I. INTRODUCTION

The Acquired Immunodeficiency Syndrome (AIDS) is caused by the Human Immunodeficiency Virus (HIV). The infection, which was first described in the USA in 1981 among homosexuals, has since spread all over the globe with sub-Saharan Africa having the highest prevalence of infected individuals [1].

The most recent statistics on the global epidemic of HIV/AIDS indicates that 39.5 million people are living with HIV/AIDS worldwide. Of these, 24.7 million (63%) live in sub-Saharan Africa, a region that is home to just 10% of the world’s population. Nigeria has the third largest population of people living with HIV/AIDS in the world, after India and South Africa [2]. Nigeria is one of the countries in the sub-Saharan countries affected by the HIV/AIDS pandemic. Based on Nigeria 2012 Global AIDS Response Country Progress Report, the National median HIV prevalence of HIV infection in Nigeria was estimated at 4.1% [3] HIV/AIDS prevalence is highest among young people between the ages
of 20 and 24 [4]. Over 60% of new HIV infections in Nigeria are in the 15-24-year age range [4]. Despite this high number of people living with HIV/AIDS in Nigeria, the knowledge of HIV/AIDS and uptake of Voluntary Counselling and Testing (VCT) is still low [5-6]. No subject or segment of any population worldwide is excluded from HIV infection and this includes university students.

The adult HIV sero-prevalence has increased from 1.8% in 1991, to 4.5% in 1996, 5.6% in 2001 and 5.0% in 2003, according to the national HIV sero-prevalence sentinel survey conducted by the federal ministry of health and released in 2004. The result from 2003 showed a national prevalence of 5.0% among 27,708 women ranging from 1.2% in the state of Osun in the south west to 12% in Cross River state in south-south Nigeria [7]. Current (2020) national prevalence rate of HIV in Nigeria stands at 1.4%. The South geopolitical zone has the highest rate of 3.1 %. Overall, the prevalence amongst women aged between 15 and 64 was 1.9% compared to 1.1% for men [3, 5, 7].

HIV counselling and testing (HCT) consists of a minimum of pre- and post-test HIV counselling and testing. HIV counselling and testing (HCT) is a key strategic entry point to prevention, treatment, care and support services. Most studies in Africa show that knowledge of HIV test results promotes behaviour change and reduces transmission [8]. The benefits of early detection of the virus have also increased because the most effective treatment results occur in the earliest stage of HIV [9]. It is evident that sexual activity and engagement in high-risk behaviours, which favour the spread of HIV infection, are on the increase in tertiary institutions. A concern is that not all individuals who may be at risk for HIV infection choose to be tested. Literature reports that only 36% of individuals who were classified as having high-risk behaviour had been tested for HIV [10]. This study aimed to assess the knowledge, attitude and practice of HCT among undergraduate students of University of Abuja.

II. MATERIALS AND METHODS

2.1 The study area
The University of Abuja is a tertiary institution in the Nigerian capital, Abuja. It was established on January 1, 1988 under Decree No. 110 of 1992 as amended. Academic work began in the University in 1990 with the matriculation of its pioneer students. Despite having a troubled past, the University is known to have significantly improved and is now reportedly ranked amongst the top 10 universities in Nigeria by the National Universities Commission.[11] The University of Abuja, Gwagwalada mini-campus is the first campus in the university to be established at take-off time. Though the university is gradually relocating to the permanent site, up till this day, the campus hosts three female hostels and two male hostels, accommodating close to five thousand students. [12]

2.2 Study design
The study is a descriptive cross-sectional survey

2.3 Study population
The study population was undergraduate students of the University of Abuja.

2.4 Exclusion criteria
The Postgraduate students were excluded because this study is focused on the undergraduate students.

