

## Knowledge And Practice of Adolescents In A Mixed Secondary School In Delta State Towards Sexually Transmitted Infections; A Descriptive Cross-Sectional Study

Ogwu Robinson Onyekachi<sup>1</sup>, Uwaezuoke Angelica<sup>1</sup>, Jombo Sunday Emmanuel<sup>1</sup>, Ilikannu Samuel Okwuchukwu<sup>1</sup>, Ilikannu Chikodili Ogugua<sup>2</sup>, Obu Ifeoma Sylvia<sup>3</sup>, Dogbanya Gabriel<sup>4</sup>, Igibah Christian Osemudiamen<sup>1</sup>, Obua Ikechukwu<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynaecology, Federal Medical Centre Asaba, Delta State Nigeria

<sup>2</sup>Department of Health System Management, School of Public Health, University of Port Harcourt

<sup>3</sup> Molecular/Research Laboratory, Center for Communicable Disease Control and Research, Federal Medical Centre Asaba, Delta State Nigeria

<sup>4</sup> Obstetrics and Gynaecology Department, Ahmadu Bello University Teaching Hospital Zaria, Kaduna State Nigeria

**\*Corresponding Author:** Dr Ilikannu Samuel Okwuchukwu, Department of Obstetrics and Gynaecology Federal Medical Centre Asaba.

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### Abstract:

**BACKGROUND:** Sexual activity among adolescents who are unaware of how to prevent sexually transmitted infections (STI) is of public health importance because they can be asymptomatic with long-term deleterious effects on their sexual and reproductive health.

**OBJECTIVE:** This study aimed to assess the knowledge and practice of adolescents towards sexually transmitted infections.

**METHODOLOGY:** A cross-sectional study design and systematic sampling technique was used in this study. The data collection was analysed using IBM SPSS version 26. P-value < 0.05 was accepted as statistically significant and results were presented in tables.

**RESULTS:** More females (60.1%) participated in the study. Most respondents were aged between 13-15 and 16-19 (48.9%). 47 (20.2%) respondents were sexually active and of this number, most (38.3%) had their first sex between the ages of 16 and 19. 80.7% were aware of the benefits of condoms but only 9% used them. Respondents used mostly drugs (48.5%) and prayers (36.4%) to protect against STIs. The majority correctly identified common STIs while 12.4% incorrectly reported malaria as sexually transmitted. Infertility (56.2%), abdominal pain (45.9%) and abnormal discharge from private parts (56.2%) were recognized by the respondents as complications that can follow STI.

**CONCLUSIONS:** Findings from this study reveal that most adolescents were aware of the symptoms, causes and complications of STIs. However, there is still a need to emphasize correct protection practices against STIs.

**Key Words:** Sexually transmitted infections, sexual intercourse, adolescents, Nigeria

### Introduction

Sexually transmitted infections (STIs) are infections that are spread mainly from person to person through sexual contact, which could be either oral, vaginal or anal intercourse.<sup>1</sup> Some STIs can be spread through non-sexual contact with contaminated blood, body fluids and tissues, breastfeeding from an infected mother to child

or while transfusing unscreened blood.<sup>1,2</sup> There are more than thirty different sexually transmissible bacteria, viruses and parasites.<sup>2</sup> In most parts of the world, STIs are a public health problem, especially for adolescents that is, people between the ages of 10 and 19. Adolescents make up to 20% of the world population

(out of which about 85% live in developing countries) and 1 in 20 adolescents will develop a new STI, every year.<sup>3</sup> In Great Britain, there was an increased number of newly diagnosed cases of STIs and this remained highest among adolescents aged 10 – 19 years.<sup>4</sup> Adolescents are at risk of STIs because they frequently have unprotected intercourse, often engage in multiple monogamous relationships of limited duration and face multiple obstacles in accessing sexual and reproductive healthcare services.<sup>1,2</sup> Hence comprehensive public health measures will be needed to address the problems of STIs among adolescents, including the training of health care providers and the consolidation of health services for the prevention and treatment of STIs.<sup>3</sup>

The risk factors for STIs among adolescents include homelessness, and substance abuse including alcoholism and hard drugs, as they often engage in survival sex (trading sex for food, shelter or money) and frequently suffer sexual and physical assault.<sup>1-5</sup> Extreme poverty may prevent them from refusing sex or negotiating the use of condoms when engaging in sexual activity.

Sexually transmitted infections may be prevented by abstaining from sex, safe sex through the use of condoms and being in a relationship where each person is faithful. In a survey conducted in rural South Africa, a considerable proportion of adolescents (26.6%) were sexually active and the use of contraceptives was low (41.2%) which put them at risk.<sup>6</sup> Specifically, female adolescents are more susceptible to STIs than males due to their anatomy.<sup>7</sup> During adolescence, a woman's vaginal columnar epithelial cells - which are especially sensitive to invasion by STIs organisms like gonorrhoea extends over the vaginal surface of the cervix where they are unprotected by cervical mucus, but recede to a more protected location as she gets older. Infections like human papillomavirus and hepatitis b virus can be prevented with vaccination. While many STIs are curable with the use of drugs, some like HIV are treatable but not curable.

