

Correlating Antiretroviral Therapy Adherence and Detection of HIV Viral Loads at Chitipa District Hospital

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Abstract

HIV infection remains an epidemic threat around the world mostly prevalent in developing countries especially in sub- Sahara African region where many cultural practices and beliefs aggravate the transmission of HIV/AIDS. Poor Antiretroviral therapy (ART) adherence remains a big challenge leading to persistence detection of high HIV viral load results which deteriorate PLHIV health through lowering immunity [1]. This study aimed to determine the correlation of ART adherence with high detection of viral load levels among HIV patients receiving ART at Umoyo ART clinic (Chitipa DHO) in Chitipa district. A retrospective study design using PLHIV records, on HIV viral load results in viral register and ART adherence percentage (based on number of days missed to collect ARV drugs) using Electronic Medical Records (EMR) system between January, 2018 and December, 2018. There were 3890 patients registered alive on ART but 2835 patients had their viral load results in register. Therefore, 351 sample records were extracted using systematic sampling technique and analysed using statistical package for social sciences (SPSS) version 20. The findings showed that 37.7% (n=131) of HIV patients in the study had detectable viral load after a duration of over six months on ART and more experienced in 80/200 (42%) of patients with good adherence. However, poor ART adherence (<95%) more prevalent in men, youths and HIV patients less than five years on ART. Pearson's Chi square test indicated a statistical significant on correlation between age and ART adherence as well as ART adherence and HIV viral load results ($p < 0.05$). On the other hand, gender and duration on ART were not significant to ART adherence level. Eventually, it is recommended more ART clerks should be recruited so that any HIV individual initiated on ART should intensively counselled on poor ART adherence which may lead to development of HIV drug resistance strains that need expensive second and third line regimen ARV drugs.

Keywords: Poor ART adherence; detectable HIV viral load; HIV drug resistance strains.

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1. Introduction

Antiretroviral therapy (ART) adherence is defined as people living with Human immunodeficiency virus (PLHIV) taking pills timely and at the right dose according to recommended antiretroviral drugs (ARV) prescription by physicians [2]. PLHIV increased to 38.8 million in 2015 as a result of decrease in HIV mortality rate from 1.8 million in 2005 to 1.2 million in 2015. In 2015, only 22% of patients on ART globally (86 countries reported data) received HIV viral load (VL) test, a diagnostic marker of ART adherence and monitoring [3]. In 2016, 18.2 million PLHIV were receiving ART globally, but another 18.5 million still required treatment which remains a challenge to United Nations on HIV and AIDS programme to achieve 90-90-90 target which may require large and rapid scaling up of VL monitoring in resource-limited health facilities [4]. Africa alone accounts about 68% of people living with HIV (PLHIV), mostly in Sub-Saharan African countries [5] with approximately 77% of them achieving above 95% ART adherence [6] whereas 15-25% of patients have detectable viral loads at 12 months or more on ART, where some might have virologic failure [7]. It has been observed that imperfect adherence to ARV medication is associated with poor virologic response and selection of drug-resistant virus [8]. According to WHO 2007-2010 survey, the prevalence of HIV drug resistance to any drug among people starting antiretroviral therapy ranged from 4.8% in 2007 to 6.8% in 2010 mostly to nucleoside reverse transcriptase inhibitors (NRTI) and NNRTI drugs [5]. Previously, there was low percentage of HIV patients in developed countries with perfect ART adherence especially in North America about 55% compared to low and middle income countries [9]. World Health Organization (WHO) recent guidelines recommend viral load (VL) determination to improve the identification of treatment failure which may be due to poor ART adherence [10]. Although due to financial and logistical constraints in resource-limited settings, access to this expensive and technically demanding test is limited. However, WHO-recommended clinical criteria and CD4 cell counts (clinico-immunological criteria) which are commonly used as substitute by clinicians to diagnose ART failure and guide switches to second-line regimens [11]. The effectiveness of ART on HIV infected patients suppress HIV VL which is diagnosed in two categories. Routine and target VL monitoring as diagnostic marker of ART failure rather than physicians based on clinical (WHO staging) and immunological (CD4 count) decision that leads to unnecessarily switching of first line ART regimens to expensive and more toxic second line ART regimen [12]. Routine VL monitoring is the VL schedule designed for early detection of ART failure and drug-resistant HIV when starting ART may have a high VL after 6 months on ART [13]. This may be results of drug-resistant HIV acquisition or after taking single dose Nevirapine (sdNVP) or poor ART adherence [10]. Therefore, for HIV patients who have good ART adherence their routine follow-up VLs are done at 2 years, 4 years, and 6 years after ART initiation. On the other hand, target VL monitoring is done when treatment failure is suspected after routine VL result is detectable, patient has received intensive adherence counselling and VL elapsed 3 months later. HIV patients with poor ART adherence (pill count less than 95%) have elevated HIV viral load which is diagnosed through genotypic assays such as Gene expert platform in Point Of Care (POC) centers and Real Time Polymerase Chain Reaction (RT-PCR) in Laboratory –based VL testing to detect HIV RNA copies per milliliter and ARV drug resistance genes [14] and virologic treatment failure [15]. According to [6] UNAIDS free ART scaling-up in resource-poor settings has increased probability of having an undetectable viral load at months 6 and 12. HIV-infected patients on ART who achieved viral suppression at less than 20 copies/mL have low risk of virological failure compared

