ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV/AIDS IN FEDERAL MEDICAL CENTRE, OWERRI

ABSTRACT

The research is set out to determine the adherence to antiretroviral therapy among HIVAIDS in Federal Medical Clinic Owerri. The purpose of the study was to assess patients knowledge of benefits of Highly Active antiretroviral Regimen, determine level of adherence among the HIV patients, identify factors affecting adherence to antiretroviral regimen among HIV patients, relationship between adherence antiretroviral therapy and basic demographic factors like level of education and gender . Related literature was reviewed. The research design used was a descriptive survey design. The instrument for the study was a validated and reliable questionnaire (r-0.82). A reliable and validated questionnaire was used as the major instrument for data collection. The findings indicated that 169 (88.0%) of the respondents have a high knowledge of the benefits of antiretroviral therapy while 23 (12.0%) of the sample have low knowledge. In other words, a large number of the sampled populations are well aware of the benefits of antiretroviral therapy. Conclusion was drawn that A large number of the sampled population are well aware of the benefits of antiretroviral therapy.Recommendations made were that the clinician should emphasize reducing adverse drug reaction, detecting and treating co-morbidities early, improving knowledge through health education, and encouraging the patients to disclose their HIV status to their families. Also Intensive adherence counseling should be provided to all patients before initiation of antiretroviral therapy. Health care providers must identify possible barriers to adherence to HIV/AIDS antiretroviral therapy and provide appropriate solution.

Keywords: *adherence, antiretroviral therapy HIV/AIDS*

INTRODUCTION

The introduction of antiretroviral treatment (ART) has reduced morbidity and mortality among people living with HIV. The scaling up of antiretroviral treatment was a critical turning point in the clinical management of the HIV/AIDS disease and the gradual evolution of HIV infection into a chronic non-fatal condition. By restoring the immune function and suppressing the virus to an undetectable level. This resulted in preventing the transmission of the virus to other uninfected individuals.

Over the past decade, there has been an unparalleled effort to provide access to antiretroviral therapy (ART) for HIV-infected individuals through Global Fund, World Bank and US Presidents Emergency plan for AIDS relief (PEPEAR) (UNAIDS, 2017). The effectiveness of antiretroviral therapy relies in a strict adherence to it. In other words, loose obedience or non-obedience to ART can result in inadequate rural suppression failure, rapid diseases properties and development of drug resistance.

Antiretroviral therapy (ART) provides the only viable remedy to manage and reduce the health crises posed by the infection in sub-Sahara Africa. The benefits associated with adhering to ARVs are recovery of immunity hence ability to fight opportunistic infections, improved quality of life allowing patients to become strong and healthy and able to get back to work. Also ARVs are associated with delay in disease progression to AIDS, reducing viral load and decline in morbidity and mortality in people living with HIV. On the other hand suboptimal adherence is associated with treatment failure, viral mutation and development of drug-resistance HIV. Many reports have linked non-adherence to antiretroviral treatment as a major challenge to successful management of patients with HIV/AIDS. Non-adherence to antiretroviral treatment has been a critical issue in addressing the menace of HIV/AIDS globally. It is estimated that adherence rates of 90% or more generally need to be obtained to achieve virologic success (Paterson *et al.,* 2017). Hence, after availability of HIV medication, a key-challenge is to promote adherence and retention in care in order to obtain optimal treatment outcomes for the patient. This study explores adherence to antiretroviral therapy among HIV/AIDS in Federal Medical Clinic Owerri.

Purpose of the Study

The purpose of this study will be to determine the adherence to antiretroviral therapy among HIV/AIDS in Federal Medical Clinic Owerri.

METHODOLOGY

Research Design

The descriptive survey design was employed for this study.

Area of the Study

The study focused on HIV/AIDS in Federal Medical Center Owerri.

Population of the study

The populations of the study constitute the entire patients with HIV/AIDS, cardiothoracic unit, surgical units, medical units, pediatric units, emergency units, obstetric/gynecological wards and accident & Emergency wards etc.

