



## **Sexual Risk Practices of Undergraduate University Students in the Niger Delta Region of Nigeria: Implications for Planning Interventions**

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### **Authors' contributions**

*This work was carried out as a collaboration of the authors. Authors TWC and AY designed the study and wrote up the protocol for data collection. Author AY supervised data collection and conducted the literature searches. Author TWC performed the statistical analysis and wrote the first draft of the manuscript. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aim:** To evaluate the sexual practices of undergraduate university students in the Niger Delta region of Nigeria in order to provide evidence for appropriate interventions.

**Study Design:** A multi-stage random sampling design and stratified sampling proportionate to size was used to select study participants.

**Place and Duration of Study:** The study was carried out in four out of the 18 public universities in the region between October and December 2013.

**Methodology:** An anonymous questionnaire was administered to 828 students selected from four faculties and eight departments of the universities. Married students and those from departments of medical and health sciences were excluded. Data was analyzed using Epi Info ver. 6.04d software package. The Chi-square test was performed at 95% confidence level and p-value set at P=.05.

**Results:** A total of 391(47.2%) males and 437 (52.8%) females participated in the study. The

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majority of the students 444(53.6%) were in sexual relationships: 150 (33.8%) males and 294 (66.2%) females. Of these, 358 (80.6%) had had an HIV test and knew their HIV status: males 125 (34.9%) and females 233 (65.1%), but only 280(63.1%) had knowledge of the HIV status of their sexual partners: males 93(33.2%) and females 187 (66.8%). More females than males knew their HIV status and those of their sex partners ( $p=.00$ ). Similarly, only 216(48.6%) used condoms in their last casual sex, while only 145(32.7%) used condoms consistently with a non-regular partner: males 71(49.0%) and females 74(51.0%) respectively. Finally, less than half of the students 216(48.6%) were consistent with safer sex negotiation with their partners.

**Conclusion:** The study highlights the occurrence of high sexual risk behaviours among undergraduate university students. We advocate the inclusion of sexuality education in the General Studies curriculum for students and the provision of accessible Sexually Transmitted Infection services through youth-friendly channels, like Youth Friendly Centres.

*Keywords: Sexual risk practices; Niger Delta; Nigerian students.*

## 1. INTRODUCTION

Worldwide, sexually transmitted infections (STIs) have remained a major concern despite several years of health interventions [1-3]. In Nigeria, many young people are sexually active and engage in high-risk sexual behaviours, such as early sexual debut, unprotected sex, multiple sexual partnerships, and anal sex, in the face of poor knowledge about sexually transmitted infections [4]. As a consequence, the highest reported rates of sexually transmitted infections of between 9% and 10% are found among young people between 15 and 24 years of age [5]. Of the 300,000 new HIV infections occurring annually in Nigeria, young people are said to be contributing 60% [6]. Most young people often lack the skills and confidence necessary to negotiate for safer sex, while some erroneously perceive themselves not at risk of sexually transmitted infections, which are some of the vulnerability factors to HIV infection [7,8]. Studies conducted in higher institutions in Nigeria revealed that only 30-60% of sexually active students reported using a condom during their last sexual exposure [9-11]. Other studies have also linked students with multiple sexual partners, commercial sex workers, and inconsistent use of condoms with non-regular partners, [4,12] which are high-risk behaviours that promote the spread of sexually transmitted infections.

The Niger Delta region of Nigeria is the hub of the oil and gas industry upon which the Nigeria economy is based. It is also one of the most affected areas by the HIV epidemic in Nigeria. The region has long been associated with commerce, oil mineral extraction, the influx of foreigners and migrant workers. And these factors are believed to have increased

vulnerability to HIV&AIDS and other sexually transmitted infections (STIs) in this region, particularly among women and youths, long before the emergence of HIV virus [13-15]. For example, between 60%-80% of the young people aged 11- 21 years have initiated sex in the region, [16,17] and 22%-51% of the sexually active girls are exposed to more than one sexual partner, [16,18,19] while condom use among them has remained low ranging between 28% - 49% [20,21]. The region has a median HIV prevalence rate of 6.5% which is higher than the national average of 3.4% (ranging from 4.1% in Delta State to 10.9% in Akwa Ibom State) [22]. The prevalence among young people ranges from 5.3% among adolescents aged 15-19 years and 8.0% among youths of the 20-24 years of age bracket [22]. Despite the large numbers of young people living with HIV in the region, there still remains insufficient attention directed towards preventing sexually transmitted infections and transmission of HIV among this population.

