Evaluating Non-Adherence to Antiretroviral Therapy among HIV/AIDS Patients at KIU Teaching Hospital's ART Clinic: Insights into Knowledge, Attitudes, and Socio-Demographic Influences

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ABSTRACT

Uganda, one of the countries with the highest HIV burden, accounts for almost half of all new infections in the region. A study was conducted to assess knowledge, attitude towards non-adherence to ART, and socio-demographic factors associated with knowledge among people living with HIV/AIDS attending the ART clinic of KIU Teaching Hospital. A total of 167 participants were selected, and bivariate and multivariate logistic regression was performed to identify factors associated with knowledge on non-adherence to ART. The mean knowledge score was 8.54, with 73.65% of participants having high knowledge and 26.35% having low knowledge. Attitude towards non-adherence to ART was attitudinal, with 25.15% having an unfavorable attitude and 74.85% having a favorable attitude. Factors such as having more than 4 family members and living in a rural area were independently associated with knowledge on non-adherence to ART among PLHIV attending the ART clinic of Kampala International University teaching hospital.

Keywords: knowledge, attitudes, socio-demographic factors, antiretroviral therapy, HIV, AIDS

INTRODUCTION

Antiretroviral therapy has improved the health of many human immunodeficiency virus (HIV) positive individuals who otherwise would have died [1-3]. Treatment efficacy relies, however, on sustained adherence, which constitutes a serious challenge to those receiving antiretroviral therapy, the regimens are often complicated and can include varying dosing schedules, dietary restrictions, and adverse effects [4-8]. Adherence to ART results in successful HIV outcomes, which ensures optimal viral and CD4 control and prevention of further complications [9-13]. However, adherence to ART often poses a special challenge and requires commitment from the patient and the health care team. Due to rapid replication and mutation of HIV, poor adherence results in the development of drug-resistant strains of HIV [14-19].

In 2016, the Joint United Nations Programme on HIV/ AIDS (UNAIDS) estimated that 36.7 million people were living with HIV/AIDS including 19.5 million who were accessing antiretroviral therapy (ART) [20-25]. The global coverage of antiretroviral therapy reached 46% (43-50%) at the end of 2015. Gains were greatest in the world's most

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affected region, eastern and southern Africa, where coverage increased from 24% (22-25%) in 2010 to 54% (50-58%) in 2015, reaching a total of 10.3 million people [26-30].

The African region remains the most affected region with 19.4 people living with HIV/AIDS (PLHIV) including 11.4 million PLHIV accessing ART [31-35]. Although the burden of HIV continues to vary significantly across countries, Sub-Saharan Africa remains the most affected with almost 1 in every 25 adults (4.4%) living with it, accounting for nearly 70% of the global burden [36-39].

According to the 2014 estimate the national HIV prevalence in Ethiopia was 1.14%, and the number of people living with HIV is 769, 600 with 15, 700 new HIV infections and 35, 600 AIDS-related deaths each year (Molla et al., 2018). Nigeria, with the 2016 population and housing census figure of 140,431,790, has the tenth largest population in the world and is the most populous country in Africa. It has been estimated that approximately 70% of Nigeria's population is poor, and 55% is literate [40-48].

In Uganda, very little is known about the knowledge, attitudes and socio-demographic factors associated with knowledge on non-adherence to ART among people living with HIV/AIDS as evident by no published studies relating to the topic. It is on that background that the present study seeks to fill the knowledge and information gap [49-54].

METHODOLOGY

Study design

This was a hospital based cross-sectional observational study.

Study area

The study was conducted in the ART clinic at Kampala International University teaching hospital which is in Ishaka Town, a major town in Bushenyi district, and located in the north of Bushenyi district, south west of Mbarara district and around 78km from Mbarara town which is the biggest city in Western Uganda.

Study population

All people above 18 years of age living with HIV/AIDS in Ishaka-Bushenyi municipality constituted the study population for this study.

Target Population

The study targeted people living with HIV attending ART clinic at KIU-TH provided they met the inclusion criteria.

Sampling Technique

For the present study, the techniques selected for the study were based on probability sampling. The main method that was employed in selecting sample from the population was simple random sampling technique.

Simple random Sampling

With this method, the researcher identified the study population, chose the sample size, listed the population, assigned numbers to the units, found random numbers and selected the individuals to take part in the study. The aim of the simple random sample was to reduce the potential for human bias in the selection of cases to be included in the sample. Each of the PLHIV attending the ART clinic had equal chances of participating in the study.

Sample size determination

A formula by Charan & Biswas (2013) was used to determine the sample size for this study.

$$n = \frac{Z^2\, p(1-p)}{d^2}$$

Where: n is the sample size

Z is the standard normal deviate or variant (at 5% type 1 error and p<0.05, Z is 1.96)

P is the expected proportion of characteristic being measured in the target population based on previous studies (For this study, it is estimated at 87.6% or 0.876) (Raberahona et al., 2019).

d is the absolute error or level of statistical significance (For this study set at 0.05)

Thus by using this formula,

$$n = \frac{1.96^2\, 0.876(1-0.876)}{0.05^2}$$

$$n = 167$$

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Therefore, 167 was considered as the required sample size

Inclusion criteria
All people living with HIV/AIDS who were above 18 years of age and who consented to take part in the study were included.