Chart 1. Study population

Units wards	Frequency	percentage
Medical units	2	17
Surgical units	3	01 0
Special units	2	59
Obs/Gynaecological units	4	21
Paediatric units	6	02 1
Accident & emergency units	2	42 0
Cardiothoratcic wards	1	68
Infectious diseases/isolation units	1	65
	27	**510 00 %**

Sampling Techniques and Sample size

The sample size was determined for a limited population using Yaro Yamane's statistical formular as follows:

$$n = \frac{N}{(1+N(0.05)^2}$$

Comment [QUEEN 1]: sample size not just sample

$$n = \frac{275}{(1+275(0.05)^2}$$

$$n = \frac{275}{1+275(0.0025)}$$

$$n = \frac{275}{1+0.6875}$$

$$n = \frac{275}{1.6875} = n = 162.96$$

163
+ 28
192

10% = attrition = 27.5

Hence a total of 191 patients were chosen as sample

Sampling Procedure

A simple random sampling was used to select respondents for the study. The respondents were stratified patients from six different wards. For the patients, 4 wards were selected using random sampling method and the duty roaster of each ward was used as the sampling frame. The number of the patients in the duty roaster was copied out and written on pieces of paper. This was placed in a basket and shuffled and for each ward 48 patients were selected making a sum of 192 patients.

Itshouldbemethodsfordatacollection

Instrument for Data Collection

The instrument for the collection of data was structured questionnaire which was personally constructed because it has the advantage of giving the respondent enough time to study and give realistic response to the question items. The questionnaire consists of two question items on the respondents' demographic data. While section B consists of twenty items that are divided into five (5) parts. Each cluster contains some items which were systematically presented according to five (5) research questions.

Validity of the Instrument

The self-structured questionnaire was validated by three lecturers in the department of Nursing Science, Open University after the vetting by the supervisor. This was done to ascertain the appropriateness of the instrument in relation to adherence to antiretroviral therapy among HIVAIDS in Federal Medical Clinic,Owerri,objectives and research questions. Their criticism and modifications were used to produce the final copy of the instrument.

Reliability of the Instrument

Comment [QUEEN 2]: reliability of the method, instruments should be striked out

The reliability of the instrument was determined through test re-test method. Twenty (20) copies of the instrument was administered to patients in Imo State Teaching Hospital which was not the area selected for the study. After two weeks, the same 20 copies of the instrument were re-administered to the same people. This is a test- retest technique and the essence is to ascertain the strength and weakness of the instrument. The test results was tallied and analyzed using with Spearman Brown Rank order correlation coefficient.

The correlation coefficient of 0.82 was gotten which shows that the instrument was reliable.

Method of Data Collection

The systematically sampled patients were reached in their wards and the questionnaire administered to them by the researcher was by face to face. It was filled on the spot and returned.

Method of Data Analysis

The duly completed copies of the structured questionnaire were collected, coded and analyzed using descriptive statistics of frequency count and percentages.

Ethical consideration/informed consent

Informed consent was gotten from the participants and ethical clearance got from ethical committee of Federal Medical Center Owerri.

RESULTS

In this chapter, the results of data collected are arranged and presented.

Table 1: Demographic data of respondents

Variable	Category	Frequency	Percentage %
Gender	Male	108	52.3%
	Female	84	43.7%
Level of Education	No formal Education	16	8.3%
	Primary Education	44	22.9%

	Secondary Education	53	27.6%
	Tertiary Education	79	41.2%

Data on table 1 reveals the demographic characteristics of the respondents. 108 (52.3%) of the respondents are males while 84 (43.7%) are females.

16 (8.3%) of the sampled respondents have received no formal education; 44 (22.9%) have received only primary education; 53 (27.6%) have received up to secondary education while 79 (41.2%) of the respondents have received up to tertiary education.

Table 2: Respondents' knowledge ofbenefits of antiretroviral therapy

Variable: Options		**Frequency**	**Percentage %**
Knowledge of ART			
Understanding of ART	Prevents HIV from multiplying	143	74.5%
	Medication used to treat infections	15	7.8%
	Medication that reduces infection	34	17.7%
	Medication used to fight malaria	0	-
Benefits of ART	Building immunity	129	67.2%
	Curing HIV	22	11.5%
	Reducing progression of HIV	41	21.3%
Benefits of ART initiation during acute HIV	Preservation of immune function	136	70.8%

	Decreases systemic inflammation	28	14.6%
	Limits viral reservoir	26	13.5%
	Transmission	2	1.0%
Benefits of early ART initiation	Reduced progression to AIDS & death	1 5 9	8 2 . 8 %
	Repairs the body		
	Increases the body	29	15.1%
	Increases hormones	0	-
		4	2.1%

Data on table 2 reveals respondents' knowledge on use of antiretroviral therapy (ART). Results from the table show that 143 (74.5%) of the respondents agree that ART prevents HIV from multiplying; 15 (7.8%) subscribed to use of ART as medication used to treat infections; 34 (17.7%) answered that ART is a medication that reduces infection while none of the respondents subscribed to the use of ART for treatment of malaria.

129 (67.2%) of the respondents answered that ART builds immunity; 22 (11.5%) are of the view that ART cures HIV while 41 (21.3%) answered that ART reduces progression of HIV.

