Assessment of Non-adherence to Therapy Among HIV/AIDS Patients in Presidential Emergency Plan for AIDS Relief (PEPFAR) Unit of University of Benin Teaching Hospital (UBTH)

Abstract

Background: Antiretroviral therapy (ART) has made it possible for treating HIV/AIDS as a chronic and manageable infection. HIV patients who receive effective therapy and adhere to it have similar survival rates as people who are not infected. People living with HIV/AIDS (PLWHA) are given the medications without charge at authorized clinics across Nigeria. Despite being readily available, adherence with ARV medication therapy is still a serious challenge.

Objective: This study was aimed at assessing the adherence level to antiretroviral therapy and medication knowledge among HIV/AIDS patients in the University of Benin Teaching Hospital, PEPFAR Unit.

Method: The cross-sectional study was conducted among 461 consenting participants aged 18 years and above who had been on ART for at least two months. Data were collected using a standardized self-reported structured questionnaire, covering demographic details, health-related information, medication adherence, and medication knowledge.The response rate was 86.8%. Data analysis involved descriptive statistics, cross-tabulation, Chi-square test, and binary logistic regression.

Result: 64.3% of the respondents were within 38-57 years, 74.8% were female and 25.3% were male, 59.5% were married, 50.3% attended secondary School, 75.0% were self-employed, 98% Christian and their major monthly income fell within #21,000-#30,000 and 66.5% were on two (2) medications. Adherence to ART was observed in 74% of the study participants while 26% were non-adherent. Comorbidity (peptic ulcer disease) and increased number of medications taken were significantly ($p < 0.05$) associated with ART non-adherence among the study participants. There was no statistically significant difference in adherence level across the age groups, gender, and level of education. Majority of the study participants (64.5%) had a good ARV medication knowledge and there was a positive association between medication knowledge and adherence to ARV medications. Hence, there is a need for medication knowledge education during counseling for both old and new patients.

Conclusion: Despite relatively high adherence levels, challenges such as comorbidities and polypharmacy hinder optimal ART outcomes. Education on medication knowledge during counseling is essential for improving adherence among both new and existing patients.

Limitations: This study relied on self-reported adherence data, convenience sampling method, single-site design, cross-sectional methodology, and relatively small sample size may limit the generalizability and validity of the findings.

Keywords: Adherence, antiretroviral medications, antiretroviral therapy (ART), People living with HIV/AIDS (PLWHA), medication knowledge.

1. Introduction

Among all the pandemics the world has ever witnessed, Acquired Immune Deficiency syndrome (AIDS) is one of the most lethal. The very first AIDS cases were reported in 1981, and at this

period the human immunodeficiency virus (HIV) rapidly spread and was globally fatal (CDC, 1981). The introduction of antiretroviral therapy (ART) has made it possible for treating HIV/AIDS as a chronic and manageable infection. Currently, it is expected that HIV patients who receive effective therapy will have similar survival rates as people who are not infected (Bhaskaran *et al*., 2008; Wing, 2016). Numerous initiatives have been launched over time to better the lives of people living with HIV/AIDS (PLWHA).
After the careful application of the treatment guidelines for the various classes of antiretroviral (ARV) medications that ushered in the fixed drug combinations in 1996 as "highly active antiretroviral therapy"(HAART) (Hammer, S. M., et al. 1997), also known as "combined antiretroviral therapy,"the long-term success of ART was observed after the year 2000. However, HIV patients are projected to require an adherence level exceeding 95% in order to achieve undetectable viral levels (Chesney, MA. 2003).

Since the beginning of the epidemic, 88.4 million [71.3–112.8 million] people have been infected with the HIV virus and about 42.3 million [35.7–51.1 million] people have died of HIV. At the end of 2023, there were 39.9 million [36.1–44.6 million] HIV-positive individuals worldwide(WHO, 2023).

