




Assessment of Knowledge on HIV Screening Among Students in Girls' Secondary School Abayi, Aba, Abia State, Nigeria

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Abstract:

Background: Voluntary counseling and testing is a vital element of Human Immunodeficiency Virus (HIV) prevention and care strategies worldwide. It is a test carried out to determine the HIV status of a person. HIV screening enables early detection and initiation of treatment which improves the quality, and life expectancy of a HIV positive individual. Adolescents are among the vulnerable groups with an increased risk of exposure to HIV/AIDS and need to embrace HIV/AIDS testing and counseling. **Objective:** To assess the knowledge on HIV screening amongst adolescents in Girls' Secondary School Abayi

with a view to enlighten them on the importance of HIV screening. **Materials and Methods:** It was a descriptive cross-sectional study and semi-structured questionnaire was used for data collection. Students within the ages of 10-19 years were selected by systematic sampling methods and 424 students were presented using tables. Association was tested at p-value of 0.05%. **Results:** There was a non-response rate of 20 (4.7%). Two-hundred and thirty-four (57.9%) of the students had good knowledge of HIV/AIDS screening and 282 (69.8%) knew that HIV screening is a test to determine individual HIV status. Uptake of HIV screening was 57(14.1%) and 178 (44.1%) students believed that the reason for poor HIV screening was lack of proper awareness. Benefits of HIV screening included helping to start early treatment as accepted by 191 (47.3%) students and 332 (82.2%) respondents agreed that the test provided opportunity for proper advice on knowledge of HIV. Association of class of the respondents and knowledge HCT was found to be statistically significant with p-values of 0.006. **Conclusion:** There was a good knowledge of HIV screening among the students. The major reason for poor screening uptake were lack of awareness on HIV screening and inadequate provision of screening opportunities. HIV screening awareness was recommended.

Keywords: Knowledge, adolescent, HIV Screening, Students, Aba, Abia State.



Introduction

Voluntary counseling and testing are integral components of Human Immunodeficiency Virus (HIV) prevention and care strategies Worldwide (World Health Organization, 2003). HIV screening, also called HIV testing, is the only way to determine the HIV status of any person. It enables early initiation of treatment if one tests positive to the virus. This improves the quality and life expectancy of HIV positive individual. Also, steps should be taken to prevent the spread of the virus to other people when doing HIV screening. Everyone should be screened for HIV at least once a year as recommended by the Center for Disease Control and Prevention (Center for Disease Control and Prevention, 2022). Individuals at higher risk of getting HIV should be tested more often (Center for Disease Control and Prevention, 2022).

HIV/AIDS is a major public Health problem in many parts of the world and is considered as a pandemic disease (Center for Disease Control and Prevention, 2022). Statistics from the United Nations Program on HIV/AIDS (UNAIDS) and World Health Organization (WHO) in 2012 reported that the number of people living with HIV at the end of 2011 was 34 million and about half of them do not know their status. The region of sub-Saharan Africa carries the greater burden of the epidemic. Despite encouraging progress in reducing the infection, the total number of new HIV infection remains the same and a total of 2.5 million new infections were reported in 2018 (World Health Organization, 2022).

Estimates from United Nations Children's Fund (UNICEF) in 2016 showed that about 2.1 million adolescents between the ages of 10 and 19 were living with HIV worldwide (Federal Ministry of Health, 2006). Nigeria follows South Africa as having the second largest HIV burden in the world with a prevalence of 4.2% (UNAIDS, 2017). This prevalence rate differs by region. In the South-South region, the prevalence stands at 5.5% which is the highest compared to other regions, while the South-East

region has the lowest with a prevalence of 1.8% (NACA, 2016).

A study among junior secondary school students in the country showed that 21% of them had ever been tested for HIV (Malik, 2020). The 2008 National demographic Health Survey reported that only seven percent of women and seven percent men had themselves tested and obtained results, in the six geo-political zones of the country, in the twelve months preceding the survey (DuRant et al., 1999). Some studies have linked HCT (HIV counseling and testing) uptake with people's knowledge of HIV/AIDS transmission and prevention (Malik, 2020; UNAIDS, 2003).

