

## Knowledge and awareness of HIV/AIDS and its socio-demographic determinants among undergraduates in a Southern Nigeria University

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### Abstract

**Background:** Globally, young people are at increased risk of the infection from human immunodeficiency virus (HIV). This study aims to assess the knowledge of HIV/AIDS and its socio-demographic determinants among university undergraduate students.

**Methods:** This was a descriptive cross-sectional study of 296 full-time undergraduates of the University of Benin using semi-structured self-administered questionnaires.

**Results:** The male to female ratio was 1.5:1. The modal age group was 20-24 years (55.7%). Respondents reported multiple sources of information, with television as the major source of information (72.9%). Almost all (98.0%) of the respondents were aware of HIV/AIDS while 65.5% knew their HIV status. The majority (91.9%) of the respondents knew that a virus causes HIV/AIDS and 97.3% had correct knowledge of the modes of transmission of HIV/AIDS. Correct knowledge of HIV/AIDS prevention and cure was reported by 88.5% and 62.5% of the respondent, respectively. The overall mean

knowledge score is 8.1. There was no statistically significant difference in the self-knowledge of respondent's HIV status among young people aged less than 25 years compared with those 25 years and above (OR: 2.24, 95% CI: 0.02-16.02, p 0.683) and sex (OR: 0.98, 95% CI: 0.58-1.65, p 0.006).

**Conclusion:** This study revealed an overall good knowledge of HIV/AIDS among university undergraduates. However, there were some knowledge gaps in the self-knowledge of HIV status as well as the cause and modes of transmission of HIV which may potentially influence risky behaviours. There should be sustained efforts by all stakeholders on HIV education and testing at various ecological levels.

**Keywords:** young adults, university undergraduates, knowledge of HIV, socio-demographic determinants

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### Introduction:

The global community has witnessed tremendous public health burden as a result of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) pandemic in the past three decades. Globally, about half of the 70 million persons infected with HIV since the beginning of the epidemic have died as at the end of 2016.<sup>1</sup> The HIV/AIDS pandemic strikes the poor and disadvantaged hardest, particularly in sub-Saharan Africa where about two-thirds of the 36.7 million persons living with HIV/AIDS reside.<sup>1</sup> Although, as at the end of 2016, Nigeria had a relatively low and declining HIV/AIDS prevalence rate of 2.9% among adults aged 15-49 years,<sup>2</sup> it remains one of the worst-hit countries by the epidemic in the sub-Saharan African region, largely because of its large population.

Globally, young adults including undergraduates have been identified as highly vulnerable to contracting

the HIV.<sup>3,4,5,6</sup> Indeed, the World Health Organization has warned that up to two-thirds of new HIV/AIDS infections in many of the developing countries may be occurring in 15-24 year-olds.<sup>7</sup> Although there is a global decline in the incidence and prevalence of HIV/AIDS, there is need to sustain the gains over the years. In an attempt to eradicate HIV/AIDS, there is a need to continue to educate people, most especially the youths who are a vulnerable group.

This study was conducted to determine the knowledge and awareness of HIV/AIDS and its socio-demographic determinants among full-time undergraduate students in a Southern Nigeria University.

### Materials and Methods

This was a cross-sectional descriptive study of undergraduate students of the University of Benin, Benin-City. The University of Benin, with a total student population of about 50,000, has 13 Faculties open to diploma, undergraduate and graduate students on full-time and part-time basis. The study population was selected from among the over 20,000 full-time undergraduate students living within the University's Halls of Residence on Campus.

This study was conducted according to the tenets of the Helsinki Declaration. The study protocol was

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explained to respondents who were also informed that the study was entirely voluntary and they could decline to participate or withdraw from the study at any time. A written informed consent was obtained after that from respondents who volunteered to, participate in the study. Respondents were required to complete a self-administered semi-structured questionnaire on their socio-demographic profiles, awareness, and knowledge of HIV/AIDS. The section of the questionnaire on socio-demographic profile assessed the age, sex, marital status, religion, ethnicity and faculty of study of respondents. The section of the questionnaire on awareness and knowledge of HIV/AIDS was structured to have both open and closed-ended questions with single and, sometimes, multiple responses. The source of information on HIV/AIDS was assessed using seven closed-ended questions with allowance for multiple responses. Knowledge of the cause and the modes of transmission of HIV, whether or not HIV/AIDS can be prevented or cured as well as respondent's HIV status was assessed using 12 closed-ended questions. In assessing knowledge of HIV, except for questions on the modes of transmission of HIV, single responses were permitted. Respondents who were aware of HIV/AIDS were asked to state the meaning of the acronym HIV/AIDS. Each correct response attracted a score of one (1) while an incorrect or neutral (don't know) response attracted a score of zero (0). The overall knowledge score shall range between 0 - 10. A knowledge score of seven (7) and above is good. The higher the score, the better the knowledge.

