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KNOWLEDGE, ATTITUDE AND UPTAKE OF HIV VOLUNTARY COUNSELLING AND TESTING AMONG UNDERGRADUATES IN A TERTIARY INSTITUTION IN OWERRI, IMO STATE

Kenechi A. Uwakwe[1*], Gift C. Uwakwe[2], Anthony C. Iwu[3], Chukwuma B. Duru[1], Chimnonso N. Nnebue[4], and Amobi L. Ilika[6]

[1]Department of Community Medicine, College of Medicine, Imo State University, Owerri / Imo State University Teaching Hospital, Orlu Imo State, Nigeria.
[2]Department of Library and Information Sciences, Imo State University, Owerri, Nigeria.
[3]Department of Community Medicine, Imo State University Teaching Hospital, Orlu Imo State, Nigeria.
[4]Department of HIV Care and Department of Community Medicine, Nnamdi Azikiwe University Teaching Hospital Nnewi, Nigeria.
[5]Department of Community Medicine, Nnamdi Azikiwe University, Awka / University Teaching Hospital, Nnewi, Nigeria.

Corresponding Author: Dr. Kenechi A. Uwakwe
Department of Community Medicine, College of Medicine, Imo State University, Owerri / Imo State University Teaching Hospital, Orlu Imo State, Nigeria.

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ABSTRACT

Background: Adolescents and young people represent a rapidly growing share of people living with HIV worldwide and constitute a significant number of undergraduates in tertiary institutions who are vulnerable to Human Immunodeficiency Virus (HIV) infection; as their relative independence and lifestyle within these institutions predispose them to poor reproductive health choices and behaviours. And HIV Voluntary Counselling and Testing (HVCT), is critical in HIV prevention, identification and early linkage to treatment. **Objective:** To assess the knowledge, attitude towards and uptake of HIV Voluntary Counselling and Testing among undergraduates of Imo State University. **Methods:** A cross sectional study was conducted using multi-stage sampling and 750 undergraduates were selected. A pretested semi structured self-administered and anonymous questionnaire was designed and used. Data was presented through frequency tables and charts, statistical inference was with chi-square at $p < 0.05$., and Odds ratio cum Confidence interval. **Results:** About 99% were aware of HVCT, and 58% had poor overall HVCT knowledge, about 80% had good overall attitude, while HVCT uptake rate was 33%. Confidential access would improve uptake, and knowledge of HVCT was significantly associated with its uptake ($p = 0.000$, OR=2.31, 95% CI: 1.53 – 3.49). **Conclusion:** The knowledge and uptake of HVCT were poor in this study, it is recommended that interventions towards improving HVCT uptake should target increasing HVCT knowledge and providing confidential access among adolescents and young adults.

KEYWORDS: HIV, VCT, uptake, Tertiary institution, Imo State, Nigeria.

1. INTRODUCTION

At the turn of the century, a Human Immunodeficiency Virus (HIV) diagnosis was equivalent to a death sentence for most adolescents and young adults in low-income countries.[1] But HIV is now a chronic manageable disease when early diagnosis and simultaneous treatment and care are instituted; as this results in the reduction of HIV transmission and ensures a long healthy and productive life. In spite of this, HIV still remains a potentially fatal disease that poses a significant threat to the population health especially for adolescents and young adults and more so if not prevented or controlled.

Adolescents and young people continue to be vulnerable both socially and economically to HIV infection especially girls, with 2.1 million adolescents living with HIV, about one seventh of all new infections occurring during adolescence and 26 new infections occurring every hour in Sub Saharan Africa with 7 in 10 new infections among girls.[2-4]

Human immunodeficiency virus/Acquired immunodeficiency syndrome (HIV/AIDS) has become the leading cause of death for adolescents in Africa and second globally; and while the HIV-related deaths among adolescents between 2005 and 2012 increased by 50%, the global number of HIV-related deaths fell by 30% which was partly due to inadequate provision of accessible and acceptable HIV counselling and testing (HCT) and treatment services and also the lack of support for adolescents to remain in care.[3, 5]

