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## ORIGINAL RESEARCH

# Prevalence of Human Immunodeficiency Virus Infection and Risky Sexual Behaviours among Clients Attending HIV Testing Service in Ogun State, Nigeria

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## Abstract

**Background:** HIV testing services (HTS) are a component of HIV prevention and care programs in developed countries and have proven to be a cost-effective way of monitoring the disease, reducing risky behaviours and leading patients to other services.

**Objective:** To determine the prevalence and risky behavioural factors associated with HIV among the attendees of HIV testing services in a part of Ogun state, Nigeria.

**Methods:** This was a descriptive cross-sectional study of HTS clients in health facilities within Ogun State, Nigeria. A multi-stage sampling technique was used for data collection using a pretested, close-ended, interviewer-administered questionnaire.

**Results:** A total of 800 respondents with a mean age of 32.57±10.39 years were surveyed. The prevalence of HIV was 1.6%. The majority (93.6%) of the respondents were sexually experienced. The percentage tested previously among study participants was 5.0%. This significantly comprised those below the age of 18 years ( $X^2 = 22.01$ ,  $p = 0.0001$ ) and female respondents ( $X^2 = 4.84$ ,  $p = 0.028$ ). Only 21 (2.6%) have had unprotected sex with a casual partner. Significantly more of the female respondent had been involved in this risky sexual behaviour ( $X^2 = 4.52$ ,  $p = 0.034$ ). Only 7 (0.9%) had sex with multiple sexual partners in the last three months, and 17 (2.1%) were positive for symptomatic STI screening.

**Conclusion:** The prevalence of HIV was low to be 1.6%, and the percentage tested previously was 5.0%. The practice of free HIV screening should be maintained to encourage more people to undergo the test.

**Keywords:** *Anti-Retroviral Therapy, HCT, HIV Testing Service, Sexual behaviours.*

## Introduction

The Human Immunodeficiency Virus (HIV) pandemic is in the concluding years of its fourth

decade. The last two decades witnessed increased HIV Testing services (HTS) and anti-retroviral therapy (ART) services, especially in sub-Saharan Africa. Consequently, the prevalence is decreasing. [1] It is estimated that almost two-thirds of HIV infections in West and Central Africa in 2016 occurred in Nigeria. Together with South Africa and Uganda, Nigeria accounts for nearly half of all new HIV infections in sub-Saharan Africa every year, [1] despite achieving a 15% reduction in new infection rates. [2]

Over 160,000 people died from AIDS-related illnesses in Nigeria in 2016. [2] Despite increased ART use, the annual AIDS-related death rate has remained significant within the past decade. This shows that not every seropositive client is receiving treatment. Seventy per cent of all new HIV infections occur in Africa, and there can be no doubt that HIV/AIDS is no longer only a health challenge, as it is having a devastating impact on the continent. Poverty, lack of adequate medical facilities, inadequate education, socio-cultural barriers and political inertia are but a few of the complex factors that facilitate the spread of this disease, which is undermining the hard-won economic and social gains that many African countries were able to make in the last to three decades. [3] The impact of HIV/AIDS is pervasive and far-reaching, affecting individuals and communities not only psychologically but also economically and socially, as families usually lose their most productive members to this disease, leaving children and older people without means of support. The high cost of the disease wreaks havoc within communities where the already fragile health system infrastructures are not capable of absorbing further strain. [4]

The current startling statistics are driving home the reality of this disease. [4] Most countries affected by HIV/AIDS have – although often with significant delay – put in place programs and activities to combat the spread of

HIV/AIDS. Such action plans frequently include a combination of the following elements: mass media campaigns, improved health services for early detection and treatment of sexually transmitted infections (STI) that facilitate HIV infection, voluntary HIV testing, peer education, counselling and awareness activities within the schools, and community level of awareness building. HTS is usually integrated with antenatal care (ANC) at different levels of the health care system. HTS among pregnant women has been reported as a public health priority given the ability of potent anti-retroviral therapy to prevent HIV infection in infants and preserve the mother's health during pregnancy. [3-5]

