Research Article

Assessment of factors that affects adherence to Antiretroviral therapy in Health institutions in Bayelsa State, South-South Nigeria

Osain P. Henry, Owonaro Peter, Joshua Eniojukan, Ganiyu Kehinde, Ogon-Barthy Murphy

¹Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, Niger Delta University, Wilberforce Island, Amassoma, Bayelsa state, Nigeria

*Corresponding author**
Peter A. Owonaro. Department of Pharmacy Technician Studies, School of Allied Medical Sciences, College of Health Technology, Otuogidi, Ogbia Town, Bayelsa State, Nigeria

Abstract

Background: There is a huge cost burden in providing ARV Medicines. It is also important that patients get effective therapy, and the success of treatment is ensured. It is important to optimize the benefits of the limited available drugs to maintain the health of patients and get the maximal benefit of the regimen. Non-adherence ultimately leads to treatment failure. The objective of the study was to evaluate factors that affect adherence to antiretroviral therapy.

Methods: Prospective systematic review of ART clients. The study population consists of patients receiving ART treatment at Federal Medical Centre Yenagoa and Diete Koki (DK) Memorial Hospital Yenagoa. Data were generated from the patients using a well-structured questionnaire that met study objectives and a data collection form to get treatment information from the case file. Ethical approval was obtained as it applies to this study. Data were analyzed with the SPSS computer analytical tool, version 27.0.

Results: A total of 531 clients were accessed from two health institutions. Most of the clients are 31-45 years (41.4% FMC, 51.6% DK). More than half of the clients receiving cART were engaged in business or trading which accounted for 58.6% in FMC and 57.8% in DK hospital respectively. The majority had taken the drugs between 2 years and above 5 years (83.3%FMC, 60.2%DK). Most were on an ART regimen, taken once a day (87.3% FMC, 89.8%DK). The majority swallowed at most two tablets a day (40.7%FMC, 49.2%DK). Most had missed taking their medications once or twice a week (32.4% in FMC and 96.1% in DK). Some patients missed clinic visits about 5 times in the last year (25.6% FMC, 28.1% DK) some of them have experienced side effects that made them stop taking medication (11.4% FMC, 23.4% DK). The majority of the patients said they were not told what to do when they experienced these side effects (89.1% FMC, 81.3% DK) Factors that contributed or caused non-adherence to therapy includes poverty (a significant number of clients earned between N5000- N15000 per month (19.9% in FMC and 44.5% in DK hospital), high cost of transportation, missed clinic visits, inadequate counseling, lack of proper follow-up, inability to understand information, drug resistance and ADRs.

Conclusion: There is a significant level of non-adherence by clients in the study as observed in patients missing their medications, clinic visits, and outright stopping taking medication. Proper counseling and follow-up are needed.

Keywords: Anti-retroviral, therapy, adherence, Treatment failure, Bayelsa Health facilities

BACKGROUND

The scourge of HIV was first identified in the 1980s and for almost a decade treatment was only symptomatic. The rate of mortality was high due to the unavailability of a cure. The Human-immunodeficiency virus (commonly called HIV) is a chronic lifelong infection [1,2], that affects the immune system of the body with no known cure for now, but medications are available to suppress viral multiplication and to improve the immunity of the body. Therefore, Clients that have contracted HIV (People living with HIV – PLWH) should receive medical attention continually for the rest of their lives. They must also adhere to therapy to ensure they stay healthy.

The main course of pharmacotherapy and pharmaceutical care related to HIV patients is the provision of anti-retroviral therapy (ART) [3,4]. Optimal application of ART improves Quality of Life (QoL) and increases the years of life for PLWHA. ART also improves the life expectancy of patients [5], and decreases the continuous transmission of HIV [6,7]. The World Health Organization, (WHO) encourages a public health method to ART that encompasses a logically balanced selection of diverse antiretroviral medicines. These medicines are categorized into first and second-line therapy with third-line or rescue options. These options are usually simplified and standardized for the clinical management of HIV. They also

encouraged documentation to increase treatment outcomes, reduce possible untoward drug effects, ensure patient adherence, and improve patient quality of life in all ramifications [8]. Treatment alternatives following virological failure or medication toxicity are limited. This is attributable to the high costs of available alternatives. Even within the available limited options, the second line regimen is an average of three times the cost of the first line. This is a further reason that healthcare providers should ensure adherence to medications to avoid therapy failure.

