



FACTORS INFLUENCING MEDICATION ADHERENCE AMONG YOUNG PEOPLE LIVING WITH HIV IN NIGER STATE, NIGERIA

*¹Asaolu, O. S. & ¹Agbede, C.

¹Department of Public Health, Babcock University, Ilishan-Remo, Ogun State, Nigeria.

*Corresponding Author Email: gbengasaolu@gmail.com Phone: +2348065206663

ABSTRACT

The global effort to address HIV/AIDS prevalence rest with a holistic intervention that promotes adherence and reduces the sociocultural factors limiting treatment adherence. This study assessed the predictors of antiretroviral therapy (ART) adherence among Young People Living with HIV (YPLHIV) in Niger State, Nigeria. The study was a cross-sectional survey utilizing a 43-item validated questionnaire to collect information on HIV medication adherence among 208 young people living with HIV currently enrolled in four facilities providing free comprehensive HIV care and treatment services in Niger State Nigeria. Univariate, bivariate and multivariate analyses were conducted at $p=0.05$ significance level. The age of participants ranged from 18 to 24 years with a mean age of 21.5 ± 1.92 years. Participants had been on antiretroviral (ARV) drugs for a period ranging between one to 14 years. The overall adherence rate in the study was 20% and was unevenly distributed across the four sites. In bivariate analysis, factors associated with ART medication adherence include educational attainment, religion and knowledge of medication adherence practices. Participants with higher education of at least a secondary school certificate were significantly more likely to adhere to ART (100%) than the lowly educated persons (0%), ($p < 0.0001$). Similarly, other significant correlates of adherence at the bivariate level included knowledge of medication adherence ($p < 0.0001$) and religion ($p = 0.038$). Medication adherence is sub-optimal among Young People Living with HIV in Niger State and this study recommends holistic youth-friendly health literacy interventions programs to improve adherence to antiretroviral therapy among this population.

Keywords: Nigeria, Niger, Young people, HIV, Antiretroviral Therapy, Medication Adherence

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INTRODUCTION

According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), about 37.7 (30.2-45.1) million people worldwide are infected with HIV/AIDS and Sub-Saharan Africa is home to two thirds (67%) of all people living with HIV infection (UNAIDS, 2021). HIV infection has expanded globally over the past 30 years, impacting all socioeconomic and ethnic groups and having a significant influence on health, welfare, employment, and criminal justice. According to recent epidemiological statistics, HIV remains a public health issue that continues to drain our economy, having taken the lives of more than 25 million people over the last three decades (UNAIDS, 2021).

Young people are at the centre of the global HIV/AIDS epidemic, regarding both new infections and opportunities for halting the transmission of HIV (Johnson et al., 2021). They have been described as the fulcrum of the HIV epidemic, with 42% of new infections occurring in this age group in 2020 (Club & Club, 2010). Young people living with HIV (YPLHIV) enrolled in antiretroviral therapy (ART) experience a higher rate of interruption in treatment, suboptimal medication adherence, and greater HIV-related mortality compared with younger children or adults (Foster, Ayers, & Fidler, 2020). There is growing evidence from several countries where HIV prevalence is decreasing that it is the young people who are reversing the trends (Family Health International, 2009) since they are the ones more likely to adopt new behaviours (Visser, 2007). About one out of every three young people newly infected with HIV in 2009 was from either South Africa or Nigeria (Millage, 2009).

Recent research results suggest that globally, less than two-thirds of young people adhere to ART and poor ART adherence leads to accelerated progression of HIV to AIDS, resulting in increased morbidity and mortality (Mehra, Tunje, Hallström, & Jerene, 2021). About one-quarter of the young people aged 18 to 24 years enrolled in HIV care in Niger State are inactive as of the end of 2021 quarter 3 (Federal Ministry of Health, 2019).