HIV testing has been proven to be a “critical gateway” to treatment and support services. Nigeria accounts for 13% of all HIV-positive people and 19% of all AIDS-related deaths in sub-Saharan Africa with a prevalence of 3.2%; 3.4 million persons living with HIV; 51,000 new child infections and 190,000 HIV-positive pregnant women; 52,500 HIV-positive pregnant women receiving ARVs; 70% of HIV infected pregnant women not receiving ARVs; and 210,000 AIDS-related deaths and a slight decline in deaths between 2005 and 2013. [4, 6] Despite these figures, not much has been done to appraise the HTS services from the client's perspective in Nigeria. Therefore, this study aimed to determine the prevalence and risky behavioural factors associated with HIV among attendees of HIV testing services in a part of Ogun State, Nigeria, between December 2018 and January 2019.

## Methods

### *Study area*

Obafemi-Owode Local Government Area (LGA) is domiciled in Ogun State, South-west geopolitical zone of Nigeria and has its

headquarters in the town of Owode Egba. Obafemi-Owode LGA shares boundaries with Odeda, Sagamu-Ikenne, and Ifo LGAs in Ogun State and parts of Lagos and Oyo states. The estimated population of Obafemi-Owode LGA is 194 813 according to the 2006 National census, and most of the dwellers belong to the Egba subdivision of the Yoruba ethnic group. The major religions of the inhabitants are Christianity, Islam and African traditional religion.

The LGA has its headquarters in Owode with two constituent local development councils at Obafemi and Ibafo/Mowe councils. It is made up of 12 wards. Obafemi Owode LGA occupies a total area of 1410 square kilometres and has an average temperature of 27 degrees centigrade and an average humidity level of 56 per cent. The LGA is well forested and has a rich agricultural heritage with the cultivation of many crops such as rice, kolanut, maize, cassava, and cocoa. Trade also flourishes in the LGA, with the area hosting several markets, which include the Ogunmakin and Ibafo markets which attract thousands of buyers and sellers of different commodities. There are 22 health facilities with HTS centres in Obafemi-Owode LGA.

#### *Study Setting*

In 2011, the National Agency for Control of AIDS (NACA) introduced PMTCT in Obafemi-Owode LGA. This was followed by ART in 2012. ART services were provided at General Hospital, Owode Egba, while PMTCT was at selected health centres at Ofada, Owode Egba, Adedero, Orilemo, Mokoloki and Adigbe. HIV testing service has been available at all health facilities within the LGA. These services are currently being supervised by a Non-Governmental Organisation (NGO) – the Institute of Human Virology in Nigeria IHVN. Before providing these Prevention of Mother to Child Transmission (PMTCT) and ART services, clients seeking HIV care within the LGA

travelled several kilometres to either Sagamu or Abeokuta.

#### *Study design*

This descriptive, cross-sectional study was carried out among clients attending health facilities providing HCT services in Obafemi-Owode LGA.

#### *Sample size determination*

The sample size was determined using Fisher's formula for estimating single proportions and the formula for estimating the minimum sample size when the total sample was below 10,000 people.

$$n = \frac{Z^2 Pq}{d^2}$$

n = minimum required sample size, Z = 1.96, d = acceptable difference; using 5% (d = 0.05), P = 41.7% (HIV prevalence among HCT clients in OOUTH Sagamu) [7], q = 1 - p,

n = population size

$$n = \frac{1.96^2(0.417)(0.583)}{(0.05)^2}$$
$$\frac{0.9339352176}{0.0025} = 373.574$$

There was an additional 10% to compensate for invalid data

Therefore, the calculated minimum sample size was  $\approx$  411, but 800 questionnaires were used to increase the power of the study.

#### *Sampling technique*

A multi-stage sample technique was used.

Stage 1: Simple random sampling by balloting was used to select one LGA out of 16 LGAs in Ogun state. Obafemi Owode LGA was subsequently selected.