Exclusion criteria
- People living with HIV/AIDS who were on pre-ART
- People living with HIV/AIDS who were below 18 years of age.

Study procedure
Participation to the study was proposed to all PLHIV who had gone to take ART and who met inclusion criteria. Participants were informed about the purpose of the study. Participants who finally signed a consent form were enrolled. Participants were interviewed by a trained investigator for about 10 to 20min. Interview was done in English or Lunyankole at the discretion of the participant and the investigator.

Data collection Instruments
A data collection instrument is a tool that is used in data collection such as a questionnaire. This provided a guide to the researcher to collect adequate data that helped him answer the research questions to achieve the study objectives.

Proof and data analysis
Data was entered using Microsoft Excel Version 13 and was analyzed using STATA 14.0, Prior to data entry, the data was coded and cleaned to look for inconsistencies and missing values. Cross checking was done where necessary.

Ethical considerations
For this study to be ethical, the following were considered.

RESULTS
The researcher carried out data collection between January 2019 and March 2020 from the HIV clinic at Kampala International University Teaching Hospital. During the period of data collection, 167 participants were recruited and luckily enough all the 167 participants consented to participate in the study, all the 167 participants fully filled and returned the questionnaires. Therefore, the response rate for this study was 100% of the calculated sample size. According to Morton, Robinson, & Carr (2012), a response rate of 70% and above is acceptable for most cross sectional studies.

Table 1 summarizes the categorical variables of the characteristics of the study participants, majority of the study participants 49.10% (82/167) were in the age group of $20 - 28$ years, having $4 - 6$ members in their families 42.51% (71/167) and $1 - 7$ years was the during for which they had been taking ARV drugs 86.83% (145/167). Also, majority of study participants 39.52% (66/167) were in the Catholic denomination with their original areas of residence being rural areas 72.46% (121/167) and majority of the study participants 64.07% (107/167) were married. Basing on the highest level of education attained, majority of the participants 45.51% (76/167) had attained secondary education as their highest level of education. Lastly, when asked about their employment status, majority of the respondents 54.49% (91/167) stated that they were unemployed.

Table 1: Categorical variables of the socio-demographic characteristics of the study participants

CATEGORY	OPTIONS	FREQUENCY(n)	PERCENTAGE (%)
Age of the participants	$20 - 28$ Years	82	49.10
	$29 - 37$ Years	67	40.12
	$38 - 46$ Years	12	07.19
	47 Years and above	06	03.59
Number of Family Members	$1 - 3$ members	59	35.33
	$4 - 6$ members	71	42.51
	7 members and above	37	22.16
Duration on ARVs	$1 - 7$ Years	145	86.83
	$8 - 14$ Years	09	05.39
	15 years and above	13	07.78
Religion	Catholic	66	39.52
	Anglican	56	33.53
	Muslim	17	10.18
	Others	28	16.77
Area of Residence	Urban	46	27.54
	Rural	121	72.46

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Marital Status	Single	24	14.37
	Married	107	64.07
	Divorced	18	10.78
	Cohabiting	18	10.78
Education Level	None	20	11.98
	Primary	61	36.53
	Secondary	76	45.51
	Tertiary	10	05.99
Employment Status	Employed	76	45.51
	Unemployed	91	54.49

Presented in table 2 are the summary descriptive statistics for the continuous variables of the study participants. The mean age of the study participants was 30 years with a standard deviation of 7 years from the mean. The minimum age was 20 years whereas the maximum age was 55 years. The data on age of the study participants had a variance of 54.50 with a positive skewness of 1.31 and a platy kurtosis of 1.94. The mean number of family members in participants' family was 4.71 with a standard deviation of 1.99, minimum of 1 member, maximum of 10 members, variance of 3.98 with a positive skewness of 0.69 and a meso kurtosis of 3.05. The mean number of years which during which the participants have been on ARVs was approximately 5 years, standard deviation of 4 years. The minimum duration was 1 year while the maximum duration was 19 years with a variance of 16.30, a positive skewness of 1.79 and a lepto kurtosis of 6.13.

Table 2: Continuous Variables Pertaining to Characteristics of the Study Participants

Variable	Mean	St Dev	Med	IQR	Min	Max	Var	Skewness	Kurtosis
Age	30.16	7.38	29	34, 25	20	55	54.50	1.31	1.94
Family Members	4.71	1.99	4	6, 3	1	10	3.98	0.69	3.05
Duration on ARVs	4.84	4.04	4	6, 2	1	19	16.30	1.79	6.13

St Dev = Standard Deviation, Med = Median, Min = Minimum, Max = Maximum, IQR = Inter quartile Range, Var = Variance.

