

Assessment of Senior Secondary School Students' knowledge of HIV/Aids in IN Oredo Local Government Area of Edo State

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Abstract: The knowledge of Human Immunodeficiency Virus (HIV) status of an individual is critical in the prevention and treatment of the virus. The objective of this study was to assess the senior secondary school students' knowledge of HIV/AIDs in the Oredo LGA, of Edo State, Nigeria. It was a cross-sectional descriptive study involving pre-tested questionnaire where a multi stage sampling procedure was used. The raw data were analyzed using SPSS version 22.0. A total of 394 students with mean age 15 ± 1.5 years (range 13-18years) selected from four secondary schools. The result revealed that majority 374 (94.9%) of the respondents were aware of HIV infection and the major source of information on HIV/AIDS was from school (50.0%) while the least common source of information was bills/posters (0.5%). More than half of them 231 (58.6%) demonstrated high level of knowledge of HIV. It was revealed that knowledge increases with increasing age ($P = 0.001$) and among students who attend girls-only schools ($P = 0.047^*$). In conclusion, awareness and knowledge of HIV is high but some misconceptions abound. Therefore, more knowledge driven academic programmes is recommended.

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I. Introduction

In the treatment and prevention of the viral disease, Human immunodeficiency virus (HIV), the awareness of the disease status of the individual is very sacrosanct. According to the World Health Organisation this awareness helps in valid decision making process, adoption of preventive steps and also in subjective risk assessment for the viral disease thereby playing an important role in the reduction of the disease spread due to change in approach¹ and behaviour gotten from the awareness of sexually transmitted infections (STIs) including immune deficiency diseases like HIV/AIDS². In Nigeria, the diagnosis of first cases of the disease HIV/AIDS was in 1985 in a 13 year old girl who was a sex worker in Lagos³. A total of two million, two hundred thousand fresh reports on HIV infections have been made since 2014. Teenagers around the ages of 15 were majorly affected and in 2014, it was also noted that children under the age of 15 years that were infected with the viral disease (HIV) was about 58,000 in number. This information was recorded by the National Agency in-charge of AIDS Control in 2014⁴.

In 2005, there was an increase of 30% of people infected and living with the virus globally while in 2016 about 2.1 million teenagers were laden with the virus. Trending reports about fresh infections by the aforementioned viral disease in the between the fall of 2010 and 2016 among teenagers (within the ages 15-19) leading to increase in the percentage of infected teenagers in Central Asia as well as in Eastern Europe to 27% and a fall in the percentage of infected individuals in Southern regions as well as Eastern regions of Africa to 21%. From the year 2000, about 5.7 million teenagers were newly infected by the viral disease. The total amount of teenagers infected with HIV was about 240,000 in the year 2016 and this constitutes about 7% of the total amount of infected individuals in Nigeria⁵. The prevalent pattern of HIV is different for a region compared to another, for instance the prevalence of the aforementioned disease in the teenagers (within age 15-19) living with the infection in the South-East is 1.3 percent unlike in the South-South where it is 4.3 percent.

That adolescents are disproportionately affected by the reproductive health morbidity, including HIV/AIDS, have draws attention to the need for appropriate interventions. An adequate knowledge is imperative to prevent the increasing burden of HIV infection in school age children. Inadequate knowledge of development, lack of correct health information, the taboos associated with sex education at homes and schools, indulgence in risky behaviors and a lack of access to adequate reproductive health services further lends the adolescents susceptible to the disease. Once the epidemic sets out in this age group, it is tougher to trace and treat. Hence, the present study is being undertaken to assess the senior secondary school students' knowledge of HIV/AIDs in the Oredo LGA, of Edo State.

II. Material and Methods

This descriptive survey which was aimed at assessing and documenting knowledge of Senior Secondary School Students on HIV/AIDs was carried out amongst selected government owned Secondary Schools in Oredo Local Government Area of Edo State, Nigeria from September to December 2018. A total of 396 students (both male and female) of age range 13-18years participated in the study.

Study design: descriptive cross-sectional study

Study location: this was knowledge based study done among Senior Secondary School Students on HIV/AIDs was carried out amongst selected government owned Secondary Schools in Oredo Local Government Area of Edo State, South-south, Nigeria

Study duration: September to December 2018

Sample size: 396 students

Sample size calculation: The sample size for the study is 396. This was calculated using the Taro Yamane equation. The target population from which we got our sample was 3574. The Yamane approach is given by: $n = N / (1 + Ne^2)$.