HIV infection has no known cure. However, with increased access to excellent HIV prevention, diagnosis, treatment, and care, especially for opportunistic infections, HIV infection has become a manageable chronic health condition, allowing those living with HIV to live long and healthy lives (WHO Fact Sheet, 2024).

Even though there has been a 39%decline in new HIV infections since 2010, a 60% decline since the peak in 1995 and a corresponding 69% since the peak in 2004, which shows that significant progress has been made globally , there are still many obstacles to overcome as too many people with HIV or at risk for HIV still do not have access to prevention, care, and treatment, and there is still no cure (HIV.gov, 2024).

HIV/AIDS still remains a major problem for the worldwide public health sector because of its gravity. The disease is economically significant since it burdens society with sickness and mortality, particularly those fully contributing to the economy through their productive labor (Barnett, 2005).

Despite the extensive efforts made by several nations throughout the world to prevent the disease's spread and educate those who are living with it, millions of people are still dying from HIV/AIDS, and there are still new cases of infection being recorded. This is related to the fact that some PLWHA who are prescribed antiretroviral (ARV) medications still forget to take their medications, and the scheduling of each dose is not rigorously followed(HIV.gov, 2024).

The rise of HIV strains that are resistant to treatment might be as a result of poor adherence. Less than 95% adherence to ART has been associated with treatment failure and the establishment of viral mutants resistant to the existing ARV medications (Illiyasu *et al*, 2005).

In the absence of medication or when receiving subtherapeutic therapy, the Human Immunodeficiency Virus (HIV) quickly mutates. This raises the possibility that an at-risk population would contract multi-resistant HIV, which might have an impact on public health (Phillips, Andrew N et al., 2017).

Nevertheless, medication resistance can develop whether or not a patient follows their treatment plan. After ceasing medication, plasma HIV-RNA levels in patients with undetectable viral loads

have been reported to swiftly recover, sometimes even reaching pre-therapy levels in less than 21 days. This demonstrates the significance of taking ARV medications continuously, even when undetectable plasma viremia levels have been reached.Therefore, it is crucial to take antiretroviral medications as directed without skipping or lowering doses.

Purpose of the Study: The main purpose of this study was to assess adherence level to ART among PLWHA in UBTH and the specific objectives were to:

Determine reported adherence to ART by PLWHA in UBTH.

Determine relationship between demographic characteristics and adherence to ART.

Determine relationship between medication knowledge and adherence to ART.

2. Materials and Method

Research Design
A cross-sectional descriptive study that sets out to determine respondents' adherence to and knowledge of their medications.
Study Setting
This study was proposed and conducted at the PEPFAR unit of UBTH Benin City, Nigeria.
Study Participants
The study participants were HIV/AIDS patients receiving treatment at PEPFAR unit of UBTH.
Inclusion Criteria
HIV/AIDS patients who were 18 years and above and had been on ARV therapy for a minimum of two months.
Exclusion criteria
Those who did not give informed consent.

Time Frame for the Study
The questionnaire-based data collection was carried out within February- April 2022.

Data Collection
The data was collected through a face-to-face interview format with the use of structured and standardized questionnaire.

Instrument for Data Collection
Consists of three sections:
Section I: This section collected socio –demographic data
Section II: This section consists of the validated Medication compliance questionnaire (MCQ) that was developed by using the Morisky self-reporting scale (Morisky, D. E., Green, L. W., & Levine, D. M. 1986), Hill-bone Compliance to High blood Pressure therapy scale (Krousel-Wood, Marie *et* al. 2005) and Morisky Medication Adherence Scale (Södergård, B *et* al.2006),which helped to assess level of adherence.
The questionnaire contained a total of seven questions assessing patients intentional and unintentional nonadherence to medication instructions including reasons for nonadherence with a 4-point Likert scale appointed for each question: none of the time = 4; sometimes (one to four times per month) = 3; most of the time (more than five times per month or more than two times

