



# **Bio-demographic Variables and Knowledge of HIV/AIDS Prevention Among University Undergraduates in Rivers State, Nigeria**

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## **ABSTRACT**

Despite the numerous pieces of literature on HIV/AIDS for decades now, there continue to be some myths and misconceptions about HIV/AIDS among university undergraduates in Sub-Saharan Africa. Therefore, this study investigated the bio-demographic variables and knowledge of HIV/AIDS prevention among university undergraduates in Rivers State, Nigeria. A cross-sectional study design was adopted. The population consisted of university undergraduates in Rivers State, Nigeria. The instrument for data collection was a structured questionnaire with a reliability coefficient of 0.83. A sample size of 914 was selected using a multi-stage sampling procedure. Data were analyzed using Statistical Package for Social Science (SPSS) version 25. The descriptive statistics of percentages and frequencies were used for the participants' demographic characteristics and research questions, while Chi-square and z-test were used to test the hypotheses. The study results showed that a majority of the respondents had a good knowledge of HIV/AIDS prevention 719 (78.7%), while 195(21.3%) had poor knowledge. Also, there was a significant difference in the knowledge of HIV/AIDS prevention [ $X^2$ -value = 13.373; df = 3;  $p < 0.05$ ] based on age and gender, while year of study had no significant effect on the knowledge of HIV/AIDS prevention. The study concluded that university undergraduates in Rivers State had a good knowledge of HIV/AIDS prevention, however age and gender had an influence on the knowledge exhibited. The female students had a better knowledge compared to the males, while the age group of 25-29 years had better knowledge compared to other age groups. It was recommended among others that, the university management, should encourage health education practitioners to organize intermittent school outreach programs to emphasize on the knowledge of HIV/AIDS prevention among young people.

**Keywords:** HIV/AIDS, Knowledge, Prevention, Undergraduates, Rivers State

## **INTRODUCTION**

Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS), continues to be a major public health problem globally despite efforts being made to control it (World Health Organization, 2021). The rate of infection of the HIV epidemic is still increasing in many countries of the world, especially in sub-Saharan Africa (Boyce et al., 2019). Despite increased funding, political commitment, and progress in expanding access to HIV treatment, the AIDS epidemic continues to be a global health challenge (Assefa & Gilks, 2020). Since the beginning of the HIV/AIDS pandemic, more than 70 million people have been infected with the virus, and about 35 million people have died from the disease. Globally, about 38 million people were estimated to be living with HIV/AIDS at the end of 2019.

An estimated 0.8% of individuals aged 15–49 years worldwide live with HIV/AIDS, although the burden continues to vary considerably between countries and regions. The World Health Organization (WHO) African region remains most severely affected, with nearly 1 in every 25 adults (4.1%) living with the infection and accounting for nearly two-thirds of the people living with HIV/AIDS worldwide (WHO, 2020).

Though the number of global deaths due to AIDS-related illness is declining, the number of newly reported infections is on a slower increase. There is an acknowledged burden of HIV/AIDS in Nigeria, just like in other sub-Saharan African countries. Joint United Nations Programme on HIV/AIDS (UNAIDS) had estimated about two-thirds of new HIV infections in West and Central Africa in 2019 to occur in Nigeria (Avert, 2018). The statistical report showed that six states in Nigeria accounted for 41% of the people living with HIV, including Kaduna, Akwa Ibom, Benue, Lagos, Oyo, and Kano States. HIV prevalence is highest in the South-South Zone of Nigeria and stands at 5.5%. It is lowest in the South East Zone, where there is a prevalence of 1.8%. There are higher rates of HIV in rural areas than in urban ones (National Agency for the Control of AIDS, 2019). People living with HIV in Nigeria as at 2021 were 1.7 million. That same year 49,000 individuals including children and adults died from AIDS-related illness, while those aged 15 and above were 37,000 in number (Statista, 2022).

