

## Assessment of drug discontinuation among adult patients who are taking antiretroviral treatment at Yeka Sub-City Woreda 9 and 10 health centers Addis Ababa, Ethiopia.

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### Abstract

**Background:** Antiretroviral therapy has led to a substantial reduction in HIV-associated morbidity and mortality. Efficacy of antiretroviral treatment in HIV/AIDS is showing inhibition of viral replication and reduction of viral load to a point where viral particles are undetectable in the blood of infected individuals. This has led to the realization that HIV/AIDS is a chronic illness.

**Objective:** The main objective of this study was to assess drug discontinuation patients who are taking antiretroviral treatment at yeka sub-city woreda 9 and 10 Addis Ababa Ethiopia.

**Methods:** A cross-sectional descriptive study was employed using quantitative approach to assess drug discontinuation among patients who are taking antiretroviral treatment among HIV/AIDS infected persons.

**Result:** At the end of one month study period 219 patients from the total 620 returned to the pharmacy to refill their medication were interviewed and the drug discontinuation to ARV medication was 27 (12.3)% of all prescribed doses.

**Conclusion and Recommendation:** Drug discontinuation to antiretroviral regimen is critical, patient must take 95 percent of the prescribed pills to achieve an 80% of the likelihood of HIV suppression below 50 copies per ml, regarding to the present study the drug discontinuation was 12.3%.

**Keywords:** HIV/AIDS, ART, Drug discontinuation HIV care.

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### Background of the Study

Antiretroviral therapy has led to a substantial reduction in HIV-associated morbidity and mortality. Efficacy of antiretroviral treatment in HIV/AIDS is showing inhibition of viral replication and reduction of viral load to a point where viral particles are undetectable in the blood of infected individuals. This has led to the realization that HIV/AIDS is a chronic illness. HIV, the virus that causes AIDS, “acquired immunodeficiency syndrome,” has become one of the world’s most serious health and development challenges [1]. The first cases were reported in 1981 and today, more than 30 years later, there are approximately 34 million people currently living with HIV and nearly 30 million people have died of AIDS-related causes since the beginning of the epidemic [2].

Globally, people living with HIV rise up from 29.4 million in 2010 to 36.0 million in 2014, due to continuing new infections, people living longer with HIV, and general population growth [3]. Latin America and the Caribbean about 1.8 million people are estimated to be living with HIV, in Latin America and the Caribbean combined, including 96,000 newly infected in 2014 [4]. A study conducted in Eastern Europe and Central Asia describe an estimated 1.4 million people are living with HIV in this region, including 140,000 newly infected in 2017 [5-7]. The epidemic is driven primarily by injecting drugs, although heterosexual transmission also plays an important role. Sub-

Saharan Africa, the hardest hit region, is home to more than two-thirds (69%) of people living with HIV but only about 12% of the world’s population. Most children with HIV live in this region (94%). In 9 countries, 10% or more of adults are estimated to be HIV-positive. South Africa has the highest number of people living with HIV in the world (5.6 million) [8].

### Statement of problem

The development and widespread use of antiretroviral therapy (ART) as the treatment of choice in HIV can improve significantly the health condition of HIV positive individuals who can have untimely death. The ART however, can change the perception of HIV/AIDS from a fatal incurable disease to a manageable chronic illness. The treatment causes improvement in immunologic status and reduction in the viral load which consequently reduces the incidence of hospitalization and mortality. However at yeka sub-city woreda 9 and 10 health center Addis Ababa Ethiopia due to, incomplete medication adherence is the most important factor in treatment failure and the development of resistance. Although lack of defaulter tracing on time most patient develop opportunistic infection and failure to poor quality of life [9-13]. It is widely agreed that in order to achieve an undetectable viral load and prevent the development of drug resistance, a person on ARV drugs needs

to take at least full dose of the prescribed doses on time, but patients on ART at Yeka Sub-City Woreda 9 and 10 health center Addis Ababa Ethiopia due to unknown case they discontinue their ART follow up service and suffer for serious disease and death. In generally the reason of these study were to sustain life that is lost in short period after exposure to the viral HIV/AIDS, due to ART discontinuation by re adhering to ART and to improve quality of life [14].