It is important to optimize the benefits of the limited available drugs to maintain the health of patients and get the maximal benefit of the regimen. It is also important that patients get effective therapy and the success of treatment is ensured. HIV/AIDS treatment failure in clients getting ART therapy is a global concern that can lead to complications and death while putting a disease burden on the patients; it also has huge economic implications. The major cause of treatment failure encountered in ART is non-adherence to therapy or poor adherence, drug resistance, poor absorption of medications or malabsorption, inadequate dosing or sub-optimal potency of regimen, virus resistance, and drug-drug interactions or any form of interaction (drug-herbs, drug-food, etc). The usually known influences or factors associated with non-adherence in anti-retroviral therapy include poor understanding of disease condition and therapy, forgetfulness, poor understanding of the association. between non-adherence and disease development, medication side effects, distrust in ART due to elevated viral load upon treatment, alcohol use, and drug abuse, poor social support from relatives, poor healthcare provider-patient relationships, traveling, stigma, low educational level, among others. These factors resulting in non-adherence to therapy can be broken down into patient factors, drug factors, social factors, lack of counseling, poverty, virus factors, idiosyncratic factor, etc. [9]. This study aims at evaluating factors that affect adherence to antiretroviral therapy.

MATERIALS/METHODS

study is a Prospective systematic review of ART clients. The study population consists of patients receiving ART treatment at Federal Medical Centre Yenagoa and Diete Koki Memorial Hospital Yenagoa. Data were generated from the patients using a well-structured questionnaire that met study objectives and a data collection form to get treatment information from the case file.

Data were analyzed with the SPSS computer analytical tool, version 27.0.

RESULTS

A total of 531 eligible clients were accessed from Federal Medical Centre Yenagoa and Diete Koki Memorial Hospital Yenagoa. The highest prevalence rate of 41.4% in FMC and 51.6% in DK hospitals were recorded among those within 31-45 years of age followed by 19-30 years which were 27.5% and 30.5% respectively. The least prevalence rate of 2.7% in FMC and 3.1% in DK hospitals were recorded for ages 0-10 years. Those that are > 60 years also showed low prevalence recording 4% in FMC and 0.8% in DK hospitals. Most of the clients are secondary school certificate holders (46.1% FMC and 38.5% DK). The majority of clients' level of education is secondary and below as
shown in Table 1 below.

Table 1: Demographics of clients

VARIABLES		GROUP 1 (DK)		GROUP 2 (FMC)	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Age	0-10 years	4	3.1	11	2.7
	11-18years	8	6.3	14	3.5
	19-30 years	39	30.5	111	27.5
	31-45 years	66	51.6	167	41.4
	46-60 years	10	7.8	84	20.8
	> 60 years	1	0.8	16	4.0
Gender	Male	31	24.2	134	33.3
	Female	97	75.8	269	66.7
Marital status	Single	46	35.9	146	36.2
	Married	72	56.3	212	52.6
	Divorced	3	2.3	18	4.5
	Separated	7	5.5	27	6.7
Religion	Christian	126	98.4	367	91.1
	Islam	1	0.8	24	6.0
	Traditional Worshipper	1	0.8	3	0.7
	Others	0	0	9	20.2
Education	None	0	0	9	20.2
	Primary	11	8.6	30	7.4
	Secondary	21	16.4	69	17.1
	ary	59	46.1	155	38.5
	Tertiary	25	19.5	106	26.3
	Postgraduate	12	9.4	43	10.7

The majority of the patients had been on cART for about 2 to more than 5 years (83.3% in FMC and 60.2% in DK). Most of the patients are on once daily of cART (87.3% in FMC and 89.8% in DK). The majority of clients swallow at most two tablets a day (91.3% in FMC and 83.6% in DK). Most of the clients in FMC receive three months' supply (80.1%) while supplies their clients with one to two months' supply (90.7%). Most of the patients had missed taking their medications once or twice in a week (32.4% in FMC and 96.1% in DK). Most of the patients had about 5 tablets left at home before coming for refill (44.7% in FMC and 35.9% in DK). A significant number of clients had missed clinic appointments at most about 5 times in the last year (25.6% in FMC and 28.1 in DK).

