

TRENDS IN PREVALENCE OF HIV INFECTION: A 4-YEAR REVIEW OF THE GENERAL POPULATION IN PLATEAU STATE, NIGERIA

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ABSTRACT

Background: Plateau state is among the HIV hot zones with HIV prevalence above national average and the 6th state with the highest HIV burden in Nigeria. The study sought to determine the trend of HIV prevalence in the general population and the pattern by age and sex in Plateau state.

Methodology: The study was a 4-year descriptive analysis of the trend in Prevalence of HIV in the general population of Plateau state, Nigeria based on the data generated between January 2012 and December 2015. The data on HIV services were managed through the electronic Nigerian National HIV/AIDS Response Information Management System (eNNRIMS) which was a web-based software. The data analyses were done using excel to obtain the proportions and trend of HIV prevalence in the general population and by year, age and sex.

Results: Out of a total of 495,718 tested for HIV, 30,450 people tested positive, with the highest (13.1%) HIV prevalence recorded in 2012 and the lowest (3.2%) HIV prevalence recorded in 2015. The age groups 25 – 49 years and 50 years and above accounted for higher HIV prevalence, and the female population had higher HIV prevalence for most of the age groups.

Conclusion: The HIV prevalence is on a downward trend with relatively less decline among the older female population in Plateau state.

Key Words: HIV, Prevalence, Infection, Trends, Plateau State

INTRODUCTION

In the past three decades, HIV has continued to spread and till date remained a major public health challenge impacting negatively on global agenda for development with more than 25 million lives claimed.¹ By the end of 2014, 36.9 million people were living with HIV and sub-Saharan Africa was the worst affected region with 25.8 million people living with HIV put at 66%.² Nigeria has a generalized HIV epidemic contributing 9% of the global HIV burden with 3.4 million people living with HIV and second to South Africa with the highest HIV burden worldwide.^{3,4}

Globally, women living with HIV accounted for half of all HIV infected people and in many countries, HIV infected women outnumbered HIV infected men. In Nigeria, Studies on trend of Paediatric HIV showed that the total number of HIV positive children increased from 360,000 in 2009 to 430,000 in 2012. Besides, with an estimated 51,000 new child infections in 2013, Nigeria was therefore reportedly having the highest number of Paediatric HIV in the world.⁵⁻⁷ In 2012 NARHS report, the national HIV prevalence rate was 3.4%, less than 3.6% reported in 2007. The HIV prevalence was higher among females (3.5%) than males (3.3%) and also highest among the 35-39 years' age for both sexes with 4.4% and lowest among the age 15-19 years with 2.9%.⁸

Most high HIV prevalence countries have generalized HIV epidemic and age-specific prevalence data showed a clear sex disparity in HIV prevalence by the age of 15 years. In Swaziland, where the adult prevalence is estimated to be the highest in the world at over 26% in 2012, a 2006-2007 data found that HIV prevalence in adolescents ages 10-14 years was low and similar to that of young children, but started to increase in adolescent girls age 15-19 years where it was 5 times

as high as in boys of the same age. Nearly 40% of young women were HIV positive by the age of 20-24 years, rising to nearly 50% by the age of 25-29 years.^{9,10}

In relatively high HIV burden African countries including Botswana, South Africa, and Uganda, a similar and worrying trend was shown with low HIV prevalence in early childhood for both sexes, which shifted with entry into adolescence accompanied by increased prevalence among females compared with males.^{11,12} The gap continued to widen between the sexes during adolescence into young adulthood. HIV prevalence in Uganda was nearly double in adolescent girls aged 15-19 years (3.0%) compared with boys of the same age (1.7%).¹³

South Africa bears the worst HIV burden globally with a population of 52 million and approximately 5.7 million people living with HIV.¹⁴ Because the high HIV burden was driven by heterosexual transmission, in the age group 15-49 years, an estimated 16.6% of people were infected with HIV; when compared with USA having a population of over 320 million people, its HIV prevalence was 1.2 million (about 3.7%) in all age groups and Incidence less than 50,000 persons per year.^{14,15}

In Plateau state, a population based HIV seroprevalence survey was conducted in 2008 involving 5,021 study participants aged 15 years and above. A total of 245 (4.88%) were HIV positive with the female participants accounted for 180 (6.85%) HIV positive compared with 65 (2.27%) HIV positive in the male population. The age group 25-49 years had a total of 177 (3.53%) HIV positive with female population contributing 128 (4.87%) which was more than twice the proportion of male population put at 49 (2.1%). Similarly, the female participants in the age group 20-24 years and 15-19 years had 36 (1.37%) and 15 (57%) HIV positivity respectively and again doubling their male

participants for the same age group put at 8 (0.33%) and 3 (0.13%) respectively.¹⁶