During the research process, 12 questions were used to assess the knowledge of study participants on non-adherence to ART among people living with HIV/AIDS attending ART clinic of KIU-T. The responses are presented in table 3 below. Majority of the study participants 74.25% (124/167) knew the drug regimen which they were on and had ever heard about non-adherence to ART 86.23% (144/167). Majority of the study participants 73.65% (123/167) could correctly identify that non-adherence to ARVs increases the viral load of an individual. On the question regarding the result of not adhering to ARV drugs on CD4+ count, majority of study participants had correct knowledge with 52.10% (87/167) of study participants correctly identifying that it increases CD4+ count. The highest number 95.81% (160/167) knew that when a pregnant woman doesn't adhere to ARV, it increases the risk of mother to child transmission. On the question of effect of missing doses of ARV on treatment effectiveness, majority of participants wrongly answered that it increases treatment effectiveness. On the other hand, 53.29% (89/167) said that taking ARVs together with food makes ARVs not to work well whereas 72.46% (121/167) stated that it is not okay to miss taking drugs. When the study participants were asked whether it is bad to share ARV drugs with another person, majority of study participants 65.87 (110/167) correctly said it is bad to share ARV drugs. Almost all the study participants 94.61% (158/167) could correctly identify that ARVs should be taken for lifetime. More than half of participants 53.29% (89/167) correctly answered that the purpose of ARVs is to suppress viral load and lastly, 88.62% (148/167) said it is bad to skip a day without taking ARV drugs.

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Table 3: Responses to Questions used to assess knowledge of study participants

VARIABLE	FREQUENCY	PERCENTAGE %)
Know the Drug Regimen they are on		
Yes*	124	74.25
No	43	25.75
Ever heard about non-adherence to ART		
Yes*	144	86.23
No	23	13.77
Effect of non-adherence on Viral Load		
Increases*	123	73.65
Decreases	42	25.15
Don't Know	02	01.20
The result of not adhering to ARV drugs on CD4+ count		
Increases	87	52.10
Decreases*	49	29.34
Don't Know	31	18.57
Non Adherence among pregnant woman increases the risk of MTCT		
Yes*	160	95.81
No	07	04.19

Continuation of Table 3

The effect of missed dose on treatment effectiveness		
Increases	94	56.29
Reduces*	73	43.71
Effects of taking ARV drugs together with food		
Makes ARVs work well	78	46.71
Makes ARVs not to work well*	89	53.29
It is okay to miss taking ARV drugs		
Yes	46	27.54
No*	121	72.46
It is bad to share drugs with another person		
Yes*	110	65.87
No	57	34.13
Duration for taking ARV drugs		
Lifetime*	158	94.61
Some years	08	04.79
Don't know	01	00.60
The purpose of ARV drugs		
Cure HIV	68	40.72
Reduce pain	06	03.59
Suppress Viral Load*	89	53.29
Weight Gain	04	02.40
It is bad to skip a day without taking ARV drugs		
Yes*	148	88.62
No	19	11.38

The correct response is marked with asterisk (*)

The study participants were awarded 1 mark for every question answered correctly and for every question answered wrongly, the participants were awarded 0 marks. Presented in table 4 is the summary statistics of the knowledge scores of the study participants. In cases where study participants answered all the questions correctly, the

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participant is supposed to score 12 points. There were 167 observations; the mean knowledge score was 8.5 with a standard deviation of 1.8 from the mean. The minimum score of knowledge was 4 while the maximum knowledge score was 11 with a variance of 3.1 and a negative skewness of -0.7 meanwhile there was a platy kurtosis 2.6

Table 4: The Summary of total Knowledge scores of study participants

Observations	Mean	Std Dev	Minimum	Maximum	Variance	Skewness	Kurtosis
167	8.5	1.8	4	11	3.1	-0.7	2.6

Those who scored less than 60% were graded to be having low level of knowledge on non-adherence to ART whereas participants who had knowledge score of 60% and above were graded to be having high level of knowledge on non-adherence to ART. As shown in table 5, majority of the study participants 73.65% (123/167) had high level of knowledge regarding non-adherence to ART with a 95% confidence interval of $67.00 - 80.40$ meanwhile 26.35% (44/167) were found to be having low level of knowledge about non-adherence to ART with a 95% confidence interval of $19.60 - 33.10$.