with those who experienced subsequent episodes of low level of viremia LLV [16]. According to South Africa ART guidelines HIV patient on ART with greater than 1000 copies per milliliters undergo intensive adherence counselling and VL testing is repeated at 2 months then patient is switched to second line regimen by physician if the repeated VL is greater than 1000 copies /ml [4]. Malawi has HIV prevalence of 9.2% among adults aged 15 – 49 years and about 53.2% of PLHIV are on ART [17] and VL testing is done in central hospitals, few district hospitals and well established private hospitals to monitor effectiveness of ART. Nevertheless, most health facilities are sending Dried Blood Spot (DBS) samples for VL testing to these few centres which have RT-PCR for analysing VL. In the Northern Malawi VL testing is done at Mzimba south Hospital and Mzuzu Central hospital laboratories. According to Chitipa laboratory data for 2018, there is an observation of about 30 percent of DBS samples with detectable HIV RNA copies per millilitre among analysed DBS. Since from introduction of free ART in the district, none of study had been conducted relating to poor ART adherence among HIV patients. As a result, this was the first study to determine correlation between ART adherence and detectable HIV viral load at Chitipa district hospital (Umoyo ART Clinic), a remote district of Malawi.

2. Materials and Methods

People living with HIV records were collected in HIV viral load register and ART Electronic Medical Records computer at Chitipa District Hospital-Umoyo clinic to be used in this study. The data collected was from HIV patients who had been drawn their Dry Blood Spot (DBS) samples and their results were present in the above registers between January, 2018 and December, 2018. Incomplete patient records were excluded from the study. A retrospective quantitative study was conducted using the available ART patients' information to establish the correlation of ART adherence and detectable HIV VL results at Umoyo ART Clinic in Chitipa District. There were 3900 HIV patients receiving ART services at the study site but only 2835 HIV patient records had completed information in the study period. This study used systematic sampling technique [18], to select 351 sample size from target population obtained using Yamane (1967:886) formula below used to calculate the sample sizes [19]. For the reason that there was no previous study, a 95% confidence interval level and sample proportion of 0.5 will be assumed.

$$n = \frac{N}{1 + N(e)^2}$$

Where,

n = sample size,

N = population size,

e = level of precision (margin of error).

The formulated data collection form was designed to capture information on HIV viral results as detectable and undetectable, ART adherence percentage as < 95% and greater or equal to 95%, gender, age as youth less than 35 years and adults greater or equal to 35 years, as well as duration on ART. In this research ART adherence

was defined as timely collection of ARV drugs within 3 days and 5 days for HIV patients prescribed 60 pills (60 days) and 90 pills (90 days) respectively, from the date of next appointment [1]. On the other hand, more than 3 days and 5 days for those have 60 days and 90 days respectively, regarded as poor ART adherence. These days were translated to 95 percentage ART adherence.

Data was analysed using the statistical package SPSS version 20.0 and Microsoft excel 2013 to produce tables and figures. Chi square test was used to show statistical significant between the variables.

2.1 Result Presentation

The results of 351 HIV patients' records are presented in form of tables, pie charts and graphs according to research specific objectives.