### **Significance of the study**

ART provides relief to HIV infection individuals by reducing the likelihood of opportunistic infections rather than curing the disease. The introduction of ART can greatly improve the life span and quality of life for PLWHIV. Better ART can lead to a reduction in disease progression. Good adherence is crucial for maximum clinical benefit to antiretroviral therapy. Therefore despite increasing access to antiretroviral drugs, the long-term success of treatment programs in resource limit settings requires establishing the optimum levels of adherence. Factors that make patients on ART failure to obtain good adherence would be determined and addressed.

Discontinuation to ART is a major predictor of the success of HIV/AIDS treatment. So in light of this the need of conducting this study was to determine the adherence rate among PLWHIV on combination therapy in yeka sub city woreda 9 and 10 health center Addis Ababa Ethiopia and identify the barriers to adherence [15]. So that, knowing the magnitude and reasons for the problem, appropriate intervention studies planned to improve the overall performance of ART in the health center and the consequences to the individual and the public would be minimized to some extent. This study could also increase the understanding of health professionals in their important role to achieve a better improvement on ART drugs.

## **Objectives**

### **General objective**

- To assess drug discontinuation among patients who are taking antiretroviral treatment at Yeka Sub-City worded 9 and 10 health center Addis Ababa Ethiopia.

### **Specific objectives**

- To determine the drug discontinuation level to antiretroviral therapy.
- To identify factors associated with drug discontinuation to antiretroviral therapy.

## **Methods and Materials**

### **Study area and period**

This study would conduct in yeka sub-city woreda 9 and 10 health center Addis Ababa Ethiopia. Both health centers is found in the capital city of Addis Ababa Ethiopia .The location of these health center is on the ways of North Ethiopia. The health center delivers service like Outpatient department, VCT,

ART, TB, ANC, Delivery, PNC, Family planning and other services. Woreda 9 health center has a total of 165 staff and woreda 10 health center also has 148 staffs. Woreda 9 health center ART services is giving services for 2435 and Woreda 10 health center ART services is giving services for 136 patients. Woreda 9 health center had 1278 active on ART patients and Woreda 10 health center 136 active on ART patients. Woreda 9 health center has 123 Pre-ART patients and Woreda 10 health center had 110 Pre-ART patients. Woreda 9 active on ART patients include 46 children and 5 peditrics. Woreda 9 for ART service only it has 10 staff. Woreda 10 health center has 7 staffs, which include 2 pharmacist, 2 focal ART Health officer, 2 nurses, 2 data Clarkes 4 Peer educators and 4 patient card transistors. This study was conducted from June 20 to July 7 2018.

**Study design:** Institutional based cross-sectional descriptive study design was employ.

### **Population**

**Source population:** All people living with HIV/AIDS in YEKA Sub-city health center.

- All adults who have hearing and speaking disability, and mentally disabled.
- ART patient whose age above 15 years.
- Patients who have on ART for less than 1 month.

All HIV-positive patients, who will attending the clinic, but had not start ART.

**Study population:** All Patients living with HIV/AIDS using ARV drugs at Yeka Sub-City health center during the study period.

### **Eligibility criteria**

**Inclusion criteria:** All adult spatients using ARV drugs at yeka sub-city health center Addis Ababa Ethiopia, and aged above 15 years and being on the drug at least for one month.

### **Exclusion criteria:**

- ART patient whose age below 15 years.
- Patients who have on ART for less than 1 month.
- All HIV-positive patients who attending the clinic, but had not start ART.

### **Sample size determination**

The required sample size were determined by taking stabilized adherence prevalence rate 74.2% from the study to be conducted in other part of Ethiopia, giving any particular out come to be with 5% marginal error and 95% confidence interval of certainty. Based on this assumption, the actual sample size for the study is calculated using one-sample simple population proportion formula as indicated below.

Where n=Sample size,

$Z_{\alpha/2}$ =critical value 1.96,

P=stabilized adherence prevalence rate 74.2%,

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D=precision (marginal error)=0.05,

Thus the sample size can be

$$n = \{(1.96)^2 \times 0.742 (1 - 0.742)\} / 0.05^2 = 294$$

Since the total of the source population is less than 10,000, (620) the sample size is estimated by corrected formula:

$$Nf = n / (1 + n/N)$$

Where Nf=final sample size, n=size of source population, N=study population

$$Nf = 294.00 / (1 + 294/620) = 199$$

Add 10% non-respondent rate

$$199 * 10\% = 19.9$$

$$199 + 19.9 = 218.9 \sim 219$$

### **Sampling procedures**

A cross-sectional descriptive study to select patients used.