per week) = 2; all the time = 1. The total scores were added for each patient. The scores ranged from 7 (minimum) to 28 (maximum). Based on the scoring system used in the Morisky Medication Adherence Scale, a total score of 27 and above was considered adherent, scores below 27 was considered to be non-adherent.
The validity and reliability of the MCQ was established before its usage in the study. An internal consistency test was done by utilizing 20 patients to assess the association among the seven questions in the MCQ (N.S Ahmad et al., 2013). The questionnaire had a Cronbach's α value of 0.792, suggesting good reliability.
Section III: This section consists of questions that helped assess patients' knowledge of their medication. It comprised five specific items of information regarding the patients' medication: name, dose, frequency, indication, and how the patient administered the medication. The knowledge score was calculated based on the number of questions answered correctly. Each correct answer was given a score of 1, with a total score of 5. The medication knowledge was then calculated as a percentage of correct answers, with one correct answer equivalent to 20% and a total of 100%.

Sampling Technique

A convenience sampling method was used which allowed the recruitment of participants from a readily available population. However, convenience sampling may introduce biases, such as selection bias and sampling bias. To mitigate these biases, it was ensured that the questionnaire was administered to consecutive patients attending the ART clinic, reducing the potential for selection bias and data collectors were trained to administer the questionnaire accurately.

Sample Size Determination

An estimate of the sample size was done using the Cochran formula:

$$n = \frac{Z^2 P(1-P)}{e^2}$$

Where e = margin of error

P = population proportion (standard of deviation)

Z = z-score (use of z table)

n = more than 10,000

Using a confidence interval of 95%, z-score = 1.96, and assuming a proportion of 50% with a margin of error of 5% (Lwanga, S. K., & Lemeshow, S. 1991).

The sample size (n) = $\frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 384$

To account for potential non-response and incomplete data, 20% of the calculated sample size (384) was added, resulting in a final sample size of 461. This adjustment ensures that the study retains sufficient statistical power despite possible participant attrition or missing data.

Data Analysis

Questionnaires were retrieved from the respondents, coded and the data entered into Microsoft excel. This was transferred to Statistical Package for Social Science for Windows (Version

16.0.1) for statistical analysis. The categorical data such as sex, race, age, duration of disease, comorbidities, and level of education were presented as frequency and percentage.

Cross tabulations were used to classify the respondents based on characteristic variables into adherent and nonadherent.A total score of 27 and above was considered adherent, scores below 27 was considered to be non-adherent.

Chi-square test was used to test the association between predictor variables and non-adherence. A confidence level of 95% was accepted. Binary logistic regression analysis was conducted to identify factors associated with non-adherence, while adjusting for covariates. The variables with a p-value <0.05 were included in the logistic regression model to identify factors that could significantly affect non-adherence.

3. Results

Out of the four hundred and sixty-one (461) patients administered the questionnaire, 400 returned completely answered questionnaire giving a response rate of 86.8%.

Demographic Information of the Respondents: The frequency and the percentages of the characteristics considered under the demographic information (such as age, sex, etc.) of the respondents are shown in Table 1.

Table 1: Social Demographic Characteristics of the respondent (n=400)

Social-Demographics Characteristics	Total (N)	Percentage (%)
Age		
18-37	78	19.5
38-57	257	64.3
58-77	65	16.3
78 and above	Nil	Nil
Sex		
Male	101	25.3
Female	299	74.8
Marital Status		
Single	74	18.5
Married	238	59.5
Divorced	22	5.5
Widowed	58	14.5
Separated	8	2
Level of Education		
Primary	85	21.3
Secondary	201	50.3
Tertiary	104	26.0
None	10	2.5
Occupation		
Government Sector	58	14.5

