

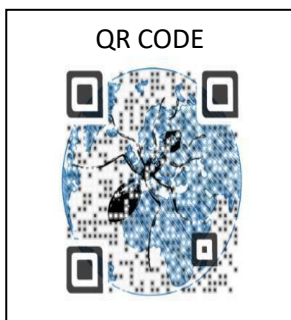
HIV VOLUNTARY COUNSELLING AND TESTING (VCT): KNOWLEDGE, PERCEPTION AND ACCEPTANCE AMONG TERTIARY UNDERGRADUATE STUDENTS OF A NIGERIAN UNIVERSITY.

Emuesiri G. Moke^{1*}, Emuesiri K. Umukoro¹, Abednego O. Warri¹, Favour E. Chukwuma¹, Basil Ekuerehare², Earnest O. Erhirhie³

¹*Department of Pharmacology and Therapeutics, Faculty of Basic Medical Sciences, Delta State University, Abraka, Delta State, Nigeria.*

²*University Health Services, Delta State University, Abraka, Delta State, Nigeria.*

³*Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences, Chukwuemeka Odumegwu Ojukwu University, Awka, Nigeria.*



Website:
<https://ijfmi.org>

¹corresponding author
email: :
hiligoodies@gmail.com

ABSTRACT

Introduction: Human Immunodeficiency Virus (HIV) has persisted as a disease of public health importance since 1981 when it was identified and characterized. Despite high vulnerability to HIV infection, voluntary counseling and testing (VCT) uptake by young people is significantly lower. This study examined the knowledge, perception and acceptance of HIV voluntary counseling and testing (VCT) services among students of Delta State University, Abraka, Nigeria.

Materials and Methods: The study adopted a cross-sectional survey design using 490 undergraduate students of Delta State University, Abraka, Nigeria. A structured questionnaire was the instrument used for data collection and data were analyzed using descriptive statistics, t-test and ANOVA.

Results: The study showed that undergraduate students of Delta State University have a high knowledge, perception and acceptance of VCT. The study also found that sex, marital status, did not influence knowledge and acceptance of VCT among undergraduate students of Delta State University, Abraka, Nigeria. On the other hand, age had impact on respondents' knowledge, except acceptance of VCT.

Conclusion: Based on these findings, it is recommended that VCT centers should be established in educational institutions.

Keywords: HIV/AIDS, Public health, Sexual behavior, Stigmatization, Undergraduates

INTRODUCTION

Human Immunodeficiency Virus (HIV) has persisted as a disease of public health importance since 1981 when it was identified and characterized.^{1,2} In fact, it is known as one of the most important public health crises in the world. According to Oleribe and colleagues³, HIV has claimed more than 35 million lives with over a million people dying from HIV-related causes worldwide. National Agency for the Control of AIDS (NACA) reports revealed that Nigeria has the second largest HIV prevalence in the world.^{4, 5} Although HIV occurrence among Nigerian adults is much less (1.5%) than other sub-Saharan African countries such as South Africa (20.4%) and Zambia (11.3%), the size of Nigeria's population indicates that about 1.9 million people were living with HIV in 2018.⁶

The first two AIDS cases in Nigeria were diagnosed in 1985 and reported in 1986 in Lagos, one of which was a young female sex worker aged 13 years from one of the West African countries.⁷ The news of this first AIDS case sent panic, doubt and disbelief to the whole nation as AIDS was perceived as the disease of American homosexuals. Six states in Nigeria

account for 41% of people living with HIV, including Kaduna, Akwa Ibom, Benue, Lagos, Oyo, and Kano.⁴ HIV prevalence is highest in Nigeria's southern states (known as the South South Zone), and stands at 5.5%. It is lowest in the southeast (the South East Zone) where there is a prevalence of 1.8%. There are higher rates of HIV in rural areas (4%) than in urban ones (3%).⁸

In 2016, 240,000 adolescents (between the ages of 10-19) were living with HIV, making up 7% of the total number of people with HIV in Nigeria.⁹ HIV prevalence among this age group varies regionally, with 4.3% of 15-19-year olds living with HIV in the South-South, compared to 1.3% in the South-East. Health outcomes for adolescents living with HIV in Nigeria are poor, and Nigeria is the only country in the world where mortality in 10-14-year olds is rising.¹⁰