Table 2: Medication history.

VARIABLES	GROUP 1 (DK)		GROUP 2 (FMC)	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)

Length of time /Period Patient has been on cART	6-11 months	18	14.1	28	6.9
	1– <2 years	33	25.8	39	9.7
	2 – 5 years	49	38.3	138	34.2
	>5 years	28	21.9	198	49.1
Number of times a day (Frequency) patient takes the drugs	Once a day	115	89.8	352	87.3
	Twice a day	10	7.8	51	12.7
	Twice a day	3	2.3	0	0
Number of tablets the client swallows a day	1 tablet	44	34.4	204	50.6
	2 tablets	63	49.2	164	40.7
	3 tablets	16	12.5	14	3.5
	4 tablets	1	0.8	7	1.7
	5 tablets	4	3.1	6	1.5
	>5 tablets	0	0	0	0
Number of times Patient missed his/her drugs in a week	Once	44	34.4	100	24.8
	Twice	79	61.7	31	7.7
	Three times	3	2.3	12	3.0
	>three times	2	1.6	11	2.7
Number of weeks of drug supply Patient receives during clinic visits	4 Weeks	76	59.4	22	5.5
	8 Weeks	40	31.3	53	13.2
	12 Weeks	11	8.6	323	80.1
	>12 Weeks	1	0.8	5	1.2
When last did the Patient comes for a refill of your medicine	2 weeks ago	10	7.8	13	3.2
	A month ago	74	57.8	25	6.2
	2 months ago	38	29.7	34	8.4
	3 months ago	6	4.7	280	69.5
	> 3 months	0	0	51	12.7
Number of tablets (drugs) Patient (left) had at home	1-5 Tabs	46	35.9	180	44.7
	6-10 Tabs	8	6.3	38	9.4
	11-15 Tabs	5	3.9	17	4.2
	>15 Tabs	3	2.3	19	4.7
	Not captured	66	51.6	149	37.0
Number of times in the pone year Patient missed clinic visits (Days)	1-5	36	28.1	103	25.6
	6-10	0	0.0	2	0.5
	11-15	0	0.0	0	0.0
	>15	2	1.6	0	0.0
	Not captured	90	70.3	299	74.2

A significant number of clients had missed taking their drugs (30.5% in FMC and 43.8% DK). Most Patients said that they had enough information about their medications (90.6% in FMC and 89.8% in DK). They admitted that pharmacists counsel and educate them about their medicines each time they came for medications (98.5% in FMC and 95.3% in DK). A significant number of clients had experienced side effects that made them stop taking their medications (11.4% in FMC and 23.4% in DK). The majority said they were not informed what to do when they experienced side effects of their medicines (89.1% in FMC and 81.3% in DK) but clients admitted that understood what their pharmacists told them during counseling or in interactions (98.0% in FMC and 94.5% in DK). About a quarter of them had missed their clinic day or doctor's appointment (27.8% in FMC and 35.9% in DK).

	GROUP 1 (DK)		GROUP 2 (FMC)	
	Yes (%)	No (%)	Yes (%)	No (%)
Have you ever missed taking your drugs	56 (43.7)	72 (56.3)	123 (30.5)	280 (69.5)
Do you have enough information about your medication	115 (89.8)	13 (10.2)	365 (90.6)	38 (9.4)
Does the pharmacist counsel or educate you about medicines	122 (95.3)	6 (4.7)	397 (98.5)	6 (1.5)

