FACTORS ASSOCIATED WITH ADHERENCE TO ART AMONG ADOLESCENTS LIVING WITH HIV/AIDS ATTENDING NDEJJE HEALTH CENTRE IV, WAKISO DISTRICT. A DESCRIPTIVE CROSS-SECTIONAL STUDY.

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Abstract

Background:

This was based on study-specific objectives that included; assessing the individual factors, drug-related and healthcare-related factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Centre IV, Wakiso District.

Methodology:

The study used a descriptive cross-sectional design where a sample of 100 respondents who were adolescents between 10 and 25 on antiretroviral treatment was used. Stratified and simple random sampling techniques were used to select the respondents and data was collected using self-administered questionnaires.

Results:

The level of adherence to antiretroviral treatment was low at 33%. This was far lower than the national target of 90%. This was attributed to individual, drug, and healthcare factors. Individual factors were; gender, age, marital status, Education, place of residence, family size, and religion. Drug-related factors included; having all the drugs they were supposed to take, challenges faced with the drugs, Frequency of taking ARV pills in a day, challenges faced when taking ARVs, and accessibility to ARV drugs. Health-related factors were; getting routine education, having a nearby healthcare facility to pick up the drugs, Distance between the health facility and respondents' home, and availability of ARV on appointment day.

Conclusion:

The level of adherence to antiretroviral treatment was low. This was attributed to missing taking drugs due to stigma, drug stockouts, failure to get routine education about ART, distance to the health facility, the inadequacy of information given, and long waiting times.

Recommendations :

The researcher recommends that; health education through counseling should be emphasized, drug restocking should be regular, use reminders, facilitate patients with transport fares, and prompt attendance to them when they come for drug refills.

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1. Background

HIV continues to be a major global public health issue, having claimed 40.1 million (33.6-48.6 million) lives so far(Global HIV Programme,). In 2021 650,000 people died from HIV-related causes and 1.5 million people acquired HIV. Globally, about 1.75 million adolescents between the ages of 10 and 19 were living with HIV.

Adolescents account for about 5% of all people living with HIV and about 11% of new adult HIV infections. About 1.5 million live in sub-Saharan Africa. In adolescent HIV Prevention - UNICEF DATA, outside of sub-Saharan Africa, the highest numbers of HIV-positive adolescents are in Asia and Latin America. Currently, approximately 38 million people are living with HIV, and tens of millions of people have died of AIDS-related causes since the beginning of the epidemic (The Global HIV/AIDS Epidemic | KFF.). Adolescents and young people represent a growing share of people living with HIV worldwide (Adolescent HIV Prevention - UNICEF DATA). It was revealed that 410,000 people between the ages of 10_24 were being infected with HIV, of whom 150,000 were adolescents between the ages of 10 and 19(Adolescent HIV Prevention - UNICEF DATA)

In partnership with other international health and development partners, UNICEF and UNAIDS launched ALL IN! to end adolescent AIDS. There was a global initiative that was established in 2020 targeting to end the AIDS epidemic among adolescents by 2030. To achieve this, it is critical to accelerate efforts to address the epidemic among adolescents. To reach the new proposed global 95_95_95 targets set by UNAIDS, we will need to redouble our efforts and one is through ART adherence. According to UNAIDS estimates, HIV incidence has fallen in many of the severely affected countries because adolescents and young people are adopting safer practices and more people living with HIV are accessing treatment to lower their viral load (Adolescent HIV

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Prevention - UNICEF DATA). However, in regions with available data, recent testing coverage remains below 20% for adolescents. This means many adolescents and young people living with HIV may not know their status. Furthermore, boys are consistently less likely to have been tested for HIV compared to girls.

In Africa, most recent data indicate that only 25% of adolescent girls and 17% of adolescent boys aged 15_19 in Eastern and Southern Africa_ the region most affected by HIV have been tested for HIV in the past 12 months and received the results of the last test. The testing rates in West and Central Africa and South Asia are even lower, hundreds of thousands more will become HIV positive in the coming years, and without knowing their status, adolescents will miss out on life-saving treatment. Additionally, a large population of children infected with HIV personally over the last decade is growing into adolescence.

Uganda currently counts approximately 170,000 young people living with HIV AIDS and figures are expected to rise as more youth remain highly vulnerable to the infection and as access to Antiretroviral Therapy increases.