Unfortunately, some people with HIV do not show symptoms until months or even years after contracting the virus (Eisinger et al., 2019). HIV has been defined by the World Health Organization as an infection that affects the immune system of the body, particularly the white blood cells called the CD4+ T lymphocytes cells (Laila et al., 2019). The virus destroys these cells thereby weakening the immunity of the individual, thus giving room for opportunistic infections to attack (Wong et al., 2020). AIDS is the final stage of the infection with HIV and it happens when the body's immune system has been badly damaged by the virus. The HIV/AIDS pandemic has become one of the lingering public health problems in recent times, and it is known to have a profound impact on the lives of those infected with it and their families. For example, the burden of HIV/AIDS has, according to Girum et al. (2018), declined in the last half-decade, which is likely attributable to considerable declines in incidence, massive scale-up of Antiretroviral Therapy (ART) coverage, and increased efforts to prevent transmission from mothers to their children. However, according to the authors, despite all the progress made in eradicating the menace, the message remains clear: HIV/AIDS is still a global problem.

Nigeria has a young population structure, as 62% of the population is within the age range of 0 to 24 years, and the median age is 18.1 years (Cincotta & Weber, 2021). The implication of this is that Nigeria has a great number of sexually vulnerable population to worry about. The youths are particularly vulnerable to HIV/AIDS for various reasons, including early sexual debut, negative peer pressure influence, the need to explore, and the desire to feel independent (Oluwole et al., 2020). Undergraduates typically fall within this age group, thus accounting for the greater part of the Nigerian population mostly affected by the virus. This makes it imperative for youths who are mostly sexually active to be knowledgeable about HIV/AIDS to help curb the spread and effect of the disease. Bio-demographic factors which may predict the level of knowledge of HIV/AIDS prevention by undergraduates include their age, gender, and year of study. The knowledge of HIV/AIDS prevention seems to increase with the age of the undergraduates (Abiodun et al., 2014). In addition, undergraduates who had spent more years as students in the university seemed to be more knowledgeable about HIV/AIDS prevention (Abiodun et al., 2014). Female students are regarded as having had more awareness about HIV/AIDS than their male counterparts (Masavkar and Naikwadi (2016). The phrase, Knowledge of HIV/AIDS prevention as used in this study refers to individuals' ability to understand or have an awareness about the means of preventing HIV/AIDS.

Although many behavioural research studies and public enlightenment campaigns on HIV/AIDS have been undertaken by both government and non-governmental organizations in the general public, myths and misconceptions about the disease still persist among young people, particularly university undergraduates therefore, this study focused on the level of knowledge on HIV/AIDS prevention among University undergraduates in Rivers State, Nigeria.

**Research Questions**

The study provided answers to the following research questions:

1. What is the level of knowledge of HIV/AIDS prevention among university undergraduates in Rivers State?
2. What is the influence of selected bio-demographic variables (age, gender, and year of study) on the knowledge of HIV/AIDS prevention among University undergraduates in Rivers State?

**Hypothesis**

The following null hypothesis was postulated to guide the study and were tested at a 0.05 level of significance:

1. The bio-demographic variables (age, gender, and year of study) of the University undergraduates in Rivers State has no effect on the level of knowledge of HIV/AIDS prevention.

**METHODOLOGY**

A cross-sectional survey design was adopted for this study. A population that consisted of 70,191 university undergraduates in Rivers State from November to December, 2020. The sample size of 1,004 was determined using the OpenEpi Version 3 software at a 95% confidence level. A multistage sampling procedure was used to select the final respondents for the study. To represent the total population of University undergraduates, two Universities – Rivers State University (RSU) and Ignatius Ajuru University of Education (IAUE) were picked as the study sites using the simple random technique. At the second stage, the proportionate stratified random sampling was used to determine the number of respondents selected from each school. Finally, at the third stage, the simple random sampling technique was used to select the students from the selected departments and years of study. The instrument for data collection was a self-administered questionnaire titled ‘Socio-demographic variables and knowledge of HIV/AIDS Prevention Questionnaire (KHPQ); a 45 item Version of HIV knowledge Questionnaire (HIV-K-Q) adapted from Carey et al. (1997) with a response option of ‘True or False’. The validity of the instrument was ascertained by three experts in health education. The reliability coefficient of the instrument was 0.82 which was determined after the reliability test using the Kuder-Richardson 21 statistics to test the dichotomous. Data was collected by a face-to-face delivery of the questionnaire to the respondents using four research assistants who were guided on how to administer the instrument. Data was analyzed using Statistical Product for Service Solution (SPSS V-25). Statistical tools such as percentage, and frequency, were used for the research questions, while chi-square and z-test set at 0.05 level of significance were used to test for the hypotheses.

