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**ORIGINAL ARTICLE**

# Prevalence and Predictors of HIV Status Disclosure by Young People on HAART in Selected Healthcare Facilities of Benue, Nigeria: A Rural-Urban Comparison

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**Keywords**

HIV,

Young people,

Status disclosure,

Active,

Passive

**ABSTRACT**

**Background**: Due to increased accessibility to highly active antiretroviral therapy (HAART), HIV-infected children have improved long-term outcomes, reaching adolescence and adulthood. With this comes different challenges, one of which is HIV status disclosure: from parents to children (passive disclosure) and from young people to others (active disclosure). The challenge of disclosure has been found to impact adherence to treatment and, consequently, the lives of these young people. This study aimed to determine and compare the prevalence and determinants of passive and active HIV disclosure among young people attending urban and rural health facilities in Benue State, Nigeria.

**Methods**: A cross-sectional study was conducted among 354 young people aged 10 – 24 years in an urban facility (Federal Medical Centre, Makurdi) and a rural facility (NKST Hospital, Gboko) using an interviewer-administered, pretested questionnaire. Data were analysed using IBM SPSS version 23. Descriptive statistics were generated and tests for association between subgroups were carried out using chi-square and Fisher's exact test.

**Results:** There was a high rate of passive disclosure of HIV in both facilities (85.8% in the urban facility and 81.4% in the rural facility). Active disclosure was 41.9% and 74.5% in the urban and rural facilities respectively. Predictors of passive disclosure included duration on HAART, route of transmission, while predictor of active disclosure of HIV in both facilities was age less than 17 years.

**Conclusion**: HIV disclosure support through disclosure counselling should be provided to young people, especially adolescents, parents and guardians.

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## INTRODUCTION

Of the 1.3 million new cases of HIV that were diagnosed in 2022, 480,000 were among young people aged 10 – 24 years, of which 140,000 were among adolescents (10 – 19 years).[1,2] Adolescents account for four percent of people living with HIV worldwide and about 30% of new infections occur in young people..[2] Sub-Saharan Africa is home to about 85% of these young people and adolescents living with HIV.[2] Approximately 80% of infected young people reside in sub-Saharan Africa, and the region has the highest HIV-associated mortality globally.[3] The HIV/AIDS prevalence among young people in Nigeria is 1%, with females having twice the prevalence of males.[4]

Due to highly active antiretroviral therapy (HAART), HIV-infected children are now surviving into adulthood.[5] With improved survival comes new challenges, including disclosure: from parents to children (passive disclosure) and from children/adolescents to other people (active disclosure).[6] The challenge of disclosure has been found to significantly influence treatment adherence among young people, consequently affecting their lives. Passive disclosure, especially among adolescents, varies across different regions of Nigeria. For instance, in the Northwest, as many as 63% of adolescents attending the HIV clinic were aware of their HIV status. Disclosure rates varied in other regions, such as the South-South (16.4% - 33%) and North-Central (18.4% - 30%).[7-12] A study in the South-East reported a passive disclosure rate of about 29%.[8] Furthermore, HIV status disclosure of HIV status to adolescents by caregivers in Nigeria has been reported to be about one-third or less for adolescents on HAART.[7] The mean age of passive HIV status disclosure also varies from 12.48 years in the South-south to 11.52 years in the South-east and 10.47 years in the North-central, even though the recommendation by the World Health Organisation (WHO) is that passive disclosure should commence by six years of age and full disclosure should be known by the commencement of adolescence.[8,,10,13,14] Many factors that facilitate both active and passive HIV status disclosure to adolescents and young people are increasing age, male gender, secondary school education, attending HIV care clinics, orphans and the educational attainment of the mother.[10,11] There is a significant difference in active HIV disclosure rates of 14.4% between young individuals living in urban and rural areas.[15] This study aims to compare the prevalence and determinants of passive and active HIV disclosure among young people attending health facilities in urban and rural areas of Benue State, Nigeria.

## METHODOLOGY

### Study area

The study was conducted in Benue State, located in Nigeria's North Central region. Benue State has a total land area of 31,276.709 $km^2$ and, based on the 2006 census projection, an estimated population of 6,109,978.

