

Research article

# PREVALENCE AND DETERMINANTS OF NON-ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG ADULT PEOPLE LIVING WITH HIV AND AIDS WHO ATTEND CLINIC AT GENERAL HOSPITAL OWERRI

Nwoke E. A; Okoro S; Ibe S. N. O; Chukwuocha U. M and Nwugo R. C.

Federal University of Technology Owerri, Imo State, Nigeria.

E-mail: [eunnynwoks@yahoo.com](mailto:eunnynwoks@yahoo.com)

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## ABSTRACT

The Study was designed to determine the prevalence and determinants of non-adherence to antiretroviral therapy among adult people living with HIV and AIDS who attend clinic at General Hospital Owerri. The objectives were to determine the level of non-adherence to Antiretroviral Therapy (ART) among people living with HIV and AIDS who attend General Hospital Owerri (GHOW), the influence of socio-demographic variables on non-adherence to Antiretroviral Therapy (ART) and other factors influencing non-adherence to Antiretroviral Therapy (ART). A descriptive survey design was used and sample size was 200 (85.1%) out of 235 HIV/AIDS adult patients registered in General Hospital Owerri. A structured, validated and reliable questionnaire ( $r = 0.77$ ) was used as instrument for data collection. Data analysis was done using frequency, charts, percentages and test of significance using chi-square test. The non-adherence rate was 45%. The reasons for missing ARV drugs were Forgetfulness (17.6%), Medication side effects (13.2%), Pill burden (11.8%), financial constraints (14.7%), Stigmatization (16.2%), Depression (16.2%) and non-availability of drugs (10.3%). The socio-demographic variables like Sex ( $P = 0.004$ ), Marital status ( $P = 0.003$ ), Educational level ( $P = 0.016$ ) and Occupation ( $P = <0.001$ ) were significantly associated with non-adherence to ART while age had no significant association. These factors were recommended to guide counseling and design of programmes aimed at reducing non-adherence to antiretroviral therapy.

**Key words:** Prevalence, Non-Adherence, Antiretroviral Therapy, HIV/AIDS

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## Introduction

Antiretroviral drugs are medications for the treatment of infection by retroviruses, primarily Human Immuno Viruses. When several such drugs typically three or four are taken in combination, the approach is known as Highly Active Antiretroviral Therapy (HAART). Global health initiative such as United States (US) Presidents' Emergency Program For AIDS Relief (PEPFAR) and the Global Fund to fight AIDS, Tuberculosis and Malaria (GFTAM) have responded to the HIV pandemic by expanding provision for Antiretroviral Therapy (ART) to the increasing number of affected people

(UNAIDS, 2008). This has resulted to the expansion of treatment and prevention programs that have increased Antiretroviral Therapy (ART) access to previously un-served and underserved populations. Nigeria is one of the target countries for these international programmes and is also a country with strong local political support for these initiatives.

Appropriate use of Antiretroviral Therapy (ART) has improved the health of many Human Immunodeficiency Virus (HIV) positive individuals who otherwise would have died. Notably, the efficacy of any treatment depends on sustained high level of adherence to Antiretroviral Therapy (ART) (Altice *et al.*, 2001; Mannheimer *et al.*, 2005 and Mill *et al.*, 2006). But ART regimens are often complicated and can include varying dosing schedules, dietary requirements, and adverse effects (Ferguson *et al.*, 2002). Adherence is a major predictor of the survival of individuals living with HIV/AIDS (Mill *et al.*, 2006) and poor adherence to treatment remains a major obstacle in the fight against HIV/AIDS. In earlier studies in Nigeria, varying levels of adherence have been reported. For example, the levels reported for studies conducted in Kano (Northern Nigeria), Niger Delta and Sagamu (Southern Nigeria) are 49.2% (Nwauche *et al.*, 2006), 80% (Mukhtar *et al.*, 2006) and >85% (Idigbe *et al.*, 2005) respectively.

Different levels have also been reported in several countries in Sub-Saharan Africa and North America (Mill *et al.*, 2006).