Private Sector	29	7.3
Self Employed	300	75.0
Unemployed	11	2.8
Student	2	5
Religion		
Christian	392	98.0
Muslim	7	1.8
Traditionalist	1	0.3
Atheist	Nil	Nil
Others	Nil	Nil
Monthly Income (Naira)		
15,000-20,000	116	29.0
21,000-30,000	166	41.5
31,000-50,000	58	14.5
51,000-100,000	41	10.3
Above 100,000	19	4.8
Comorbidities		
Stroke	Nil	Nil
Peptic Ulcer	40	10
Hypertension	40	10
Diabetes	5	1.3
CKD	Nil	Nil
Duration of HIV/AIDS		
Less than 5 years	118	29.5
6-10 years	87	21.8
11-20 years	185	46.3
Above 20 years	10	2.5
Number of drugs taken		
One	34	8.5
Two	266	66.5
Three	94	23.5
Four and more	6	1.5

Among the 400 participants, majority (64.3%) were within the age range of 38-57 years. There were more female (74.8%) respondents than male (25.3%).
Majority (50.3%) of the respondents attended secondary school and 26.0% attended tertiary institution.
Respondents were predominantly self-employed (75.0%) and those under government sector (14.5%).

The predominant religion observed was Christianity (98.0%) and the majority of the respondents' monthly income were within #21,000-#30,000.
Of all the chronic illness surveyed; the main comorbidity was peptic ulcer disease (n=40, 10%), hypertension (n=40, 10%).
A total of 185 (46.3%) of the respondents had been diagnosed of HIV/AIDS for 11-20 years and in terms of number of ARV medications greater fraction of the participants were on two (2) medications.

Respondents' Adherence to ARV Drugs: The response to the questions in the Medication Compliance Questions (MCQ) and the summary of the MCQ score are presented in Table 2 and Table 3 respectively.

Table 2: Patients' Response to the Medication Compliance Questions (MCQ)

Medication Compliance Questions (MCQ)	Response			
	Never	Sometimes	Often	Always
How often do you forget to take your medicine?	211(52.8)	188(47)	1(3)	Nil
How often do you decide not to take your medicine?	368(92)	31(7.8)	1(3)	Nil
How often do you miss taking your medicine because you feel better?	375(93.8)	25(6.3)	Nil	Nil
How often do you decide to take less of your medicine?	341(85.3)	58(14.5)	1(3)	Nil
How often do you stop taking your medicine because you feel sick due to the effects of the medicine?	383(95.8)	17(4.3)	Nil	Nil
How often do you forget to bring along your medicine when you travel away from home?	347(86.8)	53(13.3)	Nil	Nil
How often do you not take your medicine because you run out of it at home?	353(88.3)	47(11.8)	Nil	Nil

Table 3: Summary of the MCQ Score and Adherence Status (n=400)

Total Score (28points)	**Frequency**	**Percentage**	**Inference**
28(100%)	165	41.25	Adherent
27(>95%)	131	32.75	Adherent
23-26(>80%-95%)	96	24	Non-adherent
18-22(>60-80%)	8	2	Non-adherent

<18(<60%)	Nil	Nil	Non-adherent

There were 296(74%) subjects who were categorized as adherent and 104 (26%) who were categorized as non-adherent and the most common reason for non-adherent was forgetfulness.

Respondents' Medication Knowledge Score

The response from medication knowledge assessment and the medication knowledge score are presented in Table 4 and Table 5 respectively.

Table 4: Patients' Response to the Medication Knowledge Questions

Medication Knowledge Questions	**Responses (%)**	
	Yes	**No**
Do you know the name of each of your medications?	42(10.5)	358(89.5)
Do you know the correct dose(s) of your medication(s)?	399(99.8)	1(0.2)
Do you know when to take your medication(s)?	400(100)	Nil
Do you know how to take your medication(s)?	400(100)	Nil
Do you know what each of your medication does for you?	259(64.8)	141(35.2)

Table 5: The Impact of Medication Knowledge on Adherence

Medication Knowledge Score (%)	**Frequency**	**Percentage**	**Adherence n (%)**	**Non-adherence n (%)**
20	Nil	Nil	Nil	Nil
40	1	0.3	Nil	1(100)
60	141	35.3	103(73.0)	38(27)
80	216	54	162(75)	54(25)
100	42	10.5	30(71.4)	12(28.6)

