



Factors Associated with Non-adherence to Anti-Retroviral Therapy among Clients in Lodwar County and Referral Hospital, Turkana County, Kenya

Nadio Etabo Clement^{1*}, Peter Edome Akwee², Josephat Bitok¹ and Peterson Kariuki¹

¹School of Health Science, Mount Kenya University, Kenya.

²School of Science, Turkana University College, Kenya.

Authors' contributions

This work was carried out in collaboration among all authors. Author NEC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors PEA and JB managed the analyses of the study. Author PK managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Patient, Health-facility and Socio-cultural related factors associated with non-adherence have contributed to poor management of ART among HIV/AIDS clients. In Lodwar County and Referral Hospital, Turkana County, a significantly high number of clients on ARV therapy have defaulted treatment. The purpose of this study was to investigate the factors associated with non-adherence to anti-retroviral treatment in Lodwar County and Referral Hospital (LCRH), Turkana, Kenya. The study was guided by cross sectional descriptive study design where qualitative and quantitative data were collected. The research instruments used for data collection consisted of structured questionnaires, interview schedules among clients on ARV therapy and documents analysis. The sample size was obtained using the modified Fishers formula at 95% level of confidence. The

*Corresponding author: E-mail: clementetabonadio@gmail.com;

Statistical package for Social Sciences (SPSS) and descriptive statistics were used to analyze the data. The findings in the study revealed that there are many patient, health system and socio-cultural related factors associated with non-adherence. From the study document analysis at LCRH there should be 5243 people on ARVs, however, as at January 2018 there were 1551 (30%) who were actively on ARVs this shows that there is 70 % default rate. The study found that, Patients' related factors that are causing non-adherence include; lack of education, lack of support, the distance to facility, lack of food, the side effects, alcohol use among many others. The study concluded that, health facility should improve their service delivery to the patients, change attitude and conduct adherence counseling. There is need to sensitize the community members to accept the HIV+ people to enable them express their health issues. They should support them and ensure that they are trained on how to use ARVs and not seek the tradition herbs and medicine men.

Keywords: HIV/AIDS; anti-retroviral therapy; cross sectional descriptive; health system; socio-cultural.

1. INTRODUCTION

The Human immunodeficiency virus (HIV) remains an issue of global public health concern. According to Joint United Nations Programme on HIV/AIDS (UNAIDS, 2016), there were about 1.9 million new HIV infections among adults in 2015. In the same period, a total of 36.7 million people living with HIV (PLWHA) were recorded (UNAIDS, 2016). This indicates that Sub-Saharan Africa (SSA) region carries the greatest burden of HIV/AIDS pandemic worldwide and is often regarded as the 'epicenter' of the global HIV epidemic (UNAIDS, 2016).

According to World Health Organization Swaziland and South Africa has the highest HIV prevalence globally WHO, [1]. HIV prevalence in Western and Eastern Africa are generally low to moderate. Currently, Kenya's national HIV prevalence stands 6% (UNAIDS, 2016). The high risk groups include commercial sex workers, young women, children, sex workers, homosexuals and injection drug users WHO, [1]. An estimated 1.5 million people are living with HIV, around 1.2 million children have been orphaned by AIDS, and in 2009 80,000 people died from AIDS related illness (UNAIDS, 2010). In Kenya, HIV prevalence in urban areas ranges from 11% to 29% in 2001, while in rural Centre's surveillance sites the prevalence ranged from 20% to 31% in the same year (NASCOP, 2003).

Poor adherence will result in sub-therapeutic plasma ARV drug concentrations, facilitating development of drug resistance to one or more drugs in a given regimen, and possibly cross-resistance to other drugs in the same class. Multiple factors (including regimen potency, pharmacokinetics, drug interactions, viral fitness, and the genetic barrier to ARV resistance) influence the adherence-resistance relationship Gardner, Burman, Steiner, Anderson, &

Bangsberg, [2]. In addition to compromising the efficacy of the current regimen, suboptimal adherence has implications for limiting future effective drug regimens in patients who develop multidrug-resistant HIV and for increasing the risk of secondary transmission.

Patients who discontinue treatment are at high risk of illness and death because of AIDS-related conditions. Consequently, many studies have attempted to quantify and ascertain the status of patients reported as lost to follow-up, including several in South Africa MacPherson et al. [3], Dahab et al. [4]. At a large public hospital, 31% of patients who defaulted soon after ART initiation had died, 25% had transferred and 44% had discontinued treatment voluntarily or could not be found Dahab et al. [4]. Another public sector clinic in South Africa obtained similar results after tracing patients who were at least 1 month late for their last clinic visit 6 months after starting ART: 41% had died, 7% had transferred, and 52% had voluntarily discontinued treatment or could not be found Dahab et al. [4]. Studies from other countries report similar outcomes after actively tracing those initially reported as lost to follow-up Maskew et al. [5].

Previous research mainly provides clinical, immunological and virological data, but little is known about factors linked to non-adherence and loss to follow-up. Besides, most previous studies on ART adherence in Kenya are limited to urban settings mainly in Nairobi, Central, Rift Valley, and Coast regions. The current study will investigate the retention level of clients on anti-retroviral treatment in Lodwar County and Referral Hospital, Turkana, Kenya.

1.1 Statement of the Problem

Despite access to HIV treatment and care among clients in Kenya, HIV infection has been on the

rise, and adherence to the subscribed medicines remains a big challenge. As ART is becoming progressively more available, the challenge of non-adherence calls for even greater attention. Patient retention and linkage throughout the cascade of HIV care remains very low, placing the concept of 'test and treat' as part of the solution to ending the AIDS epidemic in question.