It is important to stress that many students in tertiary institutions are at a critical period of transition out of adolescence, and are largely without access to appropriate information regarding age-appropriate sexual and reproductive health information and services [23]. This is because many cultures, traditional settings and religious beliefs in Nigeria forbid parents and other adult relatives, e.g. aunts or uncles, to talk about such issues to their children. At the same time, the educational system has not officially approved sex education in schools. Thus, peers and in some cases, the mass media appear to be the main sources of information about STIs for most adolescents and youths [11]. Furthermore, the university environment accords young persons liberty from parental control, while

exposing them to untold negative peer influences associated with the campus environment. Such liberty could lead to permissive attitudes among students, like the exchange of sex for money, gifts or favours and other high-risk sexual behaviours, all of which significantly contribute to students' vulnerability to sexually transmitted infections, including HIV infection [9-11]. It has however, been demonstrated that good knowledge about sexually transmitted infections and the use of protective measures reduces the risk taken by young people [24]. It is, therefore, crucial to periodically assess young peoples' sexual risk practices in order to provide relevant information that should be considered in the design of preventive interventions.

The purpose of this study, therefore, was to evaluate the sexual practices of undergraduate university students in the Niger Delta region, in order to provide educational institutions in the region with evidence that should guide their interventions towards entrenching safer sex practices among youths in the region.

## **2. MATERIALS AND METHODS**

### **2.1 Study Area**

The study was carried out in the Niger Delta region of southern Nigeria. The region extends over 70,000 sq. km, and occupying about 7.5% of Nigeria's land mass. It has a combined population of about 31 million people and consists geographically of 9 states out of the 36 states that make up Nigeria. The region is home to over 40 minority ethnic groups. The several years of oil and gas exploration in the area have brought about a severe degradation of the environment from polluted rivers and farmlands and resulted in the destruction of farmlands and aquatic flora and fauna upon which the livelihood of the people depended on. The resultant effect is a severe social disruption with widespread poverty, unemployment, inadequate shelter, youth restiveness, increased crime rate and criminality, and other social vices.

There are 18 public and about 8 private universities as well several higher educational institutions in the region. The study was conducted in four public universities of the four coastal and contiguous states of the region. The universities were: The University of Calabar, University of Port Harcourt, University of Uyo and the Niger Delta University. The universities are located in Cross Rivers, Rivers, Akwa Ibom and

the Bayelsa States respectively. Admission into any of the universities is through the centralized admission and matriculation process that makes it possible for the student population to be representative of all ethnic and socioeconomic backgrounds across Nigeria. However, the majority of the students come from the local population of the immediate university environment which is the Niger Delta region.

Most of the higher institutions have challenges with infrastructural facilities, especially with hostel accommodation for students. This has resulted in many students residing outside the university campuses, with limited oversight functions of school authorities over their activities outside school hours. The situation potentially exposes many of the students to negative influences and social vices, like commercial sex work, alcohol and drug abuse and cultism, all of which have severe consequences for STI transmission. Similarly, there are several medical centres in the region, both public and privately sector operated. All the higher institutions also have medical services that cater for the health care needs of their staff and students. It is, however, important to stress that most of the health facilities are lacking in requisite manpower, modern health care equipment, laboratory services and drugs to function optimally.

### **2.2 Study Design**

A two-stage sampling design was used to select the study participants. A list of all the faculties and departments of each of the four universities was obtained from the offices of the Deputy Vice-Chancellor (Academic). The first stage of sampling was the selection of faculties from each of the four universities. From a list of faculties in each of the universities, one faculty was selected by balloting. The second stage was the selection of departments from each of the selected faculties. Two departments were selected from a list of all departments in each of the faculties to broaden the scope of the sample. Finally, stratified sampling proportionate to size was used to recruit the study participants from each of the selected departments.

