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Assessment of Accessibility to Human Immuno-deficiency Virus (HIV) Voluntary Counselling and Testing (VCT) Utilization among Federal Universities Students in Northern Nigeria

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Abstract

This study examined the accessibility to HIV Voluntary Counselling and Testing (VCT) utilization among federal universities students in Northern Nigeria. To achieve this purpose, descriptive survey research design was used. The population of the study comprised 421,436 federal universities students in Northern Nigeria. The sample size of 662 respondents was drawn from the population using a multi-stage sampling procedure, which includes cluster, simple random, proportionate and convenience sampling. The instrument for data collection was a researcher-structured closed-ended questionnaire named 'Assessment of Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria Questionnaire (AAHVUFUSNNQ)' which was validated by five (5) experts in experts in the Department of Human Kinetics and Health Education, Department of Psychology and Counselling, and College of Medical Services in Ahmadu Bello University, Zaria. The instrument was pilot-tested using Cronbach's Alpha, and a reliability coefficient of 0.884 was obtained. Descriptive statistics of frequency and percentage were used to describe the demographic characteristics of the respondents. The research questions were answered using mean and standard deviation. Inferential statistics of one-sample t-test and independent sample t-test were used to test the stated hypotheses at a 0.05 level of significance. The result revealed a significant accessibility ($t = 24.013$; $p = 0.000$) regarding HIV VCT utilization among federal university students in Northern Nigeria, with gender-based differences in accessibility ($t = 19.582$; $p = 0.000$). The study concludes that federal university students in Northern Nigeria generally have good access to HIV VCT services, with female students having better access than their male counterparts. Based on the conclusion, the study recommends that federal university management should maintain and expand accessible HIV VCT services by increasing outreach and service points on campuses, and also assess and enhance outreach strategies to ensure equitable access for male students.

Keyword: HIV Voluntary Counselling and Testing (VCT), Accessibility, Students, Gender Differences

Introduction

Human Immunodeficiency Virus (HIV) remains one of the most pressing global health challenges of the 21st century. Voluntary Counselling and Testing (VCT) is a strategic tool for HIV prevention, early detection, and linkage to care. VCT enables individuals to determine their HIV status in a confidential setting and serves as a gateway to accessing antiretroviral therapy (ART), psychosocial support, and preventive education. According to the World Health Organization [WHO] (2022), VCT plays a crucial role in reducing HIV transmission and supporting individuals living with HIV through early diagnosis and treatment initiation. Despite global and national campaigns promoting VCT as a key intervention for HIV/AIDS control, many people, especially in low- and middle-income countries, still face substantial challenges in accessing VCT services. Accessibility to VCT services refers to the ease with which individuals can physically, economically, and conveniently obtain HIV testing and counselling. Accessibility encompasses several dimensions, including geographic proximity to VCT centres, availability of trained personnel, affordability, operational hours, and adequacy of resources such as testing kits and counselling rooms (Sande et al., 2018). In many developing countries, including Nigeria, these accessibility factors present substantial obstacles to VCT utilization. Students in tertiary institutions, who are typically in the most sexually active age bracket, represent a high-risk group for HIV infection but are



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often underserved in terms of VCT service provision. This disconnect between the availability and actual utilization of VCT services underscores the need for a critical assessment of accessibility within university settings, especially in regions such as Northern Nigeria, where infrastructural and healthcare challenges are widespread.

Nigeria ranks among countries with the highest HIV burden globally, with an estimated 1.9 million people living with the virus as of 2022 (National Agency for the Control of AIDS [NACA], 2023). While the Nigerian government has established numerous VCT centres nationwide, accessibility remains unevenly distributed, especially between urban and rural areas, and between southern and northern regions. According to Onyemachi et al. (2021), many regions in Northern Nigeria, particularly rural and semi-urban settings where several federal universities are located, lack adequate VCT infrastructure. Students in these areas often face difficulties accessing testing facilities due to long travel distances, limited transportation, and the absence of on-campus VCT services. As such, many students forego testing altogether, even when they are willing to know their status, thus increasing the risk of undiagnosed and untreated infections within university communities. Moreover, the limited availability of VCT services on university campuses significantly impairs accessibility. In some federal universities in Northern Nigeria, VCT services are either non-existent or integrated into poorly equipped campus health centres with limited staff and resources. According to Abdulrahman et al. (2021), university health centres often lack dedicated VCT units, rapid testing kits, trained counsellors, and private counselling spaces. Where services are available, they are frequently understaffed and operate within restricted hours, conflicting with students' academic schedules. This lack of institutional preparedness to provide consistent and accessible VCT services disincentivizes students from utilizing such services. Without accessible testing options within the university environment, students are left with few alternatives, especially those who lack the financial means or time to seek off-campus testing facilities.