Adherence to antiretroviral therapy (ART) is critical for attaining HIV viral suppression and increasing the well-being of HIV-positive individuals (M. Pahor, Manini, 2008). Research results reveal that the efficacy of ART is dependent on a patient's compliance with recommended dosages, dosing intervals, and other medication recommendations (Beccaria et al., 2018). Even though adherence has been discovered to be a fundamental predictor of ART treatment success (Kanters et al., 2017), several patients are found to lapse on the prescribed treatment regimen, increasing the risk of transmitting HIV, deteriorating health conditions (Aberg et al., 2014), therapy failure, production of new resistant viral strains, progression to acquired immune deficiency syndrome (AIDS), more hospitalization, and death (Aberg et al., 2014). As a consequence of poor ART medication adherence, the expense of healthcare is likely to rise and unfortunately, two-thirds of people infected with HIV live in developing countries, notably in Sub-Saharan Africa (SSA), where many people are poor (Hansana et al., 2013). This study, therefore, identified the predictors of ART adherence among Youth aged 18 to 24 years living with HIV in Niger State, Nigeria.

MATERIALS AND METHODS

DESIGN AND STUDY POPULATION

This is a descriptive cross-sectional study of young persons between ages 18-24 years currently receiving HIV treatment in four comprehensive HIV treatment facilities in Niger State, Nigeria.

STUDY AREA AND STUDY LOCATION

Niger State is situated in the north-central geopolitical zone of Nigeria and was created on the 3rd of February, 1976. It is the largest state in Nigeria, situated between latitude 3.20° East and longitude 11.30° North, and covers a vast landmass of 86,000km²; approximately 8.6 million hectares constituting about 9.3% of the total land area of the country.

The State is made up of 25 Local government areas (LGAs) and divided into three Geopolitical Zones, Zones A, B and C each consisting of 8, 9 and 8 LGAs. The 25 LGAs are divided into 274 wards. The State is administered through three tiers of Government; State, Local and the Emirate Councils. The State's total projected population is 5,556,200 people as of 2016 comprising of 2,861,443 males and 2,694, 757 females with an annual growth rate of 3.5%. These represent the proportional share of 51.5% for males and 48.5% for females respectively. The youth population between ages 18-25% make up 25% of the entire population.

Niger state has a total of 1,355 health facilities across 25 LGAs, 1,311 Primary Health Care facilities, 25 Secondary and 19 tertiary health care facilities. This study was conducted in four tertiary health facilities from the four highest-burden local governments.

SAMPLING TECHNIQUE

Four facilities were purposively selected based on the burden of Young People Living with HIV (YPLHIV) enrollment and treatment drop-outs. The health facilities were: General Hospital Suleja, General Hospital Sabon-Wuse, General Hospital Minna and General Hospital Kagara.

INSTRUMENT AND DATA COLLECTION

We captured data from two hundred and eight young persons between ages 18-24 years currently receiving HIV treatment from four facilities, fifty-two (52) were systematically selected from each of the four facilities. The participants were then approached by a trained interviewer to complete a structured questionnaire that lasted between 40 to 50 minutes.

The 43-item pretested questionnaire (Cronbach's alpha of 0.7654) was used to collect information about Knowledge of HIV medication adherence and their practices. Informed consent was sought from all patients who accepted to participate. The study was carried out in February 2022. The instrument was a structured questionnaire that sought information on the socio-demographic characteristics, ART History and patient self-report of medication adherence.

ETHICAL ISSUES AND CONFIDENTIALITY

Written approvals were obtained from the Babcock University Health Research Committee (BUHREC) and Niger State Health Research Committee, indicating that an academic research study within the health four health facilities General Hospital Suleja, General Hospital Sabon-Wuse, General Hospital Minna and General Hospital Kagara. Only YPLHIV who agreed to participate voluntarily were interviewed. To ensure confidentiality throughout the study period, only code numbers were used instead of the YPLHIV names.

DATA PROCESSING AND ANALYSIS

Descriptive statistics such as frequency distributions, means and standard deviation were used to summarize quantitative demographic characteristics while categorical variables were summarized with proportions and percentages. Pearson's chi-square test statistics were used to measure the association between categorical patient characteristics, knowledge and medication adherence. The logistic regression model was used to obtain the odds of medication adherence given a particular variable, after adjusting for some important social and demographic variables. The results were presented in appropriate tables. The data analysis was conducted using STATA 15.0. The significance level was set at ($p < 0.05$) for all statistical procedures.