Most STIs are asymptomatic, as such the ease and rapidity of spread may be undeterminable and can result in a greater risk of transmitting the disease to others. However, symptoms and signs may include vaginal discharge, penile discharge, ulcers on or around the genitals and pelvic pains.<sup>1-3,7</sup> Health complications from STIs may include infertility from pelvic inflammatory diseases, cancer or even death from immune compromise as in HIV/AIDs.<sup>3</sup> When STIs are transmitted to newborns in utero or during birth, it may result in poor outcomes for the newborn.

The public health burden of STIs among adolescents cannot be over-emphasized because of rising morbidity and mortality rates. Similarly, an increase in the number of adolescents with STIs seeking health care will increase hospital hours, purchase of drugs and medical supplies and eventually, an overall increase in financial cost.

The outcome of this research will serve as a baseline for further discussions on the prevalence of and burden of STIs among adolescents in our society. When the extent of the problem is established, it will be beneficial to policymakers and help in improving the overall health of adolescents and by extension, the general public.

This study aims to ascertain the knowledge of STIs among adolescents in a mixed secondary school in Asaba Delta State Nigeria as well as their practices towards STI.

## Materials And Methods

Delta State is a major producer of petroleum products in Nigeria. It is also ethnically diverse and composed of Urhobo, Itsekiri, Isoko, Ijaw and Ukwuani (also known as Anioma) tribes. Asaba is the capital city of the state with an area of 603km<sup>2</sup> and a population of 199,746 persons.<sup>8</sup>

Zappa Mixed is one of the biggest Secondary schools located in Asaba, Oshimili South Local Government Area. It was established in 1996 and owned by Delta state government. Students consist of males and females from diverse backgrounds. This descriptive cross-sectional study was carried out among adolescents in senior secondary school one to three, with a total population of 590.

The minimum sample size for this study was calculated using the following formula.

$$n = z^2pq/d^2$$

Where:

n = desired minimum sample size

z = 1.96 (1.96 at 95% confidence interval)

p = prevalence rate from a similar study already done

q = 1-p

d = degree of accuracy/error margin at 5% (0.05)

Therefore, applying this:

p = prevalence rate for a similar study done previously (16.4%)<sup>9</sup>

q = 1-p = 1-0.164 = 0.836

n = (1.96)<sup>2</sup> x 0.164 x 0.836 / (0.05)<sup>2</sup>

n = 210.67

This figure was rounded up to 211.

Adding 10% non-response and loss to attrition, a minimum sample size of 233 respondents was recruited for this study.

Systematic sampling was used to select respondents among the senior secondary students. Data was collected using a self-administered questionnaire which was filled and returned the same day. It had two sections: socio-demographic characteristics of respondents and knowledge, attitude and practice of sexually transmitted infections. The questionnaire was pretested among the senior secondary students of St. Patrick's Secondary School located in Oshimili North L.G.A in Delta State to ensure that it was standardized and lacked ambiguity. Each correct option in the knowledge section was given a score of 1 and an incorrect option, a score of 0 with less than 50% graded as poor, 50-69% graded as fair and  $\geq$  70% as good.

Data obtained from respondents was entered into a spreadsheet and analyzed using the IBM SPSS version 26.0 statistical software. Univariate table was done for all variables while bivariate analysis was used to determine relationships between variables. Descriptive statistics, inferential statistics and tests of significance using Chi-square and Fisher's exact tests were also utilized where applicable. The level of statistical significance (p-value) was set at 0.05.

Consent was obtained from respondents who were informed that full participation in the study was voluntary and that there was no penalty for refusing to participate in the study or withdrawing from

it. Confidentiality and privacy of the respondents was respected throughout the research process.

Ethical approval for this study was provided by the Department of Community Health, School of Medicine, University of Benin. Thereafter, permission to carry out this study was sought and obtained from the principal of Zappa Mixed Secondary School.

## Results

**Table 1: Socio-Demographic Characteristics of Respondents**

Variables	Frequency (n =233)	Percent (%)
<b>Sex</b>		
Male	93	39.9
Female	140	60.1
<b>Age</b>		
10-12	5	2.1
13-15	114	48.9
16-19	114	48.9
<b>Class</b>		
SSS 1		
SSS 2	109	46.8
SSS 3	69	29.6
<b>Religion</b>	55	23.6
Christian		
Muslim	223	95.7
African Traditional Religion	7	3.0
Religion	3	1.3
<b>Respondents live with*</b>		
Father	173	74.2
Mother	172	73.8
Guardian	75	32.2
Grandparent	37	15.9
Older relatives	12	5.2
Other relatives	118	50.6

\*Multiple responses.