The state has 219 health facilities offering antiretroviral therapy (ART) distributed across the 23 local government areas (LGAs). As of the time this study was conducted, about 173,542 people were on HAART in the state, with adolescents and young people making up 4.2% and 8.8%, respectively.

**Study sites**

The two study sites were the antiretroviral (ARV) clinics of the Federal Medical Centre (FMC), Makurdi (urban) and Nongu u Kristu u i ser Sha Tar (NKST) Hospital, Mkar (rural). The two sites were chosen because they have similar characteristics used as the basis for comparison, including a high number of young people on HAART and a fully operational ART clinic for young people.

**Study design**

The study used a comparative cross-sectional descriptive study design.

**Study population**

The study population comprised young people (10 – 24 years) attending ART clinics and receiving HAART (both first and second line). Young people aged 10-24 years old who had been on HAART for at least one year before the study were included and those who consented to participate in the study. Eligible patients with co-morbid conditions such as asthma, sickle cell disease, epilepsy, psychiatric conditions (such as depression, schizophrenia, mania, etc) and those on hospital admission were excluded from the study.

**Sample size determination**

The minimum sample size was determined using the formula[16]

$$n = \frac{(z_\alpha + z_\beta)\ x\ 2\ x\ pq}{d^2}$$

where n = minimum sample size

$z_\alpha$ = 95% confidence interval, which corresponds to 1.96

$z_\beta$ = 20% β error (80% power) = 0.84

$p = (p_1+p_2)/2$

$p_1$ = proportion of young people whose HIV status was disclosed to them in an urban health facility in Nigeria = 33%[10]

$p_2$ = proportion of young people whose HIV status was disclosed to them in a rural health facility, assuming an anticipated difference of 10% was to be detected between the two proportions = 0.23

q = complementary probability = (1 – p)

d = expected difference between the two proportions, which will be considered important if it exists = 10%

Considering a 10% non-response rate, the sample size was adjusted using the formula

$$= \frac{n}{1 - f}$$

Where,

f = non-response rate of 10%

Sample size per group =175.56 = 176

Total sample size = 176 x 2 (urban and rural) = 352 young people

However, 176 young people were sampled from the urban health facility and 178 young people from the rural health facility, totalling 354 young people.

**Sampling technique**

A multistage sampling technique was used for the study.

**Stage one (selection of facilities)**

The antiretroviral (ARV) clinics of the Federal Medical Centre (FMC), Makurdi and Nongu u Kristu u i ser Sha Tar (NKST) Hospital, Mkar, were purposively selected. The two sites were chosen because they have similar characteristics that are used as the basis for comparison, including a high number of young people on HAART and a fully operational ART clinic for young people.

**Stage two: (selection of actual respondents)**

A systematic random sampling technique was used at the facilities to select and enrol young persons in the study. The bi-monthly list of young people on HAART at the facilities was used as the sampling frame. A proportional allocation of each age group (10-17 years and 18-24 years) was done. The first young person was chosen by randomly selecting the first 20 clients from the clinic register. Subsequently, every other person and every third person were selected from both rural and urban facilities, respectively, based on the sampling interval (the sampling interval was two and three, respectively, for the rural and urban facilities), which was based on the total number of young people in each facility. In cases where the chosen young person was unavoidably absent or did not consent to the study, the next young person on the list was selected. Then, the sampling interval was reintroduced.

**Data Collection**

Data was collected between November 2019 and February 2020 by 4 medical doctors, 4 ART nurses, and 2 community health officers. The 10 research assistants underwent a two-day training on the research protocol and the data collection processes using the instruments. Data were collected in two phases –

phase I involved data collection at the urban site while

phase II involved data collection at the rural site following completion at the urban site.

Eligible young people were informed about the study and its purpose and enrolled after written informed consent was obtained (or assent/parental consent). Semi-structured interviewer-administered questionnaires were used to collect information on the sociodemographic characteristics and passive and active disclosure status of the respondents.

**Data Analysis**

Data were analysed with Statistical Package for Social Sciences (SPSS) version 23, summarised using frequencies and percentages for categorical variables, mean and standard deviation for symmetrical continuous variables, and median and interquartile range for skewed continuous variables. The independent variables were the socio-demographic and clinical characteristics of the young people, while the dependent variables were the young people's passive and active disclosure **S**tatus. Differences in categorical variables between the two groups (urban versus rural health facilities) were tested using the chi-square and Fisher's exact tests. Multivariate logistic regression analysis was performed to identify the significant risk factors for disclosure status and the level of statistical significance was

set at 5%. The independent variables entered into the logistic regression model were those significant at 5% ($p \leq 0.05$) on bivariate analysis.

