

Socio-demographic variables of people living with HIV/AIDS initiated on ART in 2014 at tertiary health Institution in Enugu State

ABSTRACT

Background information: Survival of people living with HIV/AIDS (PLWHA) has increased since the emergency of High active antiretroviral therapy (HAART) in 1996.

Methodology: This was a descriptive cross-sectional study design. The study population consisted of those diagnosed for HIV / AIDS at tertiary health institutions in Enugu State. The total numbers of clients enrolled were 793 and 249 clients were loss to follow up, majority was males. Those initiated on ART were 544. Clients of age <15 years were excluded and they were 31 clients. Finally, 500 clients were selected, males were 138 and female were 362 by simple random sampling techniques. Data was collected from HIV / AIDS patients ART record cards, registers and institutions data units for those initiated on ART in 2014 using a designed proforma. Those clients aged 15 years and above were retrospectively studied between 2014 and 2018 and some of them that survived after five years (60 months) on ART were interviewed by applying simple random sampling technique. Cohort inclusion begins at initiation on ART with follow-up clinical information collected year by year for five years. IBM SPSS statistics version 24.0 was used. Chi square test was used to assess association between categorical variables and the level of statistical significance of the proportions was determined by a P-value less than 0.05. Manual content analysis was used for the interview and probability of dying and surviving analysis.

Results: The mean age (\pm SD) is 38.8 ± 11.5 years. On outcome of ART, 374 (74.8%) were under care, those loss to follow up were 66 (13.2 %), 29 (5.8%) died within the period of study and 31 (6.2%) were transferred out. Adherence was statistically significant, $p<0.001$ among clients who had obtained tertiary 105 (92.1%) and secondary, 124 (57.7%) education, who lived within the state with the place of care, 234 (76.0%), and those retired, 12 (63.2%) and the unemployed, 46 (61.3%).

Conclusion: Based on the study, HIV prevalence in Nigeria now appears to have assumed a downward trend following the availability of ART and a relative stability from 2012 to 2018, yet a sustained and more effective intervention is still needed to avert increase incidence by most-at-risk subpopulations in the Enugu State.

Key words: *PLWHA, adherence, ART, survival, cascade, UNTH, ESUTH.*

INTRODUCTION

The HIV epidemic continues to be a major global public health issue until is totally eradicated. In 2018, there were 37.9 million men, women, and children living with HIV/AIDS globally, while those newly infected with HIV in 2018 were 1.7 million men, women and children and there were 770,000 AIDS-related deaths in 2018.¹ Cameroon, Côte d'Ivoire and Nigeria account for close to 60% of new HIV infections and 54% of AIDS-related deaths each year. Decisive improvements in their national HIV programmes would have a major impact on the region's overall HIV response. The recent Nigeria AIDS Indicator and Impact Survey (NAIIS) found lower HIV prevalence than earlier surveys, which led to a revision of the country's HIV estimate. The latest regional estimates reflect this additional information, with lower estimates of people living with HIV, AIDS-related deaths and HIV infections than previous estimates.¹

Nigeria is populous country, and so it has a very high number of people living with HIV/AIDS despite a relatively low HIV prevalence. Introducing antiretroviral treatment (ART) for all people living with HIV not only benefits those already living with HIV, but also drastically reduces the chance of onwards HIV transmission to others, by reducing the viral load and increasing the CD4 cell counts. In a country such as Nigeria, where so many people are not on treatment, it is hard to tackle the HIV epidemic.²

Nigeria is among the six nations facing the triple threat of high HIV burden, low ART coverage, and unsatisfactory decline in new HIV infections and poor viral suppression.³ Globally, about 3.8 million Nigerians are estimated to be living with HIV.⁴ Together with South Africa and Uganda, Nigeria accounted for half of the new HIV infections in Sub-Saharan Africa in 2017.⁵ Even though the number of people placed on ART in Nigeria has slowly improved over the years to 970,000 in 2016.⁶, only 34 percent of adult positive clients are said to be receiving treatment.⁴ This figure is way below requirement needed to achieve epidemic control. According to the World Health Organization, countries will make less progress in ART when the epidemic is predominantly concentrated in populations where there is poor access and service

utilization.⁷ To increase treatment coverage, community outreach programs must be implemented in high prevalence geographic areas. Uptake of HIV testing services (HTS) and immediate treatment of HIV positive clients, could lead to cost effective epidemic control over time.⁸

To analyze sociodemographic variables of PLWHA in tertiary hospital institutions in Enugu State.