WHO defined an adolescent as a person between ages of 10 and 19. Adolescence is a period of vulnerability with onset of multiple risky behavior with the consequences of an increased risk of engaging in unprotected, multiple sexual experiences and this further exposes the adolescents to HIV/AIDS and other STDs (Malik, 2020; DuRant et al., 1999; UNAIDS, 2003). Some studies have linked HCT (HIV counselin) (UNAIDS, 2003). The testing rates in West/Central Africa and South Asia were even lower (UNICEF, 2018). HIV Screening among adolescents had been low due to factors such as perception of staff, judgmental attitude, confidentiality of the process and result, stigmatization and more especially the policy regarding age of consent to Screening (Fiser et al., 2010). To compound this, most recent data indicated that only 27 per cent of female adolescent and 16 percent of male adolescent aged 15-19 in Eastern and Southern Africa – the region most affected by HIV – had been tested for HIV in the past 12 months and received the result of the last test. In Nigeria, the adolescent's rights are limited, as there are several issues surrounding the age of consent (Ezeome & Marshall, 2009).

Human Immunodeficiency virus (HIV) testing determines if one is infected with HIV, a virus that weakens the immune system and can lead to acquired immunodeficiency syndrome (AIDS). Some HIV tests check for antibodies and

antigens in reaction to HIV infection. Many people are unaware that they are infected with HIV, so they may be less likely to take precautions to help prevent spreading the virus to others. Also, early diagnosis often results in earlier treatment with drugs that may delay the progression to AIDS (Obionu, 2018).

Persons at higher risk of getting HIV infections are those who have had unprotected vaginal, oral or anal sexual intercourse with more than one sexual partner or with an anonymous partner, and homosexuals. Others include intravenous drug users, unprotected sex practitioners and persons who had been sexually assaulted. Individuals who have been diagnosed with tuberculosis or a sexually transmitted infection (STI), such as hepatitis or syphilis are also at risk (Obionu, 2018).

Among people who tested positive for HIV in the Demographic and Health Surveys conducted in 19 low- and middle-income countries (mostly in sub-Saharan Africa) between 2011 and 2015, only 50% of people aged 15 to 19 years had ever been tested for HIV and received the results, suggesting that the other 50% were unaware of their HIV-positive status. In comparison, 76% of people aged 20 to 24 years living with HIV and 78% of people aged 25 to 29 years living with HIV had tested and received the results (World Health Organization, 2003).

Adolescents continue to be disproportionately affected by HIV (UNAIDS, 2015; UNICEF, 2005). In 2016, 2.1 million people aged between 10 and 19 years were living with HIV and 260,000 became newly infected with the virus (Pettifor et al., 2018). The number of adolescents living with HIV had risen by 30% between 2005 and 2016 (Ahonkhai et al., 2021). The number of adolescents dying due to AIDS-related illnesses tripled between 2000 and 2015, the only age group to have experienced a rise (UNAIDS, 2015). In 2016, 55,000 adolescents between the ages of 10-19 had died through AIDS-related causes (Tesfaye et al., 2017; UNICEF, 2018). In fact, half of the 15 to 19-year-olds who were living with HIV in the world lived in just six countries: South Africa, Nigeria, Kenya, India,

Mozambique and Tanzania (Be in the Know, 2015). In 2016, 73% of new HIV infections among adolescents occurred in Africa (UNICEF, 2005). In 2016, 240,000 adolescents were living with HIV, making up 7% of the total number of people with HIV in Nigeria (UNAIDS, 2015). Estimates suggested that as many as 740,000 additional adolescents could become infected between 2016 and 2030 (UNICEF, 2005).

In a study carried out in Osun State it was found out 67.8% of the respondents correctly reported that HCT was used to screen for HIV/AIDS (Amu, & Ijadunola, 2011). This study is intended to provide information for future researchers and also for policy makers who will use it for intervention strategies. Hence this study will be on assessment of adolescents' knowledge on HIV screening among students in Girls' Secondary School Abayi, Aba.