**Ethical consideration**

Ethical clearance was obtained from the Health Research Ethics Committee (HREC) of Benue State University Teaching Hospital (BSUTH), Makurdi (BSUTH/CMAC/HREC/101/V. I/41), and written informed consent was obtained from each participant aged 18 years and above before enrolment in the study. Assent from adolescents 17 years and below and informed consent from their parents were also obtained before study enrolment.

**Table 1: Socio-demographic Characteristics of Young people by Location of Health Facility**

| Variables | Location of facility | | Total | Test statistic | *p*-value |
|---|---|---|---|---|---|
| | Urban (N=176) Freq. (%) | Rural (N=178) Freq. (%) | N=354 Freq. (%) | | |
| **Age (years)** | | | | | |
| 10-14 | 58 (33.0) | 44 (24.7) | 102 (28.8) | $\chi2$=47.157 | <0.001 |
| 15-19 | 97 (55.1) | 55 (30.9) | 152 (42.9) | | |
| 20-24 | 21 (11.9) | 79 (44.4) | 100 (28.2) | | |
| **Mean (S.D.)** | 16.0±3.2 | 18.0±4.3 | 17.0±3.9 | | |
| **Sex** | | | | | |
| Males | 84 (47.7) | 67 (37.6) | 151 (42.7) | $\chi2$=3.681 | 0.068 |
| Females | 92 (52.3) | 111 (62.4) | 203 (57.3) | | |
| **Level of education** | | | | | |
| No formal education | 2 (1.1) | 11 (6.2) | 13 (3.7) | $\chi2$=7.919 | 0.046 |
| Primary Level | 62(35.2) | 56 (31.5) | 118 (33.3) | | |
| Secondary Level | 100 (56.8) | 104 (58.4) | 204 (57.6) | | |
| Post -Secondary | 12 (6.8) | 7 (3.9) | 19 (5.4) | | |
| **Marital Status** | | | | | |
| Never married | 168 (95.5) | 134 (75.3) | 302 (85.3) | $\chi2$=28.741 | <0.001 |
| Ever married* | 8 (4.5) | 44 (24.7) | 52 (14.7) | | |
| **Religion** | | | | | |
| Christianity | 175 (99.4) | 174 (97.8) | 349 (98.6) | 1.792*** | 0.371 |
| Others | 1 (0.6) | 4 (2.2) | 5 (1.4) | | |
| **Ethnicity** | | | | | |
| Tiv | 146 (83.0) | 175 (98.3) | 321 (90.7) | $\chi2$=24.963 | <0.001 |
| Idoma/Igede | 18 (10.2) | 1 (0.6) | 19 (5.3) | | |
| Others ** | 12 (6.8) | 2 (1.1) | 14 (4.0) | | |
| **Occupation** | | | | | |
| Student | 161 (91.5) | 114 (64.0) | 275 (77.7) | $\chi2$=39.697 | <0.001 |
| Farmer | 5 (2.8) | 34 (19.1) | 39 (11.0) | | |
| Trader/Businessman /Businesswoman | 6 (3.4) | 20 (11.2) | 26 (7.3) | | |
| Others | 4 (2.3) | 10 (5.6) | 14 (4.0) | | |
| **Parent/guardian who brings child to the hospital (N=183)** | | | | | |
| Mother | 51 (45.1) | 37 (52.9) | 88 (48.1) | $\chi2$=4.086 | 0.680 |
| Father | 20 (17.7) | 12 (17.1) | 32 (17.5) | | |
| Both parents | 4 (3.5) | 5 (7.1) | 9 (4.9) | | |
| Aunt/Uncle | 9 (8.0) | 3 (4.3) | 12 (6.6) | | |
| Sibling | 8 (7.1) | 5 (7.1) | 13 (7.1) | | |
| Self | 15 (13.3) | 5 (2.7) | 20 (10.9) | | |
| Others | 6 (5.3) | 3 (4.3) | 9 (4.9) | | |