Table 5: Shows grading of the knowledge scores

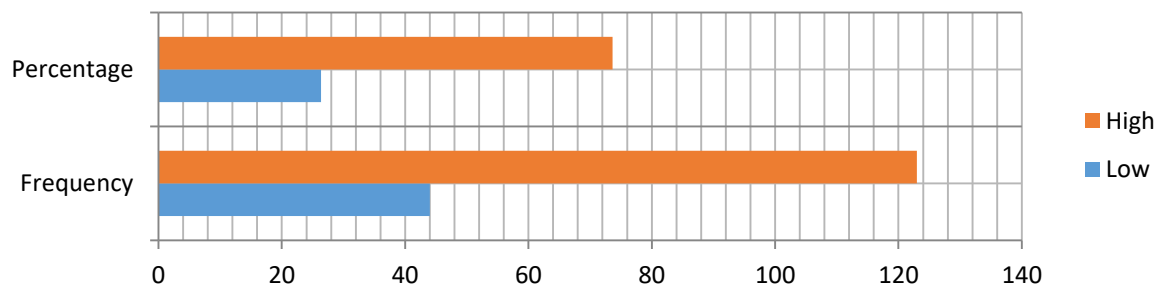| Level of Knowledge	Frequency	Percentage	95% Confidence Interval
Low	44	26.35	$19.60 - 33.10$
High	123	73.65	$67.00 - 80.40$

Figure 1; Bar Graph Showing the Level of Knowledge

Shown in table 6 below is the age-specific level of knowledge among the study participants. It can be observed that majority of study participants 76.12% (51/67) who had high level of knowledge were from the age group of $29 - 37$ years at 95% CI of 65.64-86.60 meanwhile majority of the study participants 66.67% (04/06) who had low level of knowledge about non-adherence to ART were from the age group of 47 years and above at 95% CI of 12.47-120.8. Nevertheless, the difference in the level of knowledge across the different age groups of participants had no statistical significance since the P value was 0.127.

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Table 6: Age-Specific Level of Knowledge on non-adherence to ART

Age of the study participants	Total	Knowledge Level				Chi Square (X²)	P Value
		Low Count, (%)	95% Confidence Interval	High Count, (%)	95% Confidence Interval		
20 − 28	82	20 (24.39)	14.90-33.89	62 (75.61)	66.12-85.10		
29 − 37	67	16 (23.88)	13.40-34.36	51 (76.12)	65.64-86.60		
38 − 46	12	04 (33.33)	02.05-64.62	08 (66.67)	35.38-97.95	5.70	0.127
47 or more	06	04 (66.67)	12.47-120.8	02 (33.33)	-20.86-87.53		