Where N = population size = 3574

e = alpha level, i.e. e = 0.05 at confidence interval of 95%.

$$\text{Therefore, } n = \frac{3574}{[1 + 3574(0.05)^2]} = \frac{3574}{[1 + 3574 (0.0025)]} = \frac{3574}{9.935}$$

$$n = 360$$

Adjusting for attrition rate (i.e missing or non-returned questionnaires), additional 10% of the sample size will be included Taro Yamane approach = $360(10/100) = 36$

Hence, the sample size for the study = $360+36 = 396$ respondents.

But during the process of data collection, only three hundred and ninety four (394) out of three hundred and ninety six (396) questionnaires distributed were returned satisfactorily completed, giving the response rate of 99.5%.

III. Subjects & Selection Method

According to the Edo state ministry of education, there are 14 public secondary schools distributed evenly within the Oredo Local Government Area (LGA) out of which four secondary schools were selected through multistage sampling techniques. In this sampling technique, the Oredo LGA was divided into wards which were 12 in number. Out of the twelve wards only six wards have government secondary school evenly distributed on each of them. In the first stage of the sampling, four wards were randomly picked from the six wards (lucky dip without replacement) in the second stage of the sampling one school were randomly picked from each of the four wards (lucky dip without replacement). Since the population was a heterogeneous population of senior secondary school students of different schools and students of different sex, a stratified proportionate sampling method was used in the assortment for an appropriate sample size from each school. The schools includes

Ogbe Mixed Secondary school with 48 selected students (28 male and 20 female)

Oba Akenzua II Mixed Secondary school with 138 selected students (95 male and 43female)

Edokpolor Grammar School (male-only school) with 123 selected students

Imaguero Girls Secondary School with 87 selected students.

Inclusion Criteria

1. A registered senior student of any of the selected government secondary school in Oredo Local Government Area of Edo State, Nigeria ,
2. Aged ≥ 13 years
3. Present during the period of data collection
4. Willing to participate in the study
5. Picked "YES" during balloting.

Exclusion Criteria

1. A non-registered senior student of any of the selected government secondary schools
2. Aged < 13
3. Not present during the period of data collection
4. Not willing to participate in the study
5. Picked "NO" during the balloting

Procedure methodology

First, an application for ethical approval was made to the Edo state commissioner of education which was granted. Secondly, the study participants will be requested to sign the informed consent form (Appendix I). A pretested structured questionnaire containing both closed and opened ended questions on knowledge and prevention of HIV/AIDS were administered to the participants. The validity of the research instrument was ascertained by research specialist in measurement and evaluation while the Cronbach alpha reliability (coefficient alpha) value of the instrument was 0.88. Data was collected on every working day from Monday to Friday during schools' break time. The sample size for the study is 396. Simple random probability sampling (balloting) approach was used to recruit the participants. In this process, pieces of paper was cut out and "YES" was written on some of them while others contained "NO" based on the selected sample sizes in each school. The students were asked to pick just one piece of the papers. Any student who picked "YES" was included in the study while those who pick "NO" were excluded. The questionnaire consists of five sections. Section A - Deals with socio-demographic characteristics. This section consists of six questions and sought information about the age, sex, religion, ethnicity, etc., section B - consist of eleven questions which elicit participants' knowledge of HIV/AIDS of transmission, section C - consist of fourteen questions on knowledge of prevention of HIV/AIDS. Selected voluntary participants who were up to 18years were requested to sign the informed consent form while those below 18years their class masters sign for them as legal guardians. Throughout the course of this research study, the ethical principles guiding the use of human participants in research as stipulated by the Belmont report will be strictly followed.

Statistical analysis

The raw data that will be retrieving was coded and imputed into a computer for easy analysis using SPSS version 22.0. A scoring system was developed for section B – C. For section B and C which assesses knowledge of HIV/AIDS and its prevention, each correct answer carried 1 mark for a correct answer and zero for any wrong answer. Respondents' total scores was converted to percentages and categorized as follows: <50% = low knowledge, 50% -69.9% = moderate knowledge, 70% and above = high knowledge. P < 0.05 was considered level of significance for all measure variables.

