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Influence of Access to HIV/AIDS Information on the Knowledge of Federal University Undergraduates in Nigeria

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Abstract: Information and knowledge are the foremost tools in fighting the scourge of HIV/AIDS. Previous studies have focused more on HIV/AIDS and Nigerian undergraduates' attitudes, beliefs and protective practices than how information factors influence their knowledge of the pandemic. This study, therefore, investigated the influence of access to HIV/AIDS information on its knowledge among undergraduates of federal universities in Nigeria. The study adopted the descriptive survey research design, with a combination of the purposive, proportionate and stratified random sampling technique used to select 1,679 undergraduates from five universities across five geopolitical zones of Nigeria. Questionnaire was the instrument used for collecting data, which were analyzed using Pearson's product moment correlation and multiple regression. The most accessible sources of HIV/AIDS information among undergraduates were television (94.5%), radio (93.0%) and the Internet/ICT centers (90.5%). The types of HIV/AIDS information frequently assessed were information on how to refuse sex (Mean = 3.15), how to be faithful to one partner (Mean = 3.12), sharing of sharp objects (Mean = 3.12), blood transfusion (Mean = 3.11), unprotected sexual intercourse (Mean = 3.10) and how to use condoms correctly (Mean = 3.09). Access to HIV/AIDS information ($r = 0.15$) resulted in positive significant relationships with HIV/AIDS knowledge, thus access to HIV/AIDS information has a positive influence on the promotion of knowledge of HIV/AIDS among undergraduates. The level of study was also a predictor of HIV/AIDS knowledge, which was not the case for factors of age, discipline, gender, marital status, tribe and religion. The AIDS service organizations and program developers should come up with strategies that would strengthen and improve the content, accuracy and ease of

understanding of HIV/AIDS information that students have access to in order to facilitate its use.

Keywords: Nigerian federal universities, HIV/AIDS information, undergraduate students' knowledge of HIV/AIDS

Introduction

The Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) have attained global epidemic status and have caused unquantifiable distress to millions of people worldwide. For over three decades, several million people have been infected and affected by the epidemic; the Joint United Nations Programme on AIDS (UNAIDS) estimated that 35 million people worldwide have died of HIV/AIDS-related illnesses since it was first diagnosed (UNAIDS 2017a). The negative impact of HIV/AIDS has been felt in all aspects of human life, with the pattern of spread of HIV/AIDS a threat not only to individual lives but also global public health, social and economic development of different areas, as well as the security and stability of nations.

Though HIV/AIDS has been reported in every part of the globe, it continues to spread disproportionately, faster in poor countries and certain subgroups of the population. According to UNAIDS (2017a), the estimated number of HIV/AIDS cases globally stands at 36.7 million people in 2016, of which 25.5 million people (nearly 70%) are in sub-Saharan Africa, even though the people in the region account for just about 10% of the world's population. There were 1.8 million people with newly acquired HIV infection in 2016, of which 1.16 million (64%) were located in sub-Saharan Africa. Of the estimated one million people that died of AIDS related illnesses, 0.73 million (73%) were in sub-Saharan Africa (UNAIDS 2017a).

Nigeria has the second largest epidemic of HIV/AIDS in the world after South Africa and contributes 8.7% of the global burden. The national estimates of HIV prevalence rate in Nigeria indicated an increase from 1.8% in 1991 to 5.8% in 2001, which then declined to 5% in 2003 and 4.4% in 2005 (Integrated Biological and Behavioural

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Surveillance Survey, rose to 4.6% in 2008 and decreased to 4.1% in 2010 (National Agency for the Control of AIDS (NACA)), 2012). The latest statistics indicate that 3.2 million people are reported to be living with HIV/AIDS in Nigeria (UNAIDS 2017b); the number of new HIV infections in Nigeria stood at 220,000 with an estimated 970,000 requiring ARV, while 160,000 died of AIDS-related diseases in 2016.

Information is an indispensable tool for human development. It is one weapon that appears constant in managing HIV/AIDS and its devastating effects. The right piece of information at the right time could make a difference between life and death, between living with the HIV virus and succumbing to it. Those that have tested negative for HIV need prevention information, while those not sure of their HIV status need information on testing. Those that have known their HIV status as being positive or have developed AIDS require information on treatment, services and resources available in their locality, nutritional information, voluntary testing and counselling, as well as social and financial support. Information will also help reduce stigma by dispelling the myths on HIV transmission routes; Forman (2005) posited that information enables individuals to take steps on protection against infection, making informed decisions and living lives of dignity and equity. In a further illustration of the importance of adequate access to information to fight HIV and AIDS, the 2001 UN General Assembly Special Session on HIV/AIDS asserted that by 2005 at least 90%, and by 2010 at least 95%, of young men and women would have access to relevant information and education, including that which is peer and youth-specific, as well as services necessary to develop life skills required to reduce vulnerability to HIV infection (United Nations (2001) cited in Abiona et al. 2014). The indicator used for monitoring the United Nations resolution is the proportion of young people aged 15 to 24 that could correctly identify ways of preventing the transmission of HIV through sexual means and reject major misconceptions about HIV transmission (UNAIDS 2008).

Information accessibility is of utmost importance in the process of information gathering. Access to information is central to the performance of any organization (Choo 1998; Galbraith 1973); people are often affected by bounded rationality, where they are limited in their abilities to solve problems and make decisions, which can only be overcome by acquiring the appropriate information to solve problems and make the right decisions (Allen 1977; Jarvenpaa 1994).

Knowledge about HIV/AIDS is one of the core elements for fighting the epidemic, especially among young people identified as a key group for HIV prevention

activities. Knowledge confers the power to reason and take positive action; it also equips young people with the motivations and skills needed in reducing the risk of HIV/AIDS. Ensuring that individuals have the knowledge necessary to protect themselves against HIV infection was an explicit part of the Millennium Development Goal 6, to combat HIV/AIDS, malaria and other diseases (United Nations (2001) cited in Abiona et al. 2014). Voisin et al. (2013) asserted that knowledge is essential to generate the motivation to learn and adopt risk reduction behaviors. Adekeye and Adeusi (2011) found that knowledge was the predictor of safe HIV behavior among students of Covenant University (in Ota, Ogun State, Nigeria) and that young people with adequate knowledge of HIV had the power and ability not to engage in risky sexual practices. There is universal awareness of HIV/AIDS in Nigeria, but having comprehensive knowledge of the pandemic is critical to adopt HIV protective behaviors. Burgoyne and Drummond (2008) reviewed the state of knowledge about HIV/AIDS in sub-Saharan Africa and concluded that most African people have heard of the viruses but there is still widespread misunderstanding about how HIV is spread, the consequences of infection and how to protect against infection. UNAIDS (2015) put the number of young people that have knowledge of HIV prevalence globally at 24.45%, while in sub-Saharan Africa the percentage of young people (15–24 years) demonstrating comprehensive and accurate understanding of HIV was 36% for young men and 28% for young women.

