (%)
Early sexual debut (<15 years)	110	16.7
Multiple sex partnership	85	12.9
Use of alcohol before having sex	195	29.6
Use of recreational drugs before having sex	39	5.9
Condoms with casual sexual partners (n =245)	55	22.4

Poor knowledge of HIV was found among those who exhibited risky sexual behaviors: 97 (42.9%) of them did not know that HIV was transmitted by unprotected sexual intercourse with HIV/AIDS positive persons (p= 0.029), 77 (46.1%) did not know that HIV was transmissible through infected blood, (p= .01), 116 (43.0%) did not know that HIV was transmissible from a mother to an unborn child (p= .01) and 52 (45.6%) did not know that HIV can be passed on to another by sharing sharp objects (p= .04). (Table 3) Bivariate analysis showed that age (p= .01), marital status (p= .04), educational level (p=.05) as well as parity (p =003) were significantly associated with sexual risk practices, while religion (p= .23) and employment status (p= .30) were not (Table 4).

Table 3: Association between sexual risk behavior and HIV knowledge

HIV Knowledge Indicators	HIV sexual risk behaviors		Total (N=653)	P value
	Yes (n=245) n (%)	No (n=413) n (%)		
HIV transmission by unprotected sexual intercourse with HIV/AIDS persons				
Yes	148 (34.3)	284 (65.7)	432	.03*
No	97 (42.9)	129 (57.1)	226	
HIV transmission by blood transfusion				
Yes	168 (34.2)	323 (65.8)	491	.01*
No	77 (46.1)	90 (53.9)	167	
Mother-to-child transmission of HIV from				
Yes	129 (33.2)	259 (66.8)	398	.01*
No	116 (43.0)	154 (57.0)	270	
HIV transmission by sharing sharp objects				

Yes	193 (35.5)	351 (64.5)	544	.04*
No	52 (45.6)	62 (54.4)	114	

*Statistically significant

Table 4: Association between sexual risk behaviors and socio-demographic variables

Variables	**HIV sexual risk behaviors**		**Total**	**p value**
	Yes (n=245) n(%)	**No (n=413) n(%)**		
Age category				
15-24	106 (40.5)	156 (59.5)	262	.01*
25-34	89 (30.6)	202 (69.4)	291	
35-44	39 (45.9)	46 (54.1)	85	
45-49	11 (55.0)	9 (45.0)	20	
Marital Status				
Single	113 (38.8)	178 (61.2)	291	.04*
Married	119 (34.6)	225 (65.4)	344	
Separated/Divorced	2 (28.6)	5 (71.4)	7	
Widowed	11 (68.8)	5 (31.2)	16	
Educational level				
None	11 (55.0)	9 (45.0)	20	.05*
Primary	27 (49.1)	28 (50.9)	55	
Secondary	167 (36.7)	288 (63.3)	455	
Tertiary	40 (37.2)	88 (68.8)	128	
Religion				
Christianity	243 (37.6)	403 (62.4)	646	.23**
Islam	2 (16.7)	10 (83.3)	12	
Employment				

status				
Employed	193 (36.3)	339 (63.7)	532	.30
Unemployed	52 (41.3)	74 (58.7)	126	
Parity				
0	119 (38.8)	188 (61.2)	307	.03*
1-4	98 (33.1)	198 (66.9)	296	
≥ 5	28 (50.9)	27 (49.1)	55	

*Statistically significant **Fisher Exact

Determinants of Sexual risk behaviors:

Multivariate analysis, using logistic regression, however, confirmed that women who were younger (15-24 years) were 2.2 times more predisposed to sexual risk behaviors than older women (25-49 years), [O.R (95% C.I) = 1.57 (1.11-2.23)], p= .01. Similarly, women who were currently unmarried: singles, widows, separated and divorced were 2.5 times more prone to sexual risk behaviors than those currently married, [O.R (95% C.I) = 1.71 (1.19-2.47)], p= .00. On the other hand, knowledge of HIV transmission through unprotected sex was protective against sexual risk behavior (adjusted odds ratio, [A.O.R (95% C.I) = 0.68 (0.47 -0.95)], p= .02. In a similar vein, the perception that HIV/AIDS was a threat to human life was also protective against sexual risk behaviors, (adjusted odds ratio, [A.O.R (95% C.I) = 0.36 (0.21-0.62)], p= .00 (Table 5).