2.5 Sample size estimation
The minimum acceptable sample size was determined using the Leslie Kish formula [13] below;

\[
N = \frac{Z^2pq}{d^2}
\]

Where

- \( N \) = minimum acceptable sample size
- \( P \) = prevalence of HCT utilisation in previous studies carried out in a private owned university in Nigeria is 30.4% = 0.304 [14]
- \( q \) = 1- \( P \)
- \( Z \) = standard normal deviate = 1.96
- \( d \) = degree of precision = 5%

\[
q = 1 - 0.304 = 0.696
\]
\[
Z_a = 1.96
\]
\[
d = 0.05
\]
\[
n = \frac{(1.96)^2 \times 0.304 \times 0.696}{(0.05)^2} = 325.13 \approx 326
\]

10% non-response rate was added to the minimum sample size (N) and this give total sample size (N) of 363 students i.e. N= 326 x 100/90 = 362.22 \approx 363

2.6 Sampling technique
A multistage sampling technique was used for this study

Stage 1: University of Abuja Main Campus was selected between the two campuses in the FCT using simple random sampling technique.

Stage 2: Three faculties (Engineering, Agricultural Sciences and Sciences) were selected from a list of seven faculties in the main campus using simple random sampling technique.
Stage 3: Department of Electrical/Electronic engineering was selected from the four departments in the faculty of Engineering, department of Agricultural Economics & Extension was also selected from the four departments in the faculty of Agricultural Sciences and department of Biological Sciences was selected from the eight departments in the faculty of Sciences all selections were by using simple random sampling techniques.

Stage 4: All consenting students in the department of electrical/electronic, department of agricultural economics and extension and department of biological sciences were studied until a total of 121 students were reached in each of the selected departments giving a total sample size of 363 students.

2.7 Data collection

During each session of data collection, written informed consents were obtained from respondents and questionnaires administered and completed by the respondents themselves.

2.8 Data analysis

Data was sorted, coded and entered into the statistical package for social sciences (SPSS) software version 21.0. Tables were used to present results and Chi square test to assess associations between variables and the exact p-values were reported as appropriate.

The knowledge section about HIV counselling and testing consist of structured closed ended questions offering multiple choices such as “Yes”, “No” or “I don’t know”. For all the questions that were asked in this section, a maximum of 100% and minimum value of 0% was allotted according to each question, the values were then calculated and any respondent who had 50% or greater was considered to have good knowledge of HCT while those who had scores below 50% were considered to have poor knowledge.

The attitude of the respondents towards HIV counselling and testing was assessed using a 5-point Likert scale ranging from Strongly Agree, Agree, Indifferent, Disagree and Strongly Disagree. Strongly Agree and Agree were considered to be Positive attitude while Disagree, Strongly Disagree and Indifferent were categorized as negative attitude toward HIV counselling and testing. Five questions were asked in this section with a maximum value of 100% and minimum value of 0%; the values were then calculated with any respondent who had 50% or greater was considered to have positive attitude towards HCT while those who had scores below 50% were considered to have negative attitude toward HCT.

The practice or the utilization of the HIV counselling and testing service was assessed using structured close ended questions, a maximum value of 100% and minimum value of 0% was allotted according to each question, the values were then calculated with any respondent who had 50% or greater considered to have good practice of HCT while those who had below 50% value were considered to have poor practice of HCT.

The association between knowledge, attitude and practice of HIV counselling and testing was tested by the cross tabulation of variables using the Pearson Chi-square test.

2.9 Ethical consideration

Ethical Clearance was obtained from the University of Abuja Teaching Hospital Health Research Ethics Committee (HREC). Participation was voluntary and written consent forms were signed the questionnaires were administered.

2.10 Limitations of the study

The sensitive nature of the HIV infection may have inhibited some very honest responses. Also it was difficult to ascertain the temporal sequence of events in a cross study such as this one.

