EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Coden USA: EJBPBO
Volume: 13
Issue: 5
Year: 2026

ASSESSMENT OF PATIENTS' ADHERENCE TO ANTIRETROVIRAL THERAPY AT FEDERAL MEDICAL CENTRE OWO, ONDO STATE, NIGERIA

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DOI: https://doi.org/10.5281/zenodo.20132838

How to cite this Article: Abiodun Gbemileke Aiyeku[1]*, Funmilayo Caroline Oluwatimilehin[2], Olajumoke Margaret Aiyeku[3], Stella Folajole Usifoh[4]. (2026). Assessment of Patients' Adherence to Antiretroviral Therapy at Federal Medical Centre Owo, Ondo State, Nigeria. European Journal of Biomedical and Pharmaceutical Sciences, 13(5), 353–359.
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Article Received on 16/04/2026 **Article Revised on 05/05/2026** **Article Published on 10/05/2026**

ABSTRACT
Optimal use of Antiretroviral therapy is critical in prolonging and making individuals who carries the Human Immunodeficiency Viruses (HIV) live longer thus preventing the development of drug-defiance viral strain and a key determinant of treatment success and virological suppression. This research evaluates the adherence level to Antiretroviral therapy and connected factors influencing non-adherence with patients attending the Federal Medical Centre, Owo, Ondo State. A descriptive cross-sectional study was conducted using a structured four-section questionnaire validated using test-retest method within three weeks interval and reliability coefficient of 0.82 was received. The instrument was administered to 59 HIV-positive patients between May and September 2025. Data collected included sociodemographic characteristics, knowledge of HIV/AIDS, and medication adherence patterns. Independent t-test, Pearson product moment correlation and descriptive statistics were utilized for the analysis at 5% level of significance. Overall, 84.8% respondents demonstrated good adherence (≥95%), while 98% had baseline CD4 counts above 200 cells/mm³. The main reasons for non-adherence included forgetfulness, depression and fasting. Socioeconomic and demographic data showed no statistically significant relationship with adherence ($p > 0.05$). Patients aged 28–39 years were the most adherent (28.9%), and female participants had slightly higher adherence rates than males. In conclusion, good adherence to Antiretroviral therapy was achieved, non-adherence was due to individual behavioural factors such as forgetfulness, travelling, Alcoholism, lack of patient education and interruptions to daily routines. Sociodemographic characteristics was not found to significantly influence adherence, spousal support plays vital role not only in adherence to Antiretroviral Medication but helps in strengthen self-management.

KEYWORDS: Adherence, Antretroviral Therapy, HIV/AIDS, Behaviour.

INTRODUCTION
Human immunodeficiency virus (HIV) remain a source of major international disease burden, usually applicable in the under-resource developing nation that harbour the majority of the global weight of infection. The burgeoning of active antiretroviral therapy (HAART) has transformed HIV infection into long-term condition management, dramatically abatement of the disease.[1-2]

Modern antiviral agents are highly active antiretroviral agents and has helped in transforming HIV into manageable chronic condition. It has also help in suppressing the virus to an undetectable level and prevent acquired immunodeficiency syndrome (AIDS). The dissemination of the virus in the third world countries has assumed an alarming rate with various government both at regional and sub regional level expressing concern for the continuous spread. Most

regional government has assisted their national government by establishing state and regional advocacy group and intra governmental agency to collaborate in the reduction of this disease not only by providing information and education but also in the treatment and laboratory services. However, despite the availability of multiple antiretroviral agents and advances in HIV pharmacotherapy, many patients still fail to achieve durable viral suppression and full immune restoration.[3] One of the principal obstacles to treatment success is sub-optimal adherence to antiretroviral therapy (ART).

Studies suggest that maintaining adherence rates of 90–95% or higher is necessary to achieve optimal virologic outcomes and prevent drug resistance.[4] Also the synergistic combination of two or more ART drugs have been shown to delivered better clearance by given reduce viral load.

The social economic factors facilitating transmission of HIV infections are among but not limited to social mobility global economic, this includes occupational geographical relocation and the global village of technological transfer. HIV infection follows the route of commerce, stigma and denial, cultural factors, people in conflict and war. Spousal inheritance. Pressure to breast feed, and commercial sex workers for income and reduce access to health care services.