Responses on benefits of ART initiation during acute HIV revealed that 136 (70.8%) of the respondents agree that initiating ART during acute HIV preserves immune function; 28 (14.6%) answered that it decreases systemic inflammation; 26 (13.5%) are of the view that it limits viral reservoir while 2 (1.0%) answered otherwise.

Responses on early initiation of ART shows that 159 (82.8%) of the respondents agree that it reduces progression of HIV to AIDS and death; 29 (15.1%) agree that it repairs the body; none subscribe to use of early ART to increase the body while 4 (2.1%) are of the view that it increases hormones.

Table 2.1: Overall knowledge of benefits of ART among HIV/AIDS patients

Category of patients' knowledge level	N	Percentage %
High knowledge	169	88.0%
low knowledge	23	12.0%
Total	**192**	**100%**

Data on table 2.1 reveals that a total number of 169 (88.0%) patients from the sampled population have a high knowledge of benefits of antiretroviral therapy while 23 (12.0%) have low knowledge of the benefits of ART.

Research question 2: What is the extent of adherence to antiretroviral therapy among HIV/AIDS patients in FMC?

Table 3: extent of adherence to ART among HIV/AIDS patients

Variable: Options		**Frequency**	**Percentage %**
Adherence to ART			
Use of ART	Yes	189	98.4%
	No	3	1.6%

Extent of adherence to ART	Always	175	91.1%
	Sometimes	14	7.3%
	Rarely	3	1.6%
Missing medications since starting	Yes	57	29.7%
	No	135	70.3%
Adherence to dose schedule	Always	167	86.9%
	Sometimes	22	1.5%
	Rarely	3	1.6%

Data in table 3 reveals the extent of adherence to the use of antiretroviral therapy among the respondents. The results reveal that 189 (98.4%) respondents out of the sampled population use antiretroviral therapy while 3 (1.6%) do not use it. Responses on the extent of adherence to ART shows that 175 (91.1%) always use ART; 14 (7.3%) of the respondents use it sometimes while 3 (1.6%) rarely use It. 57 (29.7%) of the respondents have missed their medications since starting while 135 (70.3%) have never missed their medications.

Responses on adherence to dose schedule reveal that 167 (86.9%) of the respondents always adhere to dose schedule; 22 (1.5%) adhere sometimes while 3 (1.6%) rarely adhere to dose schedule.

Table 3.1: Overall extent of adherence to use of ART among HIV/AIDS patients

Category of patients' extent of adherence	N	Percentage %
Strict adherence	175	91.1%
Moderate adherence	14	7.3%
Low adherence	3	1.6%
Total	**192**	**100%**

Data on table 3.1 shows the categorisation of the extent of adherence to the use of ART among HIV/AIDS patients. 175 (91.1%) of the total respondents were categorised as patients with strict adherence to ART; 14 (7.3%) have moderate extent of adherence to ART while only 3 (1.6%) of the respondents have low adherence to ART.

Table 4: Responses on factors affecting adherence of patients to antiretroviral regimen.

Factors affecting adherence to ART regimen	Options	Frequency	Percentage %
Pill burden	Yes	13	6.8%
	No	179	93.2%
Forgetfulness	Yes	18	9.4%
	No	174	90.6%
Depression	Yes	159	82.8%
	No	33	17.2%
Running out of drugs	Yes	189	98.4%

	No	3	1.6%

Data on table four shows the responses of the sampled population on the factors affecting adherence to antiretroviral regimen among HIV patients.

13 (6.8%) of the respondents see pill burden as a major determinant affecting adherence to ART regimen while 179 (93.2%) ticked otherwise. 18 (9.4%) of the respondents agree that forgetfulness is a factor affecting adherence to ART regimen while 174 (90.6%) answered otherwise. Depression was agreed to be a factor affecting adherence to ART by 159 (82.8%) respondents while 33 (17.2%) of the respondents answered no. Finally, running out of drugs was agreed to be a major factor affecting adherence to ART regimen as 189 (98.4%) of the respondents agreed to it while 3 (1.6%) of the respondents replied negatively.

Table 5: cross tabulation of responses on adherence to ART therapy and gender

Variable: Adherence to ART	**Male**	**%**	**Female**	**%**	**Total**		
Strict adherence	101	93.5%	74	88.1%	1	7	5
Moderate adherence	6	5.5%	8	9.5%	1		4
Low adherence	1	1.0%	2	2.4%	3		
Total	**108**	100%	**84**	**100%**	**1**	**9**	**2**

Data on table 5 shows the extent of adherence to ART therapy among male and female HIV/AIDS patients. Results show that the total number of males for the study is 108 and out of 108 males, 101 (93.5%) adhere strictly to ART therapy; 6 (5.5%) have moderate adherence while 1 (1.0%) has low adherence to ART therapy. On the part of the females, there are 84 female respondents. 74 (88.1%) have strict adherence to the ART therapy, 8 (9.5%) have moderate adherence while 2 (2.4%) have low adherence.