Methods and Materials

Study Location

This study was conducted in Girls' Secondary School, Abayi. Ossioma-Ngwa Local Government Area (LGA). The choice of Girls' Secondary School was from the two girls' secondary schools, both of which are located in Amasator electoral ward, out of 15 secondary schools with two Boy's high Schools and eleven mixed secondary schools in the LGA. They are Girl's Secondary School Abayi (harboring junior and senior sections) and Umuocham Girls Secondary School (harboring senior secondary section). Girls Secondary School Abayi was studied between May to August 2020 in Amasator electoral ward, one of the ten electoral wards in LGA. The LGA has an area of 198 Square Kilometer and a population of 220,662 as per 2006 census data of Nigeria projected to 289,100 at 2.7% in 2016 annual growth rate. The population of adolescent is 51,257 with male: female ratio of 50.2%:48.8%; 25,731:25,526 and so there are 25,526 female adolescents in LGA (Citypopulation.com, 2022). There are 848 female students in the school. Adolescents population are persons between ages of 10 and

19 years in Nigeria is 41,050,000 and 22% of total population (UNICEF-SOWC, 2017). There are 10,648 female adolescents in public secondary schools in the LGA.

Osisioma-Ngwa LGA shares boundaries with Ukwa West and Ugwunagbo in the South, Aba South LGA and Aba North LGA in the East, Isiala-Ngwa South LGA in the North and Omuma LGA, Rivers State in the West. Aba city is a major landmark close to Osisioma-Ngwa and it is the commercial center in Abia State. People of Osisioma-Ngwa are well known for their craftsmanship. There are about 160 Government owned secondary schools in Abia State of which Girls' Secondary School Abayi is included, it is located at 172 Aba-Owerri Road, Abayi, Osisioma-Ngwa, Abia.

Study Population

The study population was 848 students which was 8% of 10,648 female adolescent students in the LGA. There are 440 students in the Junior secondary School and 408 students in the Senior Secondary School (UNICEF-SOWC, 2017).

Inclusion criteria

This included adolescent students in Girls' Secondary School Abayi, OsisiomaNgwa who gave consent for the study.

Exclusion Criteria

This included those students of Girls' secondary Abayi, OsisiomaNgwa, who were not adolescent.

Study Design

This was a descriptive cross-sectional study carried out among adolescents in Girls' Secondary School Abayi, OsisiomaNgwa. An interviewer administered questionnaire was used to obtain information from the respondents.

Sample Size Determination

The sample size was determined using the formula (Charan & Biswas, 2013):

$$N = \frac{Z^2PQ}{D^2} \quad (1)$$

Where:

N= required sample or minimum sample size

Z= constant (1.96) [standard normal deviate]

P= proportion with the desired characteristics²⁰

P = 67.8%

Q= 1-P

D= degree of accuracy (0.05)

$$Q = 1 - P (= 1 - .678 = .322)$$

$$N = [1.96]^2 \times 0.678 \times 0.322$$

$$[0.05]^2$$

$$= 0.839/0.0025=336$$

The sample size obtained was then increased by 10% to accommodate the non-response rate.

$$N + 10\% \text{ of } N = 336 + [10/100] \times 336 = 336 + 33.6$$

Therefore, sample size [N] was equal to 369.6 = 370. Fifty-four was added to 370 to make it up to 424 as the sample size which made it half of the school population and population of study. This is done to increase level of precision.

Sampling Technique

Sampling technique was systematic sampling from the class register of 848 and sample size of 424. Sample fraction was 424/848 (1/2) and the sampling frame was 001 to 848 and the sampling interval was 2. Starting point lies between 001 and 002 and table of random number was consulted to select 002 as the starting point. With sampling interval of 2, 424 students were selected between 001 and 848.

Data Collection Method

Data was collected in July 2020 by using semi-structured self-administered questionnaires on the participants who had given consent by the research team.