The reports of studies carried out on the HIV/AIDS information sources for and knowledge of different age groups in Nigeria (Ayopo 2009; Bankole and Mabekoje 2008; Edet et al. 2013; Fawole, Asuzu, and Oduntan 1999; Muoghalu and Jegede 2013) has helped gain understanding of HIV/AIDS issues and formed the basis for some policy interventions. However, most of these studies have identified gaps in the knowledge of HIV/AIDS; while most of the HIV knowledge studies in Nigeria requested participants to indicate the sources and channels for HIV/AIDS information, the frequency of exposure as it relates to knowledge is yet to be given appropriate attention, thus creating a gap in the literature that deserves to be addressed. According to Laguna (2004), an understanding of how and where information regarding AIDS is obtained contributes to a better appreciation of not only knowledge formation among young people but also how information affects their attitudes and behaviors. Furthermore, to achieve the United Nations HIV prevention goals, it is necessary to continually study young peoples' sources of information and their knowledge about HIV/AIDS, as such

data will be useful in identifying existing gaps in knowledge and addressing misconceptions and myths. This background thus justifies the need for empirical research that will investigate the relationship between access to HIV/AIDS information and knowledge about HIV/AIDS among undergraduates in Nigerian universities. It is against this backdrop that the study investigated the influence of demographic variables and access to HIV/AIDS information on knowledge of the area among undergraduates of federal universities in Nigeria.

It is hoped that the results will assist in stakeholders' planning, review and development of information materials to enhance the HIV/AIDS knowledge of university students. The university undergraduates could benefit from the research, exploring opportunities for greater access to HIV/AIDS information resources.

Methodology

The correlational survey research design was applied in this study. The target population of the study was undergraduates of University of Ilorin, University of Nigeria, Usman Dan Fodio University, Obafemi Awolowo University and University of Benin. These undergraduates are considered the ideal group for this study as they are most likely to fall within the age range of 15–24 years, defined as young people, the age group considered to be at higher risk of HIV infection than any other. Five faculties were purposively selected from the universities for uniformity and they include faculties of Agriculture, Science, Social and Management Sciences, Arts and Law. The combination of the purposive, proportionate and stratified random sampling techniques was used to select two percent of undergraduates from the five universities. The total number of undergraduates selected for the study was 1,679.

Three survey instruments collapsed into a questionnaire titled 'HIV/AIDS information and knowledge of undergraduates' were employed to elicit information from the respondents. The sections were Demographic Information, Access to HIV/AIDS Information and Knowledge of HIV/AIDS.

Section A: Demographic Information of Respondents, a section which gathered information about personal characteristics of respondents such as age, gender, marital status, religion, tribe, discipline and year of study in university.

Section B: Access to HIV/AIDS Information, a section whose first part consisted of items designed to rate the

degree of respondents' access to 27 HIV/AIDS information sources. The second part requested participants to indicate their degree of access to various types of HIV/AIDS related information. A four-point rating scale of very easily accessible, easily accessible, occasionally accessible and not accessible was used.

Section C: Knowledge of HIV/AIDS. The items used to measure knowledge were adapted from Petro-Nustas' psychometrically tested HIV/AIDS knowledge questionnaires (2000) that determined knowledge of university students in Jordan, Carey and Schroder's (2002) HIV knowledge questionnaire and that of Balogun et al. (2010) that measured knowledge of university students in Turkey and Africa. The section comprised of 30 statements/questions that dealt with knowledge of the HIV virus, routes of transmission, symptoms of HIV infection and methods of prevention. The items were all closed questions with three options, 'True', 'False' and 'Don't Know', with one point given for each correct answer and zero points for each unknown and incorrect answer ('Don't Know' and incorrect answer). The possible HIV/AIDS knowledge scores ranged from zero to 30 and, using Mureed (2008) criteria, the knowledge scores were classified as follows:

High level (80–100 %)	(24–30 points)
Moderate level (60–79 %)	(18–23 points)
Low level (less than 60 %)	(00–17 points)

Validity and Reliability of Research Instruments

The face validity of the instruments was somewhat ineffective as some question items were adopted from previous questionnaires administered on university students in the past, hence various subject experts scrutinized the questionnaire for its face validity. The content validity was established by a critical review by experts comprising of lecturers in the Department of Library, Archives and Information Studies in the University of Ibadan, as well as two medical experts. The feedback from these scholars on clarity, relevance, specificity and the inclusion of important items to the study was used to improve the quality of the draft questionnaire. To ascertain the appropriateness of the instruments, a pilot study was conducted using a sample of 50 undergraduate students in different departments and faculties of Olabisi Onabanjo University, Ago Iwoye, Ogun State. Their responses helped in detecting questions that were

ambiguous (that could be misinterpreted, might not be easily understandable or awkward), could make respondents uncomfortable and questions/statements known to all respondents in the knowledge instrument, which therefore would fail to measure variations among respondents. The findings of this exercise were incorporated into the final instrument for the study.

Data Collection Procedure

A total number of 1,679 copies of the questionnaire were administered to undergraduates in five different universities and faculties in five geo-political zones in Nigeria by the researcher and five trained research assistants. To ensure its proper completion, the purpose of administration was explained to the students before it was administered at the beginning of lecture periods in lecture theatres/halls/rooms. The questionnaires were collected from students immediately after completion.

Method of Data Analysis

The data collected was entered into Microsoft Excel and analyzed using SPSS. Descriptive statistics including frequency counts, percentages, means and standard deviations were performed to give general descriptions, while the Pearson Product Moment Correlation Coefficient, Multiple regression analysis and one-way analysis of variance (ANOVA) were employed to test the hypotheses.

Findings

Out of the 1,679 copies of questionnaire administered, 1,338 returned were found useable, giving a response rate of 79.7%.

Demographic Characteristics of Respondents

The demographic characteristics of respondents are presented in Table 1. There were 280 respondents (20.9%) from the University of Ilorin, 279 (20.9%) from the University of Nigeria, 277 (20.7%) from Usman Dan Fodio University, 261 (19.5%) from Obafemi Awolowo University and 241 (18.0%) from the University of Benin. The highest proportion of students (784, 58.6%) was in the age range of 20–24 years, followed by those

Table 1: Demographic profiles of respondents.

