

# SCHEDULED CLINIC APPOINTMENT KEEPING AMONG HIV-INFECTED ADOLESCENTS ATTENDING A SINGLE TERTIARY CENTRE IN ABUJA, NIGERIA

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## ABSTRACT

**Background:** Keeping to scheduled clinic appointment by HIV-infected patients is reported to be a predictor of their long term clinical progress. Missed appointments also disrupt healthcare services and cause misspent scarce administrative and medical resources. Continuous engagement and support is recommended for HIV-infected persons to prevent loss to follow up

**Aim/Objective:** This study aims to determine the proportion of adolescents that are adherent to their scheduled clinic appointments and identify factors associated with appointment keeping among adolescents in University of Abuja Teaching Hospital.

**Methods:** This was a questionnaire-based, prospective study carried out over a one year period among HIV-infected adolescents on antiretroviral therapy aged. The adolescents were assessed once every two months. A total of 145 adolescents were enrolled into the study of which 80 (55.2%) were males, 78 (53.8%) were aged 10 -13 years old and 61 (42.1%) were of the middle social class. Seventy-nine (54.5%) of the adolescents were 100% adherent to their scheduled follow up clinic appointment. The relationship between adherence to clinic appointments and; age, adolescent relationship with primary caregiver, educational level of adolescent and caregiver, CD4 count, viral load and disclosure at  $P = < 0.05$ .

**Conclusion:** About half of the adolescent population was not regular with attendance at their scheduled clinic appointment. More studies are recommended to determine adherence patterns to attendance at scheduled adolescent HIV clinic appointments as well as identify reasons and solutions for non-adherence.

**Key words:** Adolescent, appointment keeping, clinic, HIV-infected, Abuja.

## INTRODUCTION

About 1.8 million adolescents live with the Human Immunodeficiency Virus (HIV) of which 1.5 million are in sub-Saharan Africa.<sup>1</sup> While mortality from HIV declined over the past 10 years in all age groups globally, it increased among adolescents, becoming the second leading cause of death among adolescents.<sup>2</sup> People living with HIV should be continuously engaged and supported from time diagnosis, through treatment which may require receiving lifelong antiretroviral therapy, in a bid to prevent loss to follow up or disengagement from care.<sup>3</sup> This management should include regular follow up clinic appointments.<sup>3</sup> Patients who miss their clinic appointments have been shown to have poorer CD4 count and viral load indices,<sup>4</sup> greater

resistance to HIV drugs and increased mortality.<sup>5,6</sup> Keeping to scheduled clinic appointment by HIV-infected patients predicts their long term clinical progress.<sup>7</sup> Furthermore, besides disrupting delivery of healthcare services, missed appointments are also responsible for misspending on medical and administrative resources.<sup>8,9</sup> There are several reasons why adolescents miss their scheduled clinic appointments such as intrapersonal reasons like cost of transportation, time constraints and religious beliefs; interpersonal reasons like lack of support from male partner and stigma; health care system-related issues like long waiting time and location of the clinic.<sup>10</sup>

This study aims to determine the proportion of adolescents that are regular with their scheduled

clinic appointments and identify factors associated with appointment keeping among adolescents attending the HIV Special Clinic at the University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria.

## **METHODS AND METHODOLOGY**

### **Study area:**

The University of Abuja Teaching Hospital (UATH) is a 350 bedded tertiary health facility located in Gwagwalada Area Council in Abuja, the Federal Capital Territory of Nigeria (FCT). Gwagwalada is one of the six area councils in the FCT. The hospital serves Abuja and the neighbouring states which include Nasarawa, Kogi, Kaduna and Niger States. This study was carried out in the adolescent clinic of the Paediatric Special Treatment Clinic in UATH which at the time of the study held an adolescent clinic once every month. The clinic is supported by the United States President's Emergency Plan for AIDS Relief, Institute of Human Virology and the Federal Government of Nigeria while patient care is mainly provided by a Paediatric Consultant, medical officers, doctors undergoing residency training in Paediatrics, nurses, pharmacists, adherence counselors and other support staff. During clinic, presenting complaints and investigation results are attended to. Blood samples are also taken for routine investigations such as Complete Blood Count, Serum electrolytes, urea and creatinine, CD4 count, viral load assay and liver function test when due. Anthropometric measurements are also taken during routine visits.