Previous research mainly provides clinical, immunological and virological data, but little is known about factors linked to non-adherence and loss to follow-up. Besides, most previous studies on ART adherence in Kenya are limited to urban settings mainly in Nairobi, Central, Rift Valley, and Coast regions. Owing to the strong correlation between adherence and clinical outcomes among PLWHA, there is need to generate credible knowledge necessary for policy makers and programme managers before scaling up ART programmes. The National Aids Control programme in 2015 reported that, Turkana County is top ten in HIV prevalence with high defaulter rate.

This calls for an in-depth analysis of factors hindering adherence in order to improve the ART adherence among patients. As it is crucial for the success of treatment that patients stay on therapy, There is need to investigate a wide array of factors hampering clients on ART.

Moreover, by the virtues of Turkana community respecting and honoring its cultural practices, this could contribute to interference with ART uptake. Against this background, the researcher is compelled to conduct a study which seeks to explore the factors leading to non-adherence to ART among clients enrolled in LCRH.

1.2 Justification of the Study

Although NASCOP Kenya and Turkana County is accelerating ART coverage and opening many ART sites in the county, adherence of clients into HIV/AIDS care and treatment needs to be known and necessary measures to be put in place to retain them into follow up.

Retention in care after enrollment is necessary for optimal clinical outcomes, monitoring treatment response, social support and education among others. For those on ART, loss to follow up implies stopping ART with resultant disease progression, development of drug resistance and eventually increased mortality. This study was necessary as it could assist in

understanding the factors accounting for non-adherence to anti-retroviral treatment in Lodwar County and Referral Hospital, Turkana County.

1.3 Research Gaps

From the literature review, there exist a big challenge on non-adherence prevalence and its implications to be a persistent problem, studies about factors linked to failure are still new and scarce in Kenya, particularly in Turkana County. Previous research mainly provides clinical, immunological and virological data, but little is known about factors linked to non-adherence and loss to follow-up. Besides, most previous studies on ART adherence in Kenya are limited to urban settings mainly in Nairobi, Central, Rift Valley, and Coast regions. Owing to the strong correlation between adherence and clinical outcomes among PLWHA, there is need to generate credible knowledge necessary for policy makers and programme managers before scaling up ART programmes.

2. RESEARCH DESIGN

The research study adopted a cross-sectional descriptive design. It was explorative in nature because it explained more information in patient related factors, Health facility related factors and socio-cultural factors associated with non-adherence at LCRH. This design was used to collect both qualitative and quantitative data. This design was appropriate since it enabled the researcher to reach so many respondents within the shortest time.

A descriptive survey seeks to obtain information that describes existing phenomena by asking individuals about their perceptions, attitude, behavior or values Mugenda & Mugenda, [6].

2.1 Target Population

The target population for the study was the entire clients diagnosed with HIV/AIDS and are on ARVs in Lodwar County Referral Hospital. The total number of clients on ARVs at the hospital is 5243 as per the records at the hospital (LCRH Report January, 2018).

2.2 Sample Size Determination

The sample size for this study was based on the formula suggested by Fishers formula at 95% level of confidence and a sampling error of 5%. The formula is given as;

$$n = \frac{z^2(pq)}{d^2}$$

Where: n = sample size

Z= 1.96 (statistical constant at 95% confidence interval)

P= Prevalence of non-adherence to ARVs which is estimated to range from 15% – 30% in studies conducted by Wakibi et al., (2011) outside Turkana County.

In this study the prevalence was taken to be 18% (0.18).

q = 1- p

d = 5% (0.05) sampling error

Therefore:

$$N = 1.96^2 \cdot 0.18 \cdot 0.82 / 0.05^2 = 227$$

Sample size = 227

The study population is less than 10,000 and therefore an adjustment factor was considered.

The adjustment formula was;

$$n_1 = \frac{n}{1 + \frac{n}{N}}$$

Where:

n₁ = New sample size

n = Initial Calculated Sample size

N = total population of patients on ARV treatment

$$n_1 = \frac{227}{1 + \frac{227}{5243}} = 218$$

Therefore, the adjusted sample size was 218 respondents

2.3 Instruments of Data Collection

The research instruments that were used for the study included both open ended and structured questions. Section A of the questionnaire contained items related to social demographic characteristics of the patients while section B contained questions on the retention level of clients on anti-retroviral treatment in Lodwar County and Referral Hospital, Turkana, Kenya. To complement these data, qualitative data was collected through interviews. The key informant interview was administered to HIV/AIDS

counselors to provide more information on the retention level of clients on anti-retroviral treatment in Lodwar County and Referral Hospital, Turkana, Kenya.

2.4 Validity of the Research Instruments

The researcher sought expert opinion on content and construct validity. Comments solicited from them were used to improve the research instrument before commencing data collection. Content is a non-statistical type of validity that involves the systematic examination of the test content to determine whether it covers a representative sample of behavior domain to be measured (Anastasi & Urbina, 1997). Content validity evidence involves the degree to which the content of the test matches a content domain associated with the construct.

A test has content validity built into it by careful selection of which items to include (Anastasi & Urbina 1997). Items are chosen so that they comply with the test specification which is drawn up through a thorough examination of subject domain. Foxcroft (2004), note that by using a panel of experts to review the test specifications and the selection of items, the content validity of a test can be improved. The experts were able to review the items and comment on whether the items cover a representative sample of the behavior domain. To test the validity of the instruments was used in the study; the questionnaire was availed to supervisors together with a panel of experienced researchers of Mount Kenya University to review the instruments. The comments from the experts were incorporated in the final instrument revisions to improve its validity.

