

## **Full Length Research**

# **Report on the awareness of HIV among Senior Secondary School Students in Nnewi-North and Nnewi-South Local Government Areas of Anambra State, Nigeria**

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The youths are central in the fight against HIV/AIDS. If the fight against HIV/AIDS will be successful, the youths must be knowledgeable regarding HIV/AIDS prevention and must optimally practice HIV/AIDS prevention. This was a comparative descriptive study for which Multi-stage sampling technique was used to select secondary school students from Nnewi-South and Nnewi-North Local Government Areas of Anambra State, Nigeria. Data was analysed electronically using Statistical Package for Social Sciences (SPSS) version 20.0 and the analysed data was presented in tables. Appropriate statistical tests were applied. A p-value  $\leq 0.05$  was considered statistically significant. Among the respondents, 98.7% and 98.3% from Nnewi-South and Nnewi-North respectively had heard about HIV. The commonest source of information on HIV/AIDS among the respondents was health personnels (36.7% and 49.7% in Nnewi-South and Nnewi-North respectively). Ninety five point three percent (Nnewi-South) and 93.7% (Nnewi-North) of respondents recognized sexual intercourse as a route of transmission. Among the respondents, 18.9% from Nnewi-South and 18.3% from Nnewi-North have had sexual intercourse. Majority (79.3% and 76.7%) of the respondents from Nnewi-South and Nnewi-North respectively, practice sexual abstinence. Only 20.0% and 16.3% of respondents from Nnewi-South and Nnewi-North respectively have been tested for HIV. Some misconception about routes of transmission and methods of prevention of HIV/AIDS were found. Negative attitude towards people living with HIV/AIDS were present. Risky practices were also found among the students.

**Keywords:** HIV prevention, secondary school students.

## INTRODUCTION

Human Immunodeficiency Virus (HIV) is a single stranded Ribonucleic Acid Retrovirus from the Lentivirus family which can cause a slow infection with a long incubation period. After mucosal exposure, HIV is transported to the lymph nodes via dendritic Cluster of differentiation-4 (CD4) T lymphocytes (Arulogun and Adefioye, 2010). Transmission is mainly by unprotected sexual contact, mother to child (antenatal, perinatal and postnatal periods), transfusion of infected blood and sharing of sharp objects like syringes (Kamala and Aboud, 2006). There are several methods of preventing HIV transmission which include comprehensive education and campaign, safe sex by use of condoms, abstinence, faithfulness to a faithful partner, safe blood transfusion and the use of antiretroviral drugs to prevent mother to child transmission (Kamala and Aboud, 2006).

Human Immunodeficiency Virus (HIV) and Acquired Immuno Deficiency Syndrome (AIDS) have been one of the world's greatest challenges for decades. Sub-Saharan Africa bears the greatest burden of the disease even though it affects only 10% of the world's population (Okonta et al., 2007) and it is estimated that 60% of all new HIV infection in Sub-Saharan Africa occur among young people aged 10-24 years of age (Mass and Otte, 2009). The first AIDS case in Nigeria was reported in 1986 in a 13 year old female hawker (Azubuike and Nkangineme, 2007) and it has been estimated that Nigeria has the second largest number of people living with HIV/AIDS after South Africa, in Sub-Saharan Africa (Mass and Otte, 2009). The prevalence of HIV in Nigeria is 4.1% (Federal Ministry of Health of Nigeria, 2010).