**RESULTS**

**Table 1: Socio-demographic variables of the respondents**

<b>Socio-demographic variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age</b>		
15-19yrs	191	20.9
20-24yrs	453	49.6
25-29yrs	219	24.0
30 above	51	5.6
<b>Total</b>	<b>914</b>	<b>100.0</b>
<b>Gender</b>		
Male	487	53.3
Female	427	46.7
<b>Total</b>	<b>914</b>	<b>100.0</b>
<b>Level of study</b>		
Year 1	204	22.3
Year 2	271	29.6
Year 3	223	24.4
Year 4	180	19.7
Year 5	36	3.9
<b>Total</b>	<b>914</b>	<b>100.0</b>

Table 1 shows the percentage distribution of the socio-demographic characteristics of the respondents. The result showed that close to half 453(49.6%) of the respondents were within the age range of 20-24 years, 219(24.0%) were aged 25-29 years, 191(20.9%) were aged 15-19 years, while 51(5.6%) were within the age range of 15-19 years. The mean age of the respondents was 22.72±4.084 years. The table showed that more than half of the respondents 487(53.3%) were males, while 427(46.7%) were females. The result further showed that more than a quarter 271(29.6%) were in year two, 223(24.4%) were in year three, 204(22.3%) were in year one, 180(19.7%) were in year four, while 36(3.9%) were in year five.

**Table 2: Level of Knowledge on HIV/AIDS prevention among university undergraduates in Rivers State**

SN	Items	Responses		Remark
		Correct F(%)	Incorrect F(%)	
1	Condoms used correctly and consistently can help prevent HIV/AIDS (T)	865(94.6)	49(5.4)	High
2	Having multiple partners puts one at risk of contracting HIV/AIDS (T)	852(93.2)	62(6.8)	High
3	Abstinence is one of the ways to prevent contracting HIV/AIDS (T)	772(84.5)	142(15.5)	High
4	Faithfulness to one uninfected partner only reduces the risk of infection (T)	676(74.0)	238(26.0)	High
5	You can take emergency HIV drugs within 72 hours of possible exposure to Prevent being infected with HIV/AIDS (T)	563(61.6)	351(38.4)	Moderate
6	Having periodic check for HIV/AIDS is a means to prevent infecting others (T)	818(89.5)	96(10.5)	High
7	Delaying first sexual experience is a way to prevent HIV/AIDS (T)	375(41.0)	539(59.0)	Low
8	Pregnant women with HIV ought to take their antiretroviral drugs to Prevent passing the infection to their babies (T)	814(89.2)	99(10.8)	High
9	Young people should seek information on sexual and reproductive issues (T)	826(90.4)	88(9.6)	High
10	Drinking alcohol before sex can increase risky sexual behaviour which could expose one to getting HIV (T)	589(64.4)	325(35.6)	Moderate
<b>Overall</b>		<b>719(78.7)</b>	<b>195(21.3)</b>	<b>High</b>

Decision: ≤49% = Poor knowledge; 50-69% = Moderate; ≥70% = Good

Table 2 showed the level of knowledge on HIV/AIDS prevention among University undergraduates. The result showed that overall, 719(78.8%) of the respondents had a good knowledge about prevention against HIV/AIDS, while less than one-quarter of the respondents, 195(21.3%), had poor knowledge. Good knowledge was expressed more on the correct and consistent use of condoms to help prevent HIV/AIDS 865(94.6%), while a poor knowledge was expressed more on the delay of first sexual experience as a means of preventing HIV/AIDS with less than half 375(41.0%) answering it correct.