University	Frequency	Percentage
Obafemi Awolowo University, Ile Ife (OAU)	261	19.5
University of Nigeria, Nsukka (UNN)	279	20.9
University of Benin, Benin (UNIBEN)	241	18.0
University of Ilorin, Ilorin (UNILORIN)	280	20.9
Usman Dan Fodio University, Sokoto (UDUS)	277	20.7
Age		
15–19	377	28.2
20–24	784	58.6
25–29	153	11.4
30+	24	1.8
Gender		
Male	701	52.4
Female	637	47.6
Faculty		
Agriculture	251	18.8
Law	251	18.8
SMS	254	18.9
Arts	293	21.8
Science	283	21.6
Marital Status		
Single	1227	91.7
Married	78	5.8
Widowed	09	0.7
Divorced	24	1.8
Tribe		
Hausa	322	24.1
Yoruba	396	29.6
Igbo	363	27.1
Others	257	19.2
Religion		
Christian	758	56.7
Islam	553	41.3
Traditional	17	1.3
Others	10	0.7
Level of Study		
100 Level	197	14.7
200 Level	412	30.8
300 Level	331	24.7
400 Level	313	23.4
500 level	85	6.4
Total	1338	100

aged 15–19 years which constituted 28.2% of respondents. Those between 25 and 29 years constituted 11.4% while only 24 respondents (1.8%) were ages 30 years and

above. The mean age of respondents was 21.8 years, confirming that the majority of the university undergraduate respondents are in the age category of what is categorized as young people (15–24 years).

The gender distribution of respondents shows that the total number of male respondents (52.4%) was slightly higher than female (47.6%). The categorization of respondents by their discipline shows that 21.8% of respondents were from the Faculty of Arts, closely followed by the Faculty of Science (21.6%), Faculty of Social and Management Sciences (18.9%) and finally the faculties of Law and Agriculture, each having 18.8% of respondents. Most respondents were single (1227, 91.7%), while 78 (5.8%) were married; these two groups constituted the major proportion of respondents (97.5%). Of the remaining respondents, 24 (1.8%) were divorced while 9 (0.7%) were widowed. As regards the tribe of respondents, 322 (24.1%) were Hausas, 396 (29.6%) were Yorubas and 363 (27.1%) were Igbos, while 257 (19.2%) were from other minority ethnic groups. This categorization based on ethnic group has placed the sample for the study on a good standing to represent undergraduates in Nigerian Universities.

In addition, it can be observed that the majority of the respondents (758, 56.7%) were Christians, 553 (41.3%) were Muslims and 17 (1.3%) were Traditionalists. The result shows that 197 (14.7%) of respondents were in 100 level, 412 (30.8%) were in 200 level, 331 (24.7%) were in

300 level, 313 (23.4%) were in 400 level, while 85 (6.4%) were in 500 level.

Access to HIV/AIDS Information Sources

The results in Table 2 show that if the data for very easily accessible, easily accessible and occasionally accessible are pooled together to calculate the proportion of those with access to HIV/AIDS information, then accessible sources of such among undergraduates were: television (94.5%), radio (93%), Internet/ICT centres (90.5%), newspapers (91.4%), textbooks, story books (91.4%), friends/neighbours (89.3%) and parents/relatives (88.35%). Elsewhere, it was also noted that undergraduates have access to HIV/AIDS information through physicians/health care professionals (87.2%), peer educators (86.9%), university courses/lecturers (84.2%) and the library (73.6%).

In term of frequency of access, television was the most accessible information source, with a mean score of 3.21 indicating that students ranked television as easily accessible for HIV information. This was closely followed by radio with a mean score of 3.16, while other easily accessible sources of HIV/AIDS information indicated by respondents included Internet/ICT centres (mean = 2.97), parents/relatives (mean = 2.90), newspapers (mean = 2.86), textbooks/story books (mean = 2.85),

Table 2: Access to HIV/AIDS Information Sources by undergraduate students in Nigeria(n=1,338).

Information Source	VEA Freq %	EA Freq %	OA Freq %	NA Freq %	No Resp Freq %	Mean	S.D
Television	651 48.7 %	426 31.8 %	187 14.0 %	38 2.8 %	36 2.7 %	3.21	0.97
Radio	638 47.7 %	411 30.7 %	196 14.6 %	45 3.4 %	48 3.6 %	3.16	1.03
Internet, ICT centres	531 39.7 %	407 30.4 %	273 20.4 %	82 6.1 %	45 3.4 %	2.97	1.07
Parents, Relatives	518 38.7 %	369 27.6 %	295 22.0 %	112 8.4 %	44 3.3 %	2.90	1.11.
Newspapers	421 31.5 %	462 34.5 %	340 25.4 %	72 5.4 %	43 3.2 %	2.86	1.03
Textbooks, Story books	419 31.3 %	464 34.7 %	340 25.4 %	67 5.0 %	48 3.6 %	2.85	1.03
Friends, Neighbours	461 34.5 %	383 28.6 %	351 26.2 %	81 6.1 %	62 4.6 %	2.82	1.11
Religious gathering(church, mosque)	429 32.1 %	397 29.7 %	329 24.6 %	139 10.4 %	44 3.3 %	2.77	1.11
Bill boards, Posters	395 29.5 %	438 32.7 %	324 24.2 %	129 9.6 %	52 3.9 %	2.74	1.10

(continued)

Table 2: (continued)

