

## KNOWLEDGE OF HIV STATUS AMONGST UNDERGRADUATE MEDICAL LABORATORY STUDENTS

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### Abstract

HIV is the causative agent for Acquired immune Deficiency syndrome and is known to affect a great number of people globally. There are successes in curbing the pandemic in Nigeria though a good number of people are not yet aware of their status. The aim of this study is to investigate the knowledge of HIV status and to determine its level of importance amongst undergraduate medical laboratory students. This is a cross sectional study involving 266 students (118 males, 148 females) between the ages of 15-38 years on 2<sup>nd</sup> – 5<sup>th</sup> year. The data shows that more percentage of female students, 91.6% (131/143) know their status compared to their male counterparts, 88.2% (98/111). Positive knowledge of HIV status was noted to be highest amongst the age group of 21 to 26 years at 123(49%). Statistical analysis at P value < 0.05 is significant both for students who know their status and for those who do not know their status. Pearson's correlation with class level and age group was negative. 100% of students who had had some laboratory experience think it is important to know ones status. It is important that health practitioners see the need to be tested as this would engender personal and collective efficiency in reaching diagnosis for others. It is therefore imperative to consider that those who think it unimportant to know status may pose danger to global gains on HIV. Hence further enlightenment and training is required for students and health practitioners alike.

### Keywords:

*HIV status, Knowledge, Laboratory experience, Students.*

### Introduction

HIV is the acronym for Human Immune Deficiency Virus, known to be the causative agent for the dreaded Acquired Immune Deficiency Syndrome (AIDS). HIV belongs to the lentivirus group of the retrovirus family. There are two types, HIV-1 and HIV-2, with HIV-1 being the most frequently occurring strain globally. HIV-2 is almost entirely confined to West Africa, although there is evidence of some spread to Europe, particularly France, Portugal and the Indian subcontinent (Kumar & Clark, 2009). In 2007 UNAIDS (Joint United Nations Programme on HIV/ AIDS) estimated that over 33 million people world-wide were living with HIV infection, 2.5 million new cases and 2.1 million died of the disease that year. Sub-Saharan Africa remains the most seriously affected, but in some areas the numbers of new diagnoses has stabilized.

In 2016, Nigeria had 220,000 new HIV infections and 160,000 AIDS-related deaths. There are 3.2 million people living with HIV, among whom 30% were accessing anti-retroviral therapy. Key populations most affected by HIV in Nigeria are sex workers, Gay men and people who inject drugs (UNAIDS Report 2016). However, most cases of HIV infection in Nigeria occur via heterosexual means with epidemics more pronounced in females (NACA, 2010, 2012). Among all people living with HIV globally, 9% live in Nigeria. However since 2010, new HIV cases have

decreased by 21% and AIDS-related deaths decreased by 6% (UNAIDS 2014). The Prevalence rate in Nigeria was highest in the following states- Rivers as 15.2%, Taraba 10.5%, Kaduna 9.2%, Nasarawa 8.1%, FCT 7.5%, Akwalbom 6.5%, Sokoto 6.4%, Oyo & Benue 5.6%, Yobe 5.3% and Cross River 4.4% (NACA, 2014). Awoyemi and co-researchers reported in 2016 that HIV prevalence in Nigeria was relatively stable looking at reporting trends from 1991 to 2014.

Farotimi et al. 2015 reported in their study that 94% of respondents had high knowledge of strategies for reducing HIV/AIDS related stigma and discrimination. 64% had moderate discriminatory attitude, 74% engaged in low discriminatory attitude while 26% engaged in high discriminatory practice. In a similar study by Hamzullah and associates, 79% of participants knew the causative agent of the disease and 94.6% agreed that it is communicable. Aisien et.al 2005 reported that there was no statistical significant difference in the knowledge of HIV and AIDS transmission and infection prevention practices amongst doctors and nurses. Albrektsson et.al 2009 documented in their study amongst University students that 99% of the students had heard of HIV/AIDS and 76% of the students could distinguish HIV from AIDS. Medical students had a higher level of knowledge than non-medical students. Also Rana et al.2015 in a study on female students reported that more than half of participants did not know the relation between AIDS and HIV. Rana 2016 in a survey result on male undergraduates observed that more than half of the participants did not know the relation between AIDS and HIV. There was also low awareness level toward the modes of HIV transmission.