METHODOLOGY

Study Area

The study was conducted in Enugu state, Nigeria.

Study Design:

A descriptive cross-sectional study design was adopted.

Study Duration

The study was conducted for a period of 3 month.

Study Population and Health Facilities

The study population consisted of those diagnosed for HIV / AIDS at two tertiary health institutions in Enugu State; Enugu State University of science and technology teaching hospital, Parklane (ESUTHP) and University of Nigeria teaching hospital (UNTH). These tertiary health facilities are where most persons diagnosed with HIV/AIDS are referred to. This is because they are very equipped with all the necessary services. And they are located in both urban (ESUTHP) and rural area (UNTH) of the State. Baselines for clinical and laboratory investigations such as; viral load, CD4 cell counts, haematological and biochemical parameters and general management are carried out there. Those clients aged 15 years and above were followed-up between 2014 and 2018 and some of those survived after five years (60 months) on ART were interviewed by applying simple random sampling selection.

Inclusion criteria: all PLWHA aged 15 years and above that were initiated on ART in the year 2014 at both health institutions. Exclusion criteria: all PLWHA less than 15 years of age that were initiated on ART in the year 2014 at both health institutions.

The minimum sample size was determined by using a Fisher's formula.

$$N = Z^2 pq/d^2$$

Where:

n = desired sample size

Z = the standard normal deviate set at 1.96 which correspond to 95% confidence level.

P = estimated proportion of the attribute present in the population. And q = 1- P

d = degree of precision desired set at 0.05 (error margin of 5%)

Therefore

$$n = 1.96^2 \times 0.5 \times (1-0.5)/0.05^2$$

$$n = 384 + 10 \% \text{ attrition}$$

Therefore, a minimum sample (n) = 384+38=422.

A total of 500 PLWHA aged 15 years and above were studied.

Sampling Technique

A multistage sampling technique was adopted.

Selection of participants

A simple random sampling technique was used to select PLWHA that were 15 years of age and above from clinic records, registers and data units.

Data Collection Tools

Data was collected from HIV / AIDS patients ART record cards, registers and institutions data units at UNTH and ESUTH for those initiated on ART in 2014 using a

designed proforma and one-on-one structured interview of those survived after five years on ART. Data collected include; socio-demographic variables, clinical and immunological characteristics (CD₄ cell counts, Viral Load). Microsoft Excel, 2013 was used to clean those collected data to ensure missing variables will be re-collected and confirmed using paper-based patient ART records and registers. Socio-demographic and clinical characteristics were considered as the independent variables, and three trained graduates research assistants were involved.

Statistical Analysis

Cohort inclusion begins at initiation on ART with follow-up clinical information collected year by year for five years. The Excel dataset was imported into IBM SPSS statistics version 24.0 (IBM Corp; Amonk, NY, USA). Socio-demographic and clinical characteristics were described using the frequency and proportion for categorical variables. Chi square test was used to assess association between categorical variables and statistical significance of the proportions was set at P-value less than 0.05. Manual content analysis was used based on the topic guide of the interview. Probability of dying and surviving was done using Manual content analysis also.

Manual content analysis was used for both interview and probability of dying.

Formular for probability of dying:

$$\frac{\text{Number of persons on ART in a giving period} - (\text{Number dead} + \text{transferred} + \text{LOFU})}{\text{Number of persons dead}}$$

Therefore probability of surviving = 1 – probability of dying.

