Knowledge and Attitude Towards Anti-Retroviral Therapy Adherence among HIV/AIDS patients at Consolata Hospital Nkubu, Meru County, Kenya.

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Abstract.

Poor adherence to the management of HIV/AIDS continues to pose a challenge in sub-Saharan Africa. To achieve the 90:90:90 target by the year 2020, optimum suppression of HIV requires a high level of adherence to prescribed treatment, counselling and follow-up plans. The number of people living with HIV in Meru County is estimated to be 20700 but only14205 are on Anti-Retroviral Therapy (ART) with a viral suppression rate of 69%. There is still scarcity of information on factors influencing adherence in Meru County and more so at Consolata Hospital. The study aimed at assessing knowledge and attitude towards anti-retroviral therapy adherence among HIV/AIDs patients at Consolata Hospital Nkubu. A descriptive cross sectional research design was adopted and 312 participants attending Comprehensive Care Clinic selected using systematic random sampling technique. Qualitative and quantitative data was collected using structured questionnaire. It was then cleaned, coded and entered into statistical package for social science (SPSS) version 23. Analysis was then done using both descriptive and inferential statistics and presented in tables and charts. The results showed that the majority of the respondents 108 (34.6%) were aged between 39-48 years and those with college education were (45.2%). The level of education was found to have a slight but statistically significant effect on ART adherence ($p=0.04$). Males were found to be 5 times more likely to miss drugs than females (OR= 5.23, $X^2 = 16.14$, $p<0.001$). There was a statistically significant positive relationship between knowledge of ART and adherence ($R=.81$, $p<0.001$). This indicates that adherence is dependent on knowledge on ART. A statistically significant positive relationship between attitude and adherence was found ($R=.66$, $p<0.001$). Privacy and confidentiality was also shown to influence adherence to ART. The study recommends use of innovative approaches to improve on knowledge and follow up of clients. Health provider's positive attitude should be emphasized to ensure demand creation and retention on ART.

Key words: *Education, factors, living with HIV/AIDS, management, people, treatment.*

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Introduction

Human Immunodeficiency Virus (HIV) continues to be a global public health concern especially in developing nations having killed more than 32 million people globally by the year 2017 (World Health Organization, 2018). In 2018, there were approximately 36.7 million people worldwide reported to be living with HIV/AIDS while those on antiretroviral therapy were 21.7 at the end of 2017 million (United Nations AIDS, 2018b). The Kenya national HIV estimates for 2017 indicated that people of all ages living with HIV were 1.6 million while deaths related to acquired immune deficiency syndrome were 28,214. The total number of people living with HIV in Meru County were also estimated to be 24,005 with 503 AIDs related deaths in 2017 (Ministry of Health[MOH], 2018).

HIV/AIDS transitioned from an acute deadly disease to a chronic illness due to widespread antiretroviral therapy (ART) availability and access globally (Mai et al., 2018). It is recommended that all people whether newly diagnosed or living with HIV be put on antiretroviral therapy (ART) irrespective of CD4 count (World Health Organization [WHO], 2016).ART is known to decrease the risk of development to AIDS or death, increase of immune recovery, and reduction of transmission to partners who are negative.

Other nonclinical benefits that can be experienced and is thought to enhance motivation that boosts adherence include; improved socio economic status of patients, increased productivity and execution of daily activities, decreased cost of care resulting from hospitalization and funeral expenses (Samu, 2015). Extensive ART management is expected to decrease HIV incidence and end the epidemic as envisioned within the Joint United Nations Programme on HIV/AIDS. The target is 90:90:90, which means that by the year 2020, 90% of all people living with HIV will know their HIV status, 90% of all people with diagnosed HIV infection will receive sustained ART and 90% of all people receiving antiretroviral therapy will have viral suppression (UNAIDS, 2014). For this target to be achieved, optimum suppression of HIV requires a high level of adherence to prescribed treatment, counselling and follow-up plans. One European Consensus document defines "adherence to medications" as the process by which patients take their medication as prescribed and also behavior change (Hine et al., 2018) .

Adherence to treatment is measured from the time a patient takes the first dose of the prescribed medication to discontinuation. The extent to which a patient's actual dosing corresponds to the prescribed dosing regimen and persistence are also a key indicator of adherence. (WHO, 2013). Just like any other drug, adherence to ART is difficult because of the lifelong nature of medication. Non adherence has posed to be a challenge in the realization of the 95% adherence target worldwide and more so in Sub-Saharan Africa (Samu, 2015). The optimum response of ART is said to be 100% when there is continued suppression of HIV viral reproduction, better virological and clinical outcomes (Adino, 2016).