From the perspective of public health and service delivery, non-adherence to treatment undermines the efficient distribution of resources (Mc Donald *et al.*, 2002) and huge expenditure by international organizations including the United States President's Emergency Plan for AIDS Relief (PEPFAR), and Global Fund and the World Bank (Pennington, 2007). It also has negative impact on the effectiveness of therapeutic interventions in HIV/AIDS management and contributes to disease progression (Weiser *et al.*, 2003). In Sub-Saharan Africa, concerns about adherence problems have been an important consideration in expanding access (Mill *et al.*, 2006).

Generally, the factors that influence adherence to Antiretroviral Therapy (ART) fall into three categories, namely:

- i. Patient related 'Psychosocial and educational' factors.

- ii. Patient-provider factors: Interaction with physicians and other health workers and access to medications.
- iii. Clinical factors: Pill burden, dosing frequency and adverse effects of medications (Esch, 2001; Weiser *et al.*, 2003).

The reasons for non-adherence are multi-factorial (William and Friedland, 1997), and differs from community to community. Non-adherence to Antiretroviral Therapy (ART) among people living with HIV/AIDS has resulted in significant disease progression, increased rate of opportunistic infections, significant financial impact and development of resistant strain of HIV.

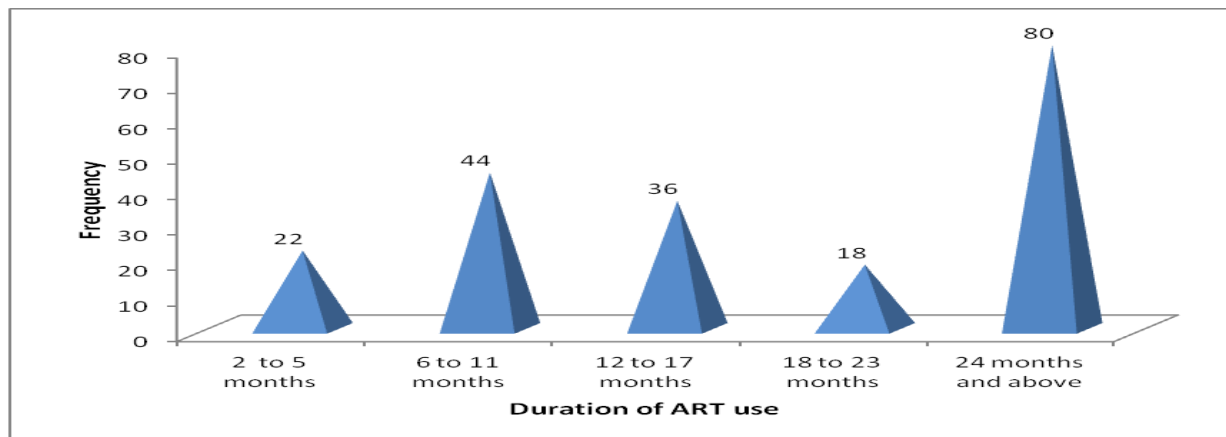
The prevalence of non-adherence to Antiretroviral Therapy (ART) among people living with HIV/AIDS in developing countries (for example, Nigeria) is on the increase, and the reasons for non-adherence are multi-factorial and differ from community to community.

Therefore, the main purpose of this study is to assess the level/rate of non-adherence to Antiretroviral Therapy (ART) in General Hospital Owerri and identify the factors contributing to non-adherence. The knowledge shall be useful in designing effective strategies to improve the level of adherence among HIV positive patients in order to prevent treatment failure and the development of drug resistance among these patients