Multidimensional approach are the best way to address adherence problems. with the advances in biomolecular researches of HIV treatment, launch of multi-disciplinary program incorporate HIV pharmacotherapy specialist "medication expert" are been implemented into the care plan using their advance knowledge of antiretrovirals, the expertise of the specialist assist patient with complex regimen who are facing barrier to successful treatment, knowing that treatment are for long-term with follow up.[5]

Barriers to ART adherence are complex and multifactorial, encompassing behavioural factors (e.g., forgetfulness, depression, alcohol use), regimen-specific factors (e.g., pill burden, dosing complexity), psychosocial factors (e.g., stigma, low health literacy, inadequate family support), and structural factors (e.g., poverty, geographic mobility, constrained healthcare infrastructure).[6] In resource-limited settings such as Ondo State, Nigeria, these adherence challenges are compounded by cultural misconceptions, limited access to care and the need for lifelong therapy, which further weaken treatment programs and outcomes.

Addressing these multifaceted barriers requires patient-centered, multidisciplinary interventions that integrate adherence counselling, patient education, and pharmacy and therapeutic monitoring services which was individualize toward people who have HIV in emerging nations. In light of this, we carried out the research to assess the level of Antiretroviral therapy compliance, and to figure out key determinants of non-adherence among patients who are receiving treatment from the investigation institution.

Overall the path that ensures the end to AIDS must start with absolute adherence, this will equally help the preparation to address the challenges that could come with other pandemic, and a enhance activity in achieving Sustainable Development Goals.[9]

MATERIALS AND METHODS

Study Area and Population

This research work was carried out at the Federal Medical Centre (FMC) Owo, located in the Northern Senatorial District of Ondo State, Nigeria. FMC Owo is a specialized medical facility that provides advanced care and receives referrals from community or district hospital of patients from surrounding several other states. The hospital hosts a dedicated HIV Clinic and Antiretroviral Therapy (ART) Pharmacy Unit under the Department of Pharmaceutical Services. The HIV Clinic operates alongside counselling rooms within the General Outpatient Department and the *Heart-to-Heart* Centre, providing comprehensive HIV care, counselling, and ART dispensing services. The ART Pharmacy Section is responsible for the distribution of ART medications, patient adherence monitoring, and counselling provided.

The specific group of individual are adult HIV individuals receiving ART at the FMC Owo HIV/ART Clinic during the study period.

Study Design

A descriptive cross-sectional design was utilized. The choice of this design was to allow assessment of adherence levels and connected factors among HIV-infected adults at a single point in time.

Sample Size Determination

The minimum required viable sample was calculated using the Leslie Kish formula for single proportions:

$$n = (Z^2 \times p \times q) \div d^2$$

Where

- (n) = minimum sample size
- (Z) = standard normal deviation at 95% confidence level (1.96)
- (p) = estimated prevalence of HIV infection in Nigeria (3.6%, or 0.036)
- (q) = 1 − p = 0.964
- (d) = precision (0.05)

Weighting adjustment was done to rounded up to 59 participants.

Sampling Technique

A purposive sampling method was adopted to engage patients who met the inclusion criteria during their routine ART refill visits. Eligible patients were consecutively approached until the desired sample size was achieved.

Data Collection Instrument and Procedure

Data collection was conducted via a specifically developed structured interviewed questionnaire based on prior adherence studies.[7-8] The questionnaire was structured across four key components.

1. Social /economic /demographical and financial attributes;
2. Understanding and beliefs regarding HIV/AIDS and ART;
3. Medication adherence practices; and
4. Drug regimen and patient remarks.

The instrument was pre-tested among ten HIV-positive patients in a similar setting to assess clarity and consistency. Necessary adjustments were made before the main data collection.

Participants completed the questionnaire during person - to- person interviews in English and also translated in Yoruba for uneducated participants (1.5%), depending on participants' preference. For uneducated participants, questions were read aloud and responses recorded verbatim. When additional clarification was needed, information was verified from patients' medical records.

Ethical Considerations

Approval for the research work was granted by the Health Research and Ethics Committee of the FMC Owo (Approval No: FMC/OW/380/VOL.XVII/177).

All participant gave their written and informed consent before enrolment. Participant identities and data collected were protected and held in strict confidence.