### **Study design:**

This was a prospective study design that lasted over a one year period, from September, 2015 to August, 2016.

### **Study population**

The inclusion criteria were adolescents who had been on ARVs for at least 6 months and being followed up at the Paediatric Special Treatment Clinic. They were aged 10 to 19 years with consent forms signed by their primary caregivers if they were less than 18 years or signed individually if the adolescent was aged 18 or 19 years. In addition, verbal assent was taken from adolescents less than 18 years. Adolescents with mental challenges and temporary enrollment at the clinic who planned to access care from a different facility were excluded.

### **Sample size**

A total clinic population of 145 adolescents on antiretroviral therapy participated in the study.

### **Sampling method**

The adolescents and/ or their caregivers were approached for consent as they presented to the adolescent clinic. The participants' information sheet was given to them to read and those who met the inclusion criteria were enrolled after they had signed the consent form and verbal assent obtained. The study participants were recruited from the clinic over a six month period. Recruitment took place over a six month period.

### **Study procedure**

Enrolled subjects were followed up for 6 months with each enrolled adolescent seen three times at 2 monthly intervals during the 6 month follow up period. The 2 month interval was taken for the convenience of the patients since clinic follow up and pharmacy refill appointments were 2 monthly while 6 months end follow up period was selected because the viral load is expected to be undetectable after 6 months of ARV therapy adherence. Recruitment went alongside with follow up of participants. Therefore, the first set of adolescents was enrolled in September, 2015 and followed up till February, 2016. While the last set were enrolled in February and followed up till August, 2016. The CD4 count and viral load assay results at the end of six months follow up period were also assessed. For those lost to follow up, the most recent CD4 count and viral load results were obtained from the clinic records.

### **Study instrument/Questionnaire**

A pretested questionnaire was used to determine the socio-demographic characteristics and disclosure status of the adolescents. The CD4 count and viral load assay results were also filled in. The questionnaires were administered in a private, quiet environment and entries were done using a face to face interview, and were filled in by the researcher or a trained assistant to ensure completeness and understanding of the questions. Only identification numbers given to each participant by the researcher were filled in the questionnaires for identification purposes in order to maintain confidentiality. The participant's names and identification numbers were entered into a register which was only assessed by the researcher. There was no disclosure of HIV status to participants who were not aware of their status

unless specifically instructed to by their primary caregivers. Thus, the word “HIV” was excluded from the consent forms and questionnaires.

Adolescents who presented on the dates of their scheduled appointment clinic date were assessed as having kept their appointment and given a score of 1/3 for that attendance while those who were absent on the exact scheduled appointment dates were awarded 0/3 for that attendance. Appointment keeping was calculated using this formula: Number of appointments kept/Number of scheduled appointments x 100. Therefore, three kept scheduled clinic appointments for the three follow up appointments being assessed received a score of 100%.

### **DATA ANALYSIS**

Data analysis was done with SPSS version 20. Frequency tables were used to present the data on socio-demography. Chi square was used to determine the relationship between appointment keeping and; age, gender, educational level of the primary caregiver and adolescent, social class, disclosure, CD4 count and viral load.

A P value of < 0.05 was regarded as statistically significant.

### **ETHICS**

Ethics approval was obtained from the Health Research and Ethics Committee of the University of Abuja Teaching Hospital prior to commencement of the study.

The principles of research ethics were maintained according to the Helsinki Declaration of 1975 as revised in 2013. The participants and caregivers

were made aware of what and how the data gathered will be used and disseminated, and strict confidentiality maintained. At the end of the study, the findings were related back to the Special Treatment Clinic Consultants and medical team taking care of the participants.