Although ANC surveys are traditionally used in Nigeria to estimate HIV burden and are extrapolated for male population; groups outside the reproductive age are not represented as obtained in population based surveys; studies on trends in HIV prevalence in the population for both females and males and for all age groups would be strategic in informing HIV prevention policies and implementation of HIV/AIDS program in the state. The study aimed to determine the trend of HIV infection prevalence by age and sex between 2012 and 2015 in the general population in Plateau state.

Materials and Methods

The study was conducted in Plateau State, North-Central zone of Nigeria located between latitude 8°24' N and longitude 8° 32' and 10° 38' East. The state is bounded in the North-East by Bauchi state, North-West by Kaduna state, South-East by Taraba state and to the South-West by Nasarawa state. It has an Area of 26,899 square kilometers and administratively divided into 17 Local Government Areas (LGAs). The population of the state from 2006 census was 1,598,998 males and 1,607,533 females, and a total of 3,206,531. With an annual growth rate of about 2.7%, the projected population in the state was approximated to be 4,075,391 people in the year 2015.¹⁷

As of 2015, the HIV prevalence in the state was 5.9% indicating a reduction from 7.7% in 2010 which made Plateau state the 6th in the 12 states plus FCT with the highest burden (70%) of HIV/AIDS in Nigeria. Plateau state had 147,221 PLHIV as of 2011 with Implementing Partners (IP) including AIDS Prevention Initiative in Nigeria (APIN), Institute of Human Virology in Nigeria (IHVN), AIDS RELIEF and Family Health International (FHI 360) among

others who supported the state Government in the HIV/AIDS response. Following rationalization of US Government supported IPs in 2012, APIN became the Lead IP in Plateau state and other IPs were assigned to lead other states. APIN supported Plateau state to scale up HIV/AIDS services in over 48 health centers which included Faith-Based health facilities, some key private health facilities and Local NGOs the worked in hard-to-reach communities.

The study was a 4-year descriptive analysis of the HIV prevalence in Plateau state, Nigeria based on the data generated between January 2012 to December 2015. Ethical approval was obtained from JUTH ethical review committee and authorization to use state data was obtained from State Ministry of Health. The data were collected on a continuous bases from all health service delivery points and mobile or out-reaches in all the 17 Local Government Areas of Plateau state and with the target population being females and males of all ages (excluding pregnant women). The review was based on the diagnosis of HIV infections delivered by physicians and or laboratories which was entered in to the newly instituted monitoring and evaluation system in the state. In addition, the harmonization of the monitoring and evaluation system for data collection and reporting tools and template had been strengthened in the state.

The data on HIV services were managed through the electronic Nigerian National HIV/AIDS Response Information Management System (eNNRIMS) which was a web-based software. The data were captured into the HCT Tools (Registers) or source documents which included; HCT Register, Client intake form, Request and Result form, HCT worksheet and HCT monthly summary form with all the tools in hardcopies and domiciled at the service delivery point (SDP). The eNNRIMS was centrally

coordinated with hierarchy of privileges from the SDP, through the Local Government level, the state and the national levels. The infrastructure and capacity of Operators of the eNNRIMS were strengthened and with internet access to allow data entry and validation.

The data from the source registers were entered into the eNNRIMS at the facility level with first verification at the LGA, the second and third verifications done at the state and national levels respectively. At the state level, monthly M & E meetings were held with participation of key M & E stakeholders from IPs, State Ministry of Health, Plateau State Agency for the Control of AIDS (PLACA), the Academia and Local Government officers. The monthly meetings were aimed at ensuring completeness of the data. Validation meetings were held quarterly to review source documents for HCT across SDPs against the electronic data platform for correctness and appropriateness. The same validations were held on semester bases at the national level with M & E officers from IPs, NASCP, NACA and state officers

