

**NEWPORT INTERNATIONAL JOURNAL OF SCIENTIFIC AND  
EXPERIMENTAL SCIENCES (NIJSES)  
Volume 3 Issue 3 2023**

## **Comparative level of knowledge on adherence to ART among HIV patients attending Jinja regional referral Hospital.**

**Otieno Elizabeth Atieno**

**Faculty of Clinical Medicine and Dentistry Kampala International University Uganda**

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### **ABSTRACT**

Adherence to antiretroviral therapy among HIV-infected patients contributes to better treatment outcomes and is also important in reducing the development of drug resistance. It also enhances the patient's quality of life and allows them to live longer and healthier lives. The objective of the study was to determine level of adherence as well as patient factors influencing adherence to antiretroviral therapy among HIV infected patients attending Jinja Regional Referral Hospital, Jinja district. A cross sectional study was conducted Jinja Regional Referral Hospital among HIV infected patients aged 15 years and above who attended ART Clinic. Systematic sampling method was employed to obtain a total of 206 patients. Face to face interviews were conducted using structured questionnaires Data was processed using SPSS software version 25, and Chi-square statistic used to test for association. This study had 206 participants in total, with 58.7% (121) of them being female. 98.1% (202) of the 206 participants showed high knowledge scores on ART adherence. Despite participants' extensive understanding of ART, there was limited adherence to treatment in the sample of the current study. Participants with poor adherence to ART were those who had not told their sexual partner or families about their HIV sero-status. Additionally, patients who claimed to have gone through stigmatizing incidents were less likely to stick with ART. Therefore, adherence counseling and education should be provided to all patients before initiation of antiretroviral therapy in order to enhance adherence to Antiretroviral Therapy. Interventions to reduce stigma to people living with HIV/AIDS are of importance in increasing adherence to antiretroviral therapy, both at community level and among people living with HIV/AIDS. Keywords: Knowledge, adherence, ART, HIV, patients, Jinja, regional referral Hospital

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### **INTRODUCTION**

With over 35 million deaths to date, the human immunodeficiency virus (HIV) infection is one of the deadliest epidemics the world has ever seen. World Health Organization (WHO) African Region is the most afflicted region, with 25.7 million people living with HIV in 2017. In 2017, there were 940 000 deaths worldwide due to HIV-related causes, and there were roughly 36.9 million individuals living with the virus by the end of the year [1]. The African region also accounts for over two thirds of the global total of new HIV infections. Uganda has made tremendous progress in combating the HIV and AIDS epidemic with a decline in the prevalence from 18% in the early 1980s to the current 6.0% according to the Uganda HIV and AIDS country progress report 2017 [2]. Globally, 21.7 million HIV-positive people were getting antiretroviral medication (ART) in 2017. Between 2000 and 2017, this rise in ART coverage resulted in a 36% decrease in new HIV infections, a 38% decrease in HIV-related mortality, and a saving of 11.4 million lives thanks to ART [3]. HIV is progressively turning into a chronic, controllable condition with the advent of ART [4]. However, for a treatment to be successful, individuals must adhere to their treatment for the rest of their lives and clinics must have a steady supply of ART [5]. According to [6], non-adherence is the most frequent cause of treatment failure, with a potential for drug resistance due to insufficient viral suppression. The demand for second-line therapy rises as a result of subsequent transmission of first-line ART-resistant HIV strains, which is frequently accompanied by worse patient outcomes and rising healthcare costs [7]. Because of these factors, it is crucial to have a complete grasp of what influences ART compliance [8]. Studies on ART adherence have revealed that predictors and risk variables vary by geographical location [9], prompting the construction of non-adherence profiles that are context-specific. This will make it possible for medical professionals to provide