And proportion = 1 – probability of dying x 100

Ethical Considerations

Ethical clearances were obtained from Enugu State University of science and technology teaching hospital, Parklane (ESUTHP) with reference number: ESUTHP/C-MAC/RA/034/100 and University of Nigeria teaching hospital (UNTH) with reference number: UNTH/CSA/329/VOL.5 through their Ethics and Research committees. Confidentiality was maintained at all stages of the data collections.

Strength of this Study

The major strength of this study is that it was conducted at all the tertiary health institutions in Enugu state that are fully equipped for the management of PLWHA.

RESULTS

Table 1a: Socio-demographic variables of PLWHA initiated on ART in 2014 at tertiary health Institution in Enugu

VARIABLE	FREQUENCY n=500	GENDER	
		MALE	FEMALE
AGE OF PATIENTS			
Mean(\pm SD) 38.8 \pm 11.5			
AGE AT DIAGNOSIS (YEARS)			
15-24	34	13 (38.2%)	21 (61.8%)
25-34	152	19 (12.5%)	133 (87.5%)
35-44	178	49 (27.5%)	129 (72.5%)
45-54	75	37 (49.3%)	38 (50.7%)
\geq 55	61	20 (32.8%)	41 (67.2%)
MARITAL STATUS			
SINGLE	138	38 (27.5%)	100 (72.5%)
MARRIED	272	88 (32.4%)	184 (67.6%)
DIVORCED	7	2 (28.6%)	5 (71.4%)
SEPARATED	8	2 (25.0%)	6 (75.0%)
WIDOWED	75	8 (10.7%)	67 (89.3%)
STATE OF ORIGIN			

ENUGU	308	99 (32.1%)	209 (67.9%)
ANAMBRA	72	21 (29.2%)	51 (70.8%)
EBONYI	57	17 (329.8%)	40 (70.2%)
IMO	34	12 (35.3%)	22 (64.7%)
ABIA	14	5 (35.7%)	9 (64.3%)
OTHERS	15	5 (33.3%)	10 (66.7%)

Table 1b: Socio-demographic variables of PLWHA initiated on ART in 2014 at tertiary health Institution in Enugu

VARIABLE	FREQUENCY	GENDER	
	n=500	MALE	FEMALE
RELIGIONS			
CHRISTIANITY	444	117 (26.4%)	327 (73.6%)
ISLAMIC	27	8 (29.6%)	19 (70.4%)
TRADITIONAL	23	11 (47.8%)	12 (52.2%)
OTHERS	6	2 (33.3%)	4 (66.7%)
EDUCATIONAL LEVELS			
PRIMARY	118	41 (34.8%)	77 (65.3%)
SECONDARY	214	61 (28.5%)	153 (71.5%)
TERTIARY	114	24 (21.1%)	90 (78.9%)
NO FORMAL EDUCATION	35	10 (28.6%)	25 (71.4%)
NOT SPECIFIED	19	2 (10.5%)	17 (89.5%)

OCCUPATIONS

SELF EMPLOYED	267	75 (28.1%)	192 (71.9%)
PUBLIC SERVANTS	133	32 (24.1%)	81 (75.9%)
RETIRED	20	4 (20%)	16 (80.0%)
STUDENTS	25	13 (52%)	12 (48.0%)
UNEMPLOYED	75	14 (18.7%)	61 (81.3%)

In table 1 above, age at diagnosis was grouped from 15 to ≥ 55 years with 9 years interval in each group. Mean age (\pm SD) is 38.8 ± 11.5 years. Males, 19(12.5%) were the least at the age group of 25-34 years while females were the highest, 133(87.5%) at the same age group.

Majority of the clients fall within age group of 35-44 years, males were 49 (27.5%) and females were 129 (72.5%). And finally by age group of 45-54 years, males and females were 37 (49.3%) and 38 (50.7%) respectively.

The total numbers of males and females were 138 (27.6%) and 362 (72.4%) respectively. Numbers of females PLWHA on this study almost tripled that of males.