This group's increased life expectancy urges for a better understanding of their psychosocial situation and Quality of life is a framework used in supporting people living with a chronic condition since it focused on the general well-being and satisfaction with life in different life domains that may be affected by the condition.

Wakiso District faces a high burden of HIV prevalence of 8.5% which is higher than the National HIV prevalence of 7.3%. It was also reported that at least 252 people living with HIV/AIDS died during the lockdown. She also disclosed that 10526 out of the 294500 people who tested for HIV between January and November this year tested positive. This is because Wakiso District is located in the central region where it is urbanized and highly populated. It is revealed that adolescents do not want to use protective barriers like condoms.

1.1. General Objective of the Study

To determine the factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Centre IV, Wakiso District.

1.1.1. Specific objectives of the study.

- To determine individual factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Centre IV, Wakiso District.

- To determine drug-related factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Centre IV, Wakiso District.

- To assess health care factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Centre IV, Wakiso District.

2. Methodology.

2.1. Study design.

The study was a descriptive cross-sectional study to collect quantitative data across participants over a short period. It was preferred because it could not necessitate the researcher to make follow-ups on the participants.

2.2. Study area.

The study took place at Ndejje Health Centre IV, Wakiso District from December 2022 to January 2023.

2.3. Study population.

These were adolescents attending Ndejje Health Centre IV, Wakiso District.

2.4. Sample size determination.

The study sample sizes were determined by using the formula (Kish and Leslie: 1965).

Where n= sample size
z=score corresponding to 95%
Confidence interval =i.96
P = prevalence (50%)
Q=1-p
d2=precision/sampling error

$$\text{Therefore; } n = \frac{1.96 \; x \; 1.96 \; x \; 0.5 \; (1-0.5)}{0.098 \quad 0.098}$$

$$= \frac{3.8416 \; x \; 0.25}{0.009604}$$

$$n = 100 \text{ respondents}$$

2.5. Sampling technique.

A simple random sampling technique was employed to provide equal opportunities for every individual to be selected.

2.6. Sampling Procedure.

The research study employed a simple random sampling method while selecting the respondents who were to participate in the study. The researcher selected this sampling method because it could allow the selection of respondents based on certain factors and can be categorically descriptive among the study population particulars.

2.7. Data Collection Methods.

A pretested questionnaire was used to collect data from the respondents. It was designed based on the specific objectives, written in the English language containing both open and close-ended questions. The questionnaire was designed to bring out the factors associated with poor ART adherence among adolescents attending Ndejje health center IV, Wakiso District.

2.8. Data collection tools.

Structured or semi-structured questionnaire was used for data collection

2.9. Data Collection Procedure.

The study used researcher-administered questions that were both structured and semi-structured formalized questions to collect information that was later analyzed and provided results necessary for solving a given research problem. This allowed respondents to choose from alternatives that were provided by the researcher and also answer the dashed essay questions that targeted to achieve the personal opinions of the respondents.

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2.10. Study Variables.

2.10.1. Dependent Variable.

Adherence to ART among adolescents attending Ndejje Health Centre IV.

2.10.2. Independent variable.

The independent variable in this study was; Factors associated with adherence to ART including individual factors, drug-related factors, and health care factors among adolescents attending Ndejje Health Centre IV, Wakiso District.

2.11. Quality control.

To achieve this, a well-designed structured questionnaire containing all the details necessary to achieve the self-objectives by obtaining the right information from pregnant women was used. Before the collection of data, a day's training was organized for the field principal investigator while research assistants undertook field work. The completed questionnaire was checked for correctness and completeness.

Two independent people entered the data with the help of the Principle investigator and the output was checked to ensure accuracy. A daily review of work was done and emerging problems were immediately addressed.

2.12. Inclusion Criteria.

All adolescents between ages 10 and 25 years attending Ndejje Health Centre IV

2.13. Exclusion Criteria.

Adolescents below the age of 10 years and those above 25 years.

2.14. Data analysis and presentation.

Data was summarized on paper, tallied, analyzed using the Microsoft excel program, and then presented in the form of frequency tables and graphs to address each study objective.