The calculated minimum sample size based on the awareness level of 80%<sup>6,7</sup> was 245 students. However, a deliberate over-sampling by 25% to allow for non-response resulted in a sample size of 306 students.

All full-time undergraduate students resident within the University's Halls of Residence were eligible for inclusion in the study. Excluded from the study were diploma and postgraduate students. Also excluded from the study were undergraduate students who were either registered for a part-time programme or were full-time students but not resident in University's Halls of Residence within the campus. These exclusion criteria were necessary as post-graduate students, diploma students, and part-time undergraduate students tend to be relatively older than undergraduate students. The respondents were recruited using a multistage sampling technique. One male and one female hall of residence were randomly selected using the balloting method to eliminate the element of bias. The next stage entailed the systematic random sampling of every 5th room in the selected halls of residence until the sample size was reached.

The data obtained were fed into a computer running the SPSS Software. The module of the same programme was used to validate all entries. Initial data analysis

generated frequency tables, while further analysis involved cross-tabulation to explore statistical associations between variables and the observed differences were subjected to the chi-square test and odds ratio. The level of statistical significance at 95% confidence interval was  $p < 0.05$ .

### Results:

Of the 306 questionnaires distributed, 296 (96.7%) respondents returned completed forms. There were 179 male respondents and 117 female respondents, in a ratio of 1.5:1. The mean age of the study population was  $21 \pm 0.92$  years, and the modal age group was 20-24 years (55.7%). The majority (95.3%) of the respondents have never been married. There was almost equal representation from the faculties with the faculty of Arts 55 (18.6%) having the highest proportion and the school of Medicine 28 (9.5%) having the least proportion. The others were Education 48 (16.2%), Social Sciences 47 (15.9), Sciences/Agriculture 47 (15.9), Engineering 39 (13.2) and Law 32 (10.8).

Almost all the respondents 290 (98.0%) were aware of HIV/AIDS. Majority of the respondents who were aware of HIV/AIDS reported multiple sources of information on HIV/AIDS. Six (6) of the respondents who were aware of HIV/AIDS did not indicate any source of information. The highest proportion of the respondents got to know of HIV/AIDS through the television 207 (72.9%), followed by the school/lecture/teacher 175 (61.5%). The other media were all almost equally represented as sources of information about HIV/AIDS; (50.7%) radio, (49.6%) health personnel, (48.2%) friends/family, (47.2%) newspaper, and (47.2%) internet.

About three-quarter (215 of 290) of the respondents had correct knowledge of the meaning of the acronym HIV/AIDS.

More than 90% of the respondents knew that the organism which causes HIV/AIDS is a virus as shown in Figure 1.

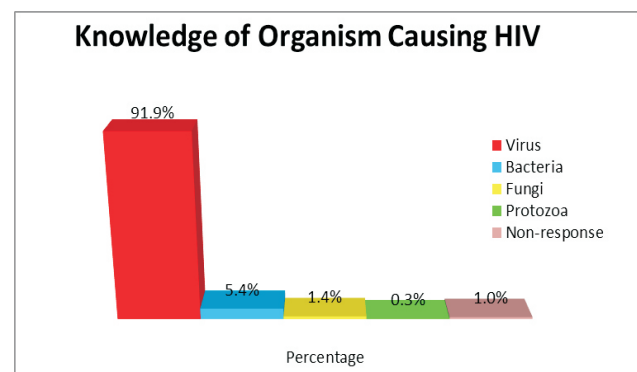


Figure 1. Knowledge of organism causing HIV/AIDS among the respondents

Table 1: Knowledge of mode of transmission of HIV

*Mode of transmission	Frequency (%)	Male (%)	Female (%)	Odds Ratio (95% CI)	**Chi-Square	p-value
Blood transfusion	285 (97.3)	171 (97.7)	114 (99.1)	0.38 (0.08 - 3.86)	0.198	0.656
Sexual intercourse	285 (97.3)	172 (98.2)	113 (98.2)	1.01 (0.08 - 9.00)	0.000	1.000
Sharing needles & sharps	281 (95.9)	169 (96.6)	112 (97.4)	0.75 (0.12 - 3.62)	0.002	0.962
Mother-to-child	240 (81.9)	140 (80.0)	100 (87.0)	0.75 (0.29 - 1.20)	1.891	0.169
Breast-feeding	142 (48.5)	86 (49.1)	56 (48.7)	1.02 (0.62 - 1.68)	0.000	1.000
Mosquito bite	24 (8.2)	16 (9.9)	8 (7.0)	0.60 (0.27 - 1.31)	2.005	0.157
Handshake	7 (2.4)	6 (3.4)	1 (0.9)	4.05 (0.48 - 187.77)	0.996	0.318
Hugging	4 (1.4)	4 (2.3)	0 (0.0)	NA	1.250	0.264