patients who are at risk of non-adherence with care that is specifically customized to their needs. Long distances to medical facilities, the availability and affordability of ARVs, the cost of food and transportation, the quality of life during ARV treatment, the length of wait times at medical facilities, and the congestion at the medical facilities are all factors that contribute to non-adherence in the African context [10]. Implementing programmatic ways can assist address some of these issues, but due to the settings' constrained resource availability, such efforts might not have the expected results [11]. In the past, a number of programs have been launched to increase adherence. These included ART supply chain management training, HIV prevention training, clinical care training, counseling, community support programs, and the utilization of experienced ART patients (expert clients) who support other patients who are just starting treatment [12]. Maintaining proper ART treatment adherence over time is still a challenge, especially in settings with minimal resources, such sub-Saharan African nations [13]. In Uganda, the absence of organized appointment processes plagues many health facilities that provide ART therapy. Overcrowding has been linked to this issue, particularly when patients arrive early in the hopes of being the first to obtain medical care. The resulting congestion that arises at such healthcare facilities eventually has a negative impact on the quality of services and patients' satisfaction with the healthcare service [9]. ART adherence and influencing factors in the Jinja district and Jinja Regional Referral Hospital (JRRH) is not known. A study in Kamuli health center IV indicated that; forgetting treatment was the most cited factor [14]. Other factors included, feeling better after some medication period, being too ill to take medication, stigma associated with taking ART medication, alcohol consumption and drug stock out [14]. However, it is known if these factors are the same for JRRH. Therefore, this study seeks to explore the patient factors that influence adherence to ART among HIV-positive patients at Jinja Regional Referral Hospital.

#### **Problem statement**

Just behind South Africa and Nigeria on the list of nations with a high prevalence of HIV, Uganda is rated third [3]. According to estimates from the Uganda Ministry of Health, the country's HIV prevalence was 6.0% by the end of 2017. [2]. Uganda presently follows a recent WHO recommendation that states all patients who test HIV positive must begin antiretroviral therapy (ART) regardless of their CD4 count [15]. However, individuals with HIV must follow their prescribed regimens in order for the many treatment medications for viral suppression in HIV to work effectively. There is a significant probability of unsuccessful viral suppression with HIV therapy regimens using an un boosted protease inhibitor when treatment adherence is less than 95%. [16]. High levels of HIV treatment adherence have been demonstrated to be associated with better viral suppression results, while low levels of adherence have been linked to worse viral suppression, drug resistance, and lower survival [17]. Studies on ART adherence in Uganda and elsewhere have revealed that while there are regional differences in the factors that affect adherence to ART, social and economic factors and patient characteristics are the most frequently reported. But these came from places with diverse social and economic backgrounds. As a result, this study investigated the patient-specific characteristics that affect ART adherence.