Cost-related barriers also significantly hinder students' access to VCT services in Northern Nigeria. Although the Nigerian government has declared HIV testing to be free in public health facilities, many hidden costs remain. These include transportation costs to reach testing centres, consultation fees in some private facilities, and opportunity costs such as missing lectures or examinations (Sande et al., 2018). For students in federal universities, many of whom come from low-income backgrounds, these financial barriers can be prohibitive. The perception of cost whether real or assumed can deter students from seeking HIV testing services. As highlighted by Moyo et al. (2023), affordability is a critical determinant of VCT uptake among youths, and any financial implication, however minimal, can significantly reduce testing rates in financially constrained populations. Furthermore, logistical and infrastructural issues pose formidable challenges to the accessibility of VCT services in many Northern Nigerian universities. Inadequate power supply, lack of diagnostic tools, poor internet connectivity for electronic medical records, and underdeveloped transportation networks are prevalent in many institutions (Onyemachi et al., 2021). These infrastructural deficits not only affect the delivery of quality VCT services but also discourage expansion and continuity of such programmes. When services are unreliable or inconsistently available, students are unlikely to perceive them as trustworthy or worthwhile, thus contributing to low utilization rates. This reality calls for improved funding, capacity building, and infrastructural development within university health systems to promote accessible, consistent, and high-quality VCT services.

Additionally, the lack of tailored health education programmes targeting university students has contributed to poor accessibility to VCT services. Many students are unaware of where and how to access VCT services due to inadequate sensitization and mobilization efforts within campuses (Rasweswe et al., 2024). Where outreach exists, it is often sporadic and not strategically designed to reach diverse student populations. Without consistent communication and visibility of services, students may assume that such services do not exist or are not meant for them. Accessibility is not only about physical presence but also about the perceived availability and usefulness of services, which can be enhanced through robust peer education, digital campaigns, and student engagement programmes within universities. Despite the growing awareness of the importance of early HIV testing, infrastructural deficits, poor geographic coverage, financial constraints, limited institutional support, and inadequate health promotion efforts continue to undermine students' ability to access these vital services. Considering the high vulnerability of young people to HIV infection and the strategic importance of university settings in HIV prevention, enhancing accessibility to VCT services should be a public health priority. This study, therefore, seeks to assess the level and determinants of accessibility to HIV Voluntary Counselling and Testing

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(VCT) services among students in federal universities located in Northern Nigeria, with the aim of identifying gaps and recommending strategies for improving service delivery and utilization.

Objectives of the study

1. Assess the level of accessibility to HIV VCT utilization among federal universities students in Northern Nigeria.
2. Examine whether federal universities students in Northern Nigeria differ in the accessibility of HIV VCT utilization based on gender.

Research Questions

1. What is the level of accessibility to HIV VCT utilization among federal universities students in Northern Nigeria?
2. Is there any mean difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender?

Hypotheses

1. There is no significant difference in the accessibility to HIV VCT utilization among federal universities students in Northern Nigeria.
2. There is no significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender.