2.15. Data management.

Codes were assigned to every respondent to attain a high level of privacy. The already answered questionnaires were filled and kept safely in a drawer with a padlock so that only the researcher can gain access to them

2.15.1. Presentation and analysis.

Descriptive statistics and analysis were carried out and presented in tables and graphs which have percentages and frequencies. These were relied upon to quantitatively describe the variables univariately. Bivariate analysis was attained through cross-tabulation where chi-square tests and correlations were done to establish the P-values upon which levels of significance were determined. The levels of significance were attained by finding the relationship between each independent variable and the dependent variable. After the results were compiled into a report in the form of quotes and narratives to supplement the quantitative data.

2.16. Ethical consideration.

The researcher obtained an introductory letter from the Principal, Medicare Health Professionals College of Clinical Medicine addressed to the Hospital director to approve the research proposal.

Confidentiality, dignity, and respect of all participants were observed throughout the study. Participants were assured that there was no form of harm if they do not wish to participate in the study. Proper consent in writing was obtained from the study participants before questionnaires are issued.

3. RESULTS

3.1. Proportion of adherence to ART treatment among adolescents attending Ndejje Health Centre IV.

The majority of the respondents (67%) were not adhering to ART while the minority 33% were adhering to ART.

3.2. Distribution of respondent's individual factors with adherence.

From table 1, Out of 100 respondents who participated in the study, majority, 57 (57%) were females with 20(60.6%) adhering and 37 (39.4%) not adhering. The minority, 43 (43%) were males with 13(39.4%) adhering and 30 (44.8%) not adhering.

According to age the majority, 53(53%) were aged between 17 and 19 years of which 12(36.4%)
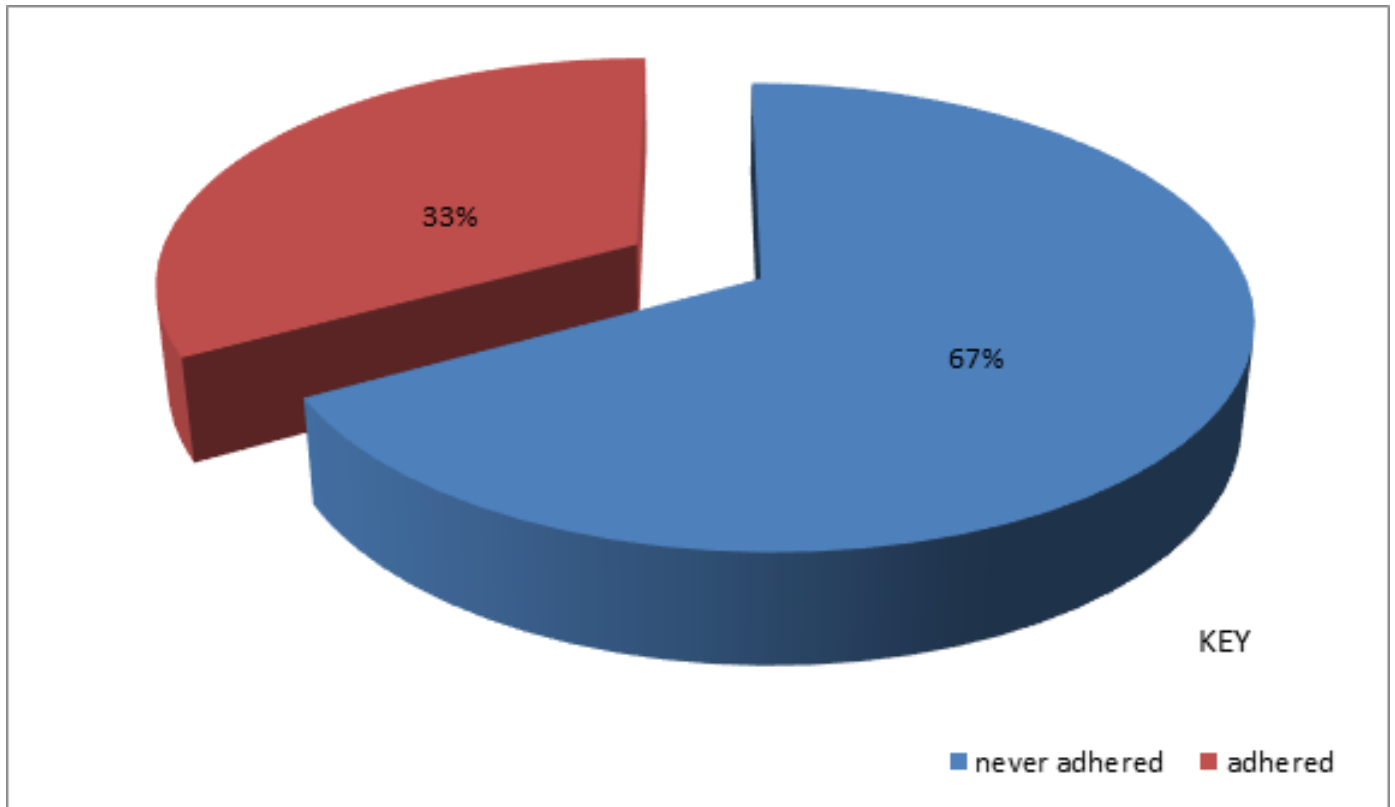
Figure 1: Proportion of adherence to ART treatment among adolescents attending Ndejje Health center IV, Wakiso District

