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Outcome of health education on HIV/AIDS knowledge and mobile VCT uptake among students of a tertiary institution in Gindiri, north-central, Nigeria.

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Abstract

Background: Half of all new HIV infections occur among young persons, accounting for about 2.5 million new infections annually. Their risk of exposure is compounded by the fact that they often lack adequate information about HIV and AIDS**,** in addition to limited access to testing services.
Objective: To determine the knowledge regarding HIV/AIDS, Voluntary Counseling and Testing (VCT) and its uptake before and after health education with provision of mobile VCT service among the students.
Study Design and subjects: An interventional study was carried out among 423 tertiary institution students that were selected using the multistage sampling method. A semi- structured, self-administered questionnaire was used to collect data before and after intervention with health education and mobile VCT service.
Results: Before the intervention**,** majority of the students 404(95.5%) were aware of HIV/AIDS, 36(8.5%) and 235(59.8%) knew the meaning of the acronym HIV and AIDS respectively. A hundred and one (23.9%) of the respondents knew that HIV status could be identified through blood test and 268(63.4%) knew that a healthy looking person could be infected with HIV. After the intervention, there was statistically significant ($p<0.001$) improvement in knowledge of HIV(90.3%), AIDS (93.2%) acronyms, knowing of HIV status through a blood test (86.8%) and that healthy looking persons could be HIV positive (88.2%)**.** VCT awareness before 265(62.7%) and after 382(95.5) intervention as well as VCT uptake before 99(23.4%) and after 176(42.2%) intervention recorded statistically significant ($p<0.001$) improvement
Conclusion: Health education with mobile VCT improved the knowledge of HIV and AIDS along with uptake of HIV test. Technical support from health institutions would assist in increasing accessibility to HIV screening amongst students of tertiary institutions.

Key words: HIV/AIDS, Mobile VCT, Health Education, Tertiary institution students.

Introduction

Ever since the recognition of the first case of Human Immuno-deficiency Virus (HIV) infection among homosexuals in 1981, it has become the largest epidemic facing mankind today[1,2]. Since then, more than 60 million people worldwide have been infected with the virus and over 40 million are now living with the infection[2,3].

The virus causes Acquired Immune Deficiency Syndrome (AIDS) and has spread across the whole world with no racial, age, or gender discrimination. It has also gone beyond affecting the "at risk groups" to permeating the general population. It is the fourth largest killer worldwide and a common cause of death in sub-Saharan Africa[4]. In developing countries, most of the infections occur in young adults, while about half of those currently living with HIV/AIDS are between the ages 15-24 years[4-7]. Young people are the future of the nation and have the potential to adopt life styles and behaviours that have life-long consequences. Sexual behaviour, drug abuse, alcohol ingestion and tobacco use are among the risky behavioral patterns that put them at risk of HIV and other sexually transmitted infections (STIs), as well as unwanted pregnancy. A lack of awareness of HIV/AIDS and limited access to accurate information and appropriate medical services enhance the vulnerability of young people.

Current programmes geared towards the control of the HIV/AIDS epidemic in young people need a combination of approaches such as education, voluntary counseling and testing, and other health services that are particularly youth-friendly. Health education intervention should provide knowledge about HIV/AIDS, its modes of transmission, factors that enhance transmission, benefits of voluntary testing, as well as ways of preventing transmission. With accurate knowledge, the target population will be empowered to make informed choices and take appropriate actions to protect their health. The knowledge of one's status will enable infected individuals to access care and support early[8-11]. Additionally, they may adopt safer sexual practices that will prevent further transmission of HIV and re-infection[9, 12,-14]. Similarly, a negative sero- status could also be a motivating force for young people to ensure that they remain negative through risk reduction strategies [2, 14, 15]. Combating HIV and AIDS among young people was at the heart of the international response outlined in 2001 United Nations General Assembly Special Session (UNGASS) declaration on commitment to HIV and AIDS[16, 17]. Knowledge about HIV and AIDS among young people was an indicator for measuring the implementation of Millennium Development Goals (MDGs) that was adopted at the Millennium submit. Additionally, scaling up intervention to young people and promotion of VCT were among the strategies for programme leaders to consider if they will ever achieve the 2003 National policy goal and meet the International obligation under UNGASS and MDGs[16]. More so, since the rate of HIV infection is fast growing among young people due to their social and biological vulnerability, it is imperative that intervention strategies should be targeted at them[18, 19, 20].