Stage 2: Simple random sampling was used to select six HTS centres out of 22 HTS centres in the selected LGA. These six included General Hospital, Owode-Egba, and health centres at Owode Egba, Ofada, Ibafo, Adedero, and Orilemo.

Stage 3: From each centre, systematic random sampling was used to select participants based on the weekly attendance list. Every second

client was chosen until the desired number of participants for the study was achieved. This consists of all consenting clients who came for HTS at any of the selected centres within the LGA.

#### *Data collection*

Data was collected using a quantitative, interviewer-based semi-structured questionnaire. The content validity of the questionnaires was established by a panel of experts in Guidance and Counselling and experienced researchers in Test and Measurement. Two research assistants and two Community Health Extension workers were trained to assist in the administration of the questionnaires.

**Study Instrument:** The questionnaire was divided into four sections: section one focused on the socio-demographic profile of the respondents, section two on the HIV risk assessment, section three on HIV testing, and section four was on post-test counselling and the associated factors. The questionnaire was pretested at the Olikoye Ransome-Kuti Hospital, Abeokuta, Ogun State.

#### *Ethical consideration*

Ethical approval was obtained from the Health Research and Ethics Committee of the Department of Planning, Research and Statistics in the Ministry of Health, Oke-Mosan, Abeokuta. Informed consent was obtained from the respondents after adequately explaining the study procedure, and confidentiality of the information was ensured.

#### *Data analysis*

The data were analysed using the Statistical Package for Social Sciences (SPSS version 20) software. The data were presented in frequency distribution tables with percentages. Central tendencies were measured, and the Chi-Square

test was used to determine the association between categorical variables.

## **Results**

#### *Socio-demographic characteristics of respondents*

Table I shows the distribution of the socio-demographic characteristics of the respondents. The mean age of the respondents was  $32.57 \pm 10.39$  years. The mean age of the males ( $36.40 \pm 12.68$  years) was relatively higher than that of the females ( $30.87 \pm 8.68$  years). There were 555 (69.4%) females, and 245 (30.6%) never attended school. Majority (551; 69.1%) were married, 217 (27.2%) were single, and only 2 (0.3%) were widows/widowers. About half (361; 45.1%) completed secondary school, 267 (33.5%) had tertiary education, and 92 (11.5%) had no education. The majority (616; 77.0%) of the respondents were engaged in unskilled work, such as labourers and traders; 133 (16.6%) were skilled workers, such as artisans, while only 20 (2.5%) were professionals.

#### *Previous Testing for HIV*

Table II shows the previous testing status of the respondents. The percentage of the previous testing was 5.0% (40/800). This significantly comprises of those below the age of 18 years ( $X^2 = 22.01, p = 0.0001$ ) and female respondents ( $X^2 = 4.84, p = 0.028$ ). The prevalence of HIV in this study was 1.6%. Seven hundred and sixty (95.0%) were not previously tested, 2 (0.2%) were previously tested positive but not yet on anti-retroviral drugs and 13 (1.6%) were tested positive in the current study. The majority (750; 93.8%) were willing to bring their spouses for HTS, 687 (85.9%) were willing to bring their children for HTS, and 679 (84.9%) were referred for other services.

**Table I: Socio-demographic characteristics of HTS clients**

<i>Variables</i>	<i>Frequency [n]</i>	<i>Percentage [%]</i>
<b>Age (Years)</b>		
≤18	29	3.6
19-33	464	58.0
34-48	240	30.0
49-65	55	6.9
>65	12	1.5
<b>Sex</b>		
Male	245	30.6
Female	555	69.4
<b>Marital status</b>		
Single	217	27.2
Married	552	69.1
Separated	13	1.6
Divorced	16	2.0
Widow/widower	2	0.3
<b>Occupational status</b>		
Semi-skilled Truck drivers	31	3.9
Skilled Workers	133	16.6
Professional Army/Police	20	2.5
Unskilled	616	77.0
<b>Educational status</b>		
Primary school	80	10.0
Secondary school	361	45.1
Tertiary	267	33.5
No formal education	92	11.5