*including married, separated and divorced **including Hausa, Yoruba, Etulo *** Likelihood ratio

**Table 2: Parent/Guardians' Passive Disclosure to Adolescents by Location of Health Facility**

| Variable | Urban facility Freq (%) | Rural facility Freq (%) | Total Freq (%) | $\chi 2$ | *p*-value |
|---|---|---|---|---|---|
| Disclosure to Young Person (N=183) | | | | | |
| Yes | 97 (85.8) | 57 (81.4) | 154 (84.2) | 0.631 | 0.533 |
| No | 16 (14.2) | 13 (18.6) | 29 (15.8) | | |
| Method of disclosure (N=154) | | | | | |
| One single Event Disclosure | 64 (66.0) | 44 (77.2) | 108 (70.1) | 2.155 | 0.151 |
| Disclosure over several months | 33 (34.0) | 13 (22.8) | 46 (29.9) | | |
| Age at disclosure (years) (N=154) | | | | | |
| ≤12 | 69 (71.1) | 43 (75.4) | 112 (72.7) | 0.763 | 0.451 |
| >12 | 28 (28.9) | 14 (24.6) | 42 (27.3) | | |
| Mean (S.D) | 10.9 (2.7) | 10.2(2.9) | 10.6 (2.8) | | |
| Parent/Guardians Preferred Discloser (N=154) | | | | | |
| Parents | 47 (49.5) | 15 (25.4) | 62 (40.3) | 8.985 | 0.011* |
| Health worker | 6 (6.3) | 7 (11.9) | 13 (8.4) | | |
| Both Parents and Health worker | 42 (44.2) | 37 (62.7) | 79 (51.3) | | |
| Parent/GuardiansPreferred Age for Disclosure (years) (N=154) | | | | | |
| <10 | 25 (25.8) | 11 (19.3) | 36 (23.4) | 0.842 | 0.660 |
| 10-14 | 55 (56.7) | 35 (61.4) | 90 (58.4) | | |
| 15-19 | 17 (17.5) | 11 (19.3) | 28 (18.2) | | |

*statistically significant

## RESULTS

In Table 1, it was found that in the urban facility, most respondents belonged to the 15-19 age group (55.1%), with a mean age of 16.0±3.2 years. In contrast, in the rural facility, 44.4% of respondents were aged 20-24 years, with a mean age of 18.0±4.3 years.

Table 2 shows that passive disclosure of caregivers to young people was 85.8% and 81.4% in the urban and rural facilities, respectively. Table 3 shows that 79.3% of those aged 10 – 14 years were passively disclosed, marginally higher than those in the rural facility (77.3%). Almost all adolescents aged 15 – 17 were also passively disclosed in the urban facility compared to 88.5% in the rural facility. Table 4 shows the young people's active disclosure by the location of the health facility. About three-quarters (74.9%) of the respondents actively disclosed their status to someone else in the rural facility compared to 41.9% of those in the urban facility and the difference was statistically significant ($p<0.001$). The duration of HAART in the rural facility was the only clinical characteristic that was statistically significant in the HIV disclosure status of the respondents ($p=0.012$). In the urban facility, 28.6% of respondents disclosed their HIV status to their siblings, while in the rural facility, 31.9% of respondents disclosed their HIV status mostly to their parents. The most

predominant reason for disclosure in both facilities was the need for psychological and emotional support.

In Table 5, among individuals in the urban facility, the highest rate of active HIV disclosure was observed in the 20-24 age group, followed by the 15-19 age group (71.4% and 40.6%, respectively). The difference in disclosure rates between the age groups was statistically significant (p<0.001). Similarly, in the rural facility, the age groups 20 – 24 years and 15 – 19 years had the highest rates of active HIV disclosure (88.6% and 65.4% respectively) and this difference was also statistically significant (p<0.001). In the urban facility, more than half (52.6%) of those who acquired HIV through horizontal transmission had disclosed their status compared to 38.5% of those who had vertical transmission. In the rural facility, a similar finding was observed as 83.0% of those with horizontal transmission disclosed to others compared to 61.5% of those with vertical transmission. The difference was statistically significant (p = 0.003). Table 6 shows that in the urban facility, those with vertical transmission were less likely to be disclosed compared to those who acquired HIV horizontally and this difference was statistically significant (AOR= 0.03, 95% CI=0.00-0.55, p=0.018) while in the rural facility, the predictor of disclosure is the duration on HAART where those that have been on HAART for more than 10 years were more likely to be disclosed compared to those who have been on the medications for ten years or less (AOR= 5.29, 95% CI = 1.43 – 19.57, p=0.012).