Inclusion and Exclusion Criteria

Inclusion criteria

- Patients above 18 years diagnosed with HIV.
- Patients on ART for at least three months prior to the study.
- Individuals who provided informed consent and agreed to participate.

Exclusion criteria

- Newly enrolled patients who had not yet commenced ART.
- Patients receiving ART at other centres but visiting FMC Owo temporarily.
- Patients who declined participation.

Study Period

Data collection was conducted over a three-month period. The HIV Clinic operated on Mondays, Tuesdays, Wednesdays, and Fridays, and data were gathered on all clinic days within the study timeframe.

Data Analysis

IBM SPSS Statistics Version 20.0 software was utilized for data inputs and were subsequently analyzed. Descriptive statistics (frequencies, percentages, and means ± standard deviations) were used to summarize participants' characteristics. The chi-square (χ^2) test of independence was conducted to determine if a significant association exists between categorical variables such as socio- demographic factors and adherence status. A p-value of less than 0.05 indicated statistically significant.

RESULTS

Participant Characteristics

A total of 59 respondents participated in the study, yielding a 100% response rate. The mean age of participants was 35.0 ± 8.6 years. Most respondents (64.4%) were aged 25–39 years, while only 1.7% were aged ≥ 60 years. The majority were female (76.3%) and married (83.1%).

The vast majority of the participants had attained at least intermediate education (79.7%), and 79.7% were employed. Among the employed group, petty traders (25.0%) and business owners (22.0%) formed the largest occupational categories (Table 1).

Table 1: Socio-Demographic Characteristics of Respondents. (N = 59)

Variable	Category	Frequency (n)	Percentage (%)
Age group (years)	≤ 24	4	6.8
	25–39	38	64.4
	40–59	10	16.9
	≥ 60	1	1.7
	No response	6	10.2
Mean age ± SD			35.0 ± 8.6
Sex	Male	14	23.7
	Female	45	76.3
Marital status	Single	3	5.1
	Married	49	83.1
	Divorced	3	5.1
	Widow(er)	4	6.8
Educational level	Primary	12	20.3
	Secondary	26	44.1
	Tertiary	21	35.6
Employment status	Employed	47	79.7

	Unemployed	1 2	20.3
Occupation (n = 47)	Professional	2	3.4
	Civil servant	11	18.6
	Public servant	1	1.7
	Farmer	5	8.5
	Business	13	22.0
	Petty trader	15	25.0

Knowledge of HIV/AIDS

As shown in Table 2, most respondents demonstrated good understanding of HIV/AIDS through series of counselling sections with the aid of hospital health providers before they were introduced to ART. The majority correctly identified the meaning of HIV (66.1%), its mode of transmission (78.0%), and the importance of CD4 count in diagnosis (88.1%). However, 22.1% still believed that HIV/AIDS is curable. Overall, 78% of participants achieved a good total knowledge score (≥ 3.5).

Table 2: Knowledge of HIV/AIDS Among Respondents. (N = 59)

Knowledge Variable	Correct n (%)	Incorrect n (%)
Meaning of HIV infection	39 (66.1)	20 (33.9)
Mode of transmission	46 (78.0)	13 (22.0)
Meaning of AIDS	49 (83.1)	10 (16.9)
HIV = AIDS (false belief)	57 (93.4)	2 (6.6)
HIV affects the immune system	51 (86.4)	8 (13.6)
Awareness of CD4 importance	52 (88.1)	7 (11.9)
Belief that HIV/AIDS is curable	46 (77.9)	13 (22.1)
Total knowledge score	Frequency	Percentage
Poor ≤ 3.4	13	22
Good ≥ 3.5	46	78

Knowledge of Antiretroviral Therapy (ART)

Most respondents had satisfactory knowledge of ART and its purpose (Table 3). A majority (91.5%) knew the meaning of HAART and that ART reduces opportunistic infections. However, only **67.8%** were aware of possible drug interactions involving ARVs.

Table 3: Knowledge of HAART/ARVs. (N = 59)

Variable	Correct n (%)	Incorrect n (%)
Meaning of HAART	54 (91.5)	5 (8.5)
ARVs reduce opportunistic infections	54 (91.5)	5 (8.5)
Awareness of drug interactions	40 (67.8)	19 (32.2)

Adherence to Antiretroviral Therapy

Among the 59 respondents, 84.8% (n = 50) achieved good adherence (≥ 95%) through indirect method of adherence measurement; self-reporting and pill count, while 15.2% (n = 9) reported missing doses within the previous month. Reasons for missed doses included forgetfulness (33.3%), being too busy (16.7%), travelling (16.7%), depression (16.7%), and fasting (16.7%) (Figure 1). A small proportion (11.9%) reported alcohol consumption, and 1.7% were current smokers. Family support was reported by 66.1% of respondents, though only 11.9% belonged to a social support group.