Several studies conducted within and outside Nigeria among young people have revealed that educational intervention did significantly improve their HIV and AIDS knowledge[18, 21, 22, 23]. It also brought about a reduction in their number of sexual partners and engagement in safer sexual practices [23, 24]. It has been shown that acceptance of voluntary HIV testing is uncommon among youths for several reasons including the testing process and service availability among others[25]. For instance, a study carried out in Sagamu among the youths revealed that 68.2% would like to do the HIV test if the services were free [19], thus the need for this study.

The objectives of this study were to determine the knowledge of the students regarding HIV and AIDS as well as voluntary testing. In addition, to provide HIV and AIDS education with mobile VCT service to the students and assess the effect of the intervention on their knowledge and uptake of VCT.

Methodology

The study was carried out among the student population of the College of Education, Gindiri, in Mangu LGA of Plateau State. The College was established in 1980 and has 5 schools of studies namely; Arts and Social Sciences, Sciences, Vocational and Technical Education, School of Education and School of Languages. It has a total student population of 5,125. While majority of them reside outside the school campus, some are accommodated within the school premises. Students with qualified National Examination Council (NECO) and or West African Examination Council (WAEC) Certificates are admitted into the Institution from across the federation for Certificate or Diploma Programmes. The College has a sick bay that provides primary medical care services to both students and staff. Additionally, there is an HIV and AIDS unit that is responsible for carrying out enlightenment campaigns and counseling of students and staff as well as referral of cases for HIV test where necessary.

The study was interventional in nature with a before and after intervention assessment. The intervention was in the form of health education along with free mobile VCT service.

The Minimum sample size was determined using the formula for intervention studies below;

$$N = \frac{(u+v)\,[p1\,(100-p1)+p2(100-p2)]}{(p1-p2)^2}$$ [26]

N= Minimum sample size

u= power of the test, conventionally 80%;zβ=0.84

v= percentage point of normal distribution corresponding to significance level. In this case significance level was 5%, so V =1.96=Zα

p1 = proportion of students earlier found sexually active at baseline from previous study [27]

P2 = estimate of expected proportion to be found sexually active after intervention

Other parameters such as sexual behaviour studied were not included in this article. The calculated sample size was therefore 456, this was increased to 500 to make provision for attrition.

A multi-stage sampling technique was used to obtain the required number of students. The College was divided into the various schools of studies. One school was randomly selected and its departments listed out. All the students in the Pre NCE/ND, NCE1, NCE2, ND1, and HND1 from the selected departments were studied. The students in the final year class i.e NCE 3, ND 2 and HND2 were excluded from the study as they would have graduated or gone for industrial training/teaching practice during the post intervention period. The consent of the school authority and the students concerned were sought and obtained in addition to clearance from the Ethics Committee of the Jos University Teaching Hospital.

A pre-tested, semi-structured, self-administered questionnaire was used for data collection. The questionnaire was a modified version from the National HIV/AIDS and reproductive Health survey (NHRHS) and reproductive health behaviour of tertiary institution students survey questionnaires [28, 29]. This was pre-tested in another school (Center for Continuing Education, University of Jos) for applicability before use. Information obtained from the respondents included bio-data/family background, knowledge about HIV/AIDS, clinical features, route of transmission, diagnosis and methods of prevention, their VCT knowledge and its uptake.

During data collection the students were assured of confidentiality and anonymity. The same study instruments were used to collect data from students 16 weeks after intervention. This is because other variables were considered but are not included in this article.