*The risk factors associated with HIV*

Table III shows that the majority, 93.6% of the respondents, were sexually experienced, and only 6.4% had never had sexual intercourse before. Almost all (93.6%) of the respondents that were sexually experienced usually had unprotected sex with a regular partner, and none of the respondents ever had sex with a same-sex person. Only 21 (2.6%) have had unprotected sex with a casual partner in the preceding three months. A significantly higher proportion of the females were involved in this risky sexual behaviour ( $X^2 = 4.52, p = 0.034$ ). Only 7 (0.9%) had sex with multiple sexual partners in the preceding three months, and 140 (17.5%) used condoms.

Seventeen (2.1%) tested positive for symptomatic Sexually Transmitted Infections (STI), with 11 (1.4%) of the males affected. Six (0.75%) of the females had vaginal discharge or burning pain on urinating, and 10 (0.8%) had lower abdominal pain with or without vaginal discharge. Two (0.25%) of the males had urethral discharge or burning pain on urinating, 4 (0.5%) had scrotal swelling or pain, while 1 (0.125%) female had genital sore, groin swelling or nodes. Night sweats occurred in 33 (4.1%) while 55 (6.9%) had weight loss; fever occurred in 63 (7.9%) while 52 (6.5%) had a current cough. A total of 85 (10.6%) had symptoms suggestive of clinical tuberculosis.

Table II: Relationship between previous HTS testing and sex and age of HTS clients

Variable	Previously tested			X <sup>2</sup>	p-value
	No (%)	Yes (%)	Total (%)		
<b>Age</b>					
≤18	23 (79.3)	6 (20.7)	29 (3.6)	22.010	0.001
19-33	444 (95.7)	20 (4.3)	464 (58.0)		
34-48	233 (97.1)	7 (2.9)	240 (30.0)		
49-65	49 (89.1)	6 (10.9)	55 (6.9)		
>65	11 (91.7)	1 (8.3)	12 (1.5)		
Total	760 (95.0)	40 (5.0)	800 (100.0)		
<b>Sex</b>					
Male	239 (97.6)	6 (2.4)	245 (30.6)	4.838	0.028
Female	521 (93.9)	34 (6.1)	555 (69.4)		

Table III: Risky sexual behaviours associated with HIV infection among HTS clients

Variable	Gender			X <sup>2</sup>	p-value
	Male (%)	Female (%)	Total (%)		
<b>Ever had sexual intercourse</b>					
No	17 (33.3)	34 (66.7)	51 (6.4)	0.188	0.385
Yes	228 (30.4)	521 (69.6)	749 (93.6)		
<b>Unprotected sex with casual partners in the last three months</b>					
No	243 (31.2)	536 (68.8)	779 (97.4)	4.520	0.034
Yes	2 (9.5)	19 (90.5)	21 (2.6)		
<b>Unprotected sex with a regular partner</b>					
No	11 (21.6)	40 (78.4)	51 (6.4)	2.103	0.147
Yes	234 (31.2)	515 (68.8)	749 (93.6)		
<b>Any STI in the previous months</b>					
No	239 (29.9)	544 (60.1)	783 (97.9)	0.442	0.56
Yes	6 (35.3)	11 (64.7)	17 (2.1)		
<b>More than one sexual partner during the last three months</b>					
No	241 (30.4)	552 (69.6)	793 (100.0)	0.354	0.552
Yes	4 (57.1)	3 (42.9)	7 (0.9)		
<b>Ever involved in same-sex intercourse</b>					
No	244(30.8)	548(69.2)	792(99.0)	1.249	0.264
Yes	1(12.5)	7(87.5)	8(1.0)		