There are a number of factors that increase HIV vulnerability among young people, including a lack of knowledge and appropriate sexual reproductive health services. Reports from a 2017 National Health Survey showed that only 29% of women and 27.9% of men between the

ages of 15 to 24 could correctly identify ways of preventing sexual transmission of HIV, and reject major myths around transmission.¹¹

Series of interventions have been embraced to tackle HIV/AIDS epidemics in Africa, and Nigeria in particular. One of such interventions is Voluntary Counseling and Testing (VCT). VCT refers to the process by which an individual, couple, or family receives HIV testing and confidential dialogue on HIV prevention, treatment, care, and support.¹² There are many approaches/methods to VCT, but generally the intervention includes four activities: pre-test counseling on the testing process; risk-behavior assessment; each participant's informed consent; and post-test counseling based on the test result.^{12, 13} HIV counseling and testing is the gateway to treatment, care, support, and prevention interventions for those who have HIV. For people with negative test results, counseling aims on prevention messages tailored to the client's or patient's risk behavior(s) and provides referrals to prevention interventions, such as male circumcision clinics and support groups.¹⁴

Over half the percent of all HIV cases globally are young people aged 10–24 years. Despite

high vulnerability to HIV infection, VCT uptake by young people is significantly lower.¹⁵ With high knowledge on VCT services, the uptake of VCT among secondary school students was found to be low,^{16,17} and was largely found to be influenced by fear of HIV test results, knowledge and attitude on VCT services, age, education, engagement in sexual relationships, stigma and distance to the VCT centre, with only about 29.3% of the study population indicating that they have ever tested.¹⁷

A low turnout was also recorded among of young people, especially undergraduate students (who are most vulnerable to HIV/AIDS infection) to VCT centers.¹⁸ The fear of a positive test result was the main reason for the unwillingness to be tested.¹⁹

Knowing the benefits of VCT, it is important to determine their knowledge, perception and acceptance of VCT services so that bottlenecks can be identified and appropriate interventions can be setup. This study was thus, aimed at assessing the knowledge, perception and acceptance of VCT among students of Delta State University, Abraka, Nigeria.

MATERIALS AND METHODS

This study adopted a cross-sectional survey design. The Delta State University, (DELSU) Abraka hosts an average of about 8,000 undergraduate students across the respective faculties per academic session. From this population size, an estimated sample size of 381 was obtained based on the Slovin's formula for sample size calculation.²⁰ However, this study was conducted using 490 undergraduate students randomly selected across five Faculties of the University in 2019. A structured questionnaire was used to collect data for the study from participants who gave informal oral consent. Information collected comprised the demographic data of the respondents, such as faculty, sex, level, age and marital status, and information about the knowledge, perception and acceptance of VCT. Items on knowledge and acceptance were structured on a four-point scale, ranging from strongly disagree to strongly

agree while items on perception were structured on a dichotomous variable of yes or no. The data were presented in simple percentage, mean and standard deviation, using descriptive statistics. The benchmark for estimating the extent was 2.50. This means that any variable with a mean rating that is equal to or above 2.50 were judged to be high while those below 2.50 were judged to be low. Simple percentage was used to assess the level of perception of VCT with a benchmark of 50%, meaning that any variable that is equal to or above 50% was adjudged to be high while those below 50% were judged to be low. The independent samples t-test, chi-square and One-Way Analysis of Variance (ANOVA) were used to compare the level of knowledge, perception and acceptance of VCT among respondents based on their demographic data. This was done at 0.05 level of significance.

RESULTS

The distribution of the respondents based on their demographic data is shown in Table 1. From the result, a total of 102 of the respondents were in Faculty of Basic Medical Science, representing 20.8% of the total respondents. A total of 103

(21.0%), 108 (22.0%), 96 (19.6%) and 81 (16.5%) were from Faculty of Science, Social Science, Education and Arts respectively.

In terms of their sex, a total 207 respondents representing 42.2% were males while 283,

representing 57.8% were females. In terms of their level, a total of 57 respondents, representing 11.6% were in 100 level, 100 (20.4%) were in 200 level, 148 (30.2%) were in 300 level, 174 (35.5%) were in 400 level while 11 (2.2%) were in 500 level.