Majority of the clients, 272 (54.4%) were married, and that was followed by those that were single, 138 (27.6%). Those divorced were the least, 7 (1.4%).

On this study, those possess Secondary School Certificate Education, as their highest educational qualification were 214 clients of which males, 61 (28.5%) and females, 153 (71.5%). This was followed by Primary School educational qualification, (118 Clients), males, 41 (34.3%) and females, 77 (65.3%). Those possess tertiary educational qualification, (114 clients) of which males, 24 (21.1%) and females, 90 (78.9%).

19 (3.8%) clients didn't specify their educational level.

Those clients on self-employed were 267, and males, 75 (28.1%) while females, 192 (71.9%). Public servants, Unemployed, Students and Retired were 133 (22.6%), 75

(15.0%), 25 (5.0%) and 20 (4.0%) respectively. Christians were the highest, 444 (88.8%) and others religion were the least, 6 (1.2%).

DISCUSSION

This study was conducted for the purpose of series of sequential events that was needed to be followed up for PLWHA to ensure their survival rate in Enugu State. Individual linked longitudinal cascade of care from the time client was enrolled in 2014 to clinical therapeutic response to show that linkage to care is the most important bottleneck in the HIV cascade in Enugu State.

One key finding is that the early stages of the cascade differ substantially in character from the later stages.

Most cases of HIV infection in Nigeria occur via heterosexual means with epidemics more pronounced among the females.⁹ This was in line from the results of this study, the proportion of those on ART, females were 362 (72.4%) almost tripled that of males, 138 (27.6%). This may be due to the fact that females are more prone to HIV/AIDS infection by their biological makeup and also due to socio-cultural factors which make for greater risk of infection among females. Females are more vulnerable to HIV infection than males.¹⁰ Another factor is that females are more conscious about their health than males. Females have a high health seeking behaviour than males. Meanwhile, males are more likely to travel very far to make both ends meet for the family, have a busy schedule and thereby forget about his health.

Based on this study also, most of the clients fall within the age of 25-44 years, which is the most sexual active age bracket. The prevalence of HIV infection is very high in married women and single ladies, then the widowed. This is still consistent that most cases of HIV infection in Nigeria occur via heterosexual means.¹⁰ Those widowed took advantage of their predicament and became promiscuous and vulnerable in quest for financial support, self-security, happiness etc. and this is common on those widowed that are sexually active. Some married women claimed that their spouse's sexual performance is very poor and they resort to promiscuity in researching for who will

satisfy their sexual urge. Some women are money-grubber, and this is common among ladies. These attitudes made them more vulnerable to HIV infections when compared with men¹⁰.

More than half of the clients had a low CD4 cell counts (≤ 199.0 cells/ml) at the baseline assessment. Delayed access to HIV services for patients with low CD4 counts led to a higher death rate¹¹⁻¹⁷.

Even though those on the second-line ART regimen of this study were low, 7 (1.4%) when compared with others, 493 (98.6 %), it was still a strong predictor of mortality among the clients.

CONCLUSIONS

Based on the study, HIV prevalence in Nigeria now appears to have assumed a downward trend following the availability of ART and a relative stability from 2012 to 2018, yet a sustained and more effective intervention is still needed to avert increase incidence by most-at-risk subpopulations in the Enugu State.

Consent

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

REFERENCE

1. UNAIDS Data2019. Available at <https://www.unaids.org/en/resources/presscentre>. Accessed 10th October, 2019.
2. Awoyemi AA, Olusegun EO. HIV epidemiology in Nigeria Saudi. Journal of Biological Sciences. 2018; 25(4):697-703.
3. NAIIS (2018). About Nigeria HIV/AIDS Indicator and Impact Survey Available at <https://naca.gov.ng/naiis-national-summary-sheet>. Accessed 20th May, 2019.