Over 80 per cent of adolescents living with HIV in low- and middle-income countries are in sub-Saharan Africa with about half of the adolescents with HIV living in just six countries; South Africa, Nigeria, Kenya, India, Mozambique and Tanzania.[4] In 2014, it was reported that Nigeria had the highest percentage of adolescents living with HIV (15%), of new HIV infections (27%) and AIDS related deaths among adolescents (23%).[4]

Adolescents are a heterogeneous mosaic of sub groups of different ethnicities, culture, behavioural risk, developmental levels, sexual orientation and gender differences.[6] Many adolescents and young adults engage in sex without condoms and often times with more than one partner and coupled with the fact that some have immature reproductive and immune systems, they become exposed to a higher risk of acquiring HIV.[7]

In addition, contextual conditions such as poverty that is increasingly common among adolescents in developing countries is fuelling the exchange of sex for money [8] and due to social and cultural influences, the adolescents especially girls are unable to insist on the use of condoms and other protective measures.[9] In sub Saharan Africa 70% of girls with multiple sexual partners in the last year did not use a condom the last time they had sex.[10] So this highlights the fact that, the tertiary institutions in which the undergraduates are predominantly adolescents and young adults are fertile grounds for HIV acquisition and spread and therefore HIV Counselling and Testing using the Voluntary Counselling and Testing (VCT) approach needs to be vigorously encouraged.

HIV Voluntary Counselling and Testing (HVCT) is a client initiated strategy for the prevention of HIV acquisition through risk assessment, risk reduction and testing and for linking identified HIV-infected people with prevention, care, treatment and support services. In sub Saharan Africa, access to and uptake of HIV counselling and testing by adolescents is significantly lower than for adults, with only 11% of adolescents tested for HIV and only 10% of young men and 15% of young women being aware of their HIV status.[10, 11]

Adolescents and young adults usually are faced with several challenges which act as barriers to accessing testing and treatments for sexually transmitted diseases. Such barriers include stigmatization, issues of confidentiality, discomfort with the facilities, lack of financial resources and lack of adequate information on the need for testing, treatment, and where and how they can obtain the services.[12]

The proportion of young people with comprehensive knowledge of HIV prevention is low, with 70% of adolescents in sub-Saharan Africa without comprehensive HIV knowledge and also, in the last 15 years the levels of knowledge have barely increased.[10] So providing adequate information to adolescents and young people can significantly change attitudes and risky behaviours associated with HIV, as evidence has shown that, they are less likely to be vulnerable to HIV when they are provided with relevant gender-sensitive prevention information, skills and services in an enabling and protective environment.[13]

Focusing on strategies that increase adolescents and young adult's use of HIV testing and counselling services would provide them better chances of reducing their risks and vulnerabilities to HIV. This study therefore aimed at determining the knowledge and attitude towards VCT, its uptake rate and associated reasons among undergraduates, as a prelude to the development and implementation of targeted strategies to improve VCT uptake among them.

2. METHODOLOGY

2.1 Study Area

The survey was conducted in Imo State University located in Owerri capital city of Imo State. Imo State is in the South East of Nigeria, it had a total population of 3.93 million (2.03 million males and 1.9 million females) by 2006 census, with an expected population in 2013 of 4.95 million based on an annual growth rate of 3.2% between 2006 and 2013.[14] The State occupies an area of 5289.49 square kilometres with a population density of about 707.9 per square kilometre.[15]

The state owned university was established in 1981 and now with a current population of about 15,000 undergraduates with 11 faculties and 57 departments. There are no provisions for students' accommodation within the university, so they live in privately owned hostels amongst the communities around the university.

2.2 Study Population

The study population comprised of all male and female undergraduates of the Imo State University. Pregnant students attending antenatal clinics were excluded.