The challenge of adherence to ART during initiation is experienced because in the initial few months, the patients are not used to daily medications, pill burden nor are they aware of the common side-effects and are confronted with disclosure and stigma

(MOH, 2016). Additionally, being an adolescent or young adult, depression, substance abuse are contributors to poor clinical prognosis. Socioeconomic status and availability of sufficient food are also as factors critical for treatment success for all patients (Micheni et al., 2017; Samu, 2015).

Adherence to ART is highly dependent on patients' knowledge (Joseph et al., 2017). Several studies have shown the importance of education and information in adherence to ART. In one of studies, health workers reported mistrust of ART due to unawareness and misinformation which led to rejection of health care services in favor of religious and traditional healing (Micheni et al., 2017; Thielman et al., 2014). Another study done among adolescents in Ghana revealed that knowledge about HIV and its management motivated the patients to adhere to medication (Ankrah et al., 2016).

In Madagascar, research done revealed that inadequacy in provision of precise knowledge by the physician on ART led to non-adherence. The study recommended that gaps leading to non-adherence needed to be targeted by specific actions in addressing non adherence (Raberahona et al., 2019). Reading of patient package inserts has been shown to be critical in improving knowledge on medication adherence since the information contained is evidence based (Joseph et al., 2017). Other than knowledge, poor quality of care resulting from negative attitude of health care workers, delayed access to care, demotivation due to heavy workload at the health facility visited and lack of confidentiality are also some of the health service factors cited to impede adherence (Samu, 2015).

Findings from a review article concluded that health worker attitude was important in adherence. Evidence shows that patients need a good relationship with their health provider (Croome, Ahluwalia, Hughes, & Abas, 2017). Trust and confidence of patients is dependent on providers' attitude as it affects the decisions of the patient to take up care, access to care and compliance with therapy (Pérez-Salgado, Compean-Dardón, Staines-Orozco, & Ortiz-Hernández, 2015; Raberahona et al., 2019).

Adherence strategic approaches should be implemented from the point of new HIV diagnosis and throughout continuum of care (MOH, 2016). Addressing the health system, individual and social factors as depicted in Roura's socio ecological frame work are key in scaling up adherence levels among the populace. Roura's frame work was developed following a study that was done in Tanzania and acts as a guide in developing strategic interventions towards scale up of ART adherence (Roura et al., 2009)

It is estimated that 1,041,326 (68.6%) are currently on ART in Kenya. The overall viral suppression rate as at June 2019 was also reported to be at 93.4% (National AIDS and STI Control Program [NASCOP] , 2019a). The National ACT dashboard 2019 indicate that the total number of people living with HIV in Meru County are 20,700 while those on ART were 14205 (NASCOP, 2019b). The viral suppression rate is reported to be at 69% (NASCOP, 2019a). Poor adherence increases the risk of transmission, accumulation of resistance mutations, disease progression, and death. Within the first few months of therapy non adherence is known to be risky for development of resistant mutations, when the viral load is still high (MOH, 2016).

While estimates on ART initiation and linkage to care among People living with HIV and AIDS (PLWHA) is available, there is still lack of information on the actual adherence and retention rates in Kenya and in Meru County to be specific.

The estimate from the Ministry of Health shows that in 2017, the proportion of adults retained on ART in 2016 had from 84.3% to 90.4% in 2017 (NACC, 2018). However, as reported by Kangendo and Gitonga, (2017) in a study conducted at Meru teaching and referral Hospital among youths, the adherence rate was only 30.4%. (National AIDS and STI Program, 2018)
Despite overwhelming partner support and series of interventions towards fighting and addressing HIV in meeting the 90-90-90 target, the epidemic continues to pose serious challenges resulting to morbidities and mortalities in Meru County (Meru County, 2018). According to records from Consolata Hospital Nkubu, the total number of PLWHA on treatment was 2300 (776 Males and 1523 Females) (National AIDS and STI Program, 2018).

No study on factors influencing adherence of ART among PLWHA has ever been carried out in the facility. The study therefore aimed at assessing knowledge and attitude towards anti-retroviral therapy adherence among HIV/AIDS patients at Consolata Hospital Nkubu, Meru County, Kenya. The output from the study would be valuable in informing policy at the facility and also strengthening strategies towards follow up, adherence and retention in care.