In terms of their age, 3 (0.6%) of the respondents were between the ages of 10-15 years, 117 (23.9%) were between the ages of 16-20 years, 269 (54.9%) were between the ages of 21-25 years, 96 (19.6%) were between the ages of 26-30 years while 5 (1.0%) of them were above 30 years. In terms of their marital status, 59 (12.0%) of the respondents were married, 425 (86.7%) were single, 1 (.2%) of them was divorced while 5 (1.0%) of them were widowed.

Table 2 shows the mean analysis of the knowledge of VCT among undergraduate students in Delta State University, Abraka, Nigeria. The result shows that all the items are higher than the criterion mean including the average mean of 3.07. This implies that the knowledge of VCT among the students is high.

The percentage analysis of the perception of the students towards VCT is depicted in Table 3. From the result, five of the items had a percentage rate that is above 50%. This implies that the perception of the students towards VCT is high.

The mean analysis of the acceptance of VCT among undergraduate students in Delta State University, Abraka, Nigeria is shown in Table 4. The result shows that all the items are higher than the criterion mean including the average mean of 2.95. This implies that the acceptance of VCT among the students is high.

The influence of sex on respondents' knowledge and acceptance of VCT services (Table 5) was done using independent samples t-test. The result shows that the p-value for all the variables are greater than 0.05 level of significance. This implies that sex has no influence on respondents' knowledge and acceptance of VCT.

A One-Way ANOVA was conducted to examine the influence of age on respondents' knowledge and acceptance of VCT (Table 6). The result shows that for knowledge, $p < 0.05$ level of significance while for acceptance, $p > 0.05$ level of significance. This result implies that age has an influence on respondents' knowledge of VCT but for acceptance, age has no influence. A further post-hoc analysis was therefore, carried out to enable the researcher determine which age are more likely to have more knowledge of VCT. The result shows that differences exist between individuals within

the ages of 16-20 and those within the ages of 26-30.

Table 1: Analysis of Demographic Data

Faculty	Frequency	Percentage
Basic Medical Science	102	20.8%
Science	103	21.0%
Social Science	108	22.0%
Education	96	19.6%
Arts	81	16.5%
Total	490	100%
Sex	Frequency	Percentage
Male	207	42.2%
Female	283	57.8%
Total	490	100%
Level	Frequency	Percentage
100 Level	57	11.6%
200 Level	100	20.4%
300 Level	148	30.2%
400 Level	174	35.5%
500 Level	11	2.2%
Total	490	100%
Age	Frequency	Percentage
10-15 Years	3	0.6%
16-20 Years	117	23.9%
21-25 Years	269	54.9%
26-30 Years	96	19.6%
Above 30 Years	5	1.0%
Total	490	100%
Marital Status	Frequency	Percentage
Married	59	12.0%
Single	425	86.7%
Divorced	1	0.2%
Widowed	5	1.0
Total	490	100%

Table 2: Analysis of the knowledge of VCT

S/N	Statement	N	Mean	SD	Remark
1	Voluntary counselling and testing is the process by which an individual undergoes counselling to enable her/him to make an informed decision about being tested for HIV.	490	3.62	0.61	High
2	Voluntary counselling and testing services make one to know his/her HIV status.	490	3.42	0.66	High
3	Voluntary counselling and testing services are not gateways to HIV treatment and care.	490	2.67	1.10	High
4	Voluntary counselling and testing do not help to prevent HIV transmission.	490	2.67	1.08	High
5	Voluntary counselling and testing services help to eliminate stigma to those who tested positive.	490	3.16	0.85	High
6	Voluntary counselling and testing services are not easily accessible in our school.	490	3.11	0.79	High
7	Voluntary counselling and testing services procedure does not transmit HIV/AIDS.	490	3.12	1.66	High
8	Voluntary counselling and testing services in Health institution are free.	490	2.84	0.88	High
9	Voluntary counselling and testing services does not prevent spread HIV/AIDS to others in the school.	490	3.00	0.87	High
10	Voluntary counselling and testing services is an advantage to those who tested positive or negative	490	3.16	0.85	High
11	Voluntary counselling and testing services does not modified people habit towards sexual behaviour.	490	2.98	0.95	High
12	Voluntary counselling and testing services served as a base-line for HIV/AIDS diagnosis and prevention.	490	3.12	0.84	High
Average Mean			3.07	0.93	High