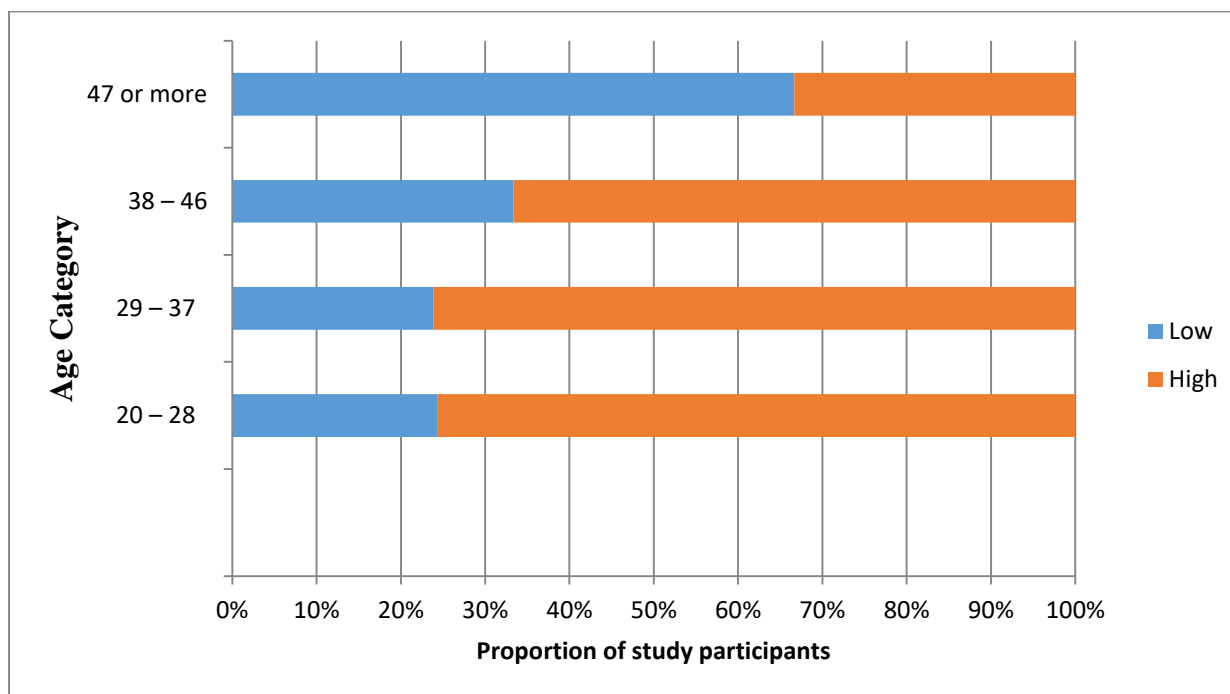**P Value is significant at 0.05 level**

Figure 2: Bar Graph Showing Age-Specific Level of Knowledge

The researcher used 8 items to assess attitude of study participants, with each item having 2 options of agree (yes) and disagree (No). As observed from table 7, majority of participants 80.84% (135/167) said there are no other effective ways of treating HIV other than ARV drugs but unfortunately a high proportion 82.63% (138/167) were not convinced of getting infected with HIV with more than half of the study participants 62.87 (105/167) saying taking ARVs does more harm than good. As such, an exceedingly high numbers 90.42% (151/167) had no zeal to continue with taking the ARV drugs much as 68.86% (115/167) of the study participants never felt ashamed of taking ARV drugs. On the other hand, more than half of the study participants 57.49 (96/167) disagreed that those who are not adhering to ART may start falling sick frequently meanwhile 74.85% (15/167) of the participants had a perception that it is not dangerous not to adhere to ARV drugs.

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Table 7: The Response of study participants to attitudinal questions

VARIABLE	FREQUENCY	PERCENTAGE %)
There are more effective ways to treat HIV than ARV drugs		
Agree	32	19.16
Disagree	135	80.84
Convinced of being infected by HIV		
Agree	29	17.37
Disagree	138	82.63
Convinced that ARVs are effective		
Agree	84	50.30
Disagree	83	49.70
Taking ARV drugs does more harm than good		
Agree	105	62.87
Disagree	62	37.13
Committed to continue on your ARV drugs		
Agree	16	09.58
Disagree	151	90.42
Feels ashamed of taking ARV drugs		
Agree	52	31.14
Disagree	115	68.86
Those who are not adhering to ART may start falling sick frequently		
Agree	71	42.51
Disagree	96	57.49
It is dangerous not to adhere to ARV drugs		
Agree	42	25.15
Disagree	125	74.85

Eight statements were used to assess the attitude of study participants towards non-adherence to ART. Participants were awarded 1 score for every statement with a favorable attitude, whereas responses with an unfavorable attitude were awarded 1 score. Table 8 shows the summary statistics of the attitude scores of the study participants. The total score if the participant has a favorable attitude in all items is supposed to be 8. There were 167 observations; the mean score was 5.42 with a standard deviation 1.50 from the mean. The minimum score of attitudes was 1 while the maximum attitude score was 8 with a variance of 2.24 and a negative skewness of 0.87 meanwhile there was a meso kurtosis of 3.81

Table 8: Summary statistics of At titude Score of study participants

Observations	Mean	Std Dev	Minimum	Maximum	Variance	Skewness	Kurtosis
167	5.42	1.50	1	8	2.24	– 0.87	3.81

Participants who had attitude sore of less than 5 were considered to be having an unfavorable attitude meanwhile study participants who had attitude score of 5 and above were considered to be having favorable attitude. As presented in table 9 below, majority of the study participants 74.85% (125/167) had favorable attitudes which would promote adherence to ART with 95% CI of 68.20 − 81.50, meanwhile 25.15 (42/167) had unfavorable attitude which would promote non-adherence to ART with 95% CI of 18.50 − 31.80

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Table 9: Overall Grading of Attitude among the Study Participants

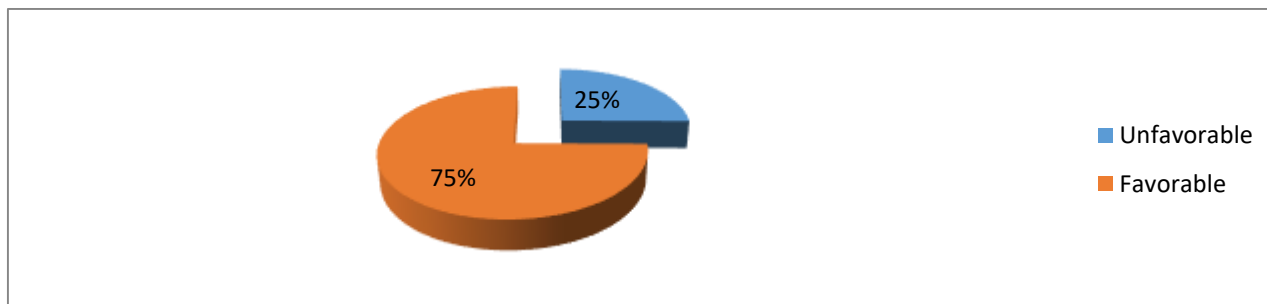| Grading of Attitude	Frequency	Percentage	95% CI
Unfavorable	42	25.15	$18.50 - 31.80$
Favorable	125	74.85	$68.20 - 81.50$

Figure 3; Pie chart showing attitude scores

Age-Specific Attitude on Non-adherence to ART

Table 10 shows the age-specific attitude towards non-adherence to ART among study participants. The age group of $38 - 46$ years had majority of participants 83.33% (10/12) with favorable attitude which can promote adherence to ART with 95% CI of 58.60-108.07 meanwhile majority of the study participants 33.33% (02/06) who had unfavorable attitude which can promote non-adherence to ART were from the age group of 47 years and above with 95% CI of -20.86-87.53. However, the difference in the attitude across the different age groups of participants was not significant with a P value of 0.837 and a chi square value of 0.852.