**DISCUSSION**

This study found a high proportion of passive HIV disclosure to adolescents in both urban and rural facilities. Lower passive disclosure rates in rural facilities may be explained by caregivers feeling that disclosure to their dependents is a shared responsibility of the health worker and the parent/guardian. Other studies have reported lower rates of passive HIV disclosure compared to the findings of the present study. In Nigeria, the rates ranged from 14.5% in the southwest to 60% in the north-central region.[8,9,11,17-20]. In other parts of West Africa, the rates were between 32.6% and 52.4%, while in East and Southern Africa, they ranged from 11% to 44%.[21-26]

The urban-rural difference in passive disclosure in this study was not as high as in a study in Cross River State, where the urban disclosure rate was 93.8% compared to the rural disclosure rate of 79.4%.[15] Regarding passive disclosure, rural disclosure rates were usually lower than urban disclosure rates in some studies,[27,28], whereas rural disclosure rates were higher than urban disclosure rates in other studies.[29] These studies were conducted in children under 12 years, which may explain the low passive disclosure rates because caregivers feel disclosure should be done from 12 years and above. The major reasons for disclosure in both facilities in this study were ill health, suspicion of regular clinic visits by the child, and promotion of medication adherence, which is in line with other studies.[9,26,30-31]

**Table 3: Socio-Demographic Characteristics, Clinical Characteristics and Passive Disclosure Status of Young People by Location of Health Facility**

| Variable | Urban Facility | | | Rural Facility | | |
|---|---|---|---|---|---|---|
| | Disclosed Freq (%) | Undisclosed Freq (%) | p value | Disclosed Freq (%) | Undisclosed Freq (%) | p value |
| **Age (years)** | | | | | | |
| 10-14 | 46 (79.3) | 12 (20.3) | 0.058 | 34 (77.3) | 10 (22.7) | 0.345 |
| 15-17 | 51 (92.7) | 4 (7.3) | | 23 (88.5) | 3 (11.5) | |
| **Sex** | | | | | | |
| Male | 47 (82.5) | 10 (17.5) | 0.419 | 33 (84.6) | 6 (15.4) | 0.541 |
| Female | 50 (89.3) | 6 (10.7) | | 24 (77.4) | 7 (22.6) | |
| **Ethnicity** | | | | | | |
| Tiv | 83 (88.3) | 11 (11.7) | 0.142# | 56 (81.2) | 13 (18.8) | 1.000# |
| Others | 14 (73.7) | 5 (26.3) | | 1 (100.0) | 0(0.0) | |
| **Religion** | | | | | | |
| Christianity | 96 (85.7) | 16 (14.3) | 1.000# | 55 (82.1) | 12 (17.9) | 1.000# |
| Others | 1 (100.0) | 0 (0.0) | | 2 (66.7) | 1 (33.3) | |
| **Marital Status** | | | | | | |
| Never married | 96 (85.7) | 16 (14.3) | 1.000# | 56 (82.4) | 12 (17.6) | 0.465# |
| Ever Married | 1 (100.0) | 0 (0.0) | | 1 (50.0) | 1 (50.0) | |
| **Level of education** | | | | | | |
| Primary education and below | 42 (75.0) | 14 (25.0) | 0.001 | 35 (81.4) | 8 (18.6) | 1.000 |
| Secondary and above | 55 (96.5) | 2 (3.5) | | 22 (81.5) | 5 (18.5) | |
| **Occupation** | | | | | | |
| Student | 95 (86.4) | 15 (13.6) | 0.370 | 45 (77.6) | 13 (22.4) | 0.105 |
| Others | 2 (66.7) | 1 (33.3) | | 12 (100.0) | 0 (0.0) | |
| **Monthly combined income (Naira)** | | | | | | |
| < 20,000 | 17 (70.8) | 7 (29.2) | 0.048 | 45 (83.8) | 7 (13.5) | 0.231 |
| ≥ 20,000 | 45 (91.8) | 5 (8.2) | | 4 (66.7) | 2 (33.3) | |
| **Viral Load (copies/ml)** | | | | | | |
| <1,000 | 57 (82.6) | 12 (17.4) | 0.172# | 39 (81.3) | 213 (18.8) | 0.314# |
| ≥ 1,000 | 23 (95.8) | 1 (4.2) | | 12 (92.3) | 1 (7.7) | |
| **HAART Regimen** | | | | | | |
| First Line | 52 (94.5) | 3 (5.5) | 0.577# | 48 (81.4) | 11 (18.6) | 1.000# |
| Second Line | 13 (86.7) | 2 (13.3) | | 9 (81.8) | 2 (18.2) | |
| **Mode of transmission** | | | | | | |
| Vertical | 87 (98.9) | 1 (1.1) | 0.037*# | 45 (100.0) | 0 (0.0) | Not computed |
| Horizontal | 10 (83.3) | 2 (16.7) | | 12 (100.0) | 0 (0.0) | |
| **Duration on HAART (years)** | | | | | | |
| ≤ 10 | 38 (79.2) | 10 (20.8) | 0.103 | 40 (90.9) | 4 (9.1) | |
| >10 | 59 (90.8) | 6 (9.2) | | 17 (65.4) | 9 (34.6) | 0.012* |