Have you experienced side effects that made you stop taking your medication	30 (23.4)	98 (76.6)	46 (11.4)	357 (88.6)
Were you informed on what to do when you experience side effects of the medicine	24 (18.8)	104 (81.3)	44 (10.9)	359 (89.1)
Do you understand what the pharmacist/dispenser tells you about your drugs	121 (94.5)	7 (5.5)	395 (98.0)	8 (2.0)
Have you ever missed your clinic day or doctor's visits	46 (35.9)	82 (64.1)	112 (27.8)	291 (72.2)

RESULTS

There were more patients in the age group between 31-45 years (51.6% DK, 41.4% FMC) that are currently undergoing treatment. The reason is that they are young adults. This is the age when most people are sexually active, and they do a lot of adventure activities of which some are very risky. A similar study carried out on ART patients had an average age of 38.4 ± 11.2 years (Julie et al, 2016). The least number of patients was recorded for the age group of patients that are more than 60 years old (0.8% for DK, 4.0% for FMC) that were presented for treatment. Children between 0-10 years are 3.1% for DK and 2.7% for FMC indicating fewer children were infected or currently receiving ART treatment. The study also had more adults undergoing testing for HIV. Children have lesser risk factors compared to adults in acquiring HIV. Children often have viruses transmitted to them during the birth process or hospital procedures.

There were more female patients receiving ARV treatment in these centers (75.8% for DM and 66.7% for FMC). This is contrary to the findings recorded by [10], which recorded 72.9% of males in a study done on the Characterization of treatment failure in HIV-positive patients in the Colombian Caribbean region, and the study published by [11], that recorded 74% male in a study to identify antiretroviral treatment failure in HIV infected patients. This study revealed that the females presented themselves for treatment more than their male counterparts. Additionally, females are discovered during routine antenatal screening (ANC) when they are pregnant. There were also more married patients in this study (56.3% for DK and 52.6% for FMC). Sometimes the Patients may have claimed that they are married so that they will not be stigmatized because in African society married people are seen to be more responsible.

In this study, more patients have secondary education accounting for 46.1% DK and 38.5% FMC. Those with tertiary education were (19.5% DK and 26.3% for FMC). This can be compared to a similar study that recorded that illiterates and basic education were 55% while Trade skills and Bachelor's degrees made up 45% of the study group [10]. The study also revealed that some patients do not have any form of education, hence they require more explanations, counseling, or/and an interpreter (8.6% DK, 7.4% FMC). Good communication between providers and clients gives better adherence to medication and therapy which ultimately improves patients' outcomes. Education also enhances better treatment outcomes for patients. It helps the patients understand the disease condition, the treatment offered, and advice to improve therapy and health.

A number of clients earned between N5000- N15000 per month (19.9% in FMC and 44.5% in DK hospital) which is below one dollar per day, only few of the clients earned more than N100000- N200000 per month accounting for 4.2% in FMC and 2.3% in DK hospital.

Several patients had taken the drugs for about 2 years (38.3% DK, 34.2% FMC). This is compared to a study done in 2016 that revealed that 58.1% of patients have been on cART for more than 2 years [12,13]. Most patients are on combined ART, are on a once-daily regimen (89.8% DK, 87.3% FMC). This makes it easier for the patient to take and aids medication adherence. For this to be achieved, the combination drugs had been co-formulated into a single tablet. In total, the majority of the patients had about two tablets to swallow per day. This is usually the ART drug and other drugs to prevent opportunity infections such as cotrimoxazole or haematinic to build the immune system. However, the study revealed that some patients had to take up to 5 tablets or more. Such patients had co-morbid conditions such as hypertension and/or any other ailments. Most patients reported that they miss their drugs once or twice a week even having been counseled on adherence. A significant number of patients (43.7% DK, 30.5% FMC) said they have missed their medication during their treatment course. This is an avenue for drug resistance and treatment failure if not well handled.

Most of them have adequate information about their medication (89.8 DK, 90.6% FMC) and they were adequately counseled and educated about their condition and medicines by Pharmacists (95.3% DK and 98.5% FMC). They also revealed that they understood what the pharmacist discussed with them about their medication and conditions (94.5% DK, 98.0% FMC). The above seems to agree with a study that revealed that 92.7% of HIV clients knew about HIV and cART [12,13]. A significant number of patients had experienced side effects during ART that made them stop medication (23.5 % DK and 11.4% FMC) but most of them said they were not educated on how to deal with the side effects or what to do in case of occurrence. This may largely be due to poor patient counseling techniques or a lack of adequate information from care providers.