Criterion Mean = 2.50

Table 3: Analysis of perception of VCT among students

S/N	Statement	Yes		No		Remark
		N	%	N	%	
1	Do you support counselling before testing of HIV	444	90.61%	46	9.39%	High
2	People in my life would abandon me if I had HIV.	235	47.96%	255	52.04%	Low
3	People who test HIV positive should not disclose to others (family).	244	49.70%	246	50.20%	Low
4	I would rather not know if I have HIV.	312	63.67%	178	36.33%	High
5	would you buy fresh vegetables from a vendor who has HIV.	215	43.88%	275	56.12%	Low
6	If a member of you family got infected with HIV, would you want it to remain a secret.	326	66.53%	164	33.47%	High
7	If my relative with HIV became sick, would you be willing to take care of him or her in my own household.	346	70.61%	144	29.39%	High
8	Should people with HIV be kept in an isolated area away from their loved ones	252	51.43%	238	48.57%	High

Table 4: Analysis of the acceptance of VCT

S/N	Statement	N	Mean	SD	Remark
1	Have you gone for HIV/AIDs voluntary counselling and testing before?	490	3.14	0.94	High
2	Have taken an HIV test at one time or the other.	490	2.91	0.86	High
3	Confidentiality are respected during and after the Test.	490	3.22	0.78	High
4	Did you voluntarily accept to do HIV test after you have received counselling?	490	3.03	0.83	High
5	Did you appreciate the voluntary counselling and testing services because they are free	490	3.16	1.21	High
6	Did you use to go for HIV test whenever you exposed myself to people you don't know.	490	2.70	0.89	High
7	Do you have peace of mind because I was tested?	490	2.71	0.90	High
8	Do your school's hospital/clinic has facilities for Voluntary counselling and testing services.	490	2.91	0.98	High
9	Was your blood screened before being involved blood donation?	490	2.99	0.91	High
10	Are you satisfied with the facilities and manner of personnel conducts the counselling and testing services?	490	2.86	0.85	High
11	Are you satisfied with the awareness campaign on voluntary counselling and testing services through mass media?	490	2.93	0.85	High
12	Is the voluntary counselling and testing service close to you school?	490	2.79	1.07	High
Average Mean			2.95	0.92	High

Criterion Mean = 2.50

Table 5: Influence of sex on knowledge and acceptance of VCT services

Variable	Sex	N	Mean	SD	t	P	Remark
Knowledge	Male	207	3.05	0.42	1.17	0.24	Not Significant
	Female	283	3.09	0.42			
Acceptance	Male	207	2.96	0.48	0.50	0.62	Not Significant
	Female	283	2.94	0.53			

p < 0.05

Table 6: Influence of age on the knowledge and acceptance of VCT services

Variable	ANOVA	Sum of Square	df	Mean Square	F	Sig	Remark
Knowledge	Between Groups	1.985	4	0.496	2.825	0.024	Significant
	Within Groups	85.200	485	0.176			
	Total	87.185	489				
Acceptance	Between Groups	1.215	4	0.304	1.171	0.323	Not Significant
	Within Groups	125.820	485	0.259			
	Total	127.035	489				

p < 0.05

DISCUSSION

This study examined knowledge, perception and acceptance of voluntary counseling and testing (VCT) among undergraduate students of Delta

State University, Abraka, Nigeria. The findings showed that undergraduate students of Delta State University have a high knowledge of VCT. This implies that they understand the importance

of VCT services. This finding is in line with that of Addis and colleagues,²¹ who assessed the level of knowledge, attitude and practice of Voluntary counseling and Testing (VCT) for HIV among university students in North-West Ethiopia, and found that 86.3% of the respondents were quite knowledgeable on VCT. The study also agreed with the finding of Daniyam *et al.*,¹⁹ on the level of knowledge on VCT services.