2.2 Characteristics of Participants

Table 1: Characteristics of participants

Variables	Categories	Frequency	Percentage
Gender	Female	230	65.5
	Male	121	34.5
	TOTAL	351	100
Age	≤35 years	168	47.9
	>35 years	183	52.1
	Total	351	100
Viral load results	Detectable	131	37.3
	Undetectable	220	62.7
	Total	351	100
Duration on ART	≤ 5 years	190	54.1
	>5years	161	45.9
	Total	351	100
ART adherence %	<95%	151	43
	≥95%	200	57
	Total	351	100

In the table 1 above, shows the characteristics of participants in this study. In a total of 351 patients, 34.5% are males and 65.5% are females. 47.9% are age less than 35 years while 52.1% are adults (>35years). HIV patients with detectable results are 37.3% while 62.7% have undetectable viral load results. Those on ART for less than 5 years are 54.1% and 45.9% have a duration of more than 5 years. ART adherence of less than 95% is observed in 43% HIV patients while 57% have greater than 95% ART adherence.

2.3 Relationship between ART adherence and HIV Viral Load

Table 2: Association of ART adherence with HIV VL results

The table 2 below shows HIV Viral results in relationship to ART adherence percentage in this study

		VL Results		Total
		Detectable	Undetectable	
Adherence %	<95%	47	104	151
	≥95%	84	116	200
Total		131	220	351

In the table 2 above, 37.3% (n=131) of ART patients had detectable HIV viral load results while 62.7% were undetectable. Among patients with ART adherence less than 95%, 31.1% (n=47) had detectable VL while 68.9% were undetectable results as presented in figure 1 below. Furthermore, ART patients with good adherence of above 95%, 84/200 (42%) had detectable VL while 58% were undetectable. According to findings from this research, more patients with good ART adherence had detectable VL results (42%) compared to incomplete adherence (31.1%) patients.

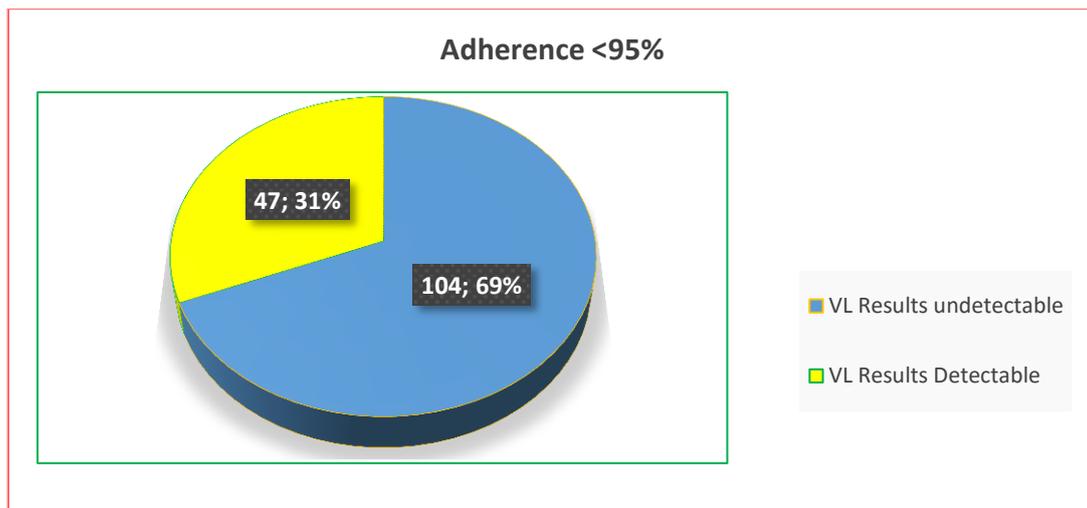


Figure 1: Relationship between Non -ART adherence and HIV VL

Figure 1 above represents patients with poor ART adherence, 31% (n=47) with detectable VL and 69% (n=104) with undetectable VL results.

2.4 Association of duration on ART with ART adherence and HIV VL level

The figure 2 below shows the duration ART patients had on ART before VL dried blood spot (DBS) collection and their HIV VL results.