Summarily, the results shows that a greater percentage of the males have strict adherence to ART therapy.

Table 6: cross tabulation of responses on adherence to ART therapy and level of education.

Variable: Adherence to ART	No formal education		**Primary**		**Secondary**		**Tertiary**		**Total**
Strict adherence	10	62.5%	38	86.3%	51	96.2%	76	96.2%	175
Moderate adherence	4	25.0%	5	11.4%	2	3.8%	3	3.8%	14
Low adherence	2	12.5%	1	2.3%	0	-	0	-	3
Total	**16**		**44**		**53**		**79**		**192**

Data on table 6 shows the extent of adherence to ART therapy among the HIV/AIDS patients with regards to their level of education. Results show that a total number of 16 respondents have no formal education, 10 (62.5%) of them have strict adherence; 4 (25.0%) have moderate adherence while 2 (12.5%) have low adherence. From the 44 respondents who have primary education, 38 (86.3%) have strict adherence, 5 (11.4%) have moderate adherence while 1 (2.3%) has low adherence. From 53 respondents who

have secondary education 51 (96.2%) are strict adherents, 2 (3.8%) are moderate adherents while none was recorded to have low adherence. 76 (92.2%) out of 79 respondents who have tertiary education have strict adherence, 3 (3.8%) have moderate adherence while none has low adherence.

In summary, the result shows that patients with secondary and tertiary education have high adherence more than respondents who have no formal education and primary education.

Table 7: chi-square (x^2) analysis socio demographic factors (gender) affecting strict adherence to ART therapy. (expected counts in parentheses)

Variable	**Gender**		**Total**	**Df**	**X^2 value**	**p- value**
Adherence to ART therapy	Male	Female				
Strict adherence	101 (98.4)	74 (76.6)	175			
Moderate adherence	6 (7.9)	8 (6.1)	14	2	1.81	**.404**
Low adherence	1 (1.7)	2 (1.3)	3			
	108	84	4			

P is significant at $p<0.05$

Data in table 7 shows the chi square analysis showing the influence of gender on strict adherence to ART. The x^2 calculated value is given as 1.81 with an associated p-value of **.404 (p>.05)** which is greater than the 0.05 level of significance. Since p >.05, the null hypothesis is not rejected which implies that gender does not significantly influencestrict adherence to ART therapy. Literally speaking, respondents' adherence to ART therapy is not based on their gender.

Table 8: chi-square (x^2) analysis socio demographic factors (level of education) affecting strict adherence to ART therapy. (expected counts in parentheses)

Variable	**Adherence to ART**			**Total**	**Df**	**X^2 value**	**p- value**
Level of education	Strict adherence	Moderate adherence	Low adherence				
No formal education	10 (14.6)	4 (1.2)	2 (0.3)	16			
Primary education	38 (40.1)	5 (3.2)	1 (0.7)	446		26.48	**.000**
Secondary education	51 (48.3)	2 (3.9)	0 (0.8)	53			
Tertiary education	76 (72.0)	3 (5.8)	0 (1.2)	79			
Total	175	14	3	192			

P is significant at $p<0.05$

Data in table 8 shows the chi square analysis showing the influence of level of education on strict adherence to ART. The x^2 calculated value is given as 26.48 with an associated p-value of **.00**which is less than the 0.05 level of significance. Since $p<.05$, the null hypothesis is rejected which implies that respondents' level of education significantly influencesstrict adherence to ART therapy. Literally speaking, respondents' adherence to ART therapy is influenced by their level of education.

Table 9: chi-square (x^2) analysis of influence of knowledge of ART on adherence to ART therapy. (expected counts in parentheses)

Variable	Adherence to ART therapy			Total	df	X^2	p- value
Knowledge of benefits of ART	Strict adherence	Moderate adherence	Low adherence				
High knowledge	158 (154.0)	10 (12.3)	1 (2.6)	169			
Low knowledge	17 (21.0)	4 (1.7)	2 (0.4)	23	2	13.01	**.001**
Total	175	14	3	192			

P is significant at p<0.05

Data in table 9 shows the chi square analysis showing the influence of knowledge of benefits of ART on strict adherence to ART. The x^2 calculated value is given as 13.01 with an associated p-value of **.001(p<.05)** which is less than the 0.05 level of significance. Since p<.05, the null hypothesis is rejected which implies that respondents' knowledge of benefits of ART significantly influencesstrict adherence to ART therapy. Literally speaking, respondents' adherence to ART therapy is greatly influenced by their level of knowledge on the benefits of ART therapy.