***Statistically significant #Fisher's exact test**

In urban facilities, caregivers did not disclose the child's HIV status because they believed the child would be upset. In rural facilities, the primary reason for non-disclosure was the fear that the child would blame the parents for the infection. Reasons for not disclosing in similar surveys include the child's young age or immaturity, fear of stigma and discrimination, concern that the child might disclose to others, and non-adherence to medication. Factors contributing to non-disclosure include younger age, male gender, parental ignorance of their own HIV status, and

adolescents who have recently been diagnosed. The high disclosure rate in this study might be due to the curious nature of adolescents, which parents believe is a reason for disclosure. Their curiosity may be amplified by the easy access to information through cell phones and social media, as a lot of knowledge is available on the internet.

**Table 4: Active Disclosure Status of Young People by Location of Health Facility**

| Variables | Urban facility Freq (%) | Rural facility Freq (%) | Total Freq (%) | $\chi 2$ | p-value |
|---|---|---|---|---|---|
| **Disclosed to others (N=325)** | | | | | |
| Yes | 67 (41.9) | 123 (74.5) | 190 (58.5) | 41.341 | <0.001** |
| No | 93 (58.1) | 42 (25.5) | 135 (41.5) | | |
| **Number of people status was disclosed to (18-24 years) (n=130)** | | | | | |
| <5 | 30 (73.2) | 60 (67.4) | 90 (69.2) | 0.436 | 0.547 |
| ≥ 5 | 11 (26.8) | 29 (32.6) | 40 (30.8) | | |
| **Who status was disclosed to (multiple responses allowed)** | | | | | |
| Spouse | 10 (8.4) | 15 (9.0) | 25 (8.8) | 17.834 | 0.003** |
| Parents | 18 (15.1) | 53 (31.9) | 71 (24.9) | | |
| Brothers/sisters | 34 (28.6) | 45 (27.1) | 79 (27.7) | | |
| Aunts/uncles | 25 (21.0) | 32 (19.3) | 57 (20.0) | | |
| Friend/co-worker | 27 (22.7) | 14 (8.4) | 41 (14.4) | | |
| Others | 5 (4.2) | 7 (4.2) | 12 (4.2) | | |
| **Reasons for active disclosure (Multiple responses allowed)** | | | | | |
| Was sick | 9 (18.4) | 38 (38.4) | 47 (31.8) | 16.975 | *0.004** |
| Need for emotional and psychological support | 27 (55.1) | 45 (45.5) | 72 (48.6) | | |
| Need permission from work to go to hospital for drugs | 0 (0.0) | 3 (3.0) | 3 (2.0) | | |
| Status was suspected | 3 (6.1) | 0 (0.0) | 3 (2.0) | | |
| Followed Doctor's/counsellors advice to disclose | 5 (10.2) | 11 (11.1) | 16 (10.8) | | |
| Others | 5 (10.2) | 2 (2.0) | 7(4.8) | | |