## **RESULTS**

### **SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE ADOLESCENTS**

One hundred and forty-five adolescents aged 10 years to 19 years participated in the study with a mean age of 13.26 SD ± 2.43. There were 80 (55.2%) males and 65 (44.8%) females giving a male to female ratio of 1.2: 1. Majority (n = 78; 53.8%) were in the 10 -13 year old age category, in secondary school (n= 91; 53.8%) and of the middle social class. (n=61; 42.1%). The primary caregivers were level of education of primary caregivers. The socio-demographic characteristics are depicted in Table 1.

<b>Variables</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Age (years)</b>			
10-13	40 (27.6)	38 (26.2)	78 (53.8)
14-16	33 (22.8)	22 (15.2)	55 (37.9)
17-19	7 (4.8)	5 (3.5)	12 (8.3)
Total	80 (55.2)	65 (44.8)	145 (100)
<b>Level of education of the adolescents</b>			
Tertiary	1(0.7)	1(0.7)	2(1.4)
Completed secondary	3 (2.1)	2 (1.4)	5 (3.4)
Secondary	46 (31.7)	45 (31)	91 (62.7)
Primary	30 (20.7)	17 (11.7)	47 (32.4)
No formal	0	0	0
Total	80 (55.2)	65 (44.8)	145 (100)
<b>Social Class</b>			
Upper	22 (15.2)	27 (18.6)	49(33.8)
Middle	38 (26.2)	23 (15.9)	61 (42.1)
Lower	20 (13.8)	15 (10.3)	35 (24.1)
Total	80 (55.1)	65 (44.8)	145 (100)

## ADHERENCE TO SCHEDULED APPOINTMENTS AT THE CLINIC BY THE ADOLESCENTS

Eighty-six (59.3%), 98 (67.6%) and 54 (37.2%) of the adolescents adhered to their scheduled clinic appointment for their first, second and third follow up two monthly clinic dates, respectively, giving an

average number of adolescents adherent to scheduled appointment of 79 (54.5%). On the average, 66 (45.5%) did not keep to their scheduled appointment dates over the six month follow up period. The adherence to scheduled clinic appointments by the adolescents is shown in Table 2.

**Table 2: Adherence to scheduled appointments at the clinic by the adolescents**

Visit	Male n (%)	Female n (%)	Total n (%)
<b>First visit</b>			
100%	48(33.1)	38(26.2)	86(59.3)
< 100%	32(22.1)	27(18.6)	59(40.6)
<b>Second visit</b>			
100%	56(38.6)	42(29)	98(67.6)
< 100%	24(16.6)	23(15.9)	47(32.4)
<b>Third visit</b>			
100%	34(23.4)	20(13.8)	54(37.2)
< 100%	51(35.2)	40(27.6)	91(62.8)
<b>Average</b>			
100%	46(31.7)	33(22.8)	79(54.5)
< 100%	36(24.8)	30(20.7)	66(45.5)

## FACTORS ASSOCIATED WITH APPOINTMENT KEEPING

Appointment keeping was associated with age ( $P = 0.000$ ), educational level of the adolescent ( $P = 0.000$ ), disclosure ( $P = 0.000$ ), the primary caregiver ( $P = 0.000$ ), educational level of the primary caregiver ( $P = 0.009$ ), CD4 count ( $P = 0.000$ ) and viral load assay ( $P = 0.000$ ) which were statistically significant. There was no statistically significant relationship between appointment keeping and gender ( $P = 0.656$ ).