2.5 Reliability of the Research Instruments

To determine the reliability of the instruments, the questionnaire was piloted using 30 clients in Lokichogio Sub-County hospital who were not be part of this research study. The test-retest method was employed to test the reliability of questionnaires. The first test was administered to the respondents and after two weeks a second test were given to the same respondents. The two tests were analyzed separately. Corrections and adjustments on areas of weakness were made to the instruments. The Pearson's Product Moment Correlation (r) was used to calculate the reliability coefficient between the first and second scores. The formula is as shown below;

$$r = \frac{N\sum xy - \sum x \sum y}{\sqrt{N\sum x^2 - (\sum x)^2} \sqrt{N\sum y^2 - (\sum y)^2}}$$

Where;

r = Coefficient of reliability

N = Total number of subjects

x = Rated values of 1st administered test

y = Rated values of 2nd administered test

Σ = Summation

The coefficient obtained was then be converted into an appropriate correlation for the entire test using the Spearman and Brown prophecy shown below;

$$r_{xx} = \frac{2r_{oe}}{1 + r_{oe}}$$

Where;

Where;

r_{xx} = reliability coefficient for two tests

r_{oe} = reliability coefficient obtained by the squares of the 1st and 2nd administered tests.

According to Cronbach alpha of 0.7, is considered reliable and this study adopted a Cronbach alpha of 0.7, as shown in Table 1 which implies that all the variables were reliable and thus adopted for data collection, Orodho, [7] supports that a correlation coefficient of (r) 0.75 or more is considered appropriate to ascertain the reliability of the instruments.

3. RESPONSE RATE

Out of the sampled 218 clients on ART, 205 questionnaires were properly filled and returned. This represented 94% overall successful response rate which was attributed to use of self-administered questionnaire. This response rate was very good, according to Babbie (1990) who classified response rates of 50% as adequate, 60% good and 70% very good for analysis.

3.1 Patient-Related Factors

This shows that while in relationship most of patients 77.1% had informed their spouses that they were on ARVs as compared to 19% who had not disclosed that they were on ARVs.

3.1.1 Reasons for non-disclosure to spouse

The respondents were further asked reasons for not disclosing their status and taking ARVs as shown in Fig. 1.

This means that patients under ARVs do not disclose their taking ARVs for fear of separation, fear of sex denial, personal problem and no need to tell others and disclosure challenge respectively.

3.1.2 Knowledge of ART

The study further sought to establish if the respondents know how ARVs are essential to patients as shown in Fig. 3.

This implies that most of patients 72.7% know that it suppresses virus load in the body.

3.1.3 Alcohol use by clients

In relation to alcohol use 148(72.2%) use alcohol or any other substances as shown in Fig. 4.

3.1.4 Alcohol drinking effect on ARV uptake

And when asked if the use of alcohol affect their ARVs uptake, 122(59.5%) agree while 36(17.6%) disagree as shown in Fig. 5.

3.1.5 How alcohol drinking affect ARV uptake

Those who agree 73(35.6%) support that alcohol usage make them forget to take their ARVs, 29(14.1%) agree that it makes them forget their clinic day, 8(3.9%) agree that it leads to over or under-dosage respectively.

This means that although most of patients 72.2% use alcohol and other substances 59.5% are aware that it affects their ARVs uptake because it makes them forget to take drugs and also forget the clinic days and also it leads to either over or under dosage of ARVS as shown in Fig. 6.

3.1.6 Relationship between patient-related factors and ARVs disclosure

This section sought to establish the patient related factors and its influence on the disclosure of the ARVs usage the results are illustrated in Table 2.

Table 1. Reliability of results

Variable	Cronbach's alpha	No of items
Patient-related factors	0.950	15
System-related factors	0.866	15
Socio-cultural factors	0.789	20