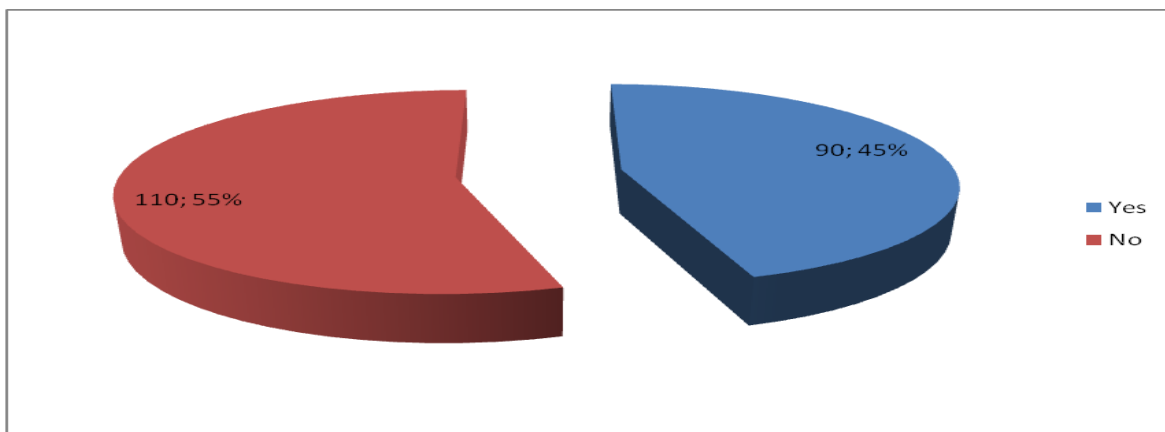
## **Materials and Methods**

A descriptive survey design was used. The Federal University of Technology Owerri ethical committee gave approval for the study and consent was got from General Hospital and the patients before the commencement of the study. The study population involved 235 adult people living with HIV/AIDS, both male and female aged 18years and above who had been on Antiretroviral Therapy (ART) for at least six months from the beginning of the study period. Two hundred (200) registered adult people living with HIV/AIDS who are on antiretroviral drugs and came to the clinic within the period of three months study were used as the sample size. The present study therefore required a 95% confidence level to make a conservative estimate of peoples' non adherence to antiretroviral therapy. There was a trial test on 10 people who were not included in the study. The instrument used was the validated and reliable questionnaire. The cronbach's coefficient alpha of  $r = 0.77$  was obtained indicating that the instrument was reliable. The administration of the instrument lasted for three months. The researcher and the field assistants were there on the clinic days for the period of three months and administered the questionnaire to all adult people living with HIV and AIDS that came on the clinic day. The data analysis was done using 200 validly returned copies of the questionnaire. Frequency, charts, percentages and test of significance using chi- square were the statistical tools used.

## **RESULTS**



**Figure 1 :** Distribution of HIV/AIDS patients who are on ART by months.



**Figure 2 :** Prevalence of non adherence to ART.

**Table 1 :** Patterns of omission of medication .

Variable	Frequency	Percentage (%)
One week interval	14	15.6
Fortnightly	16	17.8
Monthly	12	13.3
Several months	08	8.9
Occasionally	40	44.4
Total	90	100

**Table 2:** Reasons for non-adherence to ART by adult people living with HIV/AIDS.

Variable	Frequency	Percentage (%)
Forgetfulness	24	17.6
Avoid side effects	18	13.2
Tablet was too many	16	11.8
Unable to pay for transportation	20	14.7
Stigmatization	22	16.2
Depression	22	16.2
Non availability of drug	14	10.3
Seeking other sources of health care (Faith healing and use of herbs).	64	76.9

*Multiple response questions Table*

**Table 3:** Influence of socio-demographic variables on adherence to ART among adult people living with HIV/AIDS at General Hospital Owerri.

Variable	Adherence status		Total	P value
	Adherent (%)	Non-adherent (%)		
<b>Age of respondents</b>				
18 – 25	6 (42.9)	8 (57.1)	14	0.361
26 – 35	36 (42.9)	48 (57.1)	84	
36 – 45	24 (46.2)	28 (53.8)	52	
46 - 55	12 (37.5)	20 (62.5)	32	
≥56	12 (66.7)	6 (33.3)	18	
<b>Sex</b>				
Male	38 (59.4)	26 (40.0)	64	0.004
Female	52 (38.2)	84 (61.8)	136	
<b>Marital status</b>				
Single	30 (62.5)	18 (37.5)	48	0.003
Married	46 (44.2)	58 (55.8)	104	
Separated	2 (11.1)	16 (88.9)	18	
Widowed	12 (42.9)	16 (57.1)	28	
Never married	0	2 (100)	2	
<b>Educational status</b>				