This table shows the demographic characteristics of respondents. The sex distribution of respondents shows that 48.9% of the respondents were in the age group of 13-15 years and 16-19 years. 46.8% were SS1 students while SS2 and SS3 constituted 29.6%

and 23.6% respectively. Most are Christians (95.7%), while 3% are Muslims and 1.3% practice African Traditional Religion.

**Table 2a: Knowledge about Sexually Transmitted Infections**

Variables	Frequency (n =233)	Percent (%)
Awareness of sexually transmitted infections	221	94.8
Yes	12	5.2
No		
Sexually transmitted infections	99	42.5
Gonorrhoea	90	38.6
Syphilis	214	91.8
Human papilloma virus	29	12.4
Malaria		
Risk of acquiring sexually transmitted infections	212	91.0
More than one sex partner	12	5.2
Abstinence	15	6.4
One sex partner	131	
Effects of sexually transmitted infections *	107	56.2
Inability to have children	131	45.9
Pains around the lower abdomen		56.2
Smelling discharge from the private part		

\*Multiple Response

The majority of the respondents (94.8%) were acquainted with the knowledge of STIs, among which 91.8% admitted that human papillomavirus is a sexually transmitted infection and 42.5% indicated that gonorrhoea are STIs. The risk of acquiring sexually transmitted infection was ascribed to having more than one sex partner by 91.0% of respondents, while abstinence and having one sexual partner were reported as risky sexual behaviours by 5.2% and 6.4% respectively. Complications of STIs identified by the respondents included infertility (56.2%), abdominal pain (45.9%) and abnormal discharge (56.2%).

**Table 2b: Knowledge about Sexually Transmitted Infections cont'**

Variables	Frequency (n =233)	Percent (%)
Condoms can protect against STIs	188	80.7
Yes	45	19.3
No		
Have discussed sexually transmitted infections	159	68.2
Yes	74	31.8
No.		
Who they discussed sexual intercourse, STIs and safe sex practice with	81	34.8
Parents/Guardian	52	22.3
Teachers	45	19.3
Classmates	22	9.4
Sexual partner	8	3.4
Others		

80.7% of respondents identified that a condom could protect against acquiring sexually transmitted infections while only 9% have used one. 159 respondents (68.2%) affirmed that they had discussed sexual intercourse, sexually transmitted infections and safe sex practice with parents/guardians (34.8%), teachers (22.3%), classmates (19.3%), sexual partners (9.4%) and others (3.4%)

**Table 3: Practice Relating to Sexually Transmitted Infections**

Variables	Frequency (n=233)	Percent
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Ever had sexual intercourse?	47	20.2
Yes	186	79.8
No		
Age at first sex (n= 47)	15	31.9
10 -12	14	29.8
13 – 15	18	38.3
16 – 19		
Frequency of sexual intercourse (n=47)	5	10.6
Daily	6	12.8
Weekly	6	12.8
Monthly	9	19.1
Occasionally	21	44.7
Don't keep record	21	9.0
Has ever used a condom	212	91.0
Yes		
No		

**Table 4: Reasons for not Engaging in Sexual Intercourse**

	Frequency	Percent
Want to avoid sexually transmitted infection	100	42.9
Don't want to get pregnant	70	30.0
Against religious belief	99	42.5
Too young	121	51.9

**Table 5: Relationship between Socio-Demographic Characteristics and Knowledge of Sexually Transmitted Infections**

Variable	Poor n=31	KNOWLEDGE		X <sup>2</sup>	p- value
		Fair n= 114	Good n= 88		
Sex					
Male	11(11.8)	49(52.7)	33(35.5)	0.915	0.633
Female	20(14.3)	65(46.4)	55(39.3)	140	
Age(years)					
10-12	0(0.0)	4(80.0)	1(20.0)	2.396	0.663
13-15	15(13.2)	7(50.0)	42(36.8)		
16-19	16(14.0)	53(46.5)	45(39.5)		
Class					
SSS1	23(21.1)	49(45.0)	37(33.9)	16.081	0.003
SSS 2	7(10.1)	30(43.5)	32(46.4)		
SSS 3	1(1.8)	35(63.6)	19(34.5)		
Religion					
Christianity	30(13.5)	109(48.9)	84(37.7)	0.718	0.949
Muslim	1(14.3)	3(42.9)	3(42.9)		
ATR	0(0.0)	2(66.7)	1(33.3)		
Respondents live with					
Father	25(14.5)	81(46.8)	67(38.7)	1.436	0.488
Mother	24(14.0)	81(47.1)	67(39.0)		
Extended relations					
Guardian	10(13.3)	40(53.3)	25(33.3)	1.887	0.757
Grandparent	2(5.4)	23(62.2)	12(32.4)		
Other relatives	1(9.1)	6(54.4)	4(36.4)		
Older relatives	11(9.3)	58(49.2)	49(14.5)		

## Discussion

The majority of the respondents (48.9%) were females aged between 13-15 years and 16-19 years. Most of these adolescents live with either their biological parents or close relatives and belong to social clubs.