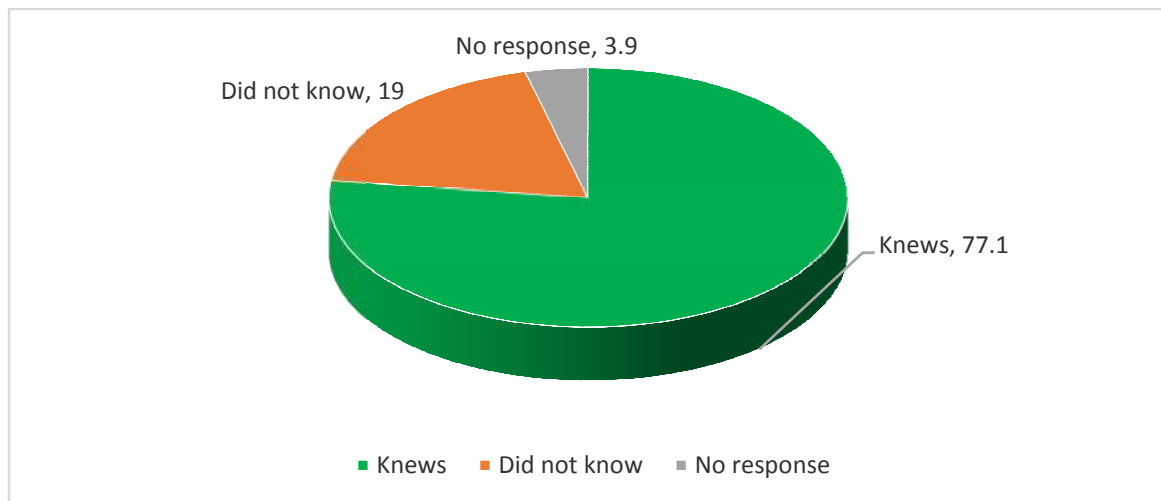


Fig. 1. Spouse knowledge on ARVs

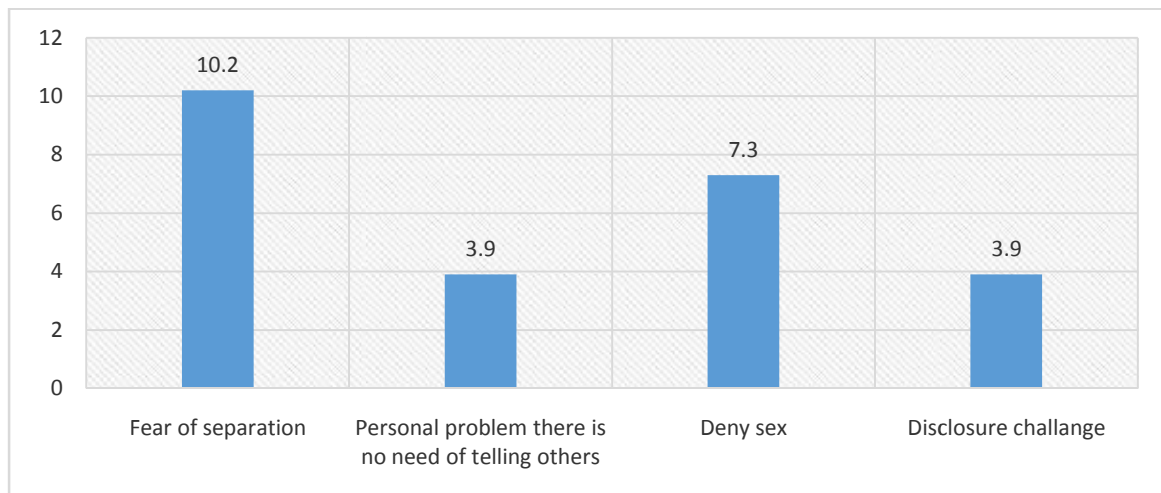


Fig. 2. Reasons for non-disclosure to spouse

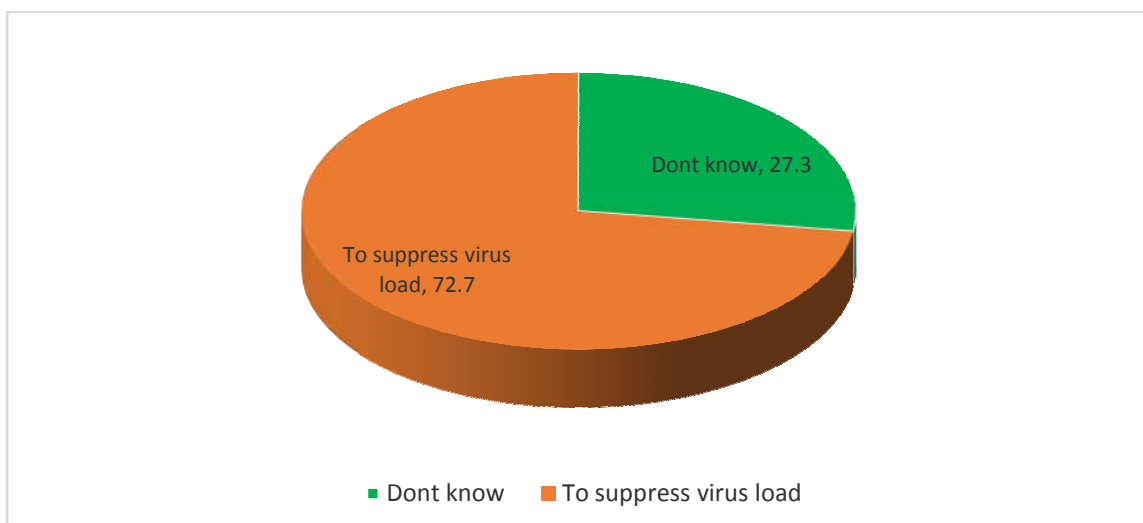


Fig. 3. Importance of ARV to HIV patient

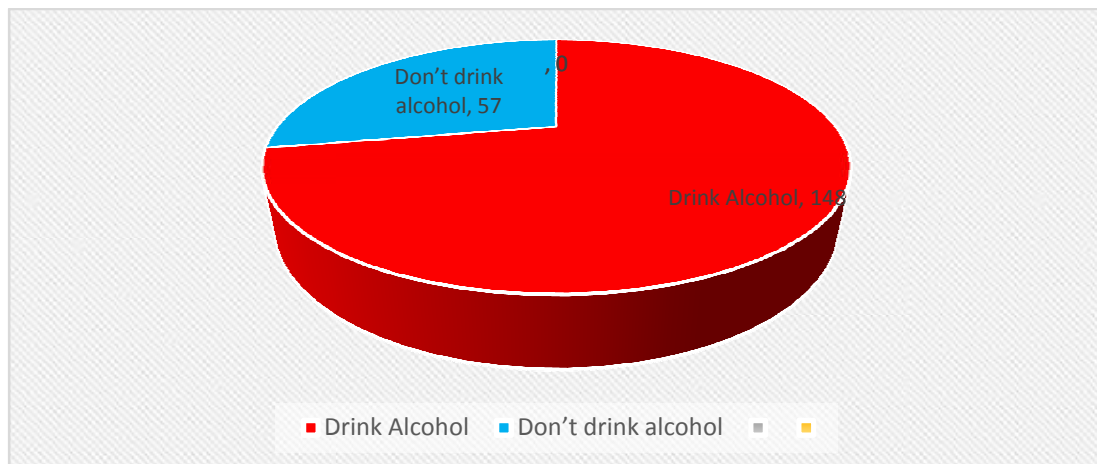


Fig. 4. Alcohol use by clients

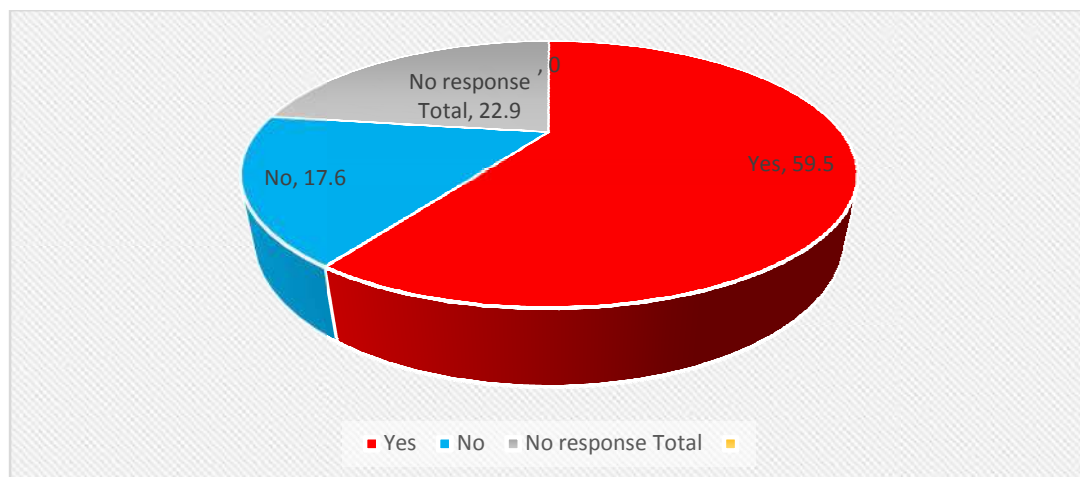


Fig. 5. Alcohol drinking effect on ARV uptake

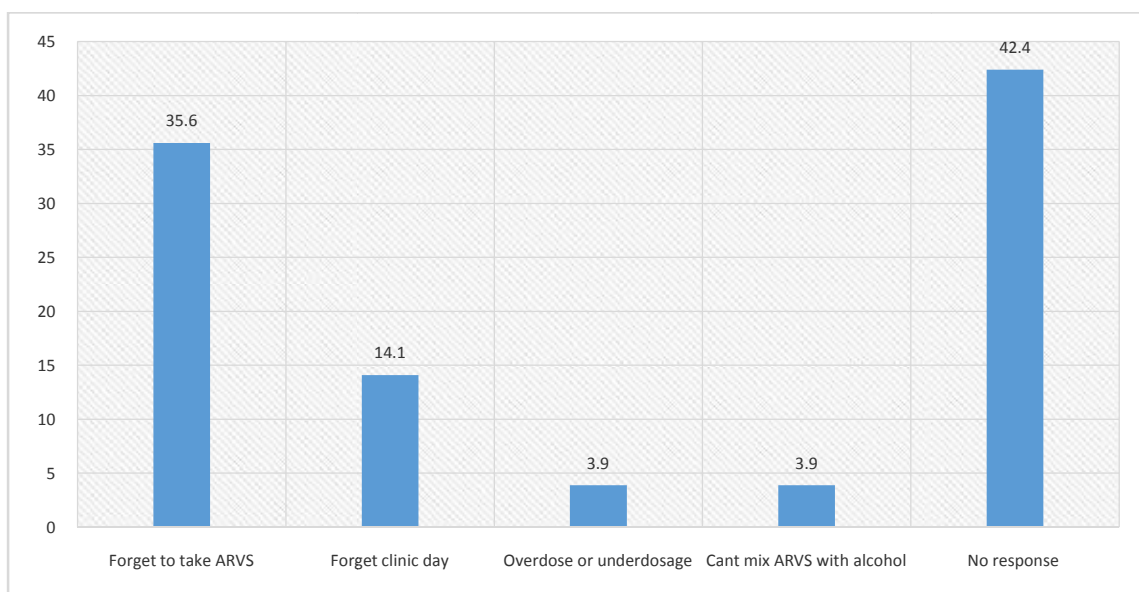


Fig. 6. How alcohol drinking affect ARV uptake

The results indicate that there is a significant relation between the respondent's religion. Marital status, education level and their employment status in relation to ability to disclose their status to their spouses.

3.1.7 Relationship between patient-related factors and ARVS knowledge

Study sought to establish the significance of relationship between patient related factors and knowledge on importance of ARVS as shown in Table 3.

The survey shows that there is a relationship between gender, marital status, education and employment status with the respondent's knowledge on how essential ARVs are to the patients who are HIV+.

3.1.8 Patient related factors that affects HIV adherence

This section provides survey results on the individual factors that causes ARVs non-adherence by patients and results are illustrated in Table 4.

This implies that the respondents neither agree nor disagree that they find the hospital convenient and they are not satisfied with the healthcare workers in LCRH. However, the respondents agree that the healthcare facility is never out of stock of ARVs. But other factors cause non-adherence such as the healthcare worker's attitude, lack of proper nutrition and enough food, the side effects caused by the drugs and hiding of HIV status are some of causes of non-adherence. Also others factors are like lack of counselling and proper information regarding adherence, cultural issues use of herbal drugs, lack of education and training and lack of transport. The other factors causing non-adherence were clinic being in open area and also that sometimes clinic day falling in same day as food distribution day and therefore making it hard to attend both.

3.1.9 Discussion of patient-related factors

The study found that 77.1% of married or in relationship disclosed to their partners their ART status. Studies conducted in Nigeria and Benin revealed varying levels of adherence which ranged from 44% to 80 % Erah and Arute, [8]. To support above study in Southern Malawi, although healthcare providers advocate for disclosure of HIV status to family members, more

than half of the providers interviewed stated that some of the women fear disclosing their HIV status to their spouses because their husbands may leave them McKinney et al.,[9].

With means >3.0 it implies that most respondents were in agreement with below statements for example, according to 94.2% agree that the attitude towards the patients (stigma, discrimination and isolation by family) affects their adherence, Yang et al. (2007: 1526) argue that stigma conveys the risk of being devalued through the process of cultural stereotypes that influence appraisal of threat to one's well-being.