Eposi et al. 2012 documented in their study that 80% of participants knew their HIV status through voluntary counseling & testing, and said it was necessary. In a related research on medical students, Sanjay and co-researchers said that there was an increasing trend in the knowledge of HIV seen from 1<sup>st</sup> – 4<sup>th</sup> year. Asif et al. 2016 reported that final year dental students had a better knowledge about HIV infection. Other studies by Shankar et al, Nkemcho et al. and Umeh et al. also documented on the peoples level of awareness and the etiopathogenesis of HIV/ AIDS. There is actually paucity of data on the knowledge of HIV status as most studies focused on the disease, its modes of transmission and possible preventive approaches. Hence this present study would focus on the knowledge of HIV status amongst a group of people who would be responsible in laboratory diagnosis of the infection.

## Materials and Method

This is a cross-sectional study conducted on undergraduate medical laboratory students of Rivers State University carried out over a period of 1 month. Participants were drawn from students between two hundred to five hundred levels. 266 students (118males and 148 females) at 15 – 38 years were recruited for this study through simple random sampling method. Class levels of second year (200) to fifth year (500) were recruited with the exclusion of first year (100 levels) students as they were not yet exposed to laboratory experience/postings which is needed for our analysis. Self administered, well structured questionnaires were completed by participants after they were given instructions by the researchers. The data were analyzed with Microsoft Excel and P value < 0.05 was considered significant.

## Results

The results are shown in table 1-4 and figures 1-2. A total number of 266 undergraduate medical laboratory students participated in this study, drawn from both male and female population within the age group of 15 to 38 years. This survey investigated students' knowledge of their HIV status with eleven statements. 91.6% (131/143) of female students know their HIV status while 88.2% (98/111) of male students know their status. Amongst those who do not know their HIV status, 11.8% (13/111) are males and 8.4% (12/143) are females (Table 1). Positive knowledge of HIV status is highest amongst 300 and 400 level students with 91.1% (41/45) and 93.4% (85/91) respectively. The percentage of those who know their status in both 200 and 500 level is 88.2% (82/ 93) and 85.7% (24/28) respectively (Table 2). 100% of students who had had some laboratory experience as interns, volunteer, laboratory posting/ practical sessions, salary earner and laboratory assistants think that knowing their HIV status is important as against 96.7% of IT students (Table 5). Majority of students who know their status had worked in the laboratory as either an IT student or during their laboratory posting/ practical sessions (Fig. 1). A greater percentage of students

who know their statuses were tested by a laboratory scientist and the second highest percentage were self-tested. Few of them had themselves tested by a medical doctor or a nurse.

Positive knowledge of HIV status was noted to be highest amongst the age group of 21 to 26 years at 123(49%) of the studied population (Table 4). This was followed by age group of 15 to 20 years. It was least (5; 1.99%) at the age group of 33 to 38 years. For students who do not know their status, values were highest also in the age group 21 to 26 years (18; 7.17%). It was least in the age group, 27 to 32 years and 33 to 38 years (1; 0.4%). These data is not surprising however as the most sexually active age falls within age groups 21 to 26 years and 15 to 20 years. Therefore finding students with greater knowledge of their status in this group is expected. Again the fact that the highest number of students who do not know their status also falls in the 21 to 26 and 15 to 20 age groups could suggest an age-related carefree attitude common with young people.

The mean age in this study is 24.6 years with a standard deviation of 4.97. The mean value for those who know their HIV status is 23.24 and 22.81 for those who do not know their status. Statistical analysis at P value < 0.05 shows significant results both for students who know their status (< 0.009) and for those who do not know their status (< 0.006). Pearson's correlation test shows a negative relationship between class level and knowledge of HIV status (Table 3). There is also a negative correlation between age groups and knowledge of HIV status. This was seen in the study that as age increases those who do not know status decreases, and as age decreases those who know status increases.

**Table 1: Knowledge of HIV Status based on Sex**

Sex	Number of students	No. of students who know status		No. of students who do not know status	
		N	%	N	%
Male	118	98	88.2	13	11.8
Female	148	131	91.6	12	8.4

N=number of students, %=percentage, Nil response (male) =7, Nil response (female) =5

**Table 2: Knowledge of HIV Status based on Class level**

Class level	Number of students	No. of students who know status		No. of students who do not know status	
		N	%	N	%
200 (Year 2)	93	82	88.2%	11	11.8%
300 (Year 3)	45	41	91.1%	4	8.9%
400 (Year 4)	91	85	93.4%	6	6.6%
500 (Year 5)	28	24	85.7%	4	14.3%

N=number of students, %=percentage, Nil response=9

**Table 3: Relationship between Knowledge of HIV status with Class levels and Age group Using Pearson's Correlation Coefficient**