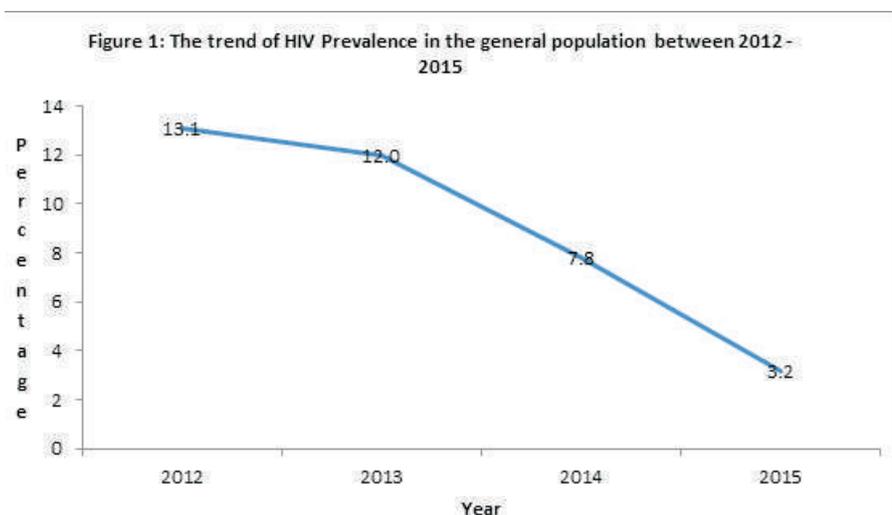
to finalized and confirmed the correctness of the data across states including Plateau state. Data was retrieved from the data base manually for analysis. The extracted data were analyzed using excel calculator. Results were presented by cross-tabulations for year, Age, and Sex. Also, the result was presented in line graphs for years to represent HIV prevalence in Plateau state.

Results

Out of a total of 495,718 people tested for HIV between 2012 and 2015, 30,450 people were positive for HIV infection thereby representing an average prevalence of 6.1% HIV infection in Plateau state. There was a steady decline in the HIV prevalence in the general population from 13.1% in 2012 to 3.2% in 2015, with the rapid decline recorded between 2013 and 2015 (Table 1, Figure 1).

Table 1: The Prevalence of HIV Infection of the general population between 2012 - 2015

HCT	Years				Total n
	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	
Positive	5943 (13.1)	6498 (12.0)	9053 (7.8)	8956 (3.2)	30450
Negative	39423 (86.9)	47816 (88.0)	106735 (92.0)	271284 (96.8)	465258
Total	45366 (100.0)	54314 (100.0)	115798 (100.0)	280240 (100.0)	495718

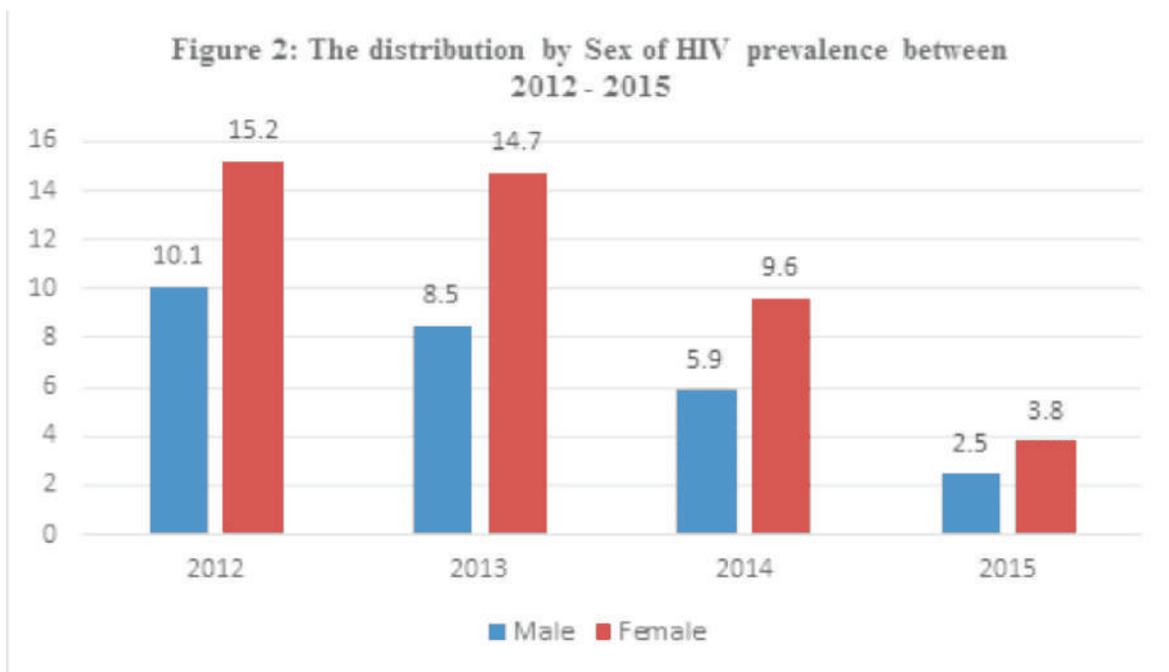


The HIV prevalence was highest in the age group 50 years and above and followed by the age group 25 years to 49 years. The younger age groups had lower HIV prevalence especially age groups 20 years to 24 years and those less than 14 years (Table 2).