Discussion

Analysis of results for research question one revealed that patients of HIV/AIDS in FMC Owerri have a high knowledge of the benefits of antiretroviral therapy. The results further showed that 169 (88.0%) of the respondents have a high knowledge of the benefits of antiretroviral therapy while 23 (12.0%) of the sample have low knowledge. In other words, a large number of the sampledpopulations are well aware of the benefits of antiretroviral therapy.

This finding is supported by the findings of Nwauche*et al.* (2016) who reported a high knowledge of benefit of antiretroviral therapy among HIV/AIDS patients in Enugu State.

Findings from research question two revealed that 175 (91.1%) of the respondents strictly adhere to ARK therapy while only 17 (8.9%)) have either moderate or low adherence. The reason for this finding could be the awareness on the benefits of the ART therapy which is often given to HIV/AIDS patients. This finding is however debunked by the findings ofTocco (2017) who reported a very low level of adherence to antiretroviral therapy among newly treated people living with HIV in University of Gondar Ethiopia.

Findings from research question three revealed that the major factors affecting adherence to antiretroviral regimen according to the respondents include: running out of drugs (this was agreed on by 98.4% of the respondents), and depression (agreed by 82.8% of the respondents.

This finding is buttressed by that of Wasti*et al.* (2017) who reported in their study factors affecting adherence to ART therapy among HIV patients in Nairobi that the major factors affecting adherence to ART among pregnant HIV women were running out of drugs, forgetfulness and depression. They further recorded that depression was a major factor which plunged HV/AIDS patients into forgetfulness which in turn leads to loss in keeping track of drugs.

Findings revealed that 93.5% of males strictly adhere to ART regime while 88.1% of the sample female strictly adheres to ART regimen. The results showed that males strictly adhere to ART regime more than females although the difference is very small.

Results from analysis of hypothesis one revealed the association between gender and adherence to ART regimen in FMC Owerri. The results gave a chi-square computed p-value of .404 which is greater than 0.05 level of significance implying a non-significant

association. There is no statistically significant association between gender and HIV/AIDS patients' adherence to ART regimen in FMC Owerri. This implies that although a higher percentage of males adhered more strictly than the females, the gap between their extents of adherence is not significant enough to establish a difference. On the other hand, a statistically significant association was found between patients' level of education and their level of adherence to ART therapy. The p-value was given as p=.000 indicating a significant association.

Results from analysis of hypothesis two revealed the influence of knowledge of the benefits of ART therapy on HIV/AIDS patients' adherence to ART in FMC Owerri. The results gave a chi-square computed p-value of **.001** which is less than 0.05 level of significance implying a significant influence.This by implication means that knowledge of the benefits of ART therapy significantly influences patients' adherence to the therapy in FMC Owerri. In other words, higher knowledge of the benefits of ART produces stricter levels of adherence to the therapy and vice versa. Reason for this finding cannot be far-fetched as anything which has life saving benefits is prone to be embraced among the living.

Conclusion

A large number of the sampled populations are well aware of the benefits of antiretroviral therapy. Depression and forgetfulness was among the major factor which plunged HIV/AIDS patients. Knowledge of the benefits of ART therapy significantly influences patients' adherence to the therapy. Patients' level of education influences patients' adherence to the therapy.

References

Joint United Nations Programme on HIV/AIDS (UNAIDS). (2017). Ending AIDS: progress towards the 90-90-90 targets. Global AIDS Update.

Nwauche, C. A., Erhabor, O., Ejele, O. A. andAkani, C. I. (2016). Adherence to antiretroviral therapy among HIV-infected subjects in a resource-limited setting in the Niger Delta of Nigeria. African Journal of Health Sciences, 13(3-4), 13-17.

Paterson, G., Swindells, S., & Mohr, J. (2016). Adherence to protease inhibitor therapy and outcome in patients with HIV infection. Ann Intern Med, 133, 21–30.

Tocco, J. U. (2017). The Islamification of antiretroviral therapy: Reconciling HIV treatment and religion in northern Nigeria. Social Science & Medicine, 190, 75-82.

Wasti, S. P., Simkhada, P., Randall, J., Freeman, J. V., & Van Teijlingen, E. (2017). Factors influencing adherence to antiretroviral treatment in Nepal: a mixed-methods study. PloS one, 7(5), e35547