Data Analysis

Data collected were entered into and analyzed using Statistical Package for Social Science [SPSS], Version 26.0. Continuous/numerical variables were summarized using mean and standard deviation, categorical variables were summarized using frequency and proportions. Good knowledge signified number and percentage of respondents who scored $\geq 50\%$ of the knowledge questions of the questionnaire, Poor knowledge signifies number and percentage of respondents who scored $< 50\%$ of the knowledge questions of the respondents. Chi-Square test was used to test the association between sociodemographic variables and level of knowledge of the participant at statistically significant level of p-value of < 0.05

Ethical approval

Ethical approval for this work was sought for and obtained from the ethics and research committee of Abia State University Teaching Hospital, Aba. Permission was obtained from the school authority of Girls' Secondary School Abayi, Aba and informed consent was obtained from the participants. All information received from our respondents was handled with utmost confidentiality.

Results

A total of 424 students was the sample size in the study with non-response rate of 20 (4.7%) leaving 404 students being the only participants.

Table 1 showed the following: Age group 15 – 19 showed highest respondents of 265 (65.6%), 10 – 14 showed 139 (34.4%), 404 (100%) female and no male. Igbo tribe constituted majority of 392 (97.0%) and Hausa of 3 (0.7%). Senior

secondary classes constituted majority of 203 (50.2%) and junior of 201 (49.8%).

Table 1. Socio Demographic Characteristics of Respondents

Variables		Frequency	Percentage (%)	
Age group	10 – 14	139	34.4	
	15 – 19	265	65.6	
Total		404	100.0	
		Female	404	
Tribe	Igbo	392	97.0	
	Hausa	3	0.7	
	Others (Efik)	9	2.3	
Total		404	100.0	
Classes of respondents	JSS1 – JSS3	201	49.8	
	SSS1 – SSS3	203	50.2	
	Total		404	100.0

Note: The values of ages of respondents at last birthday showed a mean of 14.9 ± 1.661

Table 2. Level of Knowledge of HIV Screening Among the Respondents

Variables		Frequency	Percentage (%)
Knowledge of HIV Screening among the respondents	Good knowledge	234	57.9
	Poor knowledge	170	42.1
Total		404	100.0

Table 2 level of knowledge of respondents, two hundred and thirty-four respondents (57.9%) demonstrated good knowledge and one hundred and seventy respondents (42.1%) demonstrated poor knowledge.

Table 3. Knowledge of HIV Screening Among the Respondents

Variables		Frequency	Percentage (%)
Knowledge of HIV Screening among the respondents	It is screening done to know if one is sick	30 participants answered wrongly	7.4
	It is screening done to know if one has sexual intercourse	70 participants answered wrongly	17.3

	It is screening done to know if one has liver disease	22 participants answered wrongly	5.5
	It is screening done to know one's HIV status	282 participants answered correctly	69.8
Total		404	100.0

Table 4. Knowledge of HIV Screening

Variables		Frequency	Percentage (%)
1.	HIV screening helps to know someone's HIV status	138 answered correctly	34.2
2.	HIV screening help to start early treatment if the person is HIV positive	191 answered correctly	47.3
3.	HIV screening helps to prevent other sexually transmitted infections	68 answered wrongly	16.8
4.	HIV screening provides a permanent treatment for the disease	7 answered wrongly	1.7
Total for responses for each statement		404	100

Table 3 showed that 282 (69.8%) understood what HIV Screening was while 122 (30.2%) did not understand what HIV screening was.

Table 4 showed responses of participants on some of the knowledge questions asked. In number 1 question, one hundred and thirty-eight (34.2%) answered correctly. In number 2, 192 (47.3%) answered correctly, sixty-eight (16.8%)

answered wrongly the question in number 3 and seven (1.7%) answered question in number 4.

Table 5 showed that there was uptake of HIV screening among 57 (14.1%) respondents and these range from those who had once, twice, thrice, equal and more than four time while 347 (85.9%) did not have any uptake of HIV screening.

Table 5. Uptake of HIV Screening Among the Respondents

Variables		Frequency	Frequency	Percentage (%)	Percentage (%)
Uptake of HIV screening among the respondents.	twice	27	57	6.7	14.1
	once	10			
	3 times	9			
	≥4 times	11			
	none	347	347	85.9	
Total		404		100.0	100.0

Table 6. Reasons most adolescents don't do HIV Screening.