IV. Result

Socio-demographic Characteristics of the respondents

Table no 1 revealed the demographic characteristics of the respondents. The mean age of the respondents in this study was 15 ± 1.5 years (range 13-18years). Respondents within the age range 13-15 were more 218 (55.3%) while those between 16-18years were 176 (44.7%). Almost two-third were male 244 (61.9%) while female were 150 (38.1%). The predominant ethnic group is Bini 179 (45.4%). Majority of the respondents were Christian 368 (93.4%) while Islam and African Tradition Religion (ATR) were 24 (6.1%) and 2 (0.5%) respectively. More of the respondents attend mixed (Boys and Girls) school 184 (46.7%). Those who attend boys-only secondary school were more 123 (31.2%) than those that attend girls-only school 87 (22.1%). Respondents who were in SS1 class 194 (49.2%) were more than their counterparts in SS2 160 (40.6%) and SS3 40 (10.2%) respectively.

Table no 1: shows espondents' Demographic characteristics

n = 394			
Variables	Tenets	Frequency	Percent
Age	13-15	218	55.3
	16-18	176	44.7
Sex	Male	244	61.9
	Female	150	38.1
Ethnic Group	Bini	179	45.4
	Itsako	11	2.8
	Esan	49	12.4
	Other	155	39.3
Religion	Christian	368	93.4
	Islam	24	6.1
	A T R	2	0.5
School Composition	Boys-Only	123	31.2
	Girls-Only	87	22.1
	Boys & Girls	184	46.7

Students Class			
	SS1	194	49.2
	SS2	160	40.6
	SS3	40	10.2

A.T.R* (African Traditional Religion)

Source: Researcher's field work, 2018.

Awareness of HIV/AIDS

Table no 2 showed that majority 374 (94.9%) of the respondents were aware of HIV infection

Table no. 2: Shows respondents' awareness and source of information regarding HIV

Tenets	Response	Frequency	Percent	Remark
HIV/AIDS' Awareness	Yes	374	94.9	High
	No	20	5.1	
	Total	394	100.0	

Source: Researcher's field work, 2018.

Sources of information regarding HIV

Table no3 revealed that the major source of information was from school. This was followed by electronic media 112 (28.4%) and health professionals 51 (12.9%). The less common sources of information were from friends and relatives 32 (8.1%) and bills/posters 2 (0.5%) respectively.

Table no 3: Shows sources of information regarding HIV

Tenets	Response	Frequency	Percent	Remark
Source of information about HIV	Electronic Media	112	28.4	Major source
	Health Professionals	51	12.9	
	School Seminars/lecture	197	50	
	Friends and Relatives	32	8.1	
	Bills/posters	2	0.5	
	Total	394	100.0	

Source: Researcher's field work, 2018.

Knowledge of HIV/AIDS Transmission, Prevention and Control

From the Table no 4, the respondents demonstrated high knowledge on the fact that HIV attacks the immune system and it can be transmitted from one person to another 394 (100.0%) respectively. Other areas where they demonstrated high level of knowledge of the virus includes availability of active treatment for HIV/AIDs 334(84.8%) and preventability of HIV/AIDs 364(92.4%). Moderate level of knowledge was recorded in "what HIV positive meant" 241(61.2%), whether a healthy looking person can be HIV positive 270(68.6%), and whether HIV is incurable 226(57.4%). However, many of the respondents demonstrated misconception about AIDS being a hereditary disease 241(61.2%). It also revealed that the respondents have considerable knowledge of mode of transmission of HIV. Majority of the respondents knew that HIV can be acquired through unprotected sexual intercourse 390 (99.0%), sharing of sharp objects 387(98.2%), and transfusion of unscreened blood/blood products 380 (96.4%). They also knew that HIV cannot be acquired by sleeping in the same room with infected person or through mosquitoes bites 290(73.6%), kissing of infected person 220(55.8%), sharing of same swimming pool 310(78.7%), through sharing same utensil or drinking cup 232(59.0%), touching or hugging infected persons 365(92.6%), and spiritual attack 328(83.2%). Furthermore, it revealed that the respondents have considerable knowledge of various means and methods by which HIV could be prevented. These include not having pre-marital or casual sex 376(95.4%), by correct and consistent use of condoms during sexual intercourse 351(89.1%), by avoiding sharing of sharp objects 379(96.2%), and by screening of pregnant women during ANC period 384(97.5%). The overall knowledge score revealed that more than half of the respondents 231 (58.6%) demonstrated high level of knowledge of HIV infection, mode of transmission and its prevention while 120 (30.5%) and 43 (10.9%) demonstrated moderate and low level of knowledge respectively (figure no 1).