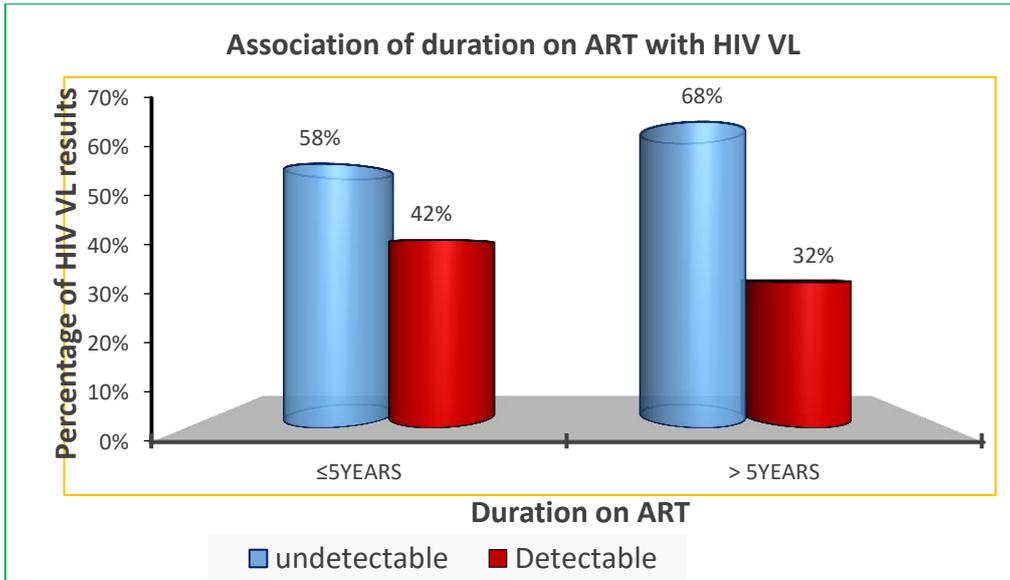


Figure 2: Relationship between duration on ART and HIV VL results

In the figure 2 above, 41.6% (n=79) and 32.3% (n=52) of patients on ART less than 5 years and above 5 years respectively had detectable HIV VL results. On the other hand, 111 (58.4%) of 190 and 109 (67.7%) of 161 ART patients on ART less than 5 years and above 5 years respectively had undetectable HIV VL results.

2.5 Relationship between duration on ART and ART adherence

The figure below shows the duration ART patients had on ARV drugs with relation to their ART adherence in this study.

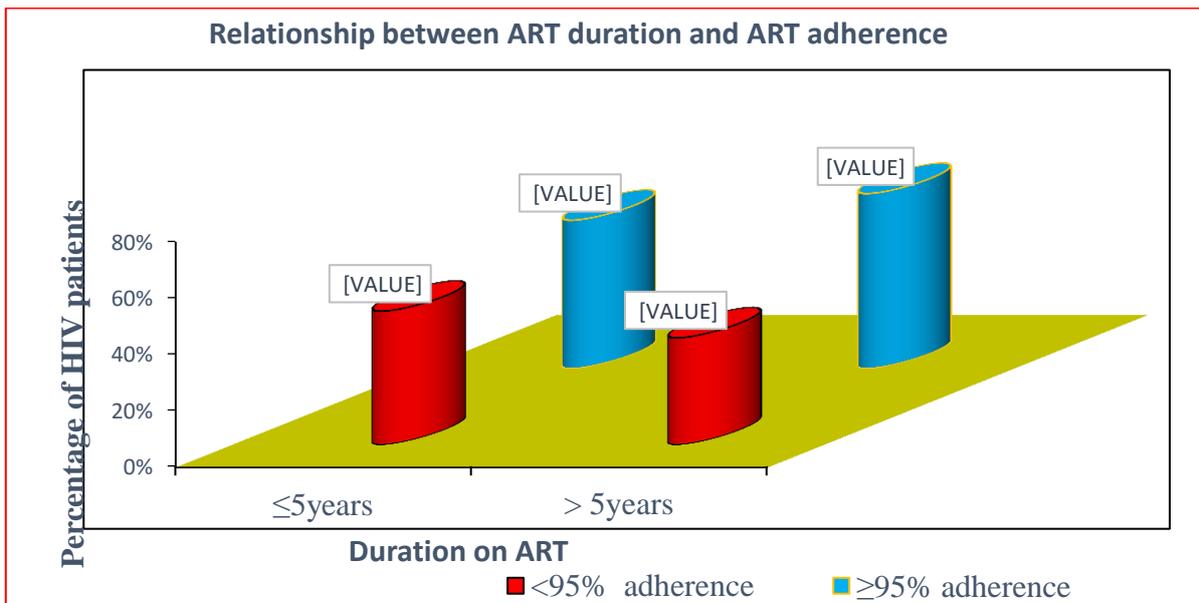


Figure 3: Relationship between ART duration and ART adherence

In the above figure 3, among patients on ART for less than five years, 52.6% (n=100) were compliance to ART while 47.4% (n=90) were non adherence to ART. In contrast, patients on ART for a duration of more than five years, 100/161 (62.1%) and 61/161(37.9%) had an ART adherence of greater than 95 and less than 95 percent respectively.