Also 98.1% agree that lack of proper nutrition and enough food causes non-adherence, lack of food contributes to non-adherence to ARVs dosing schedule. For example, Ssewaya (2011:59) found that some PLWHA, mainly in the rural setting, failed to swallow their ARVs due to food shortage related problems. The results of a survey conducted in Lusaka, Zambia, by Koethe et al. [10] indicate that 9 per cent of adults who were newly initiated on ART were diagnosed with severe malnutrition.

Also 76.6% site the mishandling by the healthcare providers, 90.2% lack of counselling and proper information regarding adherence, a study in Nairobi found that where early intensive adherence counseling services were given when a patient was being started on HAART, it resulted in a significant reduction in poor adherence and virologic failure Chung et al.,[11].

It was also 86.3% cultural issues use of herbal drugs, 95.6% lack of education and training and 85.9% lack of transport as the main causes that affects their adherence to ARVs. Poverty has been found to prevent PLWHA from accessing money to use for transportation to health facilities thus greatly reducing their adherence to clinical appointments and drug refills. Similarly, patient-related factors such as lack of transport, shortage of food, use of traditional medicine, alcohol abuse, depression, stigma and discrimination, and lack of social support undermine adherence Merten et al., [12].

3.2 Health System-Related Factors Associated with Non-Adherence

The study second objective was to establish the health-system related factors associated with the respondent's non-adherence and the results is as illustrated in Table 5.

Table 2. Relationship between patients related factors and ARVs disclosure

		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
If married or currently in relationship was your spouse aware you are on ARV * What is your religion	Pearson Chi-Square	9.322 ^a	1	.002		
	Continuity Correction ^b	8.249	1	.004		
	Likelihood Ratio	9.993	1	.002		
	Fisher's Exact Test				.002	.002
	Linear-by-Linear Association	9.275	1	.002		
	N of Valid Cases	197				
If married or currently in relationship was your spouse aware you are on ARV * What is your marital status	Pearson Chi-Square	63.903 ^a	3	.000		
	Likelihood Ratio	58.076	3	.000		
	Linear-by-Linear Association	.404	1	.525		
	N of Valid Cases	197				
If married or currently in relationship was your spouse aware you are on ARV * What is your highest level of education	Pearson Chi-Square	11.874 ^a	3	.008		
	Likelihood Ratio	12.408	3	.006		
	Linear-by-Linear Association	4.884	1	.027		
	N of Valid Cases	197				
If married or currently in relationship was your spouse aware you are on ARV * What is your current employment status	Pearson Chi-Square	12.736 ^a	3	.005		
	Likelihood Ratio	16.720	3	.001		
	Linear-by-Linear Association	.000	1	.992		
	N of Valid Cases	197			.001	.001
	Linear-by-Linear Association	14.272	1	.000		
	N of Valid Cases	197				

Table 3. Relationship between patient-related factors and ARVS knowledge

		Value	df	Asymp. Sig. (2-sided)
Is ART essential for the HIV patient * Sex of respondent	Pearson Chi-Square	9.761 ^a	2	.008
	Likelihood Ratio	11.582	2	.003
	Linear-by-Linear Association	1.449	1	.229
	N of Valid Cases	205		
Is ART essential for the HIV patient * What is your religion	Pearson Chi-Square	5.862 ^a	2	.053
	Likelihood Ratio	10.051	2	.007
	Linear-by-Linear Association	4.298	1	.038
	N of Valid Cases	205		
Is ART essential for the HIV patient * What is your marital status	Pearson Chi-Square	20.147 ^a	6	.003
	Likelihood Ratio	24.992	6	.000
	Linear-by-Linear Association	10.206	1	.001
	N of Valid Cases	205		
Is ART essential for the HIV patient * What is your highest level of education	Pearson Chi-Square	49.801 ^a	6	.000
	Likelihood Ratio	31.867	6	.000
	Linear-by-Linear Association	4.595	1	.032
	N of Valid Cases	205		
Is ART essential for the HIV patient * What is your current employment status	Pearson Chi-Square	99.182 ^a	6	.000
	Likelihood Ratio	80.836	6	.000
	Linear-by-Linear Association	7.734	1	.005
	N of Valid Cases	205		

Source: Field Data (2019)

Table 4. Patient related factors that affects HIV adherence

Patient related factors that affects HIV adherence		Strongly disagree	disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	Standard Deviation
How convenient do you find this hospital for your HIV care services?	Freq %	27 13.2	75 36.6	25 12.2	37 18	41 20	2.951	1.371
How satisfied are you with the healthcare workers in this facility?	Freq %	16 7.8	89 43.4	30 14.6	46 22.4	24 11.7	2.868	1.195
Have you ever found the facility out of stock of your ARVs?	Freq %	74 36.1	89 43.4	33 16.1	4 2	5 2.4	1.835	0.769
Attitude towards the patients (stigma, discrimination and isolation by family)	Freq %	4 2	8 3.9	4 2	116 56.6	73 35.6	4.200	0.819
Lack of proper nutrition and enough food	Freq %		4 2	4 2	116 56.6	81 39.5	4.337	0.617
The side effects of the drugs (dizziness and loss of appetite)	Freq %			4 2	116 56.6	85 41.5	4.395	0.529
Hiding HIV status from spouse	Freq %			28 13.7	148 72.2	29 14.1	4.005	0.529
Mishandling by the healthcare providers	Freq %	12 5.9	36 17.6	32 15.6	100 48.8	25 12.2	3.439	1.095
Lack of counselling and proper information regarding adherence	Freq %		20 9.8	152 74.1	28 13.7	5 2.4	3.940	0.734
Cultural issues use of herbal drugs	Freq %		24 11.7	61 29.8	111 54.1	5 2.4	3.475	0.729
Lack of education and training	Freq %		4 2	15 7.3	157 76.6	24 11.7	4.005	0.526
Lack of transport to the facility	Freq %	8 3.9	16 7.8	9 4.4	155 75.6	12 5.9	3.735	0.848