In terms of active disclosure, most of the respondents in the rural facility disclosed their status to others, compared to 42% in the urban facility. This is probably because those in rural areas are more interactive and live as a community compared to the urban areas. Another probable reason could be the educational status of the people. Studies have shown that the higher literacy rates in the urban facility relative to the rural facility had a detrimental effect on active disclosure due to the stigma associated with HIV/AIDS.[5,32,33] Furthermore, family members also put pressure on the youth to keep the HIV status a secret since, should the youth reveal the status and how the illness was acquired, there will undoubtedly be an unintentional disclosure of the HIV status of the parent/guardian.[34] As a result, young people are not free to disclose to others, which leads to low disclosure rates. People who were disclosed to at both facilities were primarily members of the nuclear family, and they did so mainly because they were sick and wanted emotional and psychological help. In Nigeria, a family's role is to help its members through

difficult times, and receiving a diagnosis of HIV/AIDS is a significant event. In a similar study, 88% of disclosures were made to close family members. There is uncertainty and fear of stigmatization that comes with disclosure to others, although peer, parental, and familial support for people that were passively disclosed to has increased.[35]

The prevalence of active disclosure of HIV status from young people to sexual partners ranged from 30-68%.[6,35,36,37] Age was a predictor of active disclosure as adolescents in both facilities were more likely to disclose their HIV status compared to those aged 20 - 24 years. This difference was statistically significant among early and mid-adolescents in both facilities. This result is consistent with a Nigerian study. [38] and can be explained by early and mid-adolescents actively disclosing their HIV status to friends to foster relationships.

Vertical transmission was a determinant in the urban facility in this study compared to horizontal transmission. This is consistent with a systematic review that found youths who acquired HIV through horizontal transmission are less likely to actively disclose as they feel extra psychological pressure. .[35] Students were also more likely to disclose their status than other occupations in the urban facility. In the rural facility, factors associated with active disclosure were male gender, occupation, vertical transmission, viral suppression and duration of treatment. The study was limited by recall bias and respondents' unwillingness to respond to several questions, particularly those on active disclosure.

**CONCLUSION AND RECOMMENDATIONS**

There was a high rate of passive disclosure by caregivers to young people in both facilities. However, concerning active disclosure, more young people in the rural facility had actively disclosed their status to others than those in the urban facility. Furthermore, active disclosure predictors include the respondents' age and the route of transmission in the urban facility, the age of the respondents, viral suppression, and duration of treatment in the rural facility. Parents/Guardians must disclose this information to the children under their care to prevent inadvertent disclosure.

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**Table 5: Socio-Demographic Characteristics, Clinical Characteristics and Active Disclosure Status of Young People by Location of Health Facility**