The finding also showed that undergraduate students of Delta State University, Abraka have a favourable perception of the importance of VCT services. This implies that apart from having an understanding of VCT services, the students also appreciate the importance of VCT services to the fight against HIV/AIDS. This finding is consistent with the finding of Zhang *et al.*,²² which showed that about two-thirds (64.5%) believe that VCT plays an important role in prevention of HIV/AIDS transmission.

The study also revealed that the level of acceptance of VCT among undergraduate students of Delta State University, Abraka, Nigeria is high. This finding implies that undergraduates of the University are very likely to utilize VCT services when called upon to do so. This finding agreed with the finding of

Fikadie *et al.*,²³ which showed that 37.8% of the study participants had undergone HIV tests in the past. The finding is also consistent with the finding of Daniyam *et al.*,¹⁹ which revealed that majority of the respondents (83.1%) would want to have VCT.

The study also showed that gender does not influence knowledge and acceptance of VCT. This implies that undergraduates understand what VCT is all about and are willing to get tested given the circumstances, irrespective of their gender. This finding is in line with the finding of Daniyam *et al.*,¹⁹ which revealed that gender had no effect on the willingness of the subjects to have VCT as 81.8% of males and 87.1% of females were favourably predisposed to it.

Furthermore, the study also revealed that age can influence respondents' knowledge but not their acceptance of VCT. This finding implies that as individuals grow older, their knowledge of VCT increases. This does not however, influence their acceptance of VCT as this study has shown that they are likely to acceptance it irrespective of their age. This finding agrees with Haddison *et al.*,²⁴ who suggested that as age increases, the students become more mature and are able to better assimilate HIV information.

Furthermore, marital status did not influence knowledge and acceptance of VCT among undergraduate students of Delta State University, Abraka, Nigeria. This finding implies that marital status has no role to play in the knowledge and acceptance of VCT among undergraduate students of the university.

CONCLUSION

Based on the findings of this study, it can be concluded that the knowledge, perception and acceptance of VCT among undergraduate students of Delta State University, Abraka, Nigeria, is high. Their knowledge and acceptance were influenced by age but not by gender and marital status. Based on the findings of the study, it is recommended that VCT centres should be sited in educational institutions and health personnel should intensify enlightenment campaigns on the benefits of VCT utilization.

Ethical disclosure

Ethical approval was obtained from the ethical board of the Faculty of Basic Medical Sciences, Delta State University, Abraka, Nigeria.

Conflict of interest

The authors declare no conflict of interest.

Funding/Support

This research received no external funding.

REFERENCES

1. Centre for Disease Control (CDC). *Kaposi's sarcoma and Pneumocystis pneumonia among homosexual men – New York City and California. MMWR Morbidity and Mortality Weekly Report 1981; 30:305–308*
2. Greene WC. *A history of AIDS: Looking back to see ahead. Eur J of Immunol. 2007; 37(S1):S94–S102*
3. Oleribe OO, Aliyu S, Taylor-Robinson SD. *Is the prevalence of HIV wrongly estimated in Nigeria? Some insights from a 2017 World AIDS day experience from a Nigerian Non-Governmental Organisation. Pan Afr Med J. 2018; 29(119).*
4. National Agency for the Control of AIDS (NACA). *'National Strategic Framework on HIV and AIDS: 2017 -2021' [pdf]. 2017 (accessed Apr 21, 2020)*
5. Awofala AA, Ogundele OE. *HIV epidemiology in Nigeria. Saudi J of Biol Sci. 2018; 25(4): 697–703.*