- Variables
- Dependent

ART drugs discontinuation

### **Independent variables**

- Socio-demographic variables (Age, Sex, Ethnicity, Educational Level, Marital status, income)
- Substance Abuse (Alcohol and Chat etc.)
- Patient and physician Relation ship
- Access to medical care
- Medication adverse effect
- Emotional and practical support
- Convenience of regime
- Keeping clinical appointment
- Feeling comfortable taking medication in front of others

### **Operational definitions**

- Adherence- the association between the drug and the patient
- Drug discontinuation-when the patient stops his/her drug to take
- Poor- when the patient have small awareness about his/her medication
- Good- when the patients have enough awareness to his/her medication

### **Data collection procedure**

**Data collection instrument:** The study instrument was conducted by interviewing questionnaires, which is in English. However the English questionnaire was translated in to Amharic language. The interview was conducted by BSc nursing students who can speak Amharic.

**Data quality assurance:** To assure the quality of the data, and properly design data collection instruments are use and was

pretested. Every day the collected data was reviewed and we would check for completeness and relevance of response.

**Data process and Analysis:** We would collect the data and analyzed it manually. Descriptive analysis would use to describe the percentages and number distributions of the respondents by socio-demographic characteristics, the percentage of adherence to the area and the percentages and number distributions of factors related to ART adherence. The result was presented by using tables, graphs and texts on type of data.

### **Ethical consideration**

To conduct this study, the concerned body of Yeka sub-city wored 9 and 10 health center Addis Ababa Ethiopia would be informed about the objective of the study by formal letter which would be written from Rift Valley University, Abichu Campus of Health Sciences Addis Ababa Ethiopia. Also yeka sub city wored 9 and 10 health center was wrote formal letter to ART department for farther cooperation and support of us. Verbal informed consent was also obtained from each study subject (client) prior to the interviewing, after the purpose of the study was explained to respondent. Confidentiality of the information would assure and privacy of the respondent would be maintained. The instruments and procedure didn't cause any harm to the study subject rather than supporting them.

### **Results**

#### **Socio-demographics and socio-economic characteristics**

From PLWHA who were active and at least for one month on ART, according to the sample size 219 patients were interviewed from yeka sub city woreda 9 and 10 health center Addis Ababa Ethiopia. The response rates were 100%. From the respondents the largest age group belongs to 35-39 year (30.6%) with the median age of 37 and the next group is 25-29 years (24.6%) with the median age of 27. From respondents' males account 36.1% and females account 69.9%. The largest respondent had high school education and married. Majority of the respondents were 120 (55%) live in urban area. Regarding religion, the largest number 100 (46%) is orthodox followers.

#### **Regarding HIV, HAART-belief, benefit, discontinuation**

From 219 patient 184 (88%) were aware of HIV/AIDS when first contact with clinician and 24 (12%) were unaware of HIV/AIDS when first contact with clinician. Concerning time when they heard about the introduction of ART, 155 (74.5%), 29 (14%), 24 (11.5%) of them were heard about the introduction of ART before illness, during illness and after diagnosis respectively. The source of information about the introduction of ART were Health care provider, Radio, TV, Newspaper, family, peer/friends and anti AIDS clubs is 161 (73%), 170 (77.6%), 40 (18.2%), 24 (11%), 55 (25%), 70 (32%) and 114 (52%) of respondents respectively. After information about ART, the benefit of the regimen were known by 160 (73%) of

respondents and the rest 48 (22%) didn't had awareness about its benefit. 164 (76%) of them didn't think all HIV patients are eligible for ART, 28 (13%) of them think all HIV patients are eligible for ART and the rest 16 (7.3%) didn't know whether all HIV patients are eligible for ART or not. Only 40 (18.2%) had better understanding about adherence before being candidate for ART. Duration of respondents on ART, at yeka sub city woreda 9 and 10 health center Addis Ababa Ethiopia.

### ***Characteristics of drug regimens/treatment***

Clinical Benefit which they said they get from 219 respondents the largest number (94, 43%) of them said the benefit which they get after starting ART is improvement in their quality of life. From 219 respondents after starting ART, 102 (46.5%) of them faced adverse drug effect. From those who developed adverse drug effect, the largest group faces Gastro intestinal irritation and Nausea.