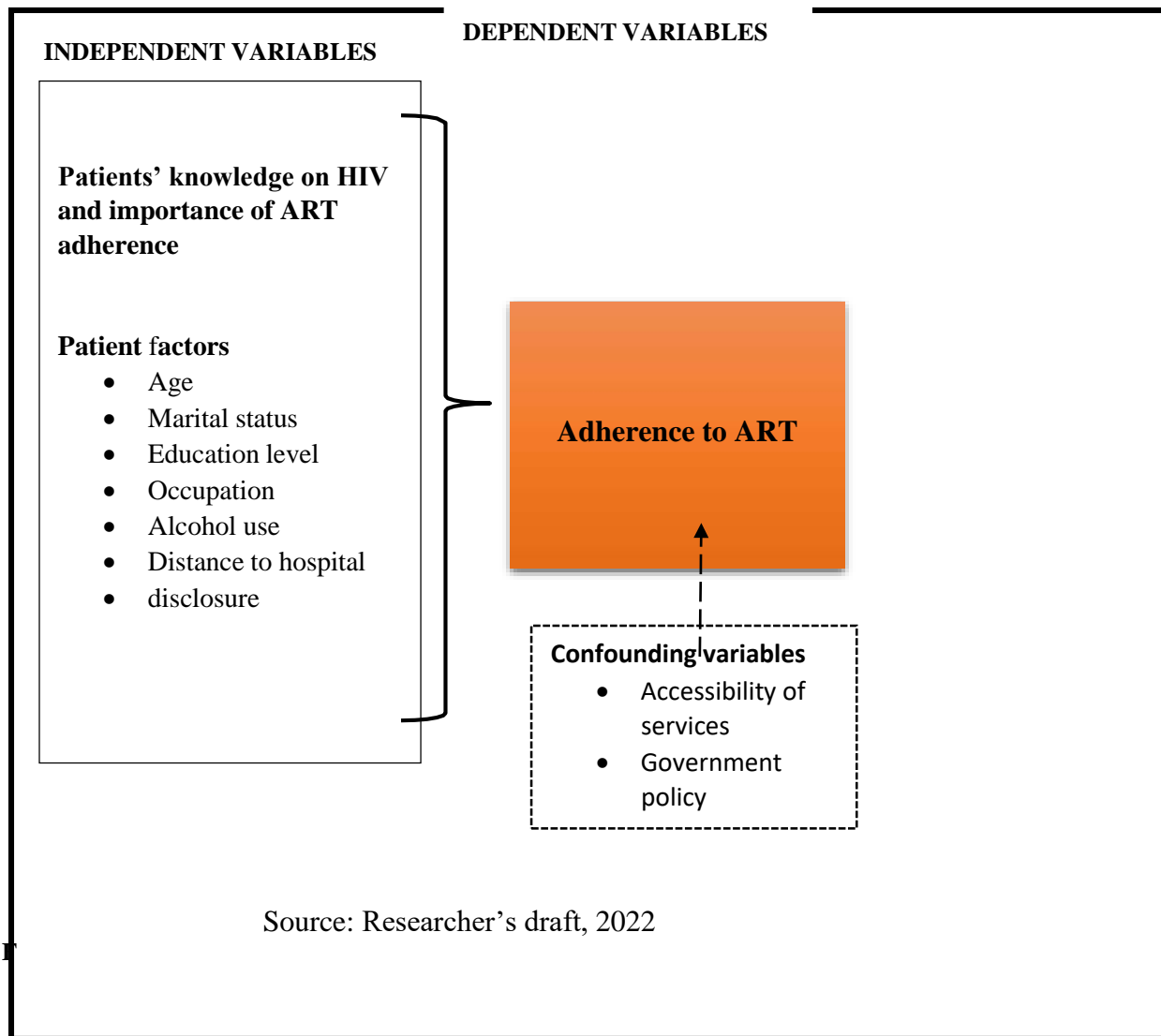
#### **Geographical scope**

The study was conducted at Jinja Regional Referral Hospital. The hospital is located at latitude 0o25'51"N and longitude 33o12'17"E, in the Central division of Jinja municipality, Jinja district in Eastern region, Uganda. It is approximately 82 kilometers from the country's capital, Kampala.

#### **Justification of the study**

The creation of an interactive feedback mechanism through ongoing adherence monitoring and the correlation of findings with clinical outcomes may result in improved clinical states and patient quality of life. If used properly, ART prevents early death and AIDS progression, enhancing the quality of life for those living with HIV/AIDS. ART is another method for minimizing HIV transmission, particularly mother-to-child transmission (MTC). All of the efforts, though, are useless if they are not followed through with. For instance, it is projected that 28,000 Ugandans passed away from AIDS-related illnesses in 2016. The likelihood of deaths from AIDS-related illnesses declining is increased adherence to ART. If the factors affecting HIV-positive individuals are unknown, it will be impossible to increase their adherence to ART. In order to identify the variables that affect patients' adherence to ART in the study context, it was crucial to conduct this study. The findings of this study helped to increase knowledge and understanding of ART non-adherence and were helpful in creating more effective therapies that will be used to address ART adherence. Results will also assist health planners, such as the district and the Ministry of Health in Uganda, in developing better, more targeted, and socially sensitive intervention programs to address sociocultural issues brought on by non-adherence.

Fig.1 Conceptual framework for factors influencing adherence to ART



## METHODOLOGY

### Study Design

A descriptive cross-sectional study design was used.

### Study Site

The study was conducted at Jinja Regional Referral Hospital. The hospital is located at latitude 0o25'51"N and longitude 33o12'17"E, in the Central division of Jinja municipality, Jinja district in Eastern region, Uganda. It is approximately 82 kilometers from the country's capital, Kampala.

### Study Population

The study's target population was all the adult ( $\geq 18$  years) patients attending ART Clinic at Jinja Regional Referral Hospital.

### Inclusion criteria

- HIV/AIDS patients who have been started on ART for more than 6 months.
- HIV patients 18 years and above and on ART treatment at Jinja Regional Referral Hospital.
- Patients who consented to be involved in the study.

#### Exclusion criteria

- Patients below 18 years
- Patients on ART for less than 6 months

#### Sample size determination

The sample size was calculated using the following formula by Kish Leslie [18].

$$N = \frac{Z^2 p(1 - p)}{\delta^2}$$

Where,

N = estimated sample size

P = assumed true number of clients adhering to ARVs (results from KIUTH by [14]. found adherence at 58.8% at KIUTH.