### **2.3 Inclusion and Exclusion Criteria**

All consenting unmarried undergraduate students (males and females) were included in the study. On the other hand, students from the medical and health science faculties, postgraduates and married students were excluded from the study.

## 2.4 Sample Size Determination

A minimum sample size of 663 adequate for the study was computed using the Fisher's formula for descriptive studies [25];  $n = Z^2pq/d^2$  at 95% confidence level, 5% margin of error, 20% attrition rate and an effect size of 2. The computation was based on 23.5% of university students reported to have had sex with someone in the month preceding the study [26]. However, a total of 828 students consented, and participated in the study.

## 2.5 Data Collection

Data was collected in October and November 2013. Due to the sensitive nature of the study, a self-administrated, semi-structured, anonymous questionnaire was used to obtain the requisite information from each respondent. A total of 1,000 questionnaires were distributed among the students. Between 100 and 150 questionnaires were distributed in each of the selected departments. The figures were based on the population of students in the departments. Of these, 828 were retrieved, giving a response rate of 82.8%. The questionnaires comprised of sections on demographic characteristics of students, knowledge about safer sex and sexual practices of the students.

## 2.6 Data Analysis

The generated data were collated, verified for accuracy and entered into Microsoft Excel ® spreadsheet, from where it was imported and

analyzed using Epi Info version. 6.04d statistical software package. Frequencies and basic descriptive statistics were calculated, including cross-tabulations to determine potential relationships between key variables. The Chi-square test was performed at the 95% confidence level and a  $P < .05$  was considered statistically significant.

## 3. RESULTS

### 3.1 Demographic Profile of Respondents

Table 1 describes the demographic profile of the respondents. A total of 828 students responded to the questionnaires. They comprised of 391 (47.2%) males and 437 (52.8%) females. The mean age was  $21.821 \pm 5.35$  years for males and  $21.12 \pm 2.87$  years for females. Details of the age and sex distribution of the students by institutions are highlighted.

### 3.2 Knowledge of Safer Sex by Respondents

Table 2 describes the knowledge of the students about safer sex practices. The majority of the students 444 (53.6%) were in sexual relationships: 150 (33.8%) males and 294 (66.2%) females. Of these, 358 (80.6%) have had a HIV test and knew their HIV status: males 125 (34.9%) and females 233 (65.1%), but only 280 (63.1%) had knowledge of the HIV status of their sexual partners: males 93 (33.2%) and females 187 (66.8%). More female than male students knew their HIV status as well as those of their sexual partners ( $p = .00$ ) (Table 2).

**Table 1. Demographic characteristics of respondents**

Variable	Male n (%)n=391	Female n (%)n=437	Total n=828
<b>Age (yrs)</b>			
15-19	45 (28.7)	112 (71.3)	157(19.0)
20-24	319 (52.0)	295 (48.0)	614(74.2)
25-29	23 (47.9)	25 (52.1)	48 (5.8)
≥30	4 (44.4)	5 (55.6)	9(1.0)
Mean Age	21.82± 5.35 yrs	21.12± 2.87 yrs	
<b>Level</b>			
100	58 (49.2)	60 (50.8)	118 (14.3)
200	114 (43.3)	149 (56.7)	263 (31.8)
300	82(51.9)	76 (48.1)	158 (19.1)
400	105 (47.1)	118 (52.9)	223 (26.9)
500	32 (46.9)	34 (53.1)	66 (8.0)
<b>Institution</b>			
Niger Delta University	106 (46.3)	123 (53.7)	229 (27.7)
University of Calabar	79 (39.9)	119 (60.1)	198 (23.9)
University of Port Harcourt	97 (49.0)	101 (51.0)	198 (23.9)
University of Uyo	109 (53.7)	94 (46.3)	203 (24.5)

Although knowledge of condom use as a safe sexual practice was high, 540 (65.2%): males 248 (45.9%) and females 292 (54.1%), only a third of the students, 145 (32.7%) confessed to its regular and consistent use during sexual intercourse with a non-regular partner: males 71 (49.0%) and females 74 (51.0%) respectively. There were also, several misconceptions about protection from sexually transmitted infections, such as the use of antibiotics before and after

sex, withdrawal before ejaculation during sex and douching after sex (Table 2).