Variables		Frequency	Percentage (%)
Reasons most adolescents don't do HIV screening.	Lack of proper awareness.	178	44.1
	Doesn't think it is necessary	151	37.4
	Not aware of the testing centers	125	30.9
	Lack of confidentiality	73	18.0
	Feeling of being judged by the HIV screening provider	66	16.3
	Ignorance about HIV screening	62	15.3
	Health workers attitude	57	14.1

	Cost of screening	56	13.9
	Distance of the screening centre.	40	9.9

The table 6 shows reasons why most adolescents did not do HIV screening as 178 (44.1%) respondents said that lack of proper awareness was their reason, One hundred and fifty-one (37.4%) respondents thought it was unnecessary, One hundred and twenty five (30.9%) felt that unawareness of screening centre, seventy three

(18.0%) said lack of confidentiality, sixty six (16.3%) felt being judged by HIV screening provider, Sixty-two (15.3) respondents accepted that ignorance about HIV screening, fifty-seven (14.1%) said it was health workers' attitude, fifty-six (13.9%) said cost of screening, forty (9.9%) said distance of screening centre.

Table 7. Adequate knowledge on HIV screening guides participants on going for it.

Variables		Frequency	Frequency	Percentage (%)	Percentage (%)
Going for HIV screening provides opportunity for proper advice on knowledge of HIV	Agree	240	332	59.4	82.2
	Strongly agree	92		22.8	
	Disagree	21	37	5.2	9.2
	Strongly disagree	16		4.0	
	Indifferent	35	35	8.6	8.6
Total		404	404	100.0	100.0

Table 8. Association between socio-demographic characteristics and knowledge of HCT

Variables		Knowledge of HCT		Total N (%)	χ^2	P – value
		Good knowledge N (%)	Poor knowledge N (%)			
Age grade	10 – 14	73 (29.3)	66(16.3)	139 (34.6)	0.237	2.878
	15 – 19	133 (31.7)	132 (33.7)	265 (65.4)		
Total		206 (51.0)	198 (49.0)	404 (100.0)		
Tribe	Igbo	227 (56.2)	165 (40.8)	392 (97.0)	0.599	1.027
	Hausa	1 (0.2)	2 (0.5)	3 (0.8)		
	Others (Efik)	6 (1.4)	3 (0.8)	9 (2.2)		
Total		234 (57.8)	170 (42.2)	404 (100.0)		
	Christianity	233 (57.6)	167 (41.3)	400 (98.9)	0.180	1.796
	Islam	1 (0.3)	3 (0.8)	4 (1.1)		
Total		234 (57.9)	170 (42.1)	404 (100.0)		
Class	JSS1-JSS3	131 (32.5)	70 (17.3)	201 (49.8)	0.006	10.085
	SS1-SS3	103 (25.3)	100 (24.9)	203 (50.2)		
Total		234 (57.8)	170 (42.2)	404 (100.0)		

Table 7 showed the importance of going for HIV screening, three hundred and thirty-two (82.2%) agreed, thirty-seven (9.2%) disagreed while thirty-five respondents (8.6%) were indifferent.

Table 8 shows the association of socio-demographic characteristics and knowledge of HCT: Association of class of the respondents and knowledge HCT was found to be statistically significant with p-values of 0.006 while

association of age group, tribe and religion and HCT was not statistically significant with p-values of 0.237, 0.599 and 0.180 respectively..

Discussion

The age of the adolescents in this study ranged from 10-19 years, mean age of respondents was 14.9 ± 1.661 . In a study carried out among undergraduates between age ranges of 18 to 40

years of Niger Delta University, Nigeria, the mean age was 20.62 ± 2.28 (Aleude et al., 2005). This was higher than that of our study possibly because the respondents were older than our respondents. In this study, 57.9% of the respondents had good knowledge of HIV screening. This was similar with a study carried out in the United States, where 84% of the respondents had good knowledge of HIV screening (Iwu et al., 2017; Mulu, Abera, & Yimer, 2014). Also in a study done in Malawi³⁰ more than 90% of the respondents had good knowledge of HIV screening and this result was consistent with Malawi Demographic and Health Survey (MDHS) (National Statistical Office, 2008) National Survey of Adolescents (NSO) (Mulu, Abera, & Yimer, 2014) and Orlu, Imo State (Iwu et al., 2017). Similarly, a study conducted in Addis Ababa among high school student stated that 75.7% of the students were aware about voluntary HIV testing and counseling service (Addis et al., 2013). However, the level of knowledge in our study was lower than those of USA, Malawi and Addis Ababa This may be due to differences in the level of ignorance and lack of awareness among the respondents in the study groups.