Primary	12 (31.6)	26 (68.4)	38	0.016
Secondary	50 (47.2)	56 (52.8)	106	
Tertiary	22 (44.0)	28 (56.0)	50	
No Formal Education	6 (100.0)	0	6	
<b>Occupation</b>				
Civil servant	16 (66.7)	8 (33.3)	24	<0.001
Farmer	8 (66.7)	4 (33.3)	12	
Student	10 (41.7)	14 (58.3)	24	
Business/Trading	36 (34.6)	68 (65.4)	104	
Artisan	8 (100.0)	0	8	
Soldier/Police	4 (50.0)	4 (50.0)	8	
Professionals	6 (75.0)	2 (25.0)	8	
Unemployed	2 (16.7)	10 (83.3)	12	

## DISCUSSION

The result in figure 1 shows the distribution of HIV/AIDS patients who are on Antiretroviral therapy with the highest being those who have been on antiretroviral therapy for 24 months and above. Figure 2 recorded a non-adherence rate of 45% among the adult people living with HIV/AIDS who attend General Hospital Owerri (GHOW). This is slightly lower than 49.2% reported in Kano by Nwauche *et al.*, (2008), but higher than 37.1% (n = 118) and 37.4% (n = 160) reported by Olowookere *et al.*, (2008) and Shaahu *et al.*, (2008) respectively.

Also, the prevalence of 45% obtained in this study falls within 33%-88% documented by Mills *et al.*, (2006), as the range for non-adherence to Antiretroviral Therapy (ART) in the adult population. Therefore, 45% non adherence to antiretroviral therapy of the HIV/AIDS adult patients enrolled in Antiretroviral Therapy (ART) programme in GHOW, run the risk of treatment failure, disease progression, and increased rate of opportunistic infections. Concerted efforts should therefore be made to reduce this problem; emphasis should be placed on 100% adherence during counseling sessions.

The result in table 1, shows the patterns of drug omission among those not adherent to the therapy, one week interval 14(15.6%), forth nightly 16 (17.8%), monthly 12(13.3%) and occasionally 40 (44.4%). The result in table 2, recorded other factors that influenced non-adherence to Antiretroviral Therapy (ART). Other factors as identified in this study include:

### Forgetfulness

Various studies on drug adherence reported forgetfulness as the major reason for which people miss their medication. For example, in a diverse sample of antiretroviral recipients, 120 poorly adherent patients listed a total of 50 reasons for

not adhering to their therapy; about 20% was related to forgetfulness (Olowookere et al., 2008 & Mills et al., 2006). Furthermore, in a study from Costa Rica, Mukhtar et al., (2006) found that forgetfulness, being busy with other things, falling asleep through dose time were the common reasons for non-adherence to ART. These observations are consistent with the findings in this study, where 17.6% respondents cited forgetfulness as their reason for missing therapy.

### **Medication Side effects**

Side effects of medication (13.2%) was one of the reasons for non-adherence in this study which is plausible because both short-term and long-term adverse reactions have been identified with all of the available antiretroviral drugs and they have the potential to substantially reduce the quality of life. Significant mortality of up to 10% was found in the early months of treatment in one South African setting. Coetzee *et al.*, (2004), found that 24% of patients cited the wish to avoid side effects as a reason for failing to take their medication as prescribed. The World Health Organization has also noted that the effectiveness of treatment programmes particularly in low- and middle- income countries can be compromised by problems related to side effects such as toxicity, intolerance and drug interactions (WHO et al., 2008).

Although patients may be willing to tolerate side effects when they perceive their illness as life threatening, it is still important that health care personnel help patients to adhere to the therapy through appropriate support, routine management of side effects, and how and where to seek care when they occur. The fact that the benefits of regularly taking the drugs outweigh the side effects should be stressed by health workers so as to increase adherence.

### **Pill Burden**

Patients (11.8%) also complained of too many tablets as a contributor to non-adherence in this study. This is in line with a report from Port Harcourt where 13.2% of the non-adherent population cited Pill burden as their reason for missing medication (Nwauche *et al.*, 2006). In addition, Lange *et al.*, (2004) stated that difficulty in taking large number of pills can negatively influence adherence to therapy. Therefore, efforts should be made towards simplifying therapeutic regimen as this will promote adherence to therapeutic regimen, resulting to high therapeutic success.