From out of 219 HIV infected persons who developed the above adverse effect, 43 (67.2%) immediately reported to the clinician. From out of 219 HIV infected persons 85.9% have got from their supporter benefits like financial support. From those who had history of active substance use 42 (82.3%) of respondents were using Alcohol, before knowing their status. Majority of the respondents (180, 82.5%) of them think to adhere more people needs family and other. Majority of the respondents 189 (86.3%) know the total pill they take for one month, 30 (13.7%) of respondents don't know the total pill they were taking for one month.

Regarding their follow up date, much of respondents (185, 84.5%) refill their drugs monthly, 34 (15.5%) of them were refilling every two month. 27 (12.3%) respondents had history of missed dose after starting ART, while the rest 192 (87.6%) respondents had no history of missed dose. The minimum missed dose was 1 pill and the maximum missed doses were 180 pills. Concerning adherence to ART which was measured by prescribed Pills taken and number of missed pills, 192 (87.6%) of the respondents took all prescribed doses of ARV medication. Good adherence was measured using self-report measurement like number of prescribed Pills taken and number of missed pills, good follow up of appointment dates.

### ***Clinician and patients relationship***

All the respondents said the relationship which they have with the clinician was good and they said they trust them. From 219 respondents, 193 (88%) of them said they follow their regular appointment strictly, while 26 (12%) of them said they sometime missed their appointment days.

### **Discussion**

As this study indicate females account the largest group, this is because their reproductive and physiologic vulnerability i.e. female's reproductive or sexual organs are liable for infection than that of males and also because of their low socio-economic status than male counterparts.

The positive ART adherence factors were health workers ensuring that ART doses fit into the daily routines of ART patients and explaining to patients how to take ART and what side effects to expect from ARVs [16].

In this study, HAART adherence was assessed through patients self-report method. Although self-reporting method is considered to overestimate medication adherence rate, some authors suggested that self-report has the potential to be one of the most accurate measures of behavioral adherence, because actual behavior can only be reported by the patients themselves. This method has frequently been employed in antiretroviral research due to its applicability, low cost, readiness to obtain the desired information, and to identify patients at risk for non-adherence [17].

In this study with regard to memory aids, 77.9% of them used some kind of memory aids like watch bell or mobile alarm, which is different from the similar study conducted in Ministry Of National Defense Force Hospitals, Addis Ababa which were only 48.2% of the total respondents were used memory aids [18]. This much high use of memory aids is result of good education given by health center ART staffs. The adherence of this study higher than the other may be because peer educator of the health centers are working effectively or it could be patient flow are not as high as central settings because less patient flow gives the prescriber and pharmacist enough time to council properly and effectively.

The majority of patients in this study did not take alcohol, and this protected against low adherence. A study conducted in Nigeria showed Patients on ART who take alcohol have high tendency to forget to take their drugs. Alcohol intake is associated with low adherence while non-intake of alcohol is associated with good adherence [19]. This study showed patient health professional relationship is significantly associated with adherence. Creating a good environment might help the patient to tell what he/she felt at that time and about his/her medication course to the care giver, but if health professionals do not show good relation, the patient might immediately think that his/her condition is getting worsen and feels as if they are hopeless.

### **Conclusion**

The drug discontinuation rate at yeka sub city woreda 9 and 10 health center were the most important factors associated with increased adherence are good patient and health professional relationship, memory aids and keeping clinical appointment were found to increase patient's adherence to medication, and factors associated with non-adherence were; forgetting, adverse effects, being too ill, field work, religious fasting, going to holy water area and lack of transport.

### **Recommendation**

Hence, the following specific recommendation has been made based on the finding of the study so as to give a clue about the possible direction to follow and focus to alleviate the existing problems of adherence.

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- For those who don't have a memory aid either NGO or our Government should focus on distributing some kind of memory aids like watch bell or mobile alarm or if there is other method of reminding patient to take their medication at the right time it should be searched.
- Ongoing care and support for PLWHA and on ART should be fostered in order to maintain the rate and elevate drug adherence to ART by Government and NGO.
- Since self report alone is not enough to measure adherence so other studies like cohort studies with CD4 count and pill count method should be conducted by Government and NGO.
- Most of the patient discontinue their ART medication when they were feel sense of well being and viral loads were undetectable, so that the patients should be well informed not to discontinue their ART throughout their life unless the health care provider inform to discontinue for different reason.
- The Government and NGO should stand behind of PLWHA for different support in addition to the health care provider.

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## Conflicts of Interest

The authors have no conflicts of interest to declare for this study.

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