In this survey, 94.8% of respondents were aware of STIs but male students were better informed than females though this finding was not statistically significant. Most respondents demonstrated a fair knowledge of sexually transmitted infections although some incorrect knowledge was seen among a few students (12.4%) who wrongly perceived malaria (a protozoan infection) as being sexually transmitted. Similar studies conducted in West Indies<sup>10</sup> and Ethiopia<sup>11</sup> showed that adolescents' knowledge of STI was high but low among sexually active adolescents in Spain<sup>12</sup> although, the study did not emphasize the specific infections that were wrongly implied as sexually transmissible.

The knowledge of the complications/effects of STIs by respondents was quite significant and parents/guardians were the most common source of knowledge. A study in Ilorin<sup>13</sup> noted that most adolescents (58.3%) relied on the internet, movies and friends for information on sexual practices while school-based programmes were the primary source of information for

adolescents in South Africa.<sup>6</sup> Regarding sexually transmissible infections, Human papillomavirus (HPV) was the most implicated in this study (91.8%). This could be a result of the established association between Human Papilloma Virus (serotypes 16 and 18) and the risk of acquiring cervical carcinoma.<sup>7</sup> It is very probable that these adolescents may have been enlightened with this fact in a seminar/workshop or on social media. A study in Singapore emphasized the need for caregivers (parents/guardians) to be equipped with skills and resources that enable them to educate their children on sexuality matters.<sup>14</sup>

The adolescents in this study recognized infertility, abdominal pains and foul-smelling vaginal discharge as complications resulting from sexually transmitted infections. In South Africa, it was discovered that a high level of unprotected sexual activity existed among adolescents<sup>6</sup> which is similar to our study in which only 9% of sexually active respondents used condoms despite having a good knowledge of its use. Respondents in our study reported that it was unsafe to have more than one sexual partner.

Most adolescents practiced abstinence but those who were sexually active had their first sexual experience between 16-19 years. This contrasts with a study by Kanmodi et al where the mean age of sexual debut was 13.8 ( $\pm$  3.6) years<sup>15</sup> but similar to Mostert et al



al in which the mean age was  $15.2 \pm 2.3$  years. <sup>6</sup> For the sexually active students, their sexual partners were mostly classmates and a few had coitus with their teachers, neighbours and family members. Homosexuals, lesbians and bisexuals were also identified in our study.

Among the respondents who were not sexually active, the most common reason was that they were too young (51.9%), others were to prevent contracting STIs (42.9%), religious beliefs (42.5%) and the scare of unwanted pregnancy (30%). A recent study suggests that unhealthy relationships between opposite sexes, peer group influence, poverty and poor parental upbringing, pornography, cultism and rape, lack of sex education, and grooming by teachers were some factors responsible for premarital sex among secondary school students. <sup>4</sup> In addition to the above, previous sexual abuse, smoking of prohibited drugs, involvement in criminal activities, poor housing conditions and alcohol were positively correlated to premarital sexual intercourse among secondary school students. <sup>5</sup>

Overall, the study demonstrated that most respondents had a low risk of contracting sexually transmitted diseases concerning their sexual practices and good knowledge of these infections.

## Recommendations

There is a need for the introduction of sex education into the academic curriculum of secondary school students to prevent risky sexual behaviours, teach them correct ways of protecting against sexually transmitted infections and ensure early presentation to healthcare facilities in the case of a suspected infection. Workshops and seminars should be organized by the government, education policymakers and other stakeholders (teachers, parents and counsellors) to develop appropriate methods of discussing sexually related topics with adolescents, due to their sensitive nature in our environment. Vaccination against cervical cancer between the ages of 9-15 and for sexually active women, pap smear testing should be routinely encouraged.

## Limitations Of The Study

Sexually related topics are sensitive; therefore, respondents may be reluctant to disclose their true sexual experiences and given that self-administered questionnaires were used, information bias is probable. Some questions required respondents to recall past sexual experiences, thus creating the possibility of recall bias.

## Acronyms

HPV; Human Papillomavirus

SPSS; Statistical Product and Service Solutions

SSS; Senior Secondary School

STI; Sexually Transmitted Infection

## Data Availability

Data is available upon request from the corresponding author

## Conflicts of Interest

The authors declare that they have no conflict of interest

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