Table 1: Distribution of respondent's individual factors with adherence. n=100

Variable	Category	Frequency (%)	Adherence Yes (%)	No (%)
	Females	57 (57%)	20 (60.6%)	37 (55.2%)
Gender	Males	43 (43%)	13 (39.4%)	30 (44.8%)
	Total	100(100%)	33(100%)	67(100%)
	10-12	5 (5%)	5 (15.2%)	0 (0%)
	13-14	9 (9%)	7 (21.2%)	2 (3%)
Age	15-16	33 (33%)	9 (27.3%)	24 (35.8%)
	17-19	53 (53%)	12 (36.4%)	41 (61.2%)
	Total	100(100%)	33(100%)	67(100%)
Pace of residence	Urban	36 (36%)	22 (66.7%)	14 (20.9%)
	Rural	64 (64%)	11 (33.3%)	53 (79.1%)
	Total	100(100%)	33(100%)	67(100%)
	Born again	12 (12%)	3 (9.1%)	9 (13.4%)
	Protestants	26 (26%)	9 (27.2%)	17 (25.4%)
Religion	Moslem	10 (10%)	6 (18.2%)	4 (6%)
	Seventh day Adventist	11 (11%)	5 (15.2%)	6 (9%)
	Catholic	41 (41%)	10 (30.3%)	31 (46.2%)
	Total	100(100%)	33(100%)	67(100%)

Source of data; Primary source, 2023

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were adhering and 41 (61.2%) were not adhering and the minority, 5(5%) were aged 10-12 years of which 5(15.2%) were adhering and 0(0%) were not adhering.

In regards to place of residence the majority, 64(64%) were from rural area of which 11(33.3%) were adhering and 53(79.1%) were not adhering. The minority, 36(36%) were from urban areas with 22(66.7%) adhering and 14(20.9%) not adhering.

Lastly with religion, majority, 41(41%) were Catholics with 10(30.3%) adhering and 31(46.2%) not adhering and the minority, 10(10%) were moslems with 6(18.2%) adhering and 4(6%) not adhering.

Distribution of drug related factors associated with ART adherence among adolescents attending Ndejje Health center IV, Wakiso District.

In table 2, the majority, 61(61%) took their drugs once daily with 23(69.7%) adhering and 38(56.7%) not adhering and the minority, 39(39%) took their drugs twice or more times with 10(30.3%) adhering and 29(43.3%) not adhering.

In table 3, the majority, 57(57%) had small sized pills with 22(66.7%) adhering and 35(52.2%) not adhering and the minority, 43(43%) had big sized pills with 11(33.3%) adhering and 32(47.8%) not adhering.

In table 4, majority, 62(62%) had side effects with 16(48.5%) adhering and 46(68.7%) not adhering and the minority, 38(38%) didn't have those challenges with 17(51.5%) adhering and 21(31.3%) not adhering.

Distribution of health-related factors associated with ART adherence among adolescents attending Ndejje Health Center IV, Wakiso District.

The majority, 73(73%) didn't receive routine education of which 15(45.5%) were adhering and 58(86.6%) were not adhering and the minority, 27(27%) received routine education of which 18(54.5%) were adhering and 9(13.4%) were not adhering as presented in table 5.

Majority, 61(61%) had drugs with 19(57.6%) adhering and 42(62.7%) were not adhering while the minority, 39(39%) didn't have drugs with 14(42.4%) adhering and 25(37.3%) not adhering

(table 6).