Lack of adequate knowledge has been implicated as a major reason for high risk heterosexual behaviour and in Nigeria, the most common mode of transmission of HIV is through sexual intercourse (Ola and Oladare, 2008; Salehi et al., 2008; Akpabio et al., 2009). Several researchers have reiterated that multiple sexual partners, early sexual experience and inconsistent use of condoms have been responsible for the rise of the disease among young people (Akpabio et al., 2009). This suggests that a positive attitude towards sexual health in young people and HIV/AIDS preventive strategies/measures could produce desirable behaviours and reduced risk of infection (Akpabio et al., 2009). HIV's natural history has a long latency period between acquisition of the infection and

manifestation of the disease and this may suggest that a large proportion or percentage of individuals have been infected during youth only to develop full-blown AIDS a number of years later (Paul-Ebhohimhen et al., 2008). Adolescents including those of school age are identified as the group with highest risk of acquiring the infection since they are sexually active, take greater risks and believe in their invulnerability (Akpabio et al., 2009). The focus on young people is because people aged between 15 and 24 years of age comprise about 20% of the world's population and account for 60% of the new HIV infection each year. Studies published on HIV have suggested that young people lack information adequate enough for them to make informed decision on sexual behaviour and solution to the consequent problems that arise from such behaviours (Ola and Oladare, 2008; Paul-Ebhohimhen et al., 2008; Salehi et al., 2008).

The aim of this study was to assess the knowledge, attitude and practice of senior secondary school students in Nnewi North and Nnewi South LGAs regarding HIV/AIDS transmission.

## METHODOLOGY

**STUDY AREA:** Nnewi North is an urban Local Government Area (LGA) in Anambra State, South-Eastern Nigeria comprising of four autonomous quarters: Otolo, Uruagu, Umudim and Nnewichi. According to 2006 Nigerian census (Federal Government of Nigeria, 2007) Nnewi with an estimated population of 155,443 is renowned for its high commercial activities. The city spans over 2789.2 square kilometers in Anambra State. Nnewi North LGA has 56 secondary schools out of which there are 48 approved private secondary schools and 8 public schools (Anambra State Post Primary Schools Science Commission, 2017). Nnewi South is a rural Local Government Area in Anambra State South Eastern Nigeria with a population of approximately 233,362 (Federal Government of Nigeria, 2007). Ukpok is the headquarter of Nnewi South. Other towns in Nnewi South LGA include: Ekwulumili, Amichi, Azigbo, Unubi, Ezinifite, Osumenyi, Ebenator and Utuh. There are a total of 39 secondary schools in Nnewi South out of which there are 22 approved private secondary schools and 17 public secondary schools (Anambra State

Post Primary Schools Science Commission, 2017).

**STUDY POPULATION:** The Study population comprised of male and female senior secondary school students in Nnewi North and South Local Government Areas of Anambra State. Senior secondary one (SS1) to Senior secondary three (SS3) classes were recruited.

**STUDY DESIGN:** This was a comparative descriptive study.

#### SAMPLE SIZE DETERMINATION

Calculation was done using the Cochran formula (Araoye, 2003).

$$N = \frac{2Z^2pq}{d^2}$$

Where,

N=sample size,

Z= standard normal deviate at 95% confidence level whose value is 1.96,

p= proportion of target population estimated to have a characteristic of interest (0.914 used based on the findings of a previous study) (Pinter-Buttler et al., 2013).

q= 1-p,

d= degree of accuracy (0.05)

q = 1-0.914=0.086

$$N = \frac{2(1.96)^2 \times 0.914 \times 0.086}{(0.05)^2}$$

$$= 241.4$$

Assuming a 10% attrition rate:

$$10\% \text{ of } 241.4 = 21.14$$

$$241.4 + 21.14 = 265.5 = 266$$

$$\text{For each LGA } 266/2 = 133$$

Hence the minimum sample size for each LGA is 133.

In order to increase the power of the study, the sample was increased to 300 students per LGA.

**SAMPLING TECHNIQUE:** Multi-stage sampling technique was applied thus:

For Nnewi North LGA:

Stage 1: Stratified sampling technique was used to divide the sample size into the four villages of Nnewi giving a sample size of 75 respondents per village.

Stage 2: Simple random sampling was used to select one secondary school from each village.

Stage 3: In each school stratified sampling was used to divide the sample size into 3, giving 25 respondents for each of the three senior classes: senior secondary 1 (SS1), senior secondary 2 (SS2) and senior secondary 3 (SS3).