**Table 3: Level of Knowledge on HIV/AIDS prevention among University undergraduates based on age**

Items	15-19 years (N = 191)		20-24 years (N = 453)		25-29 years (N = 219)		≥30 years (N = 51)	
	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)
1. Condoms used correctly and consistently can help prevent HIV	185(96.9)	6(3.1)	429(94.7)	24(5.3)	203(92.7)	16(7.3)	48(94.1)	3(5.9)
2. Having multiple partners puts one at risk of contracting HIV	176(92.1)	15(7.9)	419(92.5)	34(7.5)	207(94.5)	12(5.5)	50(98.0)	1(2.0)
3. Abstinence is one of the ways to prevent contracting HIV	161(84.3)	30(15.7)	384(84.8)	69(15.2)	185(84.5)	34(15.5)	42(82.4)	9(17.6)
4. Faithfulness to one uninfected partner only reduces the risk of infection	143(74.9)	48(25.1)	352(77.7)	101(22.3)	151(68.9)	68(31.1)	30(58.8)	21(41.2)
5. One can take emergency HIV drugs within 72 hours of possible exposure to Prevent being infected	149(78.0)	42(22.0)	268(59.2)	185(40.8)	118(53.9)	101(46.1)	28(54.9)	23(45.1)
6. Having periodic check for HIV is a means to prevent infecting others	172(90.1)	19(9.9)	398(87.)	55(12.1)	202(92.2)	17(7.8)	46(90.2)	5(9.8)
7. Delaying first sexual experience is a way to prevent HIV	71(37.2)	120(62.8)	191(42.2)	262(57.8)	98(44.7)	121(55.3)	15(29.4)	36(70.6)
8. Pregnant women with HIV ought to take their antiretroviral drugs to Prevent passing the infection to their babies	162(84.8)	29(15.2)	405(89.4)	48(10.6)	207(94.5)	12(5.5)	41(80.4)	10(19.6)
9. Young people should seek information on sexual and reproductive issues	172(90.1)	19(9.9)	411(90.7)	42(9.3)	200(91.3)	19(8.7)	43(84.3)	8(15.7)
10. Drinking alcohol before sex can increase risky sexual behaviour which could expose one to getting HIV	43(22.5)	148(77.5)	293(64.7)	160(35.3)	127(58.0)	92(42.0)	21(41.2)	30(58.8)
<b>Overall</b>	<b>146(76.4)</b>	<b>45(23.6)</b>	<b>355(78.4)</b>	<b>98(21.6)</b>	<b>172(78.5)</b>	<b>47(21.5)</b>	<b>38(74.5)</b>	<b>13(25.5)</b>

Table 3 revealed the level of knowledge on HIV/AIDS prevention among University undergraduates based on age. The result showed that all the age groups had good knowledge of HIV/AIDS prevention. However, more knowledge was exhibited as shown: 25-29 years (78.5%) > 20-24 years (78.4%), >15-19 years (76.4%) > 30 years and above (74.5%). Thus the highest knowledge was within the age bracket of 25-29 years followed by those in the age group of 20-24 years, and those of 15-19 years' age group. The 30 years and above age group had the least knowledge.

**Table 4: Level of Knowledge of HIV/AIDS prevention among University undergraduates based on gender**

SN	Items	Male (N = 487)		Female (N = 427)	
		Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)
1	Condoms used correctly and consistently can help prevent HIV/AIDS	458(94.0)	29(6.0)	407(95.3)	20(4.7)
2	Having multiple partners puts one at risk of contracting HIV/AIDS	446(91.6)	41(8.4)	406(95.1)	21(4.9)
3	Abstinence is one of the ways to prevent contracting HIV/AIDS	410(84.2)	77(15.8)	362(84.8)	65(15.2)
4	Faithfulness to one uninfected partner only reduces the risk of infection	352(72.3)	135(27.7)	324(75.9)	103(24.1)
5	One can take emergency HIV/AIDS drugs within 72 hours of possible exposure to Prevent being infected	296(60.8)	191(39.2)	267(62.5)	160(37.5)
6	Having periodic check for HIV/AIDS is a means to prevent infecting others	430(88.3)	57(11.7)	388(90.9)	39(9.1)
7	Delaying first sexual experience is a way to prevent HIV/AIDS	174(35.7)	313(64.3)	201(47.1)	226(52.9)
8	Pregnant women with HIV/AIDS ought to take their antiretroviral drugs to Prevent passing the infection to their babies	436(89.5)	51(10.5)	379(88.8)	48(11.2)
9	Young people should seek information on sexual and reproductive issues	444(91.2)	43(8.8)	382(89.5)	45(10.5)
10	Drinking alcohol before sex can increase risky sexual behaviour which could expose one to getting HIV/AIDS	298(61.2)	189(38.8)	291(68.1)	136(31.9)
<b>Overall</b>		<b>377(77.4)</b>	<b>110(22.5)</b>	<b>342(80.1)</b>	<b>85(19.9)</b>