RESULTS

SOCIO-DEMOGRAPHIC CHARACTERISTICS

The mean age of the young people living with HIV was 21 years \pm 1.92 years. Two third (68%) of the YPLHIV were within the 18-19 age bracket while 77% were female. Almost half (45%) of the study respondents hold a high school certificate and the majority (89%) of the YPLHIV were Muslim. Almost half (46%) of the YPLHIV have been on antiretroviral therapy between one to four years, followed by 40% who have been on treatment for over 10 years, about 10% have been receiving treatment for between five to ten years and the remaining 5% have been on treatment for less than 1 year (See, Table 1).

Figure 1 shows that overall 20% of the subjects that accessed ARV medications from the four sites had good adherence. The level of adherence is unevenly distributed across the four sites with the highest level of adherence (46%) in General Hospital Kagara, followed by 38.5% in General Hospital Chanchanga and lowest (9.6%) in General Hospital Sabon Wuse.

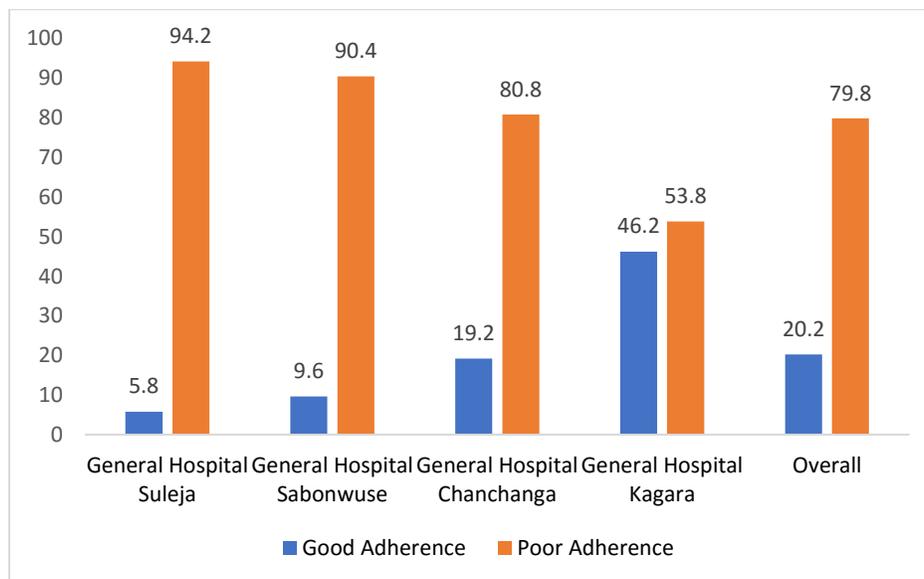


Figure 1: Bar Chart showing level of adherence among study participants by site

Table 2 shows that participants with higher education of at least a secondary school certificate were significantly more likely to adhere to ART (100%) than the lowly educated persons (0%), ($p < 0.0001$). Similarly, other significant correlates of adherence at the bivariate level included knowledge of medication adherence ($p < 0.0001$) and religion ($p = 0.038$).

Table 1: Sociodemographic distribution of participants

Demographic variables considered	Respondents=208	
	Frequency (n)	Percentage (%)
Age Group (years)	Mean & SD 21.47±1.92	
18-19 years	141	67.8
20-24 years	67	32.2
Sex		
Male	47	22.6
Female	161	77.4
Level of Education		
Islamic	60	28.9
Primary	54	26.0
Secondary	77	37.0
Tertiary	17	8.2
Religion		
Islam	184	88.5
Christianity	24	11.5
Duration on ART		
<1 year	4	4.81
1-4 years	146	45.7
5-10 years	49	9.6
>10 years	9	39.9

Table 3 shows that the true predictors of adherence to ART among YPLHIV in Niger state were educational attainment and knowledge of medication adherence. Participants with at least a high school certificate are more likely to adhere to ART than those with lesser educational qualifications. Similarly, participants who have good knowledge of medication adherence were more likely to adhere more than participants with fair and poor knowledge of medication adherence.