6. UNAIDS. *AIDSinfo*. Available at: <http://aidsinfo.unaids.org/> (accessed Apr 21, 2020)
7. Nasidi A, Harry TO. *The epidemiology of HIV/AIDS in Nigeria*. In: Adeyi O, Kanki PJ, Oduolu O, Idoko JA, editors. *AIDS in Nigeria: A Nation on the Threshold*. Harvard Center for Population and Development Studies; Cambridge (Massachusetts), 2006. <http://www.apin.harvard.edu/Chapter2.pdf> (accessed Apr 21, 2020)
8. National Agency for the Control of AIDS (NACA). 'Nigeria GARPR 2015' [pdf]. 2015 (accessed Apr 21, 2020)
9. United Nations Children Emergency Fund (UNICEF). 'Statistical Tables'. 2017 (accessed Apr 21, 2020)
10. Collaborative Initiative for Paediatric HIV Education and Research (CIPHER) Global Cohort Collaboration. *The epidemiology of adolescents living with perinatally acquired HIV: A cross-region global cohort analysis*. *PLoS Med*. 2018; 15(3): e1002514.
11. National Bureau of Statistics (NBS) & United Nations Children Emergency Fund (UNICEF). [Multiple Indicator Cluster Survey 2016-17, Survey Findings Report](#)[pdf]. 2017 (accessed Apr 21, 2020)
12. [Sherr L](#), [Lopman B](#), [Kakowa M](#), [Dube S](#), [Chawira G](#), [Nyamukapa C](#), et al. *Voluntary counselling and testing: uptake, impact on sexual behaviour, and HIV incidence in a rural Zimbabwean cohort*. *AIDS*. 2007; 21(7): 851-60.
13. Commonwealth Regional Health Community Secretariat (CRHCS). *HIV/AIDS voluntary counselling and testing: review of policies, programmes and guidelines in East, Central and Southern Africa*. Arusha, Tanzania. Arusha: CRHCS. 2002 (accessed Apr 21, 2020)
14. [Wringe A](#), [Isingo R](#), [Urassa M](#), [Maiseli G](#), [Manyalla R](#), [Changalucha J](#), et al. *Uptake of HIV voluntary counselling and testing services in rural Tanzania: implications for effective HIV prevention and equitable access to treatment*. *Trop Med Int Health*. 2008; 13(3): 319-327.
15. World Health Organisation (WHO). *HIV and Adolescents guidance for HIV testing and counseling and care for adolescents living with HIV*. 2013. Available

- at: http://apps.who.int/iris/bitstream/10665/94334/1/9789241506168_eng.pdf (accessed Apr 21, 2020)
16. Omary S. *Barriers and attitudes towards HIV Voluntary Counselling and Testing (VCT) among Secondary School Pupils of Sengerema in Mwanza. Official Publication of the Tanzania Medical Students' Association. 2010. Available at: <file:///C:/Users/PHARMA~1/AppData/Local/Temp/49596-Article%20Text-67269-1-10-20100118.pdf>* (accessed Apr 21, 2020)
 17. Sanga Z, Kapanda G, Msuya S, Mwangi R. *Factors influencing the uptake of Voluntary HIV Counseling and Testing among secondary school students in Arusha City, Tanzania: a cross sectional study. BMC Public Health. 2015; 15: 452.*
 18. Kio J, Agbede C, Kosoko K, Leslie T. *Knowledge and Attitude of Nigerian Under Graduates Toward Voluntary HIV Counseling and Testing: A Case Study. Aust J of Basic & Appl Sci. 2019; 13(10): 42-47.*
 19. Daniyam CA, Agaba PA, Agaba EI. *Acceptability of voluntary counselling and testing among medical students in Jos, Nigeria. J of Infect Dev Ctries. 2010; 4(6): 357-361.*
 20. Galero-Tejero EA. *Simplified Approach to Thesis and Dissertation Writing. Mandaluyong City: National Book Store, 2011; p. 43-44.*
 21. Addis Z, Yalew A, Shiferaw Y, [Alemu A](#), [Birhan W](#), [Mathewose B](#), et al. *Knowledge, attitude and practice towards voluntary counseling and testing among university students in North West Ethiopia: a cross sectional study. BMC Public Health. 2013; 13: 714.*
 22. Zhang T, Zhang J, Gao M, He N, Detels R. *Knowledge, attitudes and practices of voluntary HIV counselling and testing among rural migrants in central China: a cross-sectional study. Eur J of Public Health. 2011; 22(2): 192–197.*
 23. Fikadie G, Bedimo M, Alamrew Z. *Prevalence of Voluntary Counseling and Testing Utilization and Its Associated Factors among Bahirdar University Students. Adv Prev Med. 2014; 906107.*

24. Haddison EC, [Nguefack-Tsagué G](#), [Noubom M](#), [Mbatcham W](#), [Ndumbe PM](#), [Mbopi-Kéou FX](#). Voluntary counseling and testing for HIV among high school students in the Tiko health district, Cameroon. *Pan Afr Med J.* 2012; 13:18.