### 3.3 Sexual Practices of Undergraduate Students

Table 3 documents the sexual practices of the respondents. Less than half of the students 216 (48.6%) were consistent with safer sex negotiation with their partners: 123 (27.7%)

**Table 2. Knowledge of safer sex among university students**

Variable	Male n(%)	Female n(%)	Total	$\chi^2$ (P value)
<b>What do you consider to be safe sex? (multiple responses)</b>				
Using condom	248 (45.9)	292 (54.1)	540 (65.2)	3.56; .05
Knowing partner's sexual history	168 (50.9)	162 (49.1)	330 (39.9)	0.11; .74
Using antibiotics before/after sex	93 (43.9)	119 (56.1)	212 (25.6)	3.12; .08
Having one sex partner	165 (44.2)	208 (55.8)	373 (45.0)	4.89; .03
Avoiding direct contact with bodily fluid	145 (49.5)	148 (50.5)	293 (35.4)	0.03; .86
Withdrawal before ejaculation	104 (39.2)	161 (60.8)	265 (32.0)	11.65; .00
Douching after sex	70 (42.9)	93 (57.1)	163 (19.7)	3.19; .07
Oral sex	89 (41.6)	125 (58.4)	214 (25.8)	5.89; .02
Use of native herbs	75 (44.6)	93 (55.4)	168 (20.3)	2.36; .13
Abstinence	31 (56.4)	24 (43.6)	55 (6.6)	0.94; .33
Using contraceptive Pill before and after Sex	2 (66.7)	1 (33.3)	3 (0.4)	-

**Table 3. Sexual practices of undergraduate students**

Variable	Male =150 n (%)	Female = 294 n(%)	Total	$\chi^2$ (P value)
<b>Are you currently in a sexual relationship?</b>				
Yes	150 (33.8)	294 (66.2)	444 (53.6)	42.01; .00
No	241 (62.8)	143 (37.2)	384 (46.4)	23.61; .00
<b>If YES, do you know your HIV Status?</b>				
Yes	125 (34.9)	233 (65.1)	358 (80.6)	29.63; .00
No	25 (29.1)	61 (70.9)	86 (19.4)	13.16; .00
<b>Do you know your partner's HIV status?</b>				
Yes	93 (33.2)	87 (66.8)	280 (63.1)	19.98; .00
No	57 (34.8)	107 (65.2)	164 (36.9)	13.82; .00
<b>What safer sex practices do you adopt? (Multiple responses)</b>				
Regular condom use with non-regular partners	71 (49.0)	74 (51.0)	145 (32.7)	0.06; .805
Sex with single HIV free partner	26 (36.1)	46 (63.9)	72 (16.2)	5.39; .02
Condom use when not sure of partners fidelity	29 (63.0)	17 (37.0)	46 (10.4)	3.03; .08
No response	24 (13.3)	157(86.7)	181 (40.8)	64.19; .00
<b>Do you negotiate safer sex with partner?</b>				
At all times	116 (53.7)	100 (46.3)	216 (48.6)	1.19; .28
Sometimes	20 (16.3)	103 (83.7)	123 (27.7)	39.28; .00
At no time	14 (13.3)	91(86.7)	105 (23.6)	32.20; .00
<b>At what point do you commence safer sex negotiation with your partner?</b>				
When afraid of pregnancy	3 (5.8)	49 (94.2)	52 (11.7)	-
Before sexual contact with partner	106 (35.5)	193 (64.5)	299 (67.3)	22.23; .00
When not sure of partners sexual history/ fidelity	41(44.1)	52 (55.9)	93 (20.9)	1.29; .26
<b>Who often initiated safer sex negotiation between you and your partner?</b>				
My partner	21 (38.2)	34 (61.8)	55 (12.4)	2.92; .88
Myself	63 (29.3)	152 (70.7)	215 (48.4)	32.01; .00
Do not know	66 (37.9)	108 (62.1)	174 (39.2)	9.60; .00

occasionally, and 105 (23.6%) not involved at all. Reasons and timing for the commencement of sex negotiation varied. While a majority of those who negotiated for safer sex did so only when they were not sure of their partner's sexual history or fidelity, others insisted on condoms only when they were scared of unwanted pregnancies (Tables 2 & 3).