Methodology

This study adopted a descriptive survey research design. This design was chosen because it allows the researcher to collect, analyse, and interpret data from a representative sample to understand the current status of a phenomenon. According to Osuala (2000), descriptive surveys involve studying a group by collecting data from a few representatives of the population. Shaughnessy et al. (2011) also emphasise that surveys are useful for understanding prevailing conditions, making this design appropriate for capturing the realities of HIV VCT accessibility among students in the selected universities. The target population for this study consisted of 421,436 students across 22 federal universities in Northern Nigeria, based on 2023/2024 academic session records. The sample size was determined to be 662 students, in line with the recommendation by Research Advisor (2006) for a 99% confidence level and a 0.05 margin of error. A multi-stage sampling technique was used to select participants. First, Northern Nigeria was grouped into three geopolitical zones (North Central, North East, and North West) using cluster sampling. Then, two universities were randomly selected from each zone via simple random sampling using a paper ballot method. Within each selected university, respondents were chosen using proportionate sampling based on institutional student population sizes. Finally, convenience sampling was employed to approach and recruit respondents on campus. Data was collected using a researcher-developed questionnaire titled Assessment of Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria Questionnaire (AAHVUFUSNNQ). The instrument comprised two sections: Section A (4 items) focused on demographic variables such as age, level, gender, and marital status, while Section B (10 items) assessed the accessibility of HIV VCT services using a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). A benchmark mean score of 2.50 was adopted as the decision point for interpreting responses. Items scoring 2.50 or above were considered to indicate positive accessibility, while scores below 2.50 reflected negative accessibility or inaccessibility. To establish validity, the questionnaire was reviewed by five experts from the Departments of Human Kinetics and Health Education, Psychology and Counselling, and Medical Services at Ahmadu Bello University, Zaria. Their feedback on the face and content validity was incorporated into the final version. For reliability testing, a pilot study was conducted using 50 students from the University of Abuja, a federal university not included in the main study. A split-half method and Cronbach Alpha coefficient were used to assess internal consistency, resulting in a high reliability index of 0.884, confirming the instrument's suitability for the main study.

The data collection process spanned four weeks and was guided by an introductory letter from the researcher's department. Upon securing institutional permissions, informed consent was obtained from all participants. Six trained research assistants, all health workers familiar with academic environments, helped administer the questionnaires. They clarified items in simple language where necessary. The team visited each selected university sequentially, distributing and retrieving questionnaires on the spot to ensure a high response rate. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 30. Descriptive statistics (frequency counts and percentages) were used for demographic

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data, while mean and standard deviation were applied to answer research questions. Hypotheses were tested using one-sample and independent sample t-tests at a 0.05 significance level.

Presentation of Results

Table 1: Demographic Characteristics of the Respondents

Variables	Frequency	Percentage (%)
Age Range in Years		
Below 20	103	15.6
20 – 25	293	44.3
26 – 30	179	27.0
Above 30	87	13.1
Total	662	100.0
Level		
Undergraduate	571	86.3
Postgraduate	91	13.7
Total	662	100.0
Gender		
Male	379	57.3
Female	283	42.7
Total	662	100.0
Marital Status		
Single	395	59.7
Married	196	29.6
Widow	26	3.9
Divorce	45	6.8
Total	662	100.0

Table 1 revealed the demographic characteristics of the respondents. In terms of age distribution, the largest proportion of respondents (44.3%) falls within the 20–25-year age range, followed by 27.0% who are between 26–30 years. A smaller percentage (15.6%) are below 20 years, while only 13.1% are above 30 years. With regard to educational level, the majority of the respondents (86.3%) are undergraduates, while the remaining 13.7% are pursuing postgraduate studies. The gender distribution shows that males constitute the majority at 57.3%, compared to females who represent 42.7% of the total respondents. Marital status data indicate that the majority of the respondents (59.7%) are single, which aligns with the age distribution and student status. About 29.6% of the respondents are married, while 3.9% are widowed, and 6.8% are divorced.

Research Question 1

What is the level accessibility to HIV VCT utilization among federal universities students in Northern Nigeria?

Table 2: Mean Scores of Responses on Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria

S/N	Item	Mean	Std Dev
1.	Service should be located in an area that is easy for individuals to reach and can also bridge gaps in rural access.	3.51	0.75
2.	I have financial constraints associated with my travels to the VCT centre.	3.40	0.77
3.	I cannot afford the cost associated with testing, counselling, or related services.	3.21	0.71
4.	Limited operation hours affect my time of visiting the VCT centre.	3.09	0.76
5.	I have issues with my transportation which hinders me from travelling to the testing centre/facilities.	3.17	0.74
6.	I'm not aware of the importance of HIV testing services.	3.29	0.72
7.	Language barriers can exclude non-natives from effectively accessing VCT services, leading to misunderstanding and avoidance.	3.26	0.79
8.	The fear of stigma and discrimination associated with HIV can discourage individuals from seeking VCT services.	3.02	0.76