Materials and Methods

The study was conducted at Consolata Hospital Nkubu a faith based hospital located in Nkubu Town, South Imenti Sub County in Meru. The facility was purposively chosen due to the high patient volume at the Comprehensive Care Clinic (CCC). The study adopted a descriptive cross sectional research design. Both qualitative and quantitative data was collected from participants who were 18 years and above attending the Comprehensive Care Clinic.

A sample size of 312 was used, determined using the Cochrane formula. The participants were selected using systematic random sampling technique where the sampling frame was assigned numbers, first client picked randomly then the subsequent participants selected based on sampling intervals from the initial unit selected until the required number of 312 participants was achieved. Data was collected using a structured questionnaire which had been pretested to ensure reliability and validity. It was then cleaned, coded and entered into statistical package for social science (SPSS) version 23. Analysis was done using both descriptive and inferential statistics and presented in tables and charts. All ethical requirements were taken into considerations**.**

Results.

Respondents between the age of 18-28 years were 58(18.6%) , those aged 29-38 years were 89 (28.5%), majority were found to be between 39-48 years 108 (34.6%), those between the age of 49-58 years were 35(11.2%) and respondents above 59 years 22(24.4%). Majority 141, (45.2%) had college education while 6 (1.9%) had never been to school. The level of education was found to have a significant effect on ART adherence ($p=0.04$). Those respondents who had tertiary/college education strongly agreed that they took their drugs regularly and have had no problem with adherence. The study found out that males were 5 times more likely to miss drugs than females (OR= 5.23, $X^2 =16.14$, $p<0.001$).

Knowledge on ART and adherence.

Majority of the respondents had heard about ART before 265(84.9%). The study revealed that those respondents who were knowledgeable about ART were 2.1 times more likely to adhere to drugs compared to those who were not. From the multivariate regression analysis a statistically significant

positive relationship was found on knowledge of ART and adherence (R=.81, p<0.001).
This explained adherence to be dependent on knowledge. Those respondents who had prior knowledge of ART, knew where to get drugs and had previously been trained on ART adherence had higher likelihood of taking their drugs regularly as compared to their counterparts. Missing ART and cited forgetfulness was cited as the major reason. The burden of pills was also an impediment .The chart below illustrates the reasons that were given for missing the ART doses.

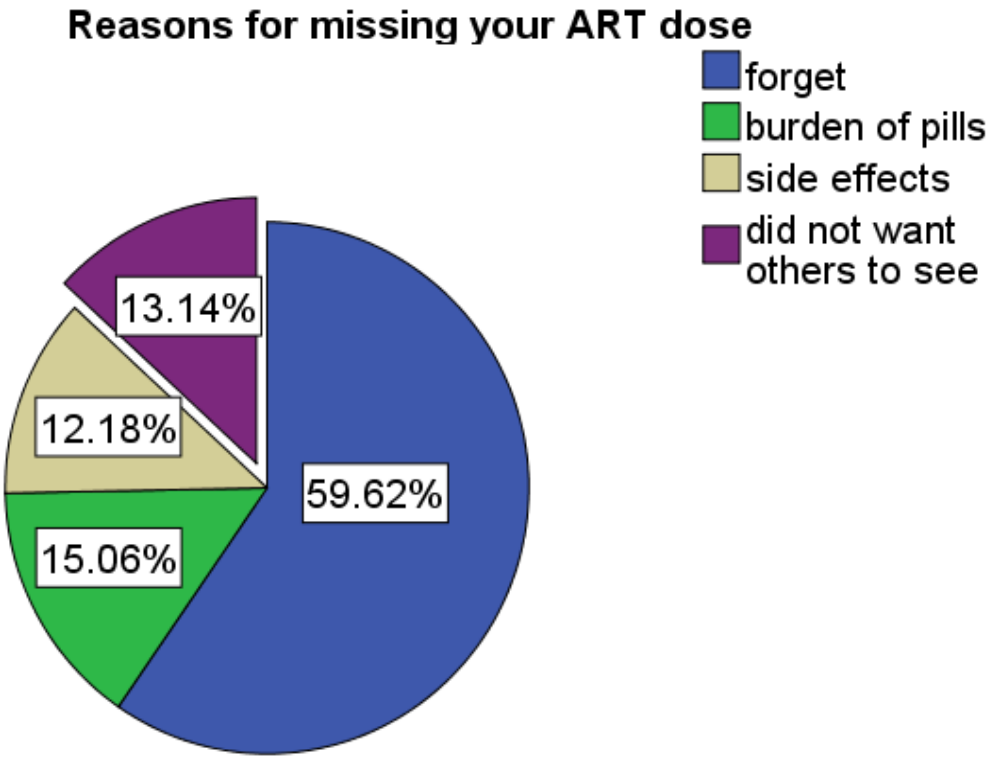

Figure 1: Reasons for missing ART doses.