#### 4. DISCUSSION

This study examined the sexual practices of young undergraduate Nigerian students in the Niger Delta region in the face of the continuing HIV and AIDS epidemic and its impacts, especially among young people. The demographic attributes and sexual experiences of the students were similar to those from other parts of Nigeria and elsewhere around the world. [12,27] Majority of the students in the study claimed they had tested for HIV and knew their HIV status. This was probably as a result of the HIV screening programme usually conducted as part of the overall medical examination at admission into the university. However, only a third of the students knew the HIV status of their sexual partners. This could be attributed to poor interpersonal factors among student in sexual relationships that could negatively influence communication about safer sex. Poor knowledge regarding partners' HIV infection status have been shown to influence sexual behaviors that resulted in increased transmission, [28] while good knowledge was protective and reduced the risk taken by young people [24,29]. This finding was particularly significant since it is known that many undergraduate students are not in stable sexual relationships and were often ignorant of the health risks associated with their sexual behaviors [30].

Condom use negotiations were found to be low among the students despite condoms being a recognized and valuable product for the prevention of sexually transmitted infections. However, more male students than females reportedly negotiated for the use of condoms to protect against sexually transmitted infections or pregnancies. The gender difference could be attributed to the subordinate and passive role of women regarding sexual relationships in many Nigerian cultures [31]. A similar observation was made in a study of knowledge and beliefs about HIV&AIDS among male and female students of Nigerian universities that showed that female students tended to stop insisting on the use of

condoms in order to establish a stronger relationship with their partners [32]. It was also similar to what was found in a study involving college students in the United States of America [33].

Overall, condom use was found to be low among the students. This was inconsistent with their appreciable knowledge of the efficacy of condoms as a safer sex option. It supports the findings of other studies which reported that a sizable proportion of students in Nigeria did not use a condom during their last sexual exposure with multiple or casual sex partners [9-11]. This might partly explain why young people have continued to remain at the centre of the global HIV epidemic in the face of other challenges that make them more vulnerable [34,35]. Individuals who have sex without using condoms are at high risk of contracting sexually transmitted infections, including HIV and other unplanned pregnancies, with severe implications for their health, education and wellbeing.

The study also revealed some misconceptions about prevention of STIs. These included the erroneous beliefs that the use of antibiotics before and after sex, withdrawal before ejaculation during sex, douching after sex and the use of native herbs were protective of sexually transmitted infections. These flawed positions were capable of compromising or completely inhibiting safe sexual practices among the students, thus predisposing them to the risk of sexually transmitted infections with attendant severe consequences. They agree with the findings that a good number of students in tertiary institutions in Nigeria had misconceptions about sexually transmitted infections, including HIV [32]. This may probably be the reason why STIs are more prevalent among youths since most are sexually active, engage in high-risk sexual practices, and above all, lack or ignore safer sex practices.

#### 5. STUDY LIMITATIONS

The study could be limited by information or recall bias, since respondents provided information on past behaviours. However, measures that could improve the quality of self-reports, like the anonymity of respondents, the simplicity of questions and permitting respondents to answer at their own pace were employed to improve the quality of information obtained.

## 6. CONCLUSION

This study highlights the occurrence of high-risk sexual practices among university students in the Niger Delta region of Nigeria. This makes the students vulnerable to STI, including HIV&AIDS. We, therefore, advocate for the reinforcement of sexual health education among university students through curriculum-based programmes in their General Studies. This has shown to be effective in improving young people's knowledge, skills and behavioural intentions, such as decreased the number of sexual partners and increased condom use among the sexually active [36,37]. Students should also be provided with convenient sexually transmitted infection services that should be easily accessible through youth-friendly channels, like Youth Friendly Centres and complemented with peer education.

## ETHICAL APPROVAL

Ethical approval for the study was obtained from the Research and Ethics Committee of the University of Port-Harcourt Teaching Hospital. Written informed consent was obtained from participants after full explanation of the aim of the study. They were assured of the confidentiality, privacy and anonymity of the information provided. They were also informed that they were at liberty to withdraw from participating in the study at any stage of the study if they so desired without any sanctions. Only those that consented to participate were recruited for the study.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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