### **Unable to Pay for Transportation**

Even in the context of free drugs, the cost of transportation to obtain drug refill was a reason given for non-adherence to Antiretroviral Therapy (ART) by twenty respondents (14.7%). This finding has also been reported in another study (Yu *et al.*, 2007). Therefore, poverty is a strong determinant of non-adherence to Antiretroviral Therapy (ART), and should therefore be addressed.

## **Stigmatization**

The fear of someone knowing one's HIV status is another contributor to non-adherence reported by 22 respondents (16.2%) in this study. This factor has been documented in previous studies carried out in other parts of the country (Nwauche *et al.*, 2006 & Mukhtar *et al.*, 2006). Stigmatization results in frequent treatment interruptions among patients, since their drugs must be hidden and not taken in the presence of others for fear of being stigmatized as well as not wanting people who know them to see them at the clinic during drug collection. Encouraging voluntary HIV status disclosure to family members may help decrease stigma and improve adherence.

## **Depression**

Twenty two respondents (16.2%) cited depression as their reason for missing therapy. This observation is in line with a report in Ibadan where 43 (19.9%) respondents documented depression as the reason for non-adherence (Olowookere *et al.*, 2008). Such people should be encouraged to join self help group and through interaction with others who have the same problem could come out of the depressive mood.

## **Non Availability of Drugs in the Clinic**

Non availability of drugs in the treatment centre was cited by fourteen (10.3%) respondents as their reason for non-adherence. This finding is consistent with those found in Kano, Ilorin and in Enugu, Nigeria (Mukhtar *et al.*, 2006 and Uzochukwu *et al.*, 2010). From the foregoing, it is evident that access to medication at the treatment centre is of great importance as inaccessibility is one of the predictors of non-adherence. The frequent out-of-stock of drugs at several facilities in Nigeria has raised serious concerns about the Sustainability of the National ARV Programme and issues of non-adherence. Out-of-stock and inaccessibility to the system induced non-adherence will promote development of resistance to drugs, worsening of the health status of patients, and increased risk of transmission of resistant strains. It is imperative that sustainable ways of providing Antiretroviral Therapy (ART) are developed. Hence, maximum possible support should be given to ongoing efforts to develop efficient procurement mechanisms and supply management programmes.

The result in table 3 recorded the influence of socio-demographic variables on non-adherence to Antiretroviral Therapy (ART). In this study, it was deduced that Sex ( $P = 0.004$ ), Marital status ( $P = 0.003$ ), Educational level ( $P = 0.016$ ) and Occupation ( $P = <0.001$ ) were significantly associated with non-adherence to Antiretroviral Therapy (ART), while Age ( $P > 0.361$ ) was not significantly associated with non-adherence ( $P > 0.05$ ).

Males were more likely to say they were adherent to ARV medication in this study, while females, never married, those with formal education and unemployed respondents were less likely to report adherence to Antiretroviral Therapy (ART). Some studies have found associations between increased rates of adherence by male gender and higher income (



Wenger *et al.*, 1999; Montessori *et al.*, 2000 ) which is consistent with this study. By contrast, others have found no association between these variables and non-adherence (Eldred *et al.*, 1998 & Mill *et al.*, 2008).

It is not clear why those with formal education were less adherent in this study; this finding is at variance with other findings in Nigeria and else where, those with higher education were more adherent (Reynolds *et al.*, 2004).

It is possible that in the setting of this study, that those with formal education were more aware of the side effects and the fact that there is no cure for HIV/AIDS, they might have decided to rationalize this and therefore were less adherent to ARV medications. On the other hand, those without formal education would tend to respect the advice of the doctor and therefore adhered more to Antiretroviral Therapy (ART).The non-association of age with non-adherence was consistent with a study in Kenya by Talam *et al.*, (2008) but inconsistent with studies by Montessori *et al.*, (2008).

## Conclusion

This study showed a high prevalence of non-adherence to Antiretroviral Therapy (ART) among adult people living with HIV/AIDS. Who attend General Hospital Owerri (GHOW). Health care personnel and counselors should intensify efforts in adherence counseling, laying emphasis on the identified constraints to adherence and ensuring accessibility to the drugs.

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