Stage 4: In each class, systematic sampling was used to select 25 respondents. The class registers

were used as the sampling frame.

In Nnewi south:

Stage 1: Four towns were randomly selected and stages 2-4 were repeated.

**TOOLS FOR DATA COLLECTION:** Data was collected using a semi-structured interviewer-administered questionnaire which was designed for the study.

**INCLUSION CRITERIA:** Only respondents who were senior students of secondary schools in the two LGAs.

**EXCLUSION CRITERIA:** Junior secondary school students of schools in both LGAs and senior secondary school students who did not give their consent.

**DATA ANALYSIS:** Data was analysed electronically using Statistical Package for Social Sciences (SPSS) version 20.0 and the analysed data was presented in tables. Appropriate statistical tests were applied. A p-value of less than or equal to 0.05 was considered statistically significant.

**ETHICAL CONSIDERATIONS:** Ethical approval was obtained from the Nnamdi Azikiwe University Teaching Hospital Ethical Committee. Permission was sought from the Post Primary School Service Commission Nnewi Zone. Permission was also obtained from the principals of the selected study schools.

## RESULTS

Six hundred questionnaires were distributed and all the questionnaires were retrieved, giving a response rate of 100%.

**Table 1** shows that the commonest age group was the 15-17 years age group which formed 8.7% of the respondents both in Nnewi-South and Nnewi-North. Sixty one percent (61%) of the respondents in Nnewi-South were in SS2 while 67.7% of respondents in Nnewi-North were in SS1 and this difference was statistically significant ( $p < 0.01$ ).

Table 2 shows that among the respondents, 296 (98.7%) and 295 (98.3%) from Nnewi-South and Nnewi-North respectively have heard about HIV. The major source of information on HIV/AIDS among the respondents was the health personnel, 110 (36.7%) and 149 (49.7%) in Nnewi-South and Nnewi-North respectively. Majority of the respondents (88.7% and 90.3% in Nnewi-South and Nnewi-North respectively) knew that HIV is a viral infection and the difference was statistically

**Table 1.** Socio-demographic Characteristics of respondents Present in Tabular Form.

		Nnewi South		Nnewi North		$\chi^2(p\text{-value})$
		Frequency	Percentage (%)	Frequency	Percentage (%)	
Age (years)	12-14	33	11.0	37	12.3	94.217(0.150)
	15-17	206	68.7	206	68.7	
	18-20	59	19.6	54	18.0	
	21-23	2	0.7	3	1.0	
Sex	Male	93	31.0	113	37.7	1.639(0.200)
	Female	207	69.0	187	62.3	
Class	SS1	105	35.0	200	66.7	84.483(<0.01)*
	SS2	182	61.0	92	30.7	
	SS3	12	4.0	7	2.3	
Religion	Catholic	186	62.0	76	25.3	12.247(0.907)
	Anglican	45	15.0	128	42.7	
	Pentecostal	61	20.3	91	30.3	
	Jehovah's	3	1.0	2	0.7	
	witness	0	0	1	0.3	
	Others					

\*significant

significant ( $p < 0.01$ ). Ninety five point three percent and 93.7% of respondents recognized sexual intercourse as a route of transmission. While 87.3% and 92.7% of respondents from Nnewi-South and Nnewi-North respectively knew that mother to child transmission of HIV/AIDS is possible. Sixty seven percent of the Nnewi-South and 70% of the Nnewi-North respondents had the wrong impression that there is an effective vaccine against HIV and this difference was statistically significant ( $p = 0.04$ ). Table 3 shows that 108 (36.0%) and 111 (36.9%) of the respondents from Nnewi-South and Nnewi-North respectively believed that People Living with HIV/AIDS (PLWHA) should not be allowed into the same school with those that are negative. None of the differences between the two local government areas was statistically significant.