Information Source	VEA	EA	OA	NA	No Resp	Mean	S.D
	Freq %	Freq %	Freq %	Freq %	Freq %		
Magazines	333 24.9%	493 36.8%	376 28.1%	90 6.7%	46 3.4%	2.73	1.02
Leaflets, pamphlets, Booklets	346 25.9%	455 34.0%	356 26.6%	131 9.8%	50 3.7%	2.68	1.07
Films and video shows	343 25.6%	414 30.9%	396 29.6%	132 9.9%	53 4.0%	2.64	1.09
Newsletters, Bulletins	334 25.0%	434 32.4%	379 28.3%	129 9.6%	62 4.6%	2.63	1.10
Physicians, Health care professionals	315 23.5%	424 31.7%	428 32.0%	116 8.7%	55 4.1%	2.62	1.06
Peer educators	306 22.9%	458 34.2%	398 29.7%	116 8.7%	60 4.5%	2.62	1.07
Drama and plays	308 23.0%	410 30.6%	452 33.8%	118 8.8%	50 3.7%	2.60	1.05
Secondary school education, Teachers	291 21.7%	423 31.6%	402 30.0%	176 13.2%	46 3.4%	2.55	1.07
University courses, Lectures	278 20.8%	374 28.0%	474 35.4%	160 12.0%	52 3.9%	2.50	1.07
Seminars, Workshops, Exhibitions	226 16.9%	388 29.0%	516 38.6%	158 11.8%	50 3.7%	2.43	1.02
University guidance and counselling(G&C) units, Departments	253 18.9%	327 24.4%	442 33.0%	268 20.0%	48 3.6%	2.35	1.11
University library, Librarians	268 20.0%	333 24.9%	384 28.7%	309 23.1%	44 3.3%	2.35	1.14
Non-Governmental organization (NGO)	225 16.8%	321 24.0%	506 37.8%	232 17.3%	54 4.0%	2.32	1.07
National agency for control of AIDS(NACA, SACA, LACA)	248 18.5%	317 23.7%	424 31.7%	289 21.6%	60 4.5%	2.30	1.13
Public library, Librarians	228 17.0%	338 25.3%	402 30.0%	318 23.8%	52 3.9%	2.28	1.12
HIV positive counsellors	218 16.3%	324 24.2%	469 35.1%	275 20.6%	52 3.9%	2.28	1.08
AIDS clubs	216 16.1%	291 21.7%	443 33.1%	332 24.8%	56 4.2%	2.21	1.11
Telephone hotlines, Telephone calls	231 17.3%	283 21.2%	387 28.9%	371 27.7%	66 4.9%	2.18	1.16

4 points for Very easily accessible (VEA).

3 points for easily accessible (EA).

2 points for occasionally accessible (OA).

1 point for not accessible (NA).

No Resp - No response.

friends/neighbours (mean = 2.82), religious gatherings (church, mosque) (mean = 2.77) and billboards/posters (mean = 2.74). Information sources that undergraduates ranked lower in terms of accessibility were magazines (mean = 2.73), leaflets, pamphlets, booklets (mean = 2.68), films and video shows (mean = 2.64), newsletters, bulletins (Mean = 2.63), physicians and health care professionals (mean = 2.62), peer educators (Mean = 2.62), drama and plays (mean = 2.60), secondary school education,

teachers (mean = 2.55) and university courses/lecturers (mean = 2.50). Elsewhere, the students ranked information from the following sources as occasionally accessible: seminars/workshops/exhibitions (mean = 2.43), university guidance and counselling (G&C) units and departments (mean = 2.35), as well as the university library/librarians (mean = 2.35), non-governmental organization (NGO) (mean = 2.32), National agency for Control of AIDS (NACA, SACA, LACA) (mean = 2.30), public library/librarians

Table 3: Access to HIV/AIDS Information Types by undergraduates in Nigerian federal Universities(n=1,338).

S\N	Items	VEA Freq %	EA Freq %	OA Freq %	NA Freq %	No resp. Freq %	S.D
Prevalence							
1	Prevalence and incidence of HIV/AIDS in various part of the world	313 23.4 %	451 33.7 %	372 27.8 %	152 11.4 %	50 3.7 %	2.62 1.08
2	Prevalence and incidence of HIV/AIDS among different age groups	270 20.2 %	480 35.9 %	405 30.3 %	130 9.7 %	53 4.0 %	2.59 1.04
Prevention							
3	Abstinence-how to abstain from sex	413 30.9 %	432 32.3 %	342 25.6 %	105 7.8 %	46 3.4 %	2.79 1.07
4	How to refuse sex	637 47.6 %	402 30.0 %	195 14.6 %	75 5.6 %	29 2.2 %	3.15 1.01
5	Being faithful to one partner	600 44.8 %	435 32.5 %	198 14.8 %	69 5.2 %	36 2.7 %	3.12 1.02
6	Where to purchase condom	625 46.7 %	352 26.4 %	235 17.6 %	85 6.4 %	41 3.1 %	3.08 1.03
7	How to use condom correctly	623 46.6 %	392 29.3 %	186 13.9 %	98 7.3 %	39 2.9 %	3.09 1.07
Misconception							
8	Myths and fears about HIV	522 39.0 %	436 32.6 %	199 14.9 %	135 10.1 %	46 3.4 %	2.94 1.12
Transmission							
9	Relationship between HIV and other sexually transmitted infections	471 35.2 %	455 34.0 %	263 19.7 %	109 8.1 %	40 3.0 %	2.90 1.07
10	Mother to child transmission of HIV	513 38.3 %	488 36.5 %	228 17.0 %	85 6.4 %	24 1.8 %	3.03 0.98
11	Blood transfusion	585 43.7 %	462 34.5 %	174 13.0 %	85 6.4 %	32 2.4 %	3.11 1.01
12	Unprotected sexual intercourse	611 45.7 %	410 30.6 %	189 14.1 %	97 7.2 %	31 2.3 %	3.10 1.04
Clinical/Nursing care							
13	Early diagnosis of HIV	386 28.8 %	433 32.4 %	343 25.6 %	145 10.8 %	31 2.3 %	2.75 1.06
14	Antiretroviral therapy	315 23.5 %	445 33.3 %	337 25.2 %	205 15.3 %	36 2.7 %	2.60 1.09
15	Drug administration	331 24.7 %	439 32.8 %	344 25.7 %	188 14.1 %	36 2.7 %	2.63 1.08
Clinical manifestations							
16	Identifying signs, symptoms of HIV/AIDS	357 26.7 %	445 33.3 %	331 24.7 %	171 12.8 %	34 2.5 %	2.69 1.08
17	Complications of advanced stages of HIV, AIDS	353 26.4 %	486 36.3 %	310 23.2 %	151 11.3 %	38 2.8 %	2.72 1.06
Sexuality							
18	How to assess my personal risk of acquiring, getting HIV infection	399 29.8 %	484 36.2 %	278 20.8 %	137 10.2 %	40 3.0 %	2.80 1.07
19	Early sexual debut	354 26.5 %	484 36.2 %	289 21.6 %	153 11.4 %	58 4.3 %	2.69 1.11
Stigmatization							
20	How not to stigmatize and discriminate against people living with HIV, AIDS, stigma and discrimination	477 35.7 %	437 32.7 %	276 20.6 %	90 6.7 %	58 4.3 %	2.89 1.10
Healthy life							
21	How those with HIV infection can live a normal, positive life	472 35.3 %	480 35.9 %	273 20.4 %	76 5.7 %	37 2.8 %	2.95 1.02
Risk factors							
22	Peer pressure	485 36.2 %	516 38.6 %	223 16.7 %	69 5.2 %	45 3.4 %	2.99 1.02

(continued)

(mean = 2.28), HIV positive counsellors (mean = 2.28), AIDS clubs (Mean = 2.21) and telephone hotlines/calls (mean = 2.18). The overall mean degree of access to sources of HIV/AIDS information was 2.62 which shows that the level of access of respondents to HIV/AIDS information sources overall was easily accessible.