2.6 Association of Demographic Characteristics (Gender and Age) with on ART Adherence

Table 2: Distribution of ART adherence according to gender

		gender		Total
		Female	Male	
Adherence %	≥95%	135	65	200
	<95%	95	56	151
Total		230	121	351

In the table 3 above, 230/351 (65.5%) female and 121/351 (34.5%) male records were involved in this study to show which gender have high rate of poor ART adherence. It was observed that 58.7% (n=135) of females and 53.7% (n=65) of males had good ART adherence (≥95%). On other hand, 95/230 (41.3%) females and 56/121 (46.3%) males were ART non adherence.

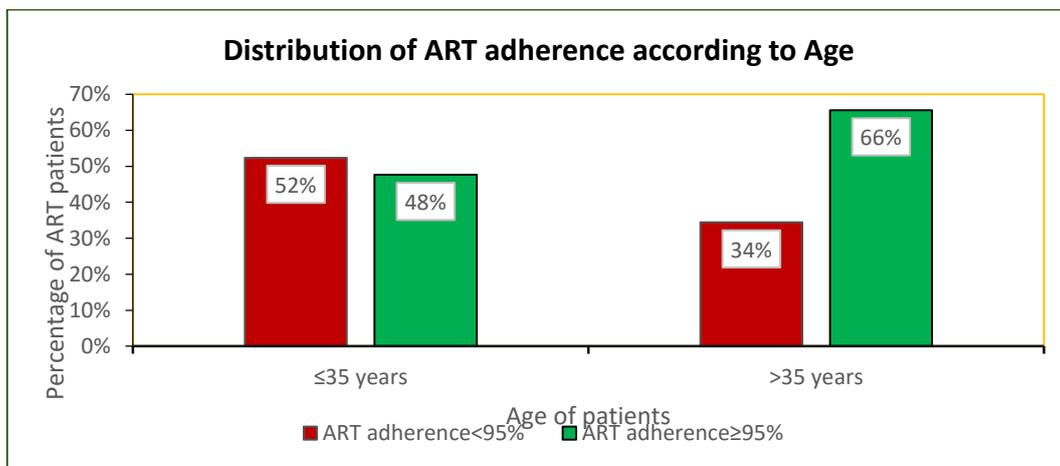


Figure 4: Distribution of ART adherence according to Age

In the figure 4 above, 47.9% (n=168) and 52.1% (n= 183) patients were youths (≤35 years) and adult (>35 years) respectively. The findings show that 66% of adults have better ART adherence (≥95%) compared to 80/168 (48%) of youths living with HIV at the same adherence level. On the other hand, 52% of youths and 34% of adults living with HIV have ART non adherence below 95%. The findings show that more youths are ART non adherence than adult patients.

3. Discussion

The findings from this research have indicated that 37.3 percent of HIV patient records as in table 1, had