Table 2: Distribution of socio-demographic variables of study participants by their ART adherence pattern

Parameter	Good Adherence N (%)	Poor Adherence N (%)	Chi-Square (X²)	P-Value
Age (years)				
18-19 years	8 (19.1)	31 (18.7)	0.003	0.956
20-24 years	34 (80.9)	135 (81.3)		
Sex				
Male	8 (19.1)	127 (76.5)	0.379	0.538
Female	34 (80.9)	39 (23.5)		
Education				
Islamic	0 (0.0)	60 (36.1)	69.585	<0.0001
Primary	0 (0.0)	54 (32.5)		
Secondary	38 (90.5)	39 (23.5)		
Tertiary	4 (9.5)	13 (7.8)		
Religion				
Islam	41 (97.6)	143 (86.1)	4.324	0.038
Christianity	1 (2.38)	23 (13.9)		
Duration on ART				
<1 year	0 (0.0)	4 (2.4)		
1-4 years	24 (57.1)	122 (73.9)	6.555	0.088
5-10 years	15 (35.7)	34 (20.5)		
>10 years	3 (7.1)	6 (3.6)		
Knowledge of Medication Adherence				
Good	23 (54.8)	53 (31.9)	21.861	<0.0001
Fair	8 (19.1)	8 (4.8)		
Poor	11 (26.2)	105 (63.3)		

DISCUSSION

The overall medication adherence level among the study population is 20% and it is consistent with findings from other surveys that identified poor adherence among young people who consistently find taking daily ART medications burdensome and inconvenient (Luseno et al., 2019). This is not surprising because of the attendant issues facing the youth age group who sometimes battle with low-risk perception and poor knowledge of the disease severity in the face of non-compliance. Even though the observed level of adherence is unacceptably sub-optimal compared to the recommended 95% adherence level, it is lower than the findings from Kano, Benue and Abuja which are 54%, 62.6% and 66.7% respectively (Anyaike et al., 2019). The patient-reported medication adherence range from 40% to 70% in developed countries (Afolabi, 2009).

Table 3: Logistic regression analyses of the significant correlates of ART adherence among study participants

Parameter	Odds Ratio (OR)	S.E.	Sig.	95% C. I. for OR	
				Lower	Upper
Knowledge of Medication Adherence	1.9	0.371	0.000	1.353	2.842
Educational Attainment	4.1	1.276	0.000	2.645	7.899
Religion	0.2	0.157	0.069	0.019	1.157

A significant positive association was obtained between knowledge and medication adherence practices and it remained a strong predictor of ART adherence on multiple logistic regression analyses. This is mainly because the increase in knowledge increases with a higher level of education among participants of this study. This agrees with the findings of (Yaya et al., 2014) who reported a higher adherence level among groups with good knowledge than in clients with poor knowledge of ART medication practices.

Our findings further revealed a significant association between educational attainment and medication adherence practices. The larger portion of participants in this study with good adherence practices had at least a secondary education while participants with lesser than secondary education formed the bulk in the poor adherence group. This socio-demographic factor was also reported to correlate with good adherence to ART by another author (Afolabi, 2009). Further studies employing an objective assessment of public health educational intervention among YPLHIV may confirm this conclusion.

Other factors such as sex, age and duration on ART did not have significant associations with adherence level at the bivariate analysis stage while religion was associated with adherence level at the bivariate analysis stage but was not significantly associated at the multivariate level. This is consistent with the findings of other authors such as (Anyaike et al., 2019).

CONCLUSION

Good medication adherence has been demonstrated to be crucial in enhancing the quality of life of HIV patients and ensuring their long-term survival, according to research (Mj et al., 2014). It is particularly key to the achievement of HIV viral suppression and reversal of progression to AIDS. Factors influencing ART adherence vary from country to country and an adequate understanding of the adherence barriers is required in the effort to expand access to ART in resource-limited settings such as Nigeria. This, therefore, implies that further studies are needed to objectively examine the influence of educational interventions on the level of adherence to ART, especially in resource-constrained settings where there is lower coverage of education. Medication adherence is sub-optimal among Young

People living with HIV in Niger State. There is a need for a better support system and the design of cost-effective youth-friendly programs and health literacy interventions to improve adherence to antiretroviral therapy among this population.

CONFLICT OF INTEREST

None

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