III. RESULTS

From a total of 363 respondents, 62.3% were males while females constituted 37.7% of the respondents, a high percentage of respondents were in the age range 20-24 year (51.3%). (Table 1)

Among the sampled population of students, 80.4% of the students have good knowledge while 19.6% of them have poor knowledge of HCT (Table 2)

On the overall attitude of HIV counselling and testing among the sampled population of students, 71.6% of them had positive attitude while 28.4% had negative attitude toward HCT as in Table 3

The overall practice or utilization of HIV Counselling and Testing services, only 43.5% of the students effectively utilize the HCT services while majority of them 56.5% do not effectively make use of the HCT services. This is reported in Table 4

The association between the knowledge and attitude was statistically significant p < 0.05 as shown in Table 5

Similarly, the Association between the Knowledge and Practice was statistically significant, p < 0.05 as displayed in Table 6.
Table 1: Socio-demographic data (n=363)

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>Male</th>
<th>Female</th>
<th>$X^2$</th>
<th>P-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 226</td>
<td>n = 137</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25.854</td>
<td>0.001*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE 15-19</td>
<td>71 (31.4)</td>
<td>77 (56.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>11 6 (51.3)</td>
<td>53 (38.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td>31 (13.7)</td>
<td>6 (4.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>7 (3.1)</td>
<td>1 (0.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>1 (0.4)</td>
<td>0 (0.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELIGIONS</td>
<td></td>
<td></td>
<td>1.788</td>
<td>0.618</td>
</tr>
<tr>
<td>Islam</td>
<td>42 (18.6)</td>
<td>25 (18.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>183 (81.0)</td>
<td>110 (80.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>0 (0.0)</td>
<td>1 (0.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1 (0.4)</td>
<td>1 (0.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARITAL</td>
<td></td>
<td></td>
<td>3.138</td>
<td>0.371</td>
</tr>
<tr>
<td>Single</td>
<td>208 (92.0)</td>
<td>128 (93.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>10 (4.4)</td>
<td>8 (5.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>1 (0.4)</td>
<td>0 (0.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>7 (3.1)</td>
<td>1 (0.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE OF FAMILY</td>
<td></td>
<td></td>
<td>2.452</td>
<td>0.484</td>
</tr>
<tr>
<td>Polygamy</td>
<td>2 (0.9)</td>
<td>0 (0.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monogamy</td>
<td>8 (3.5)</td>
<td>5 (3.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2 (0.9)</td>
<td>0 (0.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>214 (94.7)</td>
<td>132 (96.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHILDREN</td>
<td></td>
<td></td>
<td>0.254</td>
<td>0.614</td>
</tr>
<tr>
<td>Yes</td>
<td>27 (11.9)</td>
<td>14 (10.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>199 (88.1)</td>
<td>123 (89.8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Overall knowledge of respondents on HCT

<table>
<thead>
<tr>
<th>Knowledge Level</th>
<th>Score ≥ 50%</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Good Knowledge</td>
<td>≥ 50%</td>
<td>292 (80.4)</td>
</tr>
<tr>
<td>2. Poor knowledge</td>
<td>&lt; 50%</td>
<td>71 (19.6)</td>
</tr>
</tbody>
</table>

Table 3. Overall attitude of respondents on HCT

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Score ≥ 50%</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positive Attitude</td>
<td>≥ 50%</td>
<td>260 (71.6)</td>
</tr>
<tr>
<td>2. Negative Attitude</td>
<td>&lt; 50%</td>
<td>103 (28.4)</td>
</tr>
</tbody>
</table>
Table 4. Overall practice of respondents on HCT

<table>
<thead>
<tr>
<th>Practice</th>
<th>Score</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Good Practice</td>
<td>≥ 50%</td>
<td>158 (43.5)</td>
</tr>
<tr>
<td>2. Bad Practice</td>
<td>&lt; 50%</td>
<td>205 (56.5)</td>
</tr>
</tbody>
</table>

Table 5. Association between knowledge, attitude and practice of HIV counselling and testing.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Positive Attitude</th>
<th>Negative Attitude</th>
<th>Total</th>
<th>X²</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Knowledge</td>
<td>226 (77.4)</td>
<td>66 (22.6)</td>
<td>292 (80.4)</td>
<td>24.472</td>
<td>0.001*</td>
</tr>
<tr>
<td>Poor Knowledge</td>
<td>34 (47.9)</td>
<td>37 (52.1)</td>
<td>71 (19.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=363   * Statistically Significant