detectable HIV viral load (greater than 879 copies per milliliters threshold) which was more prevalent in patients with good ART adherence. On the other hand, about 69% of HIV patients with poor ART adherence had undetectable HIV viral load results as shown in figure 1. These results were contrary to research findings in USA which showed high percentage of HIV patients with good ART adherence achieved HIV viral load suppression [20]. Authors in USA study identified significant associations between early retention in care and viral load suppression among patients initiating outpatient HIV medical care. They also suggested that cumulative viral load burden might significantly contributed to the evaluation of test and treat HIV prevention interventions, the success of which were predicated on both rapidly achieving, and also longitudinally sustaining viral load suppression [20]. The difference in results might be due to study sites as study conducted in USA, a developed country where HIV patients have better understanding of effects on poor ART adherence than in the current research conducted in developing country where resources were limited to sensitize HIV patients on drug adherence. The different in culture beliefs and perceptions also have impact on ART adherence across regions. Beside this, the cause of detection of HIV viral load among PLHIV who have good adherence could be due to treatment failure as this study did not track the previous ART adherence status of the patients. The ART clinic staffs in the current study also suggested that this trend mostly observed when ART patients are being changed from one ART regimen formulae to another for instance, in 2008 all adults ART patients were transferred from 3A (Stavudine/Lamivudine/Efavirenz) to 5A (Tenofovir/Lamivudine/Efavirenz). Therefore, that lead to change in drug metabolism even though patients might perfectly adhered to ART, HIV viral load could not be completely suppressed due to metabolic changes [1]. Eventually, HIV viral load might be suppressed after some time when the new ART formula effectively metabolised in the body. However, the current findings agreed with prospective cohort study in Sub-Saharan Africa on HIV patients who developed first line resistance and initiated on second line ART treatment indicated that almost half of patients with good ART adherence failed to achieve HIV viral load suppression [21]. Current and [21] studies conducted in sub-Saharan African countries where people share some economic challenges, social and culture aspects that might be detrimental to persistence detection of HIV viral load in spite of good adherence. Most patients in resource-limited areas might fear being accused by doctors if they are poor drug adherence as a result they could collect drugs timely and keep them without drinking hence HIV viral load could be detected in such patients. In the study site, most patients sent their guardians to collect ARV drugs timely but challenges surface whether the patients were consistently taking drugs or not at home. Eventually, the results showed a slight statistical significant relationship between ART adherence and the detection of viral load results with a $p=0.037$. For this reason, PLHIV should counselled on perfect ART adherence in order to curb the severe consequences of HIV drug resistance. This research in figure 2 showed that 67.7% of HIV patients on ARV drugs for a period of more than five years at Umoyo ART Clinic had undetectable viral load results. While on the other hand 58% of those on ART for less than 5years had undetectable HIV VL. The findings were in disagreement with researches conducted by [22-23] where more ART patients' suppressed viral load to undetectable threshold of 1000 VL RNA copies per ml within short period of ART initiation. ARV drugs were most effective to suppress HIV viral load to undetectable level within first 12 months of ART initiation when ART patients perfectly adhered to ART schedule and consistently take drugs. However, across-section study in Tanzania, Uganda and Zambia showed that factors significantly related to incomplete adherence included visiting a traditional healer, alcohol abuse, experiencing more HIV symptoms, having an ART regimen without nevirapine and greater levels of

internalized stigma [22]. A paediatrics ART prospective study in Zambia, indicated that poor adherence was significant on changing residence, school attendance, nondisclosure to children HIV status, and low household income were at risk for treatment failure while patients on Fixed Dose Combination ART associated with good adherence [23]. Therefore, this showed that the first days of ART initiation were very crucial pertaining to ART adherence where counselling play a vital role for better understanding of ART patients' perceptions towards ARV drugs. However, in longer period, PLHIV experiences a number of sickness episodes that aggravate them to start perfectly adhering to ART leading viral load undetectable results than those who have been on ART for short period. Hence, the different in study designs might also lead to different in findings due to observation of study subjects. In additionally, this study findings were also contrast to [24-26] which found that there was a decrease in number of HIV patients on ART for less than five years with detectable HIV viral load compared to 42% in this study as in figure 2. The previous studies conducted their researches on HIV patients suggested of treatment failure while the current study focused on all records of patients with collected Dried Blood Spots (DBS) in 2018. Although in a Ugandan study [25] there was no association between interval adherence and viral re-suppression, the data support consideration of resistance testing to help in guiding management of virologic failure in resource-limited settings. Some of the reasons for detection of HIV viral during early years of ART initiation could be development of ARV drug resistance strains or non-compliance which is more prominent in remote areas where patients are failing to disclose their HIV status to friends as well as close relatives. Another reason for increased number of patients with detectable HIV viral load might be, this study was conducted at a site close to boarder countries that is Zambia to the west and Tanzania to the east. Therefore, it was serving patients from these countries who came to collect ARV drugs whenever they were free and that perpetuated difficulties for ART clinic staffs to follow up these patients due to cross border restrictions leading to poor ART adherence. Despite differences in findings from other studies, the correlation between detecting of HIV viral load and duration on ART of HIV patients was not statistically significant with $p=0.073$. In the table 2 above, research findings demonstrated that 58 percent of all patients with good adherence had undetectable HIV viral load though, lower than the target of United Nation AIDS programme that 90% of HIV patients should be perfectly adhered to ART and have suppressed HIV viral load [4]. Furthermore, it was suggested that patients who were taking ARV drugs for longer period rarely develop side effects when they have good ART adherence. As a result, most PLHIV who had been on ART for more than five years, their results showed good adherence to ART while on the other hand, almost half of patients on ART for less than five years have poor ART adherence, as in figure 3. These results were similar to a cross-sectional self-administered anonymous questionnaire survey in two hospitals at Bangalore, India which indicated 60.7% of HIV patients had perfect ART adherence but showed higher percentage of poor ART compliance as compared to the current study in the same ART period [13]. The high percentage of patients with poor ART compliance in their study might be due to small number of HIV patients who had been on ART less than five years. In [13], regular attendance for follow up was statistically significant for 100% lifetime adherence and positive trends observed in larger families, those who had AIDS defining illness, simple regimes, and without side-effects. While education, income, distance travelled and length of time diagnosed or treated had no effect on adherence. The reduction in number of patients with good ART adherence in this study could be due to clinical side effects of ARV drugs have during the initiation on ART such as shortness of breathes, hepatitis, severe stomach pain and vomiting, severe skin with blisters in eye, mouth and genitals [1]. During the first years, patients might be on denial of