From the survey, only 42 (10.5%) were able to score 100% and majority of the respondents 216 (54%) scored 80% therefore 258 (64.5%) of the participants medication knowledge score was above 70% and those that had this high score were more adherent compared to those whose medication knowledge score were below 70%. This indicates that majority of the participants had substantial knowledge about their medication but most of the participants do not know the name of their medication (89.5%) and the numbers of those who do not know what each of their medication(s) does were considerably high (35.2%).

Association between the Predictor Variables and Non-adherence

The participants were categorized as adherent and non-adherent in line with the predictor variables included in the study which includes the demographic characteristics as shown in Table 6. P-values were derived using the Chi-square test without continuity correction, as the sample size (n=400) was sufficiently large."

Table 6: Determination of the association between socio-demographic data and adherence among study participants

Socio-Demographics Characteristics	Total N (%)	Adherent n (%)	Non-adherent n (%)	P-value
Age				0.7928
18-37	78(19.5)	60(76.9)	18(23.1)	
38-57	257(64.3)	187(72.8)	70(27.2)	
58-77	65(16.3)	49(75.4)	16(24.6)	
78 and above	Nil	Nil	Nil	
Sex				0.6490
Male	101(25.3)	73(72.3)	28(27.7)	
Female	299(74.3)	223(74.6)	76(25.4)	
Marital Status				0.3439
Single	74(18.5)	58(78.4)	16(21.6)	
Married	238(59.5)	171(71.8)	67(28.2)	
Divorced	22(5.5)	20(90.9)	2(9.1)	
Widowed	58(14.5)	46(79.3)	12(20.7)	
Separated	8(2.0)	1(12.5)	7(87.5)	
Level of Education				0.3746
Primary	85(21.3)	60(76.5)	20(23.5)	
Second	201(50.3)	152(75.6)	49(24.4)	
Tertiary	104(26.0)	70(67.3)	34(32.7)	
None	10(2.5)	9(90)	1(10)	
Occupation				0.4432
Govt. Sector	58(14.5)	39(67.2)	19(32.8)	
Private Sector	29(7.3)	23(79.3)	6(20.7)	
Self-Employed	300(75.0)	224(74.7)	76(25.3)	
Unemployed	11(2.8)	10(90.9)	1(9.1)	
Student	2	Nil	2(100)	
Monthly Income				0.4772
15,000-20,000	116(29)	85(73.3)	31(26.7)	
21,000-30,000	166(41.5)	126(75.9)	40(24.1)	
31,000-50,000	58(14.5)	46(79.3)	12(20.7)	

51,000-100,000	41(10.3)	25(61.0)	16(39.0)	
Above 100,000	19(4.8)	14(73.5)	5(26.3)	
Religion				0.6480
Christian	392(98.0)	291(74.2)	101(25.8)	
Muslim	7(1.8)	4(57.1)	3(42.9)	
Traditionalist	1(0.3)	1(100)	Nil	
Atheist	Nil	Nil	Nil	
Others	Nil	Nil	Nil	
Co-morbidity				
PUD	40(10)	22(55)	18(45)	**0.0038**
Hypertension	40(10)	33(82.5)	7(17.5)	0.1973
Diabetes	5(1.3)	4(80)	1(20)	0.7500
Duration of HIV/AIDS				0.4204
Less than 5yrs	118(29.5)	87(73.7)	31(26.3)	
6-10yrs	87(21.8)	72(82.8)	15(17.2)	
11-20yrs	185(46.3)	129(69.7)	56(30.3)	
20yrs and above	10(2.5)	8(80)	2(20)	
Number of Drugs Taken				**0.0102**
1	34(8.5)	29(85.3)	5(14.7)	
2	266(66.5)	199(74.8)	67(25.2)	
3	94(23.5)	67(71.3)	27(28.7)	
4	6(1.5)	1(16.7)	5(83.3)	