Table no 4: Shows respondents of knowledge of HIV

Knowledge of HIV (n = 394)				
Tenets	Variables	Correct Response		
		No.	%	
Knowledge of the virus	HIV attacks the immune system	394	100.0	
	HIV positive means presence of the virus in one's body	241	61.2	

	HIV can be transmitted from one person to another	394	100.0
	A healthy looking person can be HIV positive	270	68.6
	There are active treatments for HIV/AIDS	334	84.8
	HIV/AIDS is preventable	364	92.4
	HIV is incurable	226	57.4
	AIDS is a hereditary disease	241	61.2
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Knowledge of mode of transmission	through unprotected sexual intercourse	390	99.0
	through sharing of sharp objects	387	98.2
	through from mother-to-child	162	41.0
	through transfusion of unscreened blood/blood products	380	96.4
	by sleeping in the same room with infected person	345	87.6
	through mosquitoes' bite	290	73.6
	through kissing of infected person	220	55.8
	through sharing of same swimming pool	310	78.7
	through sharing same utensil or drinking cup	232	59.0
	by touching or hugging infected persons	365	92.6
	through spiritual attack	328	83.2
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Knowledge of HIV Prevention	by having one faithful tested sexual partner	271	55.1
	by not having pre-marital or casual sex	376	95.4
	by correct and consistent use of condoms during sexual intercourse	351	89.1
	by avoiding sharing of sharp objects	379	96.2
	by ensuring one received only screened blood for transfusion	230	58.4
	by screening of pregnant women during Antenatal Clinic (ANC) period	384	97.5
	by counselling HIV pregnant women to deliver their babies through caesarean Section	191	48.4
	by counseling HIV pregnant mothers not to breastfeed their babies	205	52.0

Source: Researcher's field work, 2018.

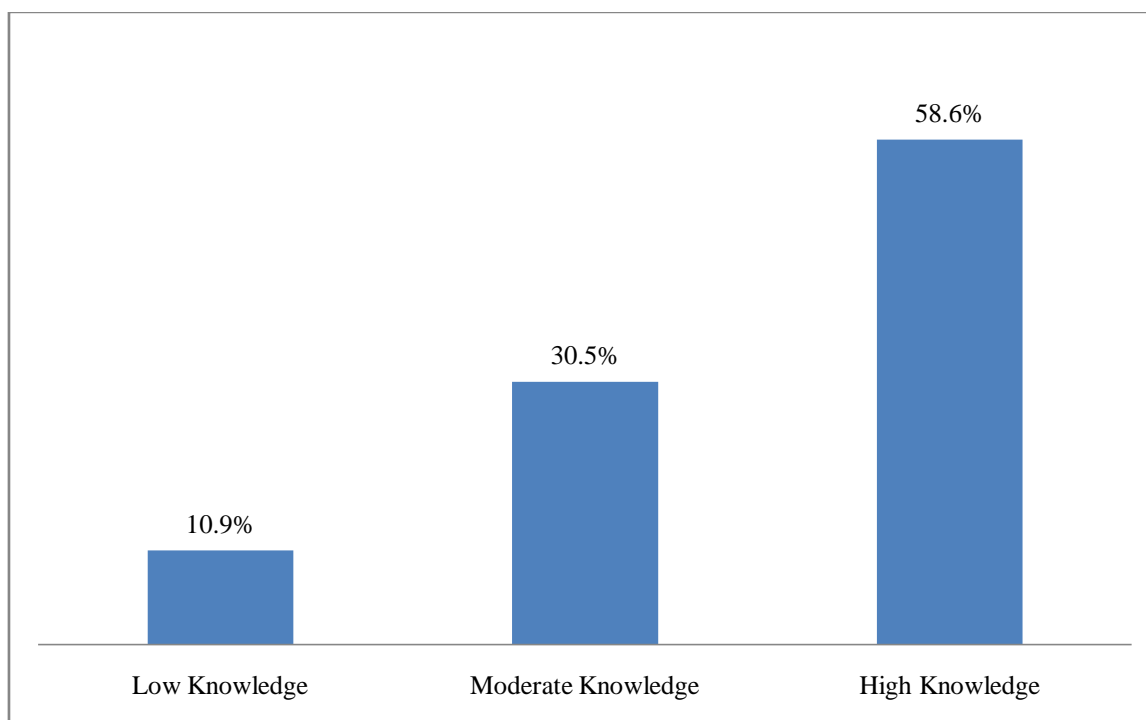


Figure no 1: shows respondents' level of knowledge of HIV

Source: Researcher's field work, 2018.