Parameter	Students who know status		Students who do not know status	
	R	RS	R	RS
Class level	-0.554	negative	-0.742	Negative
Age group	-0.648	negative	-0.515	Negative

R= Pearson's correlation, RS= Relationship

**Table 4: Statistical analysis of Knowledge of HIV status based on Age groups**

Age groups (years)	N	No. of Students who know status	P value (< 0.05)	No. of Students who don't know status	P value (< 0.05)
15 – 20	65	59(23.51%)	<b>&lt; 0.009</b>	6(2.39%)	<b>&lt; 0.006</b>
21 – 26	148	123(49%)		18(7.17%)	
27 – 32	32	28(11.16%)		1(0.4%)	
33 – 38	6	5(1.99%)		1(0.4%)	
<b>Mean= 24.6 years S.D= 4.97</b>		<b>Mean= 23.24</b>		<b>Mean= 22.81</b>	

N= total number of respondents, S.D= Standard deviation, Nil response for age= 15, Nil response for status= 9, Nil response for both age &amp; status= 1.

**Table 5: Accessing Level of Importance of HIV status**

Category of Laboratory experience	N	Knowledge of HIV status is important			
		Yes		No	
		N	%	N	%
IT STUDENT	93	90	96.7%	3	3.3%
INTERN	1	1	100%	0	0
SALARY EARNER	12	12	100%	0	0
LAB ASSISTANT	13	13	100%	0	0
VOLUNTEER	23	23	100%	0	0
LABORATORY POSTING/PRACTICAL SESSIONS	87	87	100%	0	0

N= number of students, %= percentage

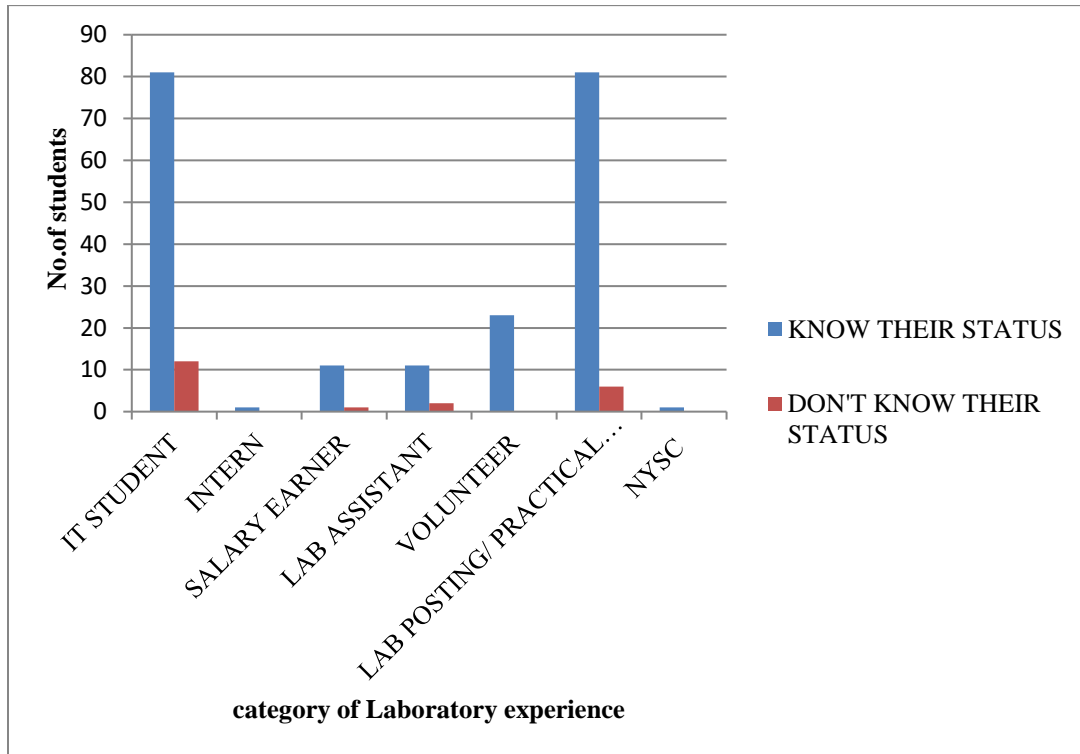
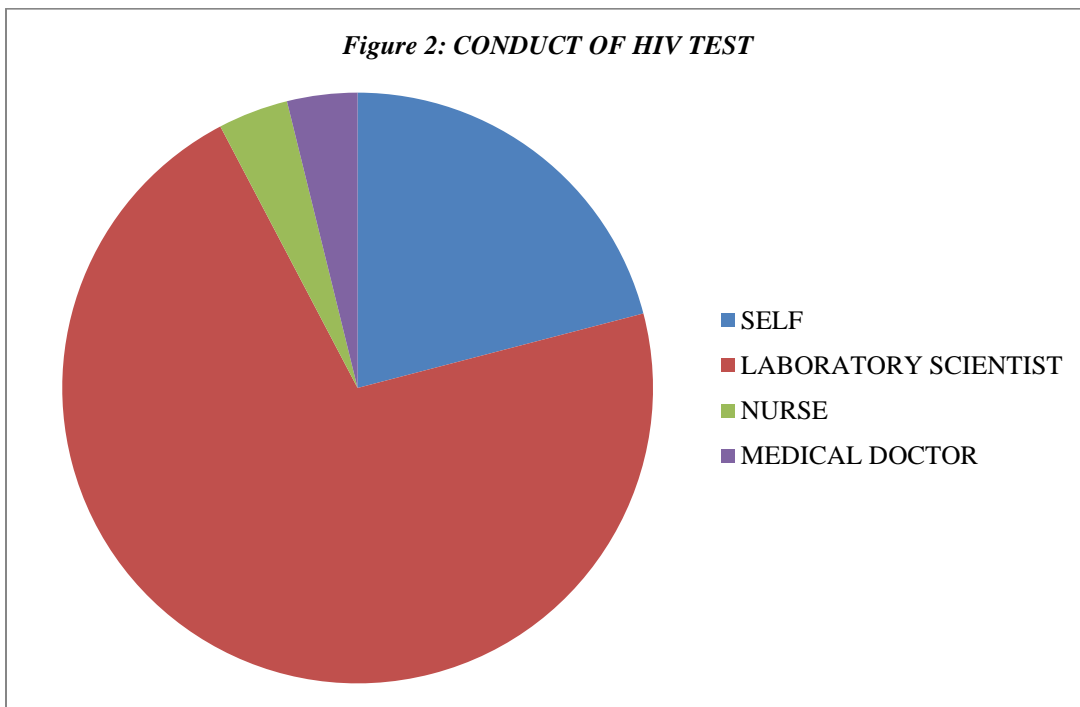