4. Odimegwu, C. O., Akinyemi, J. O., & Alabi, O. O. HIV-Stigma in Nigeria: Review of Research Studies, Policies, and Programmes. AIDS Research and Treatment, 2017, 13 pages.
5. Avert. HIV AND AIDS in Nigeria. 2018. Available at <https://www.avert.org/professionals/hiv-aroundworld>. Accessed 23rd May, 2019.
6. UNAIDS DATA 2017. Available at http://www.unaids.org/sites/default/files/media_asset. Accessed 2nd June, 2019.
7. WHO. Global Health Observatory (GHO) data: Antiretroviral therapy (ART) coverage among all age groups. 2017. Available at http://www.who.int/gho/hiv/epidemic_response. Accessed 21st April, 2019.
8. Aliyu, M. H., Blevins, M., Parrish, D. D., Megazzini, K. M., Gebi, U. I., Muhammad, M. Y., . Wester, C. W. Risk Factors for Delayed Initiation of Combination Antiretroviral Therapy in Rural North central Nigeria. JAIDS Journal of Acquired Immune Deficiency Syndromes, 2014; 65(2), e41-e49.
9. Nigeria National Agency for the Control of AIDS, 2012. Global AIDS. Response: Country Progress Report. GARPR, Abuja, Nigeria. Available: <<http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/Nigeria%202012%20GARPR%20Report%20Revised.pdf>> Accessed 7th May, 2019.
10. World Bank Policy Research Working Papers, 2014. Son Preference, Fertility and Family Structure: Evidence from Reproductive Behaviour Among Nigerian Women.
11. Ifeanyi, O. E., N., E. B., Uzoma, O. G., O.M.T.B., O., Ejike Felix, C. , Stella, E. I., & Chinedum, O. , K. (2020). Evaluation of Some Cytokines, CD4, Hepcidin, Iron Profile and Some Haematological Parameters of Pulmonary Tuberculosis Patients Coinfected with HIV in Southeast of Nigeria. *Journal of Pharmaceutical Research International*, 32(13), 118-130. <https://doi.org/10.9734/jpri/2020/v32i1330592>

12. Emmanuel Ifeanyi Obeagu et al; Comparative Analysis of Interferon-Gamma, IL-6, IL-10, CD4, Hepcidin, Iron Status and Some Haematological Parameters of Control and Non ART HIV Positive Subjects, *Sch J App Med Sci.* 2019;7(7):2383- 2391.
13. Odo, M., Ochei, K. C., Obeagu, E. I., Barinaadaa, A., Eteng, U. E., Ikpeme, M., Bassey, J. O., & Paul, A. O. (2020). TB Infection Control in TB/HIV Settings in Cross River State, Nigeria: Policy Vs Practice. *Journal of Pharmaceutical Research International*, 32(22), 101-109. <https://doi.org/10.9734/jpri/2020/v32i2230777>
14. Offie DC, Obeagu EI, Akueshi C, Njab JE, Ekanem EE, Dike PN, Oguh DN.(2021) Facilitators and Barriers to Retention in HIV Care among HIV Infected MSM Attending Community Health Center Yaba, Lagos Nigeria. *Journal of Pharmaceutical Research International.* 33(52B):10-19
15. Ezeoru VC, Enweani IB, Ochiabuto O, Nwachukwu AC, Ogbonna US, Obeagu EI. Prevalence of Malaria with Anaemia and HIV Status in Women of Reproductive Age in Onitsha. *Journal of Pharmaceutical Research International.* 2021;33(4):10-19. DOI: 10.9734/jpri/2021/v33i431166 10.
16. Ochei KC, Obeagu EI, Mbajiuka CS, Uzoije NU. (2014). Comparative assessment of five laboratory techniques in the diagnosis of pulmonary tuberculosis in Abuja. *IOSR Journal of Dental and Medical Sciences.* 13:73-78. 11.
17. Omo-Emmanuel UK, Chinedum OK, Obeagu EI, et al. Evaluation of laboratory logistics management information system in HIV/AIDS comprehensive health facilities in Bayelsa State, Nigeria. *Int J Curr Res Med Sci.* 2017;3(1): 21–38.