Table 3 contains data on the extent of undergraduates' access to various types of HIV/AIDS information. The most easily accessible was information on how to refuse sex (mean = 3.15), followed by how to be faithful to one partner (mean = 3.12). The third most accessible was information on the sharing of sharp objects (mean = 3.12), followed by blood transfusion (mean = 3.11), unprotected sexual intercourse (mean = 3.10), how to use condoms

correctly (mean = 3.09), where to purchase condoms (mean = 3.08), mother to child transmission of HIV (mean = 3.03), peer pressure (mean = 2.99) and how those with HIV infection can live a normal, positive life (mean = 2.95). Other types of HIV/AIDS information with their accessibility ranking were information on myths and fears about HIV (mean = 2.94) as well as the relationship between HIV and other sexually transmitted infections (mean = 2.90). The HIV/AIDS information types that undergraduate students found least accessible were information on proper food for people living with HIV/AIDS (mean = 2.41), employment opportunities for vulnerable youths (mean = 2.32), right of people living with HIV/AIDS (mean = 2.31), privileges of people living with HIV

Table 3: (continued)

S\N	Items	VEA	EA	OA	NA	No resp.	S.D
		Freq %	Freq %	Freq %	Freq %	Freq %	
23	Sharing of sharp objects	628 46.9%	413 30.9%	179 13.4%	66 4.9%	52 3.9%	3.12 1.07
	Counselling/Psychological support						
24	Benefits of voluntary counselling and testing	378 28.3%	472 35.3%	342 25.6%	96 7.2%	50 3.7%	2.77 1.05
25	Where to test for HIV, VCT centres	389 29.1%	497 37.1%	291 21.7%	104 7.8%	57 4.3%	2.79 1.08
26	Showing of love and affection to PLHIV	426 31.8%	423 31.6%	303 22.6%	126 9.4%	60 4.5%	2.77 1.13
	Risk behaviour						
27	Alcoholism	422 31.5%	430 32.1%	218 16.3%	215 16.1%	53 4.0%	2.71 1.18
28	Substance abuse, injection of drug	426 31.8%	426 31.8%	241 18.0%	189 14.1%	56 4.2%	2.73 1.17
29	Female sex work	451 33.7%	424 31.7%	211 15.8%	193 14.4%	59 4.4%	2.76 1.19
30	Homosexuality, lesbianism or gay	437 32.7%	391 29.2%	220 16.4%	232 17.3%	58 4.3%	2.69 1.22
31	Multiple sexual partners	483 36.1%	386 28.8%	203 15.2%	202 15.1%	64 4.8%	2.76 1.22
	Funding and Finance/Economic support						
32	Employment opportunities for vulnerable youths	273 20.4%	311 23.2%	382 28.6%	314 23.5%	58 4.3%	2.32 1.16
33	Where to seek financial assistance for people living with HIV, AIDS	193 14.4%	276 20.6%	444 33.2%	372 27.8%	53 4.0%	2.14 1.10
	Nutritional care/requirement						
34	Proper food for people living with HIV, AIDS	293 21.9%	333 24.9%	392 29.3%	271 20.3%	49 3.7%	2.41 1.14
	Legal protection						
35	Right of people living with HIV and AIDS	267 20.0%	304 22.7%	399 29.8%	313 23.4%	55 4.1%	2.31 1.15
36	Privileges of people living with HIV	239 17.9%	338 25.3%	388 29.0%	306 22.9%	67 5.0%	2.28 1.15

(mean = 2.28) and where to seek financial assistance for people living with HIV/AIDS (mean = 2.14). The overall mean score of the respondents' access to HIV/AIDS information was 2.76 with a standard deviation of 1.35, which indicates the information on HIV/AIDS matters was easily accessible to undergraduates in Nigerian federal universities.

Knowledge of HIV/AIDS

The respondents' knowledge scores varied from the minimum of 12 out of 30 (40%) scored by six respondents to the maximum of 30 (100%) scored by only nine respondents. The respondents' overall mean HIV/AIDS knowledge score was 22.01 out of a total of 30 (73.4%), while the median mark was 21 and modal mark also 21. The highest number of participants (170) scored 21 points (70%), followed by 161 respondents who scored 22 (73.3%), 158 who scored 20 points (66.7%) and 153 respondents who scored 23 points (76.7%).

On the specific knowledge items questions in Table 4, 91.2% of respondents knew that a person with HIV infection can look and feel healthy, while 88.1% correctly answered 'No' to the question of whether there is a cure for HIV/AIDS if detected early. 85.1% of the respondents knew that having sex with more than one partner (multiple sexual partnership) can increase a person's chance of being infected with HIV, while 82% of respondents knew that a woman can get HIV if she has anal sex with a man. The proportion of those that knew there are drugs that could reduce the risk of HIV transmission by HIV positive mothers to their babies was 81.2%; 80.6% of respondents correctly answered that a person infected with HIV may not die within one or two years; 78.2% knew that HIV cannot be spread by sharing toilets with an HIV infected person and 78.1% were aware that eating healthy and nourishing food does not prevent a person from getting HIV. Elsewhere, 77.6% correctly responded 'No' to the statement that HIV infection can be caused by spirits or supernatural forces, while 77.1% were rightly aware that a person will not transmit the HIV infection if he or she is on antibiotics.

76.1% of respondents that knew all HIV positive mothers may not have their babies born with HIV, while 75.7% correctly answered 'No' to the statement that taking a HIV test one week after having sex will

tell a person if he or she has HIV; 74.7% of respondents also correctly responded 'No' to the statement that there are more people with HIV among white than black men. 74.4% knew showering or washing one's genitals or private parts after sex does not keep a person from getting HIV, 73.5% were aware that there is a difference between being HIV positive and having AIDS, while 73.1% responded correctly that at present there is no vaccine/vaccination against the HIV infection.

The areas where students had the greatest misconceptions as shown in Table 4 were as follows: 32.6% of the respondents erroneously believed that a person cannot contact HIV/AIDS through oral sex, 27.2% incorrectly believed the risk of acquiring HIV is higher in men than women, 27.1% thought deep kissing could not transmit HIV, 24.9% mistakenly believed one could get HIV by donating blood, 23% incorrectly thought that pulling out the penis before ejaculating prevents the transmission of HIV, 21.6% incorrectly stated there is a vaccine for HIV, while 21.4% thought HIV can be transmitted through contact with saliva, urine and tears.