Table 4 shows that out of the respondents, 57 (18.9%) from Nnewi-North and 55 (18.3%) from Nnewi-South have had sexual intercourse. Among the 55 respondents from Nnewi-South who have had sexual intercourse, 60% had their sexual debut at 13-15 years, in Nnewi-North, the commonest age of sexual debut was 10-12 years (33.3%). Majority (79.3% and 76.7%) of the respondents from Nnewi-South and Nnewi-North respectively claimed to practice sexual abstinence. Only 60 (20.0%) and 49 (16.3%) of respondents from Nnewi-South and

Nnewi-North respectively have been tested for HIV. None of the differences between the two local government areas was statistically significant.

## DISCUSSION

Inadequate knowledge on HIV/AIDS holds vast potential in hindering the prevention of the disease as well as care and support for people already living with HIV/AIDS. It offers potential solution to misinformation and myths, silence and denial as well as stigma and discrimination against people living with HIV/AIDS. In the current study, a high level of awareness of HIV/AIDS was demonstrated by the respondents as 98.7% and 98.3% of the respondents in Nnewi-South and Nnewi-North Local Government areas (LGAs) respectively, were aware of HIV/AIDS. This difference in the two LGAs was not statistically significant. This is similar to the findings of a study in Khamman town, Andhra Pradesh, India (92.6%) (Ojieabu et al., 2008). Similarly, a study in Ekiti state, Nigeria reported that 99.3% of senior secondary school students were aware of HIV/AIDS (Paul-Ebhohimhen et al., 2008). A lower percentage (80.2%) was reported in a study done at Ikpoba Okha LGA, Edo state (Ola and Oladare, 2008). In contrast, 100% of the students in

**Table 2.** Knowledge of HIV amongst respondents Present in Tabular Form.

		Nnewi-South		Nnewi-North		X <sup>2</sup> (P-value)
		Frequency	Percentage (%)	Frequency	Percentage (%)	
Have you heard of HIV/AIDS	Yes	296	98.7	295	98.3	0.069(0.79)
	No	4	1.3	8	1.7	
Source of information on HIV/AIDS	Health personnel	110	36.7	149	49.7	564.679(1.00)
	Media	81	27.0	104	34.7	
	friends	85	28.3	62	20.7	
	Books	106	35.3	97	32.3	
	Teachers	70		10	3.3	
	Parents	8	23.3	1	0.3	
			2.7			
What type of disease is AIDS?	Viral	266	88.7	271	90.3	123.310(<0.01*)
	Bacterial	19	6.3	21	7.0	
	Protozoal	3	1.0	3	1.0	
	Fungal	5	1.7	2	0.7	
	Don't know	6	2.0	3	1.0	
Mosquito bite is a possible cause of infection	Yes	170	56.7	178	59.3	18.550(0.76)
	No	113	37.7	99	33.0	
	I don't know	16	5.33	19	6.3	
Infected blood can transmit the virus	Yes	286	95.3	281	93.7	2.395(0.66)
	No	8	2.7	11	3.7	
Sexual intercourse with an infected person is a route of transmission	Yes	286	95.3	278	92.7	1.510(0.83)
	No	8	2.7	8	2.7	
	I don't know	6	2.0	14	4.7	
Condom is 100% protective against HIV/AIDS	Yes	112	37.3	88	29.3	5.316(0.26)
	No	134	44.7	170	56.7	
	I don't know	54	18.0	42	14.0	

Table 2. Contd.