Predictor of knowledge of HIV infection, mode of transmission and its prevention

Table no 5 showed the determinants of knowledge of HIV infection, mode of transmission and its prevention among the respondents. It revealed that knowledge increases with increasing age among the respondents and this was statistically significant (P= 0.001). Female students appeared more knowledgeable than their male counterparts, a better knowledge was also noticed among respondents who are of Itsako origin but none of these was found to be statistically significant. In terms of school composition, students who attend girls-only school demonstrated a better knowledge than their counterparts who attends either boys-only or boys and girls schools. This was found to be statistically significant (P = 0.047*). More also, students in higher class (SS3) had better knowledge than those in other classes but this also was not statistically significant.

Table no 5: Shows predictor of knowledge of HIV infection, mode of transmission and its prevention

Knowledge of HIV infection, mode of transmission and its prevention n =394						
		Low n (%)	Moderate n (%)	High n (%)	Total n (%)	P-value
Age	13-15	23 (10.5)	71 (32.6)	124 (56.9)	218 (100)	0.001*
	16-18	20 (11.4)	49 (27.8)	107 (60.8)	176 (100)	
Sex	Male	23 (9.4)	69 (28.3)	152 (62.3)	244 (100)	0.146
	Female	20 (13.3)	51 (34)	79 (52.7)	150 (100)	
Ethnic Group	Bini	21(11.7)	49 (27.4)	109 (60.9)	179 (100)	0.844
	Itsako	2 (18.2)	5 (45.5)	4 (36.4)	11 (100)	
	Esan	5 (10.2)	15 (30.6)	29 (59.2)	49 (100)	
	Other	15 (9.7)	51 (32.9)	89 (57.4)	155 (100)	
Religion	Christian	39 (10.6)	109 (29.6)	220 (59.8)	368 (100)	0.112
	Islam	3 (12.5)	11 (45.8)	10 (41.7)	24 (100)	
	A T R	1 (50)	0 (0)	1 (50)	2 (100)	
School composition	Boys Only	12 (9.8)	37 (30.0)	74 (60.2)	123 (100)	0.047*
	Girls Only	16 (18.3)	31 (35.7)	40 (46.0)	87 (100)	
	Boys & Girls	15 (8.1)	52 (28.3)	117 (63.6)	184 (100)	
Class	SS1	19 (9.8)	64 (33.0)	111 (57.2)	194 (100)	0.504
	SS2	21 (13.1)	47 (29.4)	92 (57.5)	160 (100)	
	SS3	3 (7.5)	9 (22.5)	28 (70.0)	40 (100)	
Awareness of HIV	Yes	39 (10.4)	115 (30.8)	220 (58.8)	374 (100)	0.434
	No	4 (20.0)	5 (25.0)	11 (55.0)	20 (100)	

Source: Researcher's field work, 2018.

Result of the test of Hypotheses

The formulated hypothesis for this study was tested under 0.05 alpha level of significance.

HO: There is no statistically significant relationship between academic qualification and online competence among the respondents

Table no 6: showed that since the computed chi-square value $\chi^2 = 3.72$ at degree of freedom (df) 2 is less than the critical value of 5.99 and the P-value (Sig. 2-tailed) (0.155) is greater than 0.05 level of significance, there is no statistical significant evidence to reject the null hypothesis (Ho). This means there is no statistically significant relationship between sex of respondents and knowledge of HIV among Senior Secondary School students in Oredo local government area of Edo state. Hence, the null hypothesis is accepted.

Table no 6: Contingency table showing observed frequency and expected frequency of composite knowledge of HIV and sex of the respondents using chi-square statistics at 0.05 level of significance.

Sex		Levels knowledge of HIV			Total	Df	χ^2	P- value	Decision
		Low	Moderate	High					
Male	OF	23	69	152	244	2	3.72	0.155	Don't reject Ho
	EF	26.6	74.3	143.1	244.0				
Female	OF	20	51	79	150				
	EF	16.4	45.7	87.9	150.0				
Total		43	120	231	394				

Key: OF = Observed Frequency; EF = Expected Frequency

Source: Researcher's field work, 2018.