**Table 3: Factors associated with adolescent appointment keeping**

<b>Variable</b>	<b>Attendance n (%)</b>	<b>Non attendance n (%)</b>	<b>X<sup>2</sup></b>	<b>P value</b>
<b>Gender</b>				
Male	46(56.1)	36(43.9)	0.1984	0.656
female	33(52.4)	30(47.6)		
<b>Age</b>				
10 – 13 years	49(62.8)	29(37.2)	17.69	0.000
14 – 16 years	19(34.5)	36(65.5)		
17 – 19 years	11(91.7)	1(8.3)		
<b>Primary caregiver</b>				
Biological	72(62.6)	43(37.4)	14.79	0.000
Non biological	7(23.3)	23(76.7)		
<b>Caregiver educational level</b>				
Tertiary	47(64.4)	26(35.6)	11.54	0.009
Secondary	29(51.8)	27(48.2)		
Primary	1(12.5)	7(87.5)		
No formal	2(25.0)	6(75.0)		
<b>Adolescent educational level</b>				
Completed sec	4(57.1)	3(42.9)	20.66	0.000
SSS Class	29(65.9)	15(34.1)		
JSS class	33(70.2)	14(29.8)		
primary	14(28.0)	36(72.0)		
<b>CD4 count</b>				
500 cells/mm <sup>3</sup>	13(25.5)	38(74.5)	20.66	0.000
<500 cells/mm <sup>3</sup>	66(70.2)	28(29.8)		
<b>Viral load</b>				
<20	24(27.9)	62(72.1)	60.19	0.000
20	55(93.2)	4(6.8)		
<b>Disclosure</b>				
Yes	19(30.2)	44(69.8)	26.578	0.000
no	60(73.2)	22(28.8)		

## DISCUSSION

Adherence to scheduled appointments by the adolescents was lower than reports from studies in the United States and Puerto Rico.<sup>11,12</sup> This difference may be because the HIV- infected and affected persons in developed countries receive more support than their counterparts in developing countries where challenges affecting adherence to clinic appointments such as those arising from cost of transport, stigma, location of health care facilities and other related health care system issues<sup>10</sup> are more likely to prevail. Adherence to scheduled appointment was not observed to be higher than reported in other studies.<sup>11,12</sup> This may just be due to the paucity of data on adherence to scheduled clinic appointment among HIV-infected adolescents in developing countries.

Appointment keeping was not associated with age similar to findings by Bignaet *al.*<sup>13</sup> However, an association was seen in the report from another study.<sup>4</sup> The difference may be from the methodology as the later was a retrospective design and included an older age group.

The relationship between adherence to scheduled appointment and gender was not statistically significant unlike the finding in the study by Tarantino *et al.*<sup>12</sup> where females were more likely to miss their appointments. However, this was a cross sectional study with an older group of participants aged 12 to 24 years. Gender inequity may also play a role as HIV-infected and – affected adolescent girls and women tend to be more disadvantaged culturally, economically and socially than their male counterparts. Females bear the brunt of gender inequity and this is one of the factors that has been shown to foster HIV among them.<sup>14</sup> Women and girls are the ones usually saddled with household chores and caring for others.

The relationship between appointment keeping and their caregiver's educational level was statistically significant. It was reported in a case-control study among child-adult pairs in Cameroon that caregivers who lacked formal education were more likely to miss bringing their wards for clinic appointments.<sup>13</sup>

Disclosure of HIV status among the adolescents was significantly associated with appointment keeping. No study was identified that demonstrated whether or not there was an association between disclosure and appointment keeping. However, a retrospective study in Kenya among 924 young HIV-infected persons aged 15 to 21 years reported that loss to follow up was associated with non disclosure of HIV status (among other factors) with a loss of 57%

(AHR 1.43, 95% CI 1.10–1.89) over a three year period. Twenty-six percent (26%) of this loss occurred after enrolment.<sup>15</sup>

This study also demonstrated an association between appointment keeping and CD4 count as well as viral load similar to the finding in a study by Berg *et al.*<sup>4</sup> where declining levels of CD4 count and viral load was observed among the study participants who kept to their appointments.

## CONCLUSION

About half of the adolescent population was not adherent with attendance at their scheduled clinic appointments. More studies are recommended to determine adherence patterns to adolescent HIV clinic appointments to identify reasons and solutions for non-adherence.

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