The respondents in our study who had misconception such as; test to know if someone had sexual intercourse or test to know if someone had liver disease or test to show if someone had ordinary illness had poor knowledge. Similar misconceptions about HIV transmission and prevention were reported by studies conducted in Uganda (Wanyenze et al., 2008), Botswana (Letamo, 2007), Nigeria (Federal Ministry of Health, 2003), South West China (Derlega, Yang, & Luo, 2006), Cyprus (Cleanthous et al., 2008). Overall, only about a fifth of the respondents had good knowledge of HIV screening. The high level of misconception about HIV and screening test noted in their studies may be responsible for most of the respondents having low overall knowledge score.

There was a high level of awareness of HIV/AIDS (96.9%) in a study in Nasarawa State (Alhassan & Nalah, 2022) Nigeria. Previous researches conducted within the country also

corroborated this finding. In two national studies, HIV/AIDS awareness was 94 and 91% (nationally) (USAID, 2009; Adeneye et al., 2006) and 97 and 95% (in the South West) (Adeneye et al., 2006).the fact that people were aware of HIV/AIDS did not translate into correct knowledge of transmission and prevention of the disease.

The above findings and that of our study were inconsistent with the study conducted in Bahir Dar University (Mulu, Abera, & Yimer, 2014) with 45.7%, Plateau (Abubakar, 2008) Nigeria with 41.0%, Akwa-Ibom (Badru et al., 2020) with 9.4%, of the respondents were knowledgeable about HIV/AIDS (Abubakar, 2008). The possible reasons for these levels of knowledge may be due to ignorance and lack of awareness.

In this study, 178 (44.1%) of the respondents stated that lack of proper awareness the major reason why adolescent didn't do HIV screening, this finding was different among youths in Kwara state (Yahaya, Jimoh, & Balogun, 2010) where the cost of VCT was the major reason for hindering factors for VCT. This was also different in Ethiopia (Leta, Sandøy & Fylkesnes, 2012; Rahel & Ebrahim, 2014) where AIDS-related stigma and discrimination where the major factors affecting the utilization of HCT services. In a similar study carried out in Osun state, 35.6% of the respondents pointed that the most important reason for not accessing HIV counseling and testing were the perception of being in good health (Abubakar, 2008). Also in a study carried out in South Africa in 2012, results showed that respondents aged 16 and older had fear of HIV testing (Letamo, 2007). While in a study carried out in Sydney sexual health clinics, the most commonly reportedly barriers to testing were annoyance at having to return for results (30.2%), not having done anything risky [29.6%], the stress in waiting for results (28.4%), being afraid of testing positive (27.5%), and having tested recently (23.2%) (Adeneye et al., 2006; Abubakar, 2008).

In this study, association of the class of the respondents and knowledge of HCT was statistically significant with p-value of 0.006.

Conclusion

There was a good knowledge of HIV screening among adolescents with a poor uptake of HIV screening among the respondents. The reasons for poor screening uptake among adolescents were lack of awareness on HIV screening and inadequate provision of screening opportunities.

Proper awareness of HIV screening in secondary schools, churches and mosques. and through public enlightenment campaign.

Recommendation

The mass media should be recommended to enlighten the adolescents on the knowledge and importance of HIV screening. All schools should incorporate HIV counseling and testing as part of their pre-admission medical examination. Pediatric clinics should include HIV testing and counseling as a routine test effective practice of Provider-Initiated Testing and Counseling (PITC) by healthcare providers, Non-Governmental Organizations (NGOs), should be carried out in secondary schools, Churches, and Mosques

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