Table 4 showed the level of knowledge of HIV/AIDS prevention among undergraduates based on gender. The result showed a high level of knowledge among the males and females, but high knowledge was found more among the females (80.1%) than the males (77.4%). However, more than half of the respondents (539, 58.9%) did not know that delaying the first sexual experience was a preventive measure.

**Table 5: Level of Knowledge of HIV/AIDS prevention among University undergraduates in Rivers State based on the year of study**

Items	Years 1 (N = 204)		Year 2 (N = 271)		Years 3 (N = 223)		Year 4 (N = 180)		Year 5 (N = 36)	
	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)	Correct F(%)	Incor. F(%)
1. Condoms used correctly and consistently can help prevent HIV/AIDS	196 (96.1)	8 (3.9)	259 (95.6)	12 (4.4)	211 (94.6)	12 (5.4)	169 (93.9)	11 (6.1)	30 (83.3)	6 (16.7)
2. Having multiple partners puts one at risk of contracting HIV/AIDS	190 (93.1)	14 (6.9)	247 (91.1)	24 (8.9)	215 (96.4)	8 (3.6)	169 (93.9)	11 (6.1)	31 (86.1)	5 (13.9)
3. Abstinence is one of the ways to prevent contracting HIV/AIDS	155 (76.0)	49 (24.0)	247 (91.1)	24 (8.9)	196 (87.9)	27 (12.1)	141 (78.3)	39 (21.7)	33 (91.7)	3 (8.3)
4. Faithfulness to one uninfected partner only reduces the risk of infection	150 (73.5)	54 (26.5)	202 (74.5)	69 (25.5)	167 (74.9)	56 (25.1)	128 (71.1)	52 (28.9)	29 (80.6)	7 (19.4)
5. One can take emergency HIV drugs within 72 hours of possible exposure to Prevent being infected	140 (68.6)	64 (31.4)	150 (55.4)	121 (44.6)	133 (59.6)	90 (40.4)	119 (66.1)	61 (33.9)	21 (58.3)	15 (41.7)
6. Having periodic check for HIV is a means to prevent infecting others	182 (89.2)	22 (10.8)	235 (86.7)	36 (13.3)	205 (91.9)	18 (8.1)	166 (92.2)	14 (7.8)	30 (83.3)	6 (16.7)
7. Delaying first sexual experience is a way to prevent HIV/AIDS	91 (44.6)	113 (55.4)	113 (41.7)	158 (58.3)	86 (38.6)	137 (61.4)	78 (43.3)	102 (56.7)	7 (19.4)	29 (80.6)
8. Pregnant women with HIV ought to take their antiretroviral drugs to Prevent passing the infection to babies	178 (87.3)	26 (12.7)	239 (88.2)	32 (11.8)	196 (87.9)	27 (12.1)	166 (92.2)	14 (7.8)	36 (100)	0 (0.0)
9. Young people should seek information on sexual and reproductive issues	183 (89.7)	21 (10.3)	256 (94.5)	15 (5.5)	193 (86.5)	30 (13.5)	164 (91.1)	16 (8.9)	30 (83.3)	6 (16.7)
10. Drinking alcohol before sex can increase risky sexual behaviour which could expose one to getting HIV	155 (76.0)	49 (24.0)	162 (59.8)	109 (40.2)	141 (63.2)	82 (36.8)	106 (58.9)	74 (41.1)	25 (69.4)	11 (30.6)
Overall	160 (78.4)	44 (21.6)	213 (78.6)	58 (21.4)	176 (78.9)	47 (21.1)	146 (81.1)	34 (19.9)	28 (77.8)	8 (22.2)