Table 5. Health system-related factors associated with non-adherence

Health System-Related Factors		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	Standard Deviation
How convenient do you find this hospital for your HIV care services?	Freq %	24 11.7	79 38.5	25 12.2	37 18	37 18	2.054	1.718

Health System-Related Factors		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	Standard Deviation
How satisfied are you with the healthcare workers in this facility?	Freq %	19 9.3	86 42	30 14.6	46 22.4	24 11.7	2.854	1.212
Have you ever found the facility out of stock of your ARVs?	Freq %	76 37.1	84 41	33 16.1	12 5.9		1.907	0.872
Distance to the health facility	Freq %	21 10.2	32 15.6	4 2	108 52.7	36 17.6	3.527	1.249
Lack of confidentiality in the facility	Freq %	21 10.2	24 11.7	11 5.4	137 66.8	8 3.9	3.433	1.094
No psycho-social support in the health facility	Freq %	16 7.8	16 7.8	24 11.7	121 59	28 13.7	3.629	1.066
Discrimination and isolation in the facility	Freq %	36 17.6	40 19.5	37 18	88 42.9	4 2	2.922	1.186
Lack of enough qualified staffs to handle our issues	Freq %	20 9.8	60 29.3	8 3.9	89 43.4	24 11.7	3.184	1.261
Lack of adherence counselling services	Freq %	8 3.9	8 3.9	20 9.8	129 62.9	36 17.6	3.881	0.886
Lack of nutritional support services	Freq %		8 3.9	4 2	83 40.5	106 51.7	4.388	0.871
There is lack of access to the health facility	Freq %	44 21.5	59 28.8	35 17.1	34 16.6	29 14.1	2.726	1.360
Lack of express services in the clinic	Freq %		8 3.9	8 3.9	85 41.5	100 48.8	4.378	0.746
Lack of adequate preparation	Freq %		12 5.9	4 2	117 57.1	68 33.2	4.199	0.748
Lack comprehensive HIV care services	Freq %	20 9.8	20 9.8	42 20.5	103 50.2	20 9.8	3.405	1.106
GOK staff attitude	Freq %	12 5.9	24 11.7	25 12.2	128 62.4	16 7.8	3.546	0.997
Negligence of MOH and government staff the don't have time for patience	Freq %	24 11.7	20 9.8	33 16.1	104 50.7	24 11.7	3.410	1.175
The service quality in public is very poor	Freq %	28 13.7	49 23.9	59 28.8	52 25.4	17 8.3	2.907	1.170

Source: Field Data (2019)

Table 6. Socio-cultural factors associated with non-adherence

Socio-Cultural Factors		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	Standard Deviation
Does taking ARV medicines offend any of your cultural beliefs?	Freq %	20 9.8	113 55.1	52 25.4	8 3.9	8 3.9	2.358	0.867
Do you think HIV/AIDS infection can be treated by cultural methods without ARV medicines?	Freq %	28 13.7	93 45.4	60 29.3	16 7.8	8 3.9	2.429	0.955
Does taking ARV medicines offend any of your religious beliefs?	Freq %	24 11.7	111 54.1	62 30.2	4 2	4 2	2.439	1.538
Do you think HIV/AIDS infection can be treated by religious methods without using ARVs?	Freq %	8 3.9	16 7.8	79 38.5	86 42	16 7.8	3.420	0.891
Transport cost to the health facility	Freq %		16 7.8	4 2	153 74.6	32 15.6	3.981	0.700
How the HIV people are viewed in community	Freq %	4 2	12 5.9	8 3.9	129 62.9	52 25.4	4.039	0.839
Alternatives to the ARVs drugs such as herbs	Freq %	8 3.9	20 9.8	36 17.6	129 62.9	12 5.9	3.571	0.892
Preference of traditional healers to the ARVs	Freq %	8 3.9	36 17.6	59 28.8	85 41.5	17 8.3	3.327	0.988
Religion does not allow visiting health facility	Freq %	36 17.6	84 41	48 23.4	28 13.7	9 4.4	2.463	1.069
The community relate HIV to prostitution	Freq %	12 5.9	7 3.4	20 9.8	104 50.7	62 30.2	3.961	1.033
Community view HIV as punishment from God	Freq %	24 11.7	15 7.3	24 11.7	104 50.7	38 18.5	3.571	1.213

From the results it was shown that; lack of confidentiality, lack of psycho-social support, discrimination and isolation, lack of enough qualified staffs to handle our issues, lack of adherence counselling, lack of nutritional support services, lack of access to the health facility, the lack of express services in the clinic, GOK staff attitude, lack of adequate preparation, lack comprehensive HIV care services and the negligence of MOH and government staff they don't have time for patience causes non-adherence. Also the health facility is not convenient, healthcare workers in facility causes non-adherence and that there is always drugs in the facilities which does not cause non-adherence.

3.2.1 Discussion of health system-related factors associated with non-adherence

Adherence requires collaboration between the patient and health-care provider in addition to sticking to medications and other health services (Laufs et al., 2011:267). Study findings as supported by means >3.0 shows that respondents agree that distance 70.3%, lack of confidentiality in facility 70.7%, Amsalu, (2012: 60) support that organisational arrangements that inadvertently discriminate against PLWHA in institutions such as hospitals, may lead to an inert form of stigma.

Lack of enough qualified staffs to handle our issues 55.1%, lack of adherence counselling services 80.5%, lack of nutritional support services 92.2% as some of causes of the non-adherence to ARVS. Although revealing status can expose one to stigma, having someone to assist in adhering to medication and treatment requirements can enable PLWHIV adhere to ART. Good social support predicts better adherence Afolabi, Afolabi, MA, & Olowookere, [13].