Shaking hands with an infected person is a possible route of transmission	Yes	17	5.7	22	7.3	0.778(0.94)
	No	269	89.7	272	90.7	
	I don't know	14	4.7	6	2.0	
Sharing the same toilet is a possible cause	Yes	56	18.7	73	24.3	3.573(0.73)
	No	236	78.7	216	72.0	
	I don't know	8	2.7	11	3.7	
Sneezing and coughing can transmit the infection	Yes	91	30.3	100	33.3	3.148(0.53)
	No	194	64.7	183	61.0	
	I don't know	15	5.0	17	5.7	
MTCT of HIV is possible	Yes	262	87.3	278	92.7	2.135(0.71)
	No	32	10.7	17	5.7	
	I don't know	6	2.0	5	1.7	
There is effective treatment of HIV/AIDS	Yes	176	58.7	172	57.3	3.476(0.48)
	No	98	32.7	113	37.7	
	I don't know	25	8.3	15	5.0	
There is an effective vaccine for HIV	Yes	201	67.0	210	70.0	10.251(0.04)*
	No	55	18.3	54	18.0	
	I don't know	44	14.7	35	11.7	
Birth control pills protect against HIV	Yes	161	53.7	174	58.0	0.939(0.74)
	No	104	34.7	102	34.0	
	I don't know	33	11.0	19	6.3	
How often should an individual be tested?	Yearly	233	77.7	245	81.4	11.555(0.71)
	2 yearly	35	11.7	38	12.6	
	>2yearly	12	4.0	11	3.7	

\*significant

Erbil city Iraq were aware of HIV/AIDS (Chandrasekhar et al., 2013). In the current study, a higher proportion of the respondents in Nnewi-North LGA (90.3%) knew that the causative agent for HIV/AIDS is a virus compared with 88.7% in Nnewi-South LGA and this difference was statistically significant in contrast to the study by Chandrasekhar (75.9%) (Adam and Iseh, 2014) and Adam (52.7%) (Ola and Oladare, 2008) and that done in Benin City (79.7%) (Ojieabu et al., 2008).

However, there is deficiency in the knowledge of different routes of transmission of the disease,

treatment, and availability of vaccine for the prevention of HIV as 56.7% and 59.3% in Nnewi-South and North, respectively, believed mosquito bite, sharing the same toilet with infected persons (18.7% and 24.3% from Nnewi-South and North respectively), sneezing and coughing (30.3% and 33.3% from Nnewi-South and North respectively), there is an effective vaccine for HIV (58.7% and 57.3% from Nnewi-South and North said yes respectively), Birth control pills protect against (53.7% and 57.3% from Nnewi-South and North respectively). This is similar to the report of a study

**Table 3.** Attitude of respondents to HIV/AIDS Present in Tabular Form.

		Nnewi-South		Nnewi-North		X <sup>2</sup> (P-value)
		Frequency	Percentage (%)	Frequency	Percentage (%)	
AIDS is a disease from God	Yes	32	10.7	44	14.6	5.352(0.09)
	No	263	78.7	220	73.1	
	I don't know	32	10.7	36	12.0	
AIDS does not exist	Yes	29	9.7	30	10.0	5.352(0.25)
	No	262	87.3	251	73.4	
	I don't know	9	3.0	19	6.3	
There is need for health education on the dangers of AIDS	Yes	266	88.7	257	85.4	3.159(0.53)
	No	24	8.0	29	9.6	
	I don't know	3	3.3	14	4.7	
People who are HIV positive should be in the same school	Yes	172	57.3	161	53.5	1.310(0.86)
	No	108	36.0	111	36.9	
	I don't know	20	6.7	28	9.3	
HIV positive people should be shown love by all	Yes	236	78.7	251	83.4	1.681(0.79)
	No	60	20.0	30	10.0	
	I don't know	4	1.3	19	6.3	

in India where 61.89% believed that there is a vaccine for HIV/AIDS (68.66%), and 46.3% believed that HIV/AIDS is contracted by using public toilet (Adam and Iseh, 2014). It is also similar to finding of a study in Ekpoma where a good number of the students (48%) believed HIV can be transmitted through mosquito bites (Enahoro et al., 2015). These misconceptions were also seen in similar studies (Enahoro et al., 2015; Thanavanh et al., 2013) which might seem to be a result of lack of proper teaching in the schools and parents' negligence.