Further, the study found that respondents who knew the effects of missing drugs were more likely to adhere to ART compared to those who didn't (OR=.89, p<0.001). Knowledge was therefore confirmed as a key determinant of adherence as shown by results from Chi Square: (x^2=9.62, p=0.02). Those respondents who knew the benefits of ART were more likely to adhere to drugs than those who didn't know the benefits as indicated by (OR=1.22).

Many participants 199 (63.8%) also agreed that ART can improve their life expectancy. There was a statistically significant positive association between whether the respondent believed that ART could improve life expectancy and adherence((x^2=18.67,p=0.01) This means that those patients who agreed that ART can improve life expectancy would adhere to medication as compared to those who disagreed.

Table 1: Knowledge and adherence to ART

Knowledge and adherence						
		Frequency	**Valid percent**	**R=.81, P-value**	**Odds Ratio**	**Chisquare-x^2, ANOVA-F test**
Have you heard about ARTs	Yes	265	84.9	0.00	2.08	
	No	47	15.1			
Do you know the benefits of ART	No	45	14.4	0.41	1.22	
	Yes	267	85.6			
Do you know the effect of missing drugs	No	26	8.3	0.00	0.89	(x^2=9.62, p=0.02)
	Yes	286	91.7			
Have you missed drugs	Yes	233	74.7	0.09	0.82	(F=7.24, p=0.00)
	No	79	25.3			
Have you been trained on ART adherence	Yes	162	51.9	0.00	2.13	(x^2=8.25,p=0.04)
	No	150	48.1			
I attend the Adherence to treatment sessions at my CCC	Strongly disagree	6	1.9	0.00		
	Disagree	15	4.8			
	Neutral	5	1.6			
	Agree	52	16.7			
	Strongly agree	190	60.9			
ART can improve my life expectancy.	Strongly disagree	66	21.2	0.02		(x^2=18.67,p=0.01)
	Disagree	41	13.1			
	Neutral	6	1.9			
	Agree	52	16.7			
	Strongly agree	147	47.1			

Attitude towards ART adherence.

Majority of the respondents 260 (82%) agreed that the healthcare providers were friendly, caring and polite. They also indicated that the providers listened and allowed them time to explain their problems. A statistically significant positive relationship between attitude and adherence was found (R=.66, p<0.001). Further, many 233 (74.7%) reported to receive good support from family, friends, religious groups and healthcare providers. Privacy and confidentiality at the CCC visited was found to strongly influence participant's attitude hence affecting adherence. This was explained by 303 (97.1%) of respondents who agreed that privacy/confidentiality during examinations at this comprehensive care clinic was important. The figure 2 below illustrates respondents' perception on privacy and confidentiality during clinic visits.