The classification of knowledge scores shows that the majority of respondents (62.3%) have a moderate level of knowledge about HIV/AIDS and scored between 18 (60%) and 23 points (76.7%) out of 30. This was followed by 332 respondents (24.8%) that had high knowledge and scored between 24 (80%) and 30 points (100%). 172 respondents (12.9%) had scores in the range of six and 17 points and thus had low knowledge scores.

Test of Hypotheses

Hypothesis 1 predicts there is no significant relationship between undergraduates' access to HIV/AIDS information and their knowledge about HIV/AIDS. The test carried out using the Pearson correlation analysis revealed the observed correlation coefficient (r) is 0.153 and the observed significant level 0.000 ($p < 0.05$) (Table 5). Since the p value is less than 0.05, degree of access to HIV/AIDS information of respondents is significantly correlated with their knowledge of HIV/AIDS. The null hypothesis was rejected, hence the degree of access to HIV/AIDS information of respondents is significantly correlated with their knowledge of HIV/AIDS.

Table 4: Knowledge of University undergraduates about HIV/AIDS related matters.

S\N	Items	Correct Answer	Yes	No	Don't Know
1	A person with HIV can look and feel healthy	Yes	1220 91.2%	67 5.0%	51 3.8
2	A person infected with HIV dies within one or two years	No	75 13.1%	1078 80.6%	85 6.4
3	Individual can infect others with the HIV without being ill themselves	Yes	919 68.7%	351 26.2%	68 5.1
4	A person can get HIV if he, she used the same toilet with an HIV infected person	No	221 16.5%	1046 78.2%	71 5.3
5	Having sex with more than one partner can increase a person's chance of being infected with HIV	Yes	1138 85.1%	158 11.8%	42 3.1
6	A person can get HIV through oral sex	Yes	785 58.7%	436 32.6%	117 8.7
7	Showering or washing ones genitals, private parts, after sex keeps a person form getting HIV	No	217 16.2%	996 74.4%	125 9.3
8	A person can get HIV through contact with in saliva, tears sweat or urine	No	286 21.4%	913 68.2%	139 10.4
9	Taking an HIV test one week after having sex will tell a person if he or she has HIV	No	257 19.2%	1013 75.7%	68 5.1
10	All pregnant women positive for HIV will have babies born with HIV	No	187 14.0%	1018 76.1%	133 9.9
11	People are likely to get HIV by kissing, putting their tongue in their partners mouth if their partners have HIV	Yes	363 27.1%	893 66.7%	82 6.1
12	HIV can be transmitted through breast feeding	Yes	915 68.4%	287 21.4%	136 10.2
13	There is a difference between being HIV positive and having AIDS	Yes	983 73.5%	222 16.6%	133 9.9
14	A woman can get HIV if she has anal sex with a man	Yes	1097 82.0%	166 12.4%	75 5.6
15	There are more people with HIV among the whites than among black men	No	257 19.2%	999 74.7%	82 6.1
16	Most people with HIV will die of an AIDS related illness	Yes	877 65.5%	325 24.3%	136 10.2
17	A person will not get HIV if he or she is taking antibiotics	No	237 17.7%	1031 77.1%	70 5.2
18	The presence of a sexually transmitted infection increase the risk of contracting, getting HIV	Yes	846 63.2%	392 29.3%	100 7.5
19	Eating healthy and nourishing food and exercising regularly will prevent a person from getting HIV	No	153 11.4%	1045 78.1%	140 10.5
20	A person can become infected by being bitten by a mosquito that previously bit an HIV-infected person	No	162 12.1%	966 72.2%	210 15.7
21	Male circumcision lowers the risk of HIV transmission	Yes	884 66.1%	324 24.2%	130 9.7
22	HIV infection can be caused by spirits or supernatural forces	No	172 12.9%	1038 77.6%	128 9.6
23	The risk of contracting HIV is higher in men than in women	No	364 27.2%	833 62.3%	141 10.5
24	A person can get HIV by giving (donating) blood	No	334 24.9%	856 64.0%	148 11.1
25	A woman will not get HIV if she is using oral contraceptives	No	266 19.9%	938 70.1%	134 10.0

(continued)

Table 4: (continued)

S\N	Items	Correct Answer	Yes	No	Don't Know
26	There are vaccines than can prevent HIV infection	No	289 21.6%	978 73.1%	71 5.3
27	Pulling out the penis before ejaculation by a man prevents a woman from getting HIV	No	303 23.0%	935 69.9%	95 7.1
28	There is a cure for HIV, AIDS if detected early	No	77 5.8%	1179 88.1%	82 6.1
29	Using Vaseline or baby oil with condoms lowers the chance of getting HIV	No	248 18.5%	949 70.9%	141 10.5
30	There are drugs that reduce the risk of HIV transmission by HIV positive mothers of their babies	Yes	1087 81.2%	175 13.1%	76 5.7

Table 5: Correlation between Access to HIV/AIDS Information and Knowledge about HIV/AIDS among the undergraduates.

Variable	Mean	Std. Dev.	N	R	P	Remark
Knowledge about HIV/AIDS	22.2085	4.3640	1338	0.153	0.000	Sig.
Access to HIV/AIDS Information	83.1577	19.0273				

* Significant at 0.05 alpha level.

Hypothesis 2: There is no significant joint effect of demographic variables and access to HIV/AIDS information on knowledge of HIV/AIDS among undergraduates in federal universities in Nigeria.

The joint influence of all variables, demographic variables and access to HIV/AIDS information on knowledge about HIV/AIDS was tested using the Multiple Regression Analysis. The findings presented in Table 6 revealed that the joint effect of independent variables on knowledge about HIV/AIDS was significant ($F_{(9, 1328)} = 3.68$; $R = 0.256$, $R^2 = 0.071$, Adj. $R^2 = 0.063$; $P < 0.05$). About 6% of the variation in knowledge of HIV/AIDS among undergraduates was jointly accounted for by access to HIV/AIDS

Table 6: Joint Effect of Demographic Variables and Access to HIV/AIDS information on Knowledge about HIV/AIDS.

Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	619.033	9	68.781	3.677	0.000
Residual	24,843.790	1328	18.708		
Total	25,462.823	1337			

$R = 0.256$; $R^2 = 0.07$; Adj $R^2 = 0.063$.

information and demographic factors. The inference from this hypothesis is that the independent variables, demographic factors and access to HIV/AIDS information collectively influence HIV/AIDS knowledge among undergraduate students in Nigerian federal universities.