Table 10: Shows Age-Specific Attitude of Study Participants

Age of the study participants	Total	Attitude				Chi Square (X²)	P Value
		Unfavorable Count, (%)	95% Confidence Interval	Favorable Count, (%)	95% Confidence Interval		
$20 - 28$	82	22 (26.83)	17.03-36.62	60 (73.17)	63.38-82.97		
$29 - 37$	67	16 (23.88)	13.40-34.36	51 (76.12)	65.64-86.60		
$38 - 46$	12	02 (16.67)	-08.07-41.40	10 (83.33)	58.60-108.07	0.852	0.837
47 or more	06	02 (33.33)	-20.86-87.53	04 (66.67)	12.47-120.86		

P Value is significant at 0.05 level

When a chi square test was done to check for associations between socio-demographic factors and the level of knowledge on non-adherence to ART among the study participants, results of the analysis revealed that four factors were significantly associated with the level of knowledge on non-adherence to ART among the study participants who were sampled during the study period as observed in table 11. The statistically significant factors include: Number of family members X^2(3, N=167) =24.77, P<0.001; Area of residence X^2(1, N=167) =9.601, P=0002; Marital Status X^2(3, N=167) =19.114, P<0.001; Employment status X^2(1, N=167) =6.056, P=0.014; meanwhile all the other socio-demographic factors had no significant association with level of knowledge on non-adherence to ART.

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Table 11: Chi Square Test to Show Association between Socio-Demographic Factors and Level of Knowledge on Non-adherence to ART

VARIABLE		TOTAL	KNOWLEDGE		CHI SQUARE (χ^2)	P VALUE
			LOW COUNT (%)	HIGH COUNT (%)		
Age of the participants	20 – 28 Years	82	20 (24.39)	62 (75.61)		
	29 – 37 Years	67	16 (23.88)	51 (76.12)		
	38 – 46 Years	12	04 (33.33)	08 (6.67)	5.70	0.127
	47 Years and above	06	04 (66.67)	02 (33.33)		
Number of Family Members	1 – 3 members	59	17 (28.81)	42 (71.19)		
	4 – 6 members	71	07 (09.86)	64 (90.14)	24.77	<0.001*
	7 members and above	37	20 (54.05)	17 (45.95)		
Duration on ARVs	1 – 7 Years	145	35 (24.14)	110 (75.86)		
	8 – 14 Years	09	02 (22.22)	07 (77.78)	5.51	0.064
	15 years and above	13	07 (53.85)	06 (46.15)		

Cont. of Table 12

*Religion	Catholic	66	12 (18.18)	54 (81.82)		
	Anglican	56	18 (32.14)	38 (67.86)		
	Muslim	17	03 (17.65)	14 (82.35)	6.32	0.097
	Others	28	11 (39.29)	17 (60.71)		
Area of Residence	Urban	46	20 (43.48)	26 (56.52)	9.601	0.002*
	Rural	121	24 (19.83)	97 (80.17)		
Marital Status	Single	24	14 (58.33)	10 (41.67)		
	Married	107	18 (16.82)	89 (83.18)		
	Divorced	18	07 (38.89)	11 (61.11)	19.114	<0.001*
	Cohabiting	18	05 (27.78)	13 (72.22)		
Education Level	None	20	05 (25.00)	15 (75.00)		

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	Primary	61	18 (29.51)	43 (70.49)		
	Secondary	76	18 (23.68)	58 (76.32)	0.679	0.878
	Tertiary	10	03 (30.00)	07 (70.00)		
Employment Status	Employed	76	27 (35.53)	49 (64.47)	6.056	**0.014***
	Unemployed	91	17 (18.68)	74 (81.32)		

P value is significant a value less than 0.05

Table 12 presents bivariate logistic regression and multivariate logistic regression to establish the factors associated with knowledge on non-adherence to ART among people living with HIV attending Kampala International University Teaching hospital ART clinic. Results of the analysis showed that at bivariate logistic regression 7 socio-demographic factors were found to be statistically associated with the level of knowledge on non-adherence to ART among the study participants. Participants who were in the age group of 47 years and above were 84% less likely to have a high level of knowledge compared to participants who were in the age group of $20 - 28$ years (cOR 0.16, 95%CI 0.03-0.95, P=0.043).