2.3 Sample Size estimation

The minimum sample size was estimated using Cochran formula.[16]

$$\mathbf{n}= \frac{Z^2pq}{d^2}$$

When n= minimum sample size, Z= Standard normal deviate corresponding to the probability of type I error was set at 1.96, p = proportion of a target population estimated to have a certain knowledge, attitude and uptake was set at 50%, $q = 1-p$, d= tolerable error of margin set at 0.05

The estimated minimum sample size was 384 but increased 750 to accommodate for non-response, incomplete filling and destruction of questionnaires.

2.4 Study Design and Sampling Technique

It was a descriptive cross sectional study using multi-stage sampling technique. At first stage, out of the 11

faculties, 6 faculties (over 50%) were selected by simple random sampling using ballots. Second stage had three departments randomly selected from each faculty (except for law with single department). Lastly at the departments, at least 40 participants per department were conveniently selected as seen based on consent and inclusion criteria, until 125 participants per faculty were enrolled. Designated places for collection per faculty were provided at ease and convenience of participants.

2.5 Data Collection and Analysis

A pretested, semi-structured, self-administered and anonymous questionnaire was designed. The questionnaire comprised of four sections: section one for bio data; section two for knowledge of VCT; section three for attitude towards VCT and section four uptake of VCT. Research assistants were trained for questionnaire administration.

International Business Machine Statistical Package for Social Sciences (IBM SPSS version 20, Armonk. NY: IBM Corp.2011) was used for analysis, frequency distributions and percentages were tabulated. In assessing overall knowledge or attitude towards VCT a likert scale was used involving relevant stems. The aggregate scores were then assessed against a scale of poor, fair, and good. Bi-variate analysis was with Chi-square and results considered significant at two-sided P-value of <0.05. Multi-variate analysis was done and Odds ratio cum confidence interval calculated where applicable.

2.6 Ethical Considerations

Entry permission was sought from Imo State University authorities and verbal informed consents were obtained from respondents for the conduct and publication of the study, while anonymity of information was ensured. The study was examined and approved by the Department of Community Medicine Madonna University, Elele and the University Hospital Ethics Committee. All authors declare that the study was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

3. RESULTS

Seven hundred and fifty questionnaires were administered but 650 questionnaires were completed and returned giving a response rate of 87%.

3.1 Age/ Gender Distribution of Respondents

More than half of the participants (53%) were female undergraduates and most of them (93%) were between the ages of 16-25 years old and all the participants were Christians (Table1).

Table 1: Age/ Gender Distribution of respondents (n=650)

Variables	Category	Frequency (%)
Age (years)	16-20	300 (46.1)
	21-25	302 (46.5)
	26-30	35 (5.4)
	>30	13 (2.0)
Gender	Male	305 (46.9)
	Female	345 (53.1)

3.2 Distribution of HVCT Knowledge of Respondents

Most of the participants had heard of HVCT (99%) with more than half of the respondents indicating that their main sources of information were from the mass media (61%) and health workers (55%). However, only 17.5% had good understanding of the term VCT, 24.6% had a fair understanding while 57.8% was poor in their understanding. About 16% and 13% of the respondents respectively indicated that the route of HIV/AIDS transmission is kissing and that VCT is done in the church (Table 2).

The aggregate score of knowledge showed that 58% of the respondents had a poor level of overall HVCT knowledge (Fig.1).

Table 2: Respondents' knowledge of HIV/AIDS and HVCT

Variables	Category	Frequency (%)
Awareness of HIV/AIDS (n=650)	Yes	645 (99.2)
	No	5 (0.8)
*Source of HIV/AIDS information (n=645)	Mass media	495 (76.7)
	Health workers	384 (59.5)
	School authority	304 (47.1)
	Parent	300 (46.5)
	Seminar	294 (45.6)
	Students	249 (38.6)
	Church	192 (29.8)
*Route of HIV/AIDS transmission (645)	Unprotected sex	602 (93.3)
	Blood transmission	517 (80.2)
	Piercing from infected objected	489 (75.8)
	Kissing	100 (15.5)
	Inheritance	40 (6.2)
	Touching infected person	29 (4.5)
	Don't know	10 (1.6)
Awareness of HVCT (n=650)	Yes	641 (98.6)