\*Multiple responses; NA: Not applicable; \*\*Yates's correction

Table 2a. Association between the socio-demographic characteristics of respondents and their knowledge HIV status

Socio-demographic Characteristics	Category	Frequency (%)	Knowledge of HIV status	
			Yes (%)	No (%)
Sex	Male	179 (60.5)	117 (65.4)	62 (34.6)
	Female	117 (39.5)	77 (65.8)	40 (34.2)
$\chi^2=0.006, p=0.937$				
Age Group (years)	< 15	3 (1.0)	1 (33.3)	2 (66.7)
	15 - 19	73 (24.7)	38 (52.1)	35 (47.9)
	20 - 24	165 (55.7)	114 (69.1)	51 (30.9)
	25 - 29	51 (17.2)	40 (78.4)	11 (21.6)
	≥ 30	4 (1.4)	1 (25.0)	3 (75.0)
$*\chi^2=14.573, p=0.003$				
Marital Status	Single	282 (95.2)	186 (66.0)	96 (34.0)
	Married	9 (3.0)	6 (66.7)	3 (33.3)
	Separated	2 (0.7)	1 (50.0)	1 (50.0)
	Divorced	3 (1.0)	1 (33.3)	2 (66.7)
$*\chi^2=2.077, p=0.650$				
Faculty of Study	Arts	55 (18.6)	37 (67.3)	18 (32.7)
	Education	48 (16.2)	30 (62.5)	18 (37.5)
	Engineering	39 (13.2)	23 (59.0)	16 (41.0)
	Law	32 (10.8)	19 (59.4)	13 (40.6)
	Medicine	28 (9.5)	21 (75.0)	7 (25.0)
	Sciences/ Agriculture	47 (15.9)	34 (72.3)	13 (27.7)
	Social Sciences	47 (15.9)	30 (63.8)	17 (36.2)
	$\chi^2=3.685, p=0.719$			

\*Fischer's exact

Three of the respondents, one male, and two females did not provide information on the knowledge of the mode of transmission of HIV. Multiple responses were provided by respondents as shown in table 1. More than 95% of the responses correctly identified blood transfusion, sexual intercourse and sharing of needles and sharps as modes of transmission of HIV while less than 10% of the responses had incorrect knowledge regarding the mode of transmission of HIV as shown in table 1. The proportion of respondents with correct knowledge of the mode of transmission of HIV was higher among females compared to males (Table 1). This observation was however not statistically significant (Table 1).

The majority (88.5%) of the respondents indicated that prevention of HIV/AIDS was possible and about two-thirds indicated that HIV/AIDS was not curable. Some respondents indicated that they did not know if HIV/AIDS can be prevented or cured, 22 (7.4%) and 81 (27.4%) respectively.

About two-thirds of the respondents, 194 (65.5%), knew their HIV status while 102 (34.5%) did not know their HIV status.

The overall knowledge of HIV/AIDS assessed among respondents in this study had a mean knowledge score of 8.1.

The majority of the respondents aged between 15 and 29 years knew their HIV status while more respondents who were less than 15 years and ≥ 30 years did not know their HIV status. The association between age group and knowledge of HIV status was statistically significant ( $\chi^2=14.573, p=0.003$ ). The association between the self-knowledge of HIV status and sex, marital status and faculty of study of respondents were not statistically significant as shown in Table 2a.

Following re-categorization of the socio-demographic characteristics of respondents as shown in table 2b, the odds of having self-knowledge of HIV status was higher among females, young adults aged less than 25 years, respondents who have never been married and respondents in a science-related faculty of study. These associations were not statistically significant (Table 2b).



Table 2b: Association between the socio-demographic characteristics of respondents and their knowledge HIV status

Socio-demographic Characteristics	Category	Frequency (%)	Knowledge of HIV status	
			Yes (%)	No (%)
Sex	Male	179 (60.5)	117 (65.4)	62 (34.6)
	Female	117 (39.5)	77 (65.8)	40 (34.2)
$\chi^2=0.006$ , OR: 0.98 (95% CI:0.58-1.65), $p=0.937$				
Age Group (years)	<25	241 (81.4)	153 (79.9)	88 (86.3)
	$\geq 25$	55 (18.6)	41 (21.1)	14 (13.7)
$*\chi^2=1.960$ , OR: 0.59 (95% CI:0.28-1.19), $p=0.161$				
Marital Status	Never married	282 (95.3)	186 (95.9)	96 (93.7)
	Married (current & previous)	14 (4.7)	8 (4.1)	6 (6.3)
$*\chi^2=0.152$ , OR: 1.45 (95% CI:0.40-4.93), $p=0.697$				
Faculty of Study	Non-science related	135 (45.6)	86 (44.3)	49 (48.0)
	Science-related	161 (54.4)	108 (55.7)	53 (52.0)
$*\chi^2=0.085$ , OR: 0.59 (95% CI:0.54-1.51), $p=0.775$				