Those who had 4-6 family members were almost 4 times more likely to have high level of knowledge than those who had $1 - 3$ family members (cOR 3.70, 95%CI 1.41-9.69, P=0. 0.008) whereas participants who had 7 or more family members were 66% less likely to have high level of knowledge than participants who has $1 - 3$ family members (cOR 0.34, 95%CI 0.15-0.81, P=0.015). Participants who had been on ART for $4 - 6$ years were 3.67 times more likely to have a high level of knowledge than participants who had been on ART for $1 - 7$ years (cOR 3.67, 95%CI 1.16-11.64, P=0.027). Those who belonged to other religions apart from Catholic, Anglican and Muslim were 66% less likely to have high knowledge compared to participants who were Catholics (cOR 0.34, 95%CI 0.13-0.92, P=0.033).

Those coming from rural areas of residence were 3.11 times more likely to have high levels of knowledge than those coming from urban areas of residence (cOR 3.11, 95%CI 1.49-6.48, P=0.002). Married participants were 6.92 times more likely to have high level of knowledge than the single participants (cOR 3.11, 95%CI 2.66-18.02, P<0.001) and lastly, unemployed participants were 2.40 times more likely to have high level of knowledge than the employed participants (cOR 2.40, 95%CI 1.18-4.86, P=0.015).

Factors with p-value less than 0.20 with at bivariate logistic regression analysis were considered for multivariate analysis. Through a stepwise logistic regression with removal of least significant variable in each step, only number of family members and area of residence remained significantly associated with the level of knowledge of participants on non-adherence to ART. $4 - 6$ family members versus $1 - 3$ family members (aOR 4.21, 95%CI 1.29-13.76, P=0.018), and rural versus urban (aOR 2.80, 95%CI 1.00-7.84, P=0.049).

Table 12: Logistic Regression Analysis to Show Factors Associated with Knowledge of Study Participants

Variables	Knowledge Level		cOR (95% CI)	P Value	aOR (95% CI)	P Value
	Low n=44 (%)	High n=123 (%)				
Age of the participants						
$20 - 28$ Years	20 (24.39)	62 (75.61)	1	-	1	-
$29 - 37$ Years	16 (23.88)	51 (76.12)	1.03 (0.48-2.19)	0.942	0.89 (0.30-2.61)	0.832
$38 - 46$ Years	04 (33.33)	08 (6.67)	0.65 (0.18-2.37)	0.509	0.20 (0.02-1.72)	0.141
47 Years or +	04 (66.67)	02 (33.33)	0.16 (0.03-0.95)	**0.043***	0.45 (0.03-7.63)	0.579
Number of Family Members						
$1 - 3$ members	17 (28.81)	42 (71.19)	1	-	1	-

Mafabi

4 − 6 members	07 (09.86)	64 (90.14)	3.70 (1.41-9.69)	**0.008***	4.21 (1.29-13.76)	**0.018***
7 members or +	20 (54.05)	17 (45.95)	0.34 (0.15-0.81)	**0.015***	0.34 (0.06-1.84)	0.211
Duration on ARVs						
1 − 7 Years	35 (24.14)	110(75.86)	1	-	1	-
8 − 14 Years	02 (22.22)	07 (77.78)	3.67 (1.16-11.64)	**0.027***	0.45 (0.04-5.36)	0.531
15 years or +	07 (53.85)	06 (46.15)	4.08 (0.60-27.65)	0.149	2.46 (0.14-43.49	0.540
Religion						
Catholic	12 (18.18)	54 (81.82)	1	-	1	-
Anglican	18 (32.14)	38 (67.86)	0.47 (0.20-1.09)	0.077	0.47 (0.15-1.51)	0.203
Muslim	03 (17.65)	14 (82.35)	1.04 (0.26-4.18)	0.959	0.53 (0.09-3.24)	0.494
Others	11 (39.29)	17 (60.71)	0.34 (0.13-0.92)	**0.033***	0.46 (0.12-1.79)	0.263
Area of Residence						
Urban	20 (43.48)	26 (56.52)	1	-	-	-
Rural	24 (19.83)	97 (80.17)	3.11 (1.49-6.48)	**0.002***	2.80 (1.00-7.84)	**0.049***
Marital Status						
Single	14 (58.33)	10 (41.67)	1	-	1	-
Married	18 (16.82)	89 (83.18)	6.92 (2.66-18.02)	**<0.001***	2.05 (0.48-8.76)	0.333
Divorced	07 (38.89)	11 (61.11)	2.2 (0.63-7.67)	0.215	1.78 (0.22-14.16)	0.584
Cohabiting	05 (27.78)	13 (72.22)	3.64 (0.98-13.52)	0.054	1.80 (0.29-11.13)	0.528

Cont. of Table 12

Education Level						
None	05 (25.00)	15 (75.00)	1	-	-	-
Primary	18 (29.51)	43 (70.49)	0.80 (0.25-2.52)	0.698	-	-
Secondary	18 (23.68)	58 (76.32)	1.07 (0.34-3.37)	0.902	-	-
Tertiary	03 (30.00)	07 (70.00)	0.78 (0.14-4.21)	0.771	-	-
Employment Status						
Employed	48 (47.52)	53 (52.48)	1	-	1	-
Unemployed	38 (55.88)	30 (44.12)	2.40 (1.18-4.86)	**0.015***	1.64 (0.59-4.61)	0.345

cOR= Crude Odds Ratio. aOR=Adjusted Odds Ratio CI=Confidence Interval. P Value significant at 0.05 level

DISCUSSION

This study discovered that the mean knowledge score among the study participants was 8.54 with a standard deviation of 1.76 from the mean. Majority of the study participants 73.65% (123/167) had high level of knowledge on non-adherence to ART. This is in line with the results of a study done among young adolescent girls and young adults in Soweto, South Africa [55]. Similarly, the result of the present study is in line with the findings of a hospital based cross sectional study which revealed that 75.8% of respondents stated correctly that ART consists of drugs that suppress the activity of HIV.