Hypothesis 3: There is no significant relative influence of demographic variables and access to HIV/AIDS information on knowledge of HIV/AIDS among undergraduates in federal universities in Nigeria

All independent variables studied were entered into a regression analysis to determine the relative contribution of each component of the independent variables so as to predict the undergraduate students' knowledge about HIV/AIDS. The result presented in Table 7 shows the relative influence of each of the independent variables on students' knowledge about HIV/AIDS. It was noted from the results that access to HIV/AIDS information and level of study have significant influence on HIV/AIDS knowledge, while other factors including age, discipline, gender, marital status, tribe and religion were not significant predictors of HIV/AIDS knowledge. The inference from this analysis is that access to HIV/AIDS information is the best predictor of knowledge of undergraduates about HIV/AIDS, followed by level of study.

Table 7: Multiple Regression Analysis showing relative effect of Independent Variables on Knowledge about HIV/AIDS.

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig P Value	Remarks
	B	Std. Error	B			
(Constant)	18.481	0.913	-	20.247	0.000	Significant
Access to HIV/AIDS information	7.674E-03	0.003	0.067	2.223	0.026	Significant
Level of Study	0.209	0.102	0.056	0.056	0.041	Significant
Religion	1.130	0.006	0.047	1.802	0.072	Not Significant
Marital Status	0.102	0.086	0.032	1.188	0.235	Not Significant
Discipline	0.101	0.019	0.027	0.963	0.243	Not Significant
Tribe	3.257E-02	0.139	0.007	0.234	0.815	Not Significant
Age	1.825E-02	0.240	-0.040	-1.451	0.336	Not Significant
Gender	-0.356	0.238	-0.041	-1.484	0.138	Not Significant

Discussion of Findings

The findings show that television and radio were the respondents' most accessible sources of HIV/AIDS information. Given the capacity and infrastructure of mass media, particularly television and radio in Nigeria, it has widely been employed by health agencies to disseminate HIV/AIDS information. That television is the leading source through which students have access to HIV/AIDS information is in consonance with previous findings in Nigeria and other parts of the world. Harding et al. (1999), in the study of HIV/AIDS knowledge of students of a Nigerian university, observed that students obtained information about HIV/AIDS primarily from the media rather than from school, classrooms and homes. In the United States of America, 72% of Americans identified television along with other media sources (radio and newspapers) as their primary sources of information about HIV/AIDS, while in India more than 70% of respondents said they had received their information about HIV/AIDS from television (Global Media AIDS Initiative 2004). The finding is also consistent with the outcome of a study conducted among university students in Hunan, China, which reported mass media (television, newspapers and magazines) as the main source of HIV information, reaching more than 92% of study participants (Huang et al. 2005). A recent study among Ghanaian students also showed that television was the major source of information on AIDS (83%), followed by the internet (63%) and radio (53%) (Asante 2013).

The finding that radio was one of the foremost sources of information on HIV/AIDS to undergraduate students is to be expected as in Nigeria it is affordable by most students and has low running costs; it can be powered by batteries when there is power failure.

Elsewhere, Manda (2008) found that university students in Tanzania could access a wide range of sources of sexual and reproductive health information but the actual use was concentrated and limited to only three major sources: radio, television and friends.

That the internet and ICT centres were identified as the third most important source of gaining access to HIV/AIDS information is a manifestation of respondents' information technology usage. Most universities now have ICT and e-learning centers where they provide free access or users are required to pay for a token, while students also use their mobile phones to browse for information at a convenient time at very low costs. The internet being seen as a major source of access by undergraduate students could be explained as it allows them the freedom and privacy to explore and access information that they find relevant and comprehensible. This view of the internet, as a valuable source of HIV/AIDS information, agrees with the findings of Escoffery et al. (2005) who found that the majority of a sample of undergraduate college students at two academic institutions in the United States reported that they received health information online and searched the internet frequently for such material. The finding also supported the research of Buhi et al. (2011) which found that the internet constitutes a major source (75%) for health among internet users between 15–24 years of age, especially when considering sexual health information.

On the contrary, the majority of the undergraduates reported not accessing information on HIV/AIDS from libraries, but rather ranked textbooks as the sixth most important source of information. The finding compares with earlier reports which found that libraries do not serve as major source of HIV/AIDS information to Nigerians (Nwalo and Anasi 2012; Odusanya and Bankole 2006); it also corroborates with the US National

Commission on Libraries and Information Science (2005) report which indicated that libraries in sub-Saharan Africa were not playing active roles in disseminating HIV/AIDS information. Barton (2008) reported that there was a very low demand for HIV/AIDS information from UK public libraries and that such institutions are less frequently cited in literature about general HIV/AIDS information sources compared to resources such as healthcare organisations and the internet. The low access of HIV/AIDS information from libraries might be due to the fact that even though libraries may have books on the topic they have not been organized in a way that will make them accessible to library users; it could also be that respondents did not think the library is an appropriate place to look for HIV/AIDS information. The former view is supported by the findings of Barton (2008), that there was a lack of confidence among respondents about the role of libraries in providing HIV/AIDS information. The recent report of Nassimbeni and Shabangu (2013) in Swaziland showed that the library played no role in provision of HIV/AIDS material and people instead relied on NGOs.

It seems that none of the universities have HIV/AIDS education in their curriculum for all disciplines as the students ranked university lectures/lecturers in the nineteenth position for a source of access to HIV/AIDS information. This finding is worrisome considering attending lectures on HIV/AIDS and receiving information from schools/teachers or books has been confirmed as one of the strongest predictors of quality HIV knowledge. Sukati, Vilakati, and Esampally (2010) found that University of Swaziland students taught an HIV/AIDS course agreed this effectively improved their knowledge as well as changed their attitudes and behaviour about this area.

One of the major objectives of this study was to evaluate the level of knowledge of the undergraduate students about basic HIV/AIDS information, transmission and prevention of HIV/AIDS. The finding of the study shows that the students have moderate level of knowledge, which is comparable and in contrast with what has been documented in related literature. Van Wyk (2006) studied undergraduate students' knowledge, perceptions and attitudes in the North-West province of South Africa and concluded that participants were quite detailed in their knowledge of HIV/AIDS transmission and prevention, which however is not totally in agreement with the present findings; de Beer et al. (2012) also reported that Namibian university students were considered to have good levels HIV/AIDS knowledge. However, elsewhere, Van Wyk's

conclusion contradicts the findings of Mwamwenda (2013) that reported very high HIV/AIDS knowledge among university students in South Africa, Kenya and Tanzania. This is in agreement with Asante and Oti-Boardi (2013) who studied HIV/AIDS knowledge among undergraduates and how it can be used in HIV prevention strategies in Ghana, which found that the mean HIV/AIDS score of students was 7.7 out of 12 points. In a related study on knowledge among University of Calabar undergraduates, Edet et al. (2013) found that the mean HIV/AIDS knowledge score was 11 out of 21 questions, with 53.0% scoring below the mean knowledge score.