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|--|------|------|
| 9. Integrated services like offering VCT alongside other health services such as STI testing and treatment can encourage individuals to seek care. | 3.18 | 0.74 |
| 10. Involving community members and local organizations in the promotion and delivery of VCT services can help increase trust and awareness. | 3.08 | 0.73 |

Aggregate Mean

3.22

(Decision Mean – 2.50)

Table 2 revealed the mean scores of responses on the accessibility to HIV VCT utilization among federal universities students in Northern Nigeria. The highest mean score (3.51) was recorded for the statement that VCT services should be located in easily accessible areas, especially to bridge rural-urban gaps. Similarly, financial constraints associated with travelling to the VCT centres (mean = 3.40) and inability to afford testing and counselling services (mean = 3.21) were also identified as notable barriers. Operational challenges were reflected in the item on limited working hours (mean = 3.09) and transportation difficulties (mean = 3.17), which further support the view that logistical and infrastructural issues hinder students from seeking VCT services. Additionally, lack of awareness about the importance of HIV testing (mean = 3.29) suggests that health education and sensitization efforts may be insufficient or poorly targeted. Language barriers (mean = 3.26) also emerged as a notable concern, particularly for non-native speakers, which could lead to misunderstanding and deter service uptake. Although slightly lower, the fear of stigma and discrimination (mean = 3.02) still ranked above the decision mean, reinforcing that social and psychological barriers remain an accessibility challenge. On a more positive note, responses showed support for integrated services (mean = 3.18) such as combining VCT with STI testing and community involvement (mean = 3.08), both of which could enhance accessibility through increased convenience, trust, and awareness. The aggregate mean score of 3.22, which is above the decision mean of 2.50, indicates that the respondents generally perceive accessibility as a significant factor influencing the utilization of HIV VCT services.

Research Question 2

Is there any difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender?

Table 3: Mean and Standard Deviation of the difference in Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria based on Gender

Item	N	Mean	Std. Dev.	Mean Difference
Male	379	3.02	0.53	0.27
Female	283	3.29	0.51	

Table 3 revealed the result of the difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender. The female had a higher mean score of 3.29 than the male, who had a mean score of 3.02, with a mean difference of 0.27. This implies that there is a difference in the accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender.

Hypothesis 1

There is no significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria.

Table 4: One-Sample t-test Analysis on Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria

Variable	N	Mean	Std. Dev.	df	t-value	p-value
Accessibility	662	3.22	0.75	661	24.013	0.000
Test Mean	662	2.50	0.00			

Calculated $p = 0.000$, calculated $t\text{-value} = 24.013$ at $df\ 661$

The result of the one-sample t-test statistics in Table 4 revealed that there is a significant accessibility to HIV VCT utilization among federal universities students in Northern Nigeria because the calculated p-value of 0.000 is less than the 0.05 level of significance and the calculated t-value of 24.013 is higher than the 1.972 critical t-value at 661 degrees of freedom (df). Therefore, the null hypothesis, which stated that there is no significant accessibility to HIV VCT utilization

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among federal universities students in Northern Nigeria, is rejected. This means that federal universities students in Northern Nigeria have access to HIV VCT utilization.

Hypothesis 2

There is no significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender.

Table 5: Independent t-test Statistics on Difference in Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria based on Gender

Item	N	Mean	Std. Dev.	Mean Difference	df	t-value	p
Male	379	3.02	0.53	0.27	660	19.582	0.000
Female	283	3.29	0.51				

t (662) = 19.582, p-value = 0.000, df = 660

Table 5 revealed the results of an independent t-test conducted to examine whether there is a significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender. The analysis compares the mean accessibility scores of male and female students. The results show that male students (n = 379) had a mean accessibility score of 3.02, while female students (n = 283) had a higher mean score of 3.29. The mean difference between the two groups is 0.27. The computed t-value is 19.582 with a degree of freedom (df) of 660, and the associated p-value is 0.000, which is less than the 0.05 level of significance. This indicates that the difference in accessibility to HIV VCT utilization between male and female students is statistically significant. In other words, the null hypothesis, which states that there is no significant difference in accessibility based on gender, is rejected. This implies that gender plays a significant role in determining accessibility to HIV VCT services among students in federal universities in Northern Nigeria, with female students reporting higher accessibility than their male counterparts.