Z = standard normal variation ant 95% confidence (1.96)

δ = margin of error (5%)

the calculated sample size was,  $\frac{1.96^2 \times 0.588(1-0.588)}{0.05^2} = 206$

#### Sampling technique

Simple random sampling was used to select study participants from a sampling frame (patients' register) which contained names of the HIV patients on ARV's attending the clinic. They were randomly selected to give equal chance of participation of each number in the register. Patients attending ART clinic were systematically selected where every other 3rd client who consented was interviewed after selecting the first client. In a case where the selected patient declined to be interviewed, the next number was interviewed. This provided a representative sample of the HIV patients in Jinja Regional Referral Hospital because all patients had equal chances of being selected for the study.

#### Data Collection methods

A researcher administered questionnaire was used. The questionnaire was pretested from KIU-TH and findings were used to adjust the questions. The questionnaire consisted of structured and semi structured questions to collect quantitative. The interview included items on socio-demographic data, treatment and a section on the patient factors that could have influenced the patients' adherence to ART.

#### Data Analysis and presentation

Data was sorted, coded, and processed using SPSS software version 25. Descriptive statistics such as mean, frequencies and percentages were used to describe and summarize the data. Analysis of contingency tables was done and Chi-square statistic used to test for association between variables.

#### Ethical Considerations

Ethical approval to conduct the study was sought from the dean faculty of clinical medicine and dentistry of Kampala International University-Western Campus. Permission to conduct the research at the ART clinic was obtained from the hospital director and in-charge of the ART clinic. Consent was sought from each patient both verbally and in writing before any interview was conducted. Confidentiality was maintained on all the data that was collected.

#### Study Limitations

The findings of this study should be interpreted in view of some limitations. This study was conducted among participants who were attending ART clinic at Jinja Regional Referral Hospital in Jinja district who were on ART for at least 6 months. Therefore, the sample may not be representative of the whole country. Since the study was of cross-sectional design, the variation of adherence of the participants to ART that can occur over time may not have been captured.

### STUDY RESULTS

#### Demographic characteristics of the research participants (HIV patients attending Jinja Regional Referral Hospital)

This study had 206 participants in total, with 58.7% (121) of them being female (Table 1). The participants' mean age (SD) was  $37.59 \pm 10.7$  years. The age group between 26 and 35 years made up more than one third of all participants (36.7%), followed by that between 36 and 45 years (30.1%), and that between 46 and 55 years (18.0%). Nearly half of all participants (48.1%) reported being married, followed by widowed (19.9%), divorced (13.6%), and cohabiting (12.6%). The majority of participants had only received a primary education, 65.5% (135), followed by secondary and higher education, 23.3% (48), while the remainder did not attend school. Christians made up 68% of the participants, or seven out of ten.

**Table 1: Demographic characteristics of the research participants (HIV patients attending Jinja Regional Referral Hospital) (N = 206).**

Variables		Frequency % (n)
Sex	Male	41.3 (85)
	Female	58.7 (121)
Age (in years)	15-25	9.2 (19)
	26-35	36.9 (76)
	36-45	30.1 (62)
	46-55	18.0 (37)
	≥ 56	5.8 (12)
Education level	No formal education	11.2 (23)
	Primary education	65.5 (135)
	Secondary and higher	23.3 (48)
Occupation	Peasant	36.9 (76)
	Employed	22.3 (46)
	Business	40.8 (84)
Marital status	Married	48.1 (99)
	Single	5.8 (12)
	Divorced	13.6 (28)
	Widow	19.9 (41)
	Cohabiting	12.6 (26)
Religion	Christian	68.0 (140)
	Muslim	24.8 (51)
	No religion	7.2 (15)
Current alcohol use	Yes	8.3 (17)
	No	91.7 (189)
Stigma	Yes	47.9 (97)
	No	52.9 (109)
Distance from the clinic (Most convenient transport)	Less than 1 hour	84 (173)
	More than 1 hour	16 (33)

**Knowledge and perception on ART adherence among HIV patients attending Jinja Regional Referral Hospital**

98.1% (202) of the 206 participants showed high knowledge scores on ART adherence (Table 2). Results on participants' knowledge and perception of ART reveal that 98.5% (203) agreed that ART lowers HIV-related morbidity, while the other participants did not. The majority of participants—94.2% (194)—reported that they agreed that ART lowers HIV-related mortality, and more than two thirds—63.6% (131)—agreed that ART can control HIV; the remaining individuals held the opinion that ART can never control HIV. On the other hand, 99.5% (205) of participants had faith in their medical professionals, and 90.8% (187) of participants reported that their medical professionals (doctors) had given them adequate information about how to manage the side effects of ART, meaning that they were aware of how to handle them once they manifested. Ninety-two percent of the participants—202—said they took the necessary measures after experiencing the side effects of ART, including asking their doctors for assistance. 95.6% (197) of the participants recognized that ART was very beneficial in slowing the spread of HIV/AIDS, while the remaining smaller percentage was unaware of this. Finally, 98.1% (202) of the participants were aware that stopping ART too early results in HIV medication resistance.