Figure 1

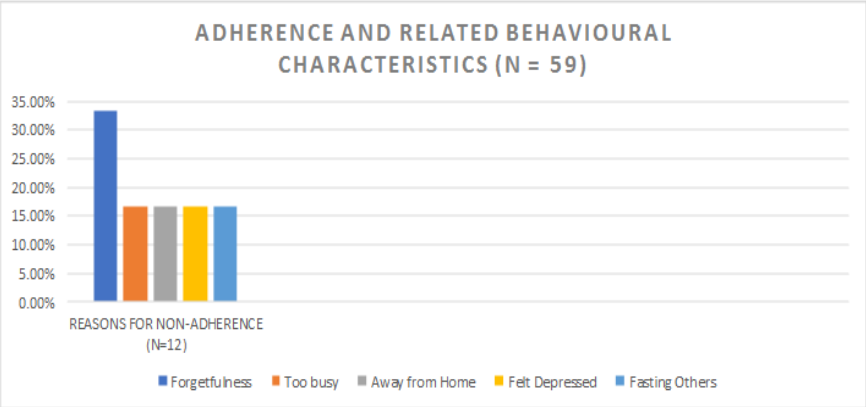


Figure 2

Disclosure of HIV Status

A majority (71.2%) had revealed their HIV positive status to their spouse, while 74.6% reported that their partners were aware of their status (Table 5). Two respondents (3.4%) did not provide information regarding disclosure.

Table 5: Disclosure of HIV Status (N = 59).

Variable	Category	Frequency (n)	Percentage (%)
Disclosure to partner	Yes	42	71.2
	No	17	28.8
Partner aware of status	Yes	44	74.6
	No	13	22.0
	No response	2	3.4

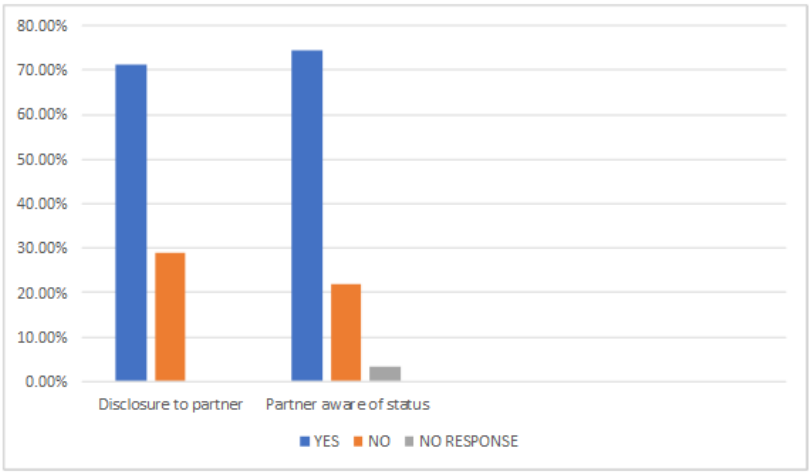


Figure 3

Association Between Respondent Characteristics and Adherence

Chi-square analysis (Table 6) revealed no statistically significant association between adherence and sociodemographic variables such as age ($p = 0.545$), sex ($p = 0.564$), education ($p = 0.992$), or employment status ($p = 0.300$). Similarly, adherence was not significantly influenced by HIV knowledge, family support, alcohol intake, smoking, or participation in social support groups ($p > 0.05$ for all).

Although not statistically significant, adherence was highest among respondents aged 28–39 years (28.9%) and among female participants (24.4%) compared to males (21.4%).