	No	9 (1.4)
*Source of HVCT information (641)	Mass media Health worker Seminar School authority Friends/relatives	390 (60.8) 354 (55.2) 256 (39.9) 196 (30.6) 177 (27.6)
*Where HVCT is done (n=641)	Health centre School Special establishment Church Don't know	570 (88.9) 173 (27.0) 126 (19.7) 86 (13.4) 9 (1.4))

*Multiple responses allowed

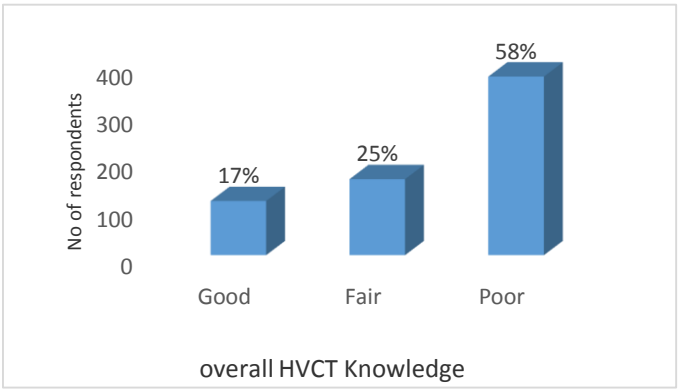

Fig 1: Distribution of respondents' level of overall HVCT knowledge

3.3 Attitudes of Respondents towards HVCT

Most of the participants (95%) felt that HVCT is beneficial and that, not only those who are sexually active are eligible (88%) and majority of respondents (86%) were of the opinion that HVCT is most important for both male and female genders. Table 3

A majority of respondents (85%) were of the opinion that everybody should go for HVCT and more than half of the respondents (57%) said that a probability of positive HIV test result would not influence their decision to go for HVCT and similarly, more than half of the respondents (57%) said that stigmatization would not influence their decision to go for HVCT (Table 3).

The aggregate score of attitude showed more than three quarters of the participants (80%) had good overall attitude towards HVCT (Fig. 2).

Table 3: Attitude of respondents towards HVCT (n=650)

Variable	Category	Frequency (%)
Opinion on HVCT	Beneficial Non beneficial No opinion	614 (94.5) 26 (4.0) 10 (1.5)
Believe that only sexually active people are eligible	Yes No No response	57 (8.8) 571(87.8) 22 (3.4)
Opinion on which gender HVCT is most important for	Male Female Both No problem	20 (3.1) 62 (9.5) 559 (86.0) 9 (1.4)
Positive result would influence decisions to go for HVCT	Yes No No opinion	173 (26.6) 367 (56.5) 110 (16.9)
Stigmatization would influence decision to for HVCT	Yes No Opinion	223 (34.3) 371 (57.1) 56 (8.6)
Opinion of who should go for HVCT	Every body No body No opinion	551 (84.8) 84 (12.9) 15 (2.3)