The health education intervention lasted for a period of 6 days, one hour was used per lesson each day with 45 minutes talk/activity and 15 minutes for questions and answers. The last day however, being a Saturday took over an hour due to learning re-enforcement activities. The education covered the following areas: HIV/AIDS, routes of HIV transmission, signs and symptoms, activities predisposing one to the infection, methods of prevention and control. Learning was reinforced via games,

role play and film show. The school management and individuals made equipment which were used for the exercise available such as public address system, stand by generator, television, Video camera, and Projector among others.

Following the health education lectures, a one day mobile VCT session was organized in collaboration with AIDS prevention initiative of Nigeria (APIN), Jos University Teaching Hospital (JUTH). A 35-member team comprising of doctors, nurses and laboratory scientists came for the exercise. Activities carried out include health education on HIV/AIDS, group pre-test counseling, address to participants by People Living with HIV/AIDS (PLWHA), registration, individual pre-test counseling, testing for HIV and individual post-test counseling during which the participants' results were issued.

A total of 400 people, including students and some staff were tested and 2% of the population was found to be HIV positive. At the end of the 16 weeks post intervention, the same respondents were identified (by their classes) and served the same study questionnaire to generate post intervention data.

All data generated at base line and post intervention were processed and analyzed by the use of Epi info version 3.3.2 [30]. Socio-demographic characteristics were compiled using frequency tables, while chi square test was used to test for statistical relationships between variables of interest. At 95% confidence interval, a p-value less than 0.05 was considered statistically significant.

Limitations

A challenge was the need to increase the human capacity to cope with the massive demand from the student population. Due to the constraint, only 400 clients were tested since the test results had to be given out the same day. In addition, for logistical difficulties, the mobile VCT could not be organized more than once. This could have helped in tracking down respondents who delayed in making up their minds to carry out the test at the initial visit.

Results

Out of the 500 questionnaires distributed before and after the intervention, 423 and 417 questionnaires were returned respectively. The response rate based on the latter was 83.4%, the mean age of respondents was 23.3 ± 3.9. Males comprised of 61.97% and 84.7% of the students were single. Only 14% of them were living on campus, while most of them stayed off campus in private accommodations. Majority 388 (92.9%) were Christians and were variedly sponsored by self, parents or guardians as shown in Table I.

Before intervention, 404 (95.5%) were aware of HIV/AIDS. However, only 36 (8.5%) and 253 (59.8%) knew the acronyms HIV and AIDS respectively. The proportion of students who knew that HIV test is done using blood was less than half 101(23.9%). Two hundred and fifty six (63.4%) knew that a healthy-looking person could be infected with the virus. After intervention, the students' level of awareness regarding HIV increased by 2.1%, which was not statistically significant ($p=0.097$). Three hundred and seventy seven (90.3%) and 389 (93.2%) of the respondents knew what the acronyms HIV and AIDS respectively meant. Those that knew that blood test could be used to know an individual's HIV status were 362(84.6%) while 368 (88.2%) of the respondents knew that a healthy-looking person could be infected with the virus that causes AIDS. This improvement in knowledge was statistically significant ($p<0.001$, Table II).

Before the intervention, 265 (62.7%) of the students were aware of VCT. A significant majority 382 (95.5%) reported being aware after the intervention ($P < 0.001$). On the other hand, only 99 (23.4%) of the respondents had ever carried out the HIV test before intervention. A statistically significant ($p<0.001$) proportion of 176(42.2%) reported ever being tested for HIV after the intervention Table II.

Prior to the intervention among those that have not carried out the HIV test, cost (19%), being sure of oneself (21%), fear of the likely outcome of the test (6%) and no

Table I: **Socio-demographic characteristic of respondents**

Features	Frequency N=417	Percentage (%)
Gender: Male	258	61.9
Female	159	38.1
Age (years) 15-19	50	12.4
20-24	231	55.4
25-29	113	27.1
≥ 30	21	5.1
Marital status		
Single	353	84.7
Married	60	14.4
Divorced/separated	2	0.7
Widowed	1	0.2
Kind of family		
Monogamy	266	63.8
Polygamy	151	36.2
Religion		
Christianity	388	92.9
Muslim	29	7.1
Where you live		
On campus	60	14.4
Off campus(private)	338	81.1
Off campus(guardian)	19	4.5
Sponsorship		
Self	55	13.3
Family	352	84.4
Government	10	2.3

knowledge of VCT place (10%) were among the reasons advanced for not having done so.