Table 6. Association between knowledge and the practice of HIV counselling and testing.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Good Practice</th>
<th>Bad Practice</th>
<th>Total</th>
<th>X²</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Knowledge</td>
<td>145 (49.7)</td>
<td>147 (50.3)</td>
<td>292 (80.4)</td>
<td>22.832</td>
<td>0.001*</td>
</tr>
<tr>
<td>Poor Knowledge</td>
<td>13 (18.3)</td>
<td>58 (81.7)</td>
<td>71 (19.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=363   * Statistically Significant
Knowledge, Attitude and Practice of HIV Counselling and testing (HCT) among Undergraduate Students of University of Abuja, Nigeria

IV. DISCUSSION

The age of the respondents ranges between 15 years and 40 years, this sociodemographic characteristic was similar to that of the descriptive cross-sectional studies in Uganda by Uganda Bureau of Statistics and Macro International where the respondents aged between 15years and 49 years [15]. The mean age was 20.8years which was in line with the cross-sectional study in North West Ethiopia by Addis Z, Yalew A and Shiferaw Y which show the mean age of 20 years [16]. This is so because the categories of respondents are similar being the undergraduate students of higher institutions.

The results of the knowledge of HCT suggest that majority of the respondents had good knowledge of HIV counselling and testing and this is in contrast to a study carried out in Shanxi Province of China by Zhang JL et al which reported that only 56.6% of the respondents had knowledge of HIV counselling and testing (HCT) [17]. This is not in agreement with our finding because the study in China was conducted on immigrants with different age ranges. But our finding is in agreement with a study conducted in Ethiopia by Addis Z, Yalew A and Shiferaw Y in South Africa [28] that 72% of the respondents utilized HCT services [27] and a similar study conducted by Okafor NA et al in a private institution at Ogun state in Nigeria that reported only 56.5% had HCT [16].

There is a statistically significant association between knowledge and attitude of the respondents toward HCT and our finding is similar to the results of studies carried out in in Shanghai, China among injection drug users by Chen HT, Liang S and Liao Q [24] and in Kenya by Djibuti M, Zurasvili T, Kasrashvili T, Berg CJ [30] and in Nigeria by Abiodun O, Sotunsa J, Ani F, Jaiyesimi E, [14] also in Nigeria and Onyeonoro et al. [31] Also we found a statistically significant association between knowledge and the practice of HCT among our respondents and this similar to the results of the study carried out in UK among African Communities in the Sigma research and in Australia, in Zimbabwe by Addis Z et al [29] and in Nigeria by Abiodun O, Sotunsa J, Ani F, Jaiyesimi E, [14] and by Onyeonoro et al [31] all revealed that there is an association between the knowledge and practice of HCT.

V. CONCLUSIONS

This study revealed that large percentage of the undergraduate students have good knowledge of HIV Counselling and Testing. This may probably be due to the level of awareness especially in the Federal Capital Territory.

Most of the students have positive attitudes towards HIV Counselling and Testing but the practice of HCT service is very poor among the students which may be due to non-availability of the HCT service close to their campuses, this obviously shows that there is a Knowledge-Action-Gap which needs to be filled up.

It is also shown by this study that there is an association between the students’ level of knowledge and attitude. There is also an association between the knowledge and practice of HCT amongst the undergraduate students of University of Abuja.

VI. RECOMMENDATION

Campus-based HCT services are recommended including a regular sensitization programmes. These programmes should improve the uptake of HCT services in this setting.
VII. ACKNOWLEDGEMENT

We wish to acknowledge the management of the University of Abuja for giving us the opportunity to carry out this study.

VIII. AUTHORS’ CONTRIBUTION

All authors contributed to conceptualized and design the study, analysed the data, developed result and discussion section and manuscript for intellectual and scientific content. All authors read and agreed to publish this manuscript.

IX. FUNDING

This study received no external funding.

X. CONFLICT INTEREST

The authors declared that there is no conflict of interest.

REFERENCES