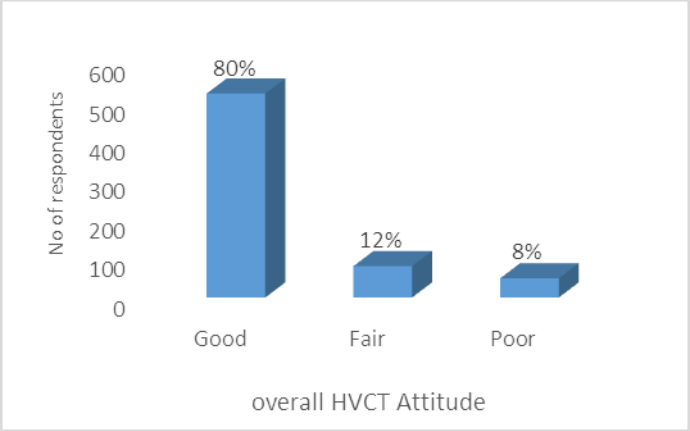

Fig 2: Distribution of respondents' level of overall attitude

3.4 Uptake of HVCT among respondents

Majority of the respondents (67%) had not gone for HVCT and 31% of these had no reason for not going while 28% felt it was not necessary to go, however 75% of this same group who have not gone for HVCT, said they will go if given the opportunity. More than half of all the respondents (55%) would be influenced to go for HVCT if the environment is confidential and more so (71%) if they would receive a confidential result (Table 4).

Table 4: Uptake of HVCT among respondents

Variable	Category	Frequency (%)
Have gone for HVCT (650)	Yes No	214 (32.9) 436 (67.1)
Reason for not going for HVCT (n=436)	Scared of result Busy Limited access Not necessary No reason	36 (8.3) 110 (25.2) 33 (7.6) 123 (28.2) 134 (30.7)
If given opportunity, will go for HVCT (for the 436 who have not gone)	Yes No Undecided	328 (75.2) 96 (22.0) 12 (2.8)
Confidential setting would influence going for HVCT (n=650)	Yes No Undecided	357 (54.9) 225 (34.6) 68 (10.5)
Sexual exposure influences going for HVCT (650)	Yes No Undecided	196 (30.2) 414 (63.7) 40 (6.1)
Confidential result influences going for HVCT (650)	No Yes Undecided	461 (70.9) 109 (16.8) 80 (12.3)

3.5 Association of gender and level of knowledge with HVCT uptake

Gender was not significantly associated with HVCT uptake, but knowledge of HVCT was significantly associated with uptake of HVCT (χ^2= 19.58, p=0.000) as shown in table 5.

Table 5: Gender and Level of HVCT knowledge versus HVCT uptake

	HVCT UPTAKE					
	Yes Freq. (%)	**No Freq. (%)**	**Total (%)**	**X^2 (df)**	**P-value**	**OR (CI)**
VARIABLE						
Gender						
Male	98 (45.8)	207 (47.5)	305 (46.9)	0.16 (1)	0.686	0.94 (0.67-1.30)
Female	116 (52.4)	229 (52.5)	345 (24.6)			
Total	214 (100)	436 (100)	645 (100)			

HVCT knowledge						
Good	56 (26.2)	58 (13.3)	114 (17.5)	19.58 (2)	0.000*	2.31¶ (1.53-3.49)
Fair	56 (26.2)	104 (23.9)	160 (24.6)			
Poor	102 (47.7)	274 (62.8)	376 (57.9)			
Total	214 (100)	436 (100)	650 (100)			

***significant**
Calculated for 2x2 table using good and poor (fair and poor)

4. DISCUSSION

This study assessed the knowledge, attitudes and uptake of HVCT among undergraduate students in Imo State University. The awareness of HVCT was very high when compared to previous studies done in tertiary institutions in the same South Eastern part of Nigeria. [17, 18] This could be due to general increase in awareness over time following long and persistent National Awareness Campaigns and the increased contribution of local sources of information that were traditionally not common sources, such as parents and school authorities. The commonest source of HVCT information in this study was the mass media, contrary to this, a previous study [17] reported that the church was one of the most common sources of information. In spite of the fact that all the respondents in the present study were Christians, the church was not mentioned as a common source of information on HVCT. The high level of awareness of the HVCT (99%) appears to have contributed to a better understanding of where HVCT is done; as the present study revealed that close to 60% of the respondents indicated correctly where HVCT is done compared to a previous study in South East of Nigeria[17] where the level of awareness of HVCT was much lower (63%), and most of the respondents indicated not knowing where HVCT is done.