3.3 Socio-Cultural Factors Associated with Non-adherence

The study third and final objective was to examine the socio-cultural factors associated with non-adherence. Results were analyzed and presented under this section in Table 6.

The results conclude that lack of transport, view of community people, alternative drugs to ARVs such as herbs, preference for traditional healers and the fact that community view HIV+ infection with prostitution as socio-cultural factors causing

non-adherence. However, lack of ARVs in facilities, believe that ARV medicines offend religious beliefs and religion prohibiting visiting the health facility does not cause non-adherence by respondents.

3.3.1 Discussion of socio-cultural factors associated with non-adherence

With mean>3.0 most of the respondents were in agreement with statements that follow. According to 49.8% they agree that HIV/AIDS infection cannot be treated by religious methods without using ARVs, 90.2% agree that transport cost to the health facility, 88.3% how the HIV people are viewed in community, Sayles et al., [14] argues that lack of cooperation from those close to the PLWHA and especially family members promotes non-adherence to ART.

According to study; lack of ARVs in facilities 64.9%, perception that HIV/AIDS infection can be treated by cultural methods without ARV medicines 59.1%, taking ARV medicines offend any of your religious beliefs 65.8% and religion does not allow visiting health facility 58.6% according to the respondents disagreed when asked if the above factors affects their ARVs adherence. Sayles et al., [14] support that some PLWHA abandoned antiretroviral therapies after joining various religious organizations but only resumed when their health changed for the worse. PLWHA rely on a number of social support systems ranging from the health care providers, family members, communities, friends, treatment partners and support groups.

This is support from document analysis and interviews it was revealed at LCRH there should be 3741 people on ARVs, however, as at January 2018 there were 1551(41.4%) who were actively on ARVs this shows that there is 58.6% default rate. A study in Brazil showed that the cumulative incidence of non-adherence to be 36.9% Nachega, Stein and Lahnan (2004). Adherence among patient's in Soweto, South Africa was 88%.

4. SUMMARY OF THE RESULT FINDINGS

4.1 Patient-related Factors Associated with Non-adherence

Tests shows that there is a significant relation between the respondent's religion. Marital status, education level and their employment status in relation to ability to disclose their status to their

spouses. Also it was shown that there is a relationship between gender, marital status, education and employment status with the respondent's knowledge on how essential ARVs are to the patients who are HIV+.

The respondents neither agree nor disagree that they find the hospital convenient and they are not satisfied with the healthcare workers in LCRH. However, the respondents agree that the healthcare facility is never out of stock of ARVs. But other factors cause non-adherence such as the healthcare worker's attitude, lack of proper nutrition and enough food, the side effects caused by the drugs and hiding of HIV status are some of causes of non-adherence.

4.2 Health System-related Factors Associated with Non-adherence

The results further revealed that; lack of confidentiality, lack of psycho-social support, discrimination and isolation, lack of enough qualified staffs to handle our issues, lack of adherence counseling, lack of nutritional support services, lack of access to the health facility, the lack of express services in the clinic, GOK staff attitude, lack of adequate preparation, lack comprehensive HIV care services and the negligence of MOH and government staff don't have time for patience causes non-adherence. Also the health facility is not convenient, healthcare workers in facility causes non-adherence and that there is always drugs in the facilities which does not cause non-adherence.

4.3 Socio-cultural Factors Associated with Non-adherence

The socio-cultural factors causing non-adherence to ARVs are; lack of transport, view of community people, alternative drugs to ARVs such as herbs, preference for traditional healers and the fact that community view HIV+ infection with prostitution as socio-cultural factors causing non-adherence. However, lack of ARVs in facilities, believe that ARV medicines offend religious beliefs and religion prohibiting visiting the health facility does not cause non-adherence by respondents.

5. CONCLUSION

From the findings of the study the following conclusions were made;

- i. The LCRH has 70% default rate. The study sought to examine three factors and results indicates that there is a relationship between patient-related factors associated with non-adherence as shown by the tests undertaken. The results showed that gender, education, religion, employment status and age have a significant relationship to patients disclosing their status to the spouses and the knowledge they have on benefits of ARVs to HIV+ patients. Also lack of support, the distance to facility, lack of food, the side effects, alcohol use among many others causes non-adherence.
- ii. Health system-related factors associated with non-adherence are; lack of confidentiality, psycho-social support, discrimination and isolation, lack of enough qualified staffs, lack of adherence counselling, nutritional support services, access to the health facility, express services in the clinic and the GOK staff attitude causes non-adherence.
- iii. In relation to socio-cultural factors associated with non-adherence, this were; view of community people, alternative drugs to ARVs such as herbs, preference for traditional healers and the fact that community view HIV+ infection with prostitution as socio-cultural factors causing non-adherence.

6. RECOMMENDATIONS

From the study findings the following recommendations were reached;

- i. There is need to empower the community members because there are many patients related factors that are causing non-adherence such as lack of education, lack of support, the side effects, alcohol use among many others. These factors can be eliminated through training, counselling and offering support to the respondents.
- ii. The health facility should improve their service delivery to the patients by taking into consideration schedule such as to ensure that drug taking day does not coincide with the day that they are picking and therefore making it hard to attend both.
- iii. There is need to sensitize the community members to accept the HIV+ people to enable them express their health issues. They should support them and ensure that

they are trained on how to use ARVs and not seek the tradition herbs and medicine men. They should also encourage them to live openly.

6.1 Recommendation for Further Research

From the findings of the study the following suggestions on PRF are made. These suggestions are for further research.

- i. The relationship between non-adherence and fear of exposure at workplace
- ii. To examine the effects of herbal drugs on the health status of HIV infected person

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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