Figure 1: Representation of Students with Laboratory experience in relation to Knowledge of HIV Status



## Discussion

This study investigated the level of knowledge of HIV status amongst undergraduate medical laboratory students. Previous studies on knowledge of HIV status are quite rare, as most studies concentrated on the pathogenesis, burden and prevention of the disease. One could know all about HIV without seeing a need to be tested himself, hence would not take testing others serious. So what is the benefit of the entire hullabaloo on HIV if this step is missed? It is important that health practitioners especially the laboratory scientist who is tasked with the responsibility of making laboratory diagnosis is adequately equipped. Understanding the need to be tested for HIV would engender personal and collective efficiency in reaching diagnosis. If the person saddled with the responsibility of testing others is himself aware of his status, the work of testing others could be taken with some seriousness. Again following the HIV scourge it is assumed that most persons are now aware of their status. Hence investigating these very essential classes of persons who are supposed ambassadors in the crusade against HIV/AIDS could suggest the possible expectations elsewhere.

Our study discovered that knowledge of HIV status was highest amongst female students than their male counterparts. 91.6% (131/143) of female students know their status and 8.4% (12/143) do not know their status. Also 88.2% (98/111) of male students know their status while 11.8% (13/111) do not know their status. It is therefore obvious from this study that female students are more interested in knowing their status. There is thus some gender difference in the knowledge of HIV status. Umeh et al. in their study noted a significant gender difference in the level of knowledge of HIV/AIDS but the data suggested that knowledge did not differ by hospital settings. Our report also agrees with the study by Farotimi et al. amongst nursing students in southwest Nigeria, in which a greater percentage of the respondents who were females, had a high knowledge (94%) of strategies for reducing HIV/AIDS related stigma. This could suggest that female students are more personally attached to issues of HIV, and have shown more interest than their male counterparts. Albrektsson et al. also reported that the female students knew more about the routes of transmission than the male students. Medical students had a higher level of knowledge than non-medical students. However another study by Rana et al. documented low awareness level towards modes of HIV transmission amongst female allied medical students. Though our study focused on awareness level of their status, which is quite important especially for the fact that 9% of people living with HIV globally live in Nigeria (UNAIDS, 2014).