accepting their HIV status and fear being discriminated from their peer, hence leading to poor ART adherence. After longer period on ART the body used to ARV drugs and patients start accepting their HIV positive status, eventually, this enhance their perfect adherence to ART schedules. In Malawi, similar findings were shown in across sectional study questionnaire which demonstrated that 30% of ART patients had poor ART adherence in less than six years on ART treatment [27], although it was below the current research results (47%) as showed in figure 3, it was higher than recommended <10%. The previous study was conducted among Adolescent Living with HIV where violence in the home, alcohol use and poor treatment self-efficacy were associated with worse adherence. Authors in [27] assessed ART patients through self-reported ART adherence on missing ARV doses while this study used electronic medical records (EMR) to calculate missed days. These studies conducted in same country where people share limited health resources and have same perceptions towards ART. The introduction of “test and treat HIV policy” has made PLHIV to shun away from ART treatment as they perceive themselves as health, hence no need for taking ARV drugs consistently. However, the correlation between duration and ART adherence variables in the current study were not statistically significant as it was indicated with $p=0.074$. The results from table 3, in this study indicated that more men were ART non-adherence compared to their female counterpart. On the other hand, almost half of men in the study were good ART adherence while 58.7% of women were good adherence to ART. These findings were contrary to studies done in Asian countries where there were increased percentage of men with better ART adherence than women [28-29]. According to their culture and religious beliefs in Asia, women should be submissive and instructed to be at home preparing domestic chores, hence missing ART appointments. A cross-sectional survey in Thailand, ART patients experience having depressive symptoms remains a significant barrier to adherence, while access to care, HIV disclosure, and family communication play important positive roles [28]. Another cross-sectional mixed methods study in Nepal on pill count suggested that healthcare workers should emphasise on improving ART adherence supportive environment, accessible treatment, clear instructions about regimens, and address some of the practical and cultural issues around ART medicine whilst policy-makers should develop appropriate social policy to promote adherence among ART-prescribed patients [29]. However, in country where current study conducted citizens have rights to attend to health services, this encourage more women to have spirit of attending ART clinics as scheduled. It was suggested that men in the study site lacked spirit of self-disclosure and due to alcohol drinking addiction resulted into missing ART appointments. In sub-Sahara African countries, researches carried in South Africa and another at Mzuzu central hospital in Malawi [30-31], their findings agreed with the current research that more men showed poor ART adherence than women living with HIV. Although in both previous studies, patients were interviewed to determine ARV missing doses, the results were similar to the current study that used patient records. Common reasons for missing doses in South Africa rural health centres were being away from home, side effects, forgetfulness and being too busy [30]. In current and [31] studies, the suggested reasons for high noncompliance in men were polygamy and prostitution behaviour hence men were fearing to be blamed by partners for being responsible of acquiring HIV infection. Besides that, men culturally regarded themselves as stronger than women hence feel that they cannot fell sick quickly and decide not to adhere to ART. Therefore, poor ART adherence is a concern in HIV management hence need more patient oriented interventions like intensive counselling. Even though there were differences in findings between gender and ART adherence variables, the results were no statistically significant with $p=0.371$. In this study, the findings showed in figure 4, that 52.4% of young people living with HIV had poor ART