STI - Sexually Transmitted Infections

## **Discussion**

Nigeria recorded the first case of acquired immunodeficiency syndrome (AIDS) in 1986. The prevalence of HIV infection in this study was 1.6%. This is similar to 1.77% previously reported by the Ogun State Agency for Control of AIDS in the same LGA in 2006. [2] This prevalence rate of 1.63 is similar to the prevalence for Ogun State. Nigeria has the second highest number of people living with HIV after South Africa. UNAIDS estimated 33.4 million people living with HIV in the world. Nigeria, about 2.98 million people living with HIV, contributes about 9% of the global HIV burden. This shows a need to emphasise HTS for sexually active people. Stigma and discrimination affect the uptake of HTS in different communities. Normalising testing and increasing the number of people who know their HIV serostatus is an essential strategy for reducing stigma and discrimination. Similarly, the declaration of role models or valued community members that they have been tested is important in reducing stigma and increasing the uptake of HIV testing. [4]

This study shows that a significantly higher proportion of the females were involved in risky sexual behaviours and several studies corroborated this finding. [8-12] Women are more affected by the defining feature of the epidemic with policy implications for the prevention of mother-to-child transmissions of HIV. Therefore, addressing gender inequality is crucial in the control of the epidemic. This is important as heterosexual intercourse remains the primary transmission mode for HIV and accounts for 80-95% of HIV infections in Nigeria. [14]

The study reveals that more younger and female clients accessed the HTS services. This indicates that young adults and prominent working-class

people were more vulnerable to HIV infection than the elderly. Several studies have reported this. [15-20] The prevalence pattern of HIV infection across Nigeria shows that the sexually active group contributes significantly to the burden of the disease, and the youths form a large percentage of this population group in Nigeria. Interestingly, very few studies have been conducted to examine youths' perspectives on how to curb the spread of HIV infection across the nation. Even though various authors have shown that increasing HTS services is one of the most critical pathways to reducing the prevalence of HIV infection, little is known about the situation. [20-23] Studying university students in north central Nigeria has revealed a rising number of infections among this group. Even though there was a high level of disease awareness among the youths, very few actively sought HTS services. Some reasons for the low uptake include accessibility, knowledge and the awareness level of HTS, fear, and stigma. The authors, therefore, suggested that addressing these factors can help increase the number of people engaging in HTS services, possibly modifying their engagement in high-risk behaviours. [24]

There is demand for HTS (people want to know their HIV serostatus), and demand can also be created when comprehensive services are made available and stigma is reduced. An increasing number of countries are rapidly addressing the quality and quantity of care-related programs. Care-related activities include increased access to ARV therapy. HTS must be made more widely available given this dynamic context, and that access to care (including ARVs) requires people to know their HIV serostatus. A balance of the two perspectives brought about an HIV testing policy where voluntarism was considered vital and where the critical role of counselling was fronted. [25] Emphasis on HIV counselling was particularly inspired by studies

that reported no behavioural changes in homosexual men after knowledge of their HIV antibody status and that HIV-positive individuals suffered emotional distress upon knowing their status. [26] Counselling was seen as an essential element, both in dealing with the challenging emotional dimensions as well as providing an opportunity to motivate behavioural changes. This is essential in preventing further transmission of the infection. Counselling is the way to "expedite the adoption of a safer sex norm, " which is vital in containing the disease. [27, 28]

## Conclusion

This study has shown a high awareness of HTS and a moderate willingness to undergo HTS if offered freely. The practice of HIV screening is still low amongst the respondents despite their high-risk sexual conduct. Health education campaigns and the review of existing government policy towards providing free or subsidised HIV screening tests could remove some of the constraints to HIV screening and increase the uptake of HTS among this group. Voluntary Counselling and Testing (HTS) on HIV/AIDS campaign and education should be carried on at least twice yearly in all colleges and universities in Nigeria with the youths in focus. The health centres in universities and colleges should collaborate with professionally trained counsellors to work on the HTS campaign and education. Counselling modalities should be more directed at students' attitudes and utilisation of HTS.

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