Table 6: Association Between Respondent Characteristics and Adherence. (N = 59)

Variable	Adherent n (%)	Non-Adherent n (%)	χ^2	p-value
Age group	13 (22.0)	40 (78.0)	2.14	0.545
Gender	Male = 3 (21.4)	–	0.054	0.564

	Female = 11 (24.4)			
Education level	Primary = 25.0 Secondary = 23.1 Tertiary = 23.8	–	0.017	0.992
Employment status	Employed = 21.3 Unemployed = 33.3	–	0.768	0.300
HIV knowledge	Poor = 30.8 Good = 21.7	–	0.457	0.307
Family support	Yes = 17.9 No = 31.0	–	2.124	0.129
Alcohol use	Yes = 28.6 No = 23.1	–	0.103	0.533
Smoking	Yes = 0.0 No = 24.1	–	0.316	0.763
Social group membership	Yes = 28.6 No = 23.1	–	0.103	0.533

Significant p value: $p < 0.05$.

DISCUSSION

This study assessed adherence to the treatment with people who are been treated for HIV and who present themselves to the ART clinic at Federal Medical Centre, Owo. The mean age of participant was 35 ± 8.6 years old, with the majority (64.4%) aged 25–39 years, which aligns with national epidemiological patterns indicating that HIV infection disproportionately affects individuals in their most productive years. Female participants constituted 76.3% of the study sample, reflecting the higher service-seeking behavior among women in HIV care programs in the country as recorded (National Agency for the Control of AIDS.[9-10]

The study found that 84.8% (n = 50) of respondents achieved good adherence (≥95%). This level of adherence is higher than the adherence threshold commonly observed in routine clinical settings, where adherence often declines to approximately 50% after 6 months of therapy initiation. However, the adherence rate in this study remains lower than the 95% adherence reported in the 24-month follow-up program in Cambodia, which was associated with structured counselling and continuous monitoring.[11-12] The shorter observation period in the present study and the less intensive adherence-support model may explain these differences.

Forgetfulness is the primary cause of misses medication doses (33.3%), followed by being too busy, travelling, depression, and fasting. These reasons align with established research in sub-Saharan Africa, where daily life disruptions and psychological distress are frequently implicated in non-adherence. This highlights the ongoing need for personalized adherence counselling and reminder-based adherence strategies, including mobile-phone-based interventions.

Chi-square analysis demonstrated that the observed relationship between variable is likely due to chance than real effect and social position and economic standing that shape an individual or community's opportunities, lifestyle, well-being and employment state. This pattern is consistent with systematic review evidence indicating that socio-economic indicators alone are not reliable predictors of compliance to Antiretroviral medication treatment.[13-14]

Although compliance was slightly higher among females and unemployed participants, these differences were not statistically significant, suggesting that individual psychosocial and behavioral factors may exert greater influence than demographic profile alone.

Knowledge of HIV and awareness of drug interactions also did not significantly predict adherence in this study. This finding supports prior literature showing that understanding is not enough to achieve medication-taking behavior, Moreso adherence requires ongoing reinforcement and self-management support.[15]

Patients who reported experiencing side effects still demonstrated relatively good adherence. This may reflect the benefits of routine counselling in the Antiretroviral therapy program, which emphasizes managing and anticipating side effects. Similar outcomes have been observed where structured side-effect counselling buffers the risk of discontinuation.[16]

Overall, the findings reinforce evidence that adherence support interventions should be individualized, addressing psychological, motivational, and lifestyle-related barriers rather than relying solely on demographic characteristics. Strengthening behavioural counselling, peer support, mental health linkage, and medication reminder systems may further improve adherence rates in the facility.

CONCLUSION

The research revealed that majority of respondents achieved high virological protective compliance, while non-compliance was mainly due to personal variables including forgetfulness, travelling, Alcoholism, limited health literacy and interruptions to daily routines.

Sociodemographic characteristics did not significantly influence adherence. Strengthening routine counselling, supporting self-management, and aligning medication schedules with patients' lifestyles may improve adherence further. Sustained adherence support remains essential to maintain viral suppression and prevent treatment failure.

The role of family support especially spousal support contribute substantially not only in achieving high virological protective compliance for improve Management care but also enhance and support the patient's holistic well-being physical, mental and social.

ACKNOWLEDGEMENT

I acknowledge the contribution of Dr. Akinyemi Ayeobasan of the Federal College of Education Technical Akoka Lagos, Dr Victoria Bamimore of the University of Medical Sciences Ondo Pharmacist Akintoke Adebayo Badmus of the National Youth Service Corp and Prof Abiodun Ogundaini of the University of Medical Sciences Ondo.

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