Table 5 revealed the level of knowledge of HIV/AIDS prevention among undergraduates based on the year of study. The result showed that the respondents in all the study years had a good knowledge of HIV/AIDS prevention, but the highest proportion was among those in year 4 (81.1%), > year 3 (78.9%), > year 2 (78.6%), and > year 1 (78.4%). Thus, based on the year of study, a high level of knowledge of HIV/AIDS prevention was found more among those in a higher year of study except for level 5, which had a proportion of 77.8%

**The age of the university undergraduates in Rivers State has no significant influence on the level of knowledge of HIV/AIDS prevention**

Table 6: Chi-squared analysis of age and the level of knowledge of HIV/AIDS prevention among University undergraduates in Rivers State

Age	Knowledge		Total	df	X <sup>2</sup> -value	P-values	Decision
	Good F(%)	Poor F(%)					
15-19	140(73.3)	51(26.7)	191(100)	3	13.373	0.004	<b>Significant</b>
20-24	282(62.3)	171(37.7)	453(100)				
25-29	127(58.0)	92(42.0)	219(100)				
≥30	27(52.9)	24(47.1)	51(100)				
<b>Total</b>	<b>576(63.0)</b>	<b>338(37.0)</b>	<b>914(100)</b>				

P<0.05 Significant

Table 6 displayed the Chi-squared test of significant association between age and the knowledge of HIV/AIDS prevention. The result showed that age had a significant influence on the level of knowledge of HIV/AIDS prevention as the p-value of 0.004 was less than 0.05 [ X<sup>2</sup>-value = 13.373; df = 3; P<0.05]. Therefore, the null hypothesis, which stated that age has no significant influence on the knowledge of HIV/AIDS prevention among University undergraduates in Rivers State was rejected.

**There is no difference in the level of knowledge of HIV prevention among university undergraduates in Rivers State based on gender**

Table 7: Z-test analysis showing the level of knowledge of HIV/AIDS prevention among university undergraduates in Rivers State based on gender.

Gender	N	Mean	SD	Df	z-cal	p-value	Decision
Male	487	1.7892	.15060	912	2.177	0.030	Significant
Female	427	1.8114	.15632				

P<0.05 Significant

Table 7 showed the z-test summary of the difference in the level of knowledge of HIV/AIDS prevention among University undergraduates in Rivers State based on gender. The result of the study showed that there was a significant difference at (z-cal = 2.177, df = 912, p = 0.030). The p-value was p<0.05; therefore, the null hypothesis was therefore rejected. This demonstrated that there was a significant difference in the level of knowledge of HIV/AIDS prevention among undergraduates in Rivers State based on gender. The females had more knowledge compared to the males.

**The year of study of the University undergraduates in Rivers State has no significant influence on the level of knowledge of HIV/AIDS prevention.**

Table 8: Chi-squared analysis of year of study and the level knowledge of HIV/AIDS prevention among University undergraduates in Rivers State

Year	Knowledge		Total	df	X <sup>2</sup> -value	P-values	Decision
	Good F(%)	Poor F(%)					
Yr 1	132(64.7)	72(35.3)	204(100)	4	0.936	0.919	<b>Not significant</b>
Yr 2	167(61.6)	104(38.4)	271(100)				
Yr 3	143(64.1)	80(35.9)	223(100)				
Yr 4	113(62.8)	67(37.2)	180(100)				
Yr 5	21(58.3)	15(41.7)	15(100)				
<b>Total</b>	<b>576(63.0)</b>	<b>338(37.0)</b>	<b>914(100)</b>				

p>0.05 Not Significant

Table 8 showed the Chi-squared analysis of year of study and the knowledge of HIV/AIDS prevention. The result showed that there was no significant influence of year of study on the knowledge of HIV/AIDS prevention as the p-value of 0.919 was greater than 0.05 [  $X^2$ -value = 0.936; df = 4;  $p > 0.05$ ]. Therefore, the null hypothesis, which stated that there is no significant influence on the level of knowledge and year of study of university undergraduates in Rivers State was retained.