In table 7, the majority, 45(45%) waited for 1-3hrs with 12(36.4%) adhering and 33 (49.2%) not adhering, followed by those who waited up to 1hr 33(33%) with 15(45.4%) adhering and 18(26.9%) not adhering whereas the minority, 22(22%) waited >5hrs with 6(18.2%) adhering and 16(23.9%) not adhering.

4. DISCUSSION

4.1. *Individual factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Centre IV, Wakiso District.*

Most of the individual factors were significantly associated with ART adherence. These were gender, age, place of residence, and religion.

Findings showed that adherence was significantly associated with the respondent's gender. Females 20(60.6%) adhered more than males 13(39.4%) in this study. This could be attributed to the fact that females are always humble and follow instructions, unlike males who are mainly stubborn or always occupied with different activities. Similar results were reported in a cross-sectional study carried out in the Congo Brazzaville, where adherence was higher among females than males (Cardorelle, et al., 2014). This was attributed to females having more time to attend to health care services which was not the case with males who had to work (Cardorelle, et al.,2014). These differences were associated with work schedules and sample selection methods in the two studies.

Respondents' age was also a significant factor in adherence to antiretroviral treatment. Adolescents who were 17 and 19 years 12(36.4%) were more likely to adhere to antiretroviral treatment as compared to other adolescents who were younger than them, 15-16 9(27.3%), 13-14 7(21.2%) and 10-12 5(15.2%). This was attributed to the fact that older youth were educated enough to know the importance of adherence and some of them had some income that they could collect the drugs themselves. This could have allowed them to always have the drugs to

Table 2: Distribution of number of times of taking pills daily with ART adherence

Variables	Responses	Frequency (%)	Adherence Yes	No
No of times of taking pills daily	once	61 (61%)	23(69.7%)	38(56.7%)
	Twice or more	39 (39%)	10(30.3%)	29(43.3%)

Source of data; primary source, 2023

Table 3: Distribution of size of pills with adherence

Variables	Responses	Frequency (%)	Adherence Yes	No
Size of pills	Big	43(43%)	11(33.3%)	32(47.8%)
	Small	57(57%)	22(66.7%)	35(52.2%)

source of data; primary data, 2023

Table 4: Distribution of ART side effects with adherence

Variables	Responses	Frequency (%)	Adherence Yes	No
Side effects	Yes	62(62%)	16(48.5%)	46(68.7%)
	No	38(38%)	17(51.5%)	21(31.3%)

Source of data ; primary source 2023

Table 5: Distribution of routine education with ART adherence.

Variable	Category	Frequency (%)	Adherence Yes (%)	No (%)
Routine education	Yes	27(27%)	18(54.5%)	9(13.4%)
	No	73(73%)	15(45.5%)	58(86.6%)

Table 6: Distribution of availability of drugs with ART adherence

Variable	Category	Frequency	Adherence Yes (%)	No (%)
Availability of drugs	Yes	61(61%)	19(57.6%)	42(62.7%)
	No	39(39%)	14(42.4%)	25(37.3%)

Table 7: Distribution of waiting time with ART adherence

Variable	Category	Frequency (%)	Adherence Yes(%)	No(%)
	Up to 1hr	33(33%)	15(45.4%)	18(26.9%)
Waiting time	1-3hrs	45(45%)	12(36.4%)	33(49.2%)
	>5hrs	22(22%)	6(18.2%)	16(23.9%)

Source of data; primary 2023

take them as prescribed. However, these results differed from those revealed in cross-sectional and pilot cross-sectional studies carried out in Congo Brazzaville and Gaborone, Botswana respectively where younger age of adolescence was associated with adherence to ART treatment (Cardorelle et al., 2014; Ndiaye, et al., 2013). This contrast was because in previous studies, younger adolescents were directly under the supervision of their care-takers at home and school while in the present study; it was the adolescents" initiative to take the drugs.

4.2. Place of residence affected the respondent's adherence to antiretroviral treatment.

Higher adherence was more among urban dwellers 22(66.7%) as compared to rural 11(33.3%) based respondents. It was easier for an urban dweller to get money for transport to the hospital for drug refills as compared to one from rural areas where most of them were unemployed and far distant from the health facility. Similar results were reported in a study carried out in Malawi where patients from urban areas had higher adherence as compared to those from rural areas because most of the healthcare facilities were located in urban areas (Gugsa et al. (2017). In the two studies was that one's place of residence determined accessibility to the ART clinic in terms of transport costs because most of them were low-income.