Discussion of Findings

Hypothesis one revealed that there is a significant accessibility to HIV VCT utilization among federal university students in Northern Nigeria (t = 24.013; p = 0.000). This implies that students in federal universities in Northern Nigeria have good access to HIV VCT services. This finding is strongly in agreement with Reynell and Trkola (2012), who emphasised that VCT is increasingly accessible and considered an important strategy in the global response to HIV/AIDS, particularly among Nigerian youths. The study concluded that providing adequate information and counselling can significantly improve accessibility and reduce stigma, further aligning with the findings of high accessibility among university students.

Similarly, Donkor (2012) supports the findings of this study by revealing that although social stigma exists, a substantial proportion of university students (88%) in Ghana showed positive attitudes towards VCT, and 40% expressed willingness to access VCT services if available. This reflects a readiness and existing infrastructure that facilitates accessibility, especially in institutional settings. The study by Daniyam and Emmanuel (2010) also validates the results. They found that among medical students in Jos, Nigeria, 83.1% were willing to undergo VCT, and more than half (50.7%) had already done so. This high level of willingness and usage among students, despite being in a different Nigerian region, confirmed a national trend of increasing VCT accessibility in tertiary institutions.

Furthermore, the CDC (2012) highlighted in its multi-country study that adolescent-friendly VCT services in educational and youth-focused settings led to increased access and reduced high-risk behaviours. This directly supports the idea that students in university environments, like those in Northern Nigeria, benefit from structured and available VCT services. However, while studies such as Naseem et al. (2018) in Pakistan and Jinling and Roger (2019) in China found low VCT accessibility among high-risk populations or rural migrants, these differences can be attributed to context. The populations studied were outside formal educational systems and lacked targeted interventions, unlike the structured environment of federal universities, where access to health services is more institutionalised.

Hypothesis two revealed that there is a significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender (t = 19.582; p = 0.000). Female students in federal universities in Northern Nigeria report better access to HIV VCT services compared to male students. The study by Alemayehu (2018) in Tigray, Northern Ethiopia, provides partial support. Although females were found to be more concerned about social

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stigma and thus less willing to accept VCT compared to males, the study acknowledged a significant association of female gender with awareness and acceptance of VCT, indicating that women might have better access through structured youth clubs and government services. This aligns with the current finding regarding better access for females, even though the willingness to utilise was affected by stigma. Similarly, the findings of Daniyam and Emmanuel (2010) in Jos, Nigeria, support the result. Their study observed that although the acceptability of VCT among medical students was high for both genders, a slightly higher percentage of females (56.3%) had undergone VCT compared to males (48.9%), which could be a reflection of better access or engagement with health services among female students. They also found no significant difference in willingness to test, suggesting that gender disparity may lie more in access and actual uptake than in attitude or willingness, consistent with the findings from this current study. Further corroboration comes from the CDC (2012) findings, which noted that women, especially in developing countries, tend to utilize VCT services more often due to their greater engagement with reproductive health services and antenatal care, where HIV testing is frequently integrated. This supports the notion that female students may have more touchpoints or pathways to access VCT services.

On the contrary, Reynell and Trkla (2012) also found gender-based differences in stigma and access, concluding that male youths experience more barriers related to stigma and lack of information, which could reduce their access to VCT. These studies indicate a general trend of higher VCT engagement among females, often facilitated by integrated health services, more frequent healthcare interactions, and targeted awareness programmes. However, they also highlight the persistent challenge of stigma, particularly for males, which may further hinder their access and utilization.

Conclusions

Based on the findings of the study, it can be concluded that students enrolled in federal universities in Northern Nigeria generally have good access to HIV Voluntary Counselling and Testing (VCT) services. Furthermore, the study revealed that female students tend to report better access to these services compared to their male counterparts.

Recommendations

Based on the conclusion, the study recommended the following:

1. Federal university management should maintain and expand accessible HIV VCT services by increasing outreach and service points on campuses.
2. University management should assess and improve outreach strategies to ensure equitable access for male students to VCT services.

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