The test of significance of relationship between access to HIV/AIDS information and knowledge about HIV/AIDS revealed a significant positive relationship between both elements. The implication is that the greater the level of access of undergraduate students to HIV/AIDS information, the higher their level of knowledge on HIV/AIDS; conversely, those respondents that have a relatively low level of access to HIV/AIDS information would have low knowledge scores about HIV/AIDS issues. This finding agrees with the report of Bastien et al. (2008) and Li et al. (2009) that access and exposure to appropriate HIV/AIDS information sources such as TV programs, newspapers and magazines enhances knowledge about HIV, as well as that those exposed to mass media were less stigmatizing in their attitude toward persons living with HIV and AIDS. It is also in line with the findings of Agha (2003) which revealed a dose-response relationship, whereby a higher intensity of exposure to campaign media led to more favourable outcomes such as safer sex, higher perceived self-efficacy in condom use negotiation and higher perceived condom efficacy. Hossain, Kabir, and Ferdous (2007) found that more mass media exposure correlates with increased knowledge of HIV and AIDS among tertiary level students in the University of Dhaka, Bangladesh. Santos and Oliveira (2009), in their study of knowledge of undergraduate students about AIDS and drugs in a State University in the Northwest of Paraná, Brazil, found that access to different sources of information, especially television and the Internet, positively influenced students' knowledge about HIV/AIDS. The report of Nguyen, Shiu, and Peters (2015) among emerging adults in Vietnam also showed that access to HIV information is significantly associated with HIV knowledge and that overall access to HIV information may increase the level of HIV knowledge among Vietnamese adolescent.

The third hypothesis shows that demographic factors and access to HIV/AIDS information jointly had a significant positive influence on the knowledge of undergraduates about HIV/AIDS. The implication of this is that the higher the degree of access to HIV/AIDS information by undergraduate students, the more they will have increased knowledge about HIV/AIDS. This result is in consonance with the findings of Musoke (2005) that access to HIV/AIDS Information changed the states of knowledge, values, beliefs, attitudes and behaviour of primary health care providers in rural Uganda. It also supports the finding of Jesmin, Chaudhun, and Abdullah (2013) which found that access (exposure) to media (combined index of television, radio and newspaper) was a highly significant predictor of women's knowledge about HIV/AIDS in Bangladesh. It is also in line with the finding of Katz (2006) that mass media was also associated with increased condom use among young South African females. The study of Jung, Arya, and Viswanath (2013) clearly showed the efficacy of mass media in improving HIV/AIDS related knowledge and condom use in sub-Saharan Africa. Elsewhere, Muli and Lawoko (2014), in their study of the relationship between access to mass media and HIV/AIDS related knowledge, beliefs and behaviors in Kenya, found that HIV/AIDS knowledge was positively associated with media use. This means that if steps are taken to facilitate better access to HIV/AIDS information there will be improved knowledge about HIV/AIDS among the undergraduate students. The results also point to the need to promote the sources currently underutilized by the students to increase their degree of access to such HIV/AIDS information sources.

Conclusion and Recommendations

An accurate knowledge of issues related to HIV/AIDS transmission and prevention is critically important for behavior change and risk reduction to occur, thus increasing the knowledge of young people about HIV/AIDS to which the university undergraduates belong, which is vital in stemming the epidemic. The findings of this study showed that undergraduates' overall level of knowledge was moderate and there is opportunity for improvement; access to HIV/AIDS information has a positive influence of increased knowledge of this area among undergraduates.

Based on the findings of this study, the following recommendations are suggested to improve access to

the use of HIV/AIDS information so as to bring about the desired result of increased knowledge among university undergraduates.

1. The study found television and radio as the dominant means of access to HIV/AIDS information. Measures should be adopted by public health professionals, HIV health educators and policy makers that will strengthen and improve these sources, particularly with respect to the content, its accuracy and ease of understanding. These sources should be encouraged to develop more interactive communication platforms such as radio and TV talk shows, phone-ins, and expert-speak.
2. The use of the Internet for disseminating HIV/AIDS information should be intensified, as it was the third leading source of students' access to such content. The Nigerian National Agency for Control of AIDS (NACA) should ensure that information about HIV/AIDS on the internet is relevant and accurate; it should also encourage its development partners such as the NGOs and international partners to provide relevant and current health-related HIV/AIDS information on their websites. Websites about HIV which will be reviewed and updated regularly could be specially developed for university students as well as those in tertiary institutions in Nigeria. The programme designers could also use social media networks to attract visitors as these have the capability of drawing the attention of university students to their websites for vital information on HIV/AIDS and other health issues.
3. The libraries, as agents of social change in the community, should consider the provision of HIV/AIDS information a crucial part of their services. Libraries in universities also need to be involved in providing access to their resources about HIV/AIDS.
4. Librarians should make an increased effort to collect information materials on HIV/AIDS, repackage these and make them accessible to their clients. It is possible for libraries to have designated sections within the library stocked with resources on the HIV/AIDS; librarians should ensure they direct students to accurate and current information about HIV transmission, prevention and treatment.
5. There is a need to increase undergraduates' access to physicians and health practitioners with respect to HIV/AIDS information. University authorities should organise seminars, symposia and workshops, lectures and talks for students on vital health matters such as on HIV/AIDS, where resource persons with medical backgrounds could be involved, so as to

facilitate the use of HIV/AIDS information and improve knowledge about related matters.

6. There is a need to address the constraints that account for the absence of this subject in the universities' curricula. The study recommends that universities in Nigeria should integrate an HIV/AIDS course in their curricula; HIV/AIDS could be incorporated into university lectures such as the General Studies (GNS) Programme, while the GNS should be offered to all students irrespective of discipline, with necessary scope and depth. Since GNS courses are examinable, this will have the desired result of students becoming highly knowledgeable on the subject and ensure our next tertiary educated generation is protected.
7. The students ranked HIV positive counselors as one of the least accessible information sources, which calls for the creation of more opportunities for students to meet individuals with HIV who can share their experiences of living with the infection. Students should find the viewpoints and insights of the seropositives plausible as these individuals have firsthand knowledge of living with the infection.

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