The mean knowledge score found in the present study is higher than the mean score of 7 found in a cross-sectional study done from Madagascar, though the 73.65% of the participants with high level of knowledge found in the present study is low when compared to 87.6% of the participants who exhibited a good awareness [31]. The disparity in the study findings could have risen to the difference in the sample sizes of the two studies whereby the present study utilized a smaller sample size.

Also, the finding of the present study is higher than what was found in a study done in Nigeria which revealed that revealed that 65.9% of the respondents knew that ARV drugs are used for reducing progression of HIV [56]. Much as both studies were conducted from tertiary health facilities, the disagreement in the study findings could have come about due to the difference in the sampling techniques and the variations in the study populations.

Mafabi

The level of knowledge of participants in this study is low as compared to the findings of a study conducted by Olowookere et al.[40] which revealed that 75.8% of respondents stated correctly that ART consists of drugs that suppress the activity of HIV meanwhile in the present study only 53.29% correctly answered that ARVs suppress viral load. Despite the fact that both studies are hospital based cross sectional studies, the discrepancy in the study findings could have come about due to the smaller size in the present study.

To increase the level of knowledge on non-adherence even further, an inaccuracy of the ART programmes should be addressed; this should include improving knowledge translation during training of ART programme staff, ensuring the implementation of established data verification policies and procedures, rethinking the design of the programme to reduce the burden on health facilities and personnel, and standardizing information management procedures amongst the various governmental and non-governmental stakeholders [57].

The second specific objective of this study was to determine the attitudes towards noon-adherence to ART among people living with HIV attending ART clinic of Kampala International University teaching hospital. Findings of the present study showed that; 25.15% had unfavorable attitude, 74.85% had favorable attitude. The result of the present study is in line with what was found in a study conducted from South Africa [55].

Similarly, the findings of this study is in line with the result of a study conduted by [56-59] who discovered that median score for attitude and perception was 5 and participants who had a positive attitude and perception were 75.6%. In the same line, the result of the present study is in agreement with the result of a cross-sectional study conducted among 351 ART patients in the ART clinic of the University of Gondar referral hospital [56-59]. The possible reason for the agreement in the study findings could be due to the similarity in the study design and the similarity in the study settings. Also, the similarity in the sampling techniques employed could have brought about the agreement in the study findings.

The attitude of participants in the present study is more favorable in promoting adherence to ART than what was found in a facility-based study conducted in Nigeria which revealed that most respondents strongly agreed that ART had a positive effect on health (54.6%), had more benefits than harm (47.6%), reduces frequent sickness (46.8%) [56]. The difference in the study findings could have risen due the fact that the previous study was conducted in West Africa whereas the present study was done in East Africa.

The attitude of participants found in the present study is less favorable in promoting adherence to ART as compared to the findings of a study done in Ethiopia [56-59]. The difference in the study findings can be explained by the difference in the study settings and the different study populations.

The finding of the present study is in disagreement with the results of a study done among people living with HIV/AIDS in Madagascar. Furthermore, the results of present study do not agree with the results of a study done among HIV patients in southwest Nigeria [56-59]. Additionally, the results of a study conducted in Ethiopia showed that there was no significant association between the socio-demographic variables and knowledge non-adherence to antiretroviral therapy. This finding is not in line with what was found in the present study. The discrepancy in study findings could have come about due to the variation in study participants and difference in study settings.

The number of family members may influence the level of knowledge on non-adherence to ART in that when an HIV patient comes from a family where there are more than 4 members, there is a high possibility that some of the family members may be highly educated and will in turn enlighten the HIV patient about non-adherence to ART. On the other hand, area of residence also influences the level of knowledge on non-adherence to ART in that those coming from urban areas of residence engage in types of income generating activities or jobs which limit their time of attending to health facilities. Conversely, HIV patients who dwell in rural areas engage in income generating activities which doesn't keep them very busy, as such they have enough time to receive quality counseling and health education from health care providers.

CONCLUSION

This study has shown that a large proportion of the study participants have high level of knowledge on non-adherence to ART, this is also related to the big number of study participants having attitude which is favorable in

Mafabi

promoting adherence to ART. Having more than 4 family members and rural area of residence were independently associated with the level of knowledge.

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Page | 145

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Mafabi