Lastly, religion was significantly associated with adherence to ARV treatment among adolescents attending Ndejje Health Centre IV. Catholics were more likely to adhere 10(30.3%) to antiretroviral treatment as compared to other religious affiliations. This is because Catholicism does "t deny one to take medication as compared to other religions that build confidence in believers that it is only God that heals. For instance, a study carried out in the Democratic Republic of Congo found out that respondents who had a belief that ART has God"s blessings were more likely to adhere to ART treatment while adolescents who had a belief that accepting God and enough were less likely to adhere to ART treatment.

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4.3. Drug-related factors associated with poor ART adherence among adolescents living with HIV/AIDS attending Ndejje Health Centre IV.

Most of the drug-related factors were significantly associated with adherence to ART and contributed to a low level of adherence of 33%. These include; the number of pills in a day, the size of pills, and the side effects of the pills.

Higher adherence was among respondents who never had side effects 17(51.5%) with the drugs. Respondents who never felt the pill burden,

stigma, and nausea among others were more likely to adhere to antiretroviral treatment as compared to those who had side effects 16(48.5%). Slightly similar was that in a study carried out in North Carolina, United States of America, the majority of the respondents had challenges with medication (Muessig, et al., 2015). These included; gastrointestinal and neurologic effects while on more modern ART regimens. Similar responses were reported in a study carried out in northeast Ethiopia, at South Wollo Hospital where respondents felt dizzy and could "t not carry on with other activities which made life very difficult for them (Arage et al., 2014).

Several ARV pills in a day were associated with adherence to antiretroviral treatment where the majority of the respondents took the drugs twice a day where one pill was taken in the morning and the other in the evening before sleep.

Respondents who took drugs once 23(69.7%) were more likely to adhere to antiretroviral treatment as compared to those that took twice 10(30.3%). This was because taking drugs once saved the respondents from the probability of forgetting to take the drugs and could also travel to distant areas unlike those who could travel with the drugs yet they had to take them twice.

The size of ARV drugs also influenced adherence to antiretroviral treatment. Respondents who had small 22(66.7%) pills of drugs were more likely to adhere to antiretroviral treatment as compared to those who had big-sized pills 11(33.3%) Respondents with big-sized pills had missed doses thus poor adherence. Similar results were reported in a study carried out in Ethiopia where the big-sized antiretroviral medications were responsible for poor prognosis among ART patients. (Nachega et al., 2010)

4.4. Health-related factors associated with poor ART adherence adolescents living with HIV/AIDS attending Ndejje Health Centre IV.

Most of the health-related factors were significantly associated with adherence to ARV treatment among adolescents attending Ndejje Health Centre IV, Wakiso District. These were; getting routine education and counseling about adherence to ARVs, having nearby health care facility to pick ARV drugs, Distance between the health facility and respondents' home, availability of ARV on appointment day, availability of health care workers for ARV services, how often have you been coming for ARVs refill at the clinic and waiting time on the appointment day to pick the drug. However, health workers gave enough information about adherence was not significantly associated with adherence to antiretroviral treatment.

Getting routine education and counseling about adherence to ARVs. Respondents who had regular education and counseling 18(54.5%) about adherence to ARVs were more likely to adhere to antiretroviral treatment than those who didn't receive education 15(45.5%). Regular education and sensitization equipped respondents with adequate information about the importance of adherence to antiretroviral treatment. In relation, a study carried out in Nigeria found out that, adolescents who had routine education and sensitization about ART were more adherent to ART as compared to those who were not health educated. This was because both studies were carried out in rural settings where the social demographic characteristics of the respondents were similar.

The frequency of coming for ARVs refills at the clinic was associated with adherence to antiretroviral treatment. The majority 19(57.6%) of the respondents who had to collect their drugs every month were more likely to adhere to antiretroviral treatment as compared to those who didn't 14(42.4%). Having drugs every month saved adolescents from transport expenses they would incur if they were to collect the drugs on a bi-weekly basis. Similar results were reported in the Ministry of Health report (2013) where adolescents who had timely drug refills were more adherent to ART treatment as compared to those that never had timely drug refills.