To determine whether the demographic variables such as age, sex, marital status, level of education, occupation, religion, monthly income, comorbidity, duration of disease and number of drugs taken are associated with non-adherence in the study participants, of all the variables only comorbidity (peptic ulcer disease) and number of drugs taken were significant at 5% level ($p<0.05$) and two variables were then considered in binary logistic regression as shown in Table 7. The

Model fit being Logistic regression and model Characteristics Pseudo R-squared = 0.055. Reference category for the co-morbidities were those who did not have the comorbidity while the reference category for the number of drugs were those who took 1 pill.

Table 7: Logistic Regression for Variables Predicting Non-adherence in HIV/AIDS Patients in UBTH (n=400)

Variable	Total N(%)	Adherent n(%)	Non-adherent n(%)	Adjusted OR (95%CI)	P-Value

PUD	40(10)	22(55)	18(45)	**2.764 (1.366-5.594)**	**0.05**
Number of Drugs taken				**0.611 (0.418-0.893)**	**0.011**
1	34(8.5)	29(85.3)	5(14.7)		
2	266(66.5)	199(74.8)	67(25.2)		
3	94(23.5)	67(71.3)	27(28.7)		
4	6(1.5)	1(16.7)	5(83.3)		

The variables from the Chi-square test that were found to be significantly associated with non-adherent which are Peptic Ulcer Disease and Number of drugs taken were further subjected to Logistic Regression analysis. Participants with peptic ulcer disease as comorbidity were found to be less adherent to their medications with absolute odds ratio of 2.764 (1.366-5.594) (i.e. 2.764 times less adherent) as compared to HIV/AIDS patients who had no comorbid disease condition. An increase in the number of drugs taken was associated with non-adherent with absolute odds ratio of 0.611(0.418-0.893).

4. Discussion

Demographics Characteristics

There were twice as many female respondents as there were men, which is consistent with other studies that have reported a higher proportion of females among HIV/AIDS patients in sub-Saharan Africa (Ekama et al., 2018). The physiological explanation for this is linked to the fragility of the vaginal wall that made it susceptible to blisters and abrasions that could offer a route for the transmission of Sexually transmitted diseases of which HIV is inclusive (Ajuwon, 1996-97).

The female reproductive system acts as a receptor. When HIV-positive semen is present during coitus, it can remain for a longer time in the female body compared to that of a male. Consequently, women are more susceptible to infection than men. Women frequently visit hospitals for prenatal care during childbirth, and during this time, their HIV status is easily determined.

Middle-aged people, or those between the ages of 38 and 57, were found to be the study participants who were most affected. Thus, it was shown that HIV/AIDS primarily affects healthy, strong, and able-bodied men and women at the peak of life.

This finding is consistent with the UNAIDS 2002 report (UNAIDS, 2002).

The majority of responders were married, followed by the singles and the widowed since the impact of HIV is heavier on the sexually active population. The marital status of the respondents was observed not to have any significant effect on adherence which is in line with the finding of Lauretta I. O. (2013) and Afolabi et. al. (2006). The more knowledgeable (educated) one is, the more informed a person is, and the more adherent to therapy the person is likely to be. However, this study's findings showed the opposite. It was found that the uneducated (90% of the population) adhered slightly more than the educated. This might be explained by the small percentage of study participants who lacked formal education and hence were unable to provide

accurate results. Furthermore, Zhu et al. (2023), results suggested that higher levels of education were associated with better medication adherence, which was mediated by executive function.

Generally, most of the people affected were the self employed (75.0%) and those engaged in government sectors (14.5%). This supports the idea that HIV primarily impacts the labor force and, inevitably, every section of the country's economy. However, in this study, occupation did not influence adherence.