This present study also revealed that third year and fourth year students had the highest percentage of those who know their HIV status with 91.1% and 93.4% of respondents respectively. The percentage for those who do not know their status was surprisingly highest amongst the fifth year students (14.3%), followed by the second year students (11.8%). Whether this could be due to negligence or lack of concern amongst the fifth year students could not be ascertained. However it could suggest that health-related issues should not be handled with assumptions despite whom or what class of person is involved. Also having a greater percentage in the fourth year class could suggest an increasing trend of knowledge of HIV status as one climbs higher in class level. This agrees with the study by Sanjay et al. who documented increasing trend in the knowledge of HIV from 1<sup>st</sup> – 4<sup>th</sup> year amongst medical students. Again Asif et al. reported in their study that 75.75% of final year dental students had knowledge about HIV infection; being the highest amongst the population studied.

Knowledge of HIV status in our study was highest (49%) for those who know status in the age group 21-26 years followed by age group 15-20 years at 23.51%. Students within the age groups 27-32 years and 33-38 years had the least with 11.16% and 1.99% respectively. The highest percentage for those who do not know their status also falls in the age groups 21-26 years and 15-20 years at 7.17% and 2.39% respectively. These data is not surprising as the age group 15-26 years is generally believed to be more sexually active. Hence finding more persons who know their status is understood and finding more persons who do not know their status could be due to juvenile delinquencies or sheer age-related negligence. The data was also statistically significant ( $p < 0.05$ ) for those who know status and who do not know status. The statistical mean was a little higher for those who know their status (23.24) as against those who do not know their status (22.81). Umeh et al. reported in their study on knowledge of HIV/AIDS related issues amongst health workers aged 19-60 years in southern Nigeria; that the knowledge increases and peaks in the 30 - 39 age group then declines from the 40 - 49 group and is least in the 50 - 60 group, suggesting that the older the worker, the less their knowledge on HIV. This could be explained by the fact that at the time the oldest age group

was in school, HIV/AIDS did not exist and since its emergence, these people have not been adequately educated on issues pertaining to the disease. This is not so much different from our study though ours was on HIV status. Yet the fact remains that the younger age group, though for different reasons are more aware on HIV related issues. On the contrary however, Global AIDS epidemic report of 2008 indicated that only 16% of Cameroonians population aged 15-49 knew their HIV status. Hence these findings could be different with different population and settings.

We also accessed the level of importance of testing for HIV and knowing ones status amongst our study population. The aim is to find out if having a laboratory experience at one time or the other influenced their choice. 100% of students who had various category of laboratory experience as interns, laboratory assistants, volunteers, laboratory posting and salary earners think knowing ones status is important. Only 3.3% of them who are IT (Industrial Training) students think it is not important to know ones status. It is therefore believed that most of the students though not tested for HIV think it is important to know status. Actions however speak louder than words according to the old common adage. It is also obvious that good laboratory experience could influence interest on HIV matters and getting tested. Also those who think it is not important though few should not be neglected understanding the health responsibility of our study population. Our findings are in consent with the study by Eposi et al. who reported that 80% of high school students knew their HIV status from VCT and said it was necessary to know ones status. Our study also discovered that students who have done a laboratory posting and IT students have a higher percentage of those who know their status compared to the other category of laboratory experience. It thus complements the relevance for students to have their laboratory postings done as it could affect their knowledge on HIV and their approach to HIV testing and diagnosis in the future. We also discovered that most of these students who know their status were tested by laboratory scientist, followed by some who were self tested. Therefore if those who tested these students had apathy to HIV testing as some of our respondents were; can we consider these results valid? Again should self-tested results be valid considering a possible bias? Hence it is obvious that knowledge of HIV status and its importance is a matter of great importance especially for our population of study.

## Conclusion

Our study has shown that most of the undergraduate students do know their status and consider testing important. It is also imperative to note that few of them who consider testing unimportant could pose danger to the crusade against HIV/ AIDS as their work in the future would involve testing and diagnosing others. Again some who have neglected knowing their status would benefit from further training and enlightenment in this area as to avert future consequences on the Nigerian health sector. This however would be a global again after all and in the fight against HIV.

## Acknowledgements



Our most sincere gratitude goes to the Medical Laboratory Students of Rivers state University for their willingness to cooperate with our research. Great thanks to the authorities of the University for providing the conducive environment. Thanks to all those who helped in the assembly and analysis of the data.

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