| Variable | Urban Facility | | | Rural Facility | | |
|---|---|---|---|---|---|---|
| | Disclosed Freq (%) | Undisclosed Freq (%) | p-value | Disclosed Freq (%) | Undisclosed Freq (%) | p value |
| **Age (years)** | | | | | | |
| 10-14 | 9 (19.6) | 37 (80.4) | 0.001* | 19 (55.9) | 15 (44.1) | 0.001* |
| 15-19 | 43 (40.6) | 63 (59.4) | | 34 (65.4) | 18 (34.6) | |
| 20 -24 | 15 (71.4) | 6 (28.6) | | 70 (88.6) | 6 (11.4) | |
| **Sex** | | | | | | |
| Male | 31 (41.9) | 43 (58.1) | 1.000 | 37 (60.7) | 24 (39.3) | 0.003* |
| Female | 36 (41.9) | 50 (58.1) | | 86 (82.7) | 18 (17.3) | |
| **Ethnicity** | | | | | | |
| Tiv | 55 (40.7) | 80 (59.3) | 0.516 | 120 (74.1) | 42 (25.9) | 0.571# |
| Others | 12 (48.0) | 13 (52.0) | | 3 (100.0) | 0 (0.0) | |
| **Religion** | | | | | | |
| Christianity | 66 (41.5) | 93 (58.5) | 0.419# | 120 (74.5) | 41 (25.5) | 1.000# |
| Others | 1 (100.0) | 0 (100.0) | | 3 (75.0) | 1 (25.0) | |
| **Marital Status** | | | | | | |
| Never married | 61 (40.1) | 91 (59.9) | 0.069# | 82 (67.2) | 40 (32.8) | 0.001* |
| Ever Married | 6 (75.0) | 2 (25.0) | | 41 (95.3) | 2 (4.7) | |
| **Level of education** | | | | | | |
| Primary education and below | 16 (32.0) | 34 (68.0) | 0.119 | 43 (72.9) | 16 (27.1) | 0.852 |
| Secondary and above | 51 (46.4) | 63 (53.6) | | 80 (75.5) | 26 (24.5) | |
| **Occupation** | | | | | | |
| Student | 55 (37.7) | 91 (62.3) | 0.001* | 66 (65.3) | 35 (34.7) | 0.001* |
| Others | 12 (85.7) | 2 (14.3) | | 57 (89.1) | 7 (10.9) | |
| **Monthly combined income (Naira)** | | | | | | |
| < 20,000 | 17 (48.6) | 18 (51.4) | 0.214 | 88 (78.6) | 24 (21.4) | 0.212 |
| ≥20,000 | 26 (35.6) | 47 (64.4) | | 18 (66.7) | 9 (33.3) | |
| **Viral Load (copies/ml)** | | | | | | |
| <1,000 | 36 (40.4) | 59 (59.6) | 0.835 | 87 (76.3) | 27 (23.7) | 0.073 |
| ≥ 1,000 | 12 (36.4) | 21 (63.6) | | 19 (59.4) | 13 (40.6) | |
| **HAART Regimen** | | | | | | |
| First Line | 50 (47.6) | 55 (52.4) | 0.479# | 109 (75.7) | 35 (24.3) | 0.268 |
| Second Line | 8 (38.1) | 13 (61.9) | | 12 (63.2) | 7 (36.8) | |
| **Mode of acquisition** | | | | | | |
| Vertical | 47 (38.5) | 75 (61.5) | 0.136 | 40 (61.5) | 25 (38.5) | 0.003* |
| Horizontal | 20 (52.6) | 18 (47.4) | | 83 (83.0) | 17 (17.0) | |
| **Duration on HAART (years)** | | | | | | |
| ≤10 | 37 (52.1) | 34 (47.9) | 0.024* | 99 (78.6) | 27 (21.4) | 0.038* |
| >10 | 30 (33.7) | 59 (66.3) | | 24 (61.5) | 15 (38.5) | |

*Statistically significant #Fisher's exact test

**Table 6: Adjusted Odds Ratio (AOR) of Predictors for Young People's Active Disclosure by Location of Health Facility**

| Adjusted Odds Ratio (AOR) of Predictors of Active Disclosure by Young people by Location of Health Facility | | | | | | |
|---|---|---|---|---|---|---|
| | Urban Facility | | | Rural Facility | | |
| **Age (years)** | AOR | 95% CI | p value | AOR | 95% CI | p value |
| 10-14 | 13.21 | 3.81 – 45.87 | <0.001 | 8.64 | 3.37 – 22.17 | <0.001 |
| 15-17 | 12.50 | 3.82 – 40.96 | <0.001 | 12.96 | 4.41 – 38.14 | <0.001 |
| 18-19 | 1.67 | 0.53 – 5.20 | 0.379 | 2.46 | 0.83 – 7.42 | 0.106 |
| 20 – 24 | Ref | | | | | |
| **Sex** | | | | | | |
| Male | * | * | * | 2.328 | 0.92 – 5.87 | 0.073 |
| Female | | | | | | |
| **Occupation** | | | | | | |
| Student | 4.39 | 0.98 – 19.62 | 0.053 | 2.84 | 0.83 – 9.67 | 0.096 |
| Others | Ref | | | | | |
| **Viral Load (copies/ml)** | | | | | | |
| <1,000 | * | * | * | 0.27 | 0.10 – 0.76 | 0.013 |
| ≥ 1,000 | | | | | | |
| **Mode of transmission** | | | | | | |
| Vertical | 3.28 | 1.44 – 7.49 | 0.005 | 0.52 | 0.17 – 1.57 | 0.246 |
| Horizontal | | | | Ref | | |
| **Duration on HAART (years)** | | | | | | |
| ≤ 10 | * | * | * | 2.86 | 1.01 – 8.11 | 0.048 |
| >10 | | | | Ref | | |

*Not calculated as it was not significant on bivariate analysis

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