Discussion

The level of awareness of the respondents about HIV/AIDS was high, as 95% of the students had heard of HIV/AIDS. This was similar to findings reported in Ukraine and Haryana where 99% and 85% of respondents respectively had heard of HIV/AIDS [31]. In Nigeria, a pilot study carried out in the south-eastern part of the country reported similar findings of 91.4% .[32] This is comparable with findings in similar studies carried out in Delta state (94%) and by the Federal Ministry of Health (FMOH, 98%)[33,34].

It is worrisome that despite the high level of awareness, only 8.5% and 59.8% of the students were able to correctly interpret the acronyms of HIV and AIDS respectively. Similarly, less than half of the participants knew that HIV status could be established through a blood test. Over half (63.4%) of the respondents knew that healthy- looking people could have HIV infection. This value was higher than that documented by the National HIV/AIDS and Reproductive Survey (55.7%) and in South Africa 50%[35,36].

Sixty three (63%) of the respondents have heard about VCT. This is comparable to findings in the study carried out in the eastern part of Nigeria where 63.2% of polytechnic students were aware of VCT[32]. The findings were however higher than the 20% obtained in a study done in Sagamu[19]. Although about, 23.4% had carried out the test, it was comparable to the 26.4% documented from a study in southeastern Nigeria. It was however higher than findings reported by FMOH (7%) and a study done in Sagamu (11.5%)This may be due to the gradual increase in awareness of VCT in schools with better understanding of knowing one's HIV status.

VCT uptake increased from 23.4% to 42.3% after the intervention. It is known to play a significant role in HIV prevention, care and support. As such, the services should be promoted particularly among this population group as it has been shown to contribute to reduction of HIV transmission. This was demonstrated by Family Health International in Rwanda [10]. Furthermore in Uganda, VCT as a behavior change intervention has in addition to other efforts helped to reduce the HIV prevalence rate among teenage women tested for HIV from 28% in1991 to 6% in1998 [6]. In this study, the free and mobile nature of the services made available at the door step of these young people could have greatly reduced the complaint about cost and in turn increased their accessibility to the service.

Conclusion

The pre-intervention knowledge of HIV/AIDS among the students was high, while in-depth knowledge with regards to

Table II: HIV/AIDS knowledge and VCT uptake before and after intervention

Features	Before intervention Freq (%)	After intervention Freq (%)	p– value
HIV Awareness			
Yes	404(95.5)	407(97.6)	0.097
No	19(4.5)	10 (2.4)	
Total	**423(100)**	**417(100)**	
HIV Acronym			
Correct	36(8.5)	377(90.3)	<0.001
Incorrect	387(91.5)	40 (9.7)	
Total	**423(100)**	**417(100)**	
AIDS Acronym			
Correct	253(59.8)	389(93.2)	<0.001
Incorrect	170(40.2)	28 (6.8)	
Total	**423(100)**	**417(100)**	
How to identify HIV Status			
Blood test	101(23.9)	326(86.8)	<0.001
Others	322(76.1)	55(13.2)	
Total	**423(100)**	**417(100)**	
Healthy person can have HIV			
Yes	268(63.4)	368(88.2)	<0.001
No	155(36.6)	49(11.8)	
Total	**423(100)**	**417(100)**	
VCT			
Aware	265(62.7)	382(91.5)	
Not aware	158(37.3)	35(8.5)	<0.001
Total	423(100)	417(100)	
Ever tested for HIV			
Yes	99 (23.4)	176(42.2)	<0.001
No	324(76.6)	241(57.8)	
Total	423(100)	417(100)	

identification of an infected person and VCT uptake was just fair. Following the intervention, there was significant improvement in HIV/AIDS knowledge, awareness of VCT and its uptake which increased by 80.3%. With adequate health education, mobile VCT should be given consideration and a high level of technical support from the health institutions would enable local organizations to carry out mobile VCT services.

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