### **DISCUSSION OF FINDINGS**

The result from this study showed that the majority of the respondents 719(78.7%) had a high level of knowledge of HIV/AIDS prevention. This study's finding was not surprising because the study respondents were university students who could have been likely exposed to health information, including the prevention of HIV/AIDS at some point or the other. This study's finding collaborates those of ((Ekşi & Kömürçü, 2014); Fawole et al. (2011); (Genz et al., 2017; Makwe, 2014; Oluwole et al., 2020; Samkange-Zeeb et al., 2011) whose findings showed a high knowledge of HIV/AIDS among the students. The finding is similar to the report of the Nigeria Demographic and Health Survey (NDHS, 2013) where there was a high knowledge on HIV prevention. However, the findings of this study differed from the findings of (Ajayi & Omotayo, 2010) where knowledge of HIV/AIDS was low. This variation might be due to the difference in the study locations.

Also, the findings of this study showed that there was a significant relationship between age and the knowledge of HIV/AIDS prevention [  $X^2$ -value = 13.373; df = 3;  $p < 0.05$ ]. This finding was in consonance with Ouzouni and Nakakis (2012), whose results showed that age had a significant effect on the knowledge of prevention towards HIV/AIDS. However, the findings of this study were not in line with that of Oluyemi et al. (2015), in which it was found that knowledge of HIV/AIDS among the respondents was not statistically significant based on age. The variations in the population, sample size, and study location could be implicated in the variance found between the two studies. Moreover, regarding gender, this study showed a high level of knowledge of HIV/AIDS prevention among both the males and females, but a slightly higher knowledge was found among the females (80.1%) compared to the males (77.4%). This finding corroborates that of Masavkar and Naikwadi (2016), whose study showed that female students had more awareness about STIs and HIV/AIDS than their male counterparts. The studies of (Anwar et al., 2010; Nsuami et al., 2010) with school students in Pulau Pinang and New Orleans respectively also showed that knowledge of HIV/AIDS was statistically significant based on gender ( $p < 0.05$ ). Nevertheless, this study's findings were not in line with (Oluyemi et al., 2015; Svensson & Waern, 2013), who showed that HIV/AIDS knowledge was not statistically significant based on gender. This variation could be explained by the difference in the study areas or locations and the sample size used in both studies. Regarding year of study, the results showed that there was no significant relationship between level of study and the knowledge of HIV/AIDS prevention [  $X^2$ -value = 0.936; df = 4;  $p > 0.05$ ]. This study's finding was in line with Oluyemi et al. (2015), who showed that the knowledge of HIV/AIDS was not statistically significant based on the year of study. However, this finding was at variance with that of Oluwole et al. (2020), whose result showed that the level of educational study was statistically significant to the knowledge of prevention towards HIV/AIDS. This difference between the present study and that of Oluwole et al (2020) could be explained by the difference in the sample size used. The present study used a larger sample size which is more than twice the one being considered. Nonetheless, the finding of this study was not in line with that of Anwar et al. (2010), whose study among school students in Pulau Pinang showed that knowledge of HIV was statistically significant based on educational level ( $p < 0.05$ ). The sample size difference could explain this discrepancy between the present study and that of Anwar and colleagues. Also, this study's finding did not align with that of Asante (2013) which showed that knowledge was statistically significant based on the year of study. This variation between the present study and the one being considered might be because both studies were conducted at different locations.

### **CONCLUSION**

Based on the findings of the study, it was concluded that university undergraduates in Rivers State had a good knowledge of HIV/AIDS prevention and there was a statistically significant difference in

knowledge based on gender and age but not with year of study of the students. The female respondents had a better knowledge compared with their male counterparts. In addition, the age group of 25-29 years had the greatest knowledge of HIV/AIDS prevention.

## RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. The university management should encourage health education practitioners to organize intermittent school outreach programs on the prevention of HIV/AIDS among young people.
2. The individual university authorities should set up Youth Friendly Centres within the campuses to cater for the peculiar needs of young people.
3. Only health educators equipped with the skills to address youth-related issues such as sex, sexuality, and HIV/AIDS without bias should be employed as resource persons in such Centres.

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