V. Discussion

The findings revealed that the mean age of the respondents was 15 ± 1.5 years. Respondents within the age range 13-15 were more (55.3%) while those between 16-18 were (44.7%). The mean age of the students in this study compared favourably with the mean age of the respondents in previous similar study conducted in Ikpoba Okha LGA of the Edo state, Nigeria². The dominant age group (13-15) years represented in this study falls within the age group that was most affected by the HIV epidemic in 2014 as reported by (NACA)⁴. This also reflect that children in Oredo LGA of Edo State starts school on time and accelerate fast in their academic pursuit. Almost two-third of the respondents were male (61.9%). This is contrary to what has been reported from Pune⁷ in which 60% of the respondents were female. This reflects the outcome of the 2006 census which reported more male than female in the Oredo LGA⁸.

The predominant ethnic group is Bini (45.4%) and majority of the respondents were Christian (93.4%). This reflects the predominant ethnicity and religion in the study area. This is not strange as the schools selected for the study were all located within the heart of Benin city which is mainly dominated by Christians. More of the respondents attend mixed (Boys and Girls) school (46.7%) while those in SS1 class (49.2%) were more than their counterparts in SS2 (40.6%) and SS3 (10.2%) respectively. This finding is in contrast with the findings earlier reported in Benin City⁹ in which there were equal number of students (50%) in both SS1 and SS2. This variation may be due to more competitiveness enforced by the school authority to ensure only bright students were promoted to high classes while others either repeat same class or advice to withdraw. Hence, the higher classes had less number of students.

The level of awareness of HIV infection recorded among the respondents in this was very high (94.9%) and the major source of information regarding the disease was from school. The study also revealed that students that attend girls-only secondary school and students in SS3 classes were more aware of the disease ($P = 0.002^*$) and ($P = 0.029^*$) respectively. Similar high level of awareness of the disease (92.6%) had previously been reported^{7,10,11,12}. Also, previous high awareness (80.2%) was reported in Ikpoba Okha LGA of the Edo state². This showed that HIV is a much talk about subject in and across Edo state as expected owing to the devastating impact of the disease especially among adolescents.

However, while the commonest source of information regarding the disease among the respondents in this study was from school which is similar to what reported from Narsingdi¹³, that of municipal corporation school in Pune⁷ and Osun State, Nigeria¹¹, was TV and media respectively. This shows that the secondary school teachers in Edo State are giving the disease the attention it deserved among the students, although, it seems the topic is not being introduce to the students early enough as SS3 students were more aware of the disease than students in SS1 and 2. This need to be addressed through curricular review to ensure topics relating to HIV is introduced right from JSS 1 to SS3. Moreover, it is not surprising that female respondents were more disposed to be aware of the disease because according to UNICEF's report female adolescents are being more affected and infected by the epidemic⁵.

The knowledge of HIV is critical in the prevention. It helps individuals to make informed decision, assess personal risk for HIV and further develop risk reduction strategy¹. More than half of the respondents (58.6%) demonstrated high level of knowledge of HIV infection, mode of transmission and its prevention than what is recorded for moderate (30.5%) and low (10.9%) knowledge level respectively. On the distribution of knowledge level among the respondents, the study revealed that older students and students who attend girls-only secondary school were more knowledgeable ($P = 0.001$) and ($P = 0.047^*$) respectively. The high knowledge recorded in this study collaborate the high level of knowledge of HIV (60.0%) among senior secondary school students earlier reported in Benin City⁹, but in contrast, there was no significant difference between class of respondents and their general knowledge of HIV in this study. This showed that HIV/AIDS related topics are being taught to students irrespective of the class level. Again, it is not unexpected that the determinants of increased knowledge of HIV among the respondents were students that attend girls-only secondary school and older students because they also were more aware of the disease as revealed in this study.

Moreover, contrary to the high-level of misconception among the secondary school pupils reported from Osun State and Lao People's Democratic Republic in which $\geq 50\%$ of the respondents believed that HIV can be contracted via mosquito bites and via kissing^{11,14}, only few of the students in this study (26.4%) and moderate (44.2%) exhibited such misconceptions in these areas respectively. This shows that senior secondary school students in Benin City are more knowledgeable about HIV/AIDS than their counterparts in Osun State and Lao People's Democratic Republic.