The major source of information on HIV/AIDS in this study was health personnel (36.7% and 49.7%), followed by books (35.3% and 32.3%), friends (28.3% and 20.7%) the media (27.0% and 34.7%), in Nnewi-North and South respectively. However, the least source of information was from teachers and parents (23.3% & 3.3% and 2.7% & 0.3%) in Nnewi-South and North respectively. This is in contrast to the finding of a study in Erbil city Iraq where mass media was the major source of information (66.7%) (Chandrasekhar et al., 2013) but similar to the findings by Ojieabu et al, (2008) who reported that the major source of information was from the media (47.2% of males and 50.2% of females). The role of parents and teachers in providing this information in HIV prevention is important as it would provide a better understanding

on the problem. There should be an implementation of an effective youth-friendly skill based health education activities in schools in order to reduce misconception about HIV/AIDS among adolescents. In the current study, only 57.3% and 53.5% of students from Nnewi-South and North respectively agreed that HIV positive people should be allowed in the same school with them similarly as noted earlier in Ekpoma, Edo state where 52% of the students were found not to be worried by the presence of students with the disease in their class (Enahoro et al., 2015). This can be attributed to the poor knowledge of students on the mode of transmission of HIV/AIDS.

In the current study, out of all the respondents, 18.9% from Nnewi-North and 18.3% from Nnewi-South have had sexual intercourse. Among the 55 respondents from Nnewi-South who have had sexual intercourse, 60% had their sexual debut at 13-15 years. In Nnewi-North, the commonest age of sexual debut was 10-12 years (33.3%). This is unlike the study in Lao People's republic where the commonest age at first sexual intercourse was 14-19 years (Thanavanh et al., 2013). Among the sexually active respondents, only 40% in Nnewi-south and 54.4% in Nnewi-North used a condom in their last sexual intercourse. Similarly in the study in Lao People's Republic 52.2% of the students used condom during their last sexual intercourse

**Table 4.** Practice of HIV prevention among the respondents Present in Tabular Form.

		Nnewi-South		Nnewi-North		X <sup>2</sup> (P-value)
		Frequency	Percentage (%)	Frequency	Percentage (%)	
Have you ever had sexual intercourse	Yes	55	18.3	57	19.0	0.266(0.88)
	No	245	81.7	243	81.0	
At what age (in years) was your first sexual exposure?	9 and below	3	5.5	7	12.3	152.503(0.93)
	10-12	4	7.3	19	33.3	
	13-15	33	60.0	18	31.6	
	16-18	11	20.0	13	22.80	
	19-21	4	7.3	0	0.0	
Do you use condom always in your sexual Intercourse?	Yes	20	36.4	21	36.8	3.117(0.55)
	No	35	63.6	36	63.2	
Did you use condom in your last sexual Contact?	Yes	22	40.0	31	54.4	5.915(0.21)
	No	33	60.0	26	45.6	
Do you practice sexual Abstinence?	Yes	238	79.3	231	76.7	1.117(0.57)
	No	62	20.7	67	22.3	
Have you been tested for HIV?	Yes	60	20.0	49	16.3	2.704(0.26)
	No	238	79.3	247	82.3	

(Thanavanh et al., 2013). Also in Kagera, Tanzania 50.0% of the respondents used condom during their last sexual intercourse (Othman, 2014). Majority (79.3% and 76.7%) of the respondents from Nnewi-South and Nnewi-North respectively claimed to practice sexual abstinence. A similar percentage was reported in Ekpoma, Edo state where 75.2% of respondents practice abstinence (Enahoro et al., 2015). Only 20.0% and 6.3% of respondents from Nnewi-South and Nnewi-North respectively have been tested for HIV. None of the differences between the two local government areas were found statistically significant.

## CONCLUSION

Despite adequate knowledge about HIV/AIDS among the students in both Local Government Areas, misconception about routes of transmission and methods of prevention were found. Negative attitude towards people living with HIV/AIDS were present. Risky practices were also found among the students.

## RECOMMENDATION

Government should embark on youth friendly public health education on HIV/AIDS with emphasis on the practice of preventive measures.

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