Similarly, females had higher HIV prevalence from 15.2% in 2012 to 3.8% in 2015 compared to males who had 10.1% in 2012 and 2.5% in 2015 (Figure 2).

Table 2: The disaggregation by Age and sex of HIV Prevalence between 2012 - 2015

	Female				Male			
	2012	2013	2014	2015	2012	2013	2014	2015
	%	%	%	%	%	%	%	%
Age (years)								
0 – 14	12.1	5.7	3.1	1.1	9.6	5.4	2.7	0.9
15 – 19	26.6	8.0	2.4	1.5	8.0	2.5	1.1	0.8
20 – 24	7.3	11.7	4.0	2.5	11.3	4.6	2.2	0.8
25 – 49	18.2	17.6	11.6	4.5	9.8	10.0	6.6	3.0
50	29.4	12.7	6.6	2.5	15.2	9.8	5.3	2.3
Total	15.2	14.7	9.6	3.8	10.1	8.5	5.9	2.5



Discussion

Our study showed an average prevalence of HIV infection to be 6.1% with a downward trend from 13.1% in 2012 to 3.2% in 2015. The peak HIV prevalence of 13.1% in the general population was reported in 2012 which was higher compared to the earlier report where Plateau state was ranked 6th state

with the highest (7.7%) HIV burden in the country after Benue (12.7%), Akwa-Ibom (10.9%), Bayelsa (9.1%), Anambra (8.7%), and FCT (8.6%) reported from the antenatal HIV seroprevalence study in Nigeria.¹⁸ Most national HIV epidemics especially countries worst hit with HIV have stabilized or begun to decline. This is reported in the Nigerian

National Sentinel Survey with decline in prevalence for three consecutive periods; from 5.8% in 2001 to 5.0% in 2003 to 4.4% in 2005 and 4.1% in 2010.¹⁸

In addition, the female population had higher HIV prevalence compared to the male population in most of the age groups. This was similar with the 2012 NARHS report which reported higher prevalence of HIV among older age groups of 35 to 39 years in both sexes.⁸ Similar findings were reported in an earlier study in Plateau state where female participants accounted for 180 (6.85%) HIV positive compared with 65 (2.27%) HIV positive in the male population. The age group 25–49 years had the a total of 177 (3.53%) HIV positive and female population contributed 128 (4.87%) which was more than twice the proportion of male population put at 49 (2.1%). Similarly, the female participants in the age group 20–24 years and 15–19 years had 36 (1.37%) and 15 (.57%) HIV positivity respectively and again doubling their male participants for the same age group put at 8 (0.33%) and 3 (0.13%) respectively.¹⁶

Patterns observed in a previous population based survey (NARHS 2007) shows that gender inequality is an important driver for the HIV epidemic. Prevalence rates were generally higher among females (4.0%) than males (3.2%). Findings also showed higher early vulnerability and infections for girls and women relative to boys and men.¹⁸

The findings from our study of higher HIV prevalence among older females of the reproductive age group is of public health concern. If specific health intervention programs targeting the female population are not put in place, the female population most of whom are sexually active would continue to infect the male population thereby increasing our HIV burden in Plateau state. The female population in the reproductive age group have higher tendency to accessed health care services compared to her male counterpart in the

same age group. HIV services are integrated with maternal new born child health services, family planning services and sexual and reproductive health services where most of the beneficiaries are females. Also, the health seeking behavior of the female population is better compared to those of the male population, such that women are more likely to know their HIV status earlier than men and likely to be commenced on antiretroviral drugs when confirmed HIV positive to reduce the viral load.

The application of findings from the study would be limited considering the secondary nature of the data, and because the data is not segregated into individual subjects, no socio-demographics data was obtained for multivariate logistic regression analysis of determinants for HIV prevalence in the general population. However, these findings could be use at the policy level to strengthen strategies towards achieving global HIV targets in Plateau state.

Conclusion

The burden of HIV is decreasing in the general population in Plateau state but without major and targeted interventions, the female population would continue to serve as a major reservoir for HIV transmission in the state.

Conflict of Interest

The authors declare no financial conflict of interest.

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