Waiting time on the appointment day to pick the drugs associated with adherence to antiretroviral treatment. Respondents who waited for less than an hour 15(45.4%) were more likely to adhere as compared to those who waited for longer that is 1-3 hrs 12(36.4%), >5hrs 6(18.2%). Simi-

larly, a study carried out in Zimbabwe on the contextual and psychological influence on antiretroviral therapy adherence in rural Zimbabwe, revealed that ensuring privacy at clinics and waiting areas gave great courage to adolescents to freely seek ART services (Skovdal et al., 2011). Patients are less likely to miss appointments if they are attended to within a reasonable time. Waiting for long hours is stressful and sometimes it can be worsened by poor interpersonal communication between patients and healthcare providers, where patients were sometimes asked to sit down on the floor when benches were all occupied (Campbell et al., 2011).

5. Conclusion

In a study that was carried out about the factors associated with adherence to antiretroviral treatment among adolescents attending Ndejje Health Center IV, Wakiso district, it was found that the level of adherence to antiretroviral treatment was low at 33%. This was attributed to; individual, drug, and healthcare factors.

Individual factors that were significantly associated with adherence to ARV treatment were; gender, age, place of residence, and religion.

Drug-related factors that were significantly associated with adherence to ARV treatment included; having all the drugs they were supposed to take, Frequency of taking ARV pills in a day and side effects faced when taking ARVs, and accessibility to ARV drugs.

Health-related factors that were significantly associated with adherence to ARV treatment were; getting routine education and counseling about adherence to ARVs, source of information, having nearby health care facility to pick ARV drugs, the distance between the health facility and respondents' home, availability of ARV on appointment day, availability of health care workers for ARV services, frequency of ARVs refilling at the clinic and waiting time on the appointment day to pick the drugs.

5.1. Limitations of the study

The researcher encountered challenges of whether whereby when it rains people normally stayed home and this limited the information that could be collected. Still, due to the season poor road network affected data collection because people hesitated to move along poor roads so in such a case, few people attended the health facility.

6. Recommendations

The researcher recommends that;

- Health workers should health educate all adolescents on antiretroviral treatment on how to adhere to treatment through counseling. This would instill hope and confidence into them to take the drugs regularly and timely.

- Drug restocking should be regularly done by the Ministry of Health in collaboration with Ndejje Health Centre IV.

- Reminders should be used so that adolescent always knows when to take their drugs and when to refill. Telephone calls should be used for the patients and their caretakers or next of kin.

- Facilitating patients with transport fares should be done to help in the mobility of adolescents. This is because most of the adolescents are unemployed and thus lack sources of income.

- There should be prompt attendance to adolescents when they come for drug refills because most of them come from very far while others are weak to wait for so long. This will morale boost them to have the courage to come back for the drugs at the next appointment.

- Pill counting and physical supervision should be instituted so that it's confirmed that the patients take them as prescribed. This should be under the supervision of caretakers or a next of kin who would have empathy for the patient.

- The health facility should recruit adequately trained healthcare workers in ART. This would help to cope with increasing workloads in the ART clinics thus reducing the waiting times. This would motivate the adolescents to come back on the next appointment.

- Increase access to ART clinics especially to adolescents by improving the existing infrastructures and laboratory services. This should be done by increasing the rate of opening existing clinics and starting up clinics nearer to where most people stay. These clinics would decongest the hospitals by reviewing patients who have initiated treatment at a larger hospital.

7. Acknowledgment

8. List of Abbreviations

AIDS : Acquired Immune Deficiency Syndrome
AOC : Adolescent Only Clinic
ART : Antiretroviral Therapy
ARV : Antiretroviral drugs
CDC : Centers for Disease Control and Prevention
CME : Continuous medical education
DHO : District Health Officer

FPC : Finite Population Correlation Factor
HCT : HIV Counseling and Testing
HIV : Human Immune Virus
PDSA : Plan-Do-Study-Act
PEPFAR : Presidential Emergency Plan for AIDS Relief
RCT : Routine Counseling and Testing
UDHS : Uganda Demographic Health Survey
UNAIDS : United Nations on Acquired Immune Deficiency Syndrome
UNICEF : United Nations Children"s Fund
VCT : Voluntary HIV counseling and testing
WHO : World Health Organization

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