The majority of the participants (98%) were Christians, which could be attributed to the fact that the study was conducted in an area of Nigeria where Christianity is the predominant religion. Due to the large number of respondents' (75.0%) self-employment, the majority of respondents' monthly incomes fall between $21,000 and $30,000, and as a result, this generally will affect their diet and other lifestyle choices that will impact on the adherence.

Comorbid HIV/AIDS patients typically take additional medications from different pharmacological class, which tends to increase the pill burden and promote non-adherence. This was consistent with the finding of Talam et al., (2008). Peptic ulcer disease, hypertension, and diabetes were the three most prevalent chronic illnesses identified throughout the survey, although only peptic ulcer disease was found to be significantly linked with nonadherence.

In terms of the number of ARV medications taken, a larger percentage of participants (66.5%) were taking two (2) medications, but adherence levels were higher in those taking just one medication (85.3%). As a result, the number of drugs taken was significantly associated with nonadherence, and this can be attributed to the increase in the number of pills taken.

Adherence to Antiretroviral Therapy

Regarding medication adherence, there have been variations in the findings reported from different studies. As shown in Table 3 of this study, 74% of the study participants in this survey demonstrated adherence, which is similar to the results from Uzochukwu et al. (2009), where 75.3% of the participants demonstrated adherence, and Lauretta I. O. (2013), where 79.20% of the respondents demonstrated adherence. This finding is also consistent to the finding from Georges et al. (2024) which reported that 76.64% of 137 participants were adherent. The significantly high level of adherence in this study could be related to the fact that there is a high level of awareness for HIV in the study setting because of the daily health education and counseling, free medication, improved and patient-friendly clinic courtesy of PEPFAR, UNAIDS, and the Global Fund.

The level of adherence in this survey could also be linked to the fact that majority of the respondents' medication knowledge score were above 70% (n=258, 64.5%), since those with medication knowledge score above 70% where more adherent.

Medication Knowledge and it's Impact on Adherence

Majority of the respondent’s medication knowledge score was above 70%(n=258,64.5%) and participants with medication knowledge score above 70% were found to be more adherent compared to those whose medication knowledge score were below 70% and as such there is positive association between medication knowledge and adherence. Despite this observation, there was no significant association between medication knowledge score and non-adherence this could be linked to the small percentage of study participants whose medication knowledge score were below 70% which may be significantly small for any comparison to be made.

The fact that the study was conducted at one of the oldest university teaching hospitals, that has witnessed many HIV and AIDS awareness programs over the years, may be related to the high medication knowledge score seen in the majority of participants.

However, other researchers discovered that PLWHA who were less educated were less likely to adhere to their medication (Golin et al, 2002). Hence, there's need for patients' medication knowledge education during counseling for both old and new patients.
Nevertheless, health care professional is in the best position to disseminate appropriate information for better treatment outcome (Yao Potchoo et al., 2010). To that end, Patient education on medication regimens is essential in order to improve adherence.

Conclusion

The introduction of antiretroviral (ARV) medications has transformed HIV from a fatal illness to a manageable chronic condition, with strict adherence to ARV being crucial for treatment success. HIV disproportionately affects young, sexually active individuals, particularly those aged 38 to 57, who are vital to the workforce and the economy. This study found that demographic factors such as age, sex, education, marital status, and occupation did not significantly influence ARV adherence. However, 74% of participants adhered to their ARV regimen, while non-adherence was linked to comorbidities like peptic ulcer disease (PUD) and the number of medications taken. Factors improving adherence included better knowledge of ARVs, fewer medications, and the absence of comorbidities. To further support adherence, health education should be emphasized, particularly in improving medication knowledge and encouraging healthy lifestyle choices.

Ethical considerations

Ethical approval with protocol number "ADM/E 22/A/VOL.VII/14831266" was obtained from the ethics committee of the University of Benin Teaching Hospital (UBTH).

Informed consent

Informed consent was obtained from prospective participants and afterwards they were assured of anonymity.

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