Table 5: Determinants of sexual risk behaviors

Independent variables	**Adjusted Odds ratio**	**95% Confidence Interval**		**P value**
		Lower limit	**Upper Limit**	
Age group	1.571	1.106	2.231	.01*
Marital status	1.714	1.190	2.469	.00*
Education	2.241	0.931	5.390	.07
Employment status	1.231	0.882	1.718	.22
Knowledge of transmission of HIV via unprotected sexual intercourse with HIV/AIDS infected person	0.679	0.486	0.948	.02*

Knowledge of transmission of HIV via blood transfusion	0.737	0.452	1.202	.22
Knowledge of transmission of HIV via shared needles and sharps	0.803	0.462	1.396	.44
Knowledge of transmission of HIV from infected mother-to-child	0.840	0.57	1.238	.34
Perception HIV is a threat to human life	0.362	0.211	0.6211	.00*
HIV transmitted by witchcraft	0.983	0.701	1.377	.92
Cure of HIV with traditional medicine	1.250	0.853	1.833	.25
HIV perception HIV can be cured by sex with virgin	1.156	0.757	1.765	.50
Constant	0.099			.02

*Statistically significant

4. DISCUSSION

The study showed that nearly all of the respondents were sexually exposed even though less than half were ever married. It is a pointer that a substantial level of sexual activities takes place outside marriage in the sampled communities. It was however quite worrisome that a third of the sexually exposed engaged in sexual risk practices, with less than a quarter of them using condoms consistently with casual sex partners. Other sexual risk practices included multiple sexual relationships and alcohol or recreational drugs use prior to sex, all of which have known implications for increased risk of sexually transmitted infections, including HIV transmission [22-24]. Although multiple sexual partnerships and low or sporadic condom use are prominent reproductive health challenges in parts of Nigeria, [25], [10] the problem appeared heightened in the oil-rich communities of the Niger Delta region where this study was conducted. The situation has been linked with the high level of poverty and economic deprivation, restiveness, militancy and other social vices in the region with attendant implications for sexual and reproductive health of the people [26].

The study furthers showed that inappropriate knowledge about HIV transmission still persisted among several respondents three decades since the epidemic evolved. Similar gaps in HIV knowledge have also been reported in some settings in Nigeria and elsewhere in Sub-Saharan Africa [27], [28]. Although it has been sufficiently established that accurate knowledge about HIV does not necessarily guarantee the adoption of healthy sexual lifestyles, [29], [30] it has also been said that pointing out areas of knowledge deficiency in HIV programming is critical to the uptake of its prevention and treatment [31]. The persistence of knowledge gaps might therefore partly explain why new cases of the HIV infection have continued to emerge in many locales and sub-regions in sub-Saharan Africa, despite the significant global and local responses to the epidemic [1], [4].

The elevated level of alcohol consumption found in the study corroborates the findings of another study carried out among Latino immigrants in Florida, USA [32] and also confirms the high prevalence of

alcohol consumption reported among women attending prenatal clinics in the Niger Delta communities [24]. High alcohol or drug intake is known to alter an individual's sense of judgment that may predispose to inconsistent condom use and multiple sexual exposures, all of which have severe consequences for sexual risk behaviours and sexually transmitted infections, including HIV transmission [33], [34].

Furthermore, a multiple regression analysis showed that young women (15-24 years) and those currently unmarried women were significantly more likely to engage in sexual risk behaviors than currently married women in stable sexual relationships. This finding corroborates similar results from other studies in Nigeria and elsewhere, and probably confirms why singles and ever-married women who are currently not in any marital sexual relationships: widowed, separated and divorced women are at the centre of sexually transmitted infections and the HIV epidemic [35], [36] [17,] [18] [6], [4]. Available evidence has shown clearly that this subset of the population had higher odds of being HIV infected, most probably from sexual risk behaviors. The susceptibility of these vulnerable women to sexually transmitted infections is essentially due to poverty haven lost economic support from their erstwhile spouses.

From the foregoing therefore, to curtail HIV/AIDS transmission among women of childbearing age and eliminate mother-to-child transmission of HIV/AIDS in Nigeria, it is important to prioritize the attention given to women in non-marital relationships: singles, widowed, separated and divorced in HIV/AIDS preventive program design and implementation. In addition, conscious efforts should be made in addressing the growing perception that HIV/AIDS was no longer a threat to human life due to the availability of better clinical management, as this may be deceptive for those in resource limited settings with weak health systems, if not put in the right perspective. This is because such a notion has the propensity to intensify the epidemic [37]. The important issue is to dispel fear and stigma, and provide accurate information on HIV/AIDS to women, which may in turn modify their sexual behaviors to healthier and safer ones.

Study Limitations

The study was carried out among women residing in sub-urban communities and thus limits generalizing the findings. Also, the risk of each of the determinants was not measured.

5. CONCLUSION

The study exposes the persisting poor knowledge about HIV three decades into the epidemic and the high prevalence of sexual risk behaviours among women in non-marital relationships: singles, widowed, separated and divorced. This result underscores the need to focus on this vulnerable population with HIV prevention measures, like robust condom programming and intensified HIV peer-education, alongside entrepreneurial and livelihood skills to meet their peculiar socioeconomic needs. There is also need for further research to investigate the use of information and telecommunication technology (ICT): short message services (SMS) and the social media platforms for sexual risk reduction among vulnerable community-based women.

ETHICAL APPROVAL (WHERE EVER APPLICABLE)

Ethical approval for the study was obtained from the Research Ethics Board of the University of Calabar and the Federal Ministry of Health, Abuja. Verbal informed consent was received from all participants after a full explanation of the aim of the study as well as reassurances that all responses and opinions were strictly confidential. Besides, participants were informed that they were free to decline participation or discontinue with the interview at any point in the course of the interview without any reprimands.

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