CONCLUSION

There is a significant level of non-adherence by clients in the study as observed in patients missing their medications, clinic visits, and outright stopping taking medication. Factors that contributed to non-adherence include the level of education, number of tablets to take, side effects of drugs, lack of proper counseling, and inability to understand the information during counseling. Proper counseling and follow-up are needed.

RECOMMENDATION

Findings here suggest that a lot needed to be done to prevent non- adherence so as to ultimately prevent treatment failure. Proper counseling of patients should be done using methods that are better understood by patients. Patients should be told what is needed for the therapy especially side effects of drugs. Patients also need social support.

CONTRIBUTIONS TO CURRENT KNOWLEDGE

Improper counseling is not beneficial to patients. It means the patient does not have the necessary information needed for treatment success. It leads to non-adherence. It is possible for patients meet professional and do not

receive adequate information about treatment.

REFERENCES

1. Chun, T.W (1998). Early establishment of a pool of latently infected, resting CD4 (+) T cells during primary HIV-1 infection. Proceedings of the National Academy of Sciences. 95: 8869–8873.
2. Finzi D (1999). Latent infection of CD4+ T cells provides a mechanism for lifelong persistence of HIV-1, even in patients on effective combination therapy. Nature Medicine. 5: 512–517.
3. Palella FJ (1998). Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. HIV Outpatient Study Investigators. New England Journal of Medicine. 338: 85360.
4. Mocroft A (1998). Changing patterns of mortality across Europe in patients infected with HIV-1. EuroSIDA Study Group. Lancet. 352: 1725–1730.
5. Hogg R (2008). The life expectancy of individuals on combination antiretroviral therapy in high-income countries: a collaborative analysis of 14 cohort studies. Lancet. 372: 293–299.
6. Mofenson LM (1999). Risk factors for perinatal transmission of human immunodeficiency virus type 1 in women treated with zidovudine. Pediatric AIDS Clinical Trials Group Study 185 Team. New England Journal of Medicine. 341: 385–393.
7. Donnell D (2010). Heterosexual HIV-1 transmission after initiation of antiretroviral therapy: a prospective cohort analysis. Lancet. 375: 2092–2098.
8. Gilks CF (2006). The WHO public-health approach to antiretroviral treatment against HIV in resource-limited settings. Lancet. 368: 505–510.
9. Parsons JT, Rosof E, Mustanski B (2007). Patient-related factors predicting HIV medication adherence among men and women with alcohol problems. Journal of health psychology. 12: 357-70.
10. Manuel De La Hoz Juan, Laura Bolaño, Oriana Cárdenas, Robertulio González, José Sabbag, Lucy Palacio, Luz Marina Alonso, Homero San-Juan-Vergara, and Guillermo Cervantes-Acosta (2014). Characterization of treatment failure in HIV positive patients in the Colombian Caribbean region. Colombia Medica. 45: 162-7.
11. Julie Steinbrink, Hannah Imlay, Krishna Rao, James Riddell (2016). Identifying Causes of Antiretroviral Treatment Failure in HIV Infected Patients. Open forum infectious diseases. 3: 1547.
12. Momo A. and Suleiman I.A (2016). Impact of HIV/AIDS knowledge on adherence to combined antiretroviral therapy in Niger Delta. West African Journal of Pharmacy. 27: 91-103.
13. Suleiman I A, and Momo A, (2016) Adherence to antiretroviral Therapy and its determinants among persons living with HIV in Bayelsa State, Nigeria. Journal of Pharmacy Practice. 01: 631.

Cite this article: Osain P. Henry, Owonaro Peter, Joshua Eniojukan, Ganiyu Kehinde, Ogon-Barthy Murphy. (2023) Assessment of factors that affects adherence to Antiretroviral therapy in Health institutions in Bayelsa State, South-South Nigeria. Archives of Clinical Case Studies and Case Reports 4(3): 328- 332.