\*Yates's correction

### Discussion:

This study has shown a high level of awareness and good knowledge of HIV/AIDS among undergraduate students in a Nigerian university. This finding is similar to other previously reported studies.<sup>8,9,10,11,12,13</sup> The high level of awareness of HIV/AIDS cuts across all age groups of the respondents. This finding is in agreement with previous reports in Nigeria and elsewhere which had revealed a high level of awareness of HIV/AIDS in students of tertiary institutions of learning.<sup>9,10</sup>

Most of the respondents in this study obtained knowledge on HIV/AIDS from electronic media and formal teaching at school amongst others. This finding was in tandem with previous reports from Nigeria and around the world which indicated the mass media especially television and radio as being the major sources of information about HIV/AIDS<sup>4,12,13,14,15</sup>. This finding emphasizes the importance and impact of health education, especially through the mass media.<sup>16</sup>

The respondents had a good knowledge of the modes of HIV/AIDS transmission in this study. Although not statistically significant, it was observed that the proportion of female respondents with correct knowledge of the modes of transmission of HIV was higher compared to male respondents. In a similar vein, less female respondents had misconceptions about the mode of transmission of HIV/AIDS such as through mosquito bites, shaking hands and hugging. It is possible that the female respondents in this study spend more time watching television, like females in the United Kingdom,<sup>17</sup> and thus are more likely to be exposed to electronic media broadcast campaign about HIV/AIDS. These campaigns may have some effect in conveying the message.<sup>18</sup> This

finding is at variance with a study from the United Arab Emirates investigating HIV/AIDS knowledge among first-year university students which found that serious misconception existed among students and women were less knowledgeable than men.<sup>19</sup>

The self-knowledge of HIV status by respondents, which may have been limited by recall bias, was not so good in this study. About a third of the respondents did not know their HIV status. Lack of self-knowledge of HIV status may be extrapolated to mean the respondent have never subjected himself or herself to HIV testing.<sup>21</sup> HIV Testing and Counselling (HCT) has far-reaching implications for the prevention and control of HIV/AIDS.<sup>21,22</sup> If HIV status is known and it is positive, such persons can access anti-retroviral drugs. These drugs can make persons living with HIV to remain relatively healthy and can help to reduce the chances of transmitting the infection through means such as from infected mother to her unborn child, breastfeeding and sexual intercourse. On the other hand, persons whose HIV test is negative can make up their mind to avoid behaviours that put them at risk of contracting the virus. In Nigeria, the 2011 - 2016 National HCT target set for adults was at least 80% by 2015.<sup>23</sup> This study did not reflect achievement of the set target as only 65% of the respondents knew their HIV status, and by extension have accessed HCT.

Age and sex have been identified as a socio-demographic risk factor for HIV/AIDS infection hence the vulnerability of the youths.<sup>24</sup> There are varied definitions of youth in the literature. The United Nations defined youth as a person aged between 15 - 24 years whereas the Federal Republic of Nigeria defines a youth as being aged between 18 - 35 years.<sup>25,26</sup> In this study, the majority of the respondents aged between 15 and 29 years knew their HIV status, with the highest proportion being among respondents aged between 25 - 29 years. When age was re-categorized using the United Nations cut off for youth,<sup>25</sup> the likelihood of knowing one's HIV status, and by extension accessing HCT did not differ between respondents aged less than 25 years and those aged 25 years and above. This study did not demonstrate any

significant association between the sex of respondents and their self-knowledge of HIV status. These findings offer a window for intervention to halt the spread of HIV/AIDS in our tertiary institutions of learning, irrespective of age and sex because knowing one's HIV status is the foundation on which positive behavioural change could be adopted and maintained.

### Conclusion:

This study has demonstrated a high level of awareness and knowledge of HIV/AIDS among young adults in a Nigerian University. There are however gaps in the self-knowledge of HIV status among respondents, irrespective of age group and sex. There is need to further assess the reasons for the relatively low access to HIV Counselling and Testing (HCT) inferred from the proportion of self-knowledge of HIV status in this study, especially as the knowledge of the cause, modes of transmission and preventability of HIV were comparatively higher. Efforts should be continued and strengthened at all ecological levels to support HIV education and testing among young adults in particular, and indeed the general population.

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