adherence compared to 34.4% of adults. These results were similar to a cohort study in France findings where more indigenous young individuals showed poor ART adherence due to adverse effects of ARV drugs which made them uncomfortable after taking drugs, hence opt to miss ART schedule appointments [32]. In the French study, it was suggested that to improve long-term patient outcomes for those at risk of adherence failure, patient-specific psychosocial interventions and regimen-based strategies with improved tolerance need to be implemented. In the current study site, the ART clinic was located at an isolated place outside the main hospital premise where patients accessing ART could easily be seen. Therefore, most youths fear being discriminated from the society if their fellow friends have noticed that they were receiving ARVs. Another reason, both youths and adults were receiving ART services together which made more young people living with HIV fear being accused of acquiring HIV while they were still young. Eventually, most youths around Chitipa urban area venture into not actively adhering to ART schedule appointments. In contrast to this study findings, research done in Thailand indicated that more youths were perfectly adherence to ART [33]. The Thai young patients were living together in camp making doctors closely observing them when they were taking ARVs, therefore, different scenario from the current study where all patients collect ARV drugs from the clinic and take them at their homes. In Thailand study, it was shown that high percentage of perfect ART adherence was independently associated with increased treatment self-efficacy and fewer symptoms of depression [33]. However there were differences in findings, the current study showed strong correlation between age of ART patients and ART adherence with $p=0.001$. Therefore, adherence monitoring would benefit from focal assessment of youth depression and perceived capacity to follow their antiretroviral regimen. Perfect adherence to ART is very crucial important mostly in developing countries where communities have a lot of challenges that limit them access to quality health services. A lot of HIV drug resistance strains will develop when ART adherence is not take into serious consideration through intensive adherence counselling of HIV patients on ART. As a result PLHIV health condition will deteriorate easily, hence seek second and third line ART regimens which are expensive, need ART specialists and also these drugs have many adverse effects. On the other hand, PLHIV with perfect ART adherence from time of ART initiation will live longer and contribute effectively and efficiently to socioeconomic activities for their daily living as well as national development. Therefore government through ministry of Health should implement ART policy, assurance and incentives on HIV patients initiated on ART to improve perfect ART adherence. Inadequate funding of this study, limit the researchers to collect data from Chitipa district hospital ART clinic only leaving peripheral health centres. Hence, the results generated cannot be generalized at district and national level. Furthermore, most HIV patients registered on ART did not submitted their DBS VL samples during the study period, between January and December, 2018. This lead to reduction in sample size. Another limitation was shortage of staffs at ART clinic as they were also engaged with other activities. During the data collection period, there was ART quarterly supervision hence ART clerks were busy attending to supervisors. On areas of further study we have suggested that future researchers should conduct a study on determining socio-demographic factors that influence poor ART adherence among HIV patients in Chitipa district. Other researchers should investigate the existence of HIV drug resistance on patient receiving first line ART regimens and have persistence detection of HIV viral load results. A prospective cohort study on effectiveness of Dolutegravir (DTG) in 13A regimen ARV drugs among HIV patients with detectable HIV viral load results in the previous first line ART regimens can also be carried out to check this new drug.

4. Conclusion

This research indicated that 37.3 percent of HIV patients on ART in the study at Chitipa district hospital for duration of more than six months have detectable HIV viral load mostly prevalent among patients with good ART adherence. The study has also shown that more patients who have been on ART for longer duration demonstrated good ART adherence and many have undetectable viral load results. Furthermore, more men have poor ART adherence compared to women living with HIV. Besides that, poor ART adherence is more experienced in youths than adults HIV patients. However, in table 4, the study has shown statistical significant on relationship between age and ART adherence, then ART adherence and HIV viral load level results only. In conclusion, intensive adherence counselling during ART initiation plays a vital role to suppress high HIV viral load to undetectable results. Poor adherence to ART is an important concern relating to HIV management in our setting and needs to be addressed with more patient-oriented interventions as such ministry of Health should advocate ART policy to ensure ART perfect adherence.

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