Despite the high level of awareness of HVCT in the present study, the level of overall knowledge of HVCT, taking also into account what it is, who accesses it and where and how it could be accessed was poor in more than half of the respondents (58%). A similar study in the same South East by Ikechebelu et al, [17] also revealed a low level of HVCT knowledge in a tertiary institution and another study done in China[19] reported a significant level of lack of knowledge about HVCT, though this was a community based study. On the contrary however, similar studies among students from the South East (Uzochukwu et al)[18], Northern Nigeria (Daniyan et al),[20] and Africa[21-23] have revealed high levels HVCT knowledge.

In trying to explain the poor level of HVCT knowledge revealed in the present study, it is important to appreciate that the first step to avoiding HIV infection is to understand how to prevent its transmission. In the present study, as high as 10% of the undergraduate respondents despite their high awareness did not correctly indicate the routes of HIV transmission, this poses a challenge to the understanding of the strategies involved in its prevention such as HVCT, which is an essential component of HIV prevention efforts.

In addition to the constraints associated with the local access to the knowledge on HVCT, other factors may have contributed to the poor depth of knowledge. These are factors that reduce their willingness to seek for HVCT knowledge as revealed in the present study where a proportion of the respondents indicated as follows: that HVCT is not beneficial or had no opinion about it (5.5%); it is only for sexually active people (12.2%); it is most important for male (3.1%) and for female (9.5%); that HVCT is not for everybody or had no opinion (15.2%). The view that HVCT is either not beneficial or not meant for them would make them less inclined to seek for information regarding it.

On the other hand, there was generally good level of overall attitude as exhibited by majority of the respondents (80%), with more than half of the respondents indicating that neither the probability of a positive HIV result nor issues of stigmatization would affect their decision on uptake of HVCT. This level of positive attitude provides opportunities to be exploited through the design and implementation of interventions to influence increased uptake, as this study also revealed poor uptake. The very high awareness may have contributed to the good level of attitude, however the poor overall knowledge as compared to overall attitude is attributable to the poor performance by respondents in a number of the stems that constituted overall knowledge.

Uptake rate in the present study was about 33%, other studies have also reported similar uptake in Nigeria (<20%)[18] and Ethiopia.[23] About 84% of respondents who have not gone had no reason or felt HVCT was not necessary or claimed that their busy schedule were reasons for their low HVCT uptake. Only 16% attributed their low HVCT uptake to fear of a positive HIV result and lack of access to HVCT services. This suggests that poor level of HVCT knowledge contributed to why many of the respondents had not gone for HVCT. Despite this, majority of them were still willing to go for HVCT if given the opportunity, with access to a confidential setting and receiving their screening results in a confidential manner. This willingness to go for HVCT was also reported in similar studies conducted among tertiary undergraduate students.[17, 20]

A statistically significant association between the levels of knowledge and HVCT uptake was revealed in this study and those with good knowledge had more than twice the chance of haven been screened (p = 0.000, OR=2.31, 95% CI: 1.53 – 3.49). The Ethiopian study also revealed an association between knowledge of HVCT and its uptake,[23] while the Nigerian study found no association between observed high knowledge and uptake of HVCT, it rather attributed the low uptake to lack of awareness of HVCT services.[18]

Generally, the results of this study suggests that improving the level of HVCT knowledge and providing confidential opportunities that facilitate HVCT uptake within the tertiary institutions would enhance the uptake of HVCT among these undergraduates and thereby lower the incidence of HIV over time.[24]

5. CONCLUSION

Adolescents and young adults according to WHO, are faced with greater challenges of HVCT uptake than the general population due to their experience of more actual or perceived barriers to HVCT and therefore future interventions towards improving HVCT uptake should target increasing the levels of HVCT knowledge and confidential access among adolescents and young adults, especially those who are in tertiary institutions where they are exposed to harmful sexual and other behaviours that increase their risk of acquiring and transmitting HIV; and to those without HIV, improving HVCT uptake will reinforce preventive messages and provide access to prevention services.

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7. AUTHORS' CONTRIBUTIONS: All the authors participated in the study.

8. COMPETING INTEREST: The authors hereby declare that there are no competing interests.

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