**Table 2: Knowledge and perception of antiretroviral ART among HIV patients attending Jinja Regional Referral Hospital (N = 206).**

Variables		Frequency % (n)
<b>ART reduces HIV related morbidity</b>	Agree	98.5 (203)
	Disagree	1.5 (3)
<b>ART reduces HIV related mortality</b>	Agree	94.2 (194)
	Disagree	5.8 (12)
<b>HIV is controlled by ART</b>	Agree	63.6 (131)
	Disagree	36.4 (75)
<b>The patient trusts the doctor</b>	Yes	99.5 (205)
	No	0.5 (1)
<b>Knows how to deal with side effects</b>	Yes	90.8 (187)
	No	9.2 (19)
<b>Stops taking ART on side effects without doctors' consultation</b>	Yes	1.9 (4)
	No	98.1 (202)
<b>Knows the effectiveness of ART</b>	Yes	95.6 (197)
	No	4.4 (9)
<b>Not abiding to ART leads to drug resistance</b>	Yes	98.1 (202)
	No	1.9 (4)
<b>Average knowledge</b>	Good	98.1 (202)
	Poor	1.9 (4)

## DISCUSSION

### Knowledge on ART adherence among HIV patients

As 98.1% of the participants in this survey had good knowledge of ART, the participants' overall knowledge was noticeably greater. Similar findings of higher level of ART awareness among participants visiting Care and Treatment Services in healthcare institutions have been reported in other studies that were conducted elsewhere. According to a research conducted in Nigeria by Kasumu, the participants' average level of knowledge was 83.1% [19]. There have been reports of knowledge levels in Togo being 88.7% [19] and India being 97%. [20-23]. In the study done in Nigeria, 92.5% of the participants agreed that ART lowers HIV related morbidity, and of the 206 participants, 98.5% (203) agreed with this statement [19]. A previous study conducted in Ghana found that 89.3% of participants believed that ART lowers HIV-related mortality, and the majority (94.2%) of participants in the present study agreed that following ART guidelines could likely reduce HIV-related mortality [21, 24-26]. Additionally, in this survey, 63.6% of participants agreed that ART can control the HIV virus, whereas the remaining third of individuals claimed ART cannot control the virus. In contrast to earlier research, which revealed that 95.6% of participants were aware of the benefits of ART and that stopping treatment would result in HIV medication resistance [22-26].

### CONCLUSION AND RECOMMENDATIONS

Despite participants' extensive understanding of ART, there was limited adherence to treatment in the sample of the current study. Participants with poor adherence to ART were those who had not told their sexual partner or families about their HIV sero-status. Additionally, patients who claimed to have gone through stigmatizing incidents were less likely to stick with ART.

### RECOMMENDATIONS

1. All patients should receive adherence education and counseling prior to the start of ART in order to improve adherence to ART.
2. Strategies to promote clients' disclosure of their HIV status to treatment advocates, who then encourage clients to adhere to ART, are advised.
3. Interventions to lessen stigma are crucial for promoting adherence to ART, both among those with HIV/AIDS and in the community. This may include having ART treatment support groups composed of

people living with HIV to support each other through joint sharing of experiences in overcoming challenges of ART adherence. Individuals who have overcome stigma and with experience in ART adherence, alternatively called expert patients, may be motivated to share with other clients their success stories in adhering to ART and spark energy among those challenged in adhering to ART.

4. We've seen that people who were educated and more likely to be in a job had a lower adherence rate to ART. We advise further investigation into the impact that a workplace setting may have on ART use. However, other elements linked to poor adherence, such as limited disclosure and stigma, may be present at work and have a negative impact on employees living with HIV/AIDS who are taking ART. It is advised that work-related HIV/AIDS policies be operationalized or strengthened in order to foster an atmosphere that is supportive of persons who are HIV-positive.

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**Otieno Elizabeth Atieno (2023). Comparative level of knowledge on adherence to ART among HIV patients attending Jinja regional referral Hospital. NEWPORT INTERNATIONAL JOURNAL OF SCIENTIFIC AND EXPERIMENTAL SCIENCES (NIJSES)3(3):50-57.**