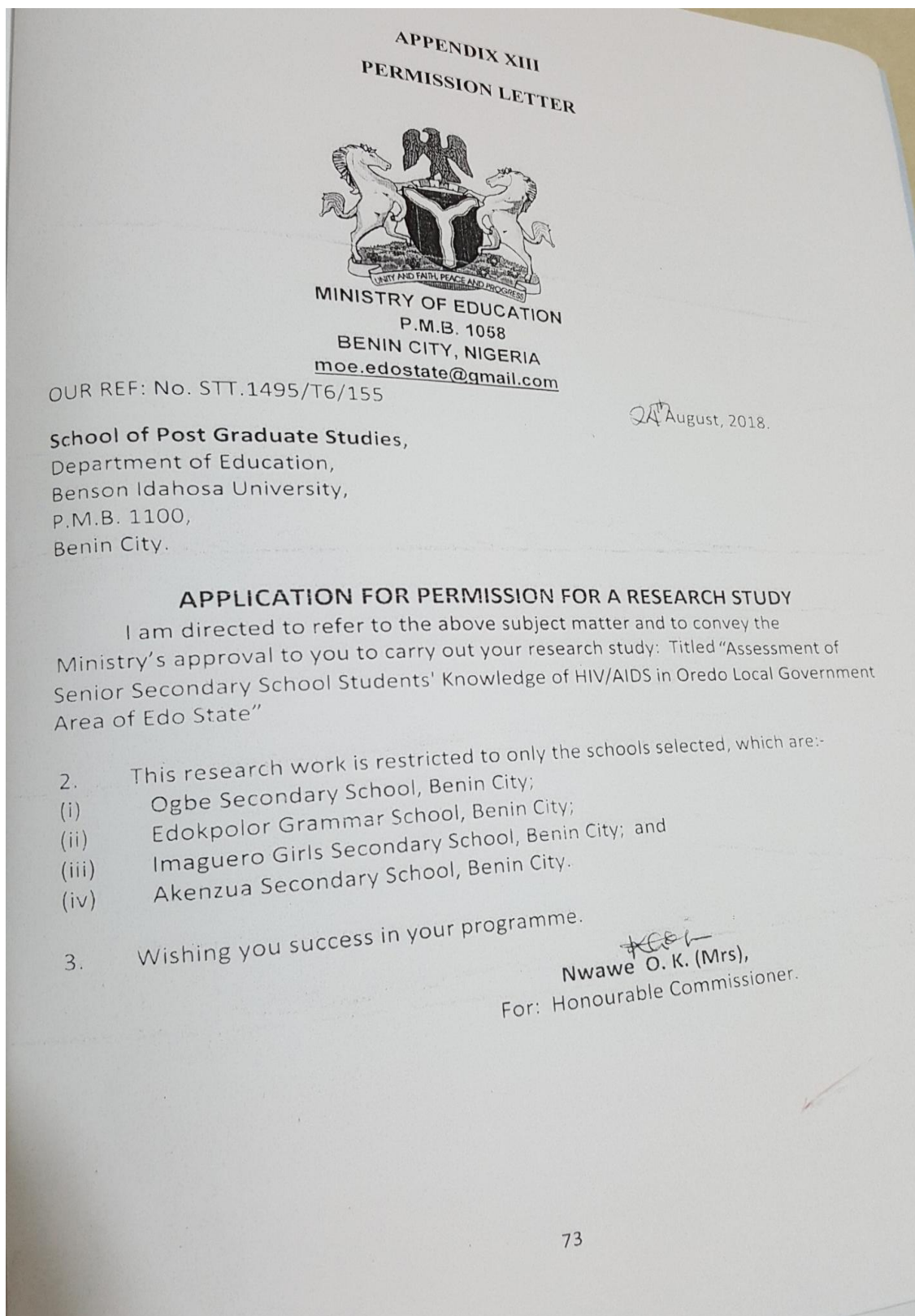
From this study, there was no statistically significant relationship between of respondents and knowledge of HIV among the senior secondary school students. Similar finding was also reported from India and Cameroon^{15,16}. But this was not the case in Bangladesh and Erbil City/Iraq^{17,18} in which respondent's gender was identified as a determinant of HIV knowledge among secondary school students. This finding showed that there is no gender-based bias in dissemination of HIV/AIDS information among secondary school adolescents in Benin City.

VI. Conclusion And Recommendation

The study revealed that the awareness and knowledge of HIV Infection, mode of transmission and prevention among senior secondary students was quite satisfactory for most of the variables but some misconceptions abound. Also, many people withadequate knowledge about HIV do not act on it due to a wide variety of social, cultural and economic constraints. Therefore, more knowledge driven academic and non-academic programmes is recommended..

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