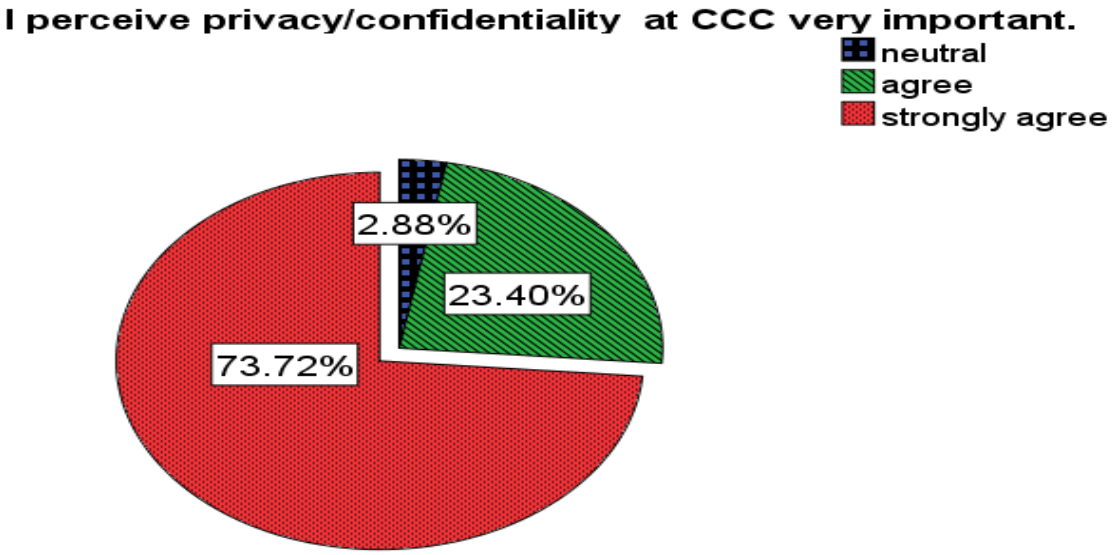

Figure 2: Attitude towards ART.

Discussion

The finding from this study showed that adherence to ART is influenced by knowledge and attitude of PLWHA. Majority of the respondents were found to be between the ages of 39-48 years similar to other studies done. In South Africa and Nigeria studies conducted on ART adherence revealed that majority of the respondents had a mean aged 35.6 (± 9.6) and 35.3 ±7.9 SD years respectively (Kasumu & Balogun, 2014; N. L. Katende-Kyenda & T. Apalata, 2017). The finding

that females seeking HIV care were more than males was just as indicated in many other studies. This discrepancy is also seen globally (UNAIDS, 2018a). Some of the reasons that might contribute to this difference might be explained by the fact that women have better health seeking behavior than men.In 2017, UNAIDS reported that men were less likely to take an HIV test, less likely to access antiretroviral therapy and more likely to die of AIDS-related illnesses than women. It also reported that fewer than half of males living with HIV were on treatment, compared to 60% of females (UNAIDS, 2017). Similar findings as shown from studies where males were found to be five times more likely to miss drugs than females are evident. Studies have shown that the response to treatment in males has been far less successful with also less ART coverage of men than women in Africa, men typically have higher mortality than women.

It is evident that males have a tendency of accessing health care when they are at an advanced disease and still fall off from care and follow-up (Mills, Beyrer, Birungi, & Dybul, 2012). Patient's knowledge on the disease and medication is important, a strong positive relationship was found on knowledge of ART and adherence (R=.81, p<0.001). Knowledge on various aspects of the disease and its lifelong management on ART implies that retention on therapy is guaranteed.

Although respondents cited pill burden as a challenge in adherence, training on adherence is a strong predictor (x^2=8.25, p=0.04) to ART adherence and increases the likelihood of taking drugs regularly and correctly supporting finding from a study done in Nigeria (Kasumu & Balogun, 2014). Respondents also reported that they took ART because other friends whom they knew were sick had become healthy. One of respondent stated, *"I have met with very sick friends in the beginning and now very healthy*" .Use of PLWHA who are adherent to ART should be alongside other methods of patient engaging to reinforce education on adherence. Positive attitude was confirmed to be strongly associated with ART adherence (R=.66, p<0.001). This findings supported results from another study done among Indonesian prisoners which showed that ART use was highly linked with more positive attitudes towards ART (AOR = 1.09, 95 % CI 1.03–1.16, p = 0.002). The same study also recommended that social marketing of ART was needed to counter bad ART attitudes that impeded ART use (Culbert et al., 2016).

Attitude of the patients towards the healthcare provider, family and religious groups is a strong predictor of adherence (x^2=12.45, p=0.014). A review by Samu, (2015) indicated that several studies have recognized the relevance of patient-provider relation particularly those on long treatment. A good relationship is shown to foster quality care and increases access to treatment opportunities and information (Samu, 2015).

Conclusion.

Knowledge and attitude on adherence as depicted from the results are important factors that influence adherence. Patient education and training from initiation of ART and throughout continuum of care should be ensured to continually improve on knowledge. It is also evident that trust and confidence of patients is dependent on providers' attitude as it affects the decisions of the patient to take up care, access care and comply with therapy.

The study recommends utilization of multiple adherence interventions to ensure compliance. Intense education and training among males should also be reinforced in order to change the health seeking behavior

thereby increasing the